Addison
Mining Services

Report No. 20230818_CTH

# MINERAL RESOURCE ESTIMATE, PRELIMINARY ECONOMIC ASSESSMENT AND NI 43-101 TECHNICAL REPORT FOR COTEC'S LAC JEANNINE FE TAILINGS PROJECT, QUÉBEC, CANADA

PREPARED FOR

COTEC

BY

ADDISON MINING SERVICES LTD.

JPL GEOSERVICES INC.

SOUTEX INC.

AMERSTON CONSULTING LTD.

AXE VALLEY MINING CONSULTANTS LTD.

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DANIEL ROY, P.ENG

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MATTHEW RANDALL, C.ENG

EFFECTIVE DATE: MARCH 19TH 2024

SIGNATURE DATE: AUGUST 5TH 2024

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| **Document Title** | Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Québec, Canada |
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| **Signature Date** | August 5th 2024 |
| **Qualified Person - Geology and Exploration**<br>John Langton<br>**"Original Signed and Sealed"** | John Langton – M.Sc., P.Geo<br>Director and Senior Consultant Geologist, JPL GeoServices Inc.<br>Items 4 to 10, 20, 23 and relevant subsections of items 1, 2, 3, 11, 12, and 25 to 29 |
| **Qualified Person - Resources Estimation**<br>Christian Beaulieu<br>**"Original Signed and Sealed"** | Christian Beaulieu – M.Sc, P.Geo<br>Vice President, Mineralis Consulting Services Inc., and Associate Consultant of Addison Mining Services Ltd<br>Item 14 and relevant subsections of items 1, 2, 3, 11, 12, and 25 to 29 |
| **Qualified Person - Mineral Processing**<br>Daniel Roy<br>**"Original Signed and Sealed"** | Daniel Roy – B.Sc, P.Eng<br>Items 13, 17 and relevant subsections of items 1, 2, and 25 to 29 |
| **Qualified Person - Cost Engineering**<br>Martin Errington<br>**"Original Signed and Sealed"** | Martin Errington – B.Sc, C.Eng<br>Items 19, 21, 22 relevant subsections of items 1, 2, 3 and 25 to 29 |
| **Qualified Person – Mining**<br>Matthew Randall<br>**"Original Signed and Sealed"** | Matthew Randall – PhD, C.Eng<br>Items 15, 16, 24 and relevant subsections of items 1, 2, 18, 21, 25 to 29 |

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## iv. Certificates of Qualified Persons

I, JOHN LANGTON, M.Sc., P.Geo. do hereby certify that:

1. I am the sole proprietor of JPL GeoServices Inc. at 133 Graveyard Hill, Stanley, New Brunswick, Canada, E6B 1T9.
2. This certificate applies to the report entitled "Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Québec, Canada" (the "Technical Report"), with the effective date of 19th March 2024, prepared for CoTec Holdings Corp.
3. I am a Qualified Person for the Technical Report; and take responsibility for Items 4 through 10, Item 20, Item 23, and relevant subsections of Items 1, 2, 3, 11, 12, 25, 26, 27, 28, 29.
4. I graduated from the University of New Brunswick (Canada) in 1985 with a B.Sc. in Geology and from Queen's University, Kingston (Canada) in 1993 with an M.Sc. in Geology, and I have practised my profession continuously since that time.
5. I am a Professional Geologist currently licensed by the Professional Geoscientists of Ontario (#3967), the Ordre des géologues du Québec (#1231); and the Association of Professional Engineers and Geoscientists of New Brunswick (#M8766).
6. I have worked as an exploration and field geologist since 1985. I have knowledge and experience regarding various mineral deposit types, including the procedures involved in exploring for iron deposits, and with the preparation of reports relating to them.
7. I completed a Qualified Persons inspection of the Property from September 20th to 28th, 2023.
8. I have read the CIM definitions, and definition of "qualified person" as 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 fulfil the requirements of being a "Qualified Person" for the purposes of NI 43-101.
9. I am independent of the issuer when applying all of the tests in section 1.5 of National Instrument 43-101.
10. I provided independent professional consulting services comprising the supervision of the 2023 exploration program on the Property and performing the studies as contemplated by this Technical Report.
11. I have read and am familiar with the CIM definitions, National Instrument 43-101 and Form 43-101F1. The Technical Report has been prepared in compliance with those instruments and form.
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this day August 5th 2024.

*John Langton*

*(Original signed and sealed)*

John Langton (M.Sc., P.Geo.) (OGQ #1231; APEGNB #8766; PGO #3967)
JPL GeoServices Inc. (JPLGeoServices@gmail.com)

I, CHRISTIAN BEAULIEU, M.Sc., P.Geo. do hereby certify that:

1. I am a proprietor of Mineralis Consulting Services Inc. at 255 Marthe, St-Philippe, Québec, Canada, J0L 2K0, and under contract by Addison Mining Services Ltd. as a Consulting Geologist.
2. This certificate applies to the report entitled "Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Québec, Canada" (the "Technical Report"), with the effective date of 19th March 2024, prepared for CoTec Holdings Corp.
3. I am a Qualified Person for the Technical Report; and take responsibility for Item 14, and relevant subsections of Items 1, 2, 3, 11, 12, 25, 26, 27, 28, 29.
4. I graduated from the Université du Québec à Montréal (Canada) with a B.Sc. in Geology in 2006, and from the Université du Québec à Montréal (Canada) with an M.Sc. in Earth Sciences - Mineral Geology in 2010, and I have practiced my profession continuously since that time.
5. I am a Professional Geologist currently licensed by l'Ordre des géologues du Québec (#1072), and the Professional Engineers and Geoscientists of Newfoundland & Labrador (#10653).
6. I have worked as a geologist for a total of 15 years since my graduation. I have practiced my profession continuously since 2009 and have extensive experience in geology and mineral resource estimation for various commodities in Canada, South America and West Africa.
7. I completed a Qualified Persons inspection of the Property on June 12, 2024.
8. I have read the CIM definitions, and definition of "Qualified Person" as 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 fulfil the requirements of being a "qualified person" for the purposes of NI 43-101.
9. I am independent of the issuer when applying all of the tests in section 1.5 of National Instrument 43-101.
10. I have no prior involvement with the Property that is the subject of the Technical Report. I provided external consulting services as an independent Qualified Person for the Mineral Resource Estimate of the Project.
11. I have read and am familiar with the CIM definitions, National Instrument 43-101 and Form 43-101F1. The Technical Report has been prepared in compliance with those instruments and form.
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this day August 5th 2024.

*Christian Beaulieu*

*(Original signed and sealed)*

Christian Beaulieu (M.Sc., P.Geo.) (OGQ #1072; PEGNL #10653)
Mineralis Consulting Services Inc. (c.beaulieu@mineralis-sc.com)

I, DANIEL ROY, B.Sc., P.Eng. do hereby certify that:

1. I am Senior Metallurgist for Soutex Inc. at 1990 rue Cyrille-Duquet, Local 204, Québec, Qc, G1N 4K8, Canada.
2. This certificate applies to the report entitled "Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Québec, Canada" (the "Technical Report"), with the effective date of 19th March 2024, prepared for CoTec Holdings Corp.
3. I am a Qualified Person for the Technical Report; and take responsibility for Items 13, Item 17 and relevant subsections of Items 1, 2, 25, 26, 27, 28, 29.
4. I graduated from the Université Laval, Québec (Canada) in 1991 with a B.Sc. in Metallurgical Engineering and completed graduate courses in mineral processing and in process control. I have practised my profession continuously since that time.
5. I am a Professional Engineer currently licensed by the Ordre des ingénieurs du Québec (#108219).
6. I have worked as a mineral processing engineer since 1995. I have knowledge and experience regarding various mineral deposit types, including the processing of iron deposits, and with the preparation of reports relating to them.
7. I have not completed a Qualified Persons inspection of the Property.
8. I have read the CIM definitions, and definition of "Qualified Person" as 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 fulfil the requirements of being a "qualified person" for the purposes of NI 43-101.
9. I am independent of the issuer when applying all the tests in section 1.5 of National Instrument 43-101.
10. I provided independent professional consulting services, performing the studies as contemplated by this Technical Report.
11. I have read and am familiar with the CIM definitions, National Instrument 43-101 and Form 43-101F1. The Technical Report has been prepared in compliance with those instruments and form.
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this day August 5th 2024.

*Daniel Roy*

*(Original signed and sealed)*

Daniel Roy (P.Eng.) (OIQ #108219)
Soutex Inc. (droy@soutex.ca)

I, MARTIN ERRINGTON, BSc., FIChemE., MIMMM., CEng. do hereby certify that:

1. I am Managing Director and Principal Process Engineer at Amerston Consulting Ltd., registered at 92 Westgate, Guisborough, Cleveland, TS14 6AP, United Kingdom.
2. This certificate applies to the report entitled "Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Quebec, Canada" (the "Technical Report"), with the effective date of 19th March 2024, prepared for CoTec Holdings Corp.
3. I am a Qualified Person for the Technical Report; and take responsibility for Items 19, 21 and 22 and relevant subsections of items 1, 2, 3, 25, 26, 27, 28 and 29.
4. I graduated from The University of Aston in Birmingham in 1980 with a B.Sc. Hons. in Chemical Engineering.
5. I am a Fellow of the Institute of Chemical Engineers (FIChemE) and I am qualified as a Chartered Engineer (CEng). I am a Member in good standing of the Institute of Materials, Minerals and Mining (#700583).
6. I have worked as a Process Engineer since 1980. I have knowledge and experience regarding various hydrometallurgical plant designs and have worked as a senior project management and cost estimator in various roles during my career.
7. I have not completed a Qualified Persons inspection of the Property.
8. I have read the CIM definitions, and definition of "qualified person" as set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education and past relevant work experience, I fulfil the requirements of being a "qualified person" for the purposes of NI 43-101.
9. I am independent of the issuer when applying all of the tests in section 1.5 of National Instrument 43-101.
10. My only prior involvement in the Property is in the provision of independent consulting services to CoTec in the leadup to the preparation of this study.
11. I provided independent professional consulting services comprising the metallurgical test work reviews, market studies, capital and operating costs and economic analysis on the Property as contemplated by this Technical Report.
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this day August 5th 2024.

*Martin Errington*

*(Original signed and sealed)*

Martin Errington (BSc. (Hons.) FIChemE., MIMMM, CEng) (IOM3 #700583)
Amerston Consulting Ltd (martin.errington@gmail.com)

I, MATTHEW RANDALL, PhD, BSc., CEng. do hereby certify that:

1. I am a Director and Principal Mining Engineer at Axe Valley Mining Consultants Ltd. at 138 High St., Swanage, Dorset BH19 2PA, United Kingdom.
2. This certificate applies to the report entitled "Mineral Resource Estimate, Preliminary Economic Assessment and NI 43-101 Technical Report for CoTec's Lac Jeannine Fe Tailings Project, Québec, Canada" (the "Technical Report"), with the effective date of 19th March 2024, prepared for CoTec Holdings Corp.
3. I am a Qualified Person for the Technical Report; and take responsibility for Items 15, 16 and 24 and relevant subsections of items 1, 2, 25, 26, 27, 28, 29.
4. I graduated from the Camborne School of Mines (UK) in 1978 with a B.Sc. in Mining and a PhD in Rock Mechanics in 1989.
5. I am a Professional Mining Engineer and Member in good standing of the Institute of Materials, Minerals and Mining (#458442) and I am qualified as a Chartered Mining Engineer (CEng).
6. I have worked as a Mining Engineer since 1978. I have knowledge and experience regarding various mineral deposit types, including the procedures involved in evaluation and development for iron deposits, and with the preparation of reports relating to them.
7. I have not completed a Qualified Persons inspection of the Property.
8. I have read the CIM definitions, and definition of "qualified person" as 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 fulfil the requirements of being a "qualified person" for the purposes of NI 43-101.
9. I am independent of the issuer when applying all of the tests in section 1.5 of National Instrument 43-101.
10. My only prior involvement in the Property is in the provision of independent consulting services to CoTec in the leadup to the preparation of this study.
11. I provided independent professional consulting services comprising the mine optimisation, design and scheduling on the Property and performing the studies as contemplated by this Technical Report.
12. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this day August 5th 2024.

*Matthew Randall*

*(Original signed and sealed)*

Matthew Randall (PhD, BSc, CEng) (IOM3 #458442)
Axe Valley Mining Consultants Ltd (matthew@axevalleymining.uk)

# 1 Summary

## 1.1 Introduction

Addison Mining Services Ltd ("AMS") were requested by John Singleton, Chief Operations Officer of CoTec Holdings Corp. (the "Company" or "CoTec") of Suite 428, 755 Burrard Street, Vancouver, British Columbia (BC) V6Z 1X6, to compile a NI 43-101 Technical Report for the Lac Jeannine Fe tailings Project in Québec, Canada (the "Technical Report") in support of the News Release titled "CoTec Announces Initial Mineral Resource and Positive Preliminary Economic Assessment for the Lac Jeannine Iron Tailings Project, Québec, Canada", issued on June 27th 2024 (CoTec, June 2024).

AMS were also commissioned to complete the Mineral Resource Estimate disclosed in the release and to compile findings of the Preliminary Economic Assessment ("PEA") undertaken by a multidisciplinary team appointed by CoTec and supported by JPL GeoServices Inc. and Soutex Inc. of Canada; Axe Valley Mining Consultants Ltd and Amerston Consulting Ltd of the United Kingdom.

This Technical Report has been authored by the following Independent Qualified Persons ("QP"), the "Authors".

- Mr. John Langton – M.Sc., P. Geo., Director and Principal Consultant, JPL GeoServices Inc. – QP Geology and Exploration
- Mr. Christian Beaulieu- M.Sc., P.Geo., Vice President, Mineralis Consulting Services Inc., and Associate Consultant of AMS – QP Mineral Resources, Sample Preparation, Analyses and Security, and Data Verification
- Mr. Daniel Roy – B.Sc., P.Eng., Senior Metallurgist, Soutex Inc. – QP Mineral Processing
- Dr Matthew Randall – PhD, C.Eng., Director and Principal Mining Engineer, Axe Valley Mining Consultants Ltd. – QP Mining
- Mr. Martin Errington – B.Sc., C.Eng., Managing Director and Principal Process Engineer, Amerston Consulting Ltd. – QP Cost Engineering and Financial Analysis

The Lac Jeannine Property represents an iron tailings Advanced Stage Project at the PEA level. The study is based on the results of the 2023 sonic-drilling campaign, desktop study, data review, data validation, deposit modelling, block model grade interpolation, Mineral Resource estimation, metallurgical testing, pit optimisation, conceptual mine planning and scheduling, cost estimation and preliminary economic analysis.

The Mineral Resources estimated, and the Preliminary Economic Assessment undertaken as part of this study have been prepared in accordance with *The CIM Definition Standards on Mineral Resources and Reserves (CIM Definition Standards)* and reported in accordance with the *National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101)*.

## 1.2 Property Description and Location

The Lac Jeannine Property comprises a contiguous block of 31 mineral claims (the "Property" or "Project") covering an aggregate of 1,649.34 hectares (ha) in the Caniapiscau regional county municipality (RCM) of the Côte-Nord Region of eastern Québec (QC), approximately 125 kilometres (km) southwest of the community of Fermont, and 290 km north of the City of Baie Comeau (Figure 1.1).

The approximate centre of the Property has Universal Transverse Mercator (UTM) coordinates 653520 East, 5247915 North, in Zone 17 of the 1983 North American Datum (NAD83) geodetic datum; equivalent to 47º 22' 00" North Latitude, 78º 58' 00" West Longitude, and lies within National Topographic System (NTS) map sheet 022N/16 (Lac Barbel).

The Property is readily accessible from the all-season provincially maintained Trans-Québec-Labrador Road, which is designated as Highway 389 in Québec, and passes through the three westernmost claims of the Property. A functioning uncontrolled airstrip is located 10 km NW of the Property. The airstrip once provided service for the town of Gagnon, which accommodated Lac Jeannine mine employees and families. The former town site is now abandoned and lies 4 km NW of the Property.

*Figure 1.1: Location of the Project.*

## 1.3 Mining Claims and Tenure

The claims comprising the Project area are registered 100% to Patricia Lafontaine (the "Vendor"). On August 9, 2023, CoTec announced that it had entered into an option agreement with the Vendor (the "Option Agreement") to acquire 100% of the right, title, and interest of the mining claims comprising the Project. Prior to exercising its option to acquire the Property, CoTec intends to complete, on behalf of the vendor, an initial resource estimate of the tailings material on the Property and extract a bulk sample of the tailings for metallurgical and recovery testing.

Pursuant to the Option Agreement, CoTec agreed to pay certain amounts to the Vendor, including US$250,000 on exercise of the option and US$1,000,000 at the start of commercial extraction of the tailings. CoTec may exercise its option to acquire the mining claims at any time until the earlier of (i) 15 business days after the issuance of all material permits required to construct and operate the Project and (ii) August 7, 2033. If the option is exercised, the Vendor will also receive a 1% net smelter royalty (NSR) from the sale of minerals from the historical tailings and a 1.5% NSR from the sale of other minerals from the Project. The 1% NSR and 1.5% NSR could each be reduced, at CoTec's option, by half through the payment of US$1,000,000 and US$2,000,000, respectively.

## 1.4 Geology and Mineralisation

The Property is within the southern domain (the Gagnon Terrane) of the Paleoproterozoic fold and thrust belt known as the Labrador Trough, which hosts extensive Lake Superior-type iron formations in the Sokoman Formation of the Ferriman Group, part of the Kaniapiskau Supergroup.

The Gagnon Terrane is characterised by open to tight, upright and overturned, shallowly plunging folds that refold early recumbent folds; at least three stages of deformation are readily evident from local fold interference patterns and structural interpretation. Tectonic repetition and thickening of the supracrustal rocks are common. The style and intensity of deformation are important factors economically, as it is the thickened, near-surface, synformal hinges of the Sokoman (iron) Formation rocks that are most favourable for open pit mining. Metamorphism of the Gagnon Terrane during the Grenville Orogeny recrystallized the primary iron formations, producing coarse-grained sugary quartz, magnetite, and specular hematite schists.

The Property encompasses the former Lac Jeannine open pit mine, from which approximately 260 million long tons of ore at 33% iron, in mainly specular hematite form, was extracted between 1961 and 1976. The Property also covers the "tailings storage facility," the area where the tailings from the on-site ore concentrator were deposited. In 1984 the Lac Jeannine mining and processing facilities were shut down and the mine site reclaimed.

CoTec's focus is on the tailings material, planned to be re-processed for residual iron, and rehabilitate the tailings facility.

## 1.5 Exploration and Drilling

Between the 20th and 28th of September 2023, CoTec, on behalf of the Vendor, completed 13 sonic drillholes totalling 522.0 m (ranging between 36.0 m and 40.5 m in depth). All drillholes were drilled vertically and spaced 200 m apart on a regular grid. The internal tube diameter was 102.87 mm (4.05 inches). All material was logged for colour and grain size characteristics, and the average drillhole recovery was estimated at 93%. Routine quality control samples were inserted into the sample stream, representing 39 out of 337 samples typically of length 1.5 m.

Drilling and sampling were directly supervised by Mr. John Langton, an Independent Qualified Person for Exploration, Drilling and Data Collection, in September of 2023.

All drillhole material, minus a 1.0 to 1.5 litre reference sample, was dispatched in clearly labelled bags with sample tickets to Corem, a Québec-based laboratory for analysis. Corem is internationally accredited by the Canadian Standards Council (SCC) through the Bureau de Normalization du Québec (BNQ) to ISO/IEC 17025:2017 Analytical Services Laboratory (LSA).

All material was recorded upon receipt and weighed before and after oven drying. Sub-sampling was done by rotary sample splitter before pulverisation and preparation of a tungsten fusion bead for XRF analysis of the following major oxides: $SiO_2$, $Al_2O_3$, $Fe_2O_3$, MgO, CaO, $Na_2O$, $K_2O$, $TiO_2$, MnO, $P_2O_5$, $Cr_2O_3$, $V_2O_5$, $ZrO_2$ and ZnO, and loss on ignition.

## 1.6 Metallurgical Testing

Historical testwork has been performed on the material from the Lac Jeannine tailings, as well as more recent testwork completed on behalf of CoTec since August 2023. The historical and recent testwork results made available are the following:

- Carried out by Process Research Associates Ltd. (PRA) commissioned by Quinto in 2007 to conduct a metallurgical assessment and prepare an Opportunity Study on the potential reprocessing of the Lac Jeannine tailings material.
- Carried out in 2015 and was analysed by COREM to determine its potential as a source for an economic iron oxide concentrate.
- Carried out by COREM in 2023 and 2024 to support the 2024 Preliminary Economic Assessment (PEA).

The 2023 and 2024 testwork programs, being the most complete in terms of sampling and depth of flowsheet development, serve as the basis for the design of the process plant. The Table 1.1 presents a summary of the historical testwork performed.

*Table 1.1: Historical testwork summary*

| Historical Study | Sample | Testwork |
|---|---|---|
| **2007 Process Research Associates Ltd.** | (1) Composite<br>(1) Variability | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution, Iron Assay by Size)<br>- Gravity Separation (Wilfley Table)<br>- Magnetic Separation (Davis Tube) |
| **2015 COREM** | (1) Composite | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution, Iron Assay by Size)<br>- Qualitative Mineralogical Analysis |
| **2023 COREM** | (24) Composite<br>(376) Variability | - Quantitative Mineralogical Analysis (Head Assay)<br>- Classification (Screening)<br>- Gravity Separation (Wilfley Table, Jig, Dense Media Separation) |
| **2024 COREM** | (1) Composite | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution)<br>- Classification (Hydraulic Classifier, Size by Size Analysis)<br>- Gravity Separation (Wilfley Table, Dense Media Separation) |

The following is a summary of the major findings from these test programs.

In 2023, COREM (2024) received material from 13 drill holes (23LJ-01@13) of the Lac Jeannine tailings site. Among these, four drill holes (#01, 04, 10, and 12) were used to gather four samples from each drill hole, forming composites for a total of six composites per drill hole (24 composites in total) for metallurgical testwork. Composite samples were generated from every 4 × 1.5 meters, with each composite consisting of 6 meters of material. These composite samples were considered equivalent in terms of material weight for subsequent analyses.

All the tailings material drill hole samples, including those used for the composites, represent a total of 335 variability samples, the total Fe average grade of the 335 samples is 6.8%, which corresponds closely to the average head grade of the composites of 7% total Fe.

The objective of the 2023 testwork project was to evaluate the recoverable liberated iron on these composites for the +850 µm, -212 µm, and the intermediate fraction size (-850 to +212 µm). The testwork methodology is presented in Figure 1.2.

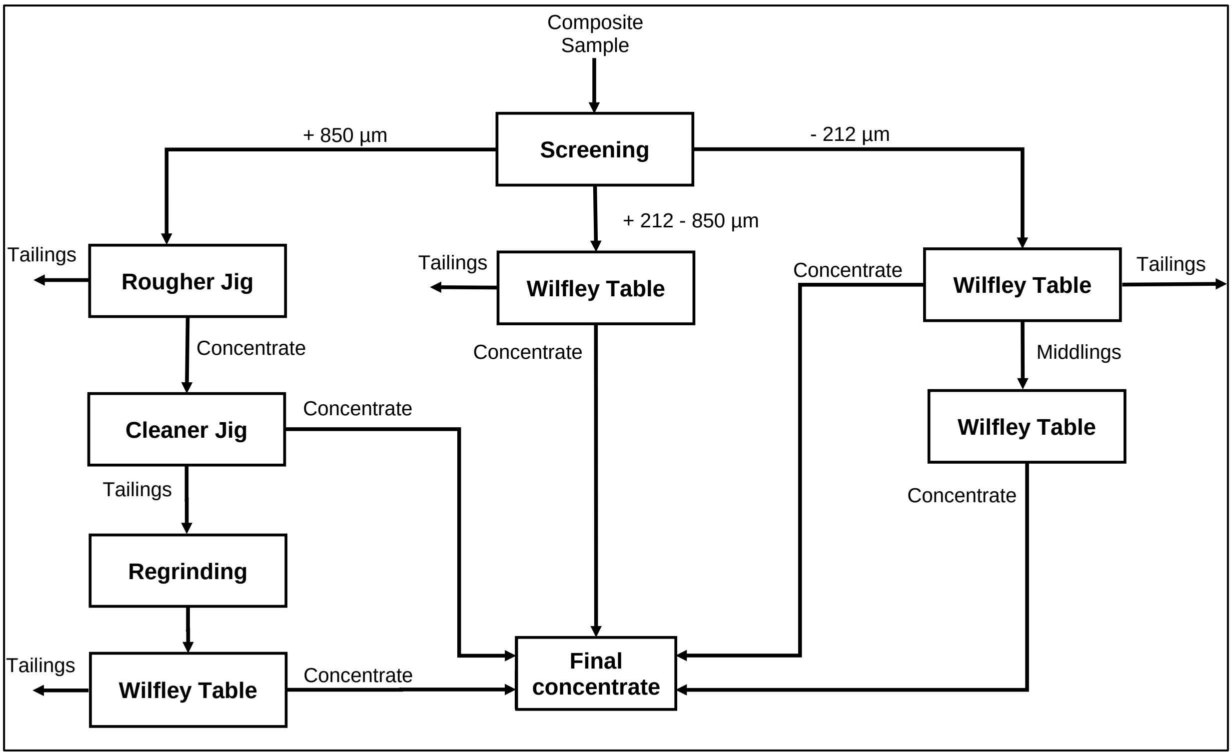

*Figure 1.2: Testwork methodology COREM 2023*

Table 1.2 presents the particle size distribution (PSD) and the iron assay by size of all composite samples.

*Table 1.2: Particle Size Distribution (PSD) and iron assay by size of composite samples*

| Size Fraction | Retained Size Fraction (%) | Assay per Size Fraction (% Fe) | Distribution per Size Fraction (% Fe) |
|---|---|---|---|
| **+ 850 µm** | 27.1 | 7.6 | 25.6 |
| **+ 212 µm** | 50.1 | 3.5 | 25.6 |
| **- 212 µm** | 22.8 | 13.8 | 48.9 |

Table 1.3 presents the results of the tests done on the 24 composite samples. The number of tests and the variability of the concentrate grade produced per step allowed for the generation of grade-recovery correlations for almost all the processing steps.

The tested flowsheet produced a 63.7% iron grade concentrate with a weight yield of 5.7% and an iron recovery of 53.2%. Based on the testwork results, higher concentrate grades could be achieved, especially in the -212 µm fraction, but this would negatively impact iron recovery. This was further investigated in subsequent testwork in 2024.

*Table 1.3: Test results summary on the 24 composite samples.*

| Stream | Weight recovery (%) | Grade Total Fe (%) | Grade $SiO_2$ (%) | Grade $Al_2O_3$ (%) | Rec. Total Fe (%) | Rec. $SiO_2$ (%) | Rec. $Al_2O_3$ (%) |
|---|---|---|---|---|---|---|---|
| **Screening** | | | | | | | |
| **Feed** | 100.0 | 7.0 | 86.1 | 1.0 | 100.0 | 100.0 | 100.0 |
| **+850 microns** | 27.1 | 7.6 | 86.1 | 0.5 | 25.6 | 26.6 | 14.9 |
| **+212-850 microns** | 50.1 | 3.5 | 91.8 | 0.8 | 25.6 | 53.1 | 39.0 |
| **-212 microns** | 22.8 | 14.4 | 73.5 | 1.9 | 48.9 | 20.2 | 46.1 |
| **-212 µm - Rougher Wilfley Table** | | | | | | | |
| **Feed** | 22.8 | 14.4 | 73.5 | 1.9 | 48.9 | 20.2 | 46.1 |
| **Concentrate to final concentrate** | 3.4 | 65.1 | 3.7 | 0.6 | 34.8 | 0.2 | 2.3 |
| **Middlings to scav. Wilfley table** | 2.8 | 14.8 | 70.2 | 1.0 | 6.4 | 2.4 | 3.0 |
| **Tails to final tails** | 16.6 | 3.0 | 88.5 | 2.3 | 7.7 | 17.7 | 40.8 |
| **-212 µm - Scavenger Wilfley Table** | | | | | | | |
| **Feed** | 2.8 | 14.8 | 70.2 | 1.0 | 6.4 | 2.4 | 3.0 |
| **Concentrate to final concentrate** | 0.2 | 55.9 | 11.9 | 1.3 | 1.5 | 0.0 | 0.2 |
| **Tails to final tails** | 2.6 | 12.1 | 74.0 | 1.0 | 4.9 | 2.3 | 2.8 |
| **+212 + 850 µm - Wilfley table** | | | | | | | |
| **Feed** | 50.1 | 3.5 | 91.8 | 0.8 | 25.6 | 53.1 | 39.0 |
| **Concentrate to final concentrate** | 0.7 | 59.2 | 13.8 | 0.5 | 6.2 | 0.1 | 0.4 |
| **Tails to final tails** | 49.4 | 2.7 | 92.9 | 0.8 | 19.4 | 53.0 | 38.7 |
| **+850 µm - Rougher Jig** | | | | | | | |
| **Feed** | 27.1 | 7.6 | 86.1 | 0.5 | 25.6 | 26.6 | 14.9 |
| **Concentrate to cleaner jig** | 3.2 | 29.0 | 56.6 | 0.5 | 11.4 | 2.1 | 1.5 |
| **Tails to final tails** | 23.9 | 4.8 | 90.0 | 0.5 | 14.1 | 24.6 | 13.4 |
| **+850 µm - Cleaner Jig** | | | | | | | |
| **Feed** | 3.2 | 29.0 | 56.6 | 0.5 | 11.4 | 2.1 | 1.5 |
| **Concentrate to final concentrate** | 1.0 | 64.0 | 7.3 | 0.4 | 7.7 | 0.1 | 0.4 |
| **Tails to Wilfley Table** | 2.2 | 13.6 | 78.2 | 0.5 | 3.7 | 2.0 | 1.1 |
| **+850 µm - Wilfley table after regrinding** | | | | | | | |
| **Feed** | 2.2 | 13.6 | 78.2 | 0.5 | 3.7 | 2.0 | 1.1 |
| **Concentrate to final concentrate** | 0.4 | 62.3 | 8.7 | 0.5 | 3.1 | 0.0 | 0.2 |
| **Tails to final tails** | 1.8 | 3.0 | 93.4 | 0.5 | 0.7 | 1.9 | 0.9 |
| | | | | | | | |
| **Final concentrate** | 5.7 | 63.7 | 6.2 | 0.6 | 53.2 | 0.4 | 3.5 |
| **Final tails** | 94.3 | 3.5 | 90.9 | 1.0 | 46.8 | 99.6 | 96.5 |

In 2024, COREM (CoTec, 2024) received 24 super bags from two trench samples collected with a backhoe (12 from each sample site) from the Lac Jeannine tailings site. One composite was formed from this material.

This testwork is a continuation of the COREM 2023 testwork. The objective of the additional testwork was to evaluate the impact of integrating a hydraulic classifier and to assess the recoverable liberated iron from the resulting overflow and underflow. The testwork methodology is presented in Figure 1.3, focusing on recovering iron from the -850 + 212 µm fraction of the underflow and the -212 µm fraction. No tests were conducted on the coarse fraction of the hydraulic classifier underflow.

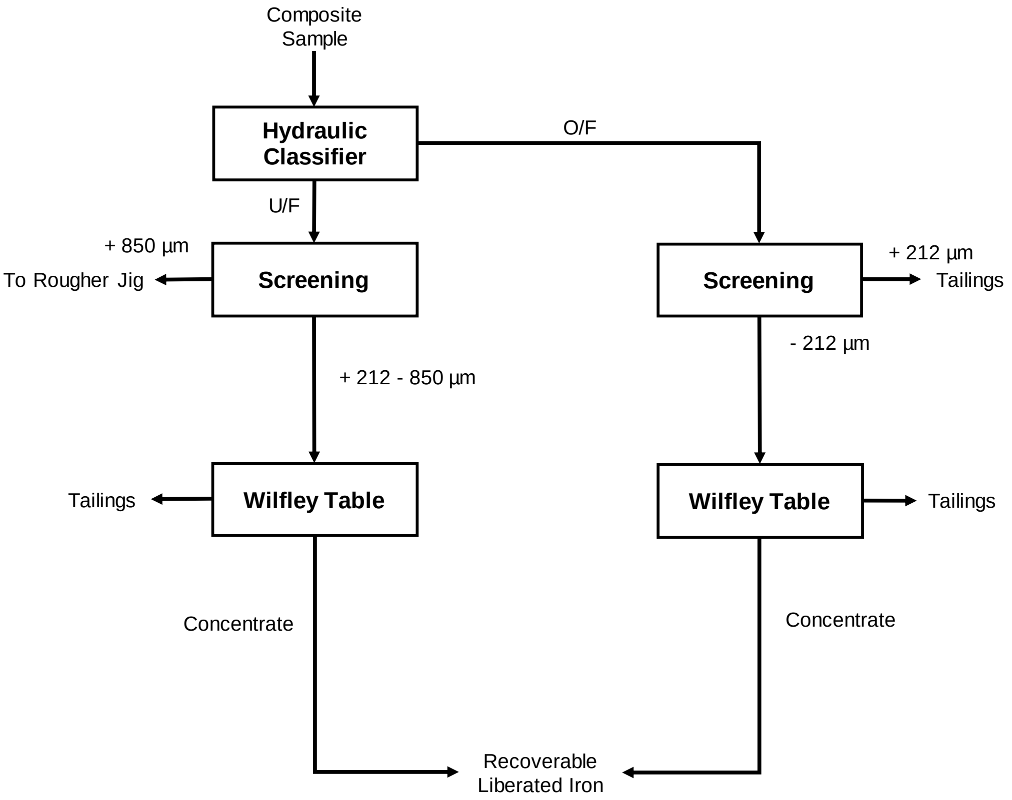

*Figure 1.3: Testwork methodology COREM 2024*

The composite head analysis shows a composition of 9.7% total Fe (13.9 % $Fe_2O_3$), 81.9% $SiO_2$ and 1.3% $Al_2O_3$. Table 1.4 shows the particle size distribution of the composite sample. This distribution is similar to the 24 composite samples distribution of the previous testwork at Corem.

*Table 1.4: Particle Size Distribution (PSD) of the composite sample*

| Size Fraction | Retained Size Fraction (%) |
|---|---|
| **+ 850 µm** | 28.2 |
| **+ 212 µm** | 48.6 |
| **- 212 µm** | 23.2 |

Table 1.5 presents the conditions tested for the hydraulic classifier. These parameters are not optimised and were based on sample availability and laboratory equipment limitations. The unit used for the test was 8 × 8 inches.

*Table 1.5: Hydraulic classifier test conditions*

| Test # | Feed solid feed rate (kg/h) | Feed % wt. Solids | Dilution water ($m^3/h$) | Bed density ($g/cm^3$) | Wash water ($m^3/h$) |
|---|---|---|---|---|---|
| **1** | 500 | 45% | 0.61 | 1.67 | 0.4 |
| **2** | 500 | 45% | 0.61 | 1.67 | 0.8 |
| **3** | 500 | 45% | 0.61 | 1.67 | 1.2 |
| **4** | 500 | 45% | 0.61 | 1.77 | 1.2 |

Tests #2 and #3 yielded good results and material from test #2 was used for the screening and Wilfley Table tests. Table 13.13 shows the testwork summary for the material from the hydraulic classifier (HC) test #2 with the integration of the HC in the flowsheet.

The coarse fraction (+212 µm) of the HC overflow (O/F) has a low iron grade (1.8%) and represents only 5% of the iron in the feed but 25.7% of the mass. This stream can be discarded without further treatment.

The fine fraction of the HC O/F can be processed by gravity to produce a concentrate with high iron content (66% to 69.5%).

The intermediate fraction of the HC U/F can be processed by gravity and produce a concentrate with high iron content (67.5%). Future testwork could validate if higher loading rates are possible while maintaining performance.

Microphotography shows that the size of the unliberated iron in some tail streams is large enough to support a regrinding phase to further iron recovery.

Based on the grade recovery curves developed during the testwork, a concentrate with grade over 66.8% total Fe may be achieved with a minimum recovery of 51.6%. Additional testwork is planned to verify this figure as well as developing a flowsheet that can achieve a concentrate grade of 67.5%.

*Table 1.6: Testwork results summary – Test #2*

| Stream | Weight Recovery (%) | Grade Total Fe (%) | Grade $SiO_2$ (%) | Grade $Al_2O_3$ (%) | Rec. Total Fe (%) | Rec. $SiO_2$ (%) | Rec. $Al_2O_3$ (%) |
|---|---|---|---|---|---|---|---|
| **Hydraulic Classifier (HC)** | | | | | | | |
| **Feed** | 100.0 | 9.7 | 81.9 | 1.3 | 100.0 | 100.0 | 100.0 |
| **Overflow** | 47.5 | 7.8 | 84.1 | 1.5 | 41.2 | 48.0 | 67.3 |
| **Underflow** | 52.5 | 10.0 | 82.5 | 0.7 | 58.8 | 52.0 | 32.7 |
| **HC O/F screen** | | | | | | | |
| **Feed** | 47.5 | 7.8 | 84.1 | 1.5 | 41.2 | 48.0 | 67.3 |
| **+ 212 µm** | 25.7 | 1.8 | 94.2 | 1.5 | 5.1 | 29.0 | 34.7 |
| **- 212 µm** | 21.7 | 15.4 | 72.6 | 1.7 | 36.2 | 18.9 | 32.6 |
| **HC O/F -212 µm fraction - Wilfley Table** | | | | | | | |
| **Feed** | 21.7 | 15.4 | 72.6 | 1.7 | 36.2 | 18.9 | 32.6 |
| **Concentrate #1** | 1.6 | 69.6 | 0.1 | 0.3 | 10.9 | 0.0 | 0.5 |
| **Concentrate #2** | 1.4 | 66.7 | 1.7 | 0.8 | 9.3 | 0.0 | 1.0 |
| **Middlings** | 3.2 | 29.7 | 48.2 | 1.6 | 9.4 | 1.9 | 5.1 |
| **Tails to final tails** | 15.6 | 4.1 | 88.3 | 1.7 | 6.5 | 17.0 | 26.0 |
| **HC U/F +212 µm -850 µm fraction - Wilfley Table** | | | | | | | |
| **Feed** | 29.3 | 7.3 | 86.8 | 0.6 | 25.8 | 30.0 | 17.6 |
| **Concentrate** | 0.9 | 67.5 | 2.6 | 0.4 | 6.9 | 0.0 | 0.4 |
| **Middlings** | 12.0 | 10.0 | 83.1 | 0.6 | 13.5 | 11.8 | 7.4 |
| **Tails to final tails** | 16.4 | 2.9 | 93.6 | 0.6 | 5.4 | 18.1 | 9.8 |
| | | | | | | | |
| **Final WT Concentrate** | 3.8 | 68.1 | 1.3 | 0.5 | 27.1 | 0.1 | 1.9 |
| **Final WT Middlings** | 15.2 | 14.1 | 75.8 | 0.8 | 23.0 | 13.7 | 12.5 |
| **Final WT Tails** | 57.7 | 2.8 | 92.4 | 1.3 | 17.0 | 64.2 | 70.4 |
| | | | | | | | |
| **Final Concentrate** | 3.8 | 68.1 | 1.3 | 0.5 | 27.1 | 0.1 | 1.9 |
| **Final Middlings (with DMS)** | 19.4 | 19.7 | 67.6 | 0.9 | 45.7 | 15.6 | 16.2 |
| **Final Tails (with DMS)** | 76.7 | 3.1 | 92.4 | 1.1 | 27.2 | 84.4 | 81.9 |

## 1.7 Mineral Resource Estimates

Mineral Resources, reported in accordance with National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, ("NI 43-101") and prepared under Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Definition Standards, have been estimated for the Project. Reasonable prospects of eventual economic extraction are supported by the PEA study also contemplated within this Technical Report.

The estimated initial Inferred Mineral Resource, reported on a global basis is approximately:

- 73 million tonnes at 6.7% total iron (Fe) for 4.9 million metric tonnes of contained total iron.

All resources are of the Inferred category. The effective date of the Mineral Resource Estimate is 19th March 2024. No estimates of Mineral Reserves have been completed. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. See Table 1.7 and the accompanying notes for further information and Figure 1.4 for an overview of the MRE.

*Table 1.7: Inferred Mineral Resource Estimate*

| Category | Million Tonnes | Total Fe grade % | Total Fe Million Tonnes Metal | $Fe_2O_3$% |
|---|---|---|---|---|
| **Inferred** | 73 | 6.7 | 4.9 | 9.6 |

Notes To Mineral Resource Estimate

1. Numbers are rounded to reflect that an estimate of tonnage and grade has been made, as such products may have discrepancies. Tonnages are expressed in the metric system and metal content as percentages.
2. The Independent Qualified Person for Mineral Resources, Mr. Christian Beaulieu, P.Geo., is a member of l'Ordre des géologues du Québec (#1072). Mr. Beaulieu has reviewed the available geological, assay and quality control data and has completed a site visit on the 12th of June 2024. Mr. Beaulieu has reviewed the MRE, associated models and methodology completed by Addison Mining Services Ltd. of the United Kingdom on behalf of CoTec and has completed an independent check estimate. Mr. Beaulieu has been an employee of Mineralis Consulting Services Inc. since the 1st of June 2023.
3. The effective date of the MRE is the 19th of March 2024.
4. These Mineral Resources are not Mineral Reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred Resources in this MRE are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as Indicated or Measured. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. Additional drilling and bulk density determination are, however, required to increase the confidence in the MRE; increased levels of information brought about by further drilling may serve to either increase or decrease the MRE. No Measured or Indicated Mineral Resources are reported.
5. The estimate was completed using Micromine 2024 software, a 50 m (east and west) by 3 m (vertical) regular block model was estimated using ordinary kriging of all elements analysed. The block model was restricted using a wireframe volume generated from airborne drone topographic survey of the current tailings surface and a legacy 1:50k contour map of the pre-tailings situation.

6. Drilling did not reach the bottom of the tailings in all but one drillhole and the resource was extrapolated ~10 m below the drillholes.
7. The cut-off grade used to report the initial MRE is 3% total Fe, based on the following parameters:
    - Iron price of US$ 124/t FOB for a 66.8% Fe concentrate
    - Transport costs all in of US$ 6.32/t conc.
    - Total ROM-based costs of US$ 2.76 /t
    - Metallurgical recoveries of 51.6%
    - Royalties of 0.5%.
8. Bulk Density is reasonably assumed as 1.6 g/cm$^3$ across all material which is typical for dry compact sand. The density assumption is supported by historical production mass balance records and dry sample weights received at the lab after allowance for removal of a reference sample at the drill site.
9. The Mineral Resource extends from surface to approximately 50 m below surface, it is laterally extensive over an area of approximately 1.1 km from east to west and north to south and is extrapolated approximately 250 m beyond the limit of the drilling.
10. CIM Definition Standards for Mineral Resources (2014) and Best Practices Guidelines outlined by CIM (2019) have been followed.
11. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. The Qualified Person for Resources is not aware of any such issues.

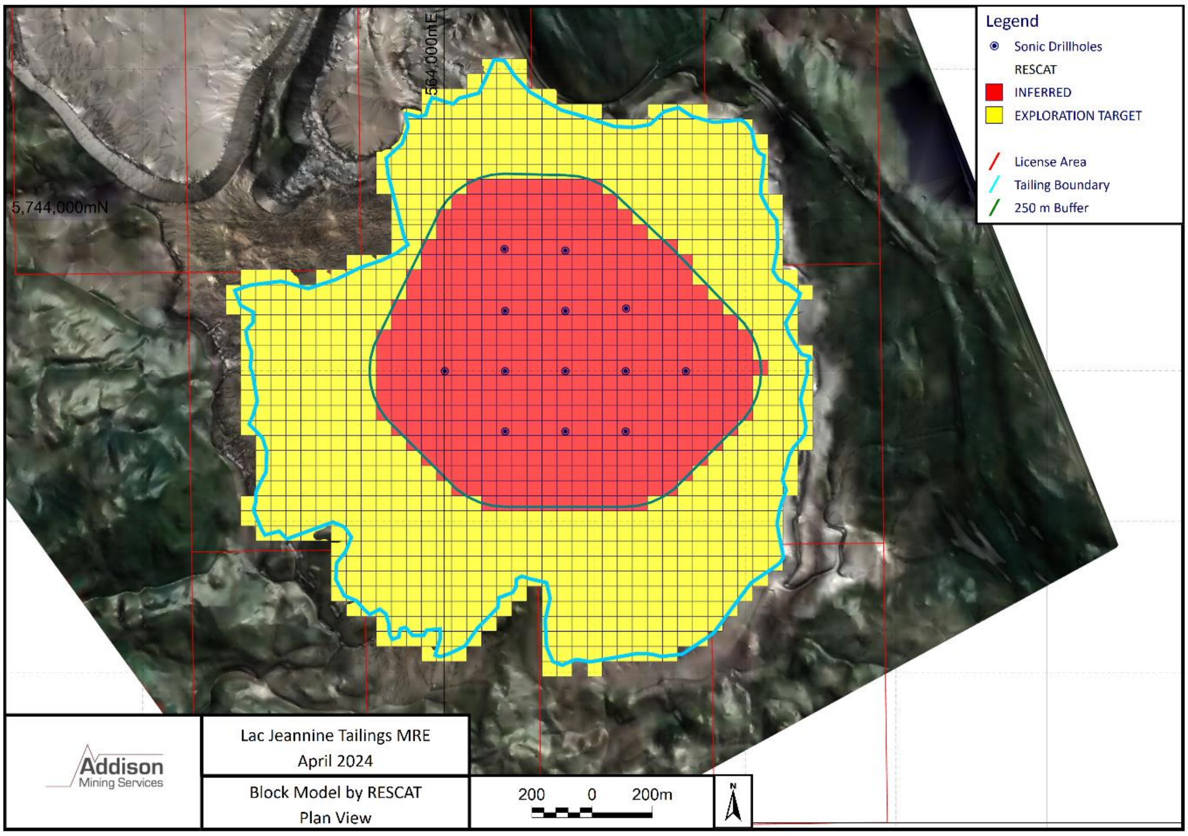

*Figure 1.4: Extents of Mineral Resource relative to drilling and Exploration Target*

## 1.8 Exploration Potential

Further tailings are present outside of the drilled area and it is reasonable to expect that with further appropriate exploration drilling the Mineral Resource tonnage could be increased. The surveyed area of the tailings has a total estimated tonnage of 145 million tonnes. This tonnage is likely estimated to relatively close limits (±5 million tonnes); however, iron grades are unknown with only limited sampling of the surface having been completed outside of the drill tested area; not all material may have a reasonable prospect of eventual economic extraction should grades be below economic cut-off, mixed with other waste material or contain significant quantities of deleterious elements.

A study completed by Soutex in 2007 postulated that 154 million tonnes of tailings grading 7.5% total Fe were deposited at the Lac Jeannine tailings pile. Soutex's estimate was based on historical production and mass balance records rather than systematic sampling. The results are similar to the findings of this study albeit at a slightly higher grade and supports the bulk density assumption of 1.6 $g/cm^3$.

Assuming 70% to 100% of the tailing's material surrounding the Inferred Resource has a similar total Fe grade to the MRE, an Exploration Target tonnage of 50 to 75 Mt is postulated, with global average total Fe grade of 6.0% to 7.5% (±1 SD of the Resource block model) considered a reasonable possibility.

This potential range of tonnes and grade is conceptual in nature. Insufficient exploration to define a Mineral Resource has been completed and it is uncertain if a calculated mineral resource estimate of the surrounding material will be made in the future.

## 1.9 Mining Methods

The mine plan for the reprocessing of the Lac Jeannine tailings is based on a mining rate of 7 Mtpa to produce on average 380 Ktpa of concentrate for approximately 10 years. The concentrate will be a premium grade product containing 66.8% total Fe with very low concentrations of deleterious elements such $P_2O_5$ and $Al_2O_3$.

The rejects from the reprocessing of the tailings will be pumped back into the old open pit so that the natural topography can, as much as possible, be returned to its natural state.

Whilst the Inferred Resource is currently restricted to approximately 73 Mt of material, it is recognized that there is additional material present outside of the drill tested Resource area. This material is classified as an Exploration Target and is presented as a range of grade and tonnes in this Technical Report. Any material which is classified as part of the Exploration Target is treated as waste and stockpiled for the purpose of the PEA and is not considered as payable material in financial analysis.

The mine design is relatively simple as the tailings pile forms a dome shape with an aerial extent of approximately 1.8 × 1.6 km and an estimated depth of up to 70 m at the central highest point. The Inferred Mineral Resource is currently restricted to an aerial extent of approximately 1.1 km x 1.2 km with a thickness of approximately 50 m to 60 m.

There is a natural gradation in grade from high to low in the tailings pile, which means that the Inferred Resource can be extracted level by level (top to bottom) to eventually form a saucer shaped depression with a depth of up to 60 m from the existing tailings high point and a resultant maximum pit depth of 45 m. Grade variation is observed in the Project schedule as a linear reduction from approximately 8.4% total Fe to 7.0% total Fe in the first 3.5 years of production, grade further reduces to approximately 6.0% total Fe by year 8 and subsequently 5.6% total Fe in the final year reflecting the vertical variation seen in the Resource block model.

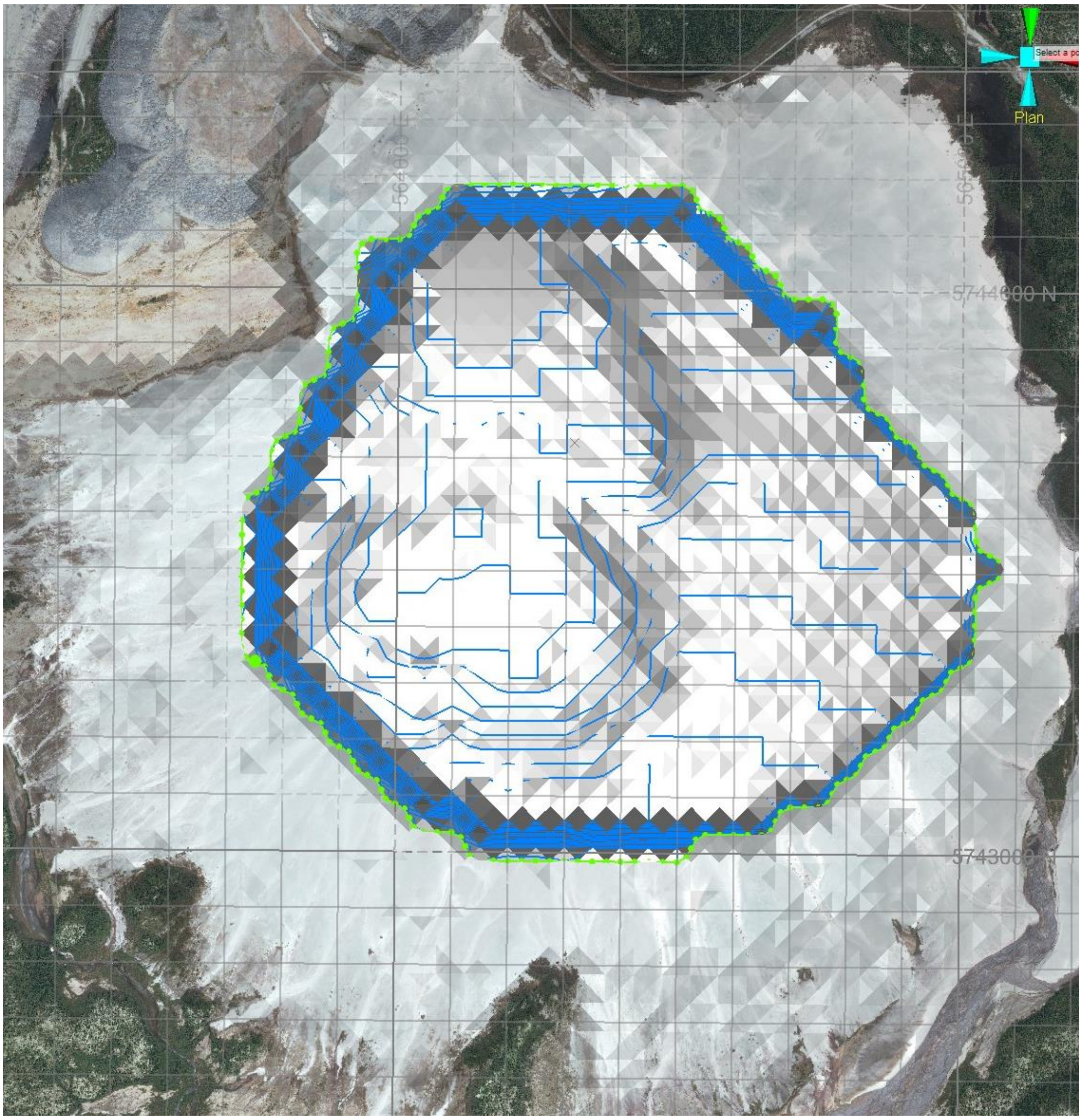

*Figure 1.5: Optimised pit limits based on Inferred Resources*

The maximum extents of the pit were determined through pit optimisation of the block model. Each block was allocated an economic value based on the revenue and costs and all blocks with a positive value are sent for processing. The economic cut-off grade used in optimization was 3.3% total Fe, which is less than the lowest grade blocks in the model.

Given that there is no surface waste covering (organic material or low grade) it is expected that 100% of the Resource within the optimised pit limit can be re-processed as the grade of the blocks are all above the economic cut-off grade. The average grade for the Inferred material was 6.7% total Fe.

The proposed mining method is based on mining of 3 m high benches with a hydraulic excavator that loads 40 tonne haul trucks. The Haul trucks will shuttle between a temporary stockpile (ROM pad) and material from the ROM pad is then fed into the plant feed bin by one or more FELs.

The average mining rate of 7 Mtpa equates to approximately 1,000 to 1,250 tph based on an equipment utilization of 62%. This can be achieved with one excavator and 3 or 4 trucks, provided the haul distance to the ROM pad is kept short and there are the minimum number of delays. Having two FELs at the ROM pad provides flexibility to deal with operational delays and unplanned breakdowns with the second FEL acting as a backup loader at the face.

It is expected that the mining operation can continue throughout the year and that material handling issues can be minimized by the rapid turnover of the faces (i.e., prevents permafrost forming). Although the material can become compacted, it is generally relatively dry and self-draining by virtue of the dome shape of the deposit. The digging conditions are expected to be easy, but the high silica content will mean that it is highly abrasive.

The operation is expected to be run with a Contract Miner who may also take on the contract for hauling the concentrate to the rail head. The mine Operating costs are expected to be in the order of 0.9 US$/t and the capital costs are expected to be limited to mobilization and demobilization costs.

The mining contractor will be responsible for the operation and servicing of all mine equipment and will bring in their own office and workshop facilities.

The owner will provide food and accommodation with a dedicated mine camp at Gagnon. This camp will be serviced by road and air, with the bulk of the employees flown in once a week to work on 12-hour two-shift basis 7 days a week for 365 days a year.

For the purpose of this PEA, the 1.2 Mt of material that is within the pit limit and is classified as Exploration Target is treated as waste and will be stockpiled near to the plant. If this material can be shown to be economic through sampling, then it will be processed along with the Inferred material. It was not however considered in Economic Analysis as payable material.

It is also pragmatic to consider the impact on the Project schedule and waste disposal requirements should the Exploration Target material be converted to a Mineral Resource. Were this to happen, the addition of the Exploration Target material is unlikely to significantly change the sequence of extraction from a top-down approach, however it will mean the pit can be taken to the extents of the deposit, and this eliminates the formation of the saucer shaped pit. This will have advantages in terms of slope stability and ease of rehabilitation of the whole of the tailings area. It may also offer potential for an extended period of higher-grade feed in the early years, on the assumption that the higher-grade material seen at the top of the Inferred Mineral Resource extends towards the edge of the tailings. It is envisaged that waste material from the processing facility will be disposed of in the old Lac Jeannine open pit. It is estimated that there is adequate space present to accommodate processing waste material from both the Mineral Resource and Exploration Target material.

## 1.10 Recovery Methods

The proposed concentrator plant is based on both historical and 2023/2024 test work and knowledge acquired in the processing of iron ore deposits in Eastern Canada.

The Project is designed to process Lac Jeannine tailings material grading at approximately 7.0% total Fe at a nominal feed rate of 875 tph. The process flowsheet enables the production of a 66.8% total Fe concentrate for an iron recovery of 51.6%, allowing a production of circa 380ktpa of concentrate.

The flowsheet includes proven technologies for processing iron ore such as spirals, hydraulic classifier, jigs, ball mill and high-rate thickener. Figure 1.6 outlines the proposed process.

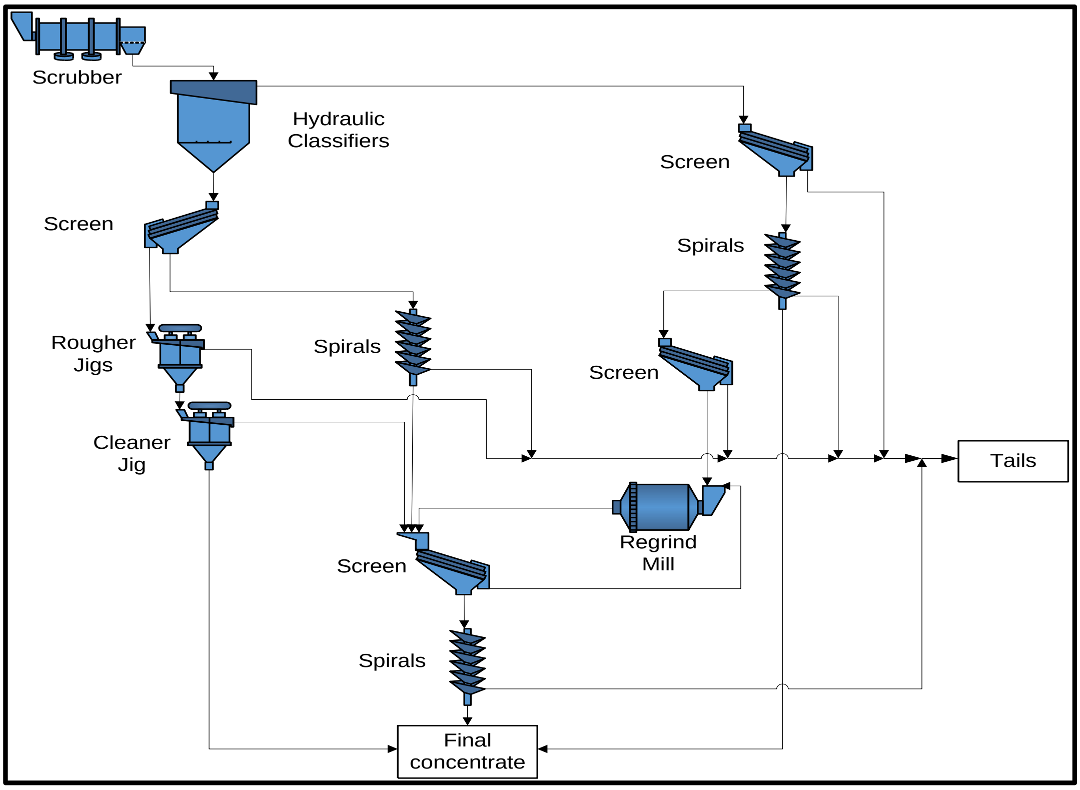

*Figure 1.6: Simplified process flow diagram.*

## 1.11 Project Infrastructure

The Project is expected to benefit from access to renewable hydroelectric power, water, roads, airfield, existing rail and port facilities in a proven regional labor market in a mining friendly jurisdiction with a long history of supporting iron ore operations. The Project is located directly to the west of ArcelorMittal's existing and operational Mont-Wright rail loop infrastructure, with access to end markets via port and rail. Rail access for the Lac Jeannine Project is expected to consist of two segments. The first stage uses an existing road following the previous Lac Jeannie rail spur, which will transport the concentrate from the Project site to the Cartier Railway/Lac Jeannine rail junction. The second stage would utilise the existing Cartier railway operated by ArcelorMittal, connecting Mont-Wright Mine to the seaport at Port-Cartier (Québec). Once unloaded, the high purity Fe concentrate will be stockpiled and then loaded onto vessels to supply global customers. The Project requires a negotiated agreement in due course with ArcelorMittal for the use of the Cartier railway for transportation.

Site infrastructure suitable for a 7,000,000 tpa ROM operation is planned and costed in the budget. Existing roads will be upgraded from the existing gravel road junction to the site from the northwest. Additional roads around the site to cater for access to general areas and new haul roads dedicated to the movement of the ROM to the plant will also be established. Power will be taken from the existing powerline along the site access road to the plant switchyard from where it will be distributed within the plant and process buildings as required. ROM material will be transported to the plant by conveyor.

The plant site infrastructure will include a main office, a small workshop and store. The main control room will be located above the plant. A small laboratory for assay/metal accounting and QA/QC will be provided, along with a weighbridge for concentrate accounting. Structures will be steel framed with brick walling, sheeted insulated roofs and standard fittings.

Fresh water will be sourced from groundwater and pumped to the freshwater tank for use. Potable water will be treated by reverse osmosis prior to distribution. Fresh water will also be pumped to the process water tank for process water make-up. Additional water management will be put in place for brown and non-contact surface water.

Tailings will be pumped to the old Lac Jeannine open pit. A stockpile will be located near to the ROM pad to accommodate Exploration Target material, which is currently treated as waste, but may eventually be processed. The stockpile will be located near the plant to accommodate short term feed material and concentrate product.

## 1.12 Market Studies and Contracts

The long-term forecast price was obtained from Fastmarkets who anticipate an average 65% concentrate CFR China price of US$121.28/dmt from 2027 onwards (Lac Jeannine is anticipated to enter production in 2027).

Using a historical basis of the same 65% Fe index, the 3-year trailing price, as of December 31, 2023, averages US$153.44/dmt, while the 5-year trailing price averages US$136.92/dmt.

Based on the price forecast supplied by Fastmarkets and the historic trailing averages, a price of US$121/dmt was deemed a good representation of the future 65% Fe price.

The future demand for concentrates is expected to remain strong, driven by their use in both blast furnace (BF) and direct reduction (DR) processes, contributing to price increases over the forecast period.

The premium for high-grade iron ore is primarily driven by steel mill profit margins and environmental policies. Profitable mills prefer high-grade ores to increase productivity and reduce slag, while environmental regulations push for higher-grade ores to lower emissions. Supply levels also impact the high-grade premium, and although we expect growth in direct shipping ores from regions like Northern Brazil and Simandou, we do not anticipate significant volumes of concentrate coming online based on current investment levels. This, combined with the anticipated rise in pellet consumption due to more stringent environmental regulations, will bolster the premium in the long term.

Due to the scarcity of high grade, low impurity concentrates feeds available on the market, industry practice is to apply a premium to the 65% Fe Index price. The accepted technique for assessing product premiums is applying the VIU methodology. This approach entails determining a premium or discount by considering variations in Fe, $SiO_2$, and $Al_2O_3$ in comparison to the 65% Fe index. Fastmarkets were commissioned to carry out a VIU assessment based on the differences in concentrate chemistry between the Lac Jeannine concentrate and the base index.

Applying an average between Fastmarkets projected VIU premium and other industry standard methods for determining VIU premiums, an average premium of US$23.8/dmt over and above the 65% index was used in the economic model. The methodology to determine the VIU is not specifically tailored to the Lac Jeannine concentrate but is purely theoretical and chemistry based. Consequently, it may overlook factors such as a green premium which may apply to the Lac Jeannine concentrate compared to other hard rock mines which require extensive blasting, haulage and crushing.

## 1.13 Environmental Studies, Permitting and Community Impact

There have been no environmental studies carried out to date by CoTec, and as at the effective date of the Technical Report there are no known environmental issues that would materially impact CoTec's ability to extract the estimated mineral resources.

In Québec, the issuance of permits for a project of this nature falls primarily under the responsibility of the Ministry of the Environment, the Fight Against Climate Change, Wildlife and Parks ("MELCCFP") and the Ministry of Natural Resources and Forests ("MRNF").

The Project is assumed to have a metal ore extraction and treatment capacity of 1,400 tpd, which is under the threshold of the maximum daily metal ore extraction and treatment capacity of 2,000 tpd that currently triggers an environmental impact assessment and review procedure under Section 31.1 of the *Environment Quality Act* ("EQA"). Therefore, a ministerial authorization under section 22 EQA is expected to be required from the MELCCFP for the Project rather than a decree from the Government of Québec under section 31.5 EQA.

A mining lease and authorizations for the installation and operation of a mine tailings treatment plant, the operation of a mine tailings treatment plant, and the installation of a wastewater treatment plant will also be required. An authorization for the reprocessing of tailings will also be required. Further discussions with the relevant authorities will take place in due course to ascertain the specific permitting requirements for the Project.

The Project is under the ore production or input capacity of 5,000 tpd threshold that triggers the federal impact assessment process for a Project that involves the construction, operation, decommissioning, and abandonment of a new metal mine or metal mill.

According to provincial regulation, closure plans must be revised on a five-year basis. A closure plan for the Project will be developed by CoTec and submitted to the MELCCFP in a timely manner.

The closure cost is estimated to be in the order of 5 per cent of initial capex. As per applicable regulation, a financial guarantee will have to be submitted to the MRNF in connection with the closure requirements.

The current tailings pile is considered an orphan site, and the provincial government carries the environmental liability. The tailings are characterized as being neutral and non-acid generating and there is a low-risk potential for contamination.

The proposed tailings management plan considers the tailings materials will be sent for processing and returned to the abandoned Lac Jeannine open pit.

The Project is a frontier development and expected to create about circa 100 direct employment opportunities. The Company has concluded an Option Agreement which gives it a right to acquire the mining claims with respect to the Project property. The Project will include the upgrading on more than 12 km of an existing tertiary road to access a railway junction. The Company intends to have discussions in due course with local and First Nation communities in the Project area.

## 1.14 Capital and Operating Costs

Initial capital expenditure (CAPEX) costs for the Lac Jeannine Project are based on a ROM of 7 Mtpa with a nominal production capacity of circa. 400 ktpa of 66.8% total Fe concentrate. CAPEX costs are estimated at US$65M, including EPCM costs, future study costs and a 15% contingency.

Sustaining capital over the Project life is estimated at 1.5% of operating costs (excluding G&A) and closure cost is estimated at 5% of total capex, resulting in total life of mine CAPEX cost of US$71M (Table 1.8).

*Table 1.8: Capital costs*

| Description | US$ (M) |
|---|---|
| **Processing Plant** | 44.2 |
| **Infrastructure** | 4.5 |
| **Extraction** | N/A as will be using contract mining |
| **Indirect Costs (DE Study and EPCM)** | 8.3 |
| **Estimated Sub-Total Cost** | 57 |
| **Contingency 15%** | 8 |
| **Sustaining** | 3 |
| **Closure cost** | 3 |
| **Estimated Total Cost** | 71 |

The operating costs (OPEX) presented in Table 1.9 include manpower to run the overall operations, contractor rates for extraction and sub-contracted maintenance teams, power and utilities, materials handling, transport of the concentrate from the Project site to the port and G&A.

*Table 1.9: Operating costs*

| Area | US$/t ROM | US$/dmt concentrate |
|---|---|---|
| **Tailings extraction (incl. tailings disposal)** | 0.90 | 17.56 |
| **Processing** | 1.56 | 29.93 |
| **Transport to port (FOB)** | 0.32 | 6.32 |
| **G&A** | 0.30 | 5.76 |
| **Royalty (0.5% of revenue)** | 0.035 | 0.69 |
| **Total OPEX** | 3.12 | 60.26 |

## 1.15 Economic Analysis

The Preliminary Economic Analysis (PEA) presented in this Technical Report is preliminary in nature and is based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. As such there may be no certainty that the PEA will be realized. The economic analysis is based on the preliminary mine design and mine plan for a run of mine capacity of circa 7.0 Mtpa.

All costs and pricing are in Q2 2024 and are represented in Table 1.10 below.

*Table 1.10: Inputs used for the Project.*

| **Metal Prices** | | |
|---|---|---|
| **Base case (65% Fe concentrate CFR China)** | US$$/dmt Fe conc. | 121 |
| **Grade premium (66.8% Fe)** | US$$/dmt Fe conc. | 23.8 |
| **Exchange Rate** | | |
| **US$-CAD (LOM)** | | 1.35 |
| **Discount Rate** | | |
| **Discount Rate** | % | 7 |
| **Freight** | | |
| **Transport to port (FOB port)** | US$/dmt conc. | 6.32 |
| **Ocean Freight to China (CFR)** | US$/wmt conc. | 21 |
| **Royalties** | | |
| **Royalty Rate** | | 0.5% |
| **Taxes** | | |
| **Effective combined tax over LOM** | % | 34.3 |
| | | |
| **Costs** | | |
| **CAPEX** | | |
| **Year 1** | M US$ | 62.6 |
| **Closure Costs (5% of Capital)** | M US$ | 3.3 |
| **Contingency** | M US$ | 7.6 |
| **On site Mining Costs** | | |
| **ROM Mining Cost** | US$/t | 0.9 |
| **ROM Processing Cost** | | |
| **Concentrating Cost** | US$/dmt conc. | 29.93 |
| **G&A Costs** | | |
| **General & Administrative** | US$/t mill feed | 0.3 |

Table 1.11 below highlights the results from the economic analysis. All currency figures are in US$.

*Table 1.11: Estimated financial outputs and metrics for the 7Mtpa business case analysed.*

| Parameter | Unit | LOM Total/Avg. |
|---|---|---|
| **General** | | |
| **65% Fe Iron ore fines price** | US$/dmt | 121 |
| **Premium Price 66.8% Fe** | US$/dmt | 23.8 |
| **Mine life** | Years | 11 |
| **Production Summary** | | |
| **Payable 66.8% concentrate** | dmkt | 3,785 |
| **Operating Costs** | | |
| **Total On Site Operating Costs inc. G&A** | US$/dmt conc | 53.2 |
| **Royalties** | US$/dmt conc | 0.69 |
| **Total Cash Costs (excluding rail transport)** | US$/dmt conc | 53.89 |
| **Rail Transport (FOB Port)** | US$/dmt conc | 6.32 |
| **Total Cash Costs (including rail transport)** | US$/dmt conc | 60.21 |
| **Sustaining Capital (LOM)** | US$/dmt conc | 0.8 |
| **All-in Sustaining Costs (AISC) incl. transport**[1] | US$/dmt conc | 61.01 |
| **Ocean Freight to China (CFR)** | US$ /wmt conc | 21 |
| **Capital Costs** | | |
| **Initial Capital (incl. study costs)** | M US$ | 64.6 |
| **Sustaining Capital** | M US$ | 3.1 |
| **Closure Costs** | M US$ | 3.3 |
| **Financials** | | |
| **Pre -Tax NPV$_{7\%}$** | M US$ | 93.6 |
| **Pre - Tax IRR** | % | 38 |
| **Pre -Tax payback** | Years | 2.4 |
| **Post -Tax NPV$_{7\%}$** | M US$ | 59.5 |
| **Post - Tax IRR** | % | 30 |
| **Post -Tax payback** | Years | 2.5 |
| **Profitability Index (PI)** | | 0.92 |

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[1] Closure cost is excluded from presented AISC. It is included in the financial model.

To test the robustness of the Project, a sensitivity analysis was performed whereby initial infrastructure capital cost, annual operating costs and product selling price were individually varied between +/-15% to determine the impact on Project IRR and NPV at a 7.0 % discount rate.

The results are presented in Table 1.12, as well as graphically in Figure 1.7 and Figure 1.8. The Project financials are most sensitive to the commodity selling price, followed by operating costs and finally initial capital expenditures.

*Table 1.12: Sensitivity analysis (US$,000)*

| | | **Base Case** | **CAPEX** | | **Selling price (FOB)** | | **LOM OPEX** | |
|---|---|---|---|---|---|---|---|---|
| | | | **15%** | **-15%** | **15%** | **-15%** | **15%** | **-15%** |
| **IRR** | | 30.3% | 25.8% | 35.9% | 38.8% | 20.3% | 25.9% | 34.3% |
| **NPV** | | | | | | | | |
| **0%** | | $112,100 | $105,974 | $117,891 | $155,051 | $67,795 | $90,600 | $133,270 |
| **5%** | | $71,415 | $65,511 | $77,063 | $102,257 | $39,487 | $ 56,146 | $86,434 |
| **7%** | | $59,485 | $53,652 | $65,083 | $86,773 | $31,192 | $46,030 | $72,712 |
| **10%** | | $44,910 | $39,176 | $50,433 | $67,844 | $21,076 | $33,666 | $55,953 |

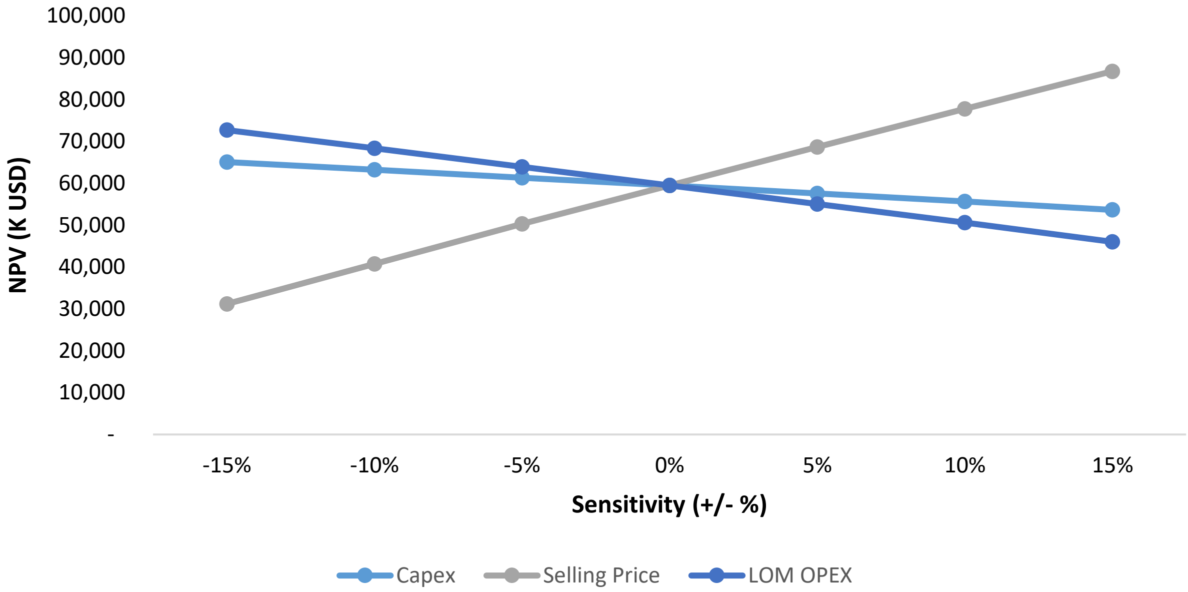

*Figure 1.7: NPV sensitivity analysis graph.*

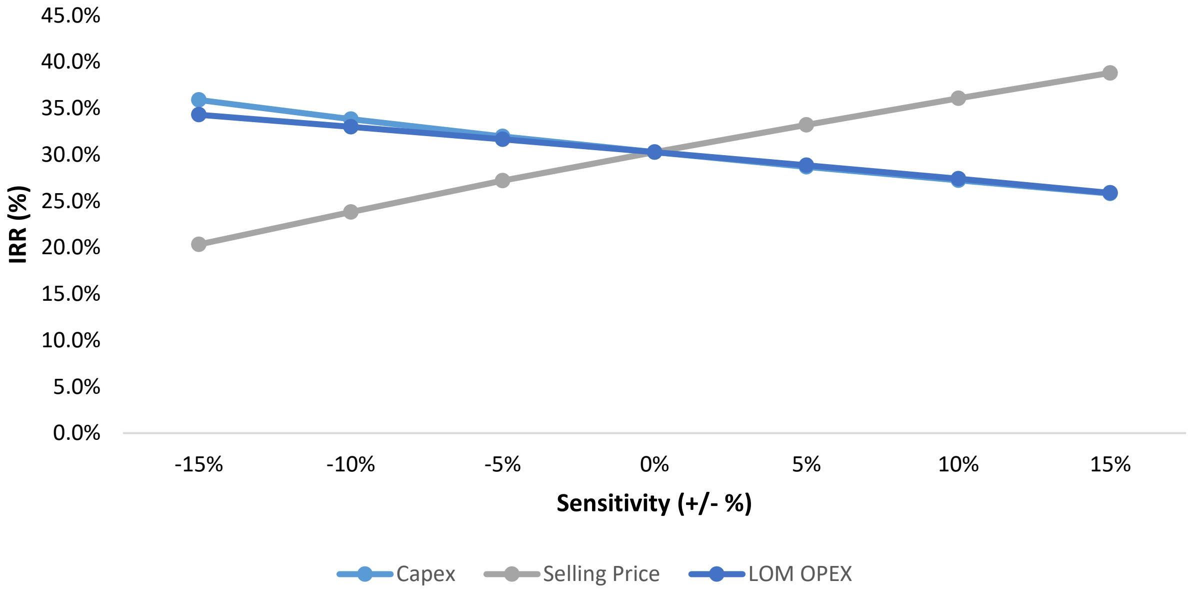

*Figure 1.8: IRR sensitivity analysis graph.*

## 1.16 Recommendations

Recommendations to support Mineral Resource Expansion and upgrade from Inferred to Indicated include a phased drilling approach on a 100 m grid within the existing resource footprint, and evaluation of optimal drill spacing to inform future drill programs should follow.

Recommendations to support a Feasibility Study include further metallurgical test work, process plant design and optimization, sourcing of quotes from mining and construction contractors as well as commencement of an environmental baseline study including hydrogeological, fauna, flora and air quality. Engagement with First Nations communities and other relevant stakeholders should commence in due course.

Additional value may be realized by investigating incentives and financial support for low carbon mining Projects in Canada.

# 2 Introduction

## 2.1 Terms of Reference

Addison Mining Services Ltd ("AMS") were requested by John Singleton, Chief Operations Officer of CoTec Holdings Corp. (the "Company" or "CoTec") of Suite 428, 755 Burrard Street, Vancouver, British Columbia (BC) V6Z 1X6, to compile a NI 43-101 Technical Report for the Lac Jeannine Fe tailings Project in Québec, Canada (the "Technical Report") in support of the News Release titled "CoTec Announces Initial Mineral Resource and Positive Preliminary Economic Assessment for the Lac Jeannine Iron Tailings Project, Québec, Canada", issued on June 27th 2024 (CoTec, June 2024).

AMS were also commissioned to complete the Mineral Resource Estimate disclosed in the release and to compile findings of the Preliminary Economic Assessment ("PEA") undertaken by a multidisciplinary team appointed by CoTec and supported by JPL GeoServices Inc. and Soutex Inc. of Canada; Axe Valley Mining Consultants Ltd and Amerston Consulting Ltd of the United Kingdom.

This Technical Report has been authored by the following Independent Qualified Persons ("QP"), the "Authors".

- Mr. John Langton – M.Sc., P. Geo., Director and Principal Consultant, JPL GeoServices Inc. – QP Geology and Exploration
- Mr. Christian Beaulieu- M.Sc., P.Geo., Vice President, Mineralis Consulting Services Inc., and Associate Consultant of AMS – QP Mineral Resources, Sample Preparation, Analyses and Security, and Data Verification
- Mr. Daniel Roy – B.Sc., P.Eng., Senior Metallurgist, Soutex Inc. – QP Mineral Processing
- Dr Matthew Randall – PhD, C.Eng., Director and Principal Mining Engineer, Axe Valley Mining Consultants Ltd. – QP Mining
- Mr. Martin Errington – B.Sc., C.Eng., Managing Director and Principal Process Engineer, Amerston Consulting Ltd. – QP Cost Engineering and Financial Analysis

Additional contributions to the report have been made by the following personnel in assistance of and under the supervision and, or review of the above Qualified Persons.

- Mr. Richard Siddle – AMS – Report compilation and formatting
- Ms. Paula Mierzwa – AMS – Drafting
- Mr. Simon Fortier – Soutex – Interpretation and presentation of metallurgical testwork

- Mr. Travis Hough – CoTec - Company and Project background information, inputs to financial analysis.

The Lac Jeannine Property represents an iron tailings Advanced Stage Project at the PEA level. The study is based on the results of the 2023 sonic-drilling campaign, desktop study, data review, data validation, deposit modelling, block model grade interpolation, Mineral Resource estimation, metallurgical testing, pit optimisation, conceptual mine planning and scheduling, cost estimation and preliminary economic analysis.

The drilling campaign was managed and supervised by Mr. John Langton (QP) between the 20th and 28th of September 2023.

The Mineral Resources estimated, and the Preliminary Economic Assessment undertaken as part of this study have been prepared in accordance with *The CIM Definition Standards on Mineral Resources and Reserves (CIM Definition Standards)* and reported in accordance with the *National Instrument 43-101 – Standards of Disclosure for Mineral Projects (NI 43-101)*.

## 2.2 Independence

The Qualified Persons for the Technical Report neither have nor hold:

- any rights to subscribe for shares in CoTec either now or in the future,
- any vested or unvested interests in any concessions held by CoTec,
- any rights to subscribe to any interests in any of the concessions held by CoTec, either now or in the future,
- any vested or unvested interests in either any concessions held by CoTec or any adjacent concessions,
- any right to subscribe to any interests or concessions adjacent to those held by CoTec either now or in the future.

The Qualified Persons only financial interest is the right to charge professional fees at normal commercial rates, plus normal overhead costs, for work carried out in connection with the investigations reported herein. Payment of professional fees is neither dependent on Project success nor on Project financing.

## 2.3 Units

All units of measurement used in the Technical Report are metric unless otherwise stated. Tonnages are reported as metric tonnes ('t'), and iron (Fe) is reported in percent ('%'). Other references to geochemical analysis are in percent ('%'), as reported by the originating laboratories, unless otherwise stated. Currency is expressed in United States Dollars (USD$) and was used for financial analysis, or Canadian Dollars (CAD$) as noted in relation to tenement costs.

Grid coordinates on maps and figures utilize Latitude N / Longitude W coordinates or are based on the Universal Transverse Mercator (UTM) system using the 1983 North American Datum geode ("NAD 83") projection. The Property is in Zone 19 (north) of UTM NAD 83 (EPSG: 26919). Elevations are metres above sea level.

## 2.4 Property Inspection by the Qualified Persons

Mr. Langton visited the Property on September 20-28, 2023. During the visit, he explored the general physiography and geological surface features of the Property, verified the means of access to the Property, reviewed the area infrastructure including the condition of the existing rail-siding east of the Property, and confirmed sources of water and power for the Property.

Mr. Christian Beaulieu visited the site on June 12, 2024. During the site visit, Mr. Beaulieu explored the general physiography and geological surface features of the tailings area, verified access to the Property, and a portion of the access road to the east of the Property leading to the railway junction. Mr. Beaulieu also visited the reference sample storage in Fermont and confirms that it is securely stored and that the material sampled is representative of the tailings material observed at surface.

## 2.5 Sources of Information

In the preparation of this Technical Report and the Mineral Resource Estimate reported herein, AMS has relied upon data provided by CoTec which the Qualified Persons have taken steps to verify as described in Section 12 of the Technical Report.

Information relating to the background, history, geology and exploration practices of the Project described in Sections 4 to 11 and adjacent properties described in Section 23 has been supplied by Mr. John Langton and CoTec.

Information relating to Mineral Processing and Metallurgical Testing has been sourced from testwork completed by Corem Laboratories and was supervised remotely by the QP for mineral processing.

Information relating to Environmental Studies, Permitting and Social or Community Impact has been sourced from the public domain or supplied by CoTec and reviewed by the QP for environmental and social.

Information relating to operating, capital and transport costs and concentrate payability and specification has been obtained from previous, similar projects or projects in the geographic vicinity, or has been provided by CoTec and reviewed by the QPs for mineral processing, mining, and economic analysis.

A list of major sources of information is included in Section 27. The Authors have made all reasonable attempts to establish the validity of the information supplied and included in the Technical Report.

## 2.6 Limitations

In the preparation of this Technical Report the QPs have utilized information provided by CoTec. The QPs have made every reasonable attempt to verify the accuracy and reliability of the data and information received in said information, and to identify areas of possible error or uncertainty. To the best of the QPs knowledge, said information contains no omission likely to affect the success of the Project. The QPs take responsibility for the technical content of the Technical Report.

This Technical Report contains the results of a Preliminary Economic Assessment based on Inferred Mineral Resources. The Preliminary Economic Assessment is preliminary in nature, Inferred Mineral Resources are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the Preliminary Economic Assessment will be realized.

The businesses of mineral exploration, development, mining, and production are by their nature associated with significant risks. The success of such projects is dependent on many factors including, but not limited to the size and grade of Mineral Resources, mining, metallurgical, geotechnical, operational, legal, environmental, marketing, metal pricing and transportation systematics. The Technical Report is based upon metal price history and forecasts at the time of writing. The nature of the mineral exploration, development, mining, and production is such that many factors may be subject to change over relatively short periods of time and as such actual results may differ significantly.

The interpretations and conclusions presented in this Technical Report are based on the most current and up to date data available to the Qualified Person at the time of writing, however the results are estimates and are subject to change. The QPs make no claim of absolute certainty and as such any financial, economic or investment decisions based on the interpretations and conclusions found in the Technical Report will carry an element of risk.

## 2.7 Forward-looking Statements

Certain statements contained in this Technical Report constitute forward-looking statements within the meaning of Canadian securities legislation. All statements included herein, other than statements of historical fact, are forward-looking statements and include, without limitation, statements about the exploration plans for the Project. Often, but not always, these forward looking statements can be identified by the use of words such as "estimate", "estimates", "estimated", "potential", "open", "future", "assumed", "projected", "used", "detailed", "has been", "gain", "upgraded", "offset", "limited", "contained", "reflecting", "containing", "remaining", "to be", "periodically", or statements that events, "could" or "should" occur or be achieved and similar expressions, including negative variations.

Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of CoTec to be materially different from any results, performance or achievements expressed or implied by forward-looking statements. Such uncertainties and factors include, among others, the exploration plans for the Project; changes in general economic conditions, commodity prices and financial markets; CoTec or any joint venture partner not having the financial ability to meet its exploration and development goals; risks associated with the results of exploration and development activities, estimation of Mineral Resources and the geology, grade and continuity of mineral deposits; metallurgical recovery; geotechnical and hydrological conditions; unanticipated costs and expenses; and such other risks detailed from time to time in the Company's quarterly and annual filings with securities regulators and available under CoTec's profile on SEDAR+ at www.sedarplus.com. Although CoTec and the QPs have attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended.

Forward-looking statements contained herein are based on the assumptions, beliefs, expectations and opinions of CoTec and the contributing authors to the Technical Report, including but not limited to; that the proposed exploration of the Project will proceed as recommended in this Technical Report; that there will be no material adverse change affecting CoTec or its properties; and such other assumptions as set out herein. Forward-looking statements are made as of the date hereof and the QPs disclaim any obligation to update any forward-looking statements, whether as a result of new information, future events or results or otherwise, except as required by law. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, investors should not place undue reliance on forward-looking statements.

# 3 Reliance on Other Experts

The Qualified Persons have not, nor are they qualified to do so, independently verified title to the company's assets, nor have they verified the status of legal agreements with local landowners and relevant parties but has relied on information supplied by CoTec in this regard. The authors are relying on public documents and information provided by CoTec for the descriptions of title and status of the Property agreements. This disclaimer applies to Item 4 of the Report. The Qualified Persons have no reason to doubt that the title situation is other than that which was reported to it by the Company.

CoTec and the Qualified Persons have also relied on the expertise of research and commodity firm, Fastmarkets to provide a long-term iron ore concentrate forecast which was used in the Project Economic Analysis. This disclaimer applies to Item 19 of the Report.

A list of references used in this study is provided in Section 27 of the Technical Report.

# 4 Property Description and Location

## 4.1 Property Location

The Property currently comprises 31 contiguous mineral claims that overlie the formerly active Lac Jeannine open-pit mine and its ore-processing tailings material (Figure 4.1 and Figure 4.2). The claims have not been legally surveyed. The boundary of the Property was defined using the on-line GESTIM claim management system (https://gestim.mines.gouv.qc.ca/).

The claims comprising the Property are all in good standing and cover an aggregate area of 691.69 ha or 6.92 km$^2$. The renewal dates, rental fees, required minimum work and excess credits, as of the effective date of the Report, are detailed in Table 4.1.

Details on claims renewals, work credits, claim access rights, allowable exploration, development, mining works, and site rehabilitation are summarized in the Mining Act of Québec available at www.publicationsduquebec.gouv.qc.ca.

The Property is situated within NTS map sheet 22N/16, approximately 130 km southwest of the town of Fermont (QC), in the Regional Municipality of Caniapiscau (Figure 4.1 and Figure 4.2). The centre of the Property has NAD83 UTM Zone 19 coordinates 564000 East, 5744000 North, and Latitude/Longitude coordinates of approximately 51°50'35" North and 68°04'12" West.

*Figure 4.1: Lac Jeannine property location.*

## 4.2 Mining Claims and Tenure

Mineral title status was supplied by CoTec. The QP for this section verified the status of all mining titles using the Québec Ministère des Ressources naturelles et des Forêts ("MRNF") mineral title management website GESTIM (https://gestim.mines.gouv.qc.ca) and confirmed that all claims as described in Table 4.1 are in good standing as of the effective date of the Technical Report, and that no legal encumbrances were registered with MRNF against the titles at that date.

The Authors make no assertion regarding the legal status of the Property. The Property has not been legally surveyed to date, and no requirement to do so has existed.

There are no off-take agreements in place for the Property in its current demarcation. The current tailings pile is considered an orphan site under the management of the MRNF. In this context, consent from the MRNF could potentially be required in order to access the Property in certain circumstances. Otherwise, there are no known significant factors or risks that may affect access, title, or right to perform exploration work on the Property.

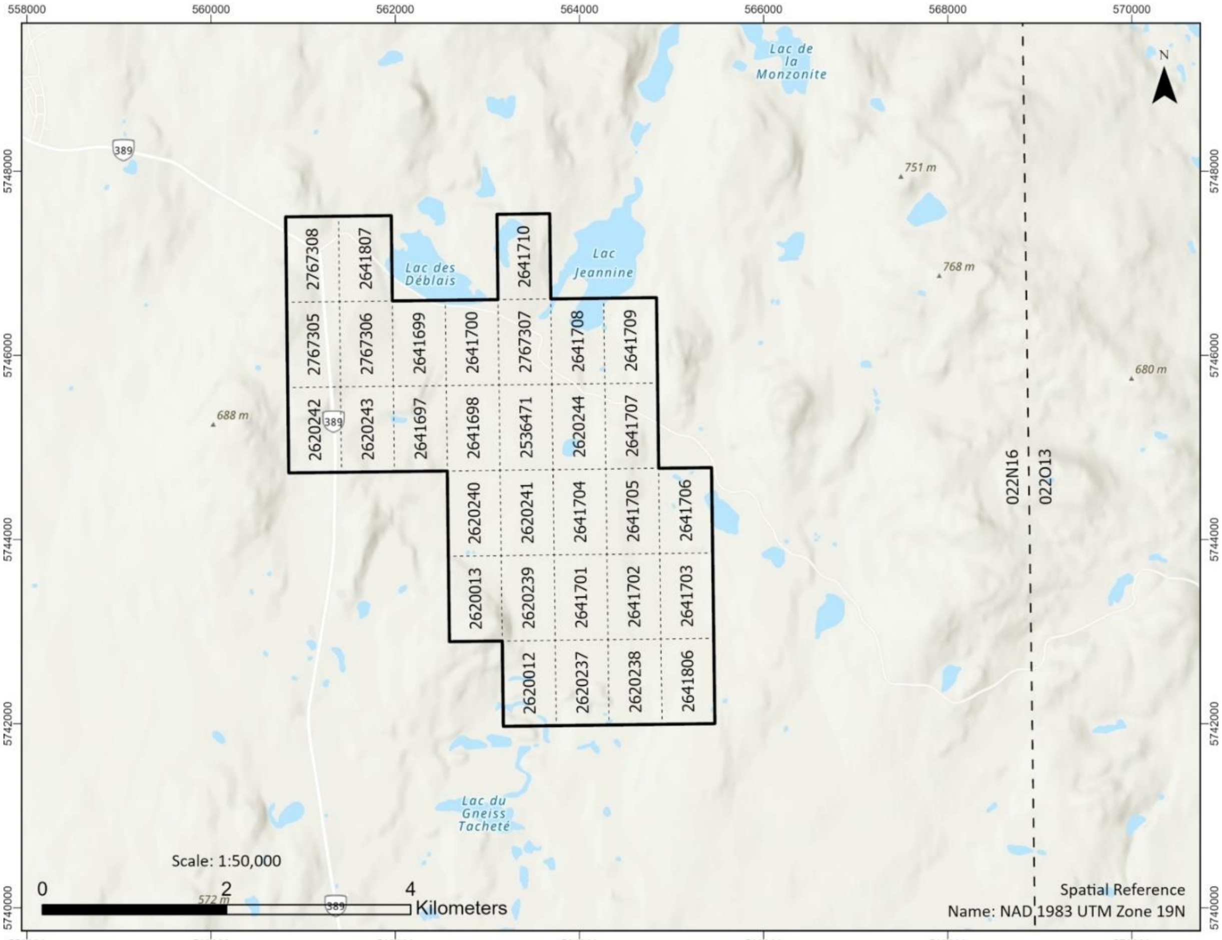

*Figure 4.2: Property claim.*

*Source: Gestim, 2024.*

*Table 4.1: Summary of Lac Jeannine mineral claims.*

| Claim # | Area (ha) | Work Required CAD$ | Credits CAD$ | Annual Rent CAD$ | Expiry | Owner 100% |
|---|---|---|---|---|---|---|
| **2536471** | 53.20 | $1,200 | $0 | $77 | 2025-04-22 | Patricia Lafontaine (88888) |
| **2620012** | 53.23 | $1,200 | $0 | $77 | 2024-09-20 | Patricia Lafontaine (88888) |
| **2620013** | 53.22 | $1,200 | $0 | $77 | 2024-09-20 | Patricia Lafontaine (88888) |
| **2620237** | 53.23 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620238** | 53.23 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620239** | 53.22 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620240** | 53.21 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620241** | 53.21 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620242** | 53.20 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620243** | 53.20 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2620244** | 53.20 | $1,200 | $0 | $77 | 2024-09-26 | Patricia Lafontaine (88888) |
| **2641697** | 53.20 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641698** | 53.20 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641699** | 53.19 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641700** | 53.19 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641701** | 53.22 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641702** | 53.22 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641703** | 53.22 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641704** | 53.21 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641705** | 53.21 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641706** | 53.21 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641707** | 53.20 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641708** | 53.19 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641709** | 53.19 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641710** | 53.18 | $1,200 | $0 | $77 | 2025-03-13 | Patricia Lafontaine (88888) |
| **2641806** | 53.23 | $1,200 | $0 | $77 | 2025-03-14 | Patricia Lafontaine (88888) |
| **2641807** | 53.18 | $1,200 | $0 | $77 | 2025-03-14 | Patricia Lafontaine (88888) |
| **2767305** | 53.19 | $1,200 | $0 | $77 | 2026-05-23 | Patricia Lafontaine (88888) |
| **2767306** | 53.19 | $1,200 | $0 | $77 | 2026-05-23 | Patricia Lafontaine (88888) |
| **2767307** | 53.19 | $1,200 | $0 | $77 | 2026-05-23 | Patricia Lafontaine (88888) |
| **2767308** | 53.18 | $1,200 | $0 | $77 | 2026-05-23 | Patricia Lafontaine (88888) |
| **n=31** | 1,649.34 | $37,200 | $0 | $2,387 | | |

## 4.3 Mineral Rights in Québec

Mineral exploration rights are granted by MRNF providing the holder the exclusive right to explore.

As further described below, the mining claims comprising the Project area are registered 100% to Patricia Lafontaine (the "Vendor") are subject to an option agreement with CoTec.

Claims are valid for an initial three-year period and can be extended indefinitely for successive two-year periods (terms) by application of approved assessment work in variable amounts based on the size of the claim and the number of times it has been renewed, as shown in Table 4.2 and Table 4.3, and payment of an administrative fee.

Excess work credits are banked against the title of the claim for use in future renewals. Assessment work and/or banked credits may be applied to a title holder's adjoining claims located within a 4.5 km radius of the centre of the credited claim.

Claims may be converted into a mining lease with an initial term of 20 years (renewable at least three times, for ten years each time) upon demonstrating that a mineable resource exists on the claims. [2]

*Table 4.2: Minimum required assessment work for claims north of Latitude 52.*

| **Number of Terms of the Claims** | **Area of Claim** | | |
|---|---|---|---|
| | <25 ha CAD$/claim | 25 to 45 ha CAD$/claim | Over 45 ha CAD$/claim |
| **1** | $48/claim | $120/claim | $135/claim |
| **2** | $160/claim | $400/claim | $450/claim |
| **3** | $320/claim | $800/claim | $900/claim |
| **4** | $480/claim | $1,200/claim | $1,350/claim |
| **5** | $640/claim | $1,600/claim | $1,800/claim |
| **6** | $750/claim | $1,800/claim | $1,800/claim |
| **7+** | $1,000/claim | $2,500/claim | $2,500/claim |

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[2] It should be noted that on May 28, 2024, the Government of Québec tabled Bill 63, *An Act to amend the Mining Act and other provisions*, which proposes certain changes to mining leases issued for the mining of tailings.

*Table 4.3: Minimum required assessment work for claims south of Latitude 52.*

| **Number of Terms of the Claim** | **Area of Claim** | | |
|---|---|---|---|
| | <25 ha CAD$/claim | 25 to 100 ha CAD$/claim | >100 ha CAD$/claim |
| **1** | $500/claim | $1,200/claim | $1,800/claim |
| **2** | $500/claim | $1,200/claim | $1,800/claim |
| **3** | $500/claim | $1,200/claim | $1,800/claim |
| **4** | $750/claim | $1,800/claim | $2,700/claim |
| **5** | $750/claim | $1,800/claim | $2,700/claim |
| **6** | $750/claim | $1,800/claim | $2,700/claim |
| **7+** | $1,000/claim | $2,500/claim | $3,600/claim |

## 4.4 Surface Rights in Québec

In Québec, surface rights are not included with mineral claims. Claim holders generally do not require permission to access and conduct work on Crown Land unless the land is being used to store public equipment. Since the historical tailings present at the Property are currently managed by the MRNF, consent from the MRNF could potentially be required in order to access the Property under certain circumstances.

On private land, the claim holder must obtain permission from the landowner and acquire, through amicable agreement or through expropriation, the necessary access rights to carry out the exploration work.

On land leased by the provincial government, the claim holder must obtain the consent of the lessee. If an agreement between the lessee and claim holder cannot be met, the claim holder must pay the lessee an amount fixed by a court with jurisdiction.

## 4.5 Permitting in Québec

The government of Québec requires the owner of a claim to consult with MNRF when a tree needs to be cut down (any size or type) or a permanent structure needs to be built on the property as a result of exploration work. For example, line-cutting and diamond drilling activities require a permit (Permis d'intervention) and a consultation with First Nations groups before any work can begin. In addition, a forestry technician needs to be hired to estimate the volume of merchantable timber that will be cut down during the work to assess the proper stumpage fees.

Because First Nations must be consulted before any type of major work is performed on a claim (for example, construction, diamond drilling, line-cutting, stripping or trenching), it is possible that any disruption in communication between the provincial government and First Nations could result in unforeseen delays with respect to issuing the permits required to begin work. A proactive working dialogue with the relevant First Nations groups and stakeholders is essential to expedite permitting and land access.

CoTec does not currently hold any permits for the Property but will work towards obtaining the necessary permits and engaging with the First Nations during the next phase of the Project.

## 4.6 Property Ownership and Agreements

The Project is located on lands owned by Government of Québec. The claims comprising the Project area are registered 100% to Patricia Lafontaine (the "Vendor"). On August 9, 2023, CoTec announced that it had entered into an option agreement with the Vendor (the "Option Agreement") to acquire 100% of the right, title, and interest of the mining claims comprising the Project.

Pursuant to the Option Agreement, CoTec agreed to pay certain amounts to the Vendor, including US$250,000 on exercise of the option and US$1,000,000 at the start of commercial extraction of the tailings. CoTec may exercise its option to acquire the mining claims at any time until the earlier of (i) 15 business days after the issuance of all material permits required to construct and operate the Project and (ii) August 7, 2033. If the option is exercised, the Vendor will also receive a 1% net smelter royalty (NSR) from the sale of minerals from the historical tailings and a 1.5% NSR from the sale of other minerals from the Project. The 1% NSR and 1.5% NSR could each be reduced by half, at CoTec's option, through the payment of US$1,000,000 and US$2,000,000, respectively.

## 4.7 Property Encumbrances

As of the signature date of the Technical Report, there are no other back-in rights, payments, royalties, environmental liabilities, or other known risks to which the Property is subject, nor any requirements that need to be fulfilled in order to maintain any of the claims in good standing, of which the Authors are aware.

Neither are there any apparent issues, environmental or otherwise, related to the exploration and/or development of the Property (other than the historical tailings located at the Property).

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

## 5.1 Accessibility

The Trans-Québec-Labrador Road, which is designated as Highway 389 in Québec (QC) and Highway 500 in Labrador (NL), runs from Baie-Comeau (QC) to Fermont (QC), through Labrador City and Wabush Town (NL), terminates in Goose Bay (NL) and provides year round access to the area of the Fermont Iron Ore District in the Gagnon Terrane (see Figure 4.1). There is direct road access to the Property from Highway 389 at kilometre marker 390, as illustrated in Figure 5.1.

Wabush Airport (ICAO: CYWK) is the main airport servicing the western Labrador/north-eastern Québec region. Vehicle rentals are available at the airport. Wabush Airport is classified in the Regional/Local category according to the National Airports Policy. Local air service is also available from the Wabush Water Aerodrome (TC LID: CCX5) located near Wabush on Little Wabush Lake. Flights are offered from June until October. Labrador City, the "sister city" of Wabush, is accessible by train via the Tshiuetin Rail Transportation Inc. railway. The railway tracks link Sept-Iles (QC) to Emeril Junction and Schefferville (QC). The passenger train does not travel directly to Labrador City, so passengers travelling to and from Labrador City must take Highway 500 to Emeril Junction, a 45-minute drive east from Labrador City.

A functioning uncontrolled airstrip is located 10 km NW of the Property. The airstrip once provided service for the town of Gagnon, which accommodated Lac Jeannine mine employees and families. The former town site is now abandoned and lies four km NW of the Property.

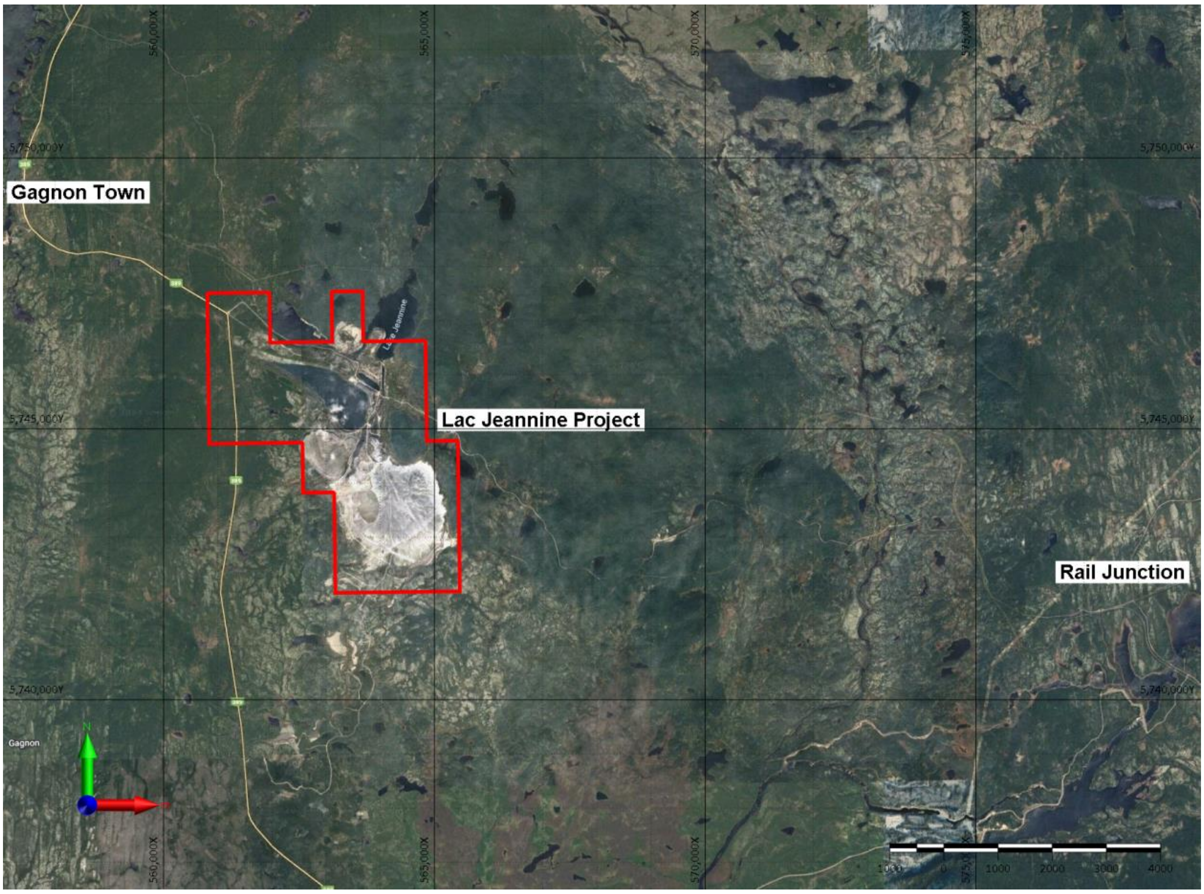


*Figure 5.1: Google Earth image showing local physiography and access to the Property.*

## 5.2 Climate

The Fermont area and vicinity has a sub-arctic, continental taiga climate with very severe winters, typical of north-central Québec. Winter conditions last 6 to 7 months, with heavy snow from December through April. The prevailing winds blow from the west and average 14 km per hour, based on records at the Wabush Airport (Figure 5.2). Daily average temperatures exceed 0°C for only five months per year. The daily mean temperatures for the area average -24.1° and -22.6°C in January and February, respectively. Snowfall in November, December, and January generally exceeds 50 cm per month and the wettest summer month is July with an average rainfall of 106.8 mm. Mean daily average temperatures in July and August are respectively, 12.4° and 11.2°C. Because of its relatively high latitude, extended daylight enhances the summer work-day period. Although winter conditions are considered harsh, drilling/mining operations can be carried out year-round.

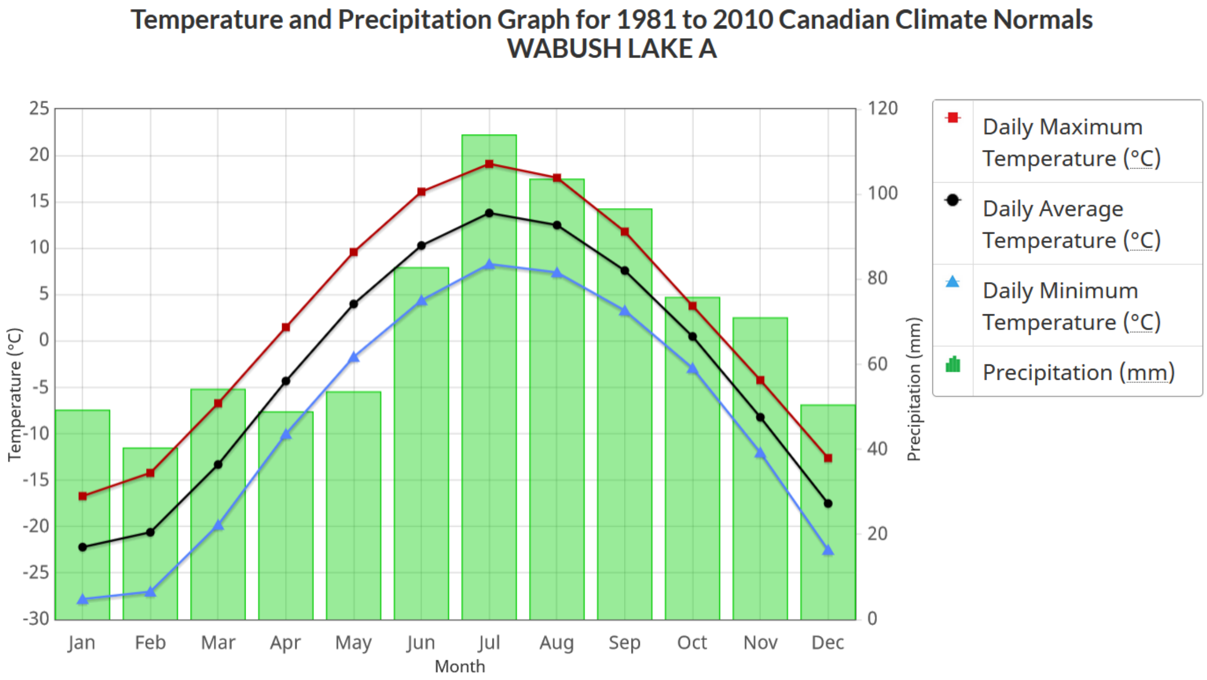


*Figure 5.2: Temperature and precipitation graph for Wabush Lake, NL*

*Source: Canadian climate normals 1981-2010.*

## 5.3 Local Resources and Infrastructure

The city of Fermont has a population of approximately 2,256, according to the 2021 Canadian Census and is the residential city for ArcelorMittal Mines Canada ("ArcelorMittal") employees who work at the Mont Wright iron operations. Fermont was originally built by the Québec Cartier Mining Company (now ArcelorMittal) in the early 1970s. Fermont has schools, a 72-room hotel, municipal and recreational facilities, and a business and shopping complex. The height-of-land, which determines the border between Québec and Newfoundland and Labrador, is located 10 km east of Fermont (Figure 5.3).

The twin communities of Labrador City (27 km east of Fermont), and Wabush (35 km east of Fermont) in Newfoundland and Labrador (NL), have a total population of approximately 910,376 (2021 Canadian Census). Labrador City and Wabush were also developed around the iron ore mining operations during the last half-century. The twin cities offer services that are complementary to those offered in Fermont, with a strong industrial base and excellent medical and educational services and are serviced by a wide variety of retail shops and grocery outlets.

The hydroelectric availability in Labrador comes from Churchill Falls, which generates 5,428 MW of power, 127 MW of which is made available to the Labrador West region for current needs. The region has the lowest average cost for power in Newfoundland and Labrador; however, the system is being taxed and a second transmission line to service Labrador West is on the high priority list of requirements for the region.

The area is a mining centre able to provide personnel, contractors, equipment and supplies. There is no infrastructure on the Property; however, hydroelectric power and a rail spur are present along the western shores of Petit Lac Manicouagan, approximately 12 km east of the Property. There is abundant water on the Property for drilling and mining purposes.

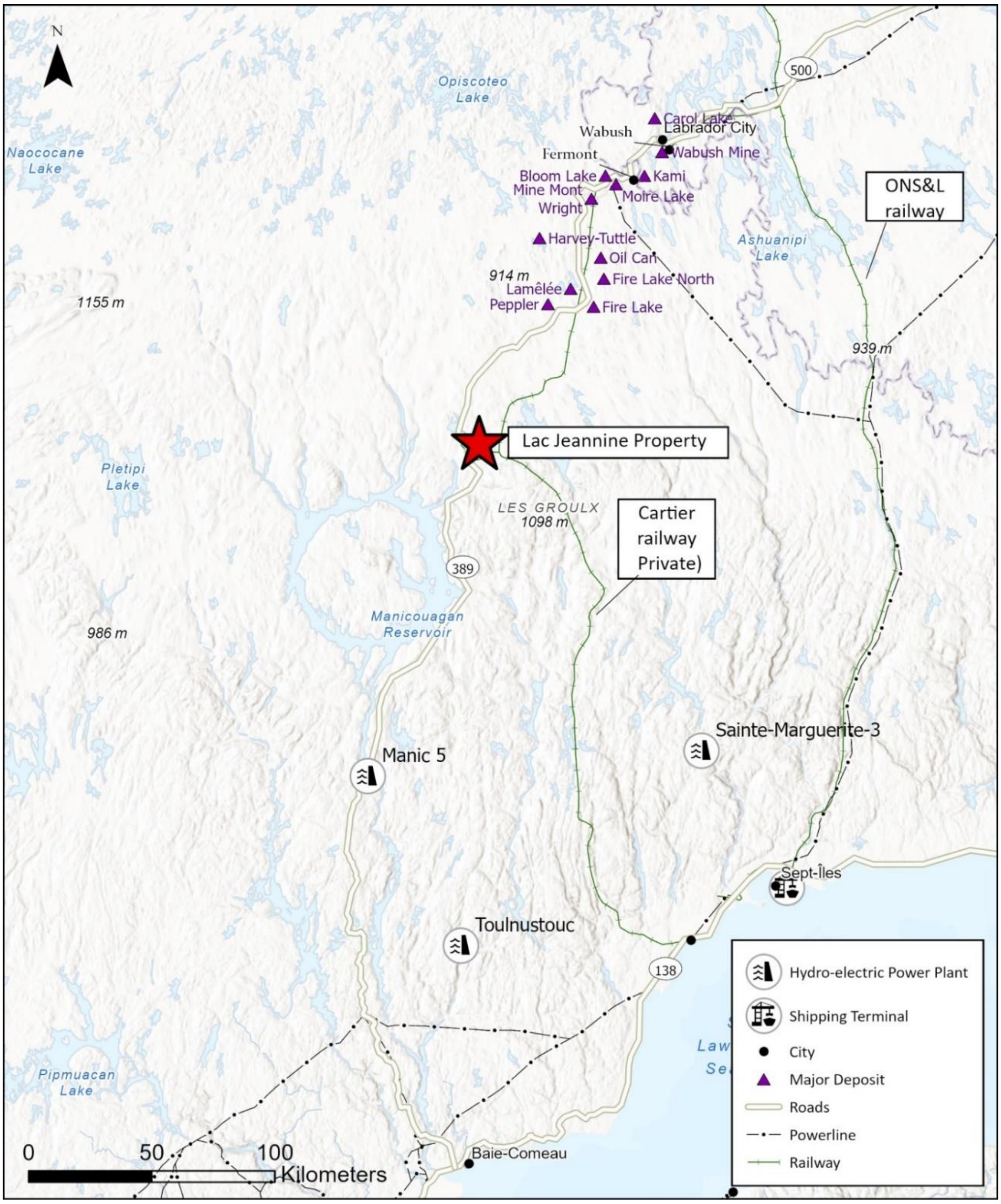


*Figure 5.3: Infrastructure of the region of the Lac Jeannine Project*

*Source: Modified from Langton (2013).*

## 5.4 Physiography

The physiography around the Property is largely attributed to the lithologies and structures of the underlying rocks, which in turn were sculpted by glaciation.

Topography is typical of sub-arctic terrain with overall elevations between 525 and 610 metres. Retreating glaciation left a veneer of moraine boulder till and eskers that cover much of the local bedrock and control the drainage. The local water system empties southward into the Manicouagan Reservoir, which drains through the Manicouagan River system into the Gulf of St. Lawrence.

Lakes, swamps and grassy meadows fill bedrock and drift depressions. Most of the terrain is thinly forested with a typical mixture of fir and tamarack, with local stands of aspen and yellow birch. Ground cover is generally in the form of grasses, caribou moss, and shrubs; the latter typically comprising willow, arctic birch, alders and Labrador tea.

The immediate tailings dam consists of small rolling slopes made entirely of the sand and clays of the tailings material, surrounded by forested areas and water courses. There are some sparse grasses and minor shrubs. The general site physiography and topography are shown in Figure 5.4 and Figure 5.5.

*Figure 5.4: Project area view looking southwest (source: Sonic Edge drilling company drone, 2023).*

*Figure 5.5: Larger Project area view looking southwest (source: Sonic Edge drilling company drone, 2023).*

# 6 History

Since the 1950s the area has seen a number of small exploration programmes completed by various companies. A compilation of all available historical geological, geophysical and drillhole information was completed for CoTec in order to help evaluate the potential of the Property.

The QP cautions that the exploration and analytical results, geological interpretations and mineralisation noted on adjacent and nearby properties (current and historic) are not necessarily indicative of mineralisation on the Property.

Relevant information was digitized and entered into an ArcGIS project database. The historical work pertaining to the Property is summarised below.

Limited mapping and sampling have been carried out on the area with several programmes completed in the mid to late 1950's. As part of this work, outdated geophysical dip needle surveys were carried out. The results of which have not been reviewed by QP.

Historic drilling has also been carried out with four holes drilled in 1954, which were collared and ended in specularite-rich iron formation with banded to massive specularite with minor magnetite. There are no assay results but estimated grades were 30% Fe (unverified). Further drilling was carried out in 1958 with an additional seven holes. The details of which have not been verified by the QP.

Some metallurgical testwork has been completed on iron concentrates, presumably collected from the Lac Jeannine main ore body by the Québec Cartier Mining Company (1959). A summary of the work is shown below for discussion purposes only:

- Work index for grinds to 90%, -200 mesh, were 26.14 kwh/long ton.
- Power required for grinding from F = 660 microns to 80%, -270 mesh, were 25.7 kwh/long ton: 90%, -270 mesh, were 28.4 kwh/long ton.
- The wear of steel forged balls when grinding from F = 660 microns to 80%, -270 mesh, were 4.29 lb/long ton: 90%, -270 mesh, were 4. 73 lb/long ton.

Eight grab samples (193201 - 193208), were collected from the near-surface of the Lac Jeannine tailings dump and submitted to PRA for testing in 2006 (PRA, 2006; Soutex, 2007). Seven samples (193201, and 193203—193208) were composited (Composite 1), whereas sample 193202 was treated separately. No information is available about the locations or procedures employed for any of the 2006 samples. Whole rock assays for Composite 1 were 20.16% $Fe_2O_3$ and 75.46% $SiO_2$. Size-assay analysis results are shown in Figure 6.1. Technical evaluation of the work indicates that a concentrate grade of around 62-63% Fe would be expected and an acceptable recovery level using a very simple flowsheet. However, a more complex flowsheet could result in a standard concentrate grade of 65% Fe or more.

| Size Fraction | | Weight | | Assay (%) | Distribution (%) |
|---|---|---|---|---|---|
| Tyler Mesh | Microns | g | % | Fe | Fe |
| + 10 | +1700 | 267.8 | 13.5 | 28.72 | 26.9 |
| - 10 + 20 | -1700+850 | 630.1 | 31.7 | 15.65 | 34.5 |
| - 20 + 35 | -850+425 | 611.5 | 30.8 | 7.23 | 15.4 |
| -35 | -425 | 475.3 | 23.9 | 13.98 | 23.2 |
| **Total** | | **1984.7** | **100.0** | **14.42** | **100.0** |
| Measured | | | | 13.85 | |

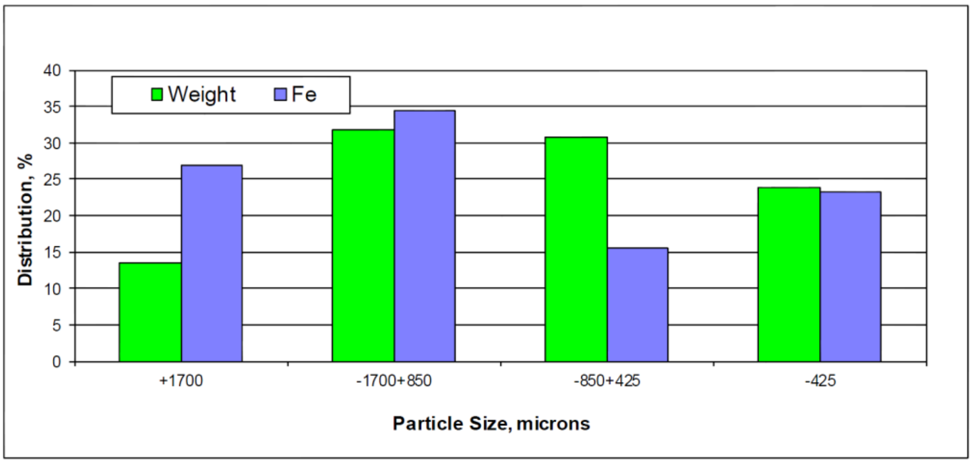


*Figure 6.1: Size-fraction analysis for Composite 1*

*Source: PRA (2006).*

In late August 2013, an aerial- and ground-reconnaissance and tailings-sampling programme on the Lac Jeannine tailings was carried out by Cartier Iron Corp. The objective of the programme was to test the nature and grade of the tailings material. Ten shallow surface samples were collected from five parts of the tailings dump. The samples were analysed for Fe (iron) and multi-element content including CaO (calcium oxide), MgO (magnesium oxide), MnO (manganese oxide), $P_20_5$ (phosphorus oxide) and other oxides such as $Al_2O_3$ (aluminium oxide). Iron content as well as other elements' content (%) was determined by X-ray fluorescence (XRF). Total Fe concentration from the ten assayed tailings samples averaged 7.57% total Fe, indicating that the tailings comprise a potential quartz-hematite +/- magnetite iron source, the true grade and amount of which are unknown.

In October 2013, six 45-gallon drums of tailings material were collected from various locations across the Lac Jeannine tailings dump. A small excavator was used to dig 3-metre-deep pits in the tailings. Material from successive depths within each pit was used to create the site-samples. Material from the six sample collection sites was shipped to COREM in Québec (QC) and combined into a bulk composite sample for metallurgical testwork (e.g., grinding, liberation, Davis Tube, QEMSCAN, separation, recovery).

## 6.1 Lac Jeannine Iron Mine (Closed)

The Lac Jeannine deposit was identified in 1952 by an aeromagnetic survey, flown for Québec Cartier Mining (QCM). Other geophysical surveys and drilling campaigns followed with the exploration phase ending in 1956.

A pilot plant was assembled at Lac Jeannine, and the company concentrated on detailed work to accurately outline the ore body in preparation for mining. In 1958 the decision to begin mining at Lac Jeannine was made. Construction of a railroad, harbour, power plant and the town sites at Port-Cartier and Gagnon began immediately. Surface stripping of the Lac Jeannine deposit began in May 1959, and the first concentrates were shipped in July 1961.

QCM's development of the Lac Jeannine deposit brought the first producing mine to the Fermont Iron Ore District. The deposit contained over 300 million long-tons of coarse-grained, quartz-specularite iron formation at 31% Fe. The Lac Jeannine mine had an anticipated mine life of 15 years. Production from the Lac Jeannine mine started in 1961 and was completed in 1976. A total of 265,897,000 (long) tons of ore, at 33% Fe, was mined during the operation.

In 1984, the Lac Jeannine concentrator and the town of Gagnon were shut down and the sites were reclaimed. The Property encompass the area of the former Lac Jeannine open pit mine and its tailings facility.

# 7 Geological Setting and Mineralisation

## 7.1 Regional Geology

The Gagnon Terrane comprises the southern domain of the Paleo-Proterozoic fold and thrust belt known as the Labrador Trough, which hosts an extensive iron formation in the Ferriman Group, part of the Kaniapiskau Supergroup. The Paleoproterozoic volcano-sedimentary sequence of the Kaniapiskau Supergroup covers the entire Labrador Trough. It was deposited on the margin of the Archean Superior Craton between 2.2 and 1.87 Ga. The Labrador Trough, also known as the New Québec Orogen and the Labrador-Québec Fold Belt, extends for more than 1,100 km along the eastern margin of the Superior craton from Ungava Bay to the Manicouagan impact crater, Québec. The fold and thrust belt are about 100 km wide in its central part and narrows considerably to the north and south (Figure 7.1). It marks the collision between the Archean Superior Province and the Rae Province during the Hudsonian Orogeny (circa 1.82 Ga to 1.79 Ga). Rocks of the Rae Province (Kaniapiskau Supergroup) were transported westward over the Archean Superior Province basement creating a foreland fold and thrust belt marked by a series of imbricate thrusts.

The Labrador Trough is divided into three geological domains. The Southern Domain (Gagnon Terrane) is defined by the northern limit of the Grenville Orogenic Belt at approximately 53°24'00" north latitude, represented by the biotite metamorphic isograd (Figure 7.1). The Southern Domain encompasses Labrador Trough rocks that were metamorphosed during the Grenville Orogeny, (circa 1.16 Ga to 1.13 Ga according to Saucier et al., 2012), which involved northward thrusting, northeast-southwest folding, abundant gabbro, anorthosite and pegmatite intrusions, and high-grade metamorphism. The metamorphism was responsible for the recrystallization of primary iron formations, producing coarse-grained sugary quartz, magnetite, and specular hematite schists that are amenable to concentration and beneficiation (Klein, 1978). The Gagnon Terrane is underlain chiefly by Archean basement complex rocks that host infolded, metamorphosed sedimentary rocks that formed the western, miogeosyncline part of the proto- Labrador Trough (Clarke, 1977).

The Central Domain hosts regionally metamorphosed (greenschist metamorphic facies) iron-formation deposits comprising Achaean, mainly sedimentary, rocks including iron formations, volcanic rocks and mafic intrusions of the Kaniapiskau Supergroup. The Kaniapiskau Supergroup includes all Paleoproterozoic supracrustal rocks of the Labrador Trough (Frarey and Duffell, 1964; Baragar, 1967) and is sub-divided into the Menihek, Ferriman and Attikamagen groups in the Central and Southern domains. Rocks in the Southern Domain are recognized as the metamorphosed equivalents of the Central Domain stratigraphy. The Northern Domain, north of the Leaf Bay area (58°30'00" north latitude), comprises regionally metamorphosed rocks (lower amphibolite facies), much like those of the Southern Domain.

The Ferriman Group extends for at least 850 km of the Labrador Trough, mainly along its western margin. It is believed that only one iron-formation assemblage is present throughout the region. This formation varies in thickness and appears to have underlain the greater part of the original Labrador geosyncline. The economically important succession of quartzite-slate-iron formation, and their metamorphosed equivalents, persists throughout the three Domains.

## 7.2 Regional Structural Geology

Three stages of deformation are recognized in the Southern Domain. The first stage, associated with the New Québec Orogeny, produced linear belts that trend northwest in the Central Domain. The second stage, developed during the Grenville Orogeny, reoriented the northwest-trending linear belts to the east and northeast. Thrust faults associated with these two transpressional events are common, but sometimes very difficult to identify. Bedding planes are generally recognizable in the quartzite, dolomite and iron formation.

Asymmetrical, overturned and recumbent folds are common throughout the Gagnon Terrane. The complex interference patterns evident on geological maps of the area indicate that a third phase of deformation has affected this domain.

Stratigraphic-reversals, truncations, and repeats that thicken the iron formation are common due to folding and structural transposition. Late, brittle faults have redistributed the sequences only slightly compared with the influence of the ductile deformation.

*Figure 7.1: Regional location map of the Labrador Trough*

*Source: Modified from Langton (2013).*

## 7.3 Local Geology

The area in the general vicinity of the Property is underlain by the litho-tectonic Gagnon Terrane (Brown et al., 1992) within the Grenville Province of northeastern Québec. Archean granitic and granodioritic gneisses and migmatites of the Ashuanipi Basement/Metamorphic Complex form the basement to most of the terrane and comprise white to grey, coarse-grained hornblende-epidote-biotite granitic and tonalitic gneisses. Garnetiferous amphibolites are inter-layered with the gneisses in the basement sequence.

Unconformably overlying and infolded with the basement gneisses are the metamorphosed supracrustal equivalent rocks of the Paleoproterozoic Kaniapiskau Supergroup, a continental-margin metasedimentary sequence, consisting of pelitic schist, iron formations, quartzite, dolomitic marble, semi-pelitic gneiss and subordinate, local mafic volcanic rocks. The Kaniapiskau Supergroup was deformed and subjected to metamorphism ranging from greenschist to upper amphibolite facies within a northwest-verging ductile fold and thrust belt, during the Grenville Orogeny (Brown et al., 1992; van Goof et al., 2008). The sequence is best exposed in the region west of Wabush Lake, extending southeast into the province of Québec, and northeast beyond the north end of Shabogamo Lake. The Kaniapiskau Supergroup consists of the Attikamagen, Ferriman and Menihek groups, which were defined in the Central Domain (Clark and Wares, 2004). The equivalent rock successions of the Southern Domain are shown in the comparative list of Formations in Figure 7.2. Intrusive rocks include pegmatites and aplite dykes, granodiorite plutons, amphibolites, gabbros and peridotite bodies.

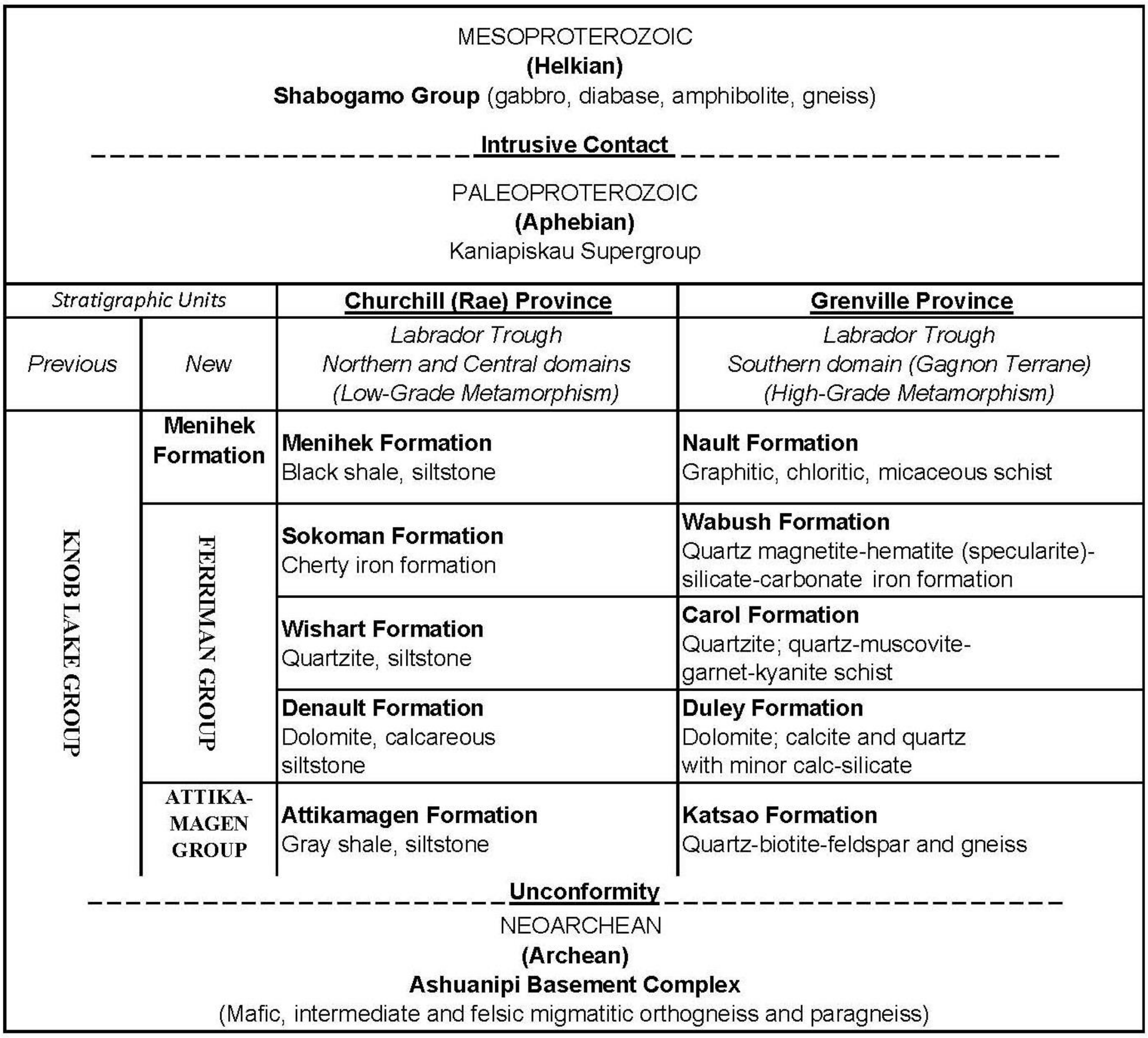
## 7.4 Stratigraphy

In the Gagnon Terrane, the Kaniapiskau Supergroup is represented in ascending order by the Katsao, Duley, Carol, Wabush, Nault and Shabogamo formations that are equivalent to the Central Domain Attikamagen, Denault, Wishart, Sokoman, Menihek and Shabogamo formations. The stratigraphic descriptions that follow relate to the type-sections for the low-grade metamorphosed formations of the Central Domain, as there are no type-sections for the high-grade metamorphosed, Grenville-equivalent formations of the Southern Domain.

### 7.4.1 Attikamagen (Katsao) Formation

The Attikamagen Formation is the oldest stratigraphic sequence within the Kaniapiskau Supergroup. The Formation, which can reach 300 m in thickness, unconformably overlies the Archean Ashuanipi Basement Complex and predominantly consists of brownish to creamy, banded, medium- to coarse-grained, quartz-feldspar-biotite-muscovite schist and lesser gneiss. Accessory minerals include chlorite, garnet, kyanite and calcite. The Attikamagen Formation is best preserved east of Wabush and

Shabogamo Lakes. In the extreme northwest, the Formation tapers and disappears, leaving upper units of the Ferriman Group in contact with the Archean basement (Gross, 1968). The Grenville-metamorphosed Attikamagen Formation (Katsao Formation) underlies most of the Property (Figure 7.1 and Figure 7.2).



MESOPROTEROZOIC
**(Helkian)**
**Shabogamo Group** (gabbro, diabase, amphibolite, gneiss)

**Intrusive Contact**

PALEOPROTEROZOIC
**(Aphebian)**
Kaniapiskau Supergroup

| *Stratigraphic Units* | | **Churchill (Rae) Province** | **Grenville Province** |
|---|---|---|---|
| *Previous* | *New* | *Labrador Trough*<br>*Northern and Central domains*<br>*(Low-Grade Metamorphism)* | *Labrador Trough*<br>*Southern domain (Gagnon Terrane)*<br>*(High-Grade Metamorphism)* |
| KNOB LAKE GROUP | **Menihek Formation** | **Menihek Formation**<br>Black shale, siltstone | **Nault Formation**<br>Graphitic, chloritic, micaceous schist |
| | FERRIMAN GROUP | **Sokoman Formation**<br>Cherty iron formation | **Wabush Formation**<br>Quartz magnetite-hematite (specularite)-silicate-carbonate iron formation |
| | | **Wishart Formation**<br>Quartzite, siltstone | **Carol Formation**<br>Quartzite; quartz-muscovite-garnet-kyanite schist |
| | | **Denault Formation**<br>Dolomite, calcareous siltstone | **Duley Formation**<br>Dolomite; calcite and quartz with minor calc-silicate |
| | ATTIKAMAGEN GROUP | **Attikamagen Formation**<br>Gray shale, siltstone | **Katsao Formation**<br>Quartz-biotite-feldspar and gneiss |

**Unconformity**

NEOARCHEAN
**(Archean)**
**Ashuanipi Basement Complex**
(Mafic, intermediate and felsic migmatitic orthogneiss and paragneiss)

*Figure 7.2: Equivalent Rock Successions in the Central and Southern Domains of the Labrador Trough*

*Source: Modified from Gross (1968)*

### 7.4.2 Denault (Duley) Formation

The Denault Formation conformably overlies the Attikamagen Formation and consists of coarse-grained, banded, dolomitic and calcitic marble up to 75 m thick with minor tremolite, quartz, diopside and phlogopite as accessory minerals. In the Wabush Lake area the Denault Formation has only been identified east and south of the Lake and represents a transition between the shallow and deeper parts of the continental shelf. Stromatolites have been described to the south of Wabush Mine. Locally, the

Formation can be sub-divided into three sub-units consisting of the lower siliceous horizon, the middle low silica (<5% Si02) horizon and the upper siliceous horizon. Low-silica dolomite is mined in the Fermont-Lab City region and added to the iron pellets and acts as a flux in the smelting process.

### 7.4.3 Wishart (Carol) Formation

The Wishart Formation conformably overlies the Denault Formation and locally unconformably overlies the Attikamagen Formation. It consists of a 60 m to 90 m thick sequence of white, massive to foliated quartzite, which is typically resistant to weathering and erosion, forming prominent hills in the Wabush Lake region. This Formation appears to pinch out to the north and has not been mapped north of Shabogamo Lake. The Wishart Formation can be subdivided into the Lower, Middle and the Upper members based on variation in composition and texture.

The Lower Member consists of white to reddish brown, quartz-muscovite schist with varying percentages of garnet and kyanite. The Middle Member is a coarsely crystalline orthoquartzite that is generally massive to banded. Accessory minerals include carbonates, amphiboles (varying from tremolite and/or anthophyllite to grunerite and/or cummingtonite), garnets, micas (muscovite, sericite and biotite) and chlorite. Bands of iron-rich carbonates or their weathered products, limonite and goethite, may also occur. The Upper Member exhibits a gradational contact with the overlying Sokoman Formation, and generally consists of bands of carbonate alternating with bands of quartzite. The presence of thin layers of muscovite and biotite schist (pelitic layers) is common. Accessory minerals include grunerite, garnets, kyanite and staurolite.

Parts of the Middle Member containing very low concentrations of impurities are locally mined for silica. From 1999-2008, Shabogamo Mining actively mined silica on their property immediately south of Iron Ore Company of Canada's Luce Deposit located 10 km north of Labrador City.

### 7.4.4 Sokoman (Wabush) Formation

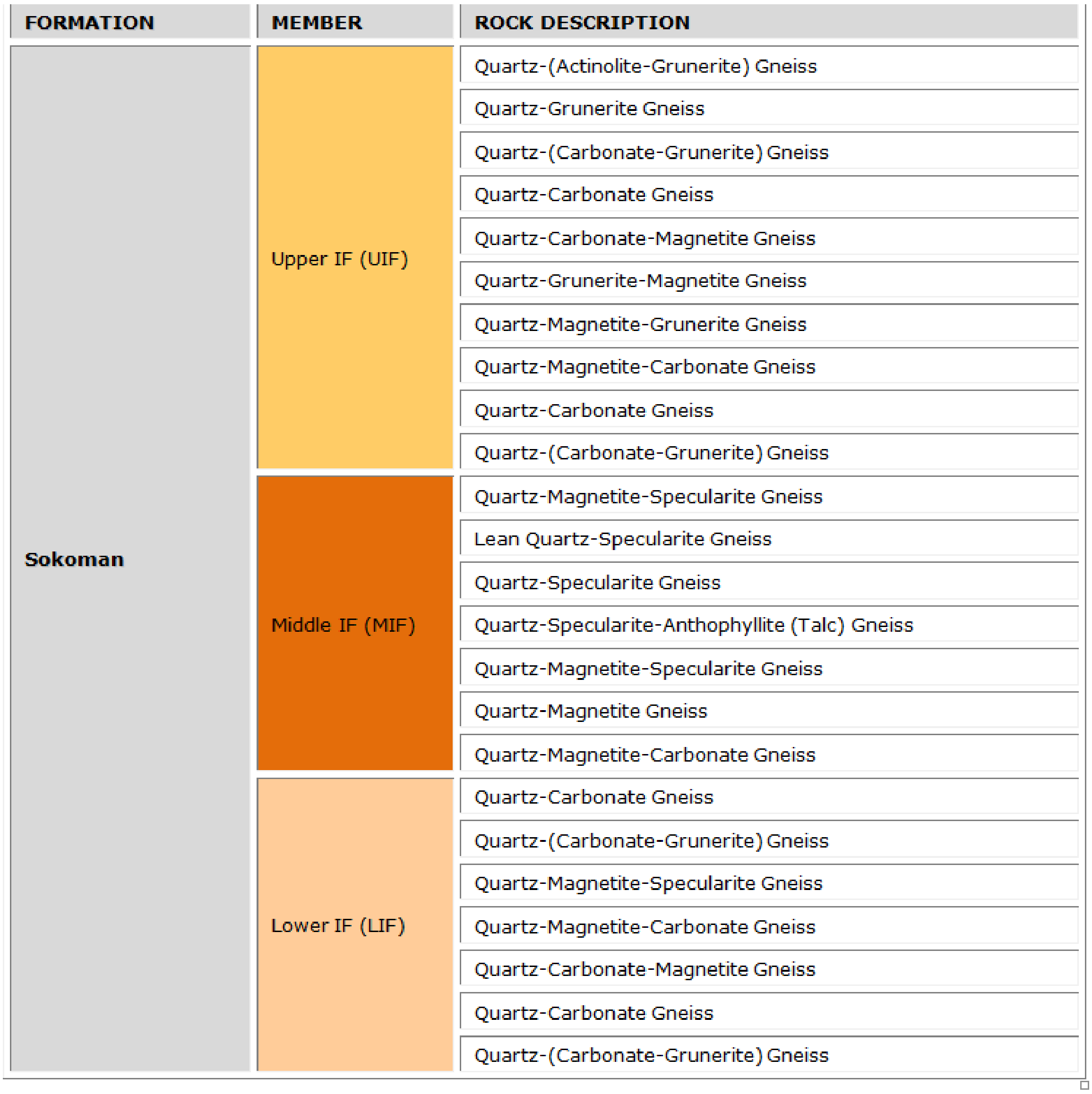
The Sokoman Formation is the ore-bearing unit in the Gagnon Terrane and is subdivided into Lower, Middle and Upper members (Figure 7.3). The Sokoman Formation conformably overlies the Wishart Formation, but also locally shares its basal contact with the Denault, Mackay, and Attikamagen formations, and the Ashuanipi Metamorphic Complex.

The Lower Member (LIF) consists of a 0 m to 50 m thick sequence of fine- to coarse-grained, banded quartz carbonate, and/or quartz carbonate magnetite, and/or quartz carbonate (i.e., siderite, ankerite and ferro-dolomite), silicate (i.e., grunerite, cummingtonite, actinolite, garnets), and/or quartz carbonate silicate magnetite, and/or quartz magnetite specularite sequences. This member generally contains an oxide band up to 10 m thick near the upper part.

The Middle Member (MIF), which forms the principal iron ore sequence, consists of a 45 m to 110 m thick sequence of quartz magnetite, and/or quartz specularite magnetite, and/or quartz specularite magnetite carbonate, and/or quartz specularite magnetite anthophyllite gneiss and schist sequence. Actinolite and grunerite rich bands may be present in this member, although they are generally attributed to in-folding of the upper member. A vertical zonation is typically present with finer-grained quartz magnetite dominated iron formation forming the basal section. Manganese content (rhodochrosite and pyrolucite) ranging from 0.4% to 1.0% Mn is associated with this sequence. Martite may also occur in weathered zones via supergene alteration of magnetite (Wabush Mines, Canning prospect and D'Aigle Bay area). The upper part of the MIF horizon is predominantly comprised of coarse-grained quartz specular hematite iron formation.

The Upper Member (UIF) consists of a 45 m to 75 m thick sequence, similar in composition to the LIF, and can generally be differentiated through contact relationships with the overlying and underlying formations and the presence of increased grunerite or actinolite content. A magnetite- rich zone may be present in the lower part of this Member.

Hydrous iron oxides (limonite and goethite) have been observed in all members of the Sokoman Formation. Limonite and/or goethite are present in weathered and fractured zones and are derived primarily from alteration of carbonates (Muwais, 1974). Pyrolusite (a manganese oxide) may occur in a distinct zone at the base of the MIF but has also been observed in all members of the Sokoman Formation typically associated with surficial or supergene enrichment, extending to depth along and adjacent to structural discontinuities, such as fault and fracture zones.



| FORMATION | MEMBER | ROCK DESCRIPTION |
|---|---|---|
| **Sokoman** | Upper IF (UIF) | Quartz-(Actinolite-Grunerite) Gneiss |
| | | Quartz-Grunerite Gneiss |
| | | Quartz-(Carbonate-Grunerite) Gneiss |
| | | Quartz-Carbonate Gneiss |
| | | Quartz-Carbonate-Magnetite Gneiss |
| | | Quartz-Grunerite-Magnetite Gneiss |
| | | Quartz-Magnetite-Grunerite Gneiss |
| | | Quartz-Magnetite-Carbonate Gneiss |
| | | Quartz-Carbonate Gneiss |
| | | Quartz-(Carbonate-Grunerite) Gneiss |
| | Middle IF (MIF) | Quartz-Magnetite-Specularite Gneiss |
| | | Lean Quartz-Specularite Gneiss |
| | | Quartz-Specularite Gneiss |
| | | Quartz-Specularite-Anthophyllite (Talc) Gneiss |
| | | Quartz-Magnetite-Specularite Gneiss |
| | | Quartz-Magnetite Gneiss |
| | | Quartz-Magnetite-Carbonate Gneiss |
| | Lower IF (LIF) | Quartz-Carbonate Gneiss |
| | | Quartz-(Carbonate-Grunerite) Gneiss |
| | | Quartz-Magnetite-Specularite Gneiss |
| | | Quartz-Magnetite-Carbonate Gneiss |
| | | Quartz-Carbonate-Magnetite Gneiss |
| | | Quartz-Carbonate Gneiss |
| | | Quartz-(Carbonate-Grunerite) Gneiss |

*Figure 7.3: Stratigraphy of the Sokoman Formation.*

### 7.4.5 Menihek (Nault) Formation

The Menihek Formation consists of a 15 m to 75 m thick sequence of pelitic sediments. The Formation is commonly fine-grained, foliated and variably comprised of a quartz-feldspar-mica (biotite-muscovite)-graphite schist. Garnets, epidote, chlorite and carbonates are accessory minerals. This unit is well preserved, adjacent to the craton in the southern region and within broad synclinal regions in the north.

### 7.4.6 Shabogamo Intrusive Suite

The Shabogamo Intrusive Suite comprises the youngest Precambrian rocks in the Wabush Lake area. It comprises massive, medium- to coarse-grained mafic intrusions (gabbro, olivine gabbro and amphibolites), and non-magnetic, sill-like bodies with ophitic to sub-ophitic textures. These sills may be locally discordant and have a tendency to be schistose near the contact with other rock formations. Most of the gabbro sills are composed of plagioclase, pyroxene, olivine and minor amounts of magnetite and ilmenite. The amphibolite equivalents commonly consist of hornblende, biotite, garnets and chlorite. Pyrite, muscovite, and feldspar are accessory minerals.

## 7.5 Property Geology

The iron formation is characteristically made up of a series of alternating magnetite and hematite-rich horizons, capped by quartz-silicate-carbonate rock and graphitic gneiss, and underlain by silicates, quartz, marble and gneiss formations.

### 7.5.1 Local Structure

The iron formation at Lac Jeannine occupied a narrow, tightly folded, 3 km long northwest-trending, doubly-plunging synform, overturned to the southwest, that reflects the folding characteristics of the regional structural pattern. The northwest-trending, elongated geometry of the iron-formation deposit was produced by the surface intersection of a tight, overturned fold sequence subsequently deformed by gentle, northeast- trending folds affecting a doubly-plunging effect on the northwest fold axes.

## 7.6 Mineralisation

The iron formations underlying the Gagnon Terrane are classified as Lake Superior-type and hosted by the Wabush Formation, the metamorphosed equivalent of the Sokoman (iron) Formation, which consists of a banded sedimentary unit composed principally of bands of iron oxides, magnetite and hematite within quartz (chert)-rich rock with variable amounts of silicate, carbonate and sulphide lithofacies. Metamorphic grade ranges from greenschist facies near the Grenville Front to amphibolite-granulite facies farther south. As a result of the tectono-metamorphism, the iron formation has preferentially migrated to, and is structurally thickened in fold hinges, the mineralisation is coarsely recrystallized, and the mineral assemblage of the principal iron ores is martite-magnetite-quartz and specular hematite-quartz.

The principal iron-oxide deposits found in the Gagnon Terrane are grouped into two types: quartz/specular hematite and quartz/specular hematite-magnetite. The Lac Jeannine deposit was host to a mainly medium- to coarse-grained quartz/specular hematite.

There are no catalogued mineral occurrences on the Property; however, the Property hosts tailings material that was generated during the processing of ore from the historic open-pit Lac Jeannine Mine, which hosted a Superior-type iron formation deposit.

Between 1961 and 1976, the Lac Jeannine open pit mine extracted 265,897,000 (long) tons of ore at 33% iron, in mainly specular hematite form.

# 8 Deposit Types

Iron formations are classified as chemical sedimentary rock containing greater than 15% iron consisting of iron-rich beds usually interlayered on a centimetre scale with chert, quartz, or carbonate. Ore is mainly composed of magnetite and hematite and is commonly associated with mature sedimentary rocks.

Stratiform iron formations are distributed throughout the world in the major tectonic belts of the Precambrian shields and in many Palaeozoic and Mesozoic fold belts as well as parts of the present-day ocean floor. Gross (2009) noted that the enormous size of some of the Archean and Paleoproterozoic iron formations reflect the unique global tectonic features and depositional environments for iron formation that were distinctive of the time.

Although various models have been used to explain the deposition of iron formations, current thinking (summarized in Cannon 1992, Gross 1996, Gross 2009) supports the idea of iron formation deposition resulting from the syngenetic precipitation of iron-rich minerals in a marine setting due to hydrothermal exhalative activity on the ocean floor. The iron is thought to have formed in tectonic-sedimentary environments where silica, iron, ferrous and non-ferrous metals were available in abundance, mainly from hydrothermal sources, and where conditions were favourable for their rapid deposition with minimal clastic sediment input.

Hydrothermal processes related to volcanism and major tectonic features are thought to be the principal source of iron and other metals. Deep fractures and crustal dislocations over hot spots and high thermal gradients penetrating the upper mantle enabled convective circulation, alteration and leaching of metals from the upper crust including possible contributions by magmatic fluids. Iron formations are not only important hosts of enriched iron and manganese ore but are also markers for massive sulphide deposits. Deposition of the iron was influenced by the pH and Eh of the ambient water and biogenic anaerobic processes may have also played a role (Gross 1996, Gross 2009).

Post depositional events such as weathering, groundwater circulation and hydrothermal circulation can modify the deposits and the mineralogy is usually recrystallized and coarsened by medium- to high-grade metamorphism. Protracted supergene alteration can be an important economic fact in upgrading the primary iron formation (Gross 1996).

Iron formations can be subdivided into two types, related to two major types of tectonic environments: the Lake Superior-type on continental shelf and marginal basins adjacent to deep seated fault and fracture systems and subduction zones along craton borders; and the Algoma-type along volcanic arcs and rift systems, and other major disruptions of the earth's crust (Figure 8.1).

The development of Lake Superior-types was related to global tectonics that caused the breakup of cratons, shields or plates in the Paleoproterozoic. Rapitan-type have distinctive lithological features being associated with diamictite and were deposited in grabens and fault scarp basins along rifted margins of continents or ancient cratons in sequences of Late Proterozoic and Early Palaeozoic rocks.

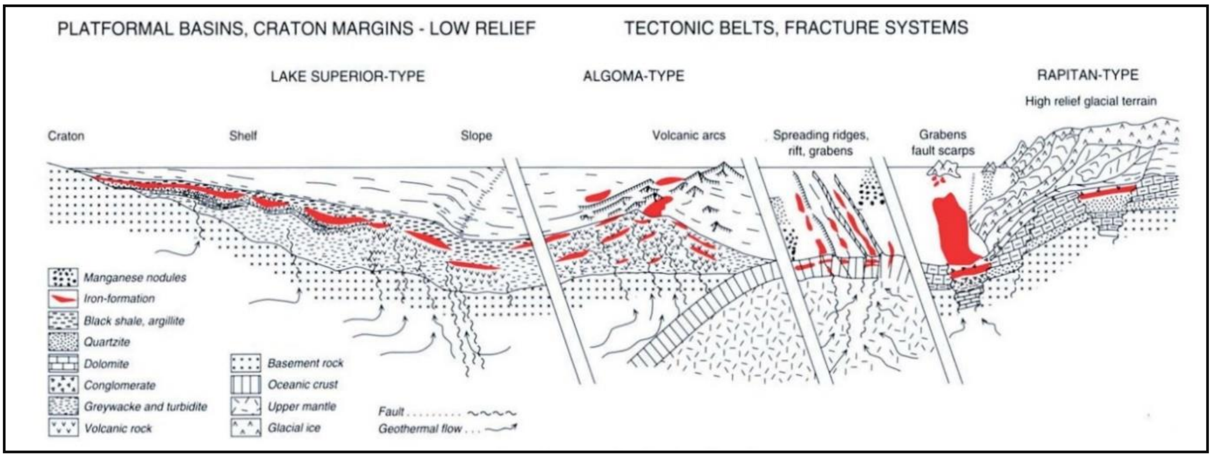


*Figure 8.1: Tectonic environment for the iron formation deposition.*

*Source: Gross (1996).*

## 8.1 Lake Superior-Type Iron Formations

Extensive Lake Superior-type iron formations occur on all continents, in parts of relatively stable sedimentary-tectonic systems developed along the margins of cratons or epi-continental platforms. Most of the thicker iron formations were deposited in shallow basins on continental shelves and platforms in neritic environments, interbedded with mature sedimentary deposits (Gross, 2009).

The following are definitive characteristics of ore deposits of the Lake Superior-type iron formations (Gross 1996):

- Iron content is 30% or greater.
- Discrete units of oxide lithofacies iron formation is clearly segregated from silicate, carbonate or sulphide facies and other barren rock.
- Iron is uniformly distributed in discrete grains or grain clusters of hematite, magnetite and goethite in a cherty or granular quartz matrix.

- Iron formations, repeated by folding and faulting, provide thick sections amenable to mining.
- Metamorphic enlargement of grain size has improved the quality of the ore for concentration and processing.

Iron formation deposition coincided with volcanism in linear tectonic belts along the continental margins. Most of the sedimentary-tectonic belts in which they were deposited were characterized by extensive volcanic activity that coincided with the deepening of the linear basins or trough in the offshore areas and by extrusion and intrusion of mafic and ultramafic rocks throughout the shelf and marginal rift belts near the close or after the main periods of iron formation deposition (Gross, 2009).

## 8.2 Lac Jeannine Tailings Storage Facility Deposit

CoTec's primary focus is on reprocessing the tailings material from the Lac Jeannine Mine and later, the Fire Lake Mine. This tailings material primarily consists of fine- to medium-grained quartz and specular hematite.

The tailings storage facility contains free iron, offering a potential opportunity for reworking and extracting additional iron.

# 9 Exploration

A composite bulk sample was collected from two trenches in the area of the drill holes in September 2023 (Figure 9.1). A backhoe was employed to dig two 5 m x 1 m trenches (LJ-Tr-01 and LJ-Tr-02) and collect material from 1 m, 2 m and 3 m depths.

Approximately ten (10) tonnes of material were removed from each trench and placed in bulk bags for transport to Corem for testwork.

For initial testing, the contents of one bulk bag (approximately 800 kg) from each trench were composited and a "representative sample" was used for the hydraulic classifier, Wilfley and size-fraction tests. The only head assay performed on this material returned a grade of 13.9% $Fe_2O_3$. Exploration drilling shows that the top of the tailings deposit is typically higher grade in the top 10 to 15 m and as such the bulk sample may not be representative of a "life of mine composite".

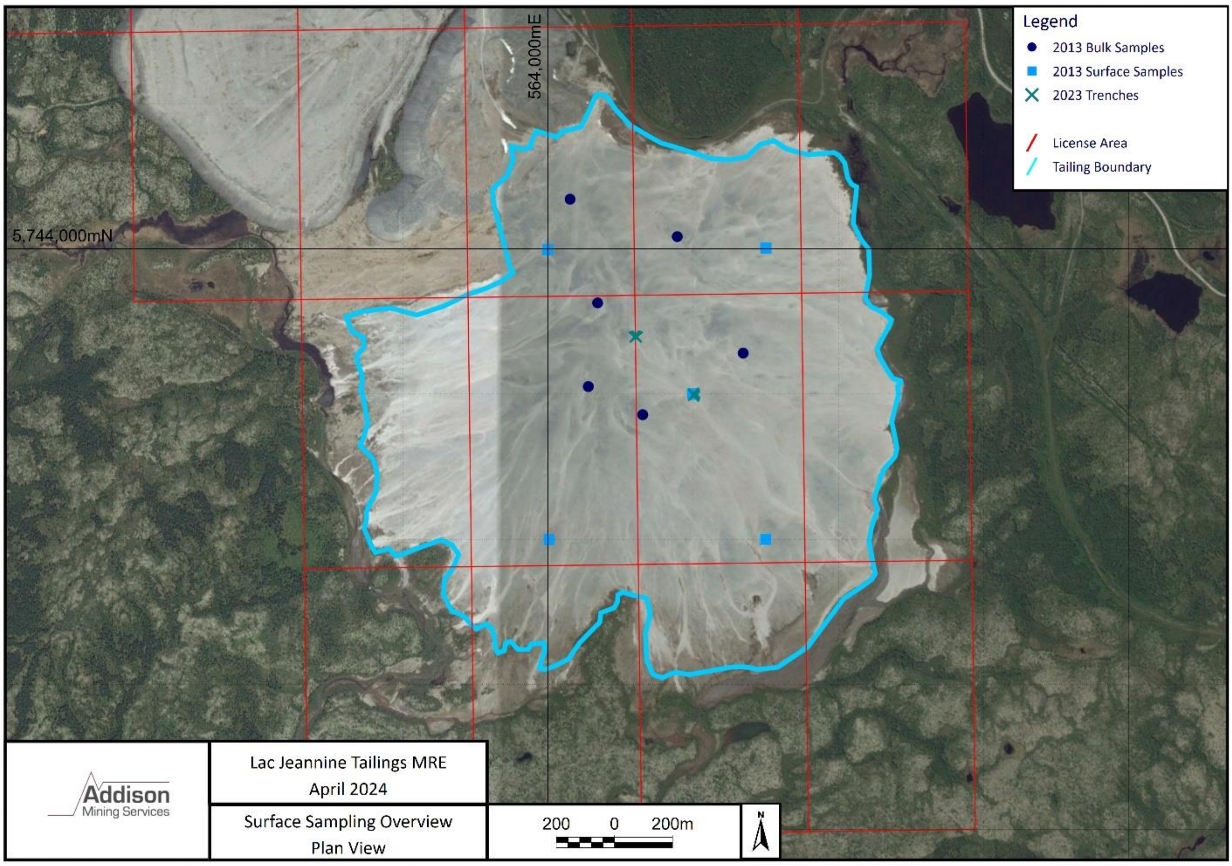


*Figure 9.1: Plan image showing locations of 2023 bulk-sample trenches and earlier legacy samples.*

# 10 Drilling

## 10.1 Introduction and Summary

Between the 20th and 28th of September 2023 CoTec conducted a sonic-drilling campaign on the Lac Jeannine tailings site on behalf of the current claim holder.

Drilling was carried out by Sonic Edge Drilling of Rocky View (Calgary), Alberta using a Boart Longyear LS250 MiniSonic Drill Rig. The rig uses 5-ft rods with 4.05-inch inner diameter and collects cored material within the rods which is then emptied into long plastic bags.

A total of thirteen (13) vertical drill holes (LJ23-01 to LJ23-13) were completed for 522.0 metres of drilling. Total core recovered was 483.5 m for 93% recovery. The totals are shown in Table 10.1 and the drillhole locations are shown in Figure 10.1.

*Table 10.1: Drillhole summary.*

| Hole ID | NAD83 Zone 19 | | Elevation (m) | Start Date 2023 | End Date 2023 | Dip (°) | Length (m) | Recovered (m) |
|---|---|---|---|---|---|---|---|---|
| | UTM-X | UTM-Y | | | | | | |
| **LJ23-01** | 564202.4 | 5743698.3 | 600.5 | 20-Sep | 20-Sep | 90 | 40.5 | 37.5 |
| **LJ23-02** | 564402.4 | 5743698.3 | 598.8 | 20-Sep | 21-Sep | 90 | 40.5 | 36.0 |
| **LJ23-03** | 564402.4 | 5743898.3 | 599.4 | 21-Sep | 22-Sep | 90 | 40.5 | 37.0 |
| **LJ23-04** | 564604.3 | 5743706.1 | 592.2 | 22-Sep | 22-Sep | 90 | 40.5 | 38.5 |
| **LJ23-05** | 564802.4 | 5743498.3 | 565.8 | 22-Sep | 23-Sep | 90 | 36.0 | 34.5 |
| **LJ23-06** | 564602.4 | 5743498.4 | 579.6 | 23-Sep | 23-Sep | 90 | 40.5 | 39.0 |
| **LJ23-07** | 564402.4 | 5743498.3 | 587.7 | 24-Sep | 24-Sep | 90 | 40.5 | 40.5 |
| **LJ23-08** | 564202.4 | 5743498.3 | 597.7 | 24-Sep | 25-Sep | 90 | 40.5 | 37.0 |
| **LJ23-09** | 564002.4 | 5743498.3 | 594.2 | 25-Sep | 25-Sep | 90 | 40.5 | 36.0 |
| **LJ23-10** | 564202.4 | 5743298.4 | 591.7 | 25-Sep | 26-Sep | 90 | 40.5 | 33.5 |
| **LJ23-11** | 564402.4 | 5743298.4 | 582.9 | 26-Sep | 27-Sep | 90 | 40.5 | 36.5 |
| **LJ23-12** | 564602.4 | 5743298.3 | 569.6 | 27-Sep | 27-Sep | 90 | 40.5 | 37.5 |
| **LJ23-13** | 564200.8 | 5743903.3 | 604.1 | 28-Sep | 28-Sep | 90 | 40.5 | 40.0 |
| **Totals:** | | | | | | | 522.0 | 483.5 |

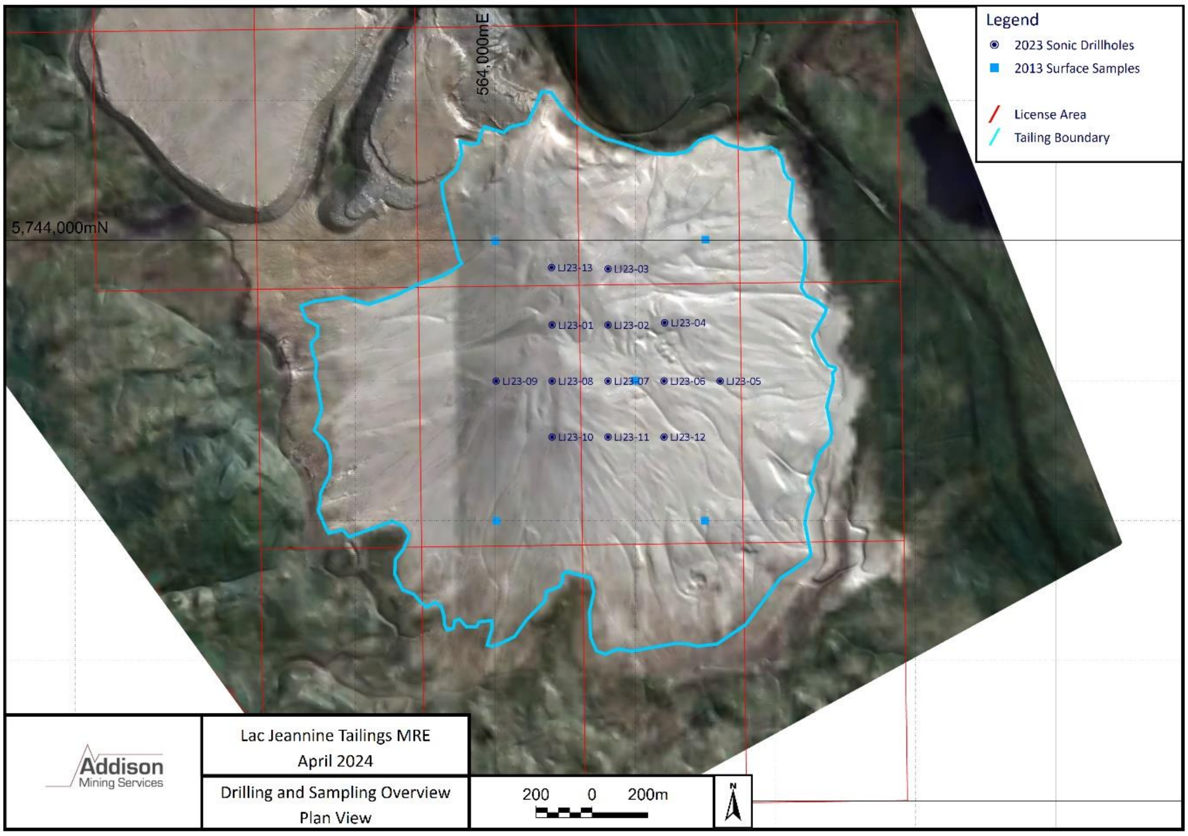


*Figure 10.1: Google Earth image showing 2023 sonic-drill hole collars and licence boundary.*

## 10.2 Drilling Procedures

Collar locations were established on an approximate 200 m spaced grid pattern using a handheld GPS. Precise collar locations were later surveyed with a real-time-kinematic (RTK) type GPS instrument by N.E. Parrott Surveys Limited of Labrador City, NL. An RTK-type GPS receiver senses the normal signals from the Global Navigation Satellite Systems along with a correction stream to achieve 1.0 cm positional accuracy.

## 10.3 Drill Core Handling and Logging Summary Procedures

The drill rig uses 4.05" x 60" (10.2 × 152.4 cm) core barrels. As drilling progressed, each rod was cored and then removed, and the cored material was emptied into long plastic sleeves. The drillers collected the plastic sleeves on a pallet, which was then carefully transported to the core logging facility (a temporary marquee-style tent) for logging and processing. A summary of the procedures is provided below:

- The cored material was collected at the drill rig in five-foot long plastic bags.
- Core was transported to a logging tent that was set up on the tailings site.

- At the logging facility, the core bags were split open for lithological description and recovery noted.
- Core was logged on paper and then later digitised into Excel.
- A representative reference sample was collected by skimming approximately 1.0 to 1.5 litres of material equally from along a small channel the length of the cored material.
- Various measurements and characteristics were noted for each run, including colour, material component, grain-size, sorting and moisture level (e.g., dry-damp-wet).
- A small representative sample was used for bulk density measurements.
- After logging, the remaining material was placed into sample bags with a sample number written on the bag and a tag placed inside.
- The sample bags were then placed into 850 kg capacity bulk bags (one bulk bag per drillhole).
- The reference material samples (with a sample tag inside) were collected into separate bags and at the end of each hole were transported to a secure storage facility in Fermont (QC) for storage at the end of the programme.
- The bulk bags of samples obtained during the 2023 drilling programme were shipped to Corem, a Québec-based laboratory for metallurgical and processing testwork and chemical analysis.

## 10.4 Bulk Density Measurements

The density calculations performed at the logging facility were obtained by weighing 500 ml of collected material. The container was tamped down by banging it on the table and filling to 500 ml. The material was collected along the length of the primary sample after it was split open.

The sample was then weighed, and a simple volume/weight calculation applied to get the density. However, some error is noted as it is very difficult to understand the void space and level of compression at a given depth due to the sampling (sonic) system used as well as the moisture content of the sample.

## 10.5 Core Storage

Apart from a small 1-2 kg reference sample, which is stored in plastic bags at a secure facility in Fermont, all the core material was sent to Corem laboratories for analysis and retention.

## 10.6 Recovery

Core recoveries were estimated based on the estimated total core recovered from the length of the 1.5 metre runs. There are 337 recovery measurements with an average recovery of 93%.

# 11 Sample Preparation, Analyses and Security

The following section provides a summary of the sample data collection methodologies from the 2023 drilling program and bulk sample collection.

## 11.1 Sample Collection

A small reference sample of 1.5 to 2.5 kilograms (1.0 to 1.5 litres) was collected from the 1.5 metre primary sample. These reference samples are securely stored in Fermont, QC for reference if required (Figure 11.1).

After logging, the remaining sample material was placed in a plastic-lined, waterproof rice bag with a sample tag inside and the sample number written on the outside. All samples were collected from run to run and were generally 1.5 metres in length (with a minimum of 0.5 m). The rice sacks were placed into 850 kg capacity bulk bags (one bulk bag per hole).

All the bulk sample bags were secured and shipped directly from the Property to Corem for analysis, CoTec hired a third-party transport company to transport the samples from the site to Corem. Corem is internationally accredited by the Canadian Standards Council (SCC) through the Bureau de Normalization du Québec (BNQ) to ISO/IEC 17025:2017 Analytical Services Laboratory (LSA).

*Figure 11.1: Reference sample storage in Fermont.*

## 11.2 Laboratory Sample Preparation and Analytical Procedures

### 11.2.1 Sample Preparation

Sample preparation and analysis for Corem is outlined below:

- Samples are initially sorted and verified against the Sample Submission Form.
- Weight received logged.
- Samples oven dried and weighed.
- Tertiary crushing (roll crusher - lab scale, opening at 2.36 mm) followed by screening at 2.36 mm.
- Homogenization - rotary sample splitter.
- Sample pulverizing.

### 11.2.2 Sample Analysis

Analyses of major and minor elements was achieved using X-ray fluorescence (XRF) methods on the submitted samples.

XRF is the preferred method for the determination of the major oxides, as well as some trace elements. Corem used a tungsten fusion-style technique for their XRF analytic procedure. A portion of a sample is mixed with a flux. The mixture is then fused at a temperature of about 1050 °C and poured into a mould to form a glass disc. This glass disc is presented to the X-ray spectrometer. The extent of the spectrometer allows the acquisition of intensity in kilo counts per second (kcps) for each element of interest. The digital processing program, designated "A25" by Corem, converts these intensity concentrations which are reported as major oxides, as follows:

$SiO_2$, $Al_2O_3$, $Fe_2O_3$, MgO, CaO, $Na_2O$, $K_2O$, $TiO_2$, MnO, $P_2O_5$, $Cr_2O_3$, $V_2O_5$, $ZrO_2$, ZnO, and LOI (loss on ignition).

## 11.3 Quality Control

Quality Control (QC) monitoring is undertaken to ensure reliability of the data used in exploration data analysis and mineral resource estimation. QC samples were regularly inserted into the sample stream. QC samples consisted of CRMs, blank material and duplicates. There are 337 primary samples within the database and 39 QC samples (of which 13 are CRMs, 13 blank material and 13 duplicates), representing 10.4% of total number of samples.

CoTec has inserted the following routine quality control samples into their sample stream:

- Certified Reference Materials (CRMs) are highly homogenous powdered materials with an estimated concentration of certain elements within reported standard deviation and test for the accuracy of the analysis.
- Blank material tests for contamination in the laboratory which is most commonly introduced at the sample preparation stage.
- Duplicates are samples taken from the same interval as the original sample to test the precision (reproducibility) of the sampling method, and to assess the homogeneity of mineralisation.

A summary of the QC for the Project is presented below. Control charts for $Fe_2O_3$ are presented in the following sections.

### 11.3.1 Certified Reference Materials- Accuracy

During the drilling programme, three CRMs were used and are summarised in Table 11.1.

Analysis of CRMs is undertaken using Shewhart Control charts, with Nelson Rules applied. The Shewhart Control Charts are illustrated Figure 11.2, Figure 11.3 and Figure 11.4.

*Table 11.1 Summary of CRMs.*

| | **Fe2O3 (%)** | | **No Analyses** |
|---|---|---|---|
| | Certified Value | Standard Deviation | |
| **OREAS 25B** | 12.2 | 0.172 | 3 |
| **OREAS 46** | 3.79 | 0.091 | 4 |
| **OREAS 294** | 1.46 | 0.019 | 6 |

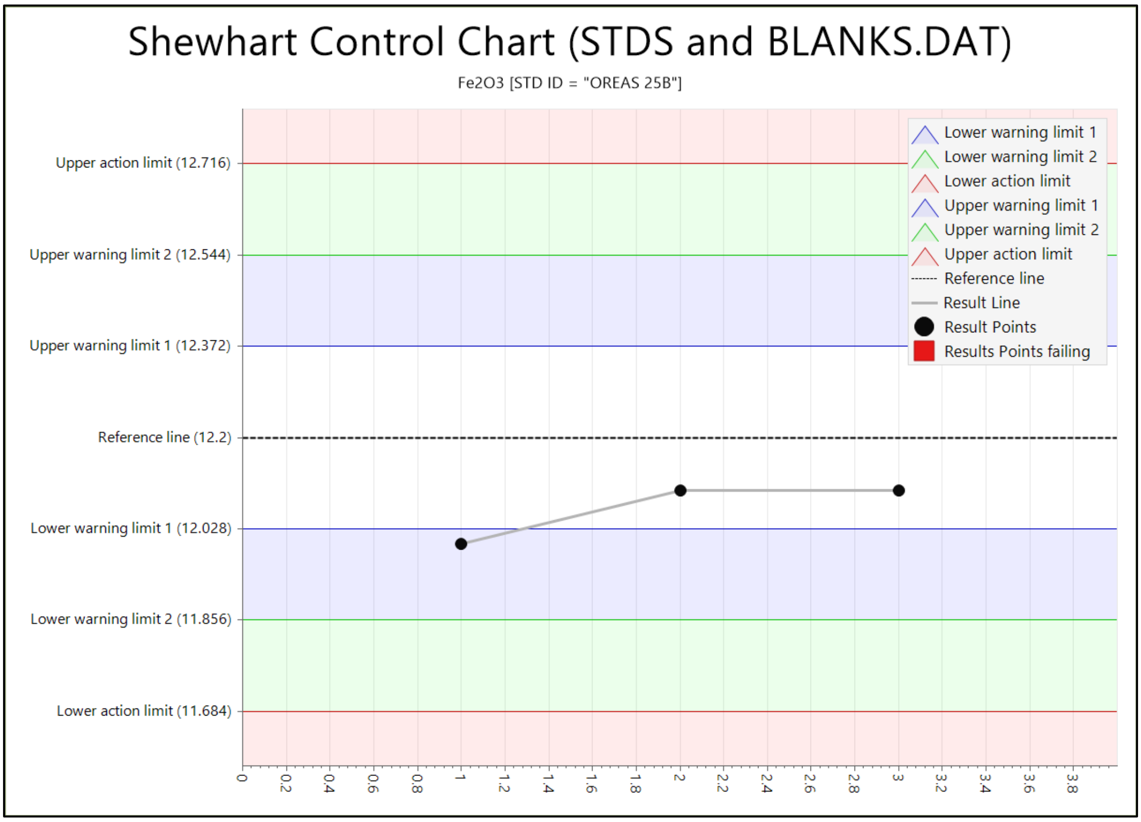


*Figure 11.2: OREAS 25B $Fe_2O_3$ %.*

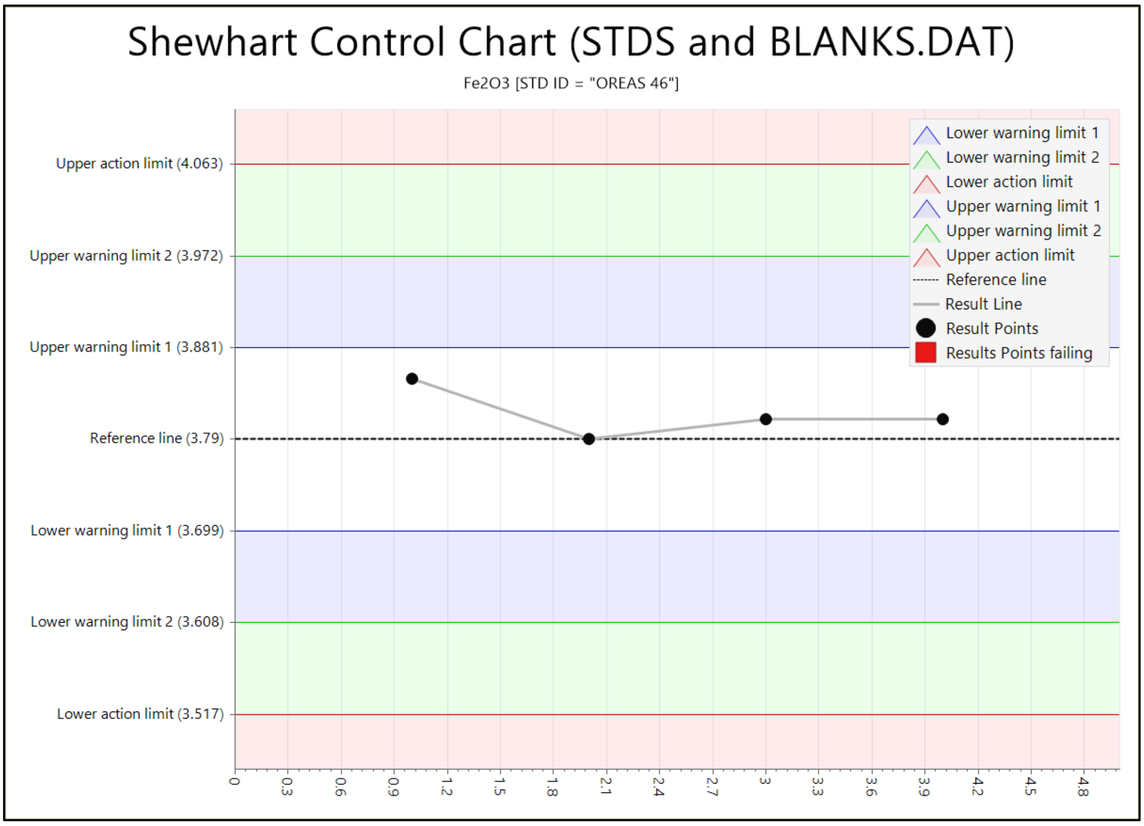


*Figure 11.3: OREAS 46 $Fe_2O_3$ %.*

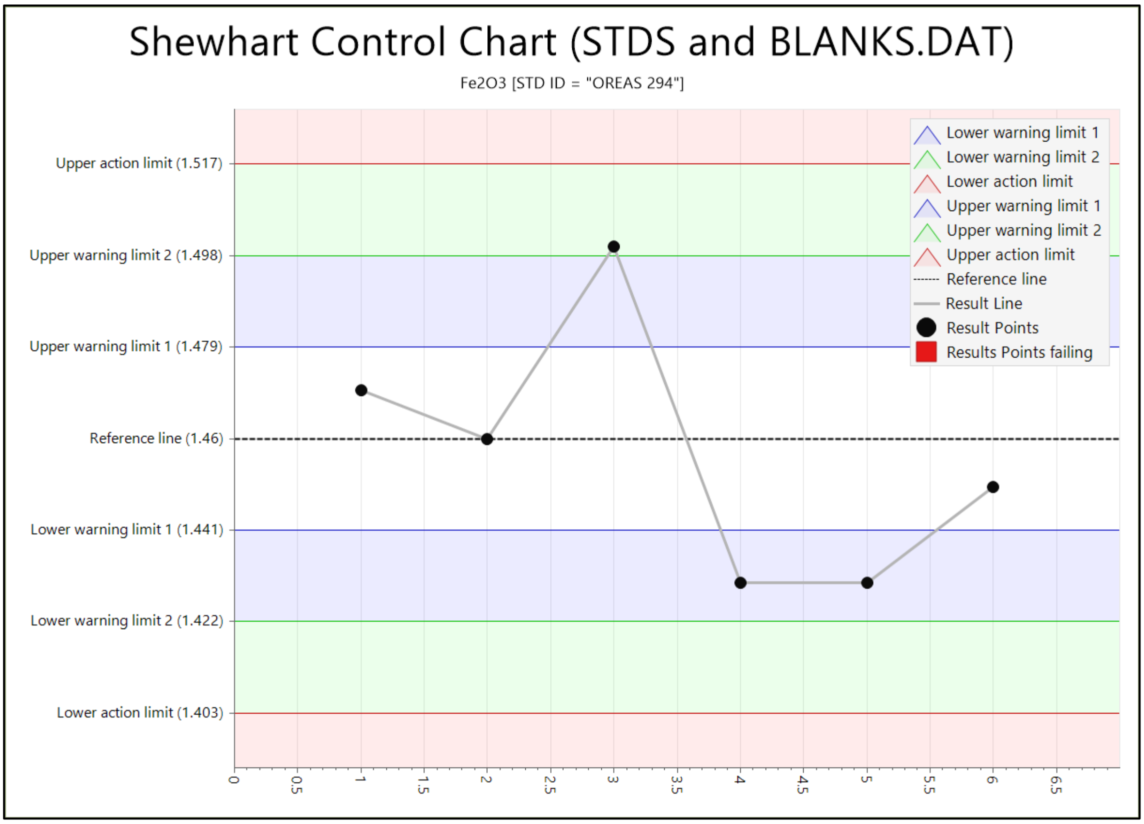


*Figure 11.4: OREAS 294 $Fe_2O_3$ %.*

As an additional verification, $Al_2O_3$, MgO, $P_2O_5$ and $SiO_2$ results were also checked against certified values and expected performance gates. In general, all results performed well except for four $SiO_2$ CRMs which yielded lower than expected values, but always within the 5% window.

### 11.3.2 Blanks- Contamination

Analysis of blank results show no signs of significant contamination, as illustrated in Figure 11.5.

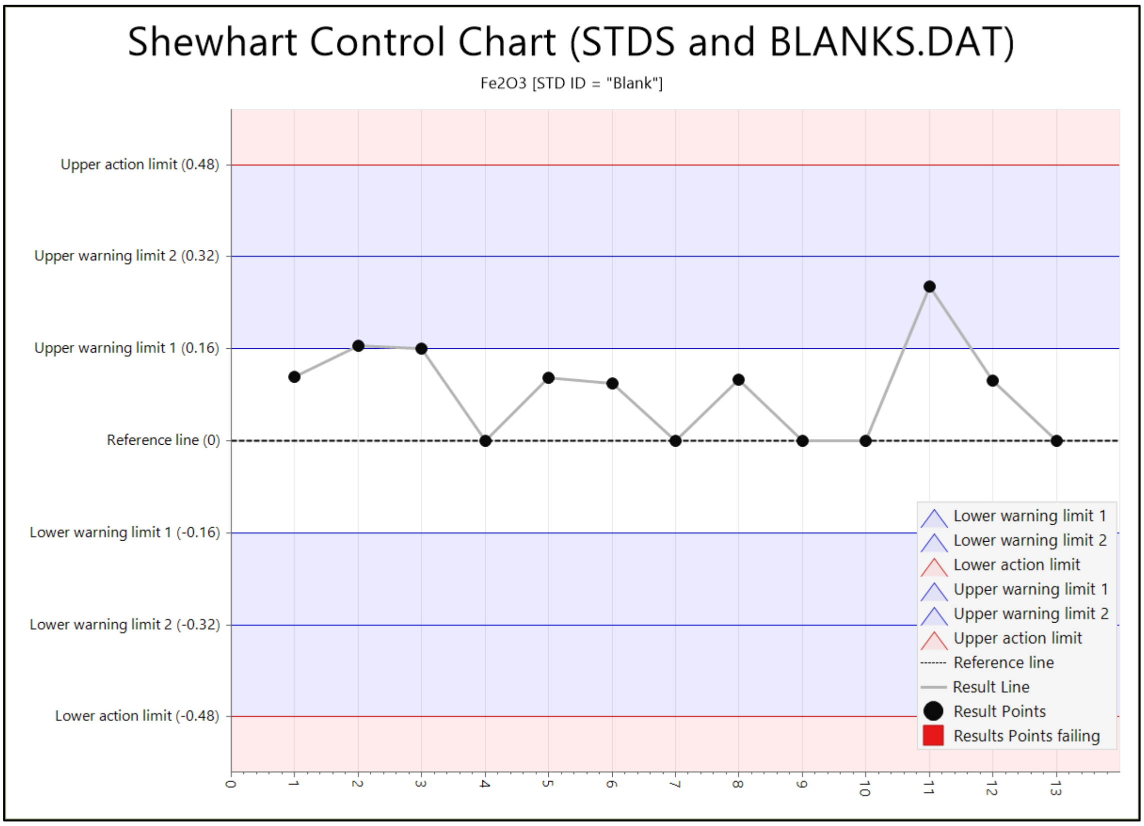


*Figure 11.5: Blanks $Fe_2O_3$ %.*

### 11.3.3 Duplicates- Precision

Duplicates were inserted into the sample stream directly after the original sample and were prepared and analysed using the same methods as the originals. These duplicate samples were prepared by the laboratory after the drying process and split to produce two samples as the logging facility at the site did not have the ability to split the sample appropriately using a purpose-built splitter.

A comparison of the original versus duplicated assay was conducted using a scattergram, as presented in Figure 11.6. The correlation of $Fe_2O_3$ concentration is within the expected range.

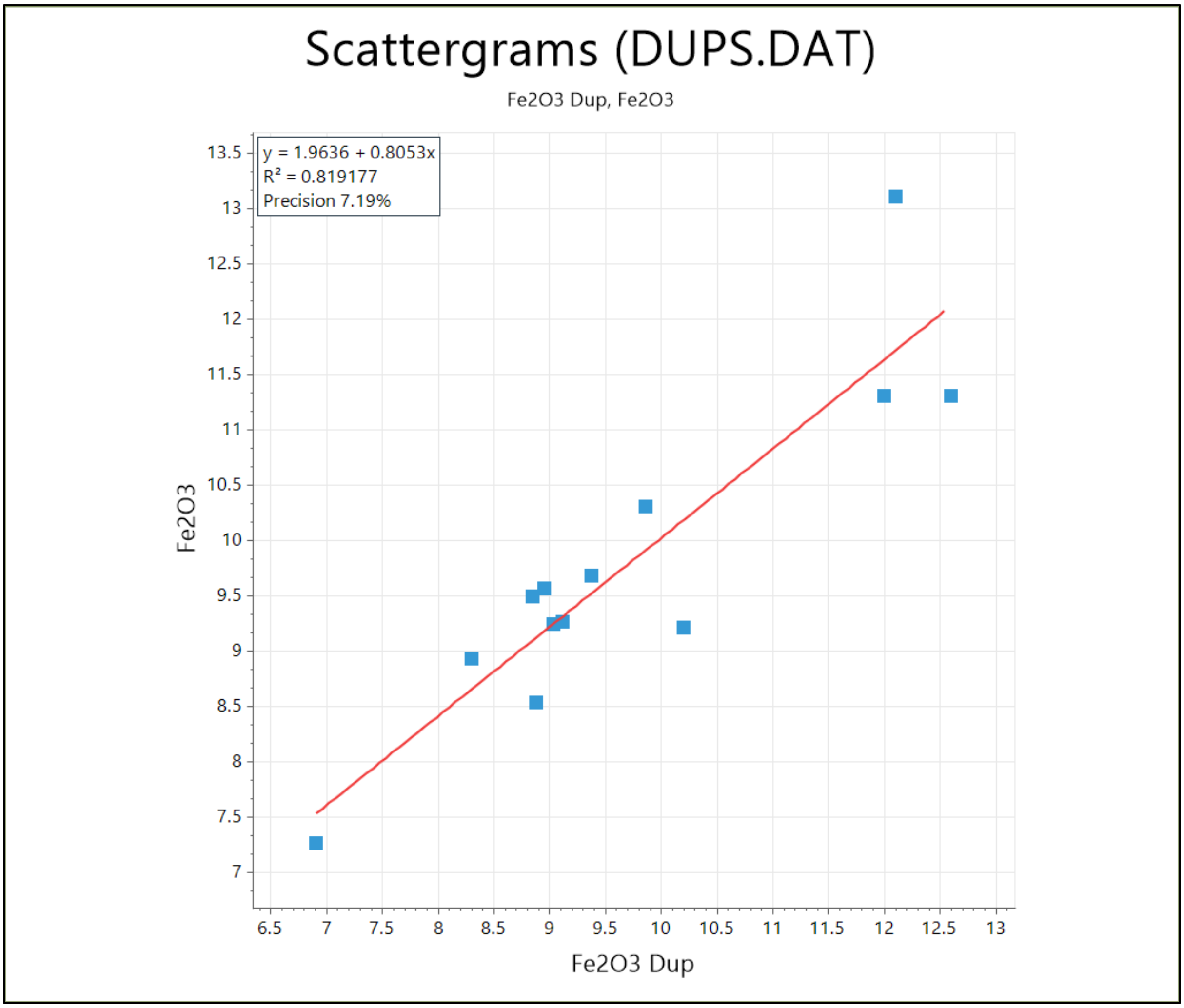


*Figure 11.6: Field Duplicates $Fe_2O_3$ %.*

### 11.3.4 Qualified Person Validation

All QC samples were inspected by the QP and checked for accuracy and precision. No errors were found in the data presented in this section.

## 11.4 Comments

The Qualified Person for Mineral Resource Estimates is satisfied the methods employed for the preparation, analytical determination and data processing are satisfactory for the purpose of Mineral Resource Estimation.

CRM analysis shows data to be suitably accurate over the grade ranges tested. Although there is a large grade gap between the highest-grade CRM (12.2% $Fe_2O_3$) and the next lowest grade (3.79% $Fe_2O_3$), there is no CRM in use close to the average resource grade of approximately 9.6% $Fe_2O_3$. There are no concerns identified with the analyses of the CRMs, but future drilling programmes should aim to source CRMs with grade more appropriate to the distribution seen in the assay data collected in the 2023 drill program and ideally from material sourced from similar deposits.

All of the available primary and quality control analytical data has been assessed by the QP, and no issues have been identified. The QP for Mineral Resources considers the data suitable for input into Mineral Resource Estimation.

# 12 Data Verification

## 12.1 Site Visits

Mr. John Langton visited the site from September 20th to 28th, 2023. During the site visit, Mr. Langton explored the general physiography and geological surface features of the Property, verified the access to the Property, reviewed the area infrastructure and confirmed sources of water and power for the Property. Mr. Langton confirms that the drilling and sampling methodologies and site situation described in the Technical Report are accurate and not misleading. Mr. Langton was also present for the drill-collar survey carried out by N.E. Parrott Surveys Limited.

Mr. Christian Beaulieu visited the site on June 12, 2024. During the site visit, Mr. Beaulieu explored the general physiography and geological surface features of the tailings area, verified access to the Property, and a portion of the access road to the east of the Property leading to the railway junction. Mr. Beaulieu also visited the reference sample storage in Fermont and confirms that it is securely stored and that the material sampled is representative of the tailings material observed at surface.

During the site visit by Mr. Beaulieu, eight (8) out of thirteen (13) drillhole collars were checked with a handheld GPS (Garmin® GPSmap 62s) and showed good accuracy compared to the database (Table 12.1) considering the lower precision of the device.

*Table 12.1: Validation of drill collar coordinates*

| Hole ID | Database | | QP - Site Visit | | Difference | |
|---|---|---|---|---|---|---|
| | Easting | Northing | Easting | Northing | Easting | Northing |
| **LJ23-01** | 564,202 | 5,743,698 | 564,203 | 5,743,698 | 0.58 | -0.33 |
| **LJ23-03** | 564,402 | 5,743,898 | 564,401 | 5,743,900 | -1.43 | 1.66 |
| **LJ23-07** | 564,402 | 5,743,498 | 564,396 | 5,743,495 | -6.43 | -3.35 |
| **LJ23-08** | 564,202 | 5,743,498 | 564,204 | 5,743,498 | 1.56 | -0.33 |
| **LJ23-09** | 564,002 | 5,743,498 | 563,997 | 5,743,499 | -5.44 | 0.66 |
| **LJ23-10** | 564,202 | 5,743,298 | 564,201 | 5,743,300 | -1.44 | 1.65 |
| **LJ23-11** | 564,402 | 5,743,298 | 564,400 | 5,743,299 | -2.44 | 0.65 |
| **LJ23-13** | 564,201 | 5,743,903 | 564,201 | 5,743,905 | 0.25 | 1.72 |

## 12.2 Laboratory Inspection

No laboratory inspection was completed by a Qualified Person.

## 12.3 Database Verification and Validation by AMS

AMS imported all data into Micromine 2024 software and completed drillhole database validation for issues such as overlapping and missing intervals. No issues were identified. The original assay certificates and data files were provided by the laboratory and .csv files imported and paired using a query with the original sample numbers in Micromine software.

## 12.4 Database Verification and Validation by the Qualified Person

An independent validation and verification of the database was undertaken by the Qualified Person for Mineral Resource Estimation (Mr. Christian Beaulieu). The inspection of the database used in the estimation consisted of importing all relevant drilling information into Leapfrog Geo® 2023.2 such as collars, deviation, geology, assay and composite tables and checking for inconsistencies. Summary statistics of the assay and composite tables were also generated for comparison. No issues were found during this validation and statistics were perfectly replicated.

A validation of the assay database was conducted by comparing original assay certificates (PDF) provided by Corem with the database used for the estimation. Approximately 46% of the complete database was inspected for all major oxides, including all QAQC samples (standards, blanks and duplicates). All values below the detection limit were also reviewed and are correctly assigned to half of the limit. No errors were found.

## 12.5 QP Comments

The database validation process, input models (such as topography surfaces), tailings inspection, and drillhole collar locations confirmed the validity of the drilling database and supporting information used in the MRE. No issues were found during data validation, both digitally and in the field. The QP for Mineral Resources considers the data suitable for input into an MRE.

# 13 Mineral Processing and Metallurgical Testing

This section summarizes the historical testwork performed on the material from the Lac Jeannine tailings material property acquired with agreement by CoTec since August 2023. The historical testwork results made available are as follows:

- Carried out by Process Research Associates Ltd. (PRA) commissioned by Quinto in 2007 to conduct a metallurgical assessment and prepare an Opportunity Study on the potential reprocessing of the Lac Jeannine tailings material.
- Carried out in 2015 and was analysed by COREM to determine its potential as a source for an economic iron oxide concentrate.
- Carried out by COREM in 2023 and 2024 to support the 2024 Preliminary Economic Assessment (PEA).

The 2023 and 2024 testwork programs being the most complete in terms of sampling and depth of flowsheet development serve as the basis for the design of the process plant. The Table 13.1 presents a summary of the historical testwork performed.

*Table 13.1: Historical testwork summary*

| Historical Study | Sample | Testwork |
|---|---|---|
| **2007 Process Research Associates Ltd.** | (1) Composite<br>(1) Variability | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution, Iron Assay by Size)<br>- Gravity Separation (Wilfley Table)<br>- Magnetic Separation (Davis Tube) |
| **2015 COREM** | (1) Composite | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution, Iron Assay by Size)<br>- Qualitative Mineralogical Analysis |
| **2023 COREM** | (24) Composite<br>(376) Variability | - Quantitative Mineralogical Analysis (Head Assay)<br>- Classification (Screening)<br>- Gravity Separation (Wilfley Table, Jig, Dense Media Separation) |
| **2024 COREM** | (1) Composite | - Quantitative Mineralogical Analysis (Head Assay, Size Distribution)<br>- Classification (Hydraulic Classifier, Size by Size Analysis)<br>- Gravity Separation (Wilfley Table, Dense Media Separation) |

The following is a summary of the major findings from these test programs.

## 13.1 2007 Process Research Associates Ltd. Test Program

In 2007, Process Research Associates Ltd. (PRA) (Soutex, 2017; Lavoie, 2015) conducted analyses and metallurgical tests on two samples of Lac Jeannine tailings. A total of eight grab samples, each weighing between 2.0 to 5.5 kg, were collected. One sample was designated as a variability sample ("Sample 193203"), while the others were combined into a composite sample ("Composite 1").

Due to the lack of information regarding the locations or collection procedures for the samples sent to PRA in 2006, the representativeness and reliability of the results are considered with caution.

### 13.1.1 Quantitative Mineralogical Analysis

Quantitative mineralogical analysis, including head assay, size distribution, and iron assay by size, was performed on both samples. The Composite 1 sample showed a composition of 14.1% total Fe (20.2% $Fe_2O_3$) and 75.5% $SiO_2$, with some content of $Al_2O_3$, CaO, and MgO (1.49%, 0.36%, and 0.29%, respectively).

Sample 193203 exhibited an anomalously high Fe grade (55.6%), suggesting that it was a hand-segregated or "cherry-picked" sample consisting mainly of coarse hematite material. This sample is not representative of the tailings material and has been omitted from this report.

Table 13.2 presents the particle size distribution (PSD) and iron assay by size results for the Composite 1 sample.

*Table 13.2: Particle Size Distribution (PSD) and iron assay by size of composite 1 sample*

| Size Fraction | Retained Size Fraction (%) | Assay per Size Fraction (% Fe) | Distribution per Size Fraction (% Fe) |
|---|---|---|---|
| **+ 1700 µm** | 13.4 | 28.7 | 26.9 |
| **+ 850 µm** | 31.7 | 15.6 | 34.5 |
| **+ 425 µm** | 30.8 | 7.2 | 15.4 |
| **- 425 µm** | 23.9 | 14.0 | 23.2 |

### 13.1.2 Gravity Separation

The Table 13.3 presents the Wilfley Table test performed on a sub-sample of composite 1 (T1) that was ground to 184 µm prior to the test.

*Table 13.3: Wilfley Table results for sample T1*

| Product | Mass Cumulative (%) | Fe Assay (%) | $SiO_2$ Assay (%) | Fe Distribution (%) |
|---|---|---|---|---|
| **Table Concentrate** | **17.7** | **62.89** | **8.2** | **80.2** |
| **Table Middlings 1** | 6.0 | 9.01 | | 3.9 |
| **Table Middlings 2** | **28.2** | **0.73** | | **1.5** |
| **Table Middlings 1+2** | 34.2 | 2.18 | | 5.4 |
| **Table Tails** | 48.1 | 4.14 | | 14.4 |
| **Total Table Tails** | **82.3** | **3.33** | | **19.8** |
| **Calculated Feed** | **100.0** | **13.85** | | **100.0** |

The results indicate a potential for recovery. However, in the absence of comparable Wilfley Table results for the original composite (Composite 1), it is not possible to conclusively determine the effectiveness of the liberation process or the benefits of a grinding stage prior to separation.

### 13.1.3 Magnetic Separation

The Table 13.4 presents the Davis Tube tests performed on the composite sample which showed high iron concentrate grade.

*Table 13.4: Davis Tube results for composite 1 sample*

| Product | Mass Cumulative (%) | Fe Assay (%) | Fe Distribution (%) |
|---|---|---|---|
| **Magnetic Concentrate** | 0.7 | 64.8 | 2.9 |
| **Non-Magnetic Concentrate** | 99.3 | 14.6 | 97.1 |
| **Calculated Feed** | 100.0 | 15.0 | 100.0 |

The Fe recovery was extremely low, indicating that hematite is the predominant iron mineral. This low recovery is attributed to the insufficient magnetic field generated during the test, which was inadequate for recovering hematite.

## 13.2 2015 COREM Test Program

In 2015, COREM (Lavoie, 2015) received six (6) 45-gallon drums, each containing material collected at a different location on the Lac Jeannine tailings site (Figure 13.1). Analyses were carried out on the gathered material after being weighed, dried, and homogenized into a composite sample (JLMet15-01). Approximately three (3) kg was extracted for testing purposes.

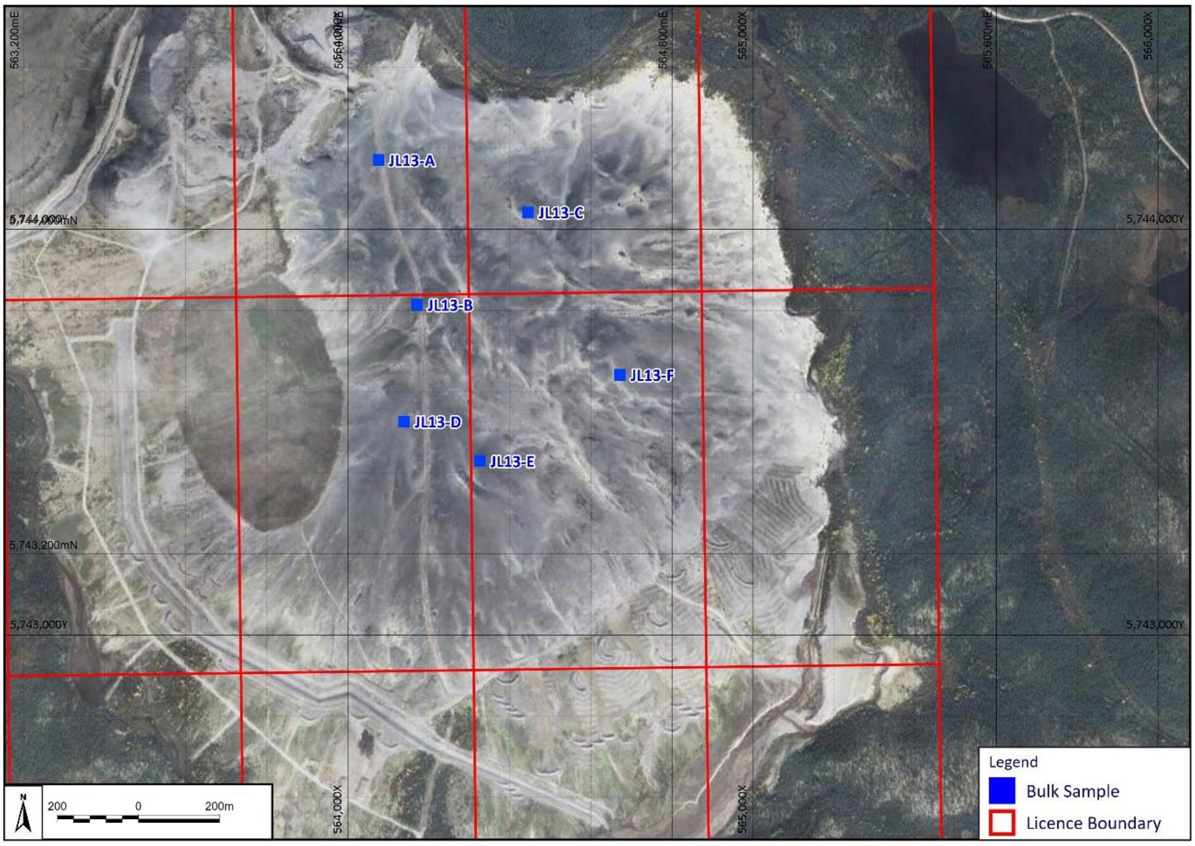


*Figure 13.1: Sample sites of material comprising composite sample JLMet15-01*

### 13.2.1 Quantitative Mineralogical Analysis

Quantitative mineralogical analysis, including head assay, size distribution, and iron assay by size, was performed on sample JLMet15-01. The results showed a composition of 9.86% total Fe (14.1% $Fe_2O_3$) and 84.20% $SiO_2$. Figure 13.2 presents the particle size distribution obtained from the composite.

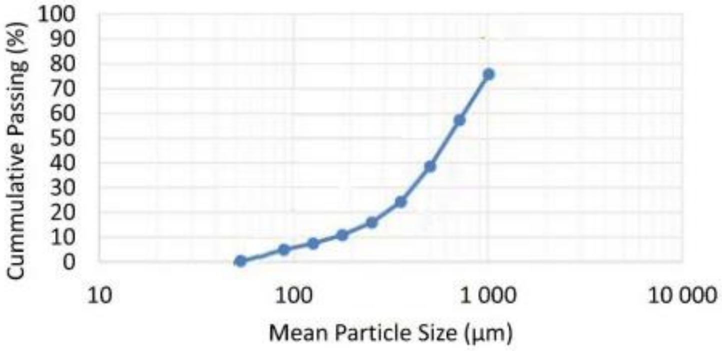


*Figure 13.2: Particle Size Distribution (PSD) curves for Lac Jeannine tailings.*

Figure 13.3 and Figure 13.4 present the iron grade and its distribution across the size fractions.

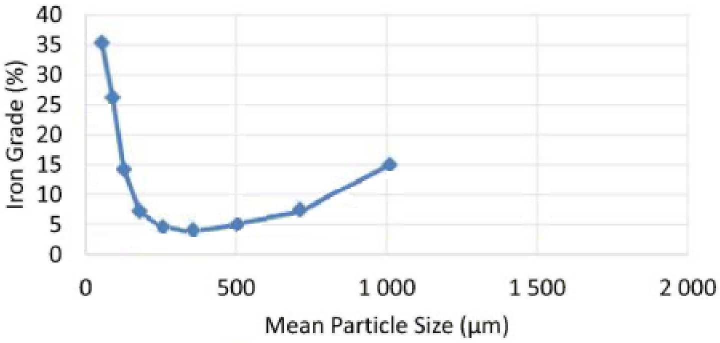


*Figure 13.3: Iron assay by size.*

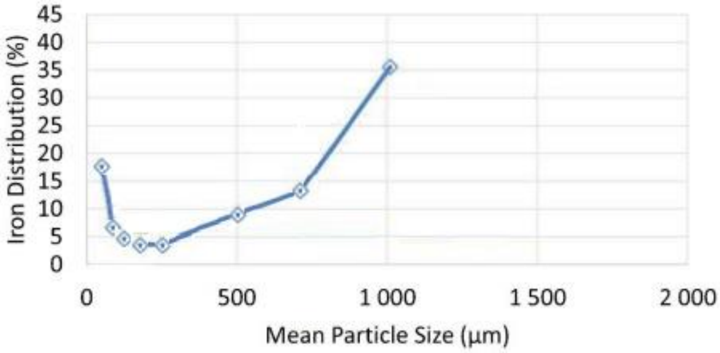


*Figure 13.4: Iron distribution by size.*

Figure 13.4 shows that iron is mainly distributed in the fine (- 212 µm) and coarse (+ 600 µm) fractions of the material which is consistent with the type of tailings material encountered.

### 13.2.2 Qualitative Mineralogical Analysis

A qualitative mineralogical analysis was performed on the JLMet15-01 sample which confirms that hematite and quartz are the two main mineral species present in the Lac Jeannine tailings material and most of the liberated iron oxides are in the -212 µm fraction. Table 13.5 presents a summary of this analysis.

*Table 13.5: Qualitative mineralogy summary for JLMet15-01 sample*

| Size Fraction | $Fe_2O_3$ (%) | Total Fe (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | Weight | Iron Oxide Liberation (%) | |
|---|---|---|---|---|---|---|---|
| **+ 850 µm** | 21.4 | 15.0 | 77.2 | 0.6 | 24.2 | 40 | 60 |
| **- 850 / + 600 µm** | 10.4 | 7.3 | 88.4 | 0.6 | 18.4 | 20 | 40 |
| **- 600 / + 425 µm** | 7.1 | 5.0 | 92.0 | 0.6 | 18.8 | 20 | 40 |
| **- 425 / + 300 µm** | 6.5 | 4.5 | 91.1 | 1.2 | 14.2 | 30 | 50 |
| **- 300 / + 212 µm** | 6.3 | 4.4 | 92.4 | 0.8 | 8.4 | 50 | 70 |
| **- 212 / + 150 µm** | 10.4 | 7.3 | 86.4 | 1.4 | 5.0 | 70 | 90 |
| **- 150 / + 106 µm** | 20.4 | 14.3 | 76.1 | 1.4 | 3.4 | > | 90 |
| **- 106 / + 75 µm** | 37.5 | 26.2 | 58.8 | 1.2 | 2.6 | > | 90 |
| **- 75 µm** | 50.6 | 35.4 | 46.0 | 1.1 | 5.0 | > | 90 |

As illustrated, most of the valuable iron units are concentrated into the fine (- 212 microns) and coarse (+ 600 microns) fractions. The bulk of the tailings from the intermediate size fraction (+ 212 to - 600 microns) comprise quartz (silica) particles.

## 13.3 2023 COREM Test Program

In 2023, COREM (2024) received material from 13 drill holes (23LJ-01@13) of the Lac Jeannine tailings site (Figure 13.5). Among these, four drill holes (#01, 04, 10, and 12) were used to gather four samples from each drill hole, forming composites for a total of six composites per drill hole (24 composites in total) for metallurgical testwork. Composite samples were generated from every 4 × 1.5 meters, with each composite consisting of 6 meters of material. These composite samples were considered equivalent in terms of material weight for subsequent analyses.

All the tailings material drill hole samples, including those used for the composites, represent a total of 335 variability samples. The total Fe grade of the 335 samples per drill hole is shown in Figure 13.6 and the average total Fe grade is 6.8%, which corresponds closely to the average head grade of the composites of 7% total Fe.

The objective of the 2023 testwork project was to evaluate the recoverable liberated iron in these composites for the +850 µm, -212 µm and the intermediate fraction size (-850 to +212 µm). The testwork methodology is presented in Figure 13.7.

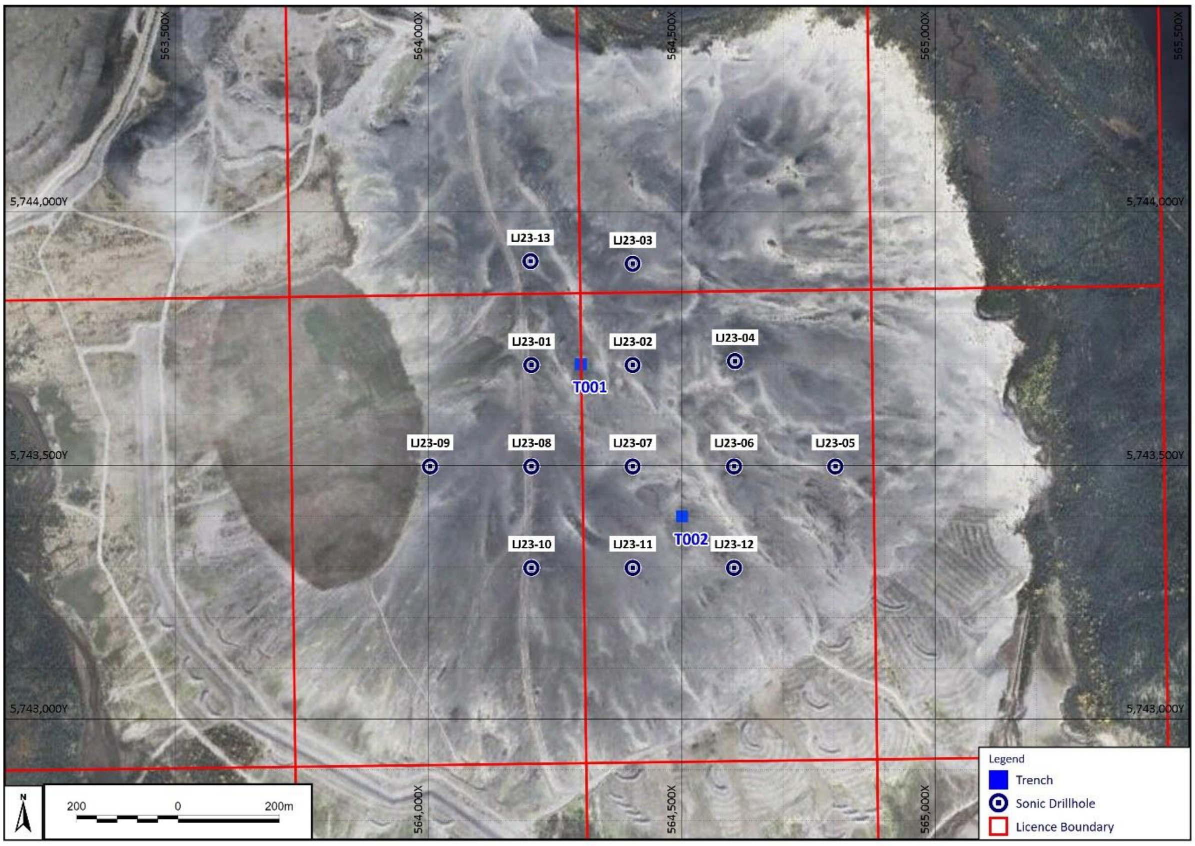
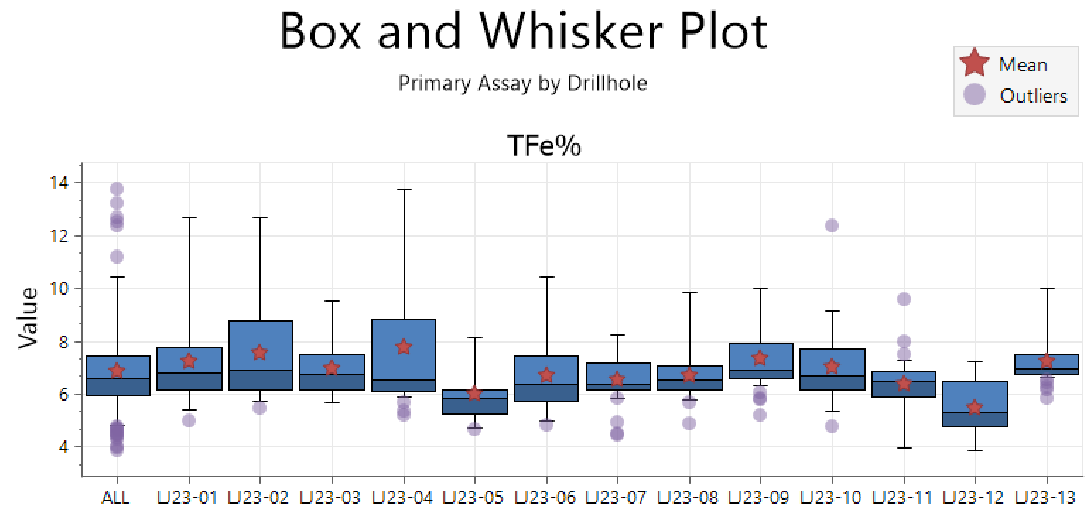


*Figure 13.5: Localisation of the 13 drill holes and the 2 trench samples.*



| | ALL | LJ23-01 | LJ23-02 | LJ23-03 | LJ23-04 | LJ23-05 | LJ23-06 | LJ23-07 | LJ23-08 | LJ23-09 | LJ23-10 | LJ23-11 | LJ23-12 | LJ23-13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of Points | 335 | 25 | 24 | 25 | 27 | 22 | 27 | 27 | 27 | 25 | 25 | 27 | 27 | 27 |
| Minimum | 3.882 | 5.001 | 5.484 | 5.666 | 5.197 | 4.644 | 4.833 | 4.448 | 4.875 | 5.183 | 4.756 | 3.966 | 3.882 | 5.840 |
| Maximum | 13.779 | 12.660 | 12.660 | 9.512 | 13.779 | 8.114 | 10.422 | 8.253 | 9.862 | 10.002 | 12.380 | 9.582 | 7.204 | 10.002 |
| Mean | 6.833 | 7.215 | 7.567 | 6.969 | 7.756 | 5.990 | 6.705 | 6.519 | 6.706 | 7.331 | 6.997 | 6.390 | 5.476 | 7.226 |
| Variance | 2.24 | 2.69 | 3.45 | 1.28 | 5.95 | 0.931 | 1.82 | 0.941 | 0.895 | 1.78 | 2.31 | 1.2 | 1.03 | 0.84 |
| Std Dev | 1.5 | 1.64 | 1.86 | 1.13 | 2.44 | 0.965 | 1.35 | 0.97 | 0.946 | 1.33 | 1.52 | 1.1 | 1.01 | 0.916 |
| CV | 0.219 | 0.227 | 0.245 | 0.162 | 0.314 | 0.161 | 0.201 | 0.149 | 0.141 | 0.182 | 0.217 | 0.172 | 0.185 | 0.127 |
| Quartile 1 | 5.928 | 6.176 | 6.164 | 6.141 | 6.117 | 5.237 | 5.739 | 6.138 | 6.173 | 6.561 | 6.148 | 5.914 | 4.774 | 6.739 |
| Median | 6.575 | 6.785 | 6.886 | 6.736 | 6.512 | 5.830 | 6.358 | 6.393 | 6.512 | 6.918 | 6.673 | 6.463 | 5.281 | 6.966 |
| Quartile 3 | 7.414 | 7.764 | 8.761 | 7.484 | 8.848 | 6.174 | 7.449 | 7.169 | 7.082 | 7.904 | 7.694 | 6.844 | 6.459 | 7.519 |
| Outliers Min | 4.765 | 5.337 | 5.536 | 5.065 | 5.878 | 4.660 | 4.834 | 5.829 | 5.785 | 6.148 | 5.185 | 3.309 | 3.758 | 6.535 |
| Outliers Max | 11.047 | 12.970 | 24.076 | 10.708 | 43.350 | 8.915 | 13.051 | 12.349 | 10.585 | 14.513 | 12.176 | 7.451 | 11.472 | 11.847 |
| Medcouple | 0.163 | 0.261 | 0.456 | 0.157 | 0.71 | 0.222 | 0.26 | 0.403 | 0.314 | 0.396 | 0.22 | -0.208 | 0.228 | 0.436 |

| | | | |
|---|---|---|---|
| Number of records | 335 | Number of keys | 14 |

*Figure 13.6: Head analysis per drill hole, Total Fe – 335 variability samples.*

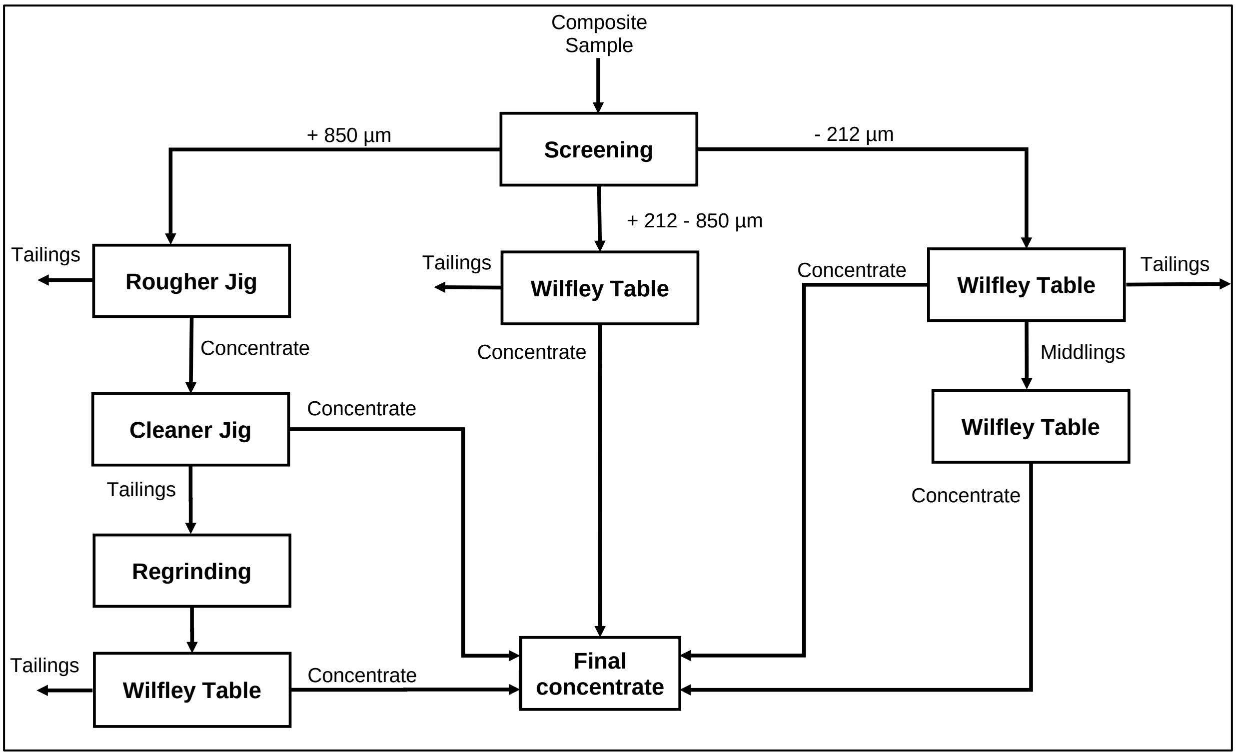


*Figure 13.7: Testwork methodology COREM 2023*

### 13.3.1 Quantitative Mineralogical Analysis

The head analysis of the composite samples is summarized in Table 13.6, where the average composition is 7.0% total Fe (10.0% $Fe_2O_3$), 86.1% $SiO_2$, and 1.0% $Al_2O_3$.

*Table 13.6: Head assays of composite samples*

| Composite | Head Assay (%) | | |
|---|---|---|---|
| **Sample** | **Total Fe** | **$SiO_2$** | **$Al_2O_3$** |
| **Composite 1** | 8.5 | 84.5 | 0.9 |
| **Composite 2** | 7.3 | 84.9 | 1.1 |
| **Composite 3** | 6.7 | 86.9 | 0.7 |
| **Composite 4** | 8.1 | 84.7 | 0.9 |
| **Composite 5** | 6.7 | 86.4 | 1.1 |
| **Composite 6** | 5.7 | 87.9 | 1.5 |
| **Composite 7** | 12.5 | 79.8 | 0.7 |
| **Composite 8** | 8.2 | 84.9 | 0.9 |
| **Composite 9** | 8.6 | 83.9 | 0.8 |
| **Composite 10** | 7.2 | 86.1 | 0.7 |
| **Composite 11** | 6.3 | 87.0 | 0.8 |
| **Composite 12** | 5.9 | 87.6 | 1.0 |
| **Composite 13** | 9.4 | 82.2 | 0.6 |
| **Composite 14** | 8.0 | 85.0 | 0.6 |
| **Composite 15** | 6.6 | 86.0 | 0.8 |
| **Composite 16** | 6.0 | 87.3 | 0.9 |
| **Composite 17** | 5.9 | 88.1 | 0.7 |
| **Composite 18** | 6.4 | 87.0 | 1.0 |
| **Composite 19** | 6.8 | 85.2 | 1.0 |
| **Composite 20** | 6.7 | 86.5 | 1.1 |
| **Composite 21** | 5.1 | 89.2 | 1.1 |
| **Composite 22** | 5.5 | 88.8 | 1.2 |
| **Composite 23** | 5.1 | 88.9 | 1.3 |
| **Composite 24** | 4.6 | 87.9 | 1.7 |
| **Average** | 7.0 | 86.1 | 1.0 |

Table 13.7 presents the particle size distribution (PSD) and the iron assay by size of all composite samples.

*Table 13.7: Particle Size Distribution (PSD) and iron assay by size of composite samples*

| Size Fraction | Retained Size Fraction (%) | Assay per Size Fraction (% Fe) | Distribution per Size Fraction (% Fe) |
|---|---|---|---|
| **+ 850 µm** | 27.1 | 7.6 | 25.6 |
| **+ 212 µm** | 50.1 | 3.5 | 25.6 |
| **- 212 µm** | 22.8 | 13.8 | 48.9 |

Table 13.8 presents the results of the tests done on the 24 composite samples. The number of tests and the variability of the concentrate grade produced per step allowed the generation of grade-recovery correlations for almost all the processing steps. The tested flowsheet produced a 63.7% iron grade concentrate with a weight yield of 5.7% and an iron recovery of 53.2%. Based on the testwork results, higher concentrate grades could be achieved, especially in the -212 µm fraction, but this would negatively impact iron recovery. This was further investigated in subsequent testwork in 2024.

*Table 13.8: Test results summary on the 24 composite samples*

| Stream | Weight recovery (%) | Grade Total Fe (%) | Grade $SiO_2$ (%) | Grade $Al_2O_3$ (%) | Rec. Total Fe (%) | Rec. $SiO_2$ (%) | Rec. $Al_2O_3$ (%) |
|---|---|---|---|---|---|---|---|
| **Screening** | | | | | | | |
| **Feed** | 100.0 | 7.0 | 86.1 | 1.0 | 100.0 | 100.0 | 100.0 |
| **+850 microns** | 27.1 | 7.6 | 86.1 | 0.5 | 25.6 | 26.6 | 14.9 |
| **+212-850 microns** | 50.1 | 3.5 | 91.8 | 0.8 | 25.6 | 53.1 | 39.0 |
| **-212 microns** | 22.8 | 14.4 | 73.5 | 1.9 | 48.9 | 20.2 | 46.1 |
| **-212 µm - Rougher Wilfley Table** | | | | | | | |
| **Feed** | 22.8 | 14.4 | 73.5 | 1.9 | 48.9 | 20.2 | 46.1 |
| **Concentrate to final concentrate** | 3.4 | 65.1 | 3.7 | 0.6 | 34.8 | 0.2 | 2.3 |
| **Middlings to scav. Wilfley table** | 2.8 | 14.8 | 70.2 | 1.0 | 6.4 | 2.4 | 3.0 |
| **Tails to final tails** | 16.6 | 3.0 | 88.5 | 2.3 | 7.7 | 17.7 | 40.8 |
| **-212 µm - Scavenger Wilfley Table** | | | | | | | |
| **Feed** | 2.8 | 14.8 | 70.2 | 1.0 | 6.4 | 2.4 | 3.0 |
| **Concentrate to final concentrate** | 0.2 | 55.9 | 11.9 | 1.3 | 1.5 | 0.0 | 0.2 |
| **Tails to final tails** | 2.6 | 12.1 | 74.0 | 1.0 | 4.9 | 2.3 | 2.8 |
| **+212 + 850 µm - Wilfley table** | | | | | | | |
| **Feed** | 50.1 | 3.5 | 91.8 | 0.8 | 25.6 | 53.1 | 39.0 |
| **Concentrate to final concentrate** | 0.7 | 59.2 | 13.8 | 0.5 | 6.2 | 0.1 | 0.4 |
| **Tails to final tails** | 49.4 | 2.7 | 92.9 | 0.8 | 19.4 | 53.0 | 38.7 |
| **+850 µm - Rougher Jig** | | | | | | | |
| **Feed** | 27.1 | 7.6 | 86.1 | 0.5 | 25.6 | 26.6 | 14.9 |
| **Concentrate to cleaner jig** | 3.2 | 29.0 | 56.6 | 0.5 | 11.4 | 2.1 | 1.5 |
| **Tails to final tails** | 23.9 | 4.8 | 90.0 | 0.5 | 14.1 | 24.6 | 13.4 |
| **+850 µm - Cleaner Jig** | | | | | | | |
| **Feed** | 3.2 | 29.0 | 56.6 | 0.5 | 11.4 | 2.1 | 1.5 |
| **Concentrate to final concentrate** | 1.0 | 64.0 | 7.3 | 0.4 | 7.7 | 0.1 | 0.4 |
| **Tails to Wilfley Table** | 2.2 | 13.6 | 78.2 | 0.5 | 3.7 | 2.0 | 1.1 |
| **+850 µm - Wilfley table after regrinding** | | | | | | | |
| **Feed** | 2.2 | 13.6 | 78.2 | 0.5 | 3.7 | 2.0 | 1.1 |
| **Concentrate to final concentrate** | 0.4 | 62.3 | 8.7 | 0.5 | 3.1 | 0.0 | 0.2 |
| **Tails to final tails** | 1.8 | 3.0 | 93.4 | 0.5 | 0.7 | 1.9 | 0.9 |
| | | | | | | | |
| **Final concentrate** | 5.7 | 63.7 | 6.2 | 0.6 | 53.2 | 0.4 | 3.5 |
| **Final tails** | 94.3 | 3.5 | 90.9 | 1.0 | 46.8 | 99.6 | 96.5 |

## 13.4 2024 COREM Test Program

In 2024, COREM (CoTec, 2024) received 24 super bags from two trench samples collected with a backhoe (12 from each sample site) from the Lac Jeannine tailings site (refer to Figure 13.5 for sample site). One composite was formed from this material.

This testwork is a continuation of the COREM 2023 testwork. The objective of the additional testwork was to evaluate the impact of integrating a hydraulic classifier and to assess the recoverable liberated iron from the resulting overflow and underflow. The testwork methodology is presented on Figure 13.8, focusing on recovering iron from the -850 + 212 µm fraction of the underflow and the -212 µm fraction. No tests were conducted on the coarse fraction of the hydraulic classifier underflow.

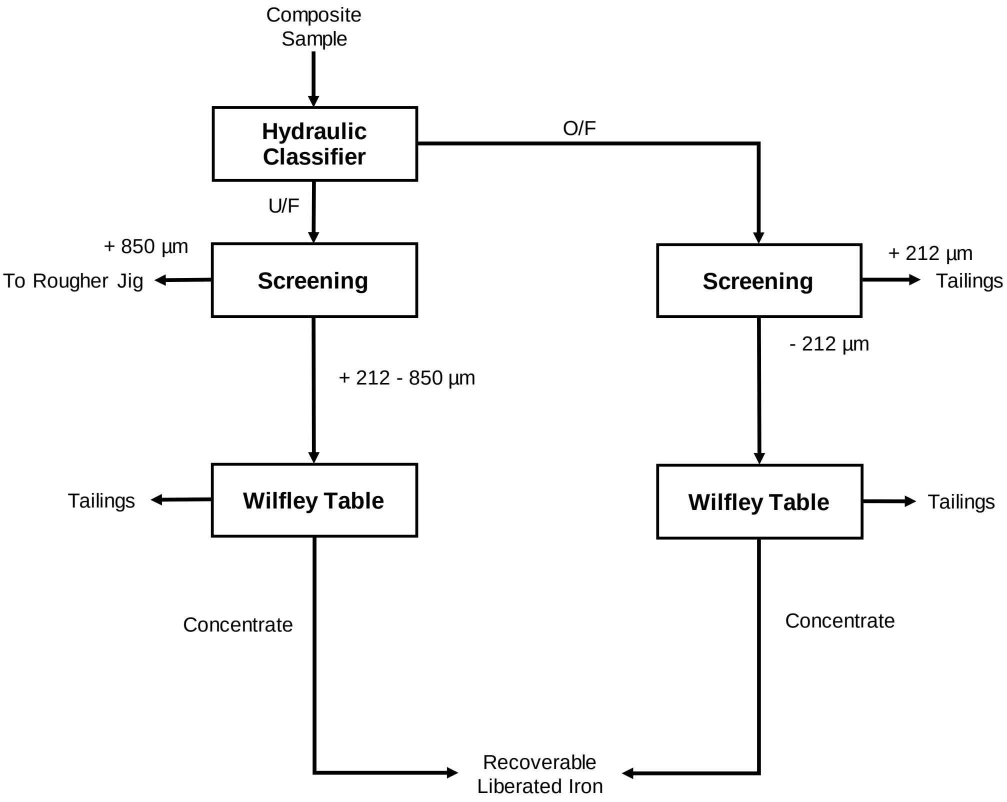


*Figure 13.8: Testwork methodology COREM 2024*

### 13.4.1 Head Analysis and Size Distribution

The composite head analysis is summarized in Table 13.9 which shows a composition of 9.7% total Fe (13.9 % $Fe_2O_3$), 81.9% $SiO_2$ and 1.3% $Al_2O_3$.

*Table 13.9: Head assay of composite sample*

| Composite Sample | Head Assay (%) | | |
|---|---|---|---|
| | **Total Fe** | **$SiO_2$** | **$Al_2O_3$** |
| **Composite TR 01-02** | 9.7 | 81.9 | 1.3 |

Table 13.10 shows the particle size distribution of the composite sample. This distribution is similar to the 24 composite samples distribution of the previous testwork at Corem.

*Table 13.10: Particle Size Distribution (PSD) of the composite sample*

| Size Fraction | Retained Size Fraction (%) |
|---|---|
| **+ 850 µm** | 28.2 |
| **+ 212 µm** | 48.6 |
| **- 212 µm** | 23.2 |

Table 13.11 presents the conditions tested for the hydraulic classifier. These parameters are not optimised and were based on sample availability and laboratory equipment limitations. The unit used for the test was 8 × 8 inches.

*Table 13.11: Hydraulic classifier test conditions*

| Test # | Feed solid feed rate (kg/h) | Feed % wt. Solids | Dilution water ($m^3$/h) | Bed density ($g/cm^3$) | Wash water ($m^3$/h) |
|---|---|---|---|---|---|
| **1** | 500 | 45% | 0.61 | 1.67 | 0.4 |
| **2** | 500 | 45% | 0.61 | 1.67 | 0.8 |
| **3** | 500 | 45% | 0.61 | 1.67 | 1.2 |
| **4** | 500 | 45% | 0.61 | 1.77 | 1.2 |

Hydraulic classifier test results are shown in Table 13.12. Tests #2 and #3 yielded good results and material from test #2 was used for the screening and Wilfley Table tests.

*Table 13.12: Hydraulic classifier test results*

| Test | Total Fe (%) | $SiO_2$ (%) | $Al_2O_3$ (%) | Weight Recovery (%) | Total Fe Recovery (%) | Retained +850 µm (%) | Retained -850 µm (%) |
|---|---|---|---|---|---|---|---|
| **Overflow** | | | | | | | |
| **Test 1** | 13.2 | 74.3 | 2.0 | 27.2 | 35.6 | 0.0 | 100.0 |
| **Test 2** | 7.8 | 84.1 | 1.5 | 47.5 | 41.2 | 2.2 | 97.8 |
| **Test 3** | 6.9 | 85.6 | 1.3 | 57.6 | 39.3 | 2.9 | 97.1 |
| **Test 4** | 9.0 | 82.7 | 1.3 | 88.1 | 86.6 | 23.0 | 77.0 |
| **Underflow** | | | | | | | |
| **Test 1** | 9.0 | 84.2 | 0.8 | 72.8 | 64.4 | 96.3 | 3.7 |
| **Test 2** | 10.0 | 82.5 | 0.7 | 52.5 | 58.8 | 98.9 | 1.1 |
| **Test 3** | 14.5 | 75.9 | 0.6 | 42.4 | 60.7 | 99.2 | 0.8 |
| **Test 4** | 10.3 | 81.7 | 0.7 | 11.9 | 13.4 | 97.8 | 2.2 |

Table 13.13 shows the testwork summary for the material from the hydraulic classifier (HC) test #2 with the integration of the HC in the flowsheet.

The coarse fraction (+212 µm) of the HC overflow (O/F) has a low iron grade (1.8%) and represents only 5% of the iron in the feed but 25.7% of the mass. This stream can be discarded without further treatment.

The fine fraction of the HC O/F can be processed by gravity to produce a concentrate with high iron content (66% to 69.5%).

The intermediate fraction of the HC U/F can be processed by gravity and produce a concentrate with high iron content (67.5%). Future testwork could validate if higher loading rates are possible while maintaining performance.

*Table 13.13: Testwork results summary – Test #2*

| Stream | Weight Recovery (%) | Grade Total Fe (%) | Grade $SiO_2$ (%) | Grade $Al_2O_3$ (%) | Rec. Total Fe (%) | Rec. $SiO_2$ (%) | Rec. $Al_2O_3$ (%) |
|---|---|---|---|---|---|---|---|
| **Hydraulic Classifier (HC)** | | | | | | | |
| **Feed** | 100.0 | 9.7 | 81.9 | 1.3 | 100.0 | 100.0 | 100.0 |
| **Overflow** | 47.5 | 7.8 | 84.1 | 1.5 | 41.2 | 48.0 | 67.3 |
| **Underflow** | 52.5 | 10.0 | 82.5 | 0.7 | 58.8 | 52.0 | 32.7 |
| **HC O/F screen** | | | | | | | |
| **Feed** | 47.5 | 7.8 | 84.1 | 1.5 | 41.2 | 48.0 | 67.3 |
| **+ 212 µm** | 25.7 | 1.8 | 94.2 | 1.5 | 5.1 | 29.0 | 34.7 |
| **- 212 µm** | 21.7 | 15.4 | 72.6 | 1.7 | 36.2 | 18.9 | 32.6 |
| **HC O/F -212 µm fraction - Wilfley Table** | | | | | | | |
| **Feed** | 21.7 | 15.4 | 72.6 | 1.7 | 36.2 | 18.9 | 32.6 |
| **Concentrate #1** | 1.6 | 69.6 | 0.1 | 0.3 | 10.9 | 0.0 | 0.5 |
| **Concentrate #2** | 1.4 | 66.7 | 1.7 | 0.8 | 9.3 | 0.0 | 1.0 |
| **Middlings** | 3.2 | 29.7 | 48.2 | 1.6 | 9.4 | 1.9 | 5.1 |
| **Tails to final tails** | 15.6 | 4.1 | 88.3 | 1.7 | 6.5 | 17.0 | 26.0 |
| **HC U/F +212 µm -850 µm fraction - Wilfley Table** | | | | | | | |
| **Feed** | 29.3 | 7.3 | 86.8 | 0.6 | 25.8 | 30.0 | 17.6 |
| **Concentrate** | 0.9 | 67.5 | 2.6 | 0.4 | 6.9 | 0.0 | 0.4 |
| **Middlings** | 12.0 | 10.0 | 83.1 | 0.6 | 13.5 | 11.8 | 7.4 |
| **Tails to final tails** | 16.4 | 2.9 | 93.6 | 0.6 | 5.4 | 18.1 | 9.8 |
| | | | | | | | |
| **Final WT Concentrate** | 3.8 | 68.1 | 1.3 | 0.5 | 27.1 | 0.1 | 1.9 |
| **Final WT Middlings** | 15.2 | 14.1 | 75.8 | 0.8 | 23.0 | 13.7 | 12.5 |
| **Final WT Tails** | 57.7 | 2.8 | 92.4 | 1.3 | 17.0 | 64.2 | 70.4 |
| | | | | | | | |
| **Final Concentrate** | 3.8 | 68.1 | 1.3 | 0.5 | 27.1 | 0.1 | 1.9 |
| **Final Middlings (with DMS)** | 19.4 | 19.7 | 67.6 | 0.9 | 45.7 | 15.6 | 16.2 |
| **Final Tails (with DMS)** | 76.7 | 3.1 | 92.4 | 1.1 | 27.2 | 84.4 | 81.9 |

Microphotography shows that the size of the unliberated iron in some tail streams is large enough to support a regrinding phase to further iron recovery. Jig middlings with sufficiently large iron bearing particles to be liberated with a P80 of 212 µm are shown in Figure 13.9 and Figure 13.10.

Based on the grade recovery curves developed during the testwork, a concentrate 66.8% total Fe could be achieved with a recovery of 51.6%. Additional testwork is planned to verify this figure as well as developing a flowsheet that can achieve a concentrate grade of 67.5%.

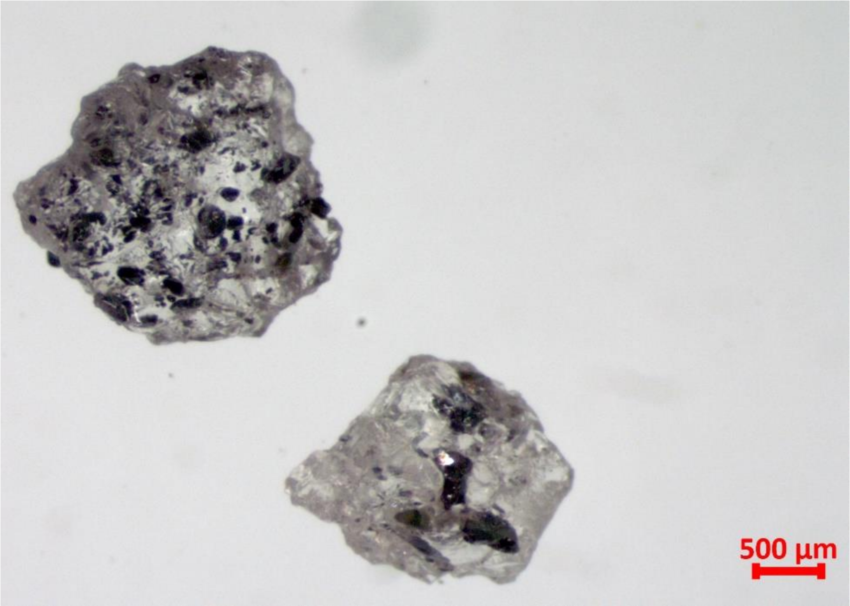


*Figure 13.9: Cleaner Jig Middlings*

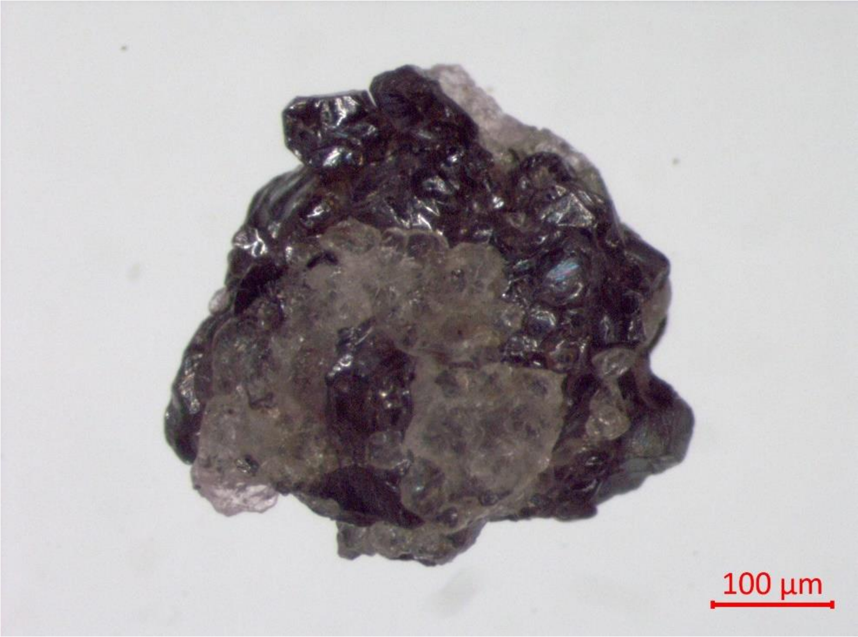


*Figure 13.10: Cleaner Jig Middlings*

# 14 Mineral Resource Estimates

## 14.1 Introduction

Mr. Richard Siddle, MSc., MAIG and Principal Geologist of AMS has prepared a Mineral Resource Estimate using data collected from the 2023 programme. The methodology of which is described as follows. Mr. Siddle is not a Member of the Order of Geologists of Québec and has not visited the Property and as such Mr. Siddle, despite his experience and standing as Member of the Australian Institute of Geoscientists is not acting as Qualified Person for any sections of this Technical Report.

The Mineral Resource Estimate has been reviewed by Mr. Christian Beaulieu P.Geo., who is the Qualified Person for Mineral Resource Estimates and accepts responsibility for this section of the Technical Report and other sub-sections denoted within his Qualified Persons Certificate presented in Section iv. on page 14. Mr. Beaulieu has reviewed all available data pertaining to the estimate, including but not limited to drillhole and assay data, quality control data, model surfaces and volumes, estimation techniques and the block model used upon which the Mineral Resource Estimate is based. Mr. Beaulieu has also completed his own independent check estimate, the findings of which are discussed in section 14.15. The QP is satisfied with the model provided by AMS and judges it to be of sufficient quality for use in this PEA.

## 14.2 Software Used

The Mineral Resource estimate was completed using Micromine Origin and Beyond software version 2024, Service Pack 3 with some data handling completed in Microsoft Excel.

## 14.3 Input Data Summary

The estimate is based on sonic drilling and surface sampling data collected in the Lac Jeannine Tailings Project up to 28th of September 2023. The effective date of the Mineral Resource Estimate of 19th March 2024 being the date of last assay receipt.

The CoTec database is comprised of 13 sonic drillholes totalling of 522.0 m (ranging between 36.0 m and 40.5 m in depth). All drillholes were drilled vertically and spaced 200 m apart on a regular grid. The internal tube diameter was 4.05 inches. Collar locations are shown in Figure 14.1.

Ten surface samples were collected in 2013 by a previous operator with two surface samples collected from five different locations. The assay data from these samples only provided information about the Fe grade at the very top of the dump and as such they were not used in Mineral Resource Estimation. They were however considered in interpreting the wider exploration potential of the tailings dump (Figure 14.1).

Drilling and surface sampling information was provided in Microsoft Excel files. Data files were imported to Micromine, a drillhole database created and validated. Minor validation errors were noted, however resolved based on advice from CoTec technical team. The database was checked for errors such as overlapping intervals, intervals beyond drillhole collar depth, missing intervals and missing drillholes. Original lab datafiles were provided in CSV format and AMS imported all certificates and paired data with original assay intervals by means of a query in Micromine so as to avoid errors which may arise by managing data in Microsoft excel such as key stroke or copy paste error.

A Digital Terrain Model ("DTM") was provided and generated by drone survey of the site with <1 m resolution. The DTM is considered by the QP for Mineral Resource Estimates to be adequate for use in Mineral Resource Estimation.

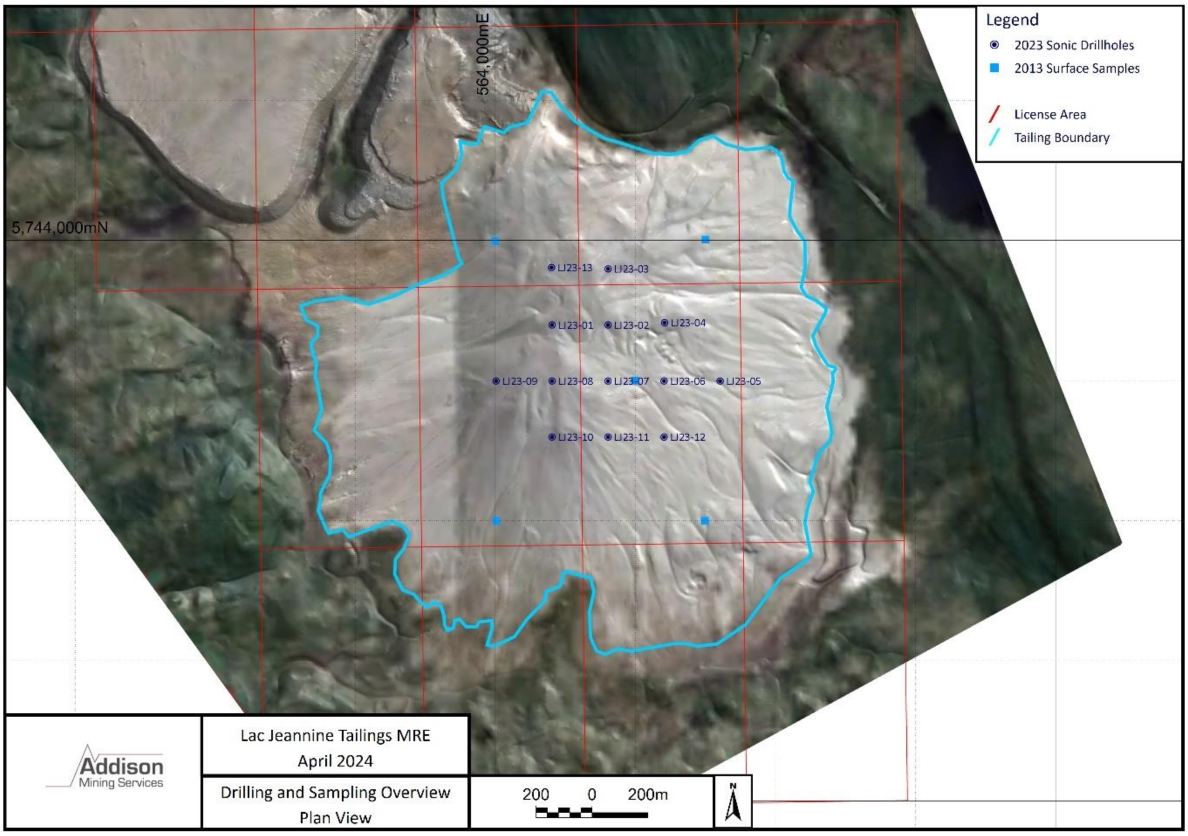


*Figure 14.1: Location of drill holes and surface samples, plan view.*

## 14.4 Assay Data Ranges and Deleterious Elements

Samples were analysed for all elements presented in Table 14.1 with data ranges shown; no major concerns are identified relating to deleterious elements such as $P_2O_5$.

*Table 14.1: Summary of assay data ranges and deleterious elements.*

| Field Name | Minimum | Maximum | No of Points | Points > DL | Weighted Mean | Weighted Std. Dev. |
|---|---|---|---|---|---|---|
| **Total Fe%** | 2.28 | 13.8 | 337 | 337 | 6.81 | 1.54 |
| **$Fe_2O_3$%** | 3.26 | 19.7 | 337 | 337 | 9.74 | 2.20 |
| **$SiO_2$%** | 70.6 | 90.7 | 337 | 337 | 86.7 | 2.59 |
| **$Al_2O_3$%** | 0.47 | 13.7 | 337 | 337 | 1.10 | 1.12 |
| **MgO%** | 0.020 | 1.43 | 337 | 336 | 0.337 | 0.15 |
| **CaO%** | 0.147 | 2.91 | 337 | 337 | 0.485 | 0.270 |
| **$Na_2O$%** | 0.050 | 3.76 | 337 | 9 | 0.078 | 0.306 |
| **$K_2O$%** | 0.130 | 2.76 | 337 | 337 | 0.346 | 0.218 |
| **$TiO_2$%** | 0.010 | 0.295 | 337 | 337 | 0.024 | 0.024 |
| **MnO%** | 0.005 | 0.0780 | 337 | 336 | 0.034 | 0.012 |
| **$P_2O_5$%** | 0.0310 | 0.153 | 337 | 337 | 0.067 | 0.012 |
| **$Cr_2O_3$%** | 0.005 | 0.005 | 337 | 0 | 0.005 | 0.000 |
| **$V_2O_5$%** | 0.005 | 0.005 | 337 | 0 | 0.005 | 0.000 |
| **$ZrO_2$%** | 0.010 | 0.052 | 337 | 16 | 0.011 | 0.0054 |
| **ZnO%** | 0.005 | 0.005 | 337 | 0 | 0.005 | 0.000 |

## 14.5 Domain Interpretation and Modelling

A solid volume wireframe of the tailings was generated by combining the following 3 components.

1. The mapped limits of the tailings, which was adjusted slightly to match evident break in slope in the 2024 DTM.
2. The 2024 high-resolution drone DTM as the upper surface.
3. A legacy 1:50k contour map representing the pre-tailings topography. The DTM is of a low resolution however the observed difference between the 2024 DTM outside of the tailings area and the 1:50k pre mining topography was relatively small, typically <5 m. One drillhole which reached the bottom of the tailings agreed to within approximately 3.9 m of the 1:50 k topography.

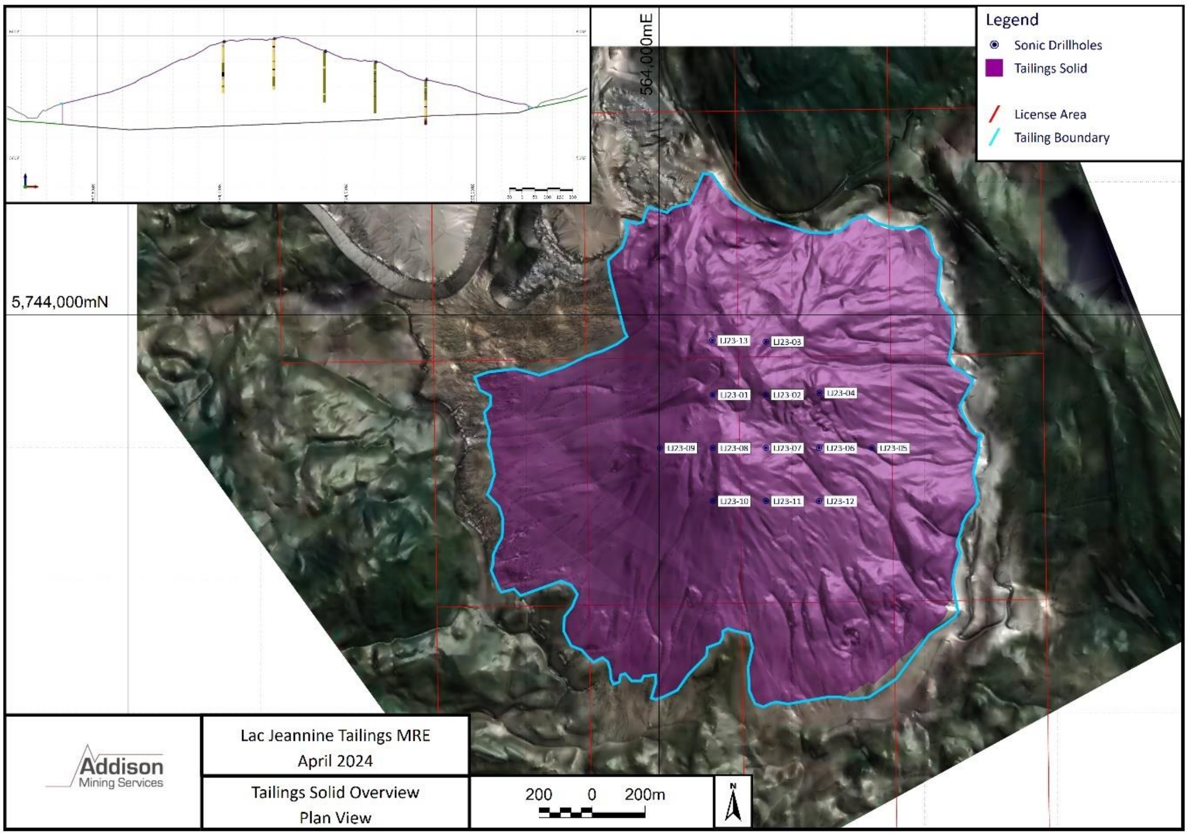
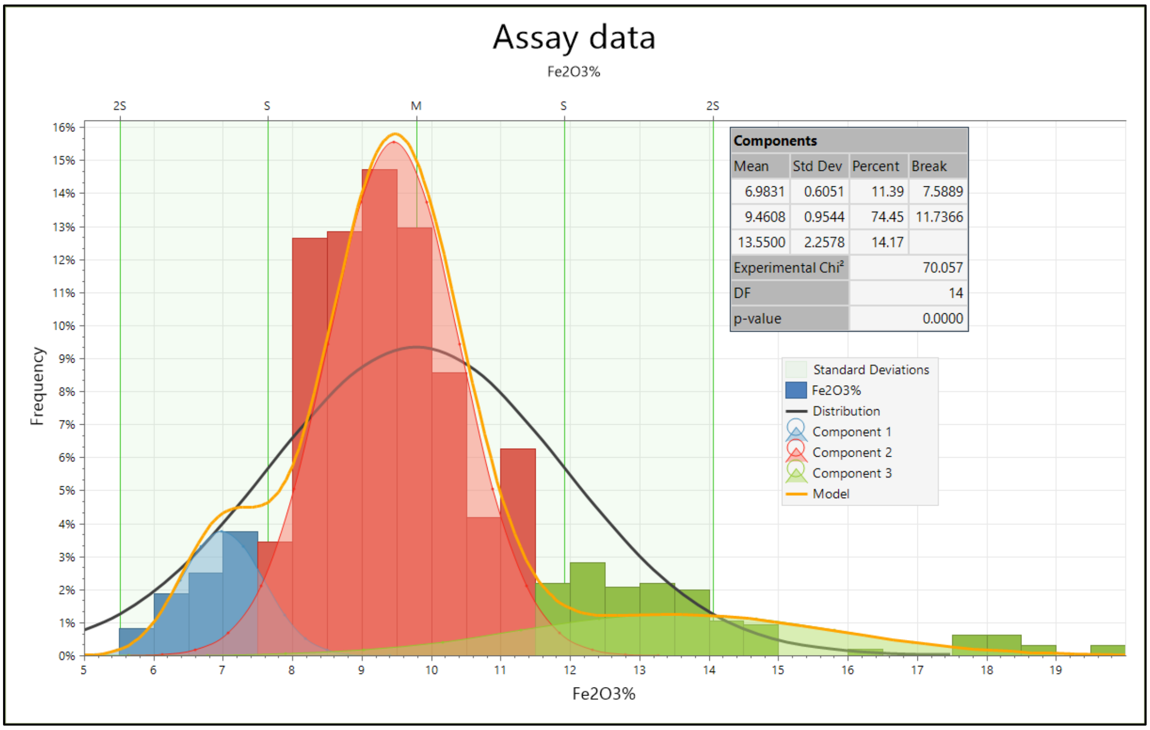


*Figure 14.2: Tailings solid overview, plan view.*

*Note: Inset cross-section has x5 vertical exaggeration and is looking North.*

Visually in cross section and in histograms (Figure 14.3) the Fe data shows two to three sub-populations. A small low-grade population <7.5% $Fe_2O_3$ (~5% total Fe), a medium grade population representing most of the data and a high grade tail greater than 11-12% $Fe_2O_3$ (8% total Fe) can be identified. Generally speaking, the higher grades are distributed within the shallower top 10-15 m of the deposit with sporadic higher grades in the centre of the deposit, whereas the lowest grades are generally observed towards the bottom of the drillholes. This distribution maybe due to the Fire Lake mine tailing being deposited on top of the Lac Jeannine tailings. The lower grades at the bottom maybe due to mixing with natural sediment present pre-mining. Despite this general trend, the data spacing and fuzzy/soft nature of the boundaries did not lend itself to sub domaining of the deposit; this may be achievable at closer data spacings. The data was therefore treated as a single domain for the purpose of Mineral Resource Estimation.



| Components | | | |
|---|---|---|---|
| Mean | Std Dev | Percent | Break |
| 6.9831 | 0.6051 | 11.39 | 7.5889 |
| 9.4608 | 0.9544 | 74.45 | 11.7366 |
| 13.5500 | 2.2578 | 14.17 | |
| Experimental Chi² | | 70.057 | |
| DF | | 14 | |
| p-value | | 0.0000 | |

*Figure 14.3: Decomposed histogram of $Fe_2O_3$% assay data.*

## 14.6 Domain Statistics and Compositing

Data was collected over typically 1.5 m length with some 1 m and 2 m samples. Prior to estimation data was composited to 3 m intervals, 3 m being the anticipated mining height. Assay values were length weighted averaged, residual lengths were added to the previous intervals and a minimum composite length of 1.5 m accepted. During compositing samples were capped to 16% $Fe_2O_3$ (11.19% total Fe) to prevent smearing of high grades and estimation of locally very high-grade blocks. Table 14.2 shows the descriptive statistics of the assays and composites. The mean of the composites and the length weighted mean of the assay data are identical after rounding, and coefficient of variation values are typically low as would be expected in a Fe distribution which typically display normal, rather than log normal type distributions. Only two samples of the complete dataset were not used in the estimate as they are in basement rocks.

*Table 14.2: Raw assay and composite statistics.*

| Field Name | Min | Max | No of Points | Mean | Variance | Std Dev | COV | Weighted Mean |
|---|---|---|---|---|---|---|---|---|
| **Assay** | | | | | | | | |
| **$Fe_2O_3$%** | 5.55 | 19.70 | 335 | 9.77 | 4.57 | 2.14 | 0.22 | 9.78 |
| Total Fe% | 3.88 | 13.78 | 335 | 6.83 | 2.24 | 1.50 | 0.22 | 6.84 |
| **Composites** | | | | | | | | |
| **$Fe_2O_3$%** | 5.65 | 16.00 | 175 | 9.71 | 3.35 | 1.83 | 0.19 | 9.77 |
| Total Fe% | 3.95 | 11.19 | 175 | 6.79 | 1.64 | 1.28 | 0.19 | 6.83 |

## 14.7 Geostatistics

Semi-variogram analysis was completed to assess the continuity of grades and model semi-variograms with two components fitted to weight estimations during ordinary kriging. Prior to analysis data was flattened so as to align the higher-grade values seen at the top of the deposit and medium grades in the centre. Axes were defined in the north-south and east-west directions with a 90° azimuth tolerance and a 10° plunge tolerance. A vertical 3rd axis was modelled which mirrors the downhole semi variogram. Assessment of continuity was difficult in the lateral directions with final ranges inferred from the experimental models of between 300 m and 500 m. The downhole/vertical variogram is well defined and indicates a non-stationary distribution. This is attributed to the multiple populations discussed in section 14.5. Variance changes are however well modelled over a vertical distance of 15 m which is more than sufficient for block model estimation at Lac Jeannine.

*Table 14.3: Model semi-variogram parameters.*

| Area | Axis | Azi | Plunge | Nugget | Sill1 | Sill2 | Total Sill | Range1 m | Range2 m |
|---|---|---|---|---|---|---|---|---|---|
| **Tailings** | 1 | 0 | 0 | 0.3 | 1.49 | 1.6 | 3.39 | 193 | 310 |
| | 2 | 90 | 0 | | | | | 278 | 432 |
| | 3 | 0 | -90 | | | | | 7.5 | 84 |

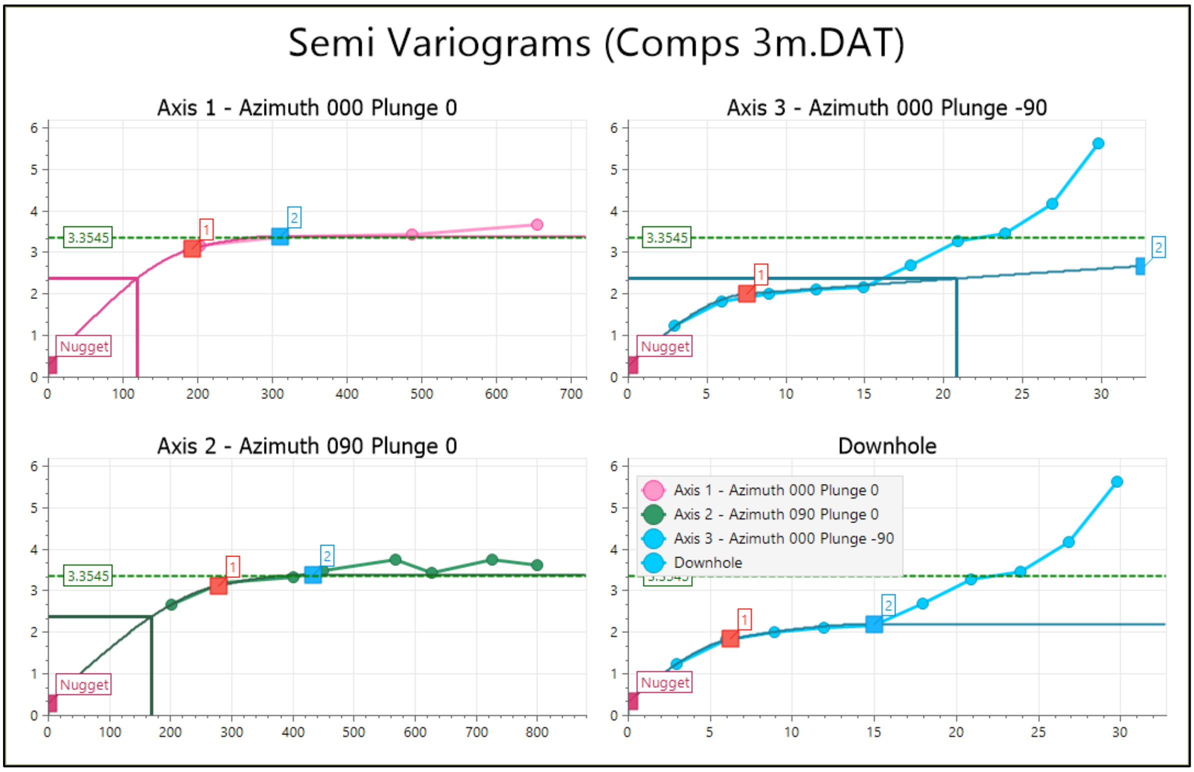


*Figure 14.4: Variogram models for $Fe_2O_3$ %.*

## 14.8 Block Modelling

A blank block model was generated and restricted to the wireframe volume, and blocks extruding from the wireframe volume had a block factor applied to them representing the factor of the block inside the wireframe. The Block size was 50mE, 50mN, 3mZ, which is ¼ of the drill spacing in the lateral directions. A buffer around the drillholes with a radius of 250 m was generated and smoothed to restrict the extrapolation. While tailings are present outside of this buffer, the depth extents and grades have not been tested by drillhole sampling. Surface samples are not representative of the material at depth, and as such these volumes are not estimated as part of the Mineral Resource. They are however considered in the wider exploration potential.

The block model and composite data were flattened relative to the top of the model, similar to unfolding but with no adjustment of Easting and Northing values. The original and flattened Z coordinates were stored in the datafiles. $Fe_2O_3$ values were estimated into the block model by ordinary kriging in flattened space along with all other elements. Two incrementally larger searches were used as described in Table 14.4. Discretization was set to 5x5x2 (E,N,Z), and negative kriging weights were set to zero to avoid screening effects by regularly spaced data. The resource is extrapolated approximately 10 m beyond the base of the input data. All elements analysed were estimated into the block model and used the same variogram.

*Table 14.4: Kriging neighbourhood parameters*

| Pass | East/North Axis radius m | Z Axis radius m | Max points per search | Max points/hole | Min Hole |
|---|---|---|---|---|---|
| **1** | 300 | 10 | 16 | 3 | 2 |
| 2 | 500 | 10 | 16 | 3 | 2 |

## 14.9 Bulk Density

During drilling, 47 bulk density samples were measured by scraping a material along the length of the sample and packing into a 500 ml container which was weighed. The length weighted mean of the measurements was 1.5 g/cm$^3$. However, samples were not dried prior to weighing and this value is therefore not reliable. Those samples which were logged as being dry (14 in total) had a length weighted mean density 1.39 g/cm$^3$. After correcting the density for moisture content as recorded by the laboratory, the length weighted mean density is 1.35 g/cm$^3$. This is lower than what would be expected for a dry compact sand which typically has a bulk density of ~1.65 g/cm$^3$. It seems from the data that the method of density determination did not represent the material in its compacted in-situ state and this density data is unreliable.

Samples sent to the laboratory were weighed as received, and after drying. However, 1 to 1.5 litres of material was removed on site prior to dispatch and this material was not weighed. As such it is not possible to determine density from the weights received at the laboratory. A bulk density of 1.6 g/cm$^3$ is therefore assumed for all material. This is supported by adjusting the volume of material received at the laboratory by 1.5 litres, allowing a further 5% sample loss assumption and removal of outlier low mass samples to estimate a density from the core diameter of 4.05 inches, sample length and the dry sample mass (Figure 14.5). Further work is required to better estimate bulk density for the material under investigation.

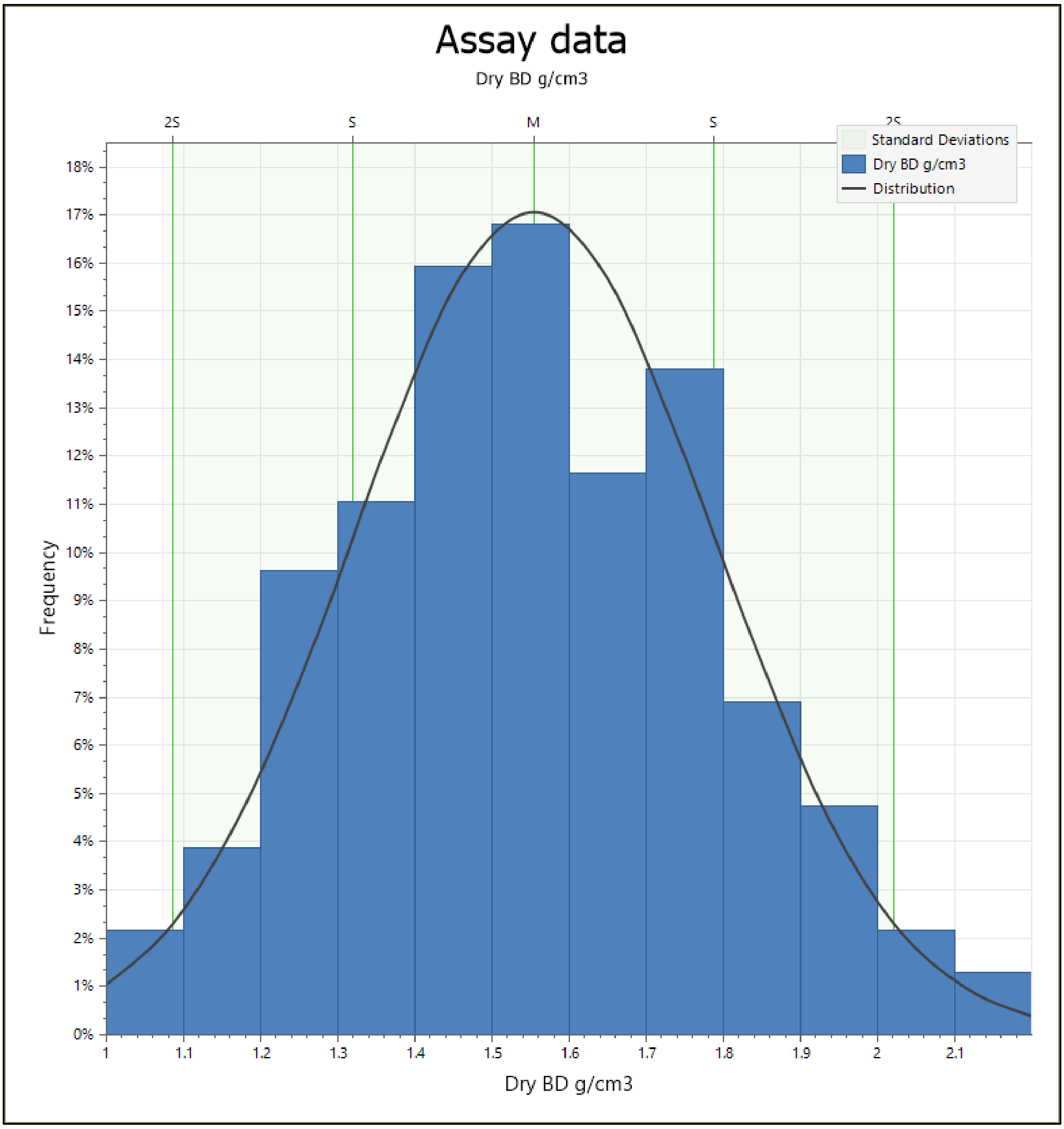


*Figure 14.5: Histogram of estimated dry bulk density after correction for sample loss, moisture and reference sample removal.*

## 14.10 Model Validation

The block model was validated visually in cross section with respect to the input data and by means of statistical validation. The grades are shown to map well between areas of higher and lower grade (Figure 14.6). The input and output data histograms (Figure 14.7) compare favourably while the mean values of the input and output data are very close at 6.83% total Fe in composites and 6.75% total Fe in the block model (Table 14.5). As a further validation the input data was used in a change of support correction, this changes the distribution of the input data to a theoretical distribution of the block model by a discrete gaussian transformation and considers the block size, discretization and semi-variogram. The result is a theoretical grade tonnage curve and distribution that can be compared to the block model. The results are shown in Figure 14.8 and compare very favourably.

The overall modelled volume of the tailings, including the parts not included in the mineral resource is estimated at approximately 145 million tonnes. Historical records report that approximately 150 million tonnes of tailings from Lac Jeannine were deposited on the tailings dump along with approximately 4 million tonnes of material from Fire Lake. The global estimate of tonnage is therefore likely close and supports favourably the bulk density assumptions described above.

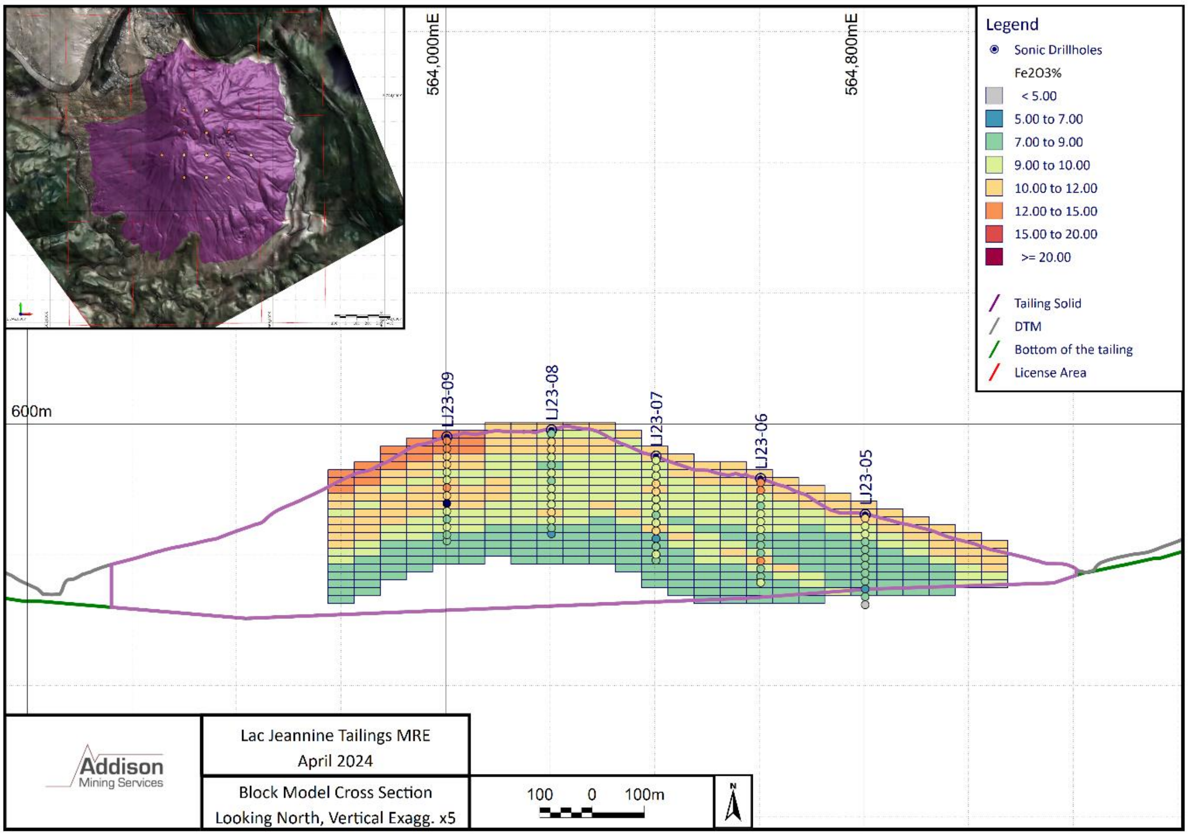


*Figure 14.6: Example cross-section: Tailings solid, composites and block model, looking north, vertical exaggeration x5.*

*Table 14.5: Comparison statistics for composites and block model data.*

| Field Name | Min | Max | No of Points | Mean | Variance | Std Dev | COV | Weighted Mean |
|---|---|---|---|---|---|---|---|---|
| **Assay** | | | | | | | | |
| **$Fe_2O_3$%** | 5.55 | 19.70 | 335 | 9.77 | 4.57 | 2.14 | 0.22 | 9.78 |
| **Total Fe%** | 3.88 | 13.78 | 335 | 6.83 | 2.24 | 1.50 | 0.22 | 6.84 |
| **Composites** | | | | | | | | |
| **$Fe_2O_3$%** | 5.65 | 16.00 | 175 | 9.71 | 3.35 | 1.83 | 0.19 | 9.77 |
| **Total Fe%** | 3.95 | 11.19 | 175 | 6.79 | 1.64 | 1.28 | 0.19 | 6.83 |
| **Block Model** | | | | | | | | |
| **$Fe_2O_3$%** | 6.19 | 15.06 | 6773 | 9.81 | 1.93 | 1.39 | 0.14 | 9.64 |
| **Total Fe%** | 4.33 | 10.54 | 6773 | 6.86 | 0.95 | 0.97 | 0.14 | 6.75 |

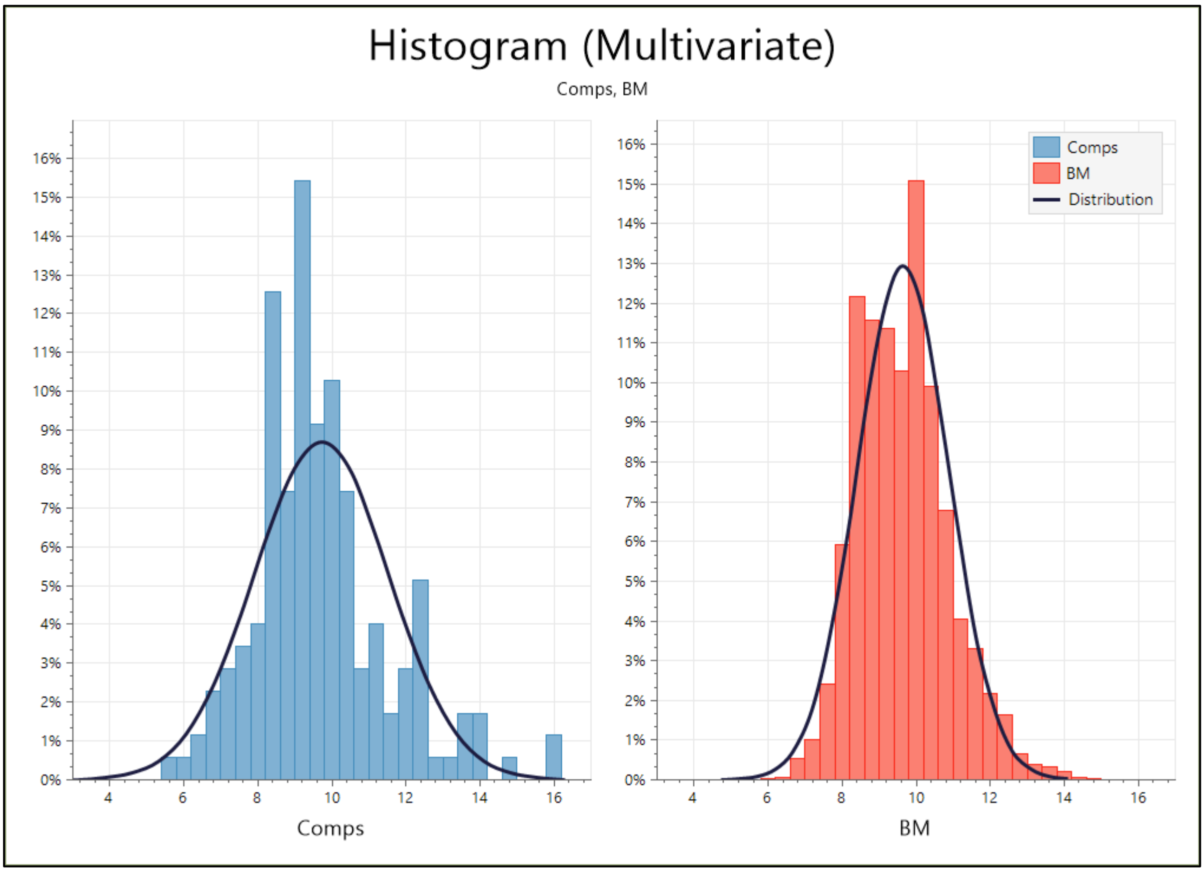


*Figure 14.7: Histogram $Fe_2O_3$ composites vs block model.*

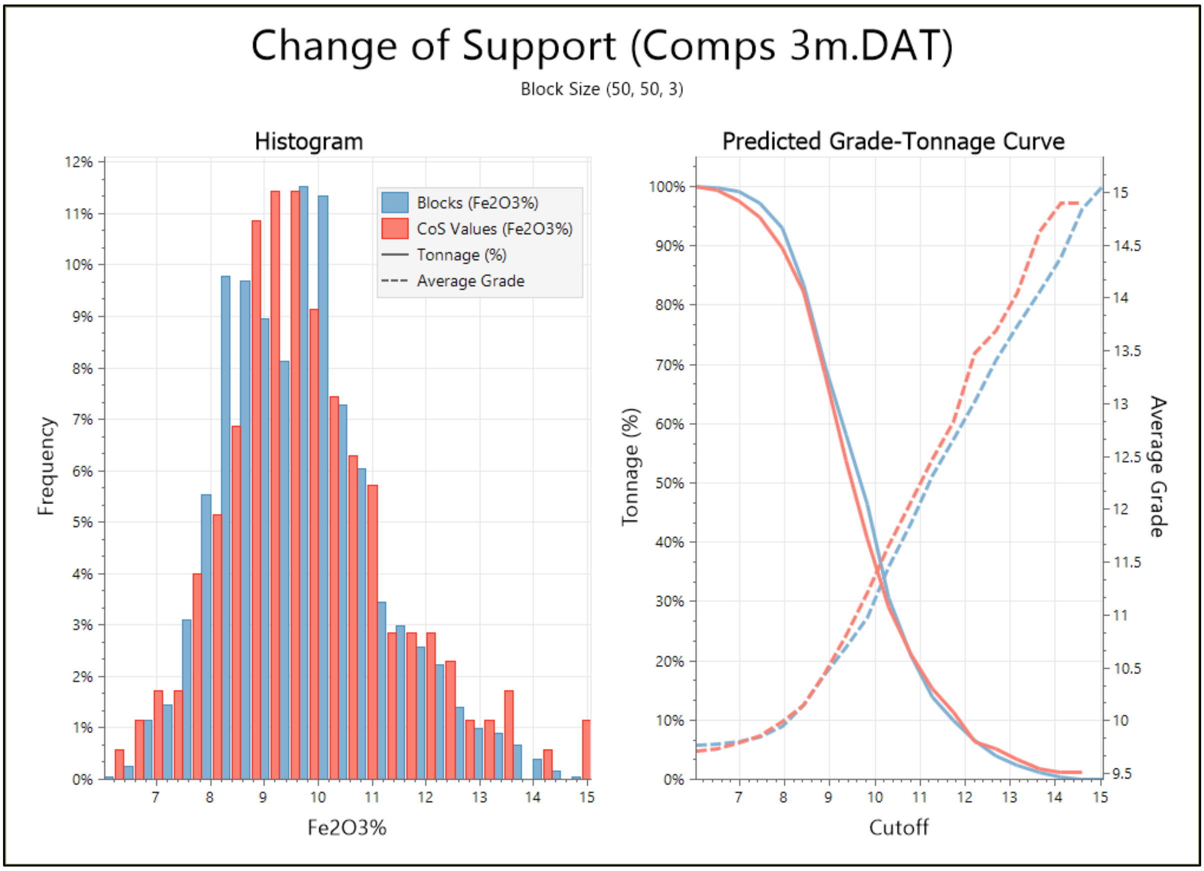


*Figure 14.8: Change of support distribution vs block model.*

## 14.11 Reasonable Prospect of Eventual Economic Extraction

Reasonable prospects of eventual economic extraction assume the same modifying factors used in the pit optimization presented in section 15 of this Technical Report. Production of an iron bearing concentrate grading 66.8% total Fe is anticipated with total cost per Run of Mine ("ROM") tonne of US$2.76. After allowance for processing recovery, transport and shipping costs and royalty the breakeven cut-off grade is estimated at approximately 3% total Fe. Inputs to the breakeven cut-off grade estimation are shown in Table 14.6. Mining dilution and recovery are expected to be close to zero and are not considered. No concentrations of deleterious elements were identified in the drillhole assay data or block model.

*Table 14.6: Breakeven cut-off grade estimate for reasonable prospects of eventual economic extraction*

| Element | Fe |
|---|---|
| **Selling unit** | t Conc. |
| **Assay unit** | % |
| **Conc Price US$/t** | 144.8 |
| **Concentrate Grade %** | 66.8 |
| **Ocean Freight to China US$/t wet** | 21.00 |
| **Free On Board (FOB) price US/t** | 123.8 |
| **Transport to Port US$ /t Conc.** | 6.32 |
| **Revenue US$/t contained Fe metal after transport and shipping** | **175.87** |
| **Revenue per assay unit US$/t (10 kg/t or %)** | **1.7587** |
| **Royalty %** | 0.5 |
| **Process Recovery %** | 51.6 |
| **Dilution Factor** | 1 |
| **Mining Cost $/t** | 0.9 |
| **Process Cost $/t** | 1.56 |
| **GNA $/t ROM** | 0.3 |
| **Total Cost $/t ROM** | **2.76** |
| **Break Even Cut grade total Fe%** | **3.0** |

*Cut-off grade is rounded*
*The breakeven cut-off grade is calculated as [Total Cost]/[Revenue per assay unit]*[1-(Royalty/100)]*[Recover/100]*
*Breakeven cut-off = 3.06% = 2.76/1.7587*0.995*0.516*

## 14.12 Resource Classification

In the classification of the mineral resource the following points were considered:

- The quality of the assay data is considered high.
- Present topography and the lateral extents are well understood, the base of the tailings is moderately understood. As such the estimate of volume is likely within very close limits.
- Grade continuity is not well modelled in semi-variogram analysis, the lateral range appears to be 400-500 m. To better establish and model continuity it is interpreted that data on a 100 m spacing would be required for meaningful analysis, which is approximately the range at which 2/3 of the change in variance occurs. The grade continuity is therefore reasonably assumed but not verified in the current model. At the 200 m spacing, there is also some unexplained variation of deleterious elements between drilling sections.
- Bulk density values are largely assumed and supported by assumptions rather than accurate measurements.
- The data distributions of the Fe grades are moderately, but not well defined on a global basis. Data shows signs of a multimodal distribution which is difficult to model with confidence in 3D space at the current level of sampling. While it is anticipated that all material would likely break even if processed, material with a grade of 6% total Fe would possibly generate a profit of approximately \$2.65/t, while material with a head grade of 8% total Fe would possibly generate a profit of \$4.45/t. A sensible mining plan would target higher grades in earlier periods to realize a better discounted cashflow, however uncertainty in grade estimates may lead to material discrepancy between planned and actual production over annual or quarterly increments.
- Given this sensitivity it is difficult to justify classification of an Indicated Mineral Resource until the variability and grade continuity is better understood by means of closer spaced sampling and bulk density being better determined. Should modelling of the grade variability not be practical or continuity is not present, then the Resource and Mine planning should be evaluated using global average values over much larger volumes, rather than localized blocks that can be selectively scheduled. The Inferred Mineral Resource is shown in Figure 14.9.
- The decision on how far to extrapolate the resource from the area of drilling needs pragmatic consideration, choosing a distance equal to half of or equal to the drill spacing is in effect an arbitrary decision as the drill spacing could have been wider. Tailings are present beyond the

limit of the drilling to the mapped area, and it is reasonable to expect that similar grades would be present in this material also. Potentially economic grades have been identified over a distance of 600 m north to south and 800 m east to west and experimental semi variograms suggest maximum ranges of 400-500 m. Limiting the Resource to a distance of 250 m therefore seems defendable when considering the Resource classification of Inferred is considered too speculative to allow estimation of Reserves. The resultant tonnage is sufficient to allow preliminary economic analysis over a 10-year life of mine at 7 million tonnes per annum and as such allows a fair test of the Project potential, considering the evidence for more tailings material outside of the drill tested area. The definition of an Inferred Mineral Resource is presented below.

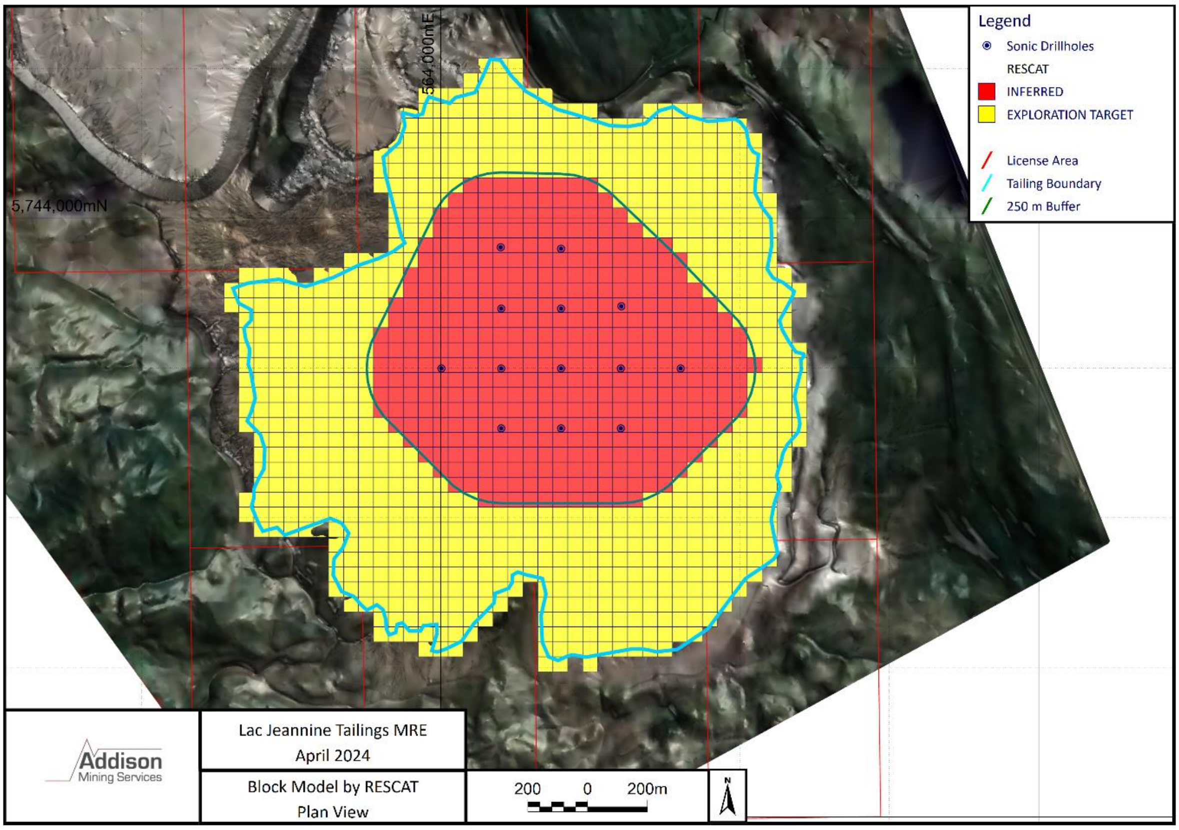


*Figure 14.9: Extents of Mineral Resource and Exploration Target.*

*Note: Exploration Target is speculative and not considered a Mineral Resource.*

Inferred Mineral Resources are defined by CIM as follows:

An "Inferred Mineral Resource" is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies.

Despite the above, a Preliminary Economic Assessment that is based on Inferred Mineral Resources may be disclosed if the disclosure states with equal prominence that the preliminary economic assessment is preliminary in nature, that it includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the preliminary economic assessment will be realized.

## 14.13 Mineral Resource Statement

Mineral Resources, reported in accordance with National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, ("NI 43-101") and prepared under Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards, have been estimated for the Project. Reasonable Prospects of Eventual Economic Extraction is supported by the PEA study also contemplated within the Technical Report.

The estimated initial Inferred Mineral Resource, reported on a global basis is of approximately:

- 73 million tonnes at 6.7% total iron for 4.9 million tonnes of contained total iron (tonnes are metric tonnes).

All resources are of the Inferred category, no Indicated or Measured Resources are reported. The effective date of the Mineral Resource Estimate is 19th March 2024. No estimates of Mineral Reserves have been completed. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues, and the Independent Qualified Person for Mineral Resources is not aware of any such issues. CIM Definition Standards for Mineral Resources have been followed. See Table 14.7 and the accompanying notes for further details.

*Table 14.7: Inferred Mineral Resource Estimate*

| Category | Million Tonnes | Total Fe grade % | Total Fe Million Tonnes Metal | $Fe_2O_3$% |
|---|---|---|---|---|
| **Inferred** | 73 | 6.7 | 4.9 | 9.6 |

## Notes To Mineral Resource Estimate

1. Numbers are rounded to reflect that an estimate of tonnage and grade has been made, as such products may have discrepancies. Tonnages are expressed in the metric system and metal content as percentages.
2. The Independent Qualified Person for Mineral Resources, Mr. Christian Beaulieu, P.Geo., is a member of l'Ordre des géologues du Québec (#1072). Mr. Beaulieu has reviewed the available geological, assay and quality control data and has completed a site visit on the 12th of June 2024. Mr. Beaulieu has reviewed the MRE, associated models and methodology completed by Addison Mining Services Ltd. of the United Kingdom on behalf of CoTec and has completed an independent check estimate. Mr. Beaulieu has been an employee of Mineralis Consulting Services Inc. since the 1st of June 2023.
3. The effective date of the MRE is the 19th of March 2024.
4. These Mineral Resources are not Mineral Reserves as they do not have demonstrated economic viability. The quantity and grade of reported Inferred Resources in this MRE are uncertain in nature and there has been insufficient exploration to define these Inferred Resources as Indicated or Measured, it is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. Additional drilling and bulk density determination are, however, required to increase the confidence in the MRE; increased levels of information brought about by further drilling may serve to either increase or decrease the MRE. No Measured or Indicated Mineral Resources are reported.
5. The estimate was completed using Micromine 2024 software, a 50 m (east and west) by 3 m (vertical) regular block model was estimated using ordinary kriging of all elements analysed. The block model was restricted using a wireframe volume generated from airborne drone topographic survey of the current tailings surface and a legacy 1:50k contour map of the pre-tailings situation.
6. Drilling did not reach the bottom of the tailings in all but one drillhole and the resource was extrapolated ~10 m below the drillholes.
7. The cut-off grade used to report the initial MRE is 3% total Fe, based on the following parameters:
    - Iron price of US$ 124/t FOB for a 66.8% Fe concentrate
    - Transport costs all in of US$ 6.32/t conc.
    - Total ROM-based costs of US$ 2.76 /t
    - Metallurgical recoveries of 51.6%
    - Royalties of 0.5%.
8. Bulk Density is reasonably assumed as 1.6 g/cm$^3$ across all material which is typical for dry compact sand. The density assumption is supported by historical production mass balance records and dry sample weights received at the lab after allowance for removal of a reference sample at the drill site.
9. The Mineral Resource extends from surface to approximately 50 m below surface, it is laterally extensive over an area of approximately 1.1 km from east to west and north to south and is extrapolated approximately 250 m beyond the limit of the drilling.
10. CIM Definition Standards for Mineral Resources (2014) and Best Practices Guidelines outline by CIM (2019) have been followed.
11. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues that could materially affect the Mineral Resource Estimate. The Qualified Person for Resources is not aware of any such issues.

## 14.14 Exploration Potential

The Mineral Resource extends from surface to approximately 50 m below surface, it is laterally extensive over an area of approximately 1.1 km from east to west and north to south. Further tailings are present outside of the drilled area and it is reasonable to expect that with further appropriate exploration drilling the resource tonnage could be increased. The surveyed area of the tailings has a total estimated tonnage of 145 million tonnes, this tonnage is likely estimated to relatively close limits (± 5 million tonnes). However, iron grades are unknown with only limited sampling of the surface having been completed outside of the drill tested are and so not all material may have a reasonable prospect of eventual economic extraction. Areas of other waste material may have been deposited with tailings and areas of material high in deleterious elements may be present.

Assuming 70% to 100% of the material outside of the resource might have similar grade to the estimated resource, an Exploration Target tonnage of 50 to 75 million tonnes is postulated, with global average total iron grades of 6% to 7.5% (± 1 SD of the resource block model) considered as a reasonable possibility.

This potential range of tonnes and grade is conceptual in nature, insufficient exploration to define a mineral resource has been completed, it is uncertain if a mineral resource estimate of the material will be made in the future.

## 14.15 Comparison to Alternative Estimates

Alternative block models were built in Leapfrog Edge® 2023.2 by the QP for further verification of the MRE. Two different models were completed: (1) a first model using the composites, interpolation parameters and a blank "unfolded" block model provided by AMS, and (2) a second model starting from raw assays, new composites, a blank block model (with original topography), variable ellipsoid orientation guided by the topography surface and with slightly different interpolation parameters. The results confirmed the validity of the original estimates. As seen from Table 14.8, the unfolded check estimate yielded very similar tonnages and grades (±1%), whereas the block model using the original topography results in similar tonnage but higher grade. This is due to the variable orientation, or dynamic anisotropy ("DA"), used in this model which likely mixed higher grade populations.

*Table 14.8: Comparison with alternate estimates*

| **Category** | **MRE Statement** | | | **Check Model 1 - Flattened Z** | | | **Check Model 2 - DA** | | |
|---|---|---|---|---|---|---|---|---|---|
| | Tonnage (Mt) | Total Fe grade (%) | Total Fe Metal (Mt) | Tonnage (Mt) | Total Fe grade (%) | Total Fe Metal (Mt) | Tonnage (Mt) | Total Fe grade (%) | Total Fe Metal (Mt) |
| **Inferred** | 73 | 6.7 | 4.9 | 72 | 6.8 | 4.8 | 73 | 6.9 | 5.0 |
| | | Difference (%) | | -1% | +1% | -1% | +0% | +3% | +2% |

*Note: Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The tonnages and grade at differing cut-offs shown above are for comparison purposes only and do not constitute an official Mineral Resource.*

## 14.16 Sensitivity to Cut-off Grades

To assess the impact of varying input parameters influencing the cut-off grade assumption, sensitivities were produced as presented in Table 14.9. Figure 14.10 shows the Inferred grade-tonnage curves for varying total iron grade cut-offs. As seen from the table and graph, there is no material loss of tonnage below a total iron cut-off grade of 5.5%. Furthermore, the first blocks to be affected at a cut-off of 5.5% are largely located at the bottom of the model, meaning that they will likely be mined near the end of the life of mine.

*Table 14.9: Total iron cut-off grade sensitivity (base case highlighted)*

*Note: Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The tonnages and grade at differing cut-offs shown above are for comparison purposes only and do not constitute an official Mineral Resource.*

| **Cut-off Grade (%total Fe)** | **Tonnage (Mt)** | **%total Fe Grade** | **Material Content (% of total)** |
|---|---|---|---|
| **2.0** | 73 | 6.7 | 100 |
| **3.0** | 73 | 6.7 | 100 |
| **4.0** | 73 | 6.7 | 100 |
| **5.0** | 72 | 6.8 | 99.3 |
| **6.0** | 57 | 7.0 | 82.0 |
| **7.0** | 27 | 7.6 | 42.0 |
| **8.0** | 6 | 8.5 | 10.7 |
| **9.0** | 1 | 9.4 | 1.68 |
| **10.0** | 0 | 10.3 | 0.11 |

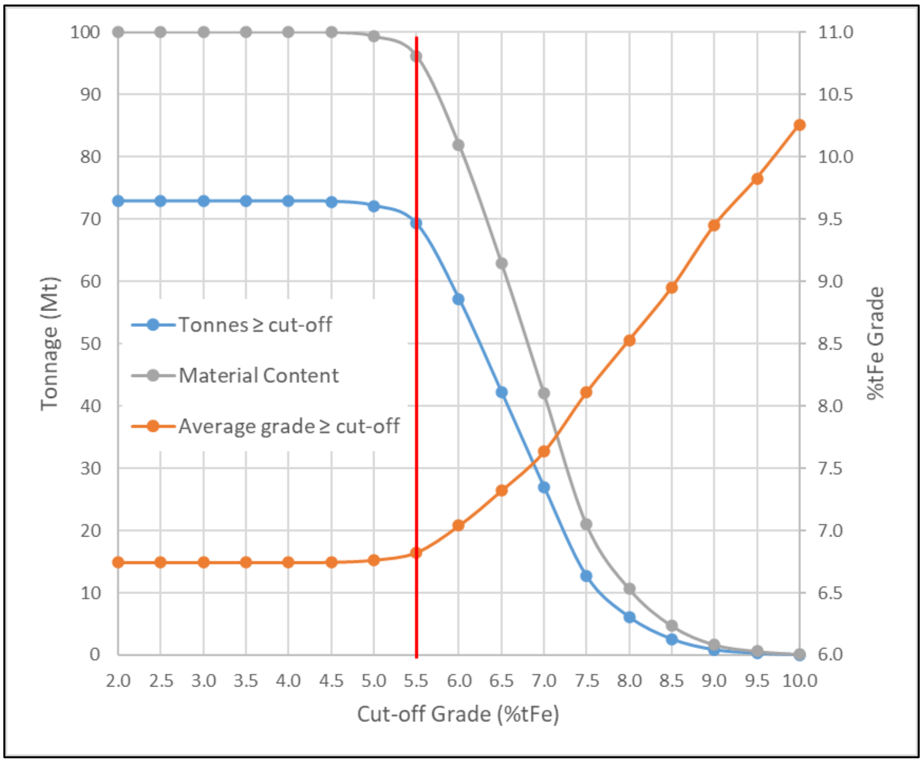


*Figure 14.10: Grade-tonnage curve - Inferred Mineral Resources*

*Note: Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The tonnages and grade at differing cut-offs shown above are for comparison purposes only and do not constitute an official Mineral Resource.*

## 14.17 Comparison to Previous Mineral Resource Estimates

No previous mineral resource estimates have been completed and reported in accordance with NI 43-101 or similar international reporting code.

## 14.18 Comparison with Historical Production Records

A study completed by Soutex (2007) postulated that 154 million tonnes of tailings grading 7.5% total iron were deposited at the Lac Jeannine Tailings Storage Facility. The estimate was based on historical production and mass balance records rather than systematic sampling. The results are similar to the findings of the Technical Report on a global basis including the Exploration Target discussed in section 14.14, all be it at a slightly higher grade than those estimated in the Mineral Resource reported herein.

# 15 Mineral Reserve Estimates

No Mineral Reserve Estimates have been completed for the Project as of the signature date on this Technical Report.

# 16 Mining Methods

## 16.1 Introduction

The economic use of the iron ore resources from CoTec's Lac Jeannine Project is based on the construction of a beneficiation plant with an average Run of Mine (ROM) throughput of 7 Mtpa to produce a 66.8% total Fe Pellet-Feed product. The resource is in the form of an existing tailings dump that was deposited from the adjacent open pit mining operations at Lac Jeannine and from additional ore brought in from the Fire Lake Mine and processed at Lac Jeannine.

The Inferred tailings resource at Lac Jeannine has been estimated at approximately 73 million tonnes (Mt) at an average grade of 6.75 % total Fe. In addition, an Exploration Target tonnage of 50 to 75 million tonnes is postulated, with global average total iron grades of 6% to 7.5% (+/- 1 SD of the resource block model) considered a reasonable possibility (see section 14.14 for further information).

The Inferred Resource and Exploration Target make up 100% of the total tonnage of the tailings pile. At a breakeven cut-off grade of approximately 3% total Fe, it is not expected that there will be any waste and all of the Inferred material excavated can be fed to the plant. For the purposes of the Preliminary Economic Assessment (PEA), the Exploration Target material has been stockpiled as a potential Resource rather than discarded as Waste.

Mining will be carried out using standard open pit mining methods with 40 tonne (t) haul trucks and hydraulic excavators with a 5.0 cubic metre ($m^3$) bucket. This equipment is typically used in similar scale mining operations and a mining contractor will be used for at least the first 5 years of operation. After that Owner operation may be considered if that proves to be more economic.

The tailings consist of loosely compacted, mainly dry, sandy material that will not require blasting or ripping and can be easily excavated with a hydraulic excavator. The high silica content will mean that abrasion rates on the equipment will be high, and allowance must be made for regular replacement of Ground Engaging Tools (GET).

For this exercise it is proposed that the tailings will be transported by truck (off road or Articulated) to a Run of Mine (ROM) pad, located close to the feed bin to the plant. The material will then be fed into a feed bin by Front End Loader (FEL).

In future studies alternative mining methods, such as scrapers or in-pit conveyors, should be considered along with the possibility of direct tipping trucks into the feed bins.

The material responds well to concentration through a beneficiation circuit to produce a product suitable for pelletization. The product will then be transported by truck to the rail head for onward transport by rail to the pellet plant. Trucking of the product is expected to be over 9 months of the year.

The location of the mine relative to the rail line is shown in Figure 16.1.

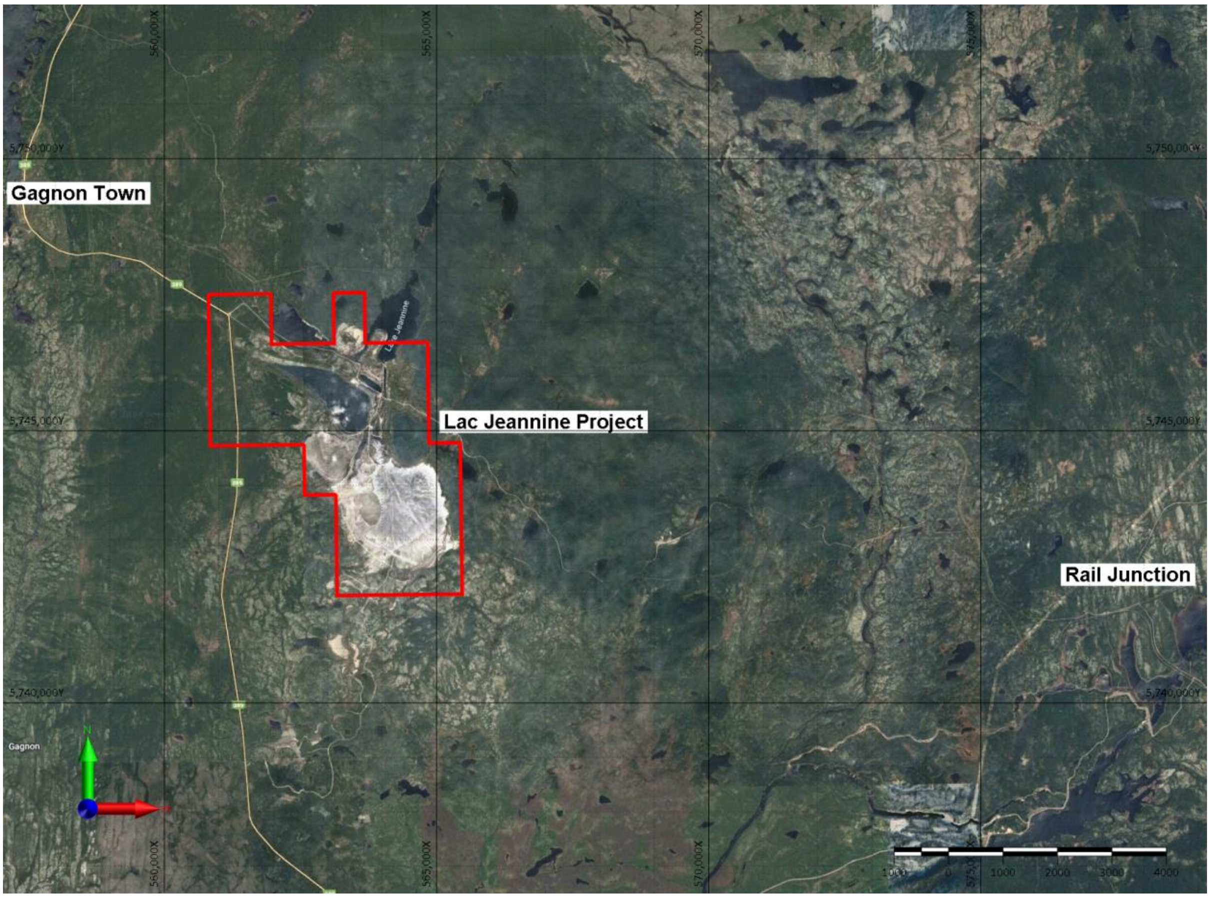


*Figure 16.1: General layout.*

## 16.2 Geotechnical Assessment

### 16.2.1 Site Investigation

There has been no Geotechnical assessment of the proposed mine site as yet.

### 16.2.2 Geotechnical slope design

The Geotechnical parameters assumed for pit optimisation and mine design are based on an Overall Pit Slope Angle (OSA) of 35 degrees. This assumes that the excavated material has a relatively low moisture content with minimal clay content and that the excavated walls of the pit will generally be limited in height to around 4 benches and are typically less than 15 m.

The pit will be developed with 3 m high benches, and the working slopes will be managed with a minimum offset distance between benches of 50 m. Typically only 2 or 3 benches will be developed at the limits of the excavation at any one time and the tailings pile will be mined down progressively from the higher-grade cap at the top of the pile.

## 16.3 Pit Optimisation

### 16.3.1 Optimisation Inputs

The pit optimisation was run in Datamine's Studio NPV Scheduler (NPVS) software to estimate the maximum pit limit. The input parameters are summarised in Table 16.1. Some refinements were made to the input parameters during subsequent financial analysis, which resulted in a cut-off grade reduction from 3.3% to 3%. The schedule was still considered valid and would not be materially affected by these changes.

*Table 16.1: Pit optimisation inputs*

*Note: Where differing values are used in subsequent economic analysis they are stated.*

| Parameter | Units | Value pit optimization | Value economic analysis |
|---|---|---|---|
| **Product Price** | US$/t product | 142.1 | 144.8 |
| **Shipping Cost** | US$/t product | 20.0 | 21 |
| **Transport cost** | US$/t product | 6.32 | |
| **Mining Cost** | US$/t ROM | 0.90 | |
| **Ore Loss & Dilution** | % | 0.0 | |
| **Slope Angle** | degrees | 35.0 | |
| **Process Cost** | US$/t ROM | 1.55 | 1.56 |
| **G&A** | US$/t ROM | 0.50 | 0.3 |
| **Metallurgical Recovery** | % | 51.56 | 51.6 |
| **Product Grade** | %Fe | 66.8 | |
| **Discount Rate** | % | 7.0 | |
| **Royalty** | % | 0.5 | |

The transport cost of 6.32 US$/t concentrate is based on all costs to deliver the product from the mine gate to the port and includes both road and rail transport.

The reference mining cost was set at 0.90 US$/t based on an average one-way haul distance to the ROM pad of 500 m. Material classed as Exploration Target is assumed to carry grade and will be stockpiled near the ROM pad. All blocks within the economic pit limit for the tailings pile are above the economic cut-off grade of approximately 3% total Fe and consequently there is no waste to be mined.

It should be noted that backfilling of the old Lac Jeannine pit with the tailings from the beneficiation plant has been assumed. This may either be by sub-aqueous deposition or by first draining the pit of water and then dumping the rejects from the plant.

### 16.3.2 Optimisation Results

The pit optimisations were run in NPVS using Resource model described in Section 14 and the parameters listed in Table 16.2. The optimisation was run over a range of prices from 1% to 100% of the selected product price. This results in a range of Revenue Factors (RF) that generate a series of nested pit shells that are used to represent the optimal mining sequence; The innermost shells having the lowest Revenue Factor, which are only economic with the highest block values.

This type of analysis will favour the areas of the mine that have a higher profit margin and therefore produces a mine schedule that delivers the highest Discounted Cashflow (DCF) or maximum Net Present Value (NPV) at a given discount rate. This form of analysis has been used to determine the maximum extents of the pit, which is termed the pit limit.

For this exercise, material classed as Exploration Target has been excluded in the optimisation, but can be regarded as a potential Resource, if the grade is above the cut-off. The Exploration Target material is therefore stockpiled, rather than dumped as Waste.

As all the blocks within the pit limit were found to be above the economic cut-off grade, there is no Waste present and the pit limit is defined by the RF 1.0 shell. The quantities within the pit limit are shown below and the optimum pit limit is shown in Figure 16.2.

*Table 16.2: Pit optimisation results (RF 1.0 Pit)*

*Note: Exploration Target grades are conceptual in nature, as such a grade range is presented for total Fe %. Only Fe is considered as having a reasonable prospect of being recovered and sold.*

| Material Category | Million Tonnes | Total Fe % | $SiO_2$ % | $Al_2O_3$ % | MgO % | $P_2O_5$ % | CaO % | $TiO_2$ % |
|---|---|---|---|---|---|---|---|---|
| **Inferred Resource** | 72.62 | 6.75 | 86.9 | 1.0 | 0.32 | 0.07 | 0.47 | 0.02 |
| **Exploration Target** | 1.22 | 6.5 -7.5 | 86.9 | 1.0 | 0.32 | 0.07 | 0.47 | 0.02 |
| **Total** | 73.84 | 6.75 | 86.9 | 1.0 | 0.32 | 0.07 | 0.47 | 0.02 |

Vertical sections (Figure 16.4 and Figure 16.5) have been taken through the optimum pit limit shell to demonstrate the fact that the pit is relatively shallow (generally less than 45m) and gently slopes from north to south.

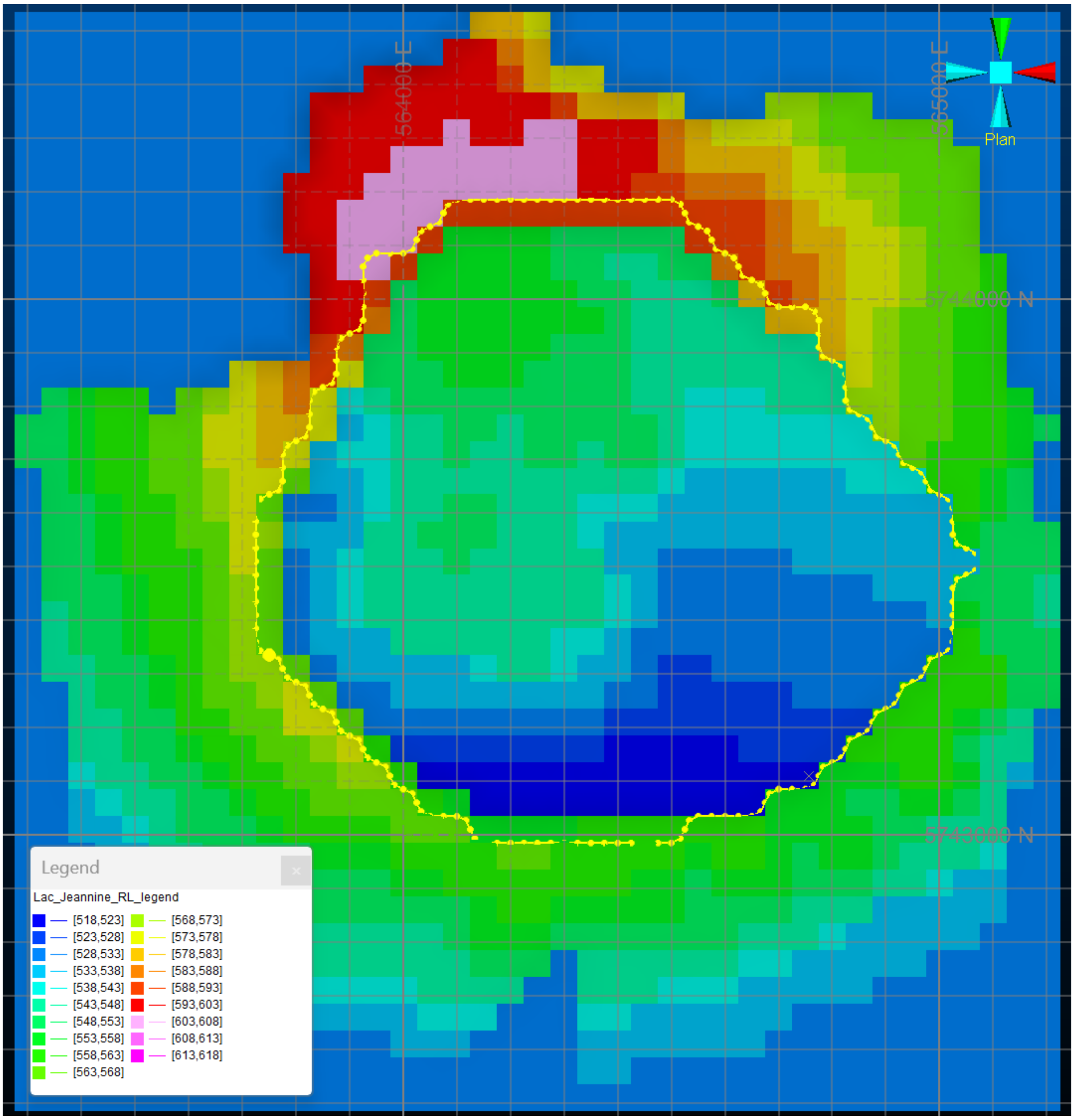


*Figure 16.2: Optimum pit limit.*

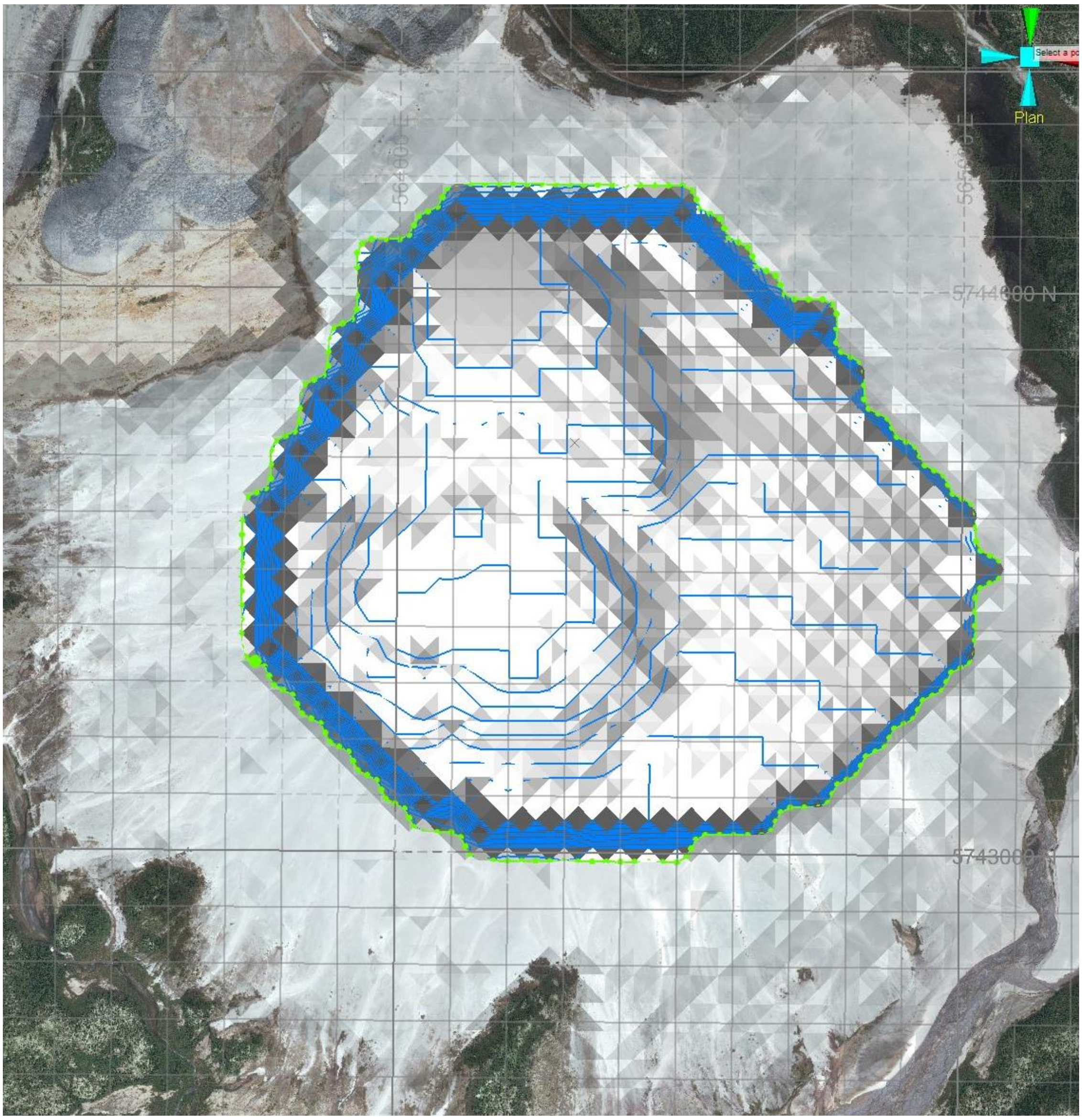


*Figure 16.3: Optimum pit limit – plan view.*

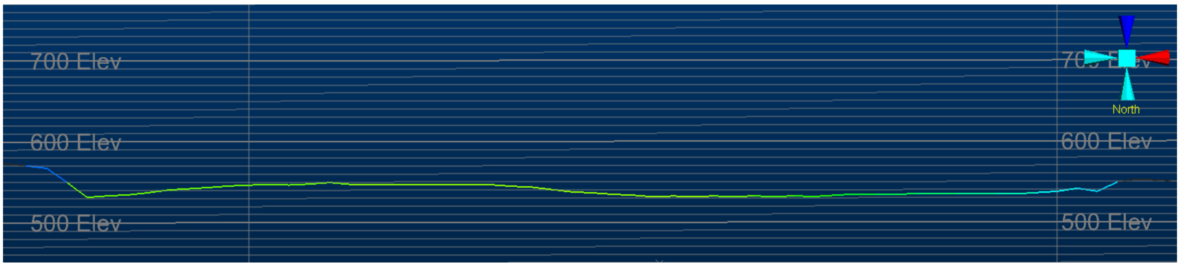


*Figure 16.4: Optimum pit limit – vertical section W-E looking north.*

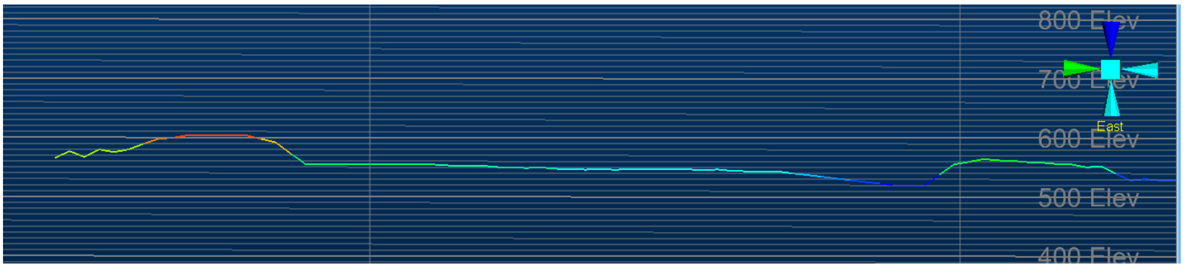


*Figure 16.5: Optimum pit limit – vertical section N-S looking east.*

## 16.4 Mine Design

### 16.4.1 Pit Stages

The production sequence was computed in NPVS using the Optimal Extraction Sequence (OES) generated from the pit optimisation. The first step was to generate a number of pit stages (pushbacks) in NPVS using the pushback generator. The Pushbacks were conditioned in NPVS by setting a minimum distance between successive pushbacks of 50 m to ensure sufficient operating room for the excavator. The minimum Plant feed tonnage in each pushback was also set in order to divide up the pit into 15 or more pushbacks of similar size.

In practice it is difficult to control the pushback generator as the increments are limited by the sequence (size) of the pit shells generated by the optimiser. However, it was possible in this case to create smaller pushbacks at the start so that the mine sequence can benefit from the high grading of the cap material on the pile.

### 16.4.2 Waste Rock Storage

Assuming the Exploration material is stockpiled, there is no Waste to be mined and consequently no need for a waste storage facility, other than from the rejects from the processing plant. These will be pumped to the old pit, which is currently full of water. Previously, about 47 Mt of tailings was deposited in the pit from the processing at Lac Jeannine of ore from Fire Lake. It is assumed that the bottom of the pit is partially filled to a level at RL 401m (Figure 16.6).

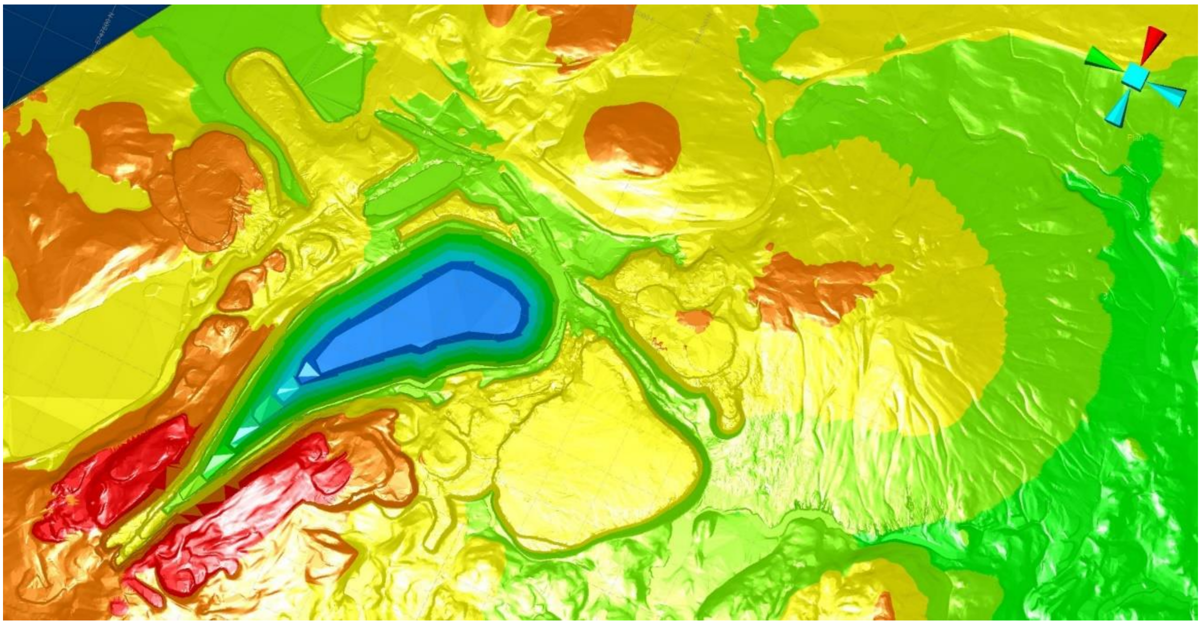


*Figure 16.6: Conceptual layout of the old pit.*

The remaining storage capacity of the old pit has been estimated by extrapolating the visible pit walls down at 42° from the water level (RL 560) to a pit bottom at RL 401, which provides a total volume of 77 million cubic metres ($Mm^3$).

If all of the tailings pile is processed (Inferred + Exploration) the required volume would be approximately 89 $Mm^3$. The excess (12 $Mm^3$) can easily be accommodated by assuming backfilling the pit is taken above the existing water level.

### 16.4.3 ROM Stockpile

A Run of Mine (ROM) stockpile will be created near to the feed bin for the plant. This will have sufficient capacity for 2 or 3 days supply of 40 to 60 thousand tonnes (Kt) to allow for production delays in the pit and for downtime at the plant.

### 16.4.4 Haul Roads

The tailings pile is relatively dry, and it is expected that it will be possible to run haul trucks across the surface once the route has been graded and compacted. There are therefore no requirements to establish dedicated haul roads within the pit area.

The dome shape of the pile means that the haul routes will predominately be downhill at a gradient of less than 5%, except for the later part of the schedule when the haul route will rise up as a shallow saucer shaped pit is formed.

If trucks are used to transport the concentrate from the plant to the rail head, then a dedicated 12 km road will need to be built that can be operated for at least 9 months of the year. The concentrate transport may be included as part of the mining contract which will help to keep costs down, particularly if the same model of truck is used in the pit.

## 16.5 Production Schedule

The mine production schedule was limited to 7 Mtpa with the aim of producing around 360 million tonnes per year (Ktpa) of Pellet-Feed for 10 years of useful life. The concentrate production is based on the following assumptions:

- 7 million tonnes (dry) mine production:
- 51.6% Metallurgical recovery:
- 66.8% final product grade:
- 0% Mining losses and dilution:
- 2% Moisture content:

As the concentrate tonnes are based on the metallurgical recovery, feed grade (%Fe) and product grade (%Fe), the product tonnes will necessarily vary period by period as the grade varies over time. Initially (Periods 1 to 9) the production exceeds 390 Ktpa, whilst during the later years the production declines to less than 390 Ktpa (Table 16.3).

*Table 16.3: Production schedule in half year increments*

*Material shown as Waste is classed as Exploration Target and will be stockpiled, Grades shown are exclusive of waste.*

| Half Year | Rock | Plant | Waste | $Fe_2O_3$ | $SiO_2$ | $Al_2O_3$ | MgO | CaO | $Na_2O$ | $K_2O$ | $Ti\ O_2$ | Mn O | $P_2O_5$ | $Zr\ O_2$ | Total Fe | Product |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kt | Kt | Kt | % | % | % | % | % | % | % | % | % | % | % | % | Kt |
| 1 | 2,688 | 2,639 | 49 | 12.02 | 84.48 | 0.89 | 0.32 | 0.49 | 0.010 | 0.28 | 0.018 | 0.03 | 0.06 | 0.002 | 8.4 | 171 |
| 2 | 3,806 | 3,520 | 286 | 11.36 | 85.11 | 0.90 | 0.33 | 0.47 | 0.012 | 0.28 | 0.018 | 0.03 | 0.06 | 0.001 | 8.0 | 216 |
| 3 | 3,664 | 3,513 | 151 | 10.89 | 85.72 | 0.85 | 0.35 | 0.52 | 0.005 | 0.27 | 0.018 | 0.04 | 0.06 | 0.000 | 7.6 | 207 |
| 4 | 3,676 | 3,505 | 171 | 10.87 | 85.76 | 0.84 | 0.36 | 0.55 | 0.003 | 0.27 | 0.018 | 0.04 | 0.07 | 0.000 | 7.6 | 206 |
| 5 | 3,759 | 3,517 | 242 | 10.54 | 85.94 | 0.81 | 0.36 | 0.58 | 0.000 | 0.26 | 0.019 | 0.04 | 0.07 | 0.000 | 7.4 | 200 |
| 6 | 3,732 | 3,516 | 216 | 10.40 | 86.20 | 0.86 | 0.38 | 0.57 | 0.001 | 0.28 | 0.019 | 0.04 | 0.07 | 0.001 | 7.3 | 198 |
| 7 | 3,544 | 3,508 | 36 | 10.20 | 86.50 | 0.86 | 0.37 | 0.57 | 0.001 | 0.28 | 0.019 | 0.04 | 0.07 | 0.000 | 7.1 | 193 |
| 8 | 3,518 | 3,518 | 0 | 10.01 | 86.61 | 0.95 | 0.35 | 0.50 | 0.001 | 0.31 | 0.020 | 0.04 | 0.07 | 0.000 | 7.0 | 190 |
| 9 | 3,529 | 3,507 | 22 | 9.84 | 86.65 | 0.92 | 0.40 | 0.56 | 0.002 | 0.30 | 0.020 | 0.04 | 0.07 | 0.001 | 6.9 | 186 |
| 10 | 3,550 | 3,514 | 36 | 9.88 | 86.63 | 0.90 | 0.38 | 0.55 | 0.003 | 0.30 | 0.020 | 0.04 | 0.07 | 0.001 | 6.9 | 187 |
| 11 | 3,530 | 3,518 | 12 | 9.64 | 86.86 | 1.01 | 0.36 | 0.51 | 0.001 | 0.33 | 0.021 | 0.04 | 0.07 | 0.001 | 6.8 | 183 |
| 12 | 3,516 | 3,516 | 0 | 9.47 | 87.11 | 0.96 | 0.32 | 0.49 | 0.001 | 0.31 | 0.021 | 0.04 | 0.07 | 0.001 | 6.6 | 180 |
| 13 | 3,508 | 3,508 | 0 | 9.25 | 87.24 | 1.05 | 0.34 | 0.48 | 0.002 | 0.35 | 0.022 | 0.04 | 0.07 | 0.002 | 6.5 | 175 |
| 14 | 3,517 | 3,517 | 0 | 9.07 | 87.44 | 1.09 | 0.31 | 0.44 | 0.003 | 0.36 | 0.024 | 0.03 | 0.07 | 0.001 | 6.3 | 172 |
| 15 | 3,504 | 3,504 | 0 | 8.91 | 87.57 | 1.10 | 0.29 | 0.42 | 0.001 | 0.37 | 0.024 | 0.03 | 0.07 | 0.001 | 6.2 | 168 |
| 16 | 3,516 | 3,516 | 0 | 8.74 | 87.67 | 1.24 | 0.29 | 0.39 | 0.008 | 0.41 | 0.027 | 0.03 | 0.07 | 0.001 | 6.1 | 166 |
| 17 | 3,516 | 3,516 | 0 | 8.76 | 87.75 | 1.17 | 0.28 | 0.39 | 0.007 | 0.39 | 0.025 | 0.03 | 0.07 | 0.001 | 6.1 | 166 |
| 18 | 3,510 | 3,510 | 0 | 8.59 | 87.94 | 1.17 | 0.26 | 0.36 | 0.004 | 0.39 | 0.026 | 0.03 | 0.07 | 0.001 | 6.0 | 163 |
| 19 | 3,512 | 3,512 | 0 | 8.53 | 87.97 | 1.17 | 0.27 | 0.36 | 0.004 | 0.39 | 0.026 | 0.03 | 0.07 | 0.002 | 6.0 | 162 |
| 20 | 3,515 | 3,515 | 0 | 8.21 | 88.23 | 1.23 | 0.25 | 0.32 | 0.005 | 0.41 | 0.027 | 0.03 | 0.07 | 0.003 | 5.7 | 156 |
| 21 | 3,234 | 3,234 | 0 | 7.86 | 88.45 | 1.34 | 0.24 | 0.30 | 0.009 | 0.46 | 0.029 | 0.03 | 0.07 | 0.003 | 5.5 | 137 |
| **Total** | **73,842** | **72,622** | **1,221** | **9.65** | **86.87** | **1.01** | **0.32** | **0.47** | **0.004** | **0.33** | **0.022** | **0.03** | **0.07** | **0.001** | **6.7** | **3,782** |

## 16.6 Mine Operations

### 16.6.1 Roster Schedules

A two shift 12-hour roster is assumed with 4 crews. In addition, allowance will be made for holidays and absenteeism.

The Mine and Plant operations are planned for 24 hours a day, 365 days per year, whilst transport of concentrate is assumed to be only for 9 months of the year to avoid having to maintain the road during the peak winter period.

Allowance will need to be made for covered storage of the concentrate for the 3 months of the year when road transport from the mine to the rail head is not possible.

### 16.6.2 Mine Management and Technical Services

It is assumed that a mining contractor will be used for all mine operations and the owner will provide a management and technical team.

### 16.6.3 Mine Maintenance and Support Equipment

Maintenance and auxiliary services to the mining operation will include the preventive maintenance of the mining equipment and the execution of auxiliary and support works to mining.

Auxiliary equipment will include Rubber Tyre Dozer (RTD) for pit and road cleanup, motor grader for maintenance of roads, water truck for dust suppression, fuel truck, lowboy for transporting excavators and tractors, buses and light vehicles for transport of staff.

### 16.6.4 Dewatering

No specific design for pit dewatering has been prepared in this study. It is assumed that material is relatively dry and that there is minimal inflow other than from rainfall and snow melt over the catchment of the working areas.

### 16.6.5 Ore Control

To have a better understanding of the ore quality from the mining fronts, samples will be taken before and during mining, serving to assist in building up of the mine planning team's database regarding the characteristics of the types of ore that make up the deposit.

This sampling for the purposes of reconciliation can be in the form of vertical channels cut at set intervals along the faces. Due to the rapid advance rate, there will be insufficient time between sample analysis and mining unless a handheld XRF is used.

As an alternative it may be possible to use a "ditch witch" approach to sampling where a 1 to 2 m deep channel is cut in advance on the exposed benches. The cuttings will then be split, and a representative sample sent to the lab for analysis.

### 16.6.6 Drilling and Blasting

There is no need for drilling or blasting as the material should be free flowing at all times. In winter, the surfaces of the upper benches may start to freeze if left for long periods but as the working faces will be rapidly advancing at the rate of around 50 m per day, assuming a 100 m long face that is 3 m high, localised freezing should not cause problems in the working areas.

The action of digging with the hydraulic excavator will help to ensure that the material is free flowing when loaded into the truck. It is important to avoid material handling issues at the feed bin in the form of oversize material that will need to be broken down.

### 16.6.7 Load and Haul

Material will be loaded by a hydraulic excavator (backhoe) that loads into a 40t truck that is either positioned alongside the excavator or on the bench below. Loading into a truck below the excavator has the advantage that the swing time is minimised but will require the face area to be maintained with a RTD at times to maintain the bench gradient.

The haul trucks will cycle back and forth between the excavator and the ROM pad. Assuming that the average haul distance is less than 1 km (one way), it is reasonable to assume that the total load, haul and dump cycle time will be less than 6 mins. The truck productivity for a 50-minute hour will therefore be around 320 tph to 340 tph. This means that the required production rate of 1,000 tph to 1,250 tph can be achieved with 3 to 4 trucks and 1 excavator.

The Overall Utilisation (OU) for the mining equipment is expected to be around 62% and the annual scheduled equipment hours will therefore be around 5,500 hrs.

It is assumed that the Front-End Loaders (FEL) assigned to the ROM pad can be used for short periods as a backup machine when the excavator is on unscheduled breakdown or planned maintenance.

### 16.6.8 ROM Stockpiling

Material will be dumped at the ROM pad and one or more Front End Loaders (FEL) will dump the material into the feed bin. The haul distance from the ROM pad to the bin needs to be as short as possible in order to maximise the efficiency of this operation.

Two medium sized (12 to 15m$^3$) FELs are the preferred option as this provides some redundancy in capacity for feeding the bin and providing backup capacity at the mining face. The equipment selection and feed bin design should take this into account.

The Exploration material will be stockpiled near to the process plant, as although it cannot be included in the PEA schedule, it is expected that this material will eventually be reclassified as a Resource once additional drilling is completed.

### 16.6.9 Mine Equipment Requirements

The typical peak mine equipment requirements are based on the roster detailed in Section 16.6.1 and the schedule listed in Table 16.4.

*Table 16.4: Mine equipment requirements*

*Note: Auxiliary equipment is not staffed all the time*

| Equipment Type | Model/Size | Units |
|---|---|---|
| **Hydraulic Excavator** | 5.0 m$^3$ | 1.0 |
| **Haul Trucks (Mine)** | 40 tonne | 4.0 |
| **Haul Trucks (Concentrate)** | 40 tonne | 3.0 |
| **Motor Grader** | Cat 14G | 1.0 |
| **Rubber Tyre Dozer** | Cat 824 | 1.0 |
| **Front End Loader** | 12 to 15 m$^3$ | 2.0 |
| **Water Truck** | 30,000 litres | 1.0 |
| **Service Truck** | | 1.0 |
| **Lowboy** | | 1.0 |
| **Pickups** | Toyota Hilux | 4.0 |
| **Crew Bus** | | 1.0 |
| **Lighting Plants** | | 4.0 |

### 16.6.10 Mine Labor Requirements

The contractors mine operations labor requirements (Table 16.5) are based on the roster schedule detailed in Section 16.6.1 and the equipment requirements listed in Table 16.4. The auxiliary equipment will be staffed as required whilst the load and haul equipment will be staffed continuously.

*Table 16.5: Mine labor requirements (operations).*

*Note: Four crews on a rotating roster are required for 24 hour, 2 shift coverage*

| Role | Crews | Total Number |
|---|---|---|
| **Mine Manager** | 1 | 1 |
| **Mine Ops Supervisors** | 4 | 4 |
| **Operators** | 4 | 56 |
| **Mine Maintenance Supervisor** | 4 | 4 |
| **Maintainers** | 4 | 8 |
| **Mining Engineer** | 2 | 2 |
| **Admin Staff** | 2 | 2 |
| **Safety Officer** | 4 | 1 |
| **Medical/Nurse** | 4 | 4 |

The typical Owners team labor requirements (Table 16.6) are generally based on day shift coverage only and will require 2 crews if there is 7-day coverage. The exception is Security, which requires 24-hour coverage.

*Table 16.6: Owners team labor requirements*

| Role | Crews | Total Number |
|---|---|---|
| **Contract Manager** | 1 | 1 |
| **Mining Engineer** | 2 | 2 |
| **Chief Geologist** | 1 | 1 |
| **Geologists** | 2 | 2 |
| **Samplers** | 2 | 8 |
| **Surveyor** | 2 | 2 |
| **Security** | 4 | 8 |
| **Admin Staff** | 1 | 1 |

### 16.6.11 Capital and Operating costs

#### *16.6.11.1 Methodology*

The capital and operating costs have been estimated on the basis that the mine will be operated by a contractor. A very limited management team will be on site to supervise the contractor and provide input to the mine plan.

There will also be an off-site office that will provide the administration functions and deal with sales. These costs are assumed to be included in the General & Administration (G&A) costs of 0.3 US$/t mined.

#### *16.6.11.2 Capital Costs – Mine Operations*

The capital cost for mine operations will be limited to the mobilisation and demobilisation costs for the contractor. There is no need for a pre-strip other than perhaps the preparation of the initial bench for mining. The contractor will provide their own office and workshop facilities.

#### *16.6.11.3 Operating costs – Mine Operations*

The operating cost for the contractor has been estimated at 0.90 US$/t ROM and the annual costs for 7 Mtpa will be 6,300,000 US$. Budgetary estimates should be obtained from at least 3 potential contractors in the next phase of study to confirm this estimate.

# 17 Recovery Methods

The various metallurgical test programs presented in section 13 are the basis for the process design and the processing flowsheet proposed in this section with the respective design criteria, material and water balance, equipment selection and sizing. In the following sections, the design basis and criteria of the processing plant are presented together with the description of each of the processing sections. This information provides the basis for the processing plant and related capital and operating cost estimates.

## 17.1 Design Basis and Process Design Criteria

The process plant described in the following sections is designed to process 7.0 Mtpa of the Lac Jeannine tailings material on average over the resource estimate of the tailings pit.

The iron and weight recoveries are based on the testwork done at COREM and presented in section 13.

The process plant design is based on testing performed to date (per section 13) and knowledge acquired in the processing of iron ore deposits in Eastern Canada. The equipment selection and sizing are based on the following:

- COREM testwork for jigs and hydraulic classifier.
- Mass balance based on COREM testwork results for throughput and flowrates.
- Testwork results from similar projects in the Labrador Trough for scrubber, spirals, high frequency screens, thickeners, filter and regrinding mill.

Table 17.1 summarizes the general parameters upon which the beneficiation plant's design has been based for the Lac Jeannine tailings site.

*Table 17.1: General process design criteria for the processing plant.*

*Note: Fe is total Fe*

| Parameter | Unit | Value |
|---|---|---|
| **General** | | |
| Concentrator Tonnage Capacity per year - Dry | t | 7,000,000 |
| Operational Hours per year | h | 8,000 |
| **Feed** | | |
| Fe Grade | % | 7.0 |
| $SiO_2$ Grade | % | 86.1 |
| $Al_2O_3$ Grade | % | 1.0 |
| + 850 µm Weight Fraction | % | 25.2 |
| - 850 + 212 µm Weight Fraction | % | 51.5 |
| - 212 µm Weight Fraction | % | 23.3 |
| Concentrate | | |
| Targeted Concentrate Fe Grade | % | 65 to 67 |
| **Hydraulic Classifier (HC)** | | |
| Total Hydraulic Classifiers Solids Feed rate - Nominal | t/h | 875.0 |
| Hydraulic Classifier U/F Weight Yield | % | 52.5 |
| Coarse Vibrating Screen | | |
| **Cut size** | **µm** | **850** |
| Vibrating Screen O/S Step Weight Yield | % | 44.2 |
| **Coarse > 850 µm** | | |
| **Rougher Jig** | | |
| Rougher Jig Maximum Feed Grade from Jig Tests | % | 10.7 |
| Rougher Jig Feed Particle Size Distribution | | |
| 1700 µm | % | 16.4 |
| 1180 µm | % | 40.4 |
| 850 µm | % | 43.2 |
| **Cleaner Jig** | | |
| Cleaner Jig Concentrate Fe Grade | % | 64.0 |
| Cleaner Jig Concentrate $SiO_2$ Grade | % | 7.3 |
| Cleaner Jig Concentrate $Al2O_3$ Grade | % | 0.4 |
| **Middlings 850 > 212 µm** | | |
| **Intermediate Spirals** | | |
| Intermediate Spirals Concentrate Targeted Fe Grade | % | 13.6 |
| **Regrinding Mill** | | |
| Regrinding Mill Targeted Maximum Particle Size | µm | 212.0 |
| **Regrinding Mill Spirals** | | |
| Regrinding Mill Spirals Concentrate Targeted Fe Grade - Material from Cleaner Jig Tails | % | 65.0-69.0 |
| Regrinding Mill Spirals Concentrate Targeted Fe Grade - Material from Intermediate Spirals and Scavenging Stacksizer Screen U/S | % | 65.0-68.0 |
| **Fines < 212 µm** | | |
| **Hydraulic Classifier O/F High Frequency Screen - 212 µm** | | |
| Hydraulic Classifier O/F Screen U/S Step Weight Yield | % | 45.8 |
| **Rougher, Cleaner and Recleaner Spirals** | | |
| Rougher and Cleaner Spirals Concentrate Targeted Fe Grade | % | 65.0-68.0 |
| **High Frequency Scavenging Screen - 106 µm** | | |
| Scavenging Screen O/S Average Step Weight Yield | % | 43.3 |
| Scavenging Screen O/S Average Fe Recovery | % | 9.4 |

## 17.2 Process Flowsheet and Mass Balance

Figure 17.1 presents a simplified flowsheet that summarizes the process while a material balance summary for the concentrator is presented in Table 17.2. The equipment list is based on the flowsheet diagrams and the equipment sizing is based on the mass balance.

*Table 17.2: Material balance at a target concentrate grade of 67% total Fe.*

| Description | Solid (t/h) | Pulp (m$^3$/h) | % solids (%w/w) | Fe (%) | Total Fe Dist. (%) | Total Fe Unit Dist. (%) |
|---|---|---|---|---|---|---|
| **Hydraulic Classifier Feed** | **875** | 1,195 | 50 | 7.0 | 100 | 100 |
| **Hydraulic Classifier U/F** | **460** | 297 | 78 | 7.8 | 59 | 59 |
| **Hydraulic Classifier O/F** | **415** | 1,799 | 20 | 6.1 | 41 | 41 |
| **Screen O/S** | **203** | 96 | 90 | 9.9 | 33 | 56 |
| **Screen U/S** | **256** | 211 | 69 | 6.2 | 26 | 44 |
| **Rougher Jig Concentrate** | **33** | 43 | 50 | 35.3 | 19 | 58 |
| **Rougher Jig Tails** | **170** | 106 | 80 | 4.9 | 14 | 42 |
| **Cleaner Jig Concentrate** | **15** | 18 | 50 | 64.0 | 15 | 79 |
| **Cleaner Jig Tails** | **19** | 176 | 10 | 13.4 | 4 | 22 |
| **Hydraulic Classifier O/F Screen O/S** | **225** | 142 | 80 | 1.4 | 5 | 12 |
| **Hydraulic Classifier O/F Screen U/S** | **190** | 1,686 | 11 | 11.6 | 36 | 88 |
| **Intermediate Spirals Concentrate** | **82** | 111 | 50 | 13.6 | 18 | 71 |
| **Intermediate Spirals Tails** | **174** | 459 | 31 | 2.6 | 8 | 29 |
| **Regrinding Mill Feed** | **152** | 104 | 75 | 13.6 | 34 | 49 |
| **Regrinding Mill Spirals Concentrate** | **22** | 26 | 50 | 67.9 | 24 | 68 |
| **Regrinding Mill Spirals Tails** | **103** | 325 | 27 | 6.6 | 11 | 32 |
| **Fines Spirals Feed** | **190** | 855 | 19 | 11.6 | 36 | 100 |
| **Fines Spirals Concentrate** | **11** | 14 | 50 | 68.0 | 13 | 35 |
| **Fines Spirals Mids.** | **25** | 45 | 40 | 31.6 | 13 | 35 |
| **Fines Spirals Tails** | **154** | 797 | 17 | 4.3 | 11 | 30 |
| **Scavenging Screen O/S** | **1** | 1 | 80 | 12.6 | 0 | 2 |
| **Scavenging Screen U/S** | **24** | 54 | 33 | 32.6 | 13 | 18 |
| **Total Concentrate** | **47** | 57 | 50 | 66.8 | 52 | 100 |
| **Total Tailings** | **828** | 1,829 | 35 | 3.6 | 48 | 100 |
| **Regrinding Mill Screen U/S** | **125** | 350 | 29 | 17.2 | 35 | 51 |
| **Regrinding Mill Spirals Feed** | **125** | 350 | 29 | 17.2 | 35 | 100 |
| **Concentrate to Load-Out Dome** | **47** | 12 | 95 | 66.8 | 52 | 100 |

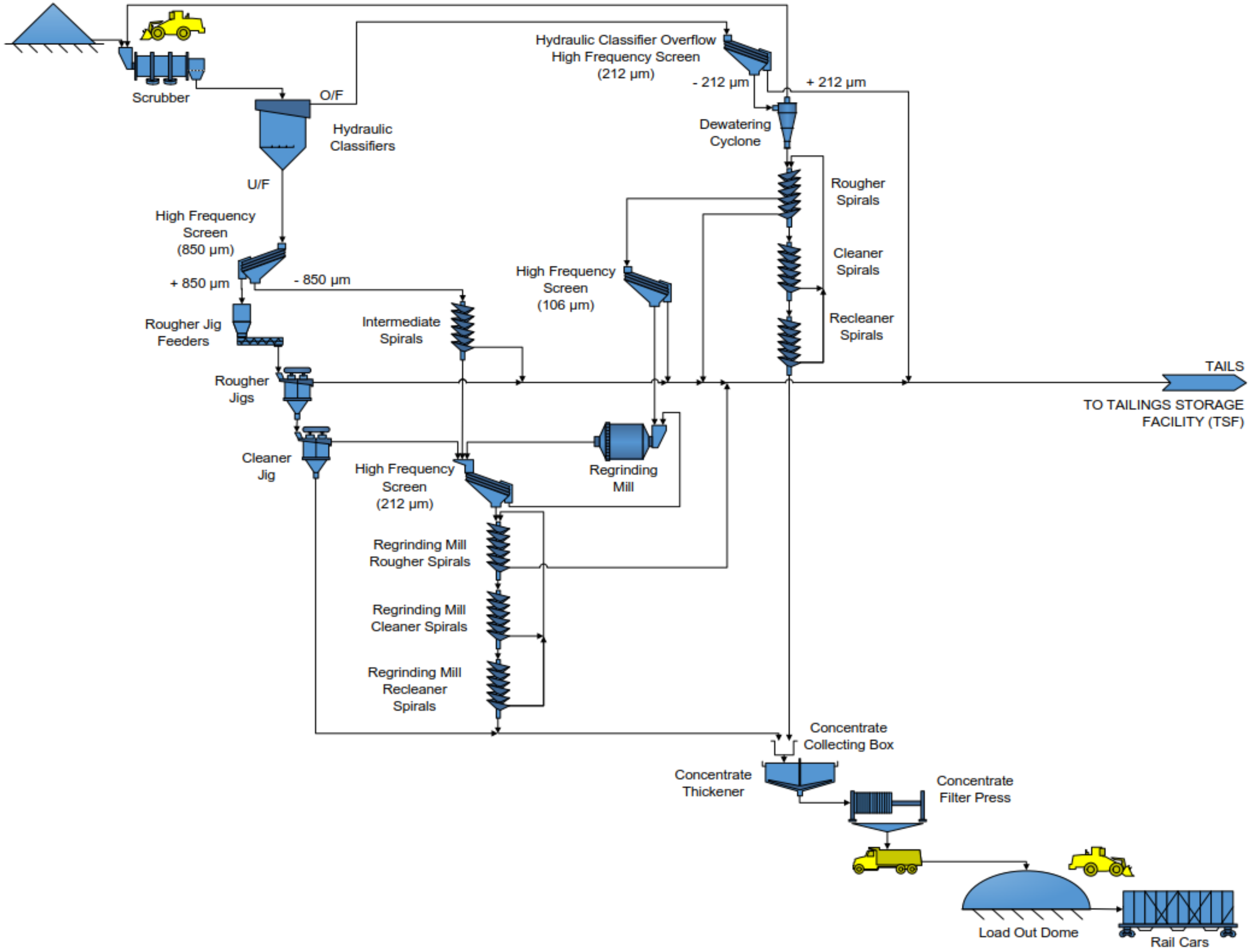


*Figure 17.1: Process plant simplified flowsheet.*

## 17.3 Impact of Concentrate Grade on Recoveries and Weight Yields

The different parts of the concentration circuit provide concentrate streams that are combined to yield a final concentrate. During the testwork the concentrate from the Cleaner Jig has been validated up to 64% total Fe. The finer fractions with the proper equipment have shown the potential to provide concentrates above 68% total Fe. In order to target a 67% total Fe combined concentrate, the current strategy is to compensate for the 64% total Fe grade from the jigs with higher grade concentrates from the spirals.

This approach has an impact on the overall recovery as shown in Table 17.3. The impact of the lower jig concentrate is compensated by an increase of spiral concentrate grade. A higher spiral concentrate grade negatively impacts the spiral recovery. The capacity to increase the jig concentrate to 65% total Fe should ensure meeting the 67.5% total Fe target with a lesser impact on recovery.

*Table 17.3: Impact of combined concentrate grade on recovery and weight yield.*

| Concentrate Grade (% Fe) | Iron Recovery (%) | Weight Yield (%) |
|---|---|---|
| **65.0** | 55.0 | 5.9 |
| **66.0** | 53.5 | 5.7 |
| **66.8** | 51.6 | 5.4 |
| **67.0** | 47.4 | 5.0 |

## 17.4 Description of Processing Plants Facilities

The following process description gives an overview of the recovery circuit selected based on the test work and the design criteria presented above. The process description is divided into the following sections:

- Feed preparation.
- Coarse and Intermediate circuit.
- Fine circuit.
- Regrind mill and spirals.
- Concentrate dewatering and load-out.
- Tailings pumping.
- Utilities and service Area.

### 17.4.1 Feed Preparation

Ore is hauled by trucks to the ore stockpile area. The ore is then reclaimed by loader and dumped onto a grizzly screen to remove coarser material and/or coarse frozen lumps. Material passing the grizzly feeds a scrubber to repulp the ore and break the lumps. The scrubber discharge is sent to six (6) hydraulic classifiers. Fluidization water is added to each hydraulic classifier to carry the fines and tailings particles to the overflow to feed the fines circuit. The iron and the coarse particles are recovered at the classifier underflow to feed the coarse and intermediate circuit.

### 17.4.2 Coarse and Intermediate Circuit

The hydraulic classifier underflow feeds one (1) high frequency screen with a screen opening of 850 µm. The passing fraction from the screen feeds the Intermediate spirals. The intermediate spiral concentrate is sent to the regrind mill circuit and the spiral tails are sent to the tailings pumping circuit.

The screen oversize fraction is sent to the Rougher Jig Feeder to feed at a constant rate the Rougher Jig. Rougher jig tails are sent to the tailings pumping circuit and the Rougher Jig concentrate is sent to the Cleaner Jig for final upgrading. Cleaner Jig concentrate will be sent to the concentrate dewatering circuit. Tailings for the Cleaner Jig are sent to the regrind mill area.

### 17.4.3 Fines Circuits

The hydraulic classifier overflow feeds three (3) high frequency screens with a screen opening of 212 µm. The screen oversize iron grade is low, and this stream is sent to the tailings pumping circuit.

The screen undersize fraction is pumped to a dewatering cyclone cluster. The cyclone overflow is pumped to the scrubber feed as dilution water. The underflow is distributed to 112 rougher spirals. Concentrate from the rougher spirals is distributed to 16 cleaner spirals. Concentrate from the cleaner spirals will feed directly a recleaner spiral below for final upgrading. Recleaner concentrate is sent to the concentrate dewatering circuit. Tails from the cleaner and recleaner spirals are recirculated to the rougher spiral feed. Rougher tails are sent to the tailings pumping circuit and the Rougher Spiral middlings stream reports to a high frequency screen (screen opening of 106 µm). Screen oversize will be sent to the tailings pumping circuit and the screen undersize is sent to the regrind mill circuit.

### 17.4.4 Regrind Mill and Spirals

The objective of the regrind circuit is to regrind the material from many streams in the plant to liberate the iron particles from the gangue particle to be able to recover the iron with spirals. The regrind circuit is fed by the following:

- Cleaner jig tails.
- Intermediate spiral concentrate.
- Rougher spirals fine tails.

The first two (2) streams are sent to high frequency screens with a screen opening of 212 µm. Screen oversize is combined with rougher spirals fine tails and feed one (1) regrind mill for size reduction. The regrind mill discharge is sent back to the screen for particle size classification.

Screen undersize is distributed to the Regrind Mill rougher spirals (80 double start units in total). Concentrate from the rougher spirals will be combined and distributed to feed 16 cleaner spirals. Concentrate from the cleaner spirals will feed directly a recleaner spiral below for final upgrading. Recleaner concentrate is sent to the concentrate dewatering circuit. Tailings from the cleaner and recleaner spirals will be recirculated to the rougher spiral feed. Rougher tails will be sent to the tailings pumping circuit.

### 17.4.5 Concentrate Dewatering and Load-Out

Concentrate from the Cleaner jig, the Regrind Mill recleaner spirals and the recleaner spirals are combined and sent to the concentrate thickener. Flocculant is added to the thickener feed. The Concentrate thickener underflow is pumped to the concentrate filter press to reduce the concentrate moisture for transport. Filter press filtrate is sent back to the concentrate thickener feed. Thickener overflow is sent to the process water tank.

The filtered concentrate is trucked to a storage dome. From there, it is transferred to railcars with a loader. Each car is weighed to ensure the weight limitations are met.

### 17.4.6 Tailings Pumping

Tailings pumpbox is fed by the following streams:

- Hydraulic Classifier Overflow Screen oversize.
- Rougher Spiral tails.
- 106 µm screen oversize.
- Intermediate Spiral tails.
- Regrind Mill Rougher Spiral tails.
- Rougher Jigs tails.

Tailings pumpbox discharge is pumped to the old pit, which will be the tailings storage facility.

### 17.4.7 Utilities and Service Area

The concentrator utilities and services area include water supply and plant & instrument air distribution.

Two (2) separate water supply systems are provided to support the operation: a freshwater tank and a process water tank.

- Fresh water would be supplied from the Lac Jeannine pit and is used for fire water emergency use, flocculant preparation and gland seal water.
- Process water consists of concentrate thickener overflow and reclaimed water from the tailings pond. Water is reclaimed by pumps located in a floating barge away from the tailings discharge pipe.

Plant air service is provided by a plant air compressor and dryer, and instrument air compressor and dryer systems.

# 18 Project Infrastructure

The site is located in the Caniapiscau regional county municipality (RCM) of the Côte-Nord Region of eastern Québec (QC), approximately 8 kilometres (km) southeast of the abandoned town-site of Gagnonville and 290 km north of the City of Baie Comeau.

The Project is expected to benefit from access to renewable hydroelectric power, water, roads, airfield, existing rail and port facilities in a proven regional labor market in a mining friendly jurisdiction with a long history of supporting iron ore operations. The Project is located directly to the west of ArcelorMittal's existing and operational Mont-Wright rail loop infrastructure, with access to end markets via port and rail. Rail access for the Lac Jeannine Project is expected to consist of two segments. The first stage uses an existing road following the previous Lac Jeannie rail spur, which will transport the concentrate from the Project site to the Cartier Railway/Lac Jeannine rail junction. The second stage would utilise the existing Cartier railway operated by ArcelorMittal, connecting Mont-Wright Mine to the seaport at Port-Cartier (Québec). Once unloaded, the high purity Fe concentrate will be stockpiled, then loaded onto vessels to supply global customers. The Project requires a negotiated agreement in due course with ArcelorMittal for the use of the Cartier railway for transportation.

Site infrastructure suitable for a 7,000,000 tpa ROM operation is planned and costed in the budget. New roads will be established from the existing gravel road junction to the site from the northwest. Additional roads around the site to cater for access to general areas and new haul roads dedicated to the movement of the ROM to the plant will also be established. Main power will be taken from the existing powerline along the site access road to the plant switchyard from where it will be distributed within the plant and process buildings as required. ROM material will be transported into the plant by conveyor from the tipping point into the scrubber.

The main mobile equipment workshop, mine office and changehouse will be located at a suitable point with proximity to the mining operations and this will be completed by the main mining contractor. Communications and control will be by site side radio communications and WiFi from a national provider.

The plant site infrastructure will include a main office, a small workshop and store. The main control room will be located above the plant. A small laboratory for assay/metal accounting and QA/QC will be provided, along with a weighbridge for concentrate accounting. Structures again will be steel framed with brick walling, sheeted insulated roofs and standard fittings.

Fresh water will be sourced from groundwater and pumped to the freshwater tank for use. Potable water will be treated by reverse osmosis prior to distribution. Fresh water will also be pumped to the process water tank for process water make-up. Brown water from changehouses and washrooms in the offices will be routed to a packaged bio-disc sewage system for treatment prior to discharge.

Non-contact surface water will be routed around terraces and structures by suitable berms and culverts for discharge to pre-existing drainage channels. Contact surface water together with excess mine water will be collected, settled, and treated if required prior to discharge to pre-existing site drainage.

Tailings will be pumped to the old Lac Jeannine open pit. A stockpile will be located near to the ROM pad to accommodate Exploration Target material, which is currently treated as waste, but may eventually be processed. The stockpile will be located near the plant to accommodate short term feed material and concentrate product.

A schematic of the overall planned surface layout of the Project is shown in Figure 18.1.

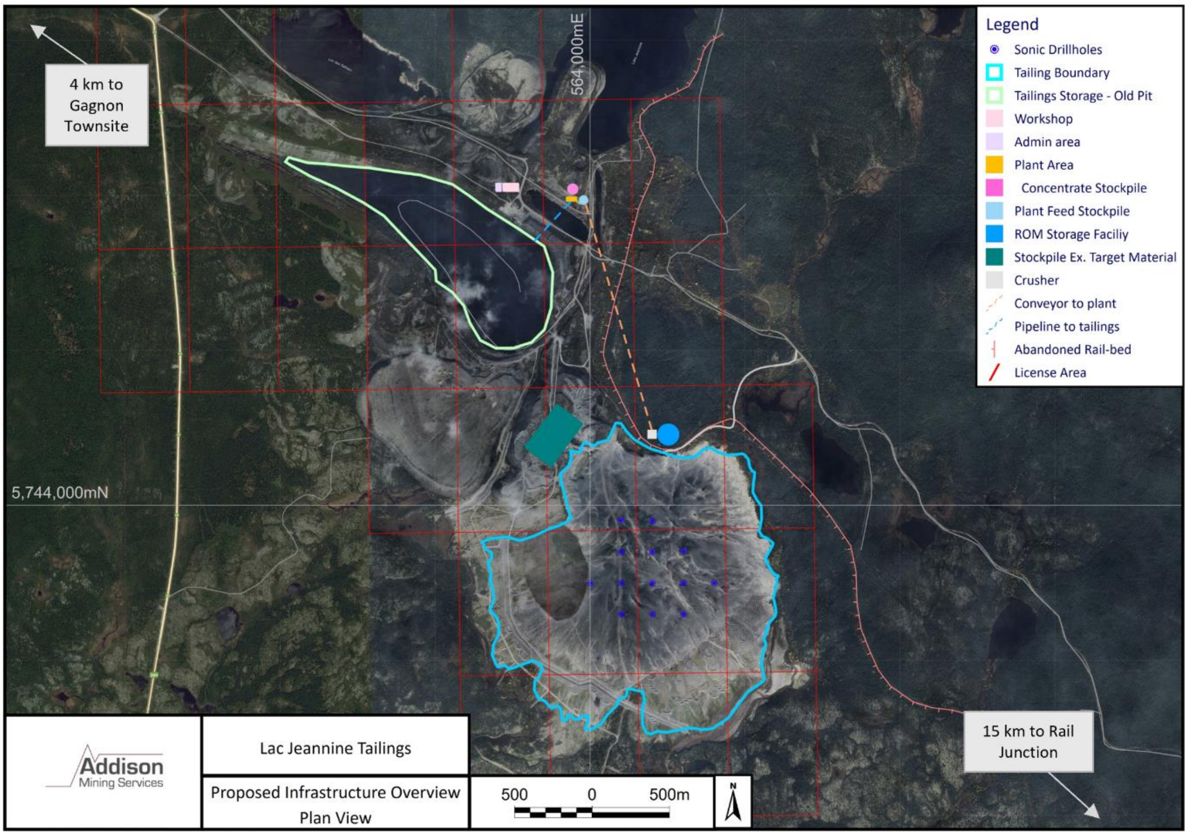


*Figure 18.1: Overall site layout.*

# 19 Market Studies and Contracts

## 19.1 Concentrate Pricing

As part of this present PEA Study, it is required that a selling price be determined to perform the Project Economic Analysis. CoTec Holdings has engaged with the well-recognised commodity research and consultancy firm, Fastmarkets to provide a long-term iron ore concentrate price forecast which can be applied to the Project Economic Analysis. Fastmarkets have also conducted a Value in Use (VIU) analysis to assess the premium that the concentrate will attract.

This section is based on iron ore and steel industry knowledge, experience and analysis and has been conducted on the basis of the available information at the time of the report. There are though assumptions, forecasts, and forward-looking statements. The Qualified Person for this section therefore advises that while they have reviewed the content provided by Fastmarkets and consider it reasonable and not misleading, future actual market conditions may differ from those presented in this Technical Report.

### 19.1.1 Factors Influencing Iron Ore Price Forecasts

The iron ore market is poised at a critical juncture with multiple transformative factors at play. Historically, iron ore prices have been heavily influenced by the economic cycles of major consumers, particularly China. The forecast is influenced by several key trends:

#### *19.1.1.1 Decarbonisation of the steel industry:*

A global shift towards reducing carbon emissions is reshaping steel production. Technologies like hydrogen-based direct reduction are gaining traction, which in turn drives demand for higher-grade iron ore and pellets with low impurities. This shift is expected to support higher premiums for DR pellets and high-grade concentrates.

#### *19.1.1.2 Supply challenges:*

While new mining projects and expansions of existing operations are anticipated, supply constraints from key producers, geopolitical uncertainties, and environmental regulations will likely keep the market tight in the short to medium term.

#### *19.1.1.3 Technological advancements:*

Innovations in mining and processing technologies are expected to improve efficiency and reduce costs, potentially increasing supply. However, the pace of adoption and the scale of these advancements remain uncertain.

#### *19.1.1.4 Economic factors:*

Global economic conditions, including infrastructure spending, industrial output, and overall economic growth, will continue to influence iron ore demand. The ongoing urbanization and industrialization in emerging economies will likely sustain robust demand for steel and consequently, iron ore.

### 19.1.2 Market Strategy and Pricing

The relationship between concentrate prices and high-grade 65% Fe fines is complex. The concentrate price is influenced by demand from pelletizers. When demand for pellet feed is strong, concentrate prices can exceed those of 65% Fe fines. Conversely, when demand weakens, concentrate prices typically fall below the 65% Fe fines benchmark. The differential between these prices can vary significantly, reflecting their different consumption routes and market demands.

Currently there are no readily available indices to accurately assess the value of high-grade feed products similar to the Lac Jeannine concentrate. Industry practice therefore dictates utilizing an index with comparable product specifications and adjusting for any disparities. The closest public benchmark is the Platts TSI IODEX 65% Fe CFR China ("65% Fe Index" or "P65 Index") that could serve as a benchmark for evaluating the Lac Jeannine concentrate price. Additionally, a premium is typically applied to the base index for the advantageous properties of a grade concentrate. Finally, a freight adjustment must be incorporated, considering the base 65% Fe index is currently based on a sale of iron ore being delivered to Qingdao on a CFR basis.

#### *19.1.2.1 65% Fe Base Index*

The long-term forecast price was obtained from Fastmarkets who have historically taken a conservative stance in their projections. Fastmarkets anticipates an average 65% concentrate CFR China price of US$121.28/dmt from 2027 onwards (Lac Jeannine is anticipated to enter production in 2027).

Using a historical basis of the same 65% Fe index, the 3-year trailing price, as of December 31, 2023, averages US$153.44/dmt, while the 5-year trailing price averages US$136.92/dmt.

Based on the price forecast supplied by Fastmarkets and the historic trailing averages, a price of US$121/t was deemed a good representation of the future 65% Fe price.

#### *19.1.2.2 Premium for Lac Jeannine Concentrate*

The future demand for concentrates is expected to remain strong, driven by their use in both blast furnace (BF) and direct reduction (DR) processes, contributing to price increases over the forecast period.

The premium for high-grade iron ore is primarily driven by steel mill profit margins and environmental policies. Profitable mills prefer high-grade ores to increase productivity and reduce slag, while environmental regulations push for higher-grade ores to lower emissions. Supply levels also impact the high-grade premium, and although we expect growth in direct shipping ores from regions such as Northern Brazil and Simandou, we do not anticipate significant volumes of concentrate coming online based on current investment levels. This, combined with the anticipated rise in pellet consumption due to more stringent environmental regulations, will bolster the premium in the long term.

Due to the scarcity of high grade, low impurity concentrates feeds available on the market, industry practice is to apply a premium to the 65% Fe Index price. The accepted technique for assessing product premiums is applying the VIU methodology. This approach entails determining a premium or discount by considering variations in Fe, $SiO_2$, and $Al_2O_3$ in comparison to the 65% Fe index. Fastmarkets were commissioned to conduct a VIU assessment based on the differences in concentrate chemistry between the Lac Jeannine concentrate and the base index.

According to their long-term analysis, a premium of US$12.9/dmt is estimated (see Figure 19.1) The methodology to determine the VIU is not specifically tailored to the Lac Jeannine concentrate but is purely theoretical and chemistry based. Consequently, it may overlook factors such as a green premium which may apply to the Lac Jeannine concentrate compared to other hard rock mines which require extensive blasting, haulage and crushing.

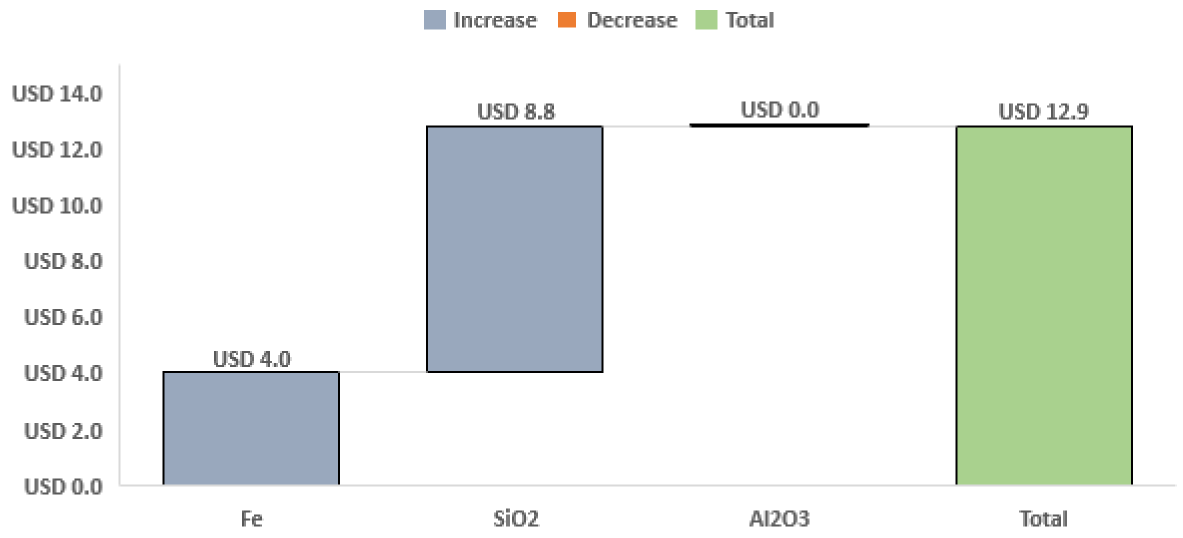


*Figure 19.1: VIU premium to P65 Index estimate for chemical characteristics of Lac Jeannine.*

Another industry accepted method is to use an EAF VIU approach based on a pellet premium and iron content adjustment. Using a combination of blast furnace, direct reduction pellet premiums and iron adjustments (supplied by Fastmarkets), together with publicly available pelletizing costs, the long-term VIU premium for the 66.8% Fe Lac Jeannine concentrate is estimated at US$34.9/dmt (see Figure 19.2). This analysis does not take into account future carbon cost savings in the steelmaking process or the projected shortage of high-grade iron ore.

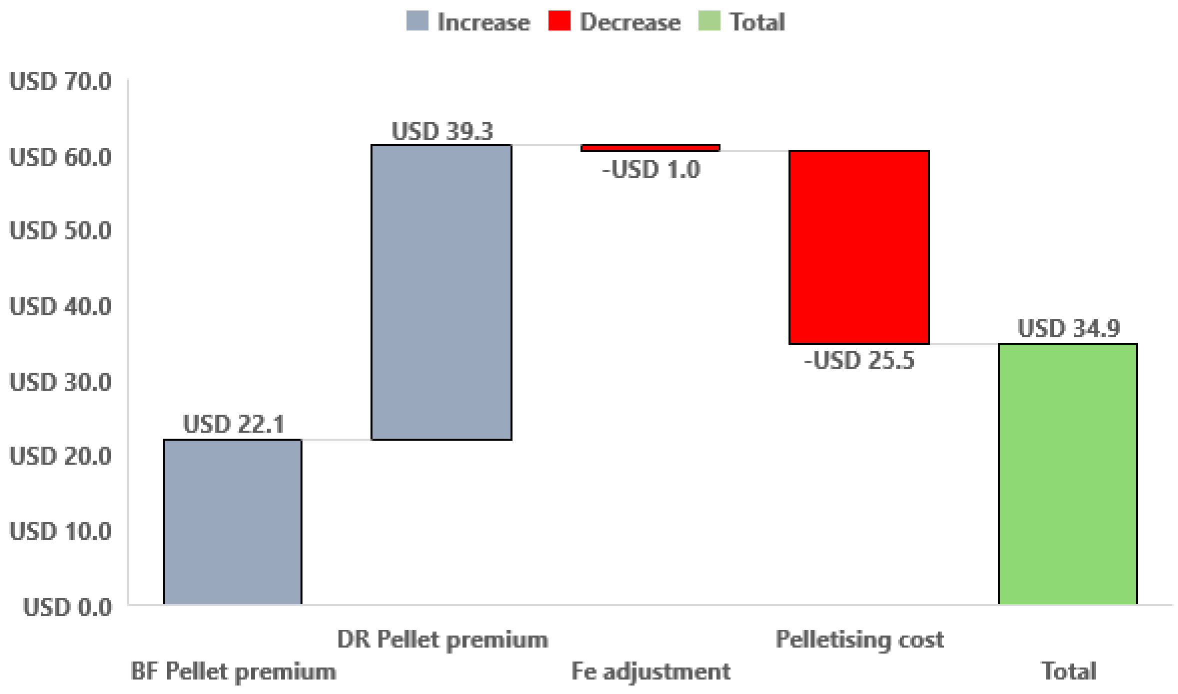


*Figure 19.2: Lac Jeannine VIU uplift from 65% CFR using EAF VIU*

Considering both the Fastmarkets VIU approach and the industry accepted EAF VIU approach, CoTec has taken the average of these assessments as the basis of the future expected premium used in the study, resulting in a price premium of $23.85/dmt over the 65% Fe Index.

This estimate does not consider future cost inflation, future market dynamics, incentive price required to increase supply of high-grade iron ore, high grade iron ore scarcity and expected carbon cost savings in steelmaking.

### 19.1.3 Off-Take and Agreements

CoTec has a highly experienced and well-connected executive committee and Board giving them access to global steel mills and trading houses. Offtake discussions are expected to commence with a number of organizations following the release of the PEA.

### 19.1.4 Rail Transportation

CoTec will seek to enter into a logistics agreement with ArcelorMittal for the use of the Cartier Railway for transportation of the concentrate from the Lac Jeannine rail spur to the port. A contingency of circa 12% was applied to mine gate costs to account for this currently unknown transportation cost.

### 19.1.5 Electrical Power Supply

The site has access to power due to its proximity to the Gagnon power line. As per data provided by Soutex, the market consensus rate for power is CAD0.0533/KWh or US$ 0.04/KWh.

## 19.2 Lac Jeannine Positioned to Benefit From a Future Carbon Pricing

Whilst no direct carbon premiums have been applied to the Lac Jeannine iron ore price, the fact that the Project is a tailings retreatment Project which plans to use renewable energy means the tonnes of $CO_2$/ tonne of concentrate is expected to be the lowest in the region. The targeted concentrate of 66.8% total Fe (CoTec plans to increase this grade to 67.5% through additional test work), also feeds into the global drive towards green steel meaning the Lac Jeannine Project is well placed to benefit from any future carbon pricing premiums, a market which as explained below, we believe is going to be a factor in the coming years.

### 19.2.1 The Energy Transition and Carbon Pricing

Policies to tackle the issue of greenhouse gas emissions and alleviate the climate crisis have gathered momentum over the last couple of years. The 2022 Inflation Reduction Act (IRA) in the US introduced sizeable new grants, loans and tax credits to public and private entities for investing in green technology. In Europe, the EU's "Green Deal" has also opened up significant new state aid for carbon reduction projects and its longstanding Emissions Trading Scheme is ratcheting up. The EU carbon price is presently around €70 per tonne $CO_2$ (as of June 3rd, 2024) and a Carbon Border Adjustment Mechanism has entered its transition phase. Whilst carbon related policies in China and emerging and developing economies are lagging those in the West it, along with more than 110 other countries, is committed to carbon neutrality by 2060 or earlier. Globally, there are currently already 75 carbon pricing regimes around the world covering 24% of carbon emissions, with an average carbon price of over $30/tonne $CO_2$-equivalent (World Bank 2024).

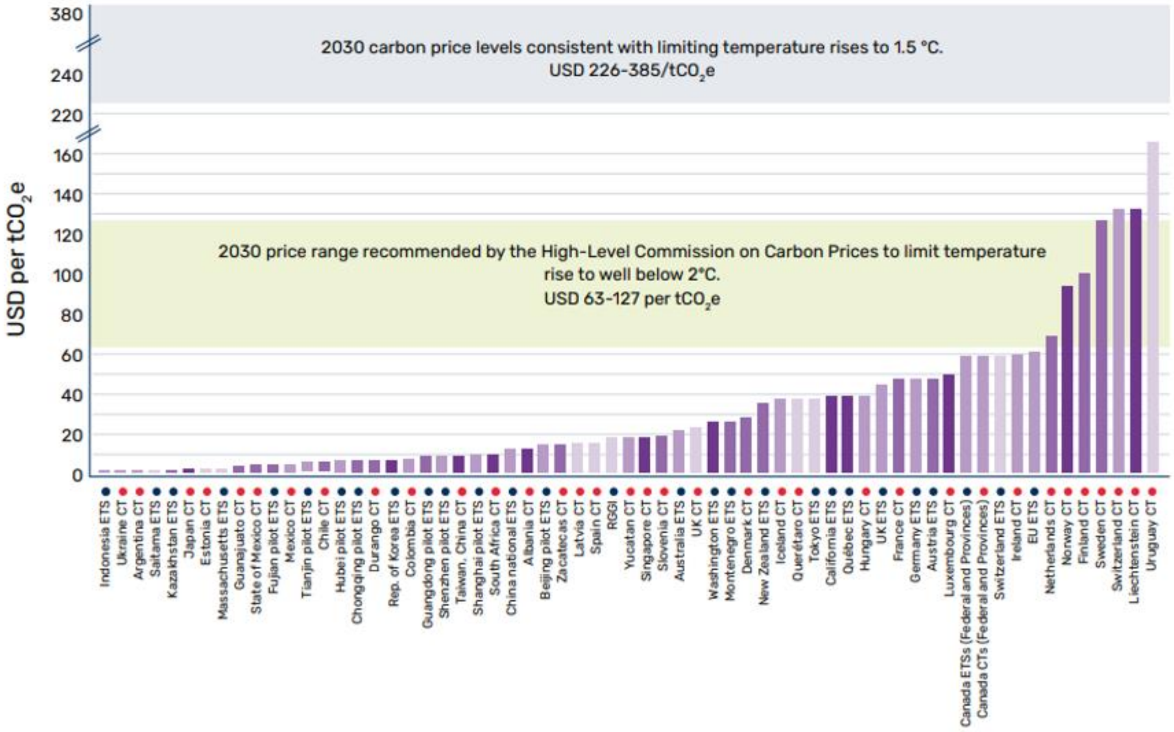
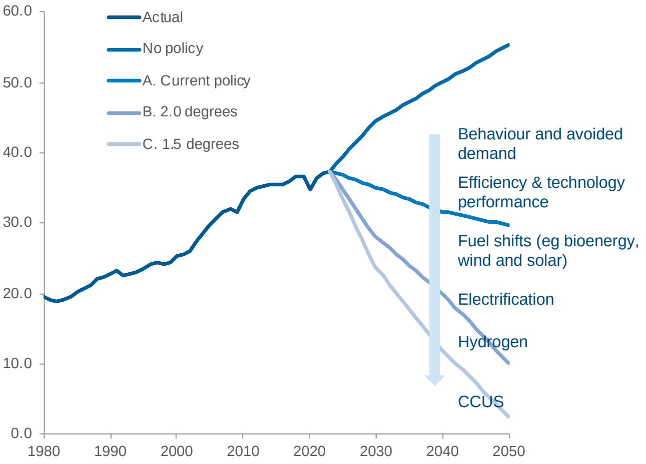


*Figure 19.3: Global Carbon Tax Rates (World Bank 2024, US$/t CO2)*

Under a range of independent third-party scenarios (BP, IEA, Wood Mackenzie, 2023) average carbon prices are expected to rise to \$50-200/tonne $CO_2$-e in developed countries over the long run and to \$50-175/tonne $CO_2$-e in emerging economies by 2050, depending on the extent to which different climate change outcomes are achieved.

**Global Carbon Emissions Scenarios (Gt $CO_2$ per year)**



Source: Based on composite of IEA and industry projections

**Carbon Price Scenarios ($/t $CO_2$-e)**

| Region | Scenario | 2030 | 2040 | 2050 |
|---|---|---|---|---|
| Developed countries | A | 40 | 50 | 50 |
| | B | 50 | 80 | 100 |
| | C | 100 | 175 | 200 |
| Emerging countries | A | 10 | 40 | 50 |
| | B | 10 | 50 | 80 |
| | C | 10 | 100 | 175 |

*Figure 19.4: Carbon Emission Scenarios and Carbon Price Assumptions*

Carbon pricing along with subsidies and regulation, changes in the economics of producing renewable energy at scale and shifts in energy end use markets have already led to major new investment in renewable energy systems and in improving energy efficiency. To get on track for global net zero, energy transition and grid investment the IEA estimate that this needs to average $4.5 trillion a year between 2024-30, more than 2.5x the total spent in 2023 (IEA 2023). This additional investment is divided between increasing the supply of low-carbon renewable energy and its associated infrastructure and storage and in electrification and energy efficiency (e.g. domestic and industrial transport and heating). A further acceleration in such investment is likely to occur even without additional government intervention as a result of the rising competitiveness of producing and storing wind, solar and other renewable sources of energy as well as the rising cost competitiveness of electric vehicles (EVs) and heat pumps for domestic and industrial heating. Government policy will however influence the speed of change and additional taxes and subsidies may be necessary if biofuels and hydrogen are able to complete with hydrogen-based fuels in some sectors. Key to the success of this energy transition will be increasing the supply of necessary critical raw materials and central to stimulating this is a better understanding and recognition of changes in price dynamics in these markets under these conditions.

### 19.2.2 Effects of the energy transition on metals markets prices

The impacts of the energy transition and higher, and more broadly applied, carbon prices on the mining sector could be profound. For mineral products' markets the effects will be felt primarily through three mechanisms:

1. **Shifts in demand**. There will be significant impacts on aggregate demand for many materials as a result of the energy transition. For example, increased nickel, lithium and cobalt in EV batteries, copper and green steel used in energy infrastructure and wiring and rare earths in magnets in electrical motors and turbines. These shifts are subject to a wide range of uncertainty related to the speed of change in end use markets and future technological changes, choices in battery and other technologies and the development of substitute products.
2. **Changes in costs of production**. Carbon taxes and regulations on direct emissions will impact costs of mine production directly, and indirectly via the costs of purchased energy, consumables and transport. Although in some regions the ability to source new, low cost, stranded renewable power may reduce costs in the mining sector and may open up new ore bodies, some mitigation is likely (we are already seeing mining companies shift capital towards

projects to reduce carbon emissions). This will likely increase industry costs in aggregate and at the margin, putting upwards pressure on prices.

3. **Changes in value-in-use**. For intermediate mine products (e.g. ores and concentrates) their value will be increasingly a function of the costs of carbon emissions incurred by downstream processors as well as grade and impurity factors. Higher grade mine products with lower processing emissions costs will see an increase in their relative value against lower grade products. Scrap, and scrap substitutes, will likely see an uplift in their value compared to primary production.

Calculating shifts in mineral demand resulting from the energy transition has been a recent focus for commodity market analysts. Other things being equal, where the energy transition leads to more rapid growth in metals demand this will put greater pressure on market balances and push up industry prices and margins. The scarcity, quality, and time to develop new projects will be important determinants of the side of this effect along with the degree to which industry participants anticipate (or even over anticipate) the rise in demand and are able to increase the pace of investment in new supply.

The sensitivity of individual minerals markets to carbon prices will depend on their carbon intensity relative to the unit value of production. In the case of steel, its average Scope 1-3 emissions are 1.91 kg of $CO_2$-e (Word Steel Association, 2023) per tonne of metal produced so the effect of a carbon price of \$100/t $CO_2$ would be to increase average costs of production of a tonne of steel by around \$190/t, or around 20-25% of the global steel price. These costs will not be borne equally and iron ore products with lower carbon emissions and high purity iron would see a significant carbon premium uplift in their value.

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

## 20.1 Introduction

There have been no environmental studies conducted to date by CoTec, and as at the effective date of the Technical Report there are no known environmental issues that would materially impact CoTec's ability to extract the estimated mineral resources. The existing environmental and social conditions within the Property area are reported herein. Current and future permitting requirements are also discussed.

## 20.2 Permitting and Authorizations

### 20.2.1 Provincial Regulations

In Québec, the issuance of permits for a project of this nature falls under the responsibility of the Ministry of the Environment, the Fight Against Climate Change, Wildlife and Parks ("MELCCFP") and the Ministry of Natural Resources and Forests ("MRNF").

The Project is assumed to have a metal ore extraction and treatment capacity of 1,400 tpd, which is under the threshold of the maximum daily metal extraction and ore treatment capacity of 2,000 tpd that currently triggers an environmental impact assessment and review procedure under Section 31.1 of the *Environment Quality Act ("EQA")*. Therefore, a ministerial authorization under section 22 of the *Environment Quality Act* is expected to be required from the MELCCFP for the Project rather than a decree from the Government of Québec under section 31.5 EQA.

A mining lease and authorization for the installation and operation of a mine tailings treatment plant and the installation of a wastewater treatment plant will also be required. An authorization for the reprocessing of tailings will also be required. Further discussions with the relevant authorities will take place in due course to ascertain the specific permitting requirements for the Project.

CoTec notes of the tabling by the Government of Québec of Bill 63, An Act to amend the Mining Act and other provisions, which proposes certain changes to the framework applicable to mining activities under the Mining Act and to the triggers of the provincial environmental impact assessment and review procedure for mining projects. CoTec will continue to monitor the evolution of Bill 63 and its potential impacts on the development of the Project.

### 20.2.2 Federal Regulations

The Project is under the ore production or input capacity of 5,000 tpd threshold that triggers the federal impact assessment process for a Project that involves the construction, operation, decommissioning, and abandonment of a new metal mine or metal mill.

Expected upcoming modifications to the Physical Activities Regulations will be taken into consideration in the development of the Project, including any modification to the thresholds to trigger a federal impact assessment for mining projects.

The Metal and Diamond Mining Effluent Regulations under the Fisheries Act provides the framework for mining activities, particularly mining effluents, with regard to the protection of fish and fish habitats and will be considered in the development of the Project.

## 20.3 Municipal Requirements

The Property is isolated and is not within the boundaries of a local municipality.

## 20.4 Closure Plan

According to provincial regulation, closure plans must be revised on a five-year basis. A closure plan for the Project will be developed by CoTec and submitted to the MRNF in a timely manner.

The closure plan involves the re-profiling of remaining residual tailings to allow water runoff to peripheral ditches and covering the tailings with 15 cm of topsoil to allow for hydraulic seeding. All supporting Project infrastructure, including the process plant and the wastewater treatment plant, will be dismantled. All mobile and fixed equipment will be sold for salvage value. Recyclable material will be segregated and sold where possible. Any contaminated soil will be managed according to regulation. The closure of the site is expected to take about one year. Post closure monitoring will be performed six times per year for a period of five years for groundwater and effluent, and bi-annually for re-vegetation as specified in the applicable regulation.

The closure cost is estimated to be in the order of 5 per cent of initial capex. As per applicable regulation, a financial guarantee will have to be submitted to the MRNF in connection with the closure requirements.

## 20.5 Water Management

The processing plant is expected to require an average of 1500 m3/hr of water per day. It is expected that up to 100% of water consumption be sourced from historical Lac Jeannine open pit. A water storage basin with a capacity of approximately 5,000 m3 will be constructed. A network of ditches will be constructed to divert water runoff to the storage basin.

## 20.6 Tailings

The current tailings pile is considered an orphan site, and the provincial government carries the environmental liability. The tailings are characterized as being neutral and non-acid generating and there is a low-risk potential for contamination.

The proposed tailings management plan considers the tailings materials will be sent for processing and returned to the abandoned Lac Jeannine open pit.

## 20.7 Site Monitoring

During the operations, monthly reporting summarizing operational and site monitoring activities will be submitted to the MELCCFP. These reports will include the following elements:

- A description of current activities (milled tonnage, generated tailings, number of production days, etc.).
- Problems that have a potential of influencing the environment and mitigation measures applied.
- The surface area of tailing deposition.
- A water balance.

## 20.8 Social or Community Impact

The Project is a frontier development and expected to create about circa 100 direct employment opportunities. The Company has concluded an Option Agreement which gives it a right to acquire the mining claims with respect to the Project property. The Project will include the upgrading of more than 12 km of an existing tertiary road to access a railway junction. The Company intends to have discussions in due course with local and First Nation communities in the Project area and other relevant stakeholders.

# 21 Capital And Operating Costs

## 21.1 Capital Cost

Initial capital expenditure (CAPEX) costs for the Lac Jeannine Project are based on a ROM of 7 Mtpa with a nominal production capacity of circa. 380ktpa of 66.8% Fe concentrate. Capex costs are estimated at US$64.6M, including EPCM costs, future study costs and a 15% contingency. Sustaining capital over the life of mine is US$3.1M and closure costs are US$3.3M (5% of initial capex excl. study costs) of resulting in a LOM capex of US$71M.

The capital cost, sustaining capital and operating cost estimates to support mining and mineral processing operations over the 11-year life of mine were estimated by Axe Valley (mining) and Amerston Consulting Ltd (mineral processing and associated infrastructure) based on the mine plan presented in Chapter 16, the process design presented in Chapter 17 and infrastructure design in Chapter 18.

The estimate is deemed at Class 5 with the expected accuracy as given by the AACE International (Association for the Advancement of Cost Engineering) in their Cost Estimate Classification System and recommended Practice 18R-97 for Process Industries.

As defined by the AACE, Class 5 estimates are generally prepared based on limited information, and subsequently have wide accuracy ranges. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation, however CoTec have, where possible, provided as much detail as possible. Class 5 estimates virtually always use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modelling techniques.

The level of information available to prepare the estimate is outlined below in Table 21.1, and compared to the required level to achieve the Class 5 Estimate.

*Table 21.1: Level required for each classification.*

| | | **Level Required for each classification** | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Level Met** | **Class 5 PEA** | **Class 4 PFS** | **Class 3 FS** | **Class 2 Control** | **Class 1 Control** |
| **General Criteria** | | | | | | |
| **Project Scope** | General | General | Prelim | Defined | Defined | Defined |
| **Plant Production capacity** | Prelim | Assumed | Prelim | Defined | Defined | Defined |
| **Plant Location** | Prelim | General | Approx. | Specific | Specific | Specific |
| **Soils and Hydrology** | None | None | Prelim | Defined | Defined | Defined |
| **Integrated Project Plan** | Prelim | None | Prelim | Defined | Defined | Defined |
| **Project Master Schedule** | None | None | Prelim | Defined | Defined | Defined |
| **Escalation Strategy** | None | None | Prelim | Defined | Defined | Defined |
| **Work Breakdown Structure** | None | None | Prelim | Defined | Defined | Defined |
| **Contracting Strategy** | Assumed | Assumed | Assumed | Prelim | Defined | Defined |
| **Engineering Deliverables** | | | | | | |
| **Block Flow Diagrams** | S/P | S/P | P/C | C | C | C |
| **Plot Plans** | P | | S | P/C | C | C |
| **Process Flow Diagrams** | S/P | | S/P | P/C | C | C |
| **Utility Flow Diagrams** | | | S/P | P/C | C | C |
| **Piping & Instrumentation Diagrams** | | | S | P/C | C | C |
| **Heat and Material Balances** | P | | S/P | P/C | C | C |
| **Process Equipment List** | S | | S/P | P/C | C | C |
| **Utility Equipment list** | | | S/P | P/C | C | C |
| **Electrical Single Line Diagram** | | | S/P | P/C | C | C |
| **Specifications and Datasheets** | | | S | P/C | C | C |
| **Gen Equipment Arrangements** | | | S | P/C | C | C |
| **Spare Parts Listing** | | | S | S/P | P | C |
| **Mech Discipline Drawings** | | | | S | P | P/C |
| **Elec Discipline Drawings** | | | | S | P | P/C |
| **Instrumentation & Control Drawings** | | | | S | P | P/C |
| **Civil/Structural/Site Discipline Drawings** | | | | S | P | P/C |
| None (blank) – Development has not begun. Started (S) – work on deliverable begun, limited to sketches and rough outlines. Prelim (P) Interim cross functional reviews started, awaiting final reviews and approvals. Complete (C) Reviewed and Approved | | | | | | |

As shown above, the level of information contained in this PEA is in line with or exceeds the minimum levels required and as such the estimate meets the requirement for a Class 5 PEA assessment. Capital costs were developed and include a continency of 15% for equipment, plant and infrastructure.

The anticipated Initial Capital Spend is US$65M with the breakdown as shown in Table 21.2.

*Table 21.2: Project capital cost summary*

| Description | US$ (M) |
|---|---|
| **Processing Plant** | 44.2 |
| **Infrastructure** | 4.5 |
| **Mining** | N/A as will be using contract mining |
| **Indirect Costs (DE Study and EPCM)** | 8.3 |
| **Estimated Sub-Total Cost** | 57 |
| **Contingency (15%)** | 8 |
| **Sustaining** | 3 |
| **Closure** | 3 |
| **Estimated Total Cost** | 71 |

Sustaining capital is estimated at 1.5% of operating costs (excluding G&A) over the LOM and is principally related to equipment replacement. Total estimated sustaining cost over the LOM is US$3.1M. Closure costs are estimated at US$3.3M which is 5% of initial capex less study costs.

### 21.1.1 Mining Capital Cost

The capital cost for mine operations will be limited to the mobilisation and demobilisation costs for the contractor. There is no need for a pre-strip other than perhaps the preparation of the initial bench for mining. The contractor will provide their own office and workshop facilities.

### 21.1.2 Process Plant Capital Cost

The gravity circuit capital cost estimate includes the following:

- Scrubber
- Hydraulic Classifier
- Screens
- Spirals
- Jigs
- Regrind Mill
- Concentrate thickener
- Filter Press
- Load out equipment

The overall capital cost for the beneficiation circuit (see Table 21.3) includes costs for buildings (including winterization) and foundations as well as costs of all mechanical equipment and bulk materials for construction. Costs also include services, power, distribution and communications. A summary of the equipment supply costs is shown in Table 21.3 below.

*Table 21.3: Process direct capital costs (US$)*

| Equipment Item | Cost US$ |
|---|---|
| **Scrubber** | 3.00 |
| **Hydraulic Classifier** | 1.80 |
| **Screens** | 1.85 |
| **Spirals** | 1.30 |
| **Jigs** | 2.30 |
| **Regrind Mill** | 3.20 |
| **Concentrate Thickener** | 0.20 |
| **Filter Press** | 1.60 |
| **Load out equipment** | 1.30 |
| **Balance of Plant** | 2.13 |
| **Equipment Supply Total** | **18.68** |

### 21.1.3 Infrastructure Capital Cost

General Infrastructure includes:

- Intra-plant infrastructures and services:
    - Plant access roads, and roads between facilities (plant, mine, old pit for tailings disposal, etc.), electrical yard, intra-plant piping, site drainage, domestic waste-water treatment plant, HVAC, compressed air, on-site buildings and facilities and communication systems.
- Off-site infrastructure:
    - Rail carts, road to rail loading facilities and rail rehabilitation to the ArcelorMittal railway line.

It remains the intent to use the ArcelorMittal controlled rail services and the Company's loading and unloading facilities and personnel. The estimate includes the purchase of the necessary rail cars required to handle the concentrate produced by the Project.

Transport of concentrate is assumed to be only for 9 months of the year to avoid having to maintain the road during the peak winter period.

### 21.1.4 Indirect Capital Cost

The indirect capital costs account for the EPCM costs associated with the design and construction of the plant and facilities.

### 21.1.5 Sustaining Capital Cost

Sustaining capital is estimated at 1.5% of the operating costs over the LOM and is principally related to equipment replacement.

## 21.2 Operating Cost

The operating costs include labor to run the overall operations. There are 5 operators and one laborer per shift. Management is assumed to be located in Fermont and will work on a 5/2 schedule. Maintenance personnel will work on a 10-hour shift (4 days for 4 mechanics, 2 electricians and 1 instrumentation engineer). The remaining days are covered on a 12-hour basis by the remaining staff. The maintenance supervisor will work on 8 h shift, 5 days a week.

The labor costs associated with mining is accounted for in the cost per tonne of ROM charged by the contracting company.

Total cash costs were estimated at US$60.26/dmt of concentrate whilst the All-in Sustaining Costs are estimated at US$61.06/dmt of concentrate produced.

Additional selling costs related to ocean freight are expected to add US$21/wmt of concentrate assuming delivery to China using long term pricing, though transport to Europe is unlikely to materially change this value. It is generally accepted that iron ore prices will fluctuate with material pricing changes for freight to China. The use of long-term metal prices therefore considers future freight increases, as these will flow through to the metal price. Transport costs could be reduced significantly should Lac Jeannine find a North American purchaser.

The estimated Operating Costs are summarized in Table 21.4 below.

*Table 21.4: Operating cost estimate Summary*

| Area | US$/t plant feed | US$/dmt concentrate |
|---|---|---|
| **Mining (incl. tailings disposal)** | 0.90 | 17.56 |
| **Processing** | 1.56 | 29.93 |
| **Transport to port** | 0.32 | 6.32 |
| **G&A** | 0.30 | 5.76 |
| **Royalty (0.5% of revenue)** | 0.035 | 0.69 |
| **Total OPEX to Port** | 3.12 | 60.26 |

### 21.2.1 Operating Costs- Mining

The average mining costs of mining tailings material is estimated at US$0.9/t material moved on an outsourced contract mining basis.

### 21.2.2 Operating Costs- Processing

The processing operating costs for the Project were estimated annually, based on the mine plan developed for the purposes of the Project and averaged circa 380 ktpa concentrate with a plant feed of 7mtpa. These costs were divided into four areas, namely:

- Labor
- Consumables
- Power and Utilities
- Materials Handling

The operating costs are summarized in Table 21.5 below.

*Table 21.5:Operating cost estimate in US$*

| **Operating Cost Area** | **Cost (US$/t plant feed)** |
|---|---|
| **Labor** | 0.64 |
| **Consumables** | 0.07 |
| **Power and Services** | 0.21 |
| **Maintenance parts** | 0.24 |
| **Mill liners and media** | 0.12 |
| **Mobile plant** | 0.09 |
| **Other costs** | 0.19 |
| **Total operating cost - Processing** | 1.56 |

### 21.2.3 Operating Costs – General & Administrative

G&A was identified as US$ 0.3/t of mill feed to the plant and included:

- Expected costs associated with a General Manager and other.
- Administration personnel. Offices in the local area and their costs are also included.

### 21.2.4 Operating Costs – Concentrate Transportation

The shipping of the concentrate from the plant to the rail head will be contracted out to a transport company, or most likely the chosen mining contractor. A rate of US$0.08/t/km was applied. The distance is estimated to be 12 km giving a total cost of US$0.96/dmt concentrate.

The transport cost from the rail head to the port is accounted for using a contingency of circa 12% of the total mine gate operating cost (including royalty).

Shipping costs are estimated to be US$21/wmt CFR to China, based on the cost estimate established in Section 19 of the report.

# 22 Economic Analysis

The Preliminary Economic Analysis (PEA) presented in this Technical Report is preliminary in nature and is based on Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. As such there may be no certainty that the PEA will be realized. The PEA is based on the preliminary mine design and mine plan for a run of mine capacity of circa 7.0 Mtpa.

All costs and pricing are in Q2 2024 and are represented in Table 22.1 below.

*Table 22.1: Inputs used for the Project.*

| | | |
|---|---|---|
| **Metal Prices** | | |
| **Base case (65% Fe concentrate CFR China)** | US$$/dmt Fe $_{conc}$ | 121 |
| **Grade premium (66.8% Fe)** | US$$/dmt Fe $_{conc}$ | 23.8 |
| **Exchange Rate** | | |
| **US$-CAD LOM** | | 1.35 |
| **Discount Rate** | | |
| **Discount Rate** | % | 7 |
| **Freight** | | |
| **Transport to port (FOB port)** | US$/dmt conc | 6.32 |
| **Ocean Freight to China (CFR)** | US$/dmt conc | 21 |
| **Royalties** | | |
| **Royalty Rate** | | 0.5% |
| **Taxes** | | |
| **Effective combined tax over LOM** | % | 34.30 |
| | | |
| **Costs** | | |
| **Capex** | | |
| **Year 1** | M US$ | 62.6 |
| **Closure Costs (5% of Capital)** | M US$ | 3.3 |
| **Contingency** | M US$ | 7.6 |
| **On site Mining Costs** | | |
| **ROM Mining Cost** | US$/t | 0.9 |
| **ROM Processing Cost** | | |
| **Concentrating Cost** | US$/dmt conc | 29.93 |
| **G&A Costs** | | |
| **General & Administrative** | US$/t mill feed | 0.3 |

Table 22.2 below highlights the results from the economic analysis. All currency figures are in US$.

*Table 22.2: Estimated financial outputs and metrics for the 7Mtpa business case analysed.*

| Parameter | Unit | LOM Total/Avg. |
|---|---|---|
| **General** | | |
| **65% Fe Iron ore fines price** | US$/dmt | 121 |
| **Premium Price 66.8% Fe** | US$/dmt | 23.8 |
| **Mine life** | Years | 11 |
| **Production Summary** | | |
| **Payable 66.8% concentrate** | dmkt | 3,785 |
| **Operating Costs** | | |
| **Total On Site Operating Costs inc. G&A** | US$/dmt conc | 53.2 |
| **Royalties** | US$/dmt conc | 0.69 |
| **Total Cash Costs (excluding rail transport)** | US$/dmt conc | 53.89 |
| **Rail Transport (FOB Port)** | US$/dmt conc | 6.32 |
| **Total Cash Costs (including rail transport)** | US$/dmt conc | 60.21 |
| **Sustaining Capital (LOM)** | US$/dmt conc | 0.8 |
| **All-in Sustaining Costs (AISC) incl. transport[3]** | US$/dmt conc | 61.01 |
| **Capital Costs** | | |
| **Initial Capital (incl. study costs)** | M US$ | 64.6 |
| **Sustaining Capital** | M US$ | 3.1 |
| **Closure Costs** | M US$ | 3.3 |
| **Financials** | | |
| **Pre -Tax NPV$_{7\%}$** | M US$ | 93.6 |
| **Pre - Tax IRR** | % | 38 |
| **Pre -Tax payback** | Years | 2.4 |
| **Post -Tax NPV$_{7\%}$** | M US$ | 59.5 |
| **Post - Tax IRR** | % | 30 |
| **Post -Tax payback** | Years | 2.5 |
| **Profitability Index (PI)** | | 0.92 |

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[3] Closure cost is excluded from presented AISC. It is included in the financial model.

To test the robustness of the Project, a sensitivity analysis was performed whereby initial infrastructure capital cost, annual operating costs and product selling price were individually varied between +/-15% to determine the impact on Project IRR and NPV at a 7.0 % discount rate.

Results are presented in Table 22.3, as well as graphically in Figure 22.1 and Figure 22.2. The Project financials are most sensitive to the commodity selling price followed by operating costs and finally initial capital expenditures. The summary of the base case for the Lac Jeannine discounted cash flow model is presented in Table 22.4 .

*Table 22.3: Sensitivity analysis (US$,000)*

| | | **Base Case** | **CAPEX** | | **Selling price (FOB)** | | **LOM OPEX** | |
|---|---|---|---|---|---|---|---|---|
| | | | **15%** | **-15%** | **15%** | **-15%** | **15%** | **-15%** |
| **IRR** | | 30.3% | 25.8% | 35.9% | 38.8% | 20.3% | 25.9% | 34.3% |
| **NPV** | | | | | | | | |
| **0%** | | $112,100 | $105,974 | $117,891 | $155,051 | $67,795 | $90,600 | $133,270 |
| **5%** | | $71,415 | $65,511 | $77,063 | $102,257 | $39,487 | $ 56,146 | $86,434 |
| **7%** | | $59,485 | $53,652 | $65,083 | $86,773 | $31,192 | $46,030 | $72,712 |
| **10%** | | $44,910 | $39,176 | $50,433 | $67,844 | $21,076 | $33,666 | $55,953 |

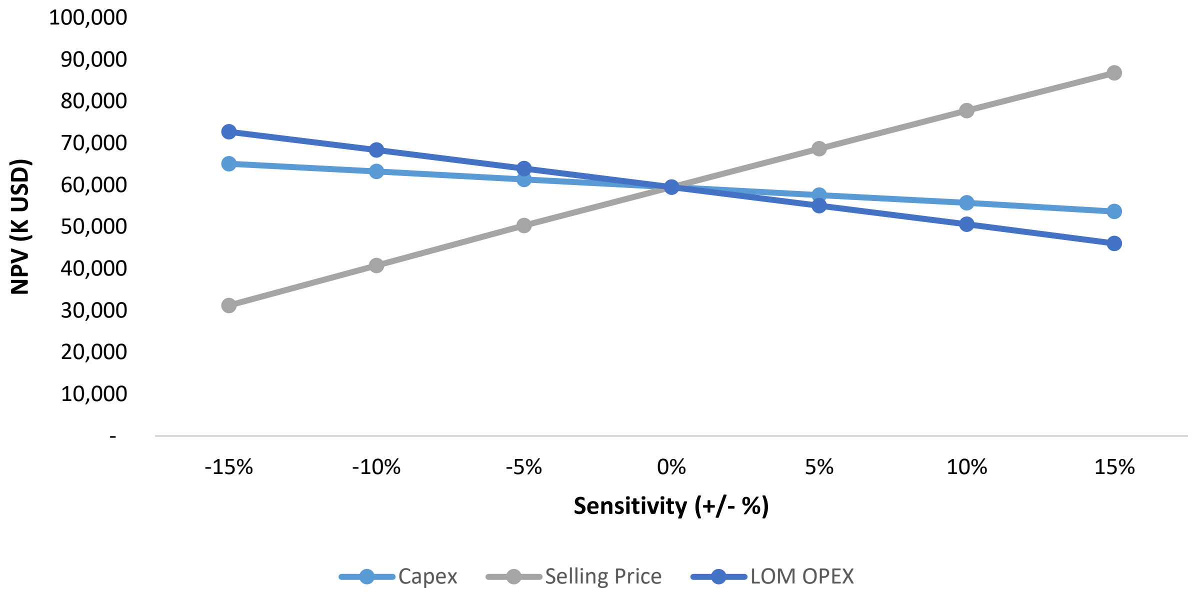

*Figure 22.1: NPV sensitivity analysis graph.*

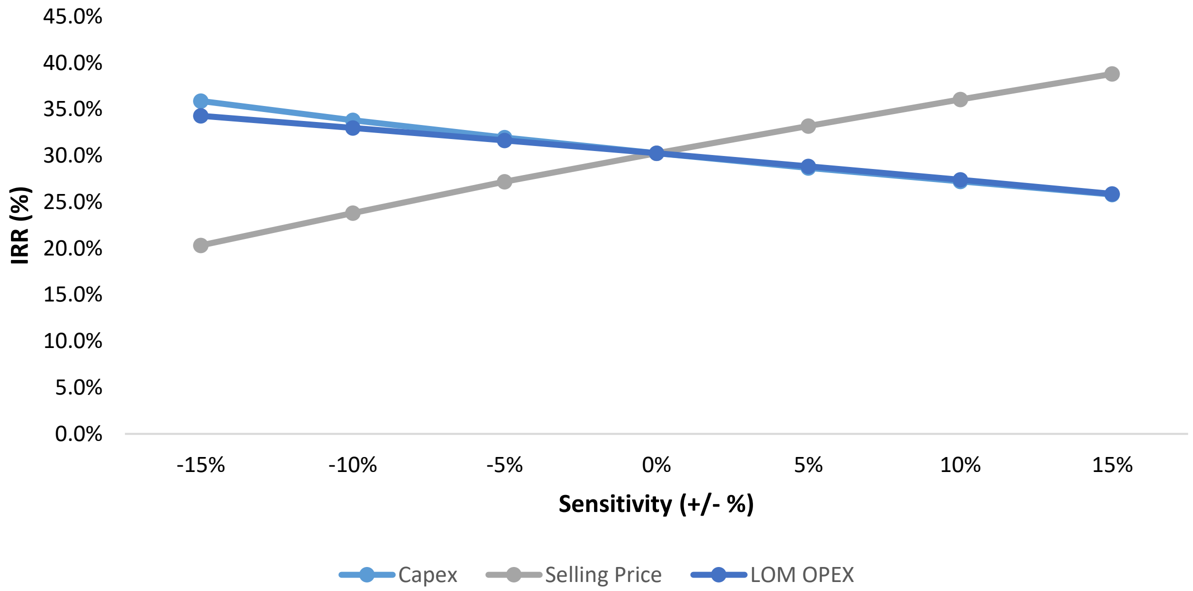

*Figure 22.2: IRR sensitivity analysis graph.*

*Table 22.4: Financial summary of Lac Jeannine*

| | Unit | Y - 2 | Y - 1 | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Production** | | | | | | | | | | | | | | | |
| **Tonnes mined** | kt | - | - | 6,493 | 7,340 | 7,491 | 7,062 | 7,080 | 7,046 | 7,025 | 7,020 | 7,026 | 7,026 | 3,234 | - |
| **Tonnes processed** | kt | - | - | 6,159 | 7,018 | 7,033 | 7,026 | 7,021 | 7,034 | 7,025 | 7,020 | 7,026 | 7,026 | 3,234 | - |
| **Recovery** | % | - | - | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | 51.6 | - |
| **Concentrate sold (66.8% Fe)** | k dmt | - | - | 388 | 413 | 398 | 383 | 374 | 363 | 348 | 335 | 329 | 318 | 137 | - |
| **Financial Summary** | | | | | | | | | | | | | | | |
| **Revenue** | M US$ | - | - | 47.99 | 51.07 | 49.27 | 47.47 | 46.30 | 44.97 | 43.03 | 41.42 | 40.79 | 39.31 | 17.01 | - |
| **Costs** | | | | | | | | | | | | | | | |
| **Mining** | M US$ | - | - | 5.84 | 6.61 | 6.74 | 6.36 | 6.37 | 6.34 | 6.32 | 6.32 | 6.32 | 6.32 | 2.91 | - |
| **Processing** | M US$ | - | - | 9.61 | 10.95 | 10.97 | 10.96 | 10.95 | 10.97 | 10.96 | 10.95 | 10.96 | 10.96 | 5.04 | - |
| **G&A** | M US$ | - | - | 1.85 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 2.11 | 0.97 | - |
| **Transport** | M US$ | - | - | 2.45 | 2.61 | 2.52 | 2.42 | 2.36 | 2.30 | 2.20 | 2.11 | 2.08 | 2.01 | 0.87 | - |
| **Royalty** | M US$ | - | - | 0.49 | 0.26 | 0.25 | 0.24 | 0.23 | 0.22 | 0.22 | 0.21 | 0.20 | 0.20 | 0.09 | - |
| **Total Cash Costs** | M US$ | - | - | 20.24 | 22.52 | 22.59 | 22.08 | 22.03 | 21.95 | 21.80 | 21.70 | 21.68 | 21.60 | 9.88 | - |
| **EBITDA** | M US$ | - | - | 27.75 | 28.55 | 26.69 | 25.39 | 24.27 | 23.03 | 21.23 | 19.73 | 19.11 | 17.71 | 7.13 | - |
| **D&A** | M US$ | - | - | 5.70 | 6.48 | 6.65 | 6.31 | 6.37 | 6.39 | 6.44 | 6.52 | 6.64 | 6.84 | 6.56 | - |
| **EBIT** | M US$ | | | 22.05 | 22.08 | 20.04 | 19.08 | 17.90 | 16.63 | 14.79 | 13.21 | 12.47 | 10.87 | 0.57 | - |
| **Tax on EBIT (at marginal rate)** | M US$ | - | - | (2.82) | (5.31) | (5.92) | (6.35) | (6.59) | (6.61) | (6.29) | (5.98) | (5.94) | (5.55) | (0.81) | - |
| **Deferred taxes** | M US$ | - | - | 3.37 | 1.53 | 0.68 | 0.18 | (0.28) | (0.62) | (0.88) | (1.09) | (1.26) | (1.42) | (0.52) | 0.90 |
| **Depreciation** | M US$ | - | - | 5.70 | 6.48 | 6.65 | 6.31 | 6.37 | 6.39 | 6.44 | 6.52 | 6.64 | 6.84 | 6.56 | - |

| | Unit | Y - 2 | Y - 1 | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital expenditures** | M US$ | (2.00) | (62.58) | (0.27) | (0.30) | (0.30) | (0.30) | (0.30) | (0.29) | (0.29) | (0.29) | (0.29) | (0.29) | (3.41) | - |
| **Changes in working capital** | M US$ | - | - | (0.39) | (0.03) | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.18 | 0.14 |
| **Unlevered free cash flow** | M US$ | (2.00) | (62.58) | 27.64 | 24.44 | 21.15 | 18.94 | 17.11 | 15.51 | 13.79 | 12.38 | 11.63 | 10.47 | 2.57 | 1.04 |
| **Discounted cash flow (7%)** | M US$ | (1.93) | (56.54) | 23.34 | 19.29 | 15.60 | 13.05 | 11.02 | 9.34 | 7.76 | 6.51 | 5.71 | 4.81 | 1.10 | 0.42 |
| **NPV (7%)** | M US$ | 59.48 | | | | | | | | | | | | | |
| **IRR** | % | 30% | | | | | | | | | | | | | |

# 23 Adjacent Properties

As of the effective date of the Technical Report, the online provincial claims database shows several claim blocks under different ownerships some 10 to 12 km to the north and northeast of the Property.

Exploration work on these properties is in the greenfield stage and focused on potential underlying iron deposits. The information on these adjacent properties was obtained from the public domain and has not been verified by the Qualified Person.

There is no infrastructure on these adjacent claim blocks. At the time of writing, the Company and QP are not aware of any active exploration activities in the immediate area of the Property that would be relevant to the Technical Report.

# 24 Other Relevant Data and Information

## 24.1 Introduction

The base case scenario for the Preliminary Economic Assessment used in this Technical Report used Inferred Mineral Resources which have been tested by sampling of sonic drillholes which do not cover the extent of the tailings storage facility. Further tailings are present outside of the drilled area and it is reasonable to expect that with further appropriate exploration drilling the resource tonnage could be increased. The surveyed area of the tailings has a total estimated tonnage of 145 million tonnes, this tonnage is likely estimated to relatively close limits (+/- 5 million tonnes), however iron grades are unknown with only limited sampling of the surface having been completed outside of the drill tested area, not all material may have a reasonable prospect of eventual economic extraction. However, it is reasonable to expect that grades of a similar tenor maybe present.

Addressing only the base case scenario limited to the Inferred Resource gives an order of magnitude estimate of the economic parameters of the Project over a life of mine of approximately 10 years. However, clearly there is additional material present that may be processed, and following successful exploration and positive results, could be converted to a Mineral Resource. Should the project come into production, the life of mine therefore may be much longer than currently projected. This would also allow rehabilitation of the majority of the tailings storage facility with the aim of returning it to close to its natural topography.

In this section a discussion as to the impact of mining and processing the exploration Target Material is presented. As the grade and tonnage is speculative in nature no economic analysis is presented on this material.

The grade of this material maybe similar to that of the Inferred blocks but it is recognised that there is a grade decline with depth, and this will mean that the average grade of the Exploration Target is likely to be less than that of the Inferred Material (a portion of the Exploration Target sits below the depth of drilling and is projected to the pre-mining/pre-tailings surface).

The methodology used to determine the potential value of the Exploration Target material is identical to that used to evaluate the Inferred material. The only difference being that the blocks classified as Exploration Target are allocated a revenue based on the recoverable concentrate at a grade of 66.8% total Fe. Previously these blocks would have been allocated as waste in the optimisation.

## 24.2 Pit Optimisation

### 24.2.1 Optimisation Inputs

The pit optimisation was run in Datamine's Studio NPV Scheduler (NPVS) software to estimate the maximum pit limit. The input parameters are summarised in Table 16.1.

### 24.2.2 Optimisation Results

The pit optimisations were run in NPVS using Resource model described in Section 14 and the parameters listed in Table 24.1. The optimisation was run over a range of prices from 1% to 100% of the selected product price. This results in a range of Revenue Factors (RF) that generate a series of nested pit shells that are used to represent the optimal mining sequence; The innermost shells having a lowest Revenue Factor, which are only economic with the highest block values.

Material classed as Exploration Target has been included in the optimisation and for the purpose of this exercise can be treated as Resource Blocks if the grade is above a cut-off of 3.3% total Fe.

All the blocks classified as Inferred or Exploration Target were found to be above the economic cut-off grade. There is no Waste present within the pit limit and the pit limit is defined by the RF 1.0 shell.

The quantities within the pit limit are shown below and the optimum pit limit is shown in Figure 24.1 and Figure 24.2.

*Table 24.1: Pit optimisation results (RF 1.0 Pit)*

| Category | Million Tonnes | Total Fe % | $SiO_2$ % | $Al_2O_3$ % | MgO % | $P_2O_5$ % | CaO % | $TiO_2$ % |
|---|---|---|---|---|---|---|---|---|
| **Inferred + Exploration** | 72.82 | 6.75 | 86.87 | 1.01 | 0.32 | 0.07 | 0.47 | 0.02 |
| **Exploration Target** | 69.62 | 6.16 | 87.56 | 1.23 | 0.29 | 0.07 | 0.38 | 0.03 |
| **Total** | 142.44 | 6.46 | 87.11 | 1.12 | 0.30 | 0.07 | 0.43 | 0.02 |

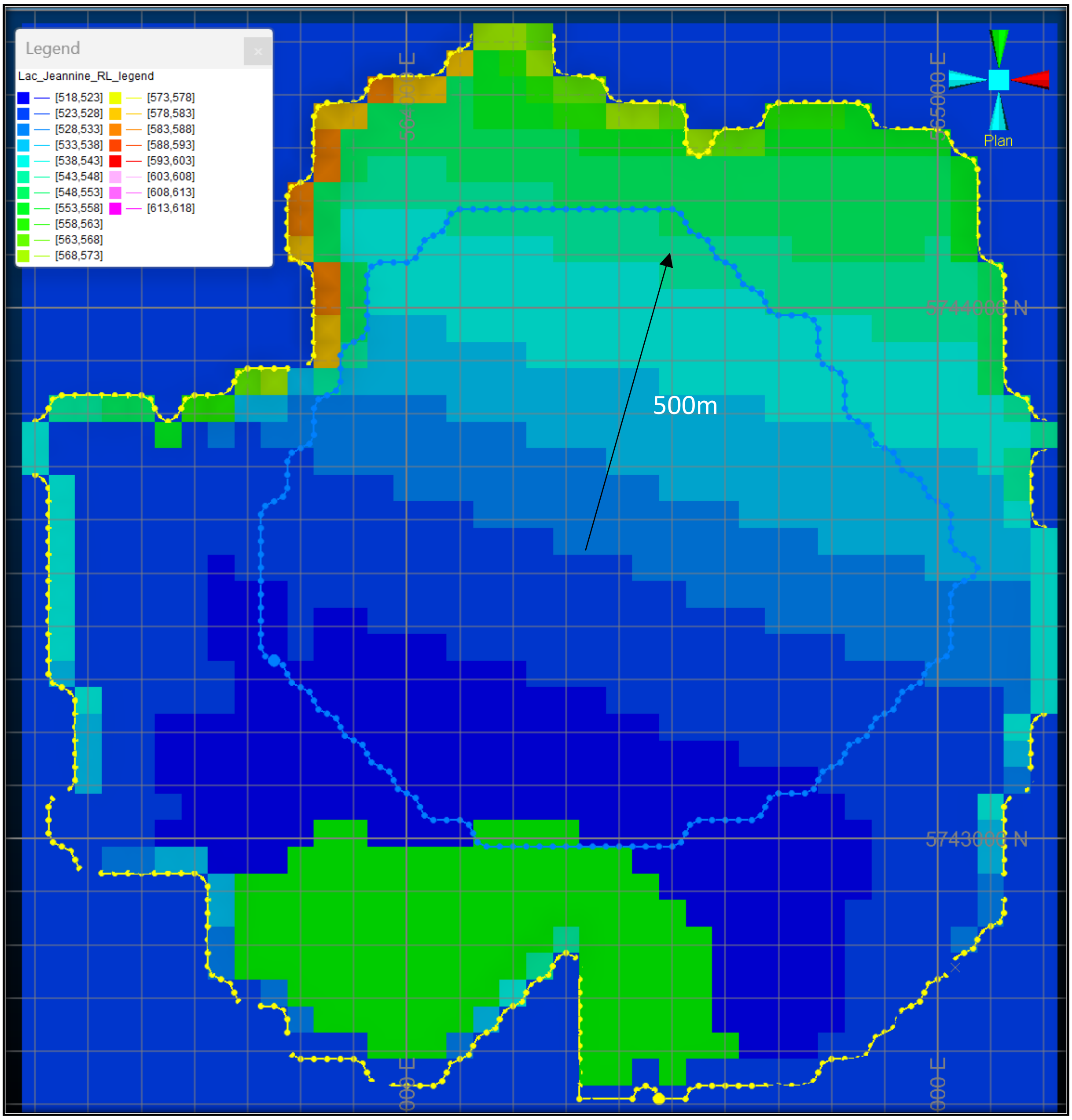

*Figure 24.1: Optimum pit limits (Heat map of Z elevation)*

*Notes: PEA pit limit shown in blue and Expanded pit limit shown in yellow*

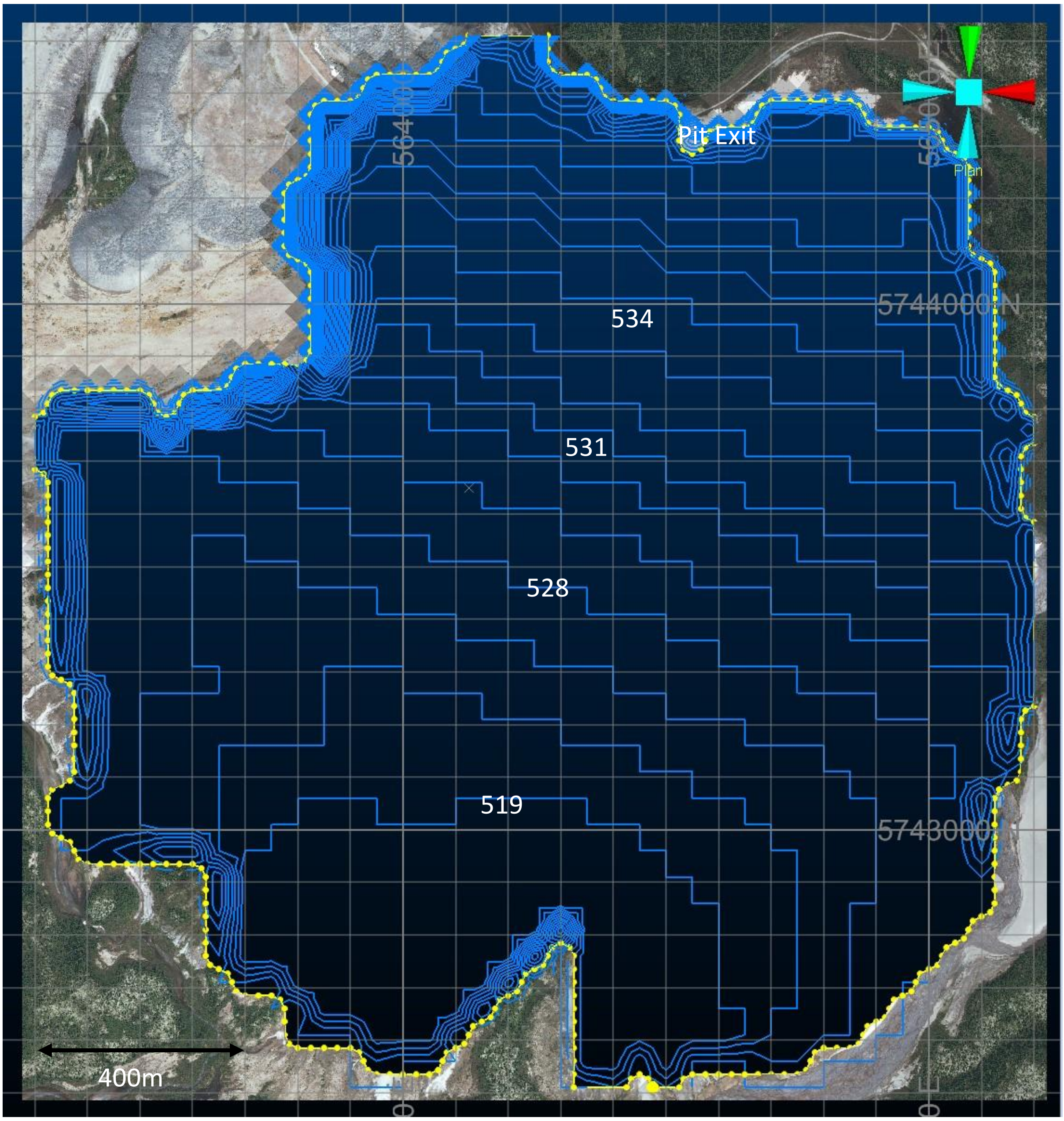

*Figure 24.2: Optimum pit limits (with overlay of aerial photo)*
*Notes: Contours shown at 3 m intervals with Pit Exit at RL 546*

## 24.3 Mine Design

### 24.3.1 Pit Stages

The production sequence was computed in NPVS using the Optimal Extraction Sequence (OES) generated from the pit optimisation. The first step was to generate a number of pit stages (pushbacks) in NPVS using the pushback generator.

The Pushbacks were conditioned in NPVS by setting a minimum distance between successive pushbacks of 50 m to ensure sufficient operating room for the excavator. The minimum Plant feed tonnage in each pushback was also set in order to divide up the pit into 25 or more pushbacks of similar size.

In practice it is difficult to control the pushback generator as the increments are limited by the sequence (size) of the pit shells generated by the optimiser. However, it was possible in this case to create smaller pushbacks at the start so that the mine sequence can benefit from the high grading of the cap material on the pile.

### 24.3.2 Waste Rock Storage

The remaining storage capacity of the old pit has been estimated by extrapolating the visible pit walls down at 42˚ from the water level (RL 560) to a pit bottom at RL 401, which provides a total volume of 77 million cubic metres (Mm$^3$).

If all of the tailings pile is processed (Inferred + Exploration Target) the required volume would be approximately 89 Mm$^3$. The excess (12 Mm$^3$) can easily be accommodated by assuming backfilling the pit is taken above the existing water level.

## 24.4 Production Schedule

The mine production schedule was limited to 7 Mtpa with the aim of producing around 400 million tonnes per year (Ktpa) of Pellet-Feed for approximately 20 years of useful life. The concentrate production is based on the following assumptions:

- 7 million tonnes (dry) mine production:
- 51.56% Metallurgical recovery:
- 66.8% final product grade:
- 0% Mining losses and dilution:
- 2% Moisture content:

As the concentrate tonnes are based on the metallurgical recovery, feed grade (%Fe) and product grade (%Fe), the product tonnes will necessarily vary period by period as the grade varies over time. Initially (Periods 1 to 9) the production exceeds 400 Ktpa, whilst during the later years the production decline to less than 400 Ktpa (Table 24.2).

*Table 24.2: Production schedule in yearly increments*

*Note: Material classified as Exploration Target has been included in this schedule. Insufficient exploration has been completed to report this material as a Mineral Resource, the presented life of mine is a maximum, Fe grades are a rough approximation of potential and considered to be +/-0.7% Fe.*

| **Year** | **Rock** | **Plant** | **Waste** | **$Fe_2O_3$** | **$SiO_2$** | **$Al_2O_3$** | **MgO** | **CaO** | **$Na_2O$** | **$K_2O$** | **$TiO_2$** | **MnO** | **$P_2O_5$** | **$ZrO_2$** | **Fe** | **Product** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kt | Kt | Kt | % | % | % | % | % | % | % | % | % | % | % | % | Kt |
| **1** | 6,327 | 6,327 | 0 | 11.69 | 84.83 | 0.90 | 0.32 | 0.47 | 0.013 | 0.28 | 0.018 | 0.03 | 0.06 | 0.001 | 8.2 | 400 |
| **2** | 7,029 | 7,029 | 0 | 10.96 | 85.80 | 0.88 | 0.35 | 0.53 | 0.005 | 0.28 | 0.018 | 0.04 | 0.07 | 0.000 | 7.7 | 416 |
| **3** | 7,031 | 7,031 | 0 | 10.50 | 86.20 | 0.83 | 0.35 | 0.55 | 0.002 | 0.26 | 0.018 | 0.04 | 0.07 | 0.000 | 7.4 | 399 |
| **4** | 7,021 | 7,021 | 0 | 10.40 | 86.11 | 0.86 | 0.37 | 0.58 | 0.002 | 0.27 | 0.019 | 0.04 | 0.07 | 0.000 | 7.3 | 395 |
| **5** | 7,023 | 7,023 | 0 | 10.11 | 86.32 | 0.88 | 0.42 | 0.61 | 0.004 | 0.28 | 0.018 | 0.04 | 0.07 | 0.001 | 7.1 | 383 |
| **6** | 7,032 | 7,032 | 0 | 10.00 | 86.54 | 0.90 | 0.36 | 0.55 | 0.003 | 0.29 | 0.020 | 0.04 | 0.07 | 0.001 | 7.0 | 380 |
| **7** | 7,024 | 7,024 | 0 | 9.64 | 86.82 | 0.99 | 0.36 | 0.50 | 0.001 | 0.33 | 0.022 | 0.04 | 0.07 | 0.001 | 6.8 | 366 |
| **8** | 7,030 | 7,030 | 0 | 9.70 | 86.86 | 0.97 | 0.34 | 0.49 | 0.002 | 0.32 | 0.021 | 0.04 | 0.07 | 0.001 | 6.8 | 368 |
| **9** | 7,017 | 7,017 | 0 | 9.38 | 87.07 | 1.06 | 0.33 | 0.47 | 0.002 | 0.35 | 0.022 | 0.03 | 0.07 | 0.002 | 6.6 | 355 |
| **10** | 7,029 | 7,029 | 0 | 9.35 | 86.99 | 1.08 | 0.29 | 0.43 | 0.001 | 0.35 | 0.023 | 0.03 | 0.07 | 0.001 | 6.5 | 355 |
| **11** | 7,032 | 7,032 | 0 | 8.95 | 87.56 | 1.14 | 0.30 | 0.42 | 0.004 | 0.38 | 0.025 | 0.03 | 0.07 | 0.001 | 6.3 | 340 |
| **12** | 7,028 | 7,028 | 0 | 8.75 | 87.73 | 1.14 | 0.29 | 0.39 | 0.002 | 0.38 | 0.025 | 0.03 | 0.07 | 0.002 | 6.1 | 332 |
| **13** | 7,017 | 7,017 | 0 | 8.81 | 87.68 | 1.19 | 0.27 | 0.37 | 0.006 | 0.40 | 0.026 | 0.03 | 0.07 | 0.001 | 6.2 | 334 |
| **14** | 7,037 | 7,037 | 0 | 8.59 | 87.93 | 1.24 | 0.26 | 0.34 | 0.005 | 0.42 | 0.027 | 0.03 | 0.07 | 0.001 | 6.0 | 326 |
| **15** | 7,020 | 7,020 | 0 | 8.49 | 88.06 | 1.22 | 0.26 | 0.33 | 0.002 | 0.41 | 0.027 | 0.03 | 0.07 | 0.003 | 5.9 | 322 |
| **16** | 7,032 | 7,032 | 0 | 8.37 | 88.12 | 1.23 | 0.24 | 0.32 | 0.003 | 0.42 | 0.027 | 0.03 | 0.07 | 0.002 | 5.9 | 318 |
| **17** | 7,017 | 7,017 | 0 | 8.25 | 88.06 | 1.33 | 0.26 | 0.33 | 0.009 | 0.45 | 0.028 | 0.03 | 0.07 | 0.002 | 5.8 | 313 |
| **18** | 7,027 | 7,027 | 0 | 8.24 | 88.07 | 1.33 | 0.25 | 0.32 | 0.009 | 0.45 | 0.028 | 0.03 | 0.07 | 0.002 | 5.8 | 312 |
| **19** | 7,028 | 7,028 | 0 | 7.86 | 88.32 | 1.42 | 0.25 | 0.29 | 0.014 | 0.48 | 0.030 | 0.03 | 0.07 | 0.004 | 5.5 | 298 |
| **20** | 7,032 | 7,032 | 0 | 7.55 | 88.40 | 1.60 | 0.27 | 0.30 | 0.029 | 0.54 | 0.033 | 0.03 | 0.07 | 0.006 | 5.3 | 287 |
| **21** | 2,612 | 2,612 | 0 | 7.32 | 88.58 | 1.63 | 0.26 | 0.28 | 0.030 | 0.55 | 0.034 | 0.02 | 0.07 | 0.007 | 5.1 | 103 |
| **Total** | 142,445 | 142,445 | 0 | 9.23 | 87.21 | 1.12 | 0.31 | 0.43 | 0.006 | 0.37 | 0.024 | 0.03 | 0.07 | 0.002 | 6.5 | 7,100 |

## 24.5 Capital and Operating costs

The operating costs assumptions remain unchanged from those presented in sections 16.3 as the same annual production rate of 7 Mtpa was used during conceptual scheduling of the tailings material including the Exploration Target. Initial capital costs can also be assumed to be the same as those presented in section 21.1. Were the life of mine to be extended additional sustaining capital costs may be incurred.

## 24.6 Discussion

While the Preliminary Economic Assessment presented in this Technical Report is based upon the Inferred Mineral Resources only, a pragmatic evaluation of the Project potential, its life of mine and the quantity of waste material it may generate needs to recognise the presence of additional tailings material which has not been subject to sufficient exploration to form part of the Mineral Resource.

As it cannot be reported with certainty that any or all of the material which forms part of the Exploration Target volume may have a reasonable prospect of eventual economic extraction, not all material in the tailings storage facility may be processed economically. However, considering that the material originated from the same process it is not unreasonable to expect material of similar grades and quantities within a volume which has been well defined. Mining of an additional 50-75 million tonnes of material from the Exploration Target would possibly see the life of mine extended to 15-20 years, it is expected that average ROM Fe% grades would decline over the life of mine with grades of less than 6% being processed from year 12.

While an increased mining inventory tonnage would allow for an increased life of mine, annual processing capacity may also be increased, for example from 7 Mtpa to 8 Mtpa. A trade off study between capital expenditure and production rate should be considered during work to support a Feasibility Study as well as the impact on operating and sustaining capital costs.

It is estimated by projection of the visible pit walls in the old Lac Jeannine open pit that sufficient volume is available to accommodate waste material from the entire tailings storage facility once processed allowing restoration of the tailings site to close to its natural topography. Mining of all tailings material on a top-down approach would avoid the need for pit slopes and avoid a saucer shaped pit and would offer reduced geotechnical risks.

# 25 Interpretation and Conclusions

## 25.1 Mineral Resources

Mineral Resources, reported in accordance with National Instrument 43-101, *Standards of Disclosure for Mineral Projects*, ("NI 43-101") and prepared under Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards, have been estimated for the Project. Reasonable Prospects of Eventual Economic Extraction is supported by the PEA study also contemplated within the Technical Report.

The estimated initial Inferred Mineral Resource, reported on a global basis is of approximately:

- 73 million tonnes at 6.7% total iron (Fe) for 4.9 million tonnes of contained total iron (tonnes are metric tonnes).

All resources are of the Inferred category, no Indicated or Measured Resources are reported. The effective date of the Mineral Resource Estimate is 19th March 2024. No estimates of Mineral Reserves have been completed. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues, the Independent Qualified Person for Mineral Resources is not aware of any such issues. CIM Definition Standards for Mineral Resources have been followed.

It is reasonable to expect that with further appropriate exploration that the majority of the Inferred Mineral Resources could be upgraded to Indicated Resources.

Readers are advised to review section 14 of this Technical Report for further information regarding Mineral Resources.

## 25.2 Exploration Potential

The Mineral Resource extends from surface to approximately 50 m below surface and is laterally extensive over an area of approximately 1.1 km from east to west and north to south. Further tailings are present outside of the drilled area and it is reasonable to expect that with further appropriate exploration drilling the Resource tonnage could be increased. The surveyed area of the tailings has a total estimated tonnage of 145 million tonnes, this tonnage is likely estimated to relatively close limits (± 5 million tonnes). However, iron grades are unknown with only limited sampling of the surface having been completed outside of the drill tested area, not all material may have a reasonable prospect of eventual economic extraction. Areas of other waste material may have been deposited with tailings and areas of material high in deleterious elements may be present.

Assuming 70% to 100% of the material outside of the resource might have similar grade to the estimated resource, an Exploration Target tonnage of 50 to 75 million tonnes is postulated, with global average total iron grades of 6% to 7.5% (± 1 SD of the resource block model) considered as a reasonable possibility. Higher grades may be present in the upper 10-20 m of the Exploration Target material and this may serve to improve feed grades over a 10-year period if realized.

This potential range of tonnes and grade is conceptual in nature, as insufficient exploration to define a mineral resource has been completed; it is uncertain if a mineral resource estimate of the material will be made in the future.

## 25.3 Metallurgical Testwork and Recovery Methods

The 2023 and 2024 testwork programs are the most complete in terms of sampling and depth of flowsheet development and serve as the basis for the design of the process plant and concluded:

- The coarse fraction (-850 µm +212 µm) of the HC overflow (O/F) has a low iron grade (1.8%) and represents only 5% of the iron in the feed but 25.7% of the mass. This stream can be discarded without further treatment.
- The fine fraction of the HC O/F can be processed by gravity to produce a concentrate with high iron content (66% to 69.5%).
- The intermediate fraction of the HC U/F can be processed by gravity and produce a concentrate with high iron content (67.5%). Future testwork could validate if higher loading rates are possible while maintaining performance.
- Microphotography shows that the size of the unliberated iron in some tails stream is large enough to support a regrinding phase to further iron recovery.
- The Project is designed to process Lac Jeannine tailings material grading at approximately 7.0% total Fe at a nominal feed rate of 875 tph. The process flowsheet enables the production of a 66.8% total Fe concentrate for an iron recovery of 51.6%, allowing a production of circa 380ktpa of concentrate. Additional testwork is planned to verify this figure as well as developing a flowsheet that can achieve a concentrate grade of 67.5%.

## 25.4 Mining Operations and Infrastructure

The study has identified potential for an open pit mining operation based on Inferred Resources and is described as follows.

- The Project is expected to benefit from access to renewable hydroelectric power, water, roads, airfield, existing rail and port facilities in a proven regional labor market in a mining friendly jurisdiction.
- The Project is located directly to the west of ArcelorMittal's existing and operational Mont-Wright rail loop infrastructure, with access to end markets via port and rail. The Project requires a negotiated logistics agreement in due course with ArcelorMittal for the use the Cartier railway for transportation.
- The mine plan for the reprocessing of the Lac Jeannine tailings is based on a mining rate of 7 Mtpa for just over 10 years.
- Mining is by open pit mining and uses conventional truck and shovel methods with a conveyor to carry material to the processing plant.
- Mining will likely be completed by a contractor.
- The mine design is relatively simple as the tailings pile forms a dome shape with an aerial extent of approximately 1.8 × 1.6 km.
- There is a natural gradation in grade from high to low in the tailings pile, which means that the Inferred Resource can be extracted level by level (top to bottom) to eventually form a saucer shaped depression with a depth of up to 60 m from the existing tailings high point and a resultant maximum pit depth of 45 m.
- Grade variation is observed in the Project schedule as a linear reduction from approximately 8.4% total Fe to 7.0% total Fe in the first 3.5 years of production, grade further reducing to approximately 6.0% total Fe by year 8 and subsequently 5.6% total Fe in the final year reflecting the vertical variation seen in the Resource block model.

## 25.5 Environmental, Social and Permitting Risk

The Project has a low environmental risk profile:

- The Project is assumed to have a metal ore treatment capacity of 1,400 tpd, which is under the threshold of the maximum daily metal ore extraction and treatment capacity of 2,000 tpd that currently triggers an environmental impact assessment and review procedure under Section 31.1 of the *Environment Quality Act*.

Therefore, only a ministerial authorization under the *Environment Quality Act* is expected to be obtained from the MELCCFP for the Project.

- The Project is under the ore production or input capacity of 5,000 tpd threshold that triggers the federal impact assessment process for a Project that involves the construction, operation, decommissioning, and abandonment of a new metal mine or metal mill.
- A mining lease and other governmental authorizations will also be required for the project.
- The closure cost is estimated to be in the order of 5% of initial capex. As per applicable regulation, a financial guarantee will have to be submitted to the government in connection with the closure requirements.
- The current tailings pile is considered an orphan site, and the provincial government carries the environmental liability. The tailings are characterized as being neutral and non-acid generating and there is a low-risk potential for contamination.
- The proposed tailings management plan considers the tailings materials will be sent for processing and returned to the abandoned Lac Jeannine open pit.
- The Project is a frontier development and expected to create about circa 100 direct employment opportunities. The Company has concluded an Option Agreement which gives it a right to acquire the mining claims with respect to the Project property. The Project will include the upgrading of more than 12 km of an existing tertiary road to access a railway junction. The Company intends to have discussions in due course with local and First Nation communities and other stakeholders in the Project area.

## 25.6 Preliminary Economic Analysis

Preliminary economic analysis has been performed in accordance with the conceptual mine design and schedule, metallurgical testing, and concentrate payability analysis developed in the study, and the estimates and analyses therein have been prepared to scoping level (+-30%). The Analysis estimated the following results:

- pre-tax NPV is US$93.6M and of IRR of 38%.
- post-tax NPV is US$59.5M, and of IRR is 30%.
- Up-front capital cost of US$64.6M (inclusive of a 15% contingency margin and estimated further study and engineering costs), with payback achieved in 2.5 years.
- C1 cash costs of US$53/dmt (excl. transport to port and royalty payments).
- C1 cash costs of US$60/dmt (incl. transport to port and royalty payments).

- All-in Sustaining Cost (ASIC)[4] of US$61/dmt (incl. transport to port and royalty payments).
- Total ROM-based operating costs of US$ 3.12/t
- Profitability index (PI) of 0.92

# 26 Recommendations

Recommendations for further work are presented in two phases. The first phase of work includes recommendations to increase the size and confidence in the Mineral Resources by means of infill and extensional drilling. The second stage of work includes recommendations to support a Feasibility Study as per CoTec's corporate objectives. Specific recommendations are provided as follows along with an indicative budget to complete the work. In reality items of phases 1 and 2 may run in parallel in order to expediate Project progression and navigate seasonal restrictions.

## 26.1 Phase 1

Phase 1 recommendations are outlined as follows.

- Complete infill and extensional sonic drilling across the area of the tailings, infill drilling at a 100 m offset grid is recommended inside of the current mineral resource. 100 m spaced drilling is considered likely sufficient to support Indicated Resources. A reduced program may be achievable in the September of 2024 subject to contractor availability which could be used to test the drill spacing required for Indicated Resources.
- Following results from the 100 m infill drilling, evaluate the drill spacing required for Indicated Resources which maybe in the region of 150 to 100 m. Optimal spacing should consider iron grade variability as well as deleterious elements as well as trade-off between estimation confidence and cost. An example drill program at 100 m spacing is shown in Figure 26.1.
- Complete extension and subsequently infill drilling over the remainder of the deposit at sufficient spacing to estimate Indicated Resources, this may be a staged approach.
- It is advantageous to assess the resource potential over as much of the surface expression of the deposit as possible. Assuming the grade profile seen in the MRE with higher grades at the top and lower grades at the bottom is realized across the rest of the deposit, this would allow higher grade feeds over the first 10 years of mine life

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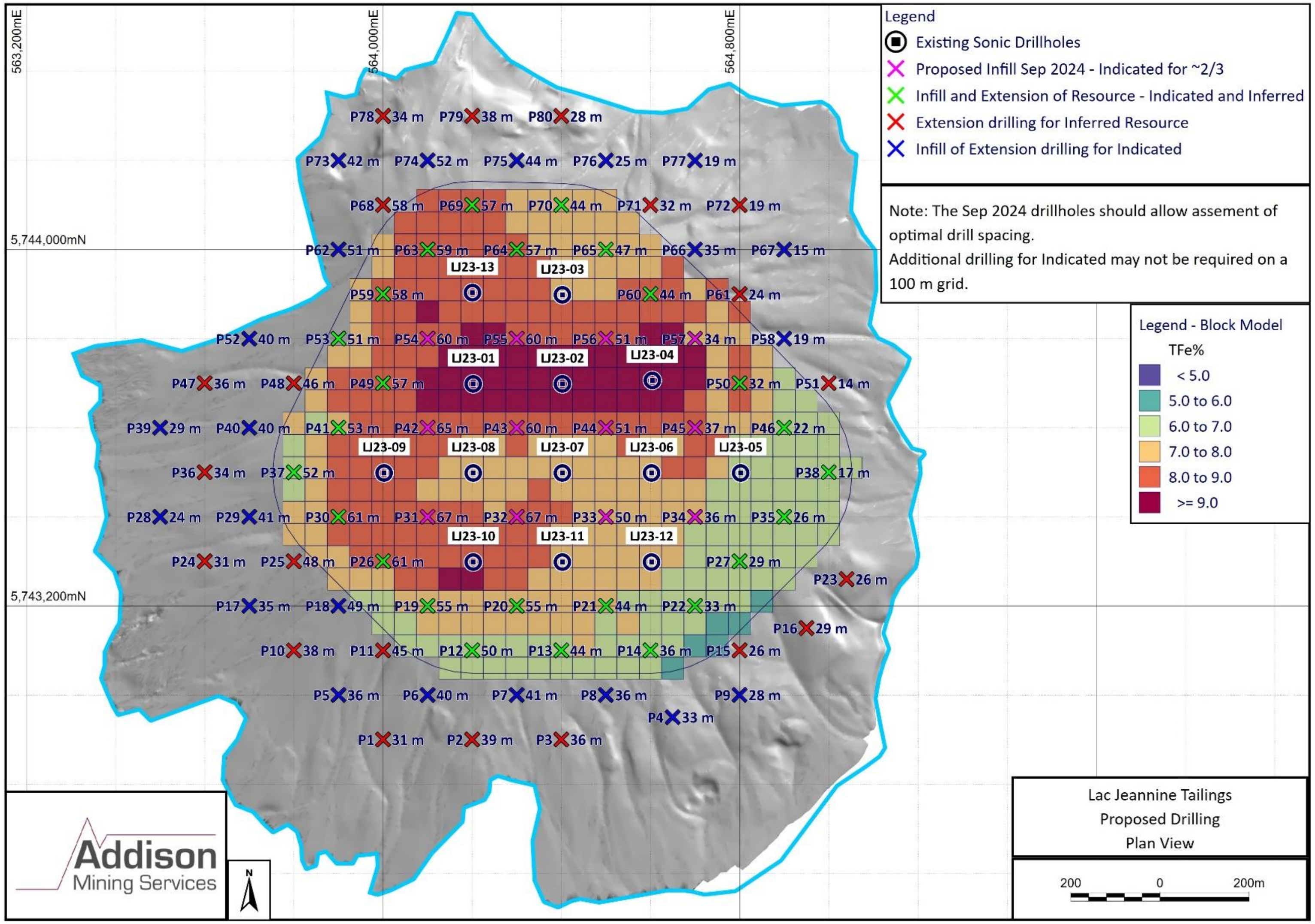
[4] Closure cost is excluded from presented AISC. It is included in the financial model.

which has potential to extend to a total of 15-20 years when considering the Exploration Target.

- Certified Reference Materials should be sought and used in Quality Control which more closely match the grades of the Mineral Resource.
- Bulk Density estimations should be refined by means of controlled volume sampling. On-site bulk density measurements should be considered.
- Assay costs may be reduced by means of on-site sub sampling rather than sending whole core samples to the laboratory which will incur reduced sample preparation and transport costs.
- The edge of the tailings should be better defined by means of trenching and pitting, for example where tailings may have been deposited upon other waste material in the north-east corner.
- Update the Mineral Resource Estimate.



Note: The Sep 2024 drillholes should allow assement of optimal drill spacing.
Additional drilling for Indicated may not be required on a 100 m grid.

*Figure 26.1: Example drill program at 100 m spacing, plan view.*

## 26.2 Phase 2

Phase two recommendations to support a Feasibility Study are outlined as follows.

- Metallurgical Testing. The following testwork would further the assessment of the capacity of the Lac Jeannine tailings to provide a 67.5% Fe concentrate, the required equipment and the economic potential of the Project:
    - Test of cleaner jig to 65% Fe or more to reduce the upgrading required from the other concentrate producing streams. This would likely allow the 67.5% Fe target to be met without impacting the Fe recovery.
    - Pilot spirals on the Fines to validate the applicability of the technology to this material and select the proper spiral type.
    - Comminution tests to validate regrinding mill sizing. Bond Ball Mill Work Indices and Abrasion Indices would suffice.
    - Sampling of the top layer of tailings in January or February to validate the need for a scrubber and if so, perform scrubbing tests to finalize sizing.
    - Prepare sufficient concentrate in proportion to their contribution to the expected overall production for thickening and filtration tests at one or more technology providers.
    - Run hindered settling tests at higher feed rate to refine and reduce the size of the equipment.
    - Test the Reflux Classifier technology as an alternative to spirals for potential improvements to the performance and reduce the plant's footprint.
- Value Engineering:
    - The data used to develop the processed flowsheet is based on initial test work using bulk samples obtained in 2023/24. Further test work will be undertaken to improve the grade/recovery data for the flowsheet, particularly in the area of the classifier and jig operations.
    - In conjunction with this additional metallurgical testing, alternative flowsheets will be evaluated together with the current data to further optimise the flowsheet with the goal being to achieve a 67.5% total Fe concentrate with minimal impact to recovery.
    - The capital and operating costs will be revisited as a result of the expected improvements to the overall process flowsheet.

  - A formal request for proposal (RFP) process will also be undertaken to solicit vendor quotes to improve the accuracy of the capital cost estimate. There will also be a study to consider a 'packaged plant' approach whereby one supplier is appointed to develop and build the complete process plant.
- Transport:
  - Negotiated agreement in due course with ArcelorMittal for the use of the Cartier railway for transportation of the concentrate from the Lac Jeannine rail spur to the port.
- Low carbon Pelletization:
  - Concentrate from the Corem testing programme was provided to Binding Solutions Limited for testing using their low carbon cold pelletizing technology.
  - Initial results have proved positive with some metrics such as cold compressive strength being above required industry standards.
  - During the Feasibility Study, additional test work will be carried out to further enhance the pellet metrics and reduce binder costs.
  - Investigate future low carbon technologies to produce pellets in Québec using innovative, low carbon green technology which will further enhance the economics and environmental benefits of the Project.
- Infrastructure and Services:
  - Confirm possibility of clean power supply from Hydro-Québec for the Project.
- Permitting, Environment and Social:
  - Commence hydrogeological investigations, and commencement of environmental baseline data collections including air, water, soil, fauna and flora studies, in order to initiate the permitting process applicable to the Project.
  - Begin discussions in due course with local and First Nation communities in the Project area.
- Financing and Economic Support:
  - Continue discussion with potential strategic partners to support the Project financing.
  - Explore potential for economic support from governments, funding opportunities and other economic incentives for the Project, including those

aiming to encourage the development of critical minerals and a circular economy and low carbon extraction.

## 26.3 Indicative Budget for Further Work

An indicative budget to support further exploration as part of phase 1 outlined above is presented in Table 26.1. The meter budget for drilling should be seen as an upper case with the objective of converting the majority of the tailings to Indicated Resources.

*Table 26.1: Phase 1 budget, exploration.*

| Item | Unit | Number of units | Unit Cost | Total Cost | Total Cost |
|---|---|---|---|---|---|
| | | | CAD ($) | CAD ($) | USD ($) |
| **Rig mobilisation and demobilisation** | lot | 2 | 18,000 | 36,000 | 26,700 |
| **Infill sonic drilling, Indicated spacing test.** | m | 638 | 233 | 150,000 | 110,500 |
| **Extensional sonic drilling to Indicated, likely upper case.** | m | 2,630 | 233 | 610,000 | 454,000 |
| **Assays (includes 10% of QC samples)** | unit | 2,397 | 75 | 179,775 | 133,200 |
| **Consumables (bags, samples transport)** | unit | 2,397 | 10 | 23,970 | 17,800 |
| **Staffing – geology and professional** | day | 50 | 600 | 30,000 | 22,200 |
| **Overheads, vehicles, rental** | day | 50 | 400 | 20,000 | 14,800 |
| **Miscellaneous equipment costs** | | 1 | 15,000 | 15,000 | 11,100 |
| **Total** | | | | 1,100,000 | 790,300 |

An indicative budget to support a Feasibility Study is shown in Table 26.2.

*Table 26.2: Phase 2 budget, Feasibility Study.*

| Item | Budget $USD |
|---|---|
| **Feasibility Study Development & Reporting** | 900,00 |
| **Metallurgical Testwork** | 270,000 |
| **Environmental and Social Desk Study** | 21,000 |
| **Environmental Baseline Study Data Collection** | 689,000 |
| **Environmental and Social Impact Assessment** | 25,000 |
| **Hydrogeology Monitoring** | 27,000 |
| **Hydrogeology Study** | 30,000 |
| **Geotechnical Study and Assessment** | 21,000 |
| **Total** | 1,362,000 |

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# 28 Glossary of Terms

| Term/Symbol/Abbreviation | Meaning |
|---|---|
| **$** | United States Dollar unless otherwise stated |
| **°** | Degrees |
| **%** | percent |
| **Advanced Property** | means a property that has mineral reserves or, mineral resources the potential economic viability of which is supported by a preliminary economic assessment, a pre-feasibility study or a feasibility study |
| **$Al_2O_3$** | Aluminium oxide |
| **Blank** | A sample containing no mineralisation of interest to test for contamination in laboratory studies |
| **CaO** | Calcium oxide |
| **CIM** | Canadian Institute of Mining, Metallurgy and Petroleum |
| **cm** | centimetres |
| **Company (the Company)** | CoTec Holdings Corp ("CoTec") |
| **CRM** | Certified Reference Material, a sample of a "known" chemical concentration to within a given standard deviation |
| **$Cr_2O_3$** | Chromium (III) oxide |
| **Davis Tube** | A Davis Tube is a laboratory instrument designed to separate small samples of strongly magnetic ores into strongly magnetic and weakly magnetic fractions. |
| **DTM** | Digital Terrain Model. Computerised topographic model |
| **Diamond Drilling** | Drilling using a diamond drill bit which typical returns a solid cylinder of rock subject to ground competency |
| **DL** | Detection Limit |
| **Duplicate** | A Duplicate sample or sub sample taken from the same location or parent sample to test precision |
| **Effective Date** | means, with reference to a technical report, the date of the most recent scientific or technical information included in the technical report; |
| **Fe** | Iron |
| **$Fe_2O_3$** | Iron (III) Oxide |
| **FOB** | Free On Board |
| **g** | grams |
| **GPS** | Global Positioning System, not differential, accuracy is typically <10m |
| **HC** | Hydraulic Classifier |
| **Hematite** | heavy and relatively hard oxide mineral, ferric oxide ($Fe_2O_3$ that constitutes an important iron ore because of its high iron content (70 percent) and its abundance. |
| **Hydraulic Classifier** | Classifier for classification according to different particle sizes |
| **Indicated Resource** | An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.<br>Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve. |

| | |
|---|---|
| **Inferred Resource** | An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.<br>An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed pre- feasibility or feasibility studies, or in the life of mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43- 101. |
| **$K_2O$** | Potassium oxide |
| **Kg** | kilograms |
| **kg/t** | Kilograms per tonne |
| **km** | Kilometre |
| **LDL** | Lower Detection Limit of an analytical procedure |
| **LOI** | Loss on ignition |
| **LOM** | Life of Mine |
| **m** | meters |
| **Measured Resource** | A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. |
| **MRE** | Mineral Resource Estimate |
| **MgO** | Magnesium oxide |
| **mm** | millimetres |
| **MnO** | Manganese (II) oxide |
| **$Na_2O$** | Sodium oxide |
| **NI 43-101** | National Instrument 43-101 |
| **Over Limit** | Greater than the upper detection limit of an analytical technique |
| **$P_2O_5$** | Phosphorus pentoxide |
| **PEA** | Preliminary Economic Assessment |
| **Preliminary Economic Assessment** | Means a study, other than a pre-feasibility or feasibility study, that includes an economic analysis of the potential viability of mineral resources |
| **Probable Reserve** | A 'Probable Ore Reserve' is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve. |
| **Project** | An exploration or mining property or collection of properties under investigation |
| **Profitability Index (PI)** | A measure of the capital efficiency of a project and is defined as the project's post tax NPV divided by the project capital including the capital incurred to reach first run of production |
| **Proven Reserve** | A 'Proved Ore Reserve' is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors. |
| **QAQC** | Quality analysis and quality control, typically the appraisal of precision, accuracy and contamination in laboratory analytical procedures. |
| **Qualified Person** | A person of sufficient experience and qualification to act as a Qualified Person as defined by the National Instrument 43-101, having at least 5 years relevant |

| | |
|---|---|
| | experience in the subject matter and a member in good standing of a recognized professional organization. |
| **QP** | Qualified Person |
| **Reserve** | An 'Ore Reserve' is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The reference point at which Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. |
| **Resource** | A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. |
| **RPEEE** | Reasonable Potential for Eventual Economic Extraction |
| **ROM** | Run of Mine |
| **$SiO_2$** | Silicon dioxide |
| **Sonic Drilling** | Sonic drilling is a method of drilling that uses high-frequency, resonant energy to penetrate various types of soil and rock. |
| **SOP** | Standard Operating Procedures |
| **Specularite** | A variety of hematite characterized by aggregates of silvery, metallic, specular ('mirror-like') hematite flakes or tabular, anhedral crystals. |
| **t** | tonnes |
| **$TiO_2$** | Titanium dioxide |
| **UDL** | Upper detection limit |
| **$V_2O_5$** | Vanadium(V) oxide |
| **Wilfley Table** | The Wilfley Table is commonly used for the concentration of heavy minerals from the laboratory up to the industrial scale, it has a traditional shaking (oscillating) table design with a riffled deck. |
| **XRF** | Assay method with use of X-ray fluorescence |
| **ZnO** | Zinc oxide |
| **$ZrO_2$** | Zirconium dioxide |

# 29 Illustrations

All illustrations are contained within the relevant sections of the report.