NI 43-101 TECHNICAL REPORT
ON THE
LAC KNIFE GRAPHITE FEASIBILITY STUDY
QUEBEC – CANADA

Prepared for
FOCUS GRAPHITE INC.

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Effective Date: June 25, 2014
Issue Date: August 8, 2014

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IMPORTANT NOTICE

This Report was prepared as a National Instrument 43-101 Technical Report for Focus Graphite Inc. ("Focus") by Met-Chem Canada Inc. ("Met-Chem"). The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Met-Chem's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this Report. This Report is intended for use by Focus subject to the terms and conditions of its contract with Met-Chem. This Report can be filed as a Technical Report with Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, *Standards of Disclosure for Mineral Projects*. Except for the purposes legislated under Canadian securities laws, any other uses of this Report by any third party are at that party's sole risk.

DATE AND SIGNATURE PAGE - CERTIFICATES

Effective Date: June 25, 2014

Issue Date: August 8, 2014

CERTIFICATES OF AUTHORS

Joseph Rosaire Pierre Desautels, P.Geo.

I, Joseph Rosaire Pierre Desautels of Barrie, Ontario, as a QP of this technical report titled "NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25, 2014, (the "Technical Report"), do hereby certify the following statements:

- I am a Principal Resource Geologist with AGP Mining Consultants Inc. with a business address at 92 Caplan Avenue, Suite 246, Barrie, Ontario, L4N 0Z7.
- I am a graduate of Ottawa University (B.Sc. Hons., 1978).
- I am a member in good standing of the Association of Professional Geoscientists of Ontario (Registration #1362) and hold a Special Authorization from l'Ordre des Geologues du Quebec (Number 297).
- I have practiced my profession in the mining industry continuously since graduation.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101 or the Instrument) and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101), and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purpose of NI 43-101.
- My relevant experience with respect to resource modelling includes 31 years' experience in the mining sector covering database, mine geology, grade control, and resource modelling.
- I have visited the property on October 29 and October 30th, 2013.
- I am responsible for sections 4 to 12 and section 14 and section 23 of the Technical Report.
- I have no prior involvement with the property that is the subject of this Technical Report.
- As of the effective date of the Technical Report, to my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

- I am independent of the issuer as defined by Section 1.5 of the Instrument.
- I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Signed and dated this 8th day of August 2014, at Barrie, Ontario.

"Original Document Signed and Sealed"

Pierre Desautels, P.Geo.

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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25, 2014.

I, Normand D'Anjou, Eng., M.Sc., PMP do hereby certify that:

1) I am a Senior Environmental Engineer and project Director with Golder Associés Ltée (Golder) with an office situated at Suite 10, 9200 boul. De l'Acadie, Montréal, Canada;
2) I am a graduate of École Polytechnique de Montréal with B.Eng. in Geological Engineering in 1986 and of the Université de Laval with a M.Sc. (Master degree in Hydrogeology) in 1991;
3) I am a member in good standing of the "Ordre des Ingénieurs du Québec" (membership #42764);
4) I have worked as a geological engineer for a total of 26 years since my graduation.
5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience that includes 26 years in the mining industry and consulting practice related to mining environment, mine waste and mine water management, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101;
6) I have participated in the preparation of the report entitled " **NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada** " dated August 8th 2014 and am responsible for Sub-Sections 20.1, 20.2, 20.3, 20.4 and 20.5;
7) I have not visited the site;
8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;

9) I state that, as of the date of this certificate, 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;

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;

This 8th day of August 2014.

Original signed and sealed

(Signed) “Normand D’Anjou”

Normand D’Anjou, Eng., M.Sc., PMP
Senior Environmental Engineer
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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25th, 2014.

I, Nicolas Skiadas, Eng., M.Eng. do hereby certify that:

1) I am a Senior Project Manager and Senior Geotechnical Engineer with Journeaux Assoc, Division of Lab Journeaux Inc. with an office situated at 801 Bancroft, Pointe-Claire, Quebec, Canada;

2) I am a graduate of McGill University with B.Eng. in Civil Engineering and Applied Mechanics in 1977 and Master of Engineering in Civil Engineering and Applied Mechanics (Geotechnical) in 1982;

3) I am a member in good standing of the “Ordre des Ingénieurs du Québec” (117881);

4) I have practiced my profession for the mining industry for more than 20 years since my graduation from university;

5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience that includes more than 20 years in consulting practice related to geotechnical engineering, tailings deposition and materials quantities and cost estimates, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101;

6) I have participated in the preparation of the report " **NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada**" dated August 8th, 2014, as a Tailings Consultant. I am responsible for Section 18.6;

7) I have visited the site on November 5th 2013;

8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;

9) I state that, as of the date of this certificate, 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.

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;

This 8th day of August 2014.

Original signed and sealed

(Signed) “Nicolas Skiadas”

Nicolas Skiadas, Eng., M Eng.
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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25th, 2014.

I, Jeffrey Cassoff, Eng, do hereby certify that:

1) I am the Lead Mining Engineer presently with Met-Chem Canada Inc. with an office situated at Suite 300, 555 René-Lévesque Blvd West, Montréal, Canada;
2) I am a graduate of McGill University in Montréal with a Bachelor's in Mining Engineering obtained in 1999;
3) I am a member in good standing of the Ordre des Ingénieurs du Québec (Reg. 5002252);
4) I have worked as a mining engineer continuously since graduation from university in 1999;
5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101;
6) I have participated in the preparation of the report entitled " **NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada** " dated August 8th 2014, under Met-Chem consultation company as Lead Mining Engineer. I have participated, and I am responsible for sections 15 and 16 and part of sections 1, 25 and 26;
7) I have visited the site on November 5th 2013;
8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;
9) I state that, as the date of the certificate, to the best of my qualified 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;

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;

This 8th day of August 2014.

Original signed and sealed

(Signed) “Jeffrey Cassoff”

Jeffrey Cassoff, Eng.
Lead Mining Engineer
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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25, 2014.

I, Ewald Pengel, P. Eng., do hereby certify that:

1) I am Senior Metallurgist with Met-Chem Canada (Met-Chem) with an office at suite 300, 555 René-Lévesque Blvd. West, Montréal, Canada;

2) I am a graduate from Queen’s University, Kingston, Ontario with a B. Sc. in Metallurgical Engineering in 1982 and the University of Pittsburgh, Pittsburgh, Pennsylvania (USA) with a M. Sc. in Mining Engineering in 1985;

3) I am a registered member of Professional Engineers Ontario (90520297) and I am a member of the Canadian Institute of Mining, Metallurgy and Petroleum;

4) I have worked for 28 years in the mineral industry since graduation;

5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101;

6) I have participated in the preparation of the report entitled " NI 43-101 Technical Report **on the Lac Knife Graphite Feasibility Study, Québec-Canada** " dated August 8th 2014 and am responsible for Sections 13, 17 and part of Section 1, 25 and 26;

7) I have not visited the site;

8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;

9) I state that, as of the date of this certificate, 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;

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

This 8th day of August 2014.

Original signed and sealed

(Signed) "Ewald Pengel"

____

Ewald Pengel, P. Eng.
Senior Metallurgist
Met-Chem Canada Inc.

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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25th, 2014.

I, Michel L. Bilodeau, Eng., do hereby certify that:

1) I am a retired (June 2009) Associate Professor from the Department of Mining and Materials Engineering of McGill University, 3450 University St., Montréal, QC, Canada H3A 2A7, and have continued teaching on a contract basis the mineral economics course of the mining engineering program at McGill in the Winter terms of 2010, 2011 and 2012;

2) I am a graduate of École Polytechnique de Montréal with a B.Eng. in Geological Engineering (1970), and of McGill University with a M.Sc. (App.) in mineral exploration (1972) and a Ph.D. in mineral economics (1978);

3) I am a member in good standing of the “Ordre des ingénieurs du Québec” (23799);

4) While employed at McGill (1975-2009), I have taught continuously in the areas of engineering economy, mineral economics and mining project feasibility studies in the mining engineering program dispensed by the University, and have carried out in the capacity of independent consultant several assignments related to the economic/financial analysis of mining projects;

5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience in the mineral industry that includes teaching for more than 30 years and consulting activities over the past 20 years, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101;

6) I have participated in the preparation of the report entitled " **NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada** " dated August 8th, 2014, as an Economic/Financial Analyst Consultant. I am responsible for Section 22;

7) I have not visited the site;

8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;

9) I state that, as of the date of this certificate, 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.

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form;

This 8th day of August 2014.

Original signed and sealed

(Signed) “Michel Bilodeau”

____

Michel L Bilodeau, Eng., M.Sc. (App.), Ph.D.
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CERTIFICATE OF AUTHOR

To Accompany the Report entitled:

"NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada" dated August 8th, 2014 with effective date of June 25, 2014.

I, Mary Jean Buchanan, Eng., M.Env. do hereby certify that:

1) I am a Senior Project Manager and Senior Environmental Engineer with Met-Chem Canada Inc. (Met-Chem) with an office situated at Suite 300, 555 René-Lévesque Blvd. West, Montréal, Canada;

2) I am a graduate of Université du Québec à Chicoutimi with B.Eng. in Geological Engineering in 1983 and of the Université de Sherbrooke with a M.Env. (Master degree in Environment) in 1997;

3) I am a member in good standing of the "Ordre des Ingénieurs du Québec" (38671);

4) I have practiced my profession for the mining industry continuously since my graduation from university;

5) I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined by NI 43-101) and past relevant work experience that includes 27 years in consulting practice related to resource estimates, mine engineering and environmental assessment, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101;

6) I have supervised and participated in the preparation of the report entitled " **NI 43-101 Technical Report on the Lac Knife Graphite Feasibility Study, Québec-Canada** " dated August 8th 2014 and am responsible for Sections 1, 2, 3, 18, 19, 20.6, 20.7, 21, 24, 25, 26, 27;

7) I have visited the site on November 5th 2013;

8) I have not had prior involvement with Focus Graphite and its Lac Knife Graphite Project and property that is the subject of the Technical Report besides the present Technical Report;

9) I state that, as of the date of this certificate, 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;

10) I have no personal knowledge, as of the date of this certificate, of any material fact or material change which is not reflected in this Technical Report;

11) I am independent of the issuer as defined in section 1.5 of NI 43-101;

12) I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

This 8th day of August 2014.

Original signed and sealed

(Signed) “Mary Jean Buchanan”

Mary Jean Buchanan, Eng., M.Env.
Senior Project Manager
Met-Chem Canada Inc.

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1.0 SUMMARY

1.1 Introduction

Focus Graphite Inc. is an Ottawa based company contemplating a project for the construction, installation and operation of a graphite mine and processing facility (the Lac Knife Graphite Project) to be located near Fermont, Quebec.

This National Instrument 43-101 Technical Report on the Lac Knife Graphite Project has been prepared at the request of Focus to present the Feasibility Study's major findings.

The FS Report was prepared by Met-Chem with economic results completed on June 25, 2014.

The effective date of the Technical Report is June 25, 2014.

The Lac Knife Project is situated in the Esmanville Township on NTS map sheet 23B11 south of town of Fermont, Quebec. The project site is accessible via a combination of paved and gravel surface road from Fermont. The temporary exploration camp, which is located on the western shore of Lac Knife, is within 45 km driving distance from Fermont.

1.2 Land Tenure

The Lac Knife Project, owned 100% by Focus, consists of a group of 57 claims covering approximately 2,986 ha. There are no options, royalties, or other outstanding liens, encumbrances, or agreements. While there is no restriction related to the mineral tenure renewal, it is important to note that the claim block forms an enclave in the proposed *Rivière Moisie* aquatic reserve area.

1.3 Existing Infrastructure

Fermont, Québec, is the closest municipality, with about 3,200 inhabitants. Including the Towns of Labrador City and Wabush in Labrador, located approximately 30 km away, the regional population is approximately 15,000. These municipalities have the infrastructure to provide services for accommodations, community services, a skilled mining labour force, as well as mining contractors and related services. The Wabush airport is the nearest point for scheduled and charter flights from Sept-Îles, Quebec, Montreal and Newfoundland-Labrador destinations with four scheduled airlines operating daily flights. Two (2) railways systems serve the region. The Quebec Cartier Railway Company is the privately-owned and operated railroad that links ArcelorMittal's Mont-Wright facility located approximately 15 km away from the Project to their Port Cartier pellet plant and port on the shore of the St. Lawrence River (416 km). The Quebec North Shore and Labrador Railway Co., owned by IOCC is a common-carrier railroad that links Labrador City located at approximately 30 km from the Project to the Port of Sept-Îles (360 km). The Hydro-Québec main power line serving Fermont and the local mines passes less than five kilometres east of the Project.

1.4 History

The Lac Knife showing was originally discovered in 1959 by D. L. Murphy during a geological survey conducted by the Quebec Ministry of Energy and Resources. Interest in the discovery of a graphite deposit increased in the 1980s due to the price increase for natural graphite flakes. In 1987, *La Société d'Exploration Minière Mazarin Inc.* (Mazarin) and *Le Fonds d'exploration minière du Nouveau Québec* (*Le Fonds*) signed an exploration agreement. From the period between 1985 through to 1988, exploration activities consisted of prospecting, mapping, geophysical survey, and trenching. December 1989, Mazarin and Princeton Mining Corporation (Princeton) signed an agreement to bring the deposit into production. An extensive drilling campaign followed with bulk sampling and metallurgical testing. Prefeasibility and feasibility studies were carried out between 1989 and 1990. Princeton withdrew from the project in February 1990. In August 1990, Cambior signed a joint venture for an equal partnership with Mazarin for the Lac Knife Project. Cambior retained Magloire Bérubé to review the original Mazarin mineral resource. In 1991, Mazarin hoped to bring the deposit in production, but the economy went into recession and graphite prices declined. In 2000, interest in the Lac Knife Project increased again as the graphite market was emerging for hydrogen fuel cells and other uses. In May 2000 UCAR Graph-Tech and Mazarin signed an agreement with the goal of starting production in 2004. However, the graphite market again declined due to an increased supply from Chinese producers and the Project did not proceed. In December 2003, Mazarin spun off its niobium, dolomite and graphite (Lac Knife) assets into Sequoia Minerals. Five months later, Cambior acquired Sequoia Minerals and in 2006, IAMGOLD purchased Cambior which included the Lac Knife asset.

Focus acquired the Project in August 2010 from IAMGOLD Corporation. Up to that point, 99 drill holes were completed on the site.

1.5 Geology and Mineralization

The Lac Knife deposit is located in the Grenville Geological Province 38 km south-east from the Grenville front within the Gagnon group. Rocks in the Gagnon group are the metamorphosed equivalent of rocks from the Ferriman group in the Labrador Trough. Within the Ferriman group, slate and turbidic sediments of the Menihek formation were metamorphosed into quartz-biotite-garnet ± graphite gneiss, and pelitic-mica-graphite rich schist of the Nault Formation which hosts the Lac Knife deposit.

The Nault Formation at Lac Knife is described as a fine to medium grained, grey, quartzofeldspathic paragneiss with biotite, muscovite and locally garnet-kyanite, ± graphite, ± sulfides. Sulphur species consist principally of pyrrhotite, pyrite with minor chalcopyrite and sphalerite.

Two types of Gneissic rocks exist on the deposit: silicate and calcsilicate. The gneissic rocks are intruded by bands of quartz monzonite and pegmatite more or less parallel to the gneissosity ranging in width from a few centimetres to widths exceeding one metre. The distinction between the two gneisses is not reliably reflected in the drill core log as both types have similar amounts of graphite and sulphides, and the graphite flake distribution is also similar.

The original Mazarin interpretation of the deposit was based on a simple multiple folding sequence of one graphite layer. In 2012, Roche revised this interpretation by eliminating the fold hinges which resulted in a northerly trending sequence of isolated layers. Focus re-interpreted the deposit as a sequence of tight folds similar to the original Mazarin interpretation with the addition of an interpreted fault which cut-off and displaced the mineralization on the south east side of the deposit.

The margins of the graphite lenses display a sharp and rapid grade change from <1% Cg in the unmineralized quartzo-feldspathic gneiss increasing to ~5% Cg or higher within the graphitic gneiss. With the exception of the usual shoulder samples, Focus typically did not sample drill core in the unmineralized zones nor within waste rock composed of quartzo-feldspathic gneiss.

Graphite occurs as flakes ranging from very fine grains up to 2 mm. Graphitic gneiss with grades generally less than 25% Cg are composed of independent grains with coarse to medium flakes larger than 0.7 mm or graphite inclusions interlayered with mica. With grades in excess of 25% Cg, the graphite is generally in fine independent grains less than 0.7 mm. Below 4% Cg, graphite tends to be scattered, fine grained inclusions in gangue minerals.

The mineralization has been categorized by Focus into 3 types: massive (>60% graphite), semi-massive (20-60% graphite) and low grade (5-20% graphite) mineralization categories. All three types are intercalated within the mineralized envelope (repetition of several massive horizons with semi-massive and low grade type horizons) with both edges of the deposit characterized by low grade type mineralization.

1.6 Exploration

Since 2010, the year the project was acquired, exploration programs included: a due diligence evaluation, bulk sampling, LiDAR topographic surveys, ground geophysical surveys, and 3 diamond drilling exploration and definition drilling programs (2010-2011, 2012, and 2013). Focus has contracted the services of *IOS Service Geoscientifiques* (IOS) of Chicoutimi, Quebec to handle the exploration activity, logistics and sample preparation for the Lac Knife project.

Since the 1989 core is no longer available for review, Focus embark during the winter 2010/2011 on a twin drill hole campaign to verify the grades reported by the 1989 Mazarin drilling. Results from the campaign confirmed the presence of graphitic carbon and also the lithological interpretation of the mineralized zones however; issues related to the analytical results prevented Focus and its consultants to confirm the graphitic carbon grade.

Following the results of a round robin program in 2011, COREM laboratory was selected for assaying the 2012 drill campaign. Focus decided that, as part of the 2012 exploration and resource definition drilling, to have every core interval from the 2010 twin drill hole program re-sampled and assayed at COREM. This re-sampling program was successful and a second examination of the twin drill hole results using the COREM assays indicated the 1989 drill hole data was adequately confirmed by the 2010 twin drill hole program rendering them suitable for use in mineral resource estimation.

During the summer 2012, Focus completed 56 large diameter core holes (5,638 m) in order to map the limit of the mineralization and to upgrade the resource categorization. The large diameter core also provided the necessary material for the phase II metallurgical testing and pilot plant trials.

During the 2013 in-fill program, Focus drill an additional 24 large diameter core hole (2,081 m) in order to reduce the drill spacing to 25 m and twin an additional 8 holes. The drill program was design to upgrade the category in advance of the feasibility study.

Conducted in conjunction with the infill drill program, the 2013 exploration drilling program was conducted outside of the deposit limits to test geophysical anomalies identified during the fall of 2012 geophysical work.

1.7 Mineral Processing and Testing

SGS Canada at Lakefield carried out bench scale and pilot plant testing on composite samples from the Lac Knife deposit. The design criteria data came from the drill core composite sample. The drill core composite sample was considered appropriate for the metallurgical work for the feasibility study. The following tests were carried out:

- Mineralogy;
- Crushing and Grinding Tests;
- Bench Scale Flotation Tests, and
- Pilot Plant Test Work.

The mineralogical study by QEMSCAN identified graphite (21%), sulphides (17.3%), quartz (19.9%), clinopyroxene (11.4%), plagioclase (8.8%), mica (6.8%), carbonates (5.7%), orthoclase (4.9%), other silicates (1.9%) and chlorite (1.4%) as major minerals in the sample.

Crushing and grinding tests were done and were used for pilot plant equipment selection and set-up. Pilot plant data was used in the actual equipment design.

Bench scale tests were done for ore characterisation and flow sheet development.

The pilot plant test work optimised and confirmed the robustness of the flow sheet. The pilot plant data form test #16 was the main source for design criteria, mass balance and equipment sizing.

The process consists of conventional one stage crushing. SAG mill and ball mill grinding with a coarse flotation step in between the two grinding steps. After ball mill grinding rougher flotation was the final graphite recovery step. The combined coarse and rougher flotation concentrate required upgrading. The upgrading steps were screening, polishing, magnetic separation, primary cleaner flotation, more concentrate polishing and secondary cleaner flotation. The secondary cleaning steps were separately performed on coarse and fine graphite concentrate. The PP-16 test results are given below in Table 1.1. The polishing step is the scrubbing of gangue minerals from the surface of graphite flakes by using ceramic media in tumbling mills.

Table 1.1 – Size by size analysis of Final Graphite Concentrate (PP-16)

Concentrate Size Fraction	Weight (%)	Grade, C(t) %
+48 mesh	10.0	99.7
-48+65 mesh	14.5	99.6
-65+80 mesh	8.5	99.8
-80+100 mesh	11.0	99.7
-100+150 mesh	20.4	99.3
-150+200 mesh	17.1	98.4
-200 mesh	18.6	93.3
Total (Calculated)	100.0	98.2
Total Direct Assay		97.8

1.8 Mineral Resource Estimates

A mineral resource update has been completed by AGP for the Focus Graphite Lac Knife deposit. GEMS Version 6.5™ software was used for the resource estimate, in conjunction with SAGE 2001™ for the variography. The Mineral Resource Estimate is based on a total of 197 drill holes of which 82 are from the 1989 Mazarin drill campaign. The Mineral Resource Estimate effective date is January 28, 2014.

Detailed geological logging and sectional interpretations by Focus Graphite led to the development of a three-dimensional (3D) domain model based on lithology and grade boundaries. Ordinary kriging was used for all domains with inverse distance and nearest neighbour check models. Classification for all models was based primarily on the pass number, distance to the closest composite and the krige variance. The Measured classification was only retained in the area, in proximity to the bulk sample pits. No adjustment to the classification was made for blocks interpolated primarily with historical holes since these were found to be adequate for resource modelling.

The economic analysis provided a pit shell to constrain the Mineral Resources using the 3D Lerchs-Grossman algorithm. The pit shell that was used to constrain the Mineral Resources is larger than the one used to estimate the Mineral Reserves since it includes the Inferred Resources, was run with a higher selling price ($2,000/t) and did not account for discounting of the cash flows. The economic analysis demonstrated that the entire global mineral inventory has a reasonable prospect for economic extraction and the resulting pit shell encompasses practically all of the interpolated blocks. The rounding of tonnes as required by NI 43-101 reporting guidelines may result in apparent differences between tonnes, grade and contained graphite.

Within the resource constraining shell, at the 3.0% Cg cut-off, the model returned 9.6 million tonnes in the Measured and Indicated category Resources grading at 14.77% graphitic carbon containing 1.4 million metric tonnes of in situ graphite. The Inferred resources amounted to 3.1 million tonnes, grading 13.25% graphitic carbon and containing 0.41 million metric tonnes of in situ graphite.

Table 1.2 – Mineral Resource Estimate effective January 28, 2014

	Measured + Indicated Resources			Inferred Resources		
Cut-off	Tonnage	Cg %	In Situ Graphite (t)	Tonnage	Cg %	In Situ Graphite (t)
3.0	9,576,000	14.77	1,414,000	3,102,000	13.25	411,000

Mineral resources cannot be considered Mineral Reserves until they have demonstrated economic viability. Environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues may materially affect the estimate of mineral resources. The quantity and grade of reported Inferred mineral resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to the Indicated or Measured mineral resource categories.

1.9 Mineral Reserve Estimates

The Mineral Reserves for the Lac Knife deposit were estimated using the updated resource model that was prepared by AGP Mining Consultants Inc. with an effective date of January 28, 2014. The Mineral Reserves are the portion of the Measured and Indicated Mineral Resources that have been identified as being economically extractable and which incorporate mining losses and the addition of waste dilution.

The first step in the Mineral Reserve estimate was to carry out a pit optimization analysis. The pit optimization analysis used economic criteria to determine the cut-off grade and to what extent the deposit can be mined profitably. The pit optimization analysis was done using the MS-Economic Planner module of MineSight® Version 8.5. The optimizer uses the 3D Lerchs-Grossmann algorithm to determine the economic pit limits based on input of mining and processing costs and revenue per block.

The pit optimization analysis identified that the open pit design should be based on the pit shell that was generated with a revenue factor of 0.38. This pit shell includes approximately 78 % of the Measured and Indicated Mineral Resources. The cut-off grade for the open pit was calculated to be 3.1 % Cg.

An open pit was designed with an overall pit slope of 45° and 48° for the northeast and southwest walls respectively, based on based on a geotechnical study that was completed by Journeaux Assoc. The pit has 10 m high benches and the access ramp is 20 m wide with a maximum grade of 10 %. The pit will be approximately 700 m long and 400 m wide at surface with a maximum pit depth from surface of 100 m. The open pit design includes 429 kt of Proven Mineral Reserves and 7,428 kt of Probable Mineral Reserves for a total of 7,857 kt at a grade of 15,13 % Cg. In order to access these reserves, 2,746 kt of overburden, 10,926 kt of waste rock and 231 kt of Inferred Mineral Resources must be mined. This total waste quantity of 13,903 kt results in a stripping ratio of 1.8 to 1. Table 1.3 presents the open pit Mineral Reserves for the Lac Knife deposit, which account for mining dilution.

Table 1.3 – Lac Knife Open Pit Mineral Reserves

Category	Tonnage (kt)	Cg Grade (%)
Proven	429	23.61
Probable	7,428	14.64
Proven and Probable	7,857	15.13

1.10 Mining Methods

The mining method selected for the Project is a conventional open pit, truck and shovel, drill and blast operation. Vegetation, topsoil and overburden will be stripped and stockpiled for future reclamation use. The ore and waste rock will be mined with 10 m high benches, drilled, blasted and loaded into rigid frame haul trucks with hydraulic excavators.

A topsoil and overburden stockpile has been designed on the west side of the open pit to the south of the plant site. Material that will be placed in this stockpile will be used for future reclamation.

A waste rock pile has been designed between the plant site and the overburden stockpile. The waste rock pile will be built in 10 m high lifts and compacted by a dozer.

A mine plan was developed which supplies the required amount of ore to produce 44,300 tonnes of concentrate per year for the 25-year life of the open pit. Mining will begin in a starter pit which will supply the majority of the run of mine ore for the first five (5) years of the operation. The purpose of the starter pit is to maximize the feed grade and minimize the strip ratio during the early years of production. The total material mined per year during the 25-year life of the open pit ranges from 400 kt in Year 1 to a maximum of 1,317 kt in Year 8. The average annual grade varies from 14.0 % to 17.6 % Cg during the mine life.

The mining operations will be carried out by a contractor who will operate the mine seasonally, five (5) days per week, ten (10) hours per day, seven (7) months of the year, from May until the end of November. Overburden removal will take place during the winter to take advantage of the frozen ground conditions. Since the concentrator is designed to operate year round both on the day and night shift, an ore stockpile was designed in order to maintain the run of mine ore feed to the plant during the nights, weekends and when the mine is shutdown during the five (5) month period.

The contractor will use a fleet of three (3) - five (5), 36-tonne haul trucks, a hydraulic excavator with a 6 m^3 bucket, one (1) or two (2) diesel powered track drills as well as a fleet of support and service equipment. Blasting will be carried out using bulk emulsion with a powder factor of 0.39 kg/t.

1.11 Lac Knife Graphite Recovery

The Lac Knife concentrator is located near the open pit mine. The concentrator is designed to produce a nominal 44,300 tonnes of high grade graphite concentrate per year.

The ROM mineralized material will be transported to the primary jaw crusher. The crushed mineralized material is ground in a SAG mill. The SAG mill discharge is screened and the screen oversize is returned back in the SAG mill. The SAG screen undersize is pumped to coarse flotation. The removal of graphite flakes at the earliest stage is the maintain graphite flake integrity. The coarse flotation tailings are ground in a ball mill in closed circuit with a sizing screen. The screen undersize is pumped to rougher flotation. The rougher tailings are pumped to the final tailings pond. The combined coarse and rougher flotation concentrates are 57% C(t) and are upgraded in a two phase cleaning circuit to produce a high quality graphite concentrate.

The combined coarse and rougher concentrate are dewatered to obtain the proper pulp density and polished in a polishing mill using ceramic media. The polishing mill scrubs the surface of the graphite flakes and thus removes the gangue minerals that were stuck to the flakes. The magnetic separation is to remove iron minerals that cannot be scrubbed off. The non-magnetic product is pumped into a primary cleaner flotation column and is upgrade to a primary cleaner concentrate of 88% C(t). The primary cleaner concentrate is screened over a 0.3 mm screen. The screen oversize is mildly polished in a second polishing mill and then undergoes secondary coarse cleaner flotation. The screen undersize undergoes the same process with slightly harsher polishing. The fine polishing mill discharge is re-floated. The column tailings go to cleaner scavenger flotation cells. The concentrate from the cleaner scavenger cells is recycled, while the tailings go to the tailings pond. The secondary fine cleaner concentrate and the secondary coarse concentrate are both pumped to the graphite concentrate thickener.

The final graphite concentrate 98.2%C(t) is filtered and dried to 0.1% moisture. After drying the product is dry screened and bagged in super sacks for transport to costumers.

The flotation reagents are fuel oil and MIBC. Almost all of the flotation reagents will be absorbed by graphite.

1.12 Infrastructure

Mining infrastructure, tailings management facility, as well as infrastructure and services have been added the mine and concentrator to complete the investment cost of the project.

The Lac Knife mine and processing plant substation will be fed through a new 34.5 kV overhead power line supplied and installed by Hydro-Québec from the existing distribution point at the Normand substation. Provisions have been made to realign and widen the existing gravel road to allow two-lane traffic for transportation trucks up to the site.

In addition to site roads, water services, access to telecommunications, provisions have been made for ancillary buildings and facilities such as storage, office complex, change house and canteen.

Considering the proximity of a well developed iron ore mining industry in the Fermont area and that the total workforce is not expected to exceed 81 people, no permanent camp has been provided for the project. It is expected the nearby towns of Fermont or even Labrador City and Wabush will provide both work force and housing to the employees. Employees will be transported by company buses from Fermont over a distance of 35 km.

Tailings disposal requirements to store and manage the concentrator tailings and process water were assessed and prepared for the Lac Knife Project's mine life.

Various areas were examined within a 10 km radius of the processing plant to optimize the location of the Tailings Management Facility (TMF), to consider the distance from the processing plant and to take into account environmental considerations such as bodies of water and watersheds.

The TMF site selected for the project is located about 2.0 km to the south-west of the open pit mine and the plant. It is composed of a tailings containment impoundment area, a polishing pond and miscellaneous structures such as diversion channels or berms as required.

The operational scheme proposes the transfer of free water from the tailings pond to a polishing pond to allow for the sedimentation of fine particles and other minerals. Water will then be transferred from the polishing pond to the concentrator processing plant to be used for the mill's process needs.

1.13 Market Studies and Contracts

An independent market study was carried out by Industrial Minerals Data to report on the world supply and demand for flake graphite concentrate and provide a price forecast for the 2014-2017 period. In addition, Focus Graphite signed an offtake agreement in December of 2013 with a Chinese Conglomerate from Dalian City, China. The offtake covers a minimum of 50% of production.

The main findings of Industrial Minerals Data Report indicate that first quarter 2014 Flake graphite concentrate prices are considered at a four-year low. It is felt that these prices represent the bottom of the market. Demand is expected to return to the market in the second and third quarters of 2014 as consumers are expected to start replenishing their inventories.

Tighter supply conditions for these grades mean that prices can escalate rapidly at mesh sizes larger than +80 mesh. Flake graphite concentrate with greater carbon purity and larger mesh sizes receives a premium price because it requires more processing from ore to remove disruptive impurities impurities and is less widely produced. Tighter supply conditions for these grades mean that prices can escalate rapidly at mesh sizes larger than +80 mesh.

The main flake graphite producing countries in the world are China, Brazil, India and Canada. The largest producer of flake graphite is China, which in 2013 accounted for 58% of global output or 220,000 t/y from a capacity of 676,000 t/y.

However, over the period analyzed, it is expected that China will reduce its output of flake graphite concentrate as a result of consolidation in the two leading producing regions in the country. It is therefore expected that output from China will fall over the next three years at the same time demand is expected to increase. New and significant production is however expected from Mozambique with production expected to begin towards the end of 2015 with more significant output in 2016. However, the company has an unrealistic target of 200,000 t/y. The project is at a scoping study level.

The primary end-market for flake graphite is the refractory, foundries and crucible sector. However, the lithium ion battery sector is the main emerging market for flake graphite. With only small quantities of spherical graphite required in many lithium-ion batteries, greater capacity batteries, such as the ones required for electric vehicles, will drive demand from this sector over the coming years. Spherical graphite accounts for 90% of battery-grade graphite demand with purified just 10%.

Considering the unique properties of the Lac Knife deposit, Industrial Minerals have also conducted a supplementary forecast for specific grades that Focus Graphite intent to produce. Projections have been calculated in line with the analysis, the accompanying pricing data and IMD's independent market knowledge.

These forecasts are based on the gradual recovery in the market expected throughout 2015 followed by the period of sharper price rises in 2016, as demand competition prevails and supply conditions tighten. These forecasts have been calculated under the assumption that no new capacities come on stream over the examined time horizon.

Based on this information, and considering premiums for graphite expected grades, the price forecast for Focus Graphite Lac Knife project was established as per Table 1.4.

Table 1.4 – Graphite Price Forecast

Concentrate size fraction	Weight (%)	Grade C(t)%	Price USD/t
+48 mesh	10.0	99.7	3,160
–48+65 mesh	14.5	99.6	2,160
–65+80 mesh	8.5	99.8	1,910
–80+100 mesh	11.0	99.7	1,710

Concentrate size fraction	Weight (%)	Grade C(t)%	Price USD/t
–100+150 mesh	20.4	99.3	1,310
–150+200 mesh	17.1	98.4	1,310
–200 mesh	18.6	91.4	1,310
Average	100	97.8	1,713

1.14 Environment Studies Permitting and Social or Community Impact

Environmental Baseline Studies (EBS) were conducted during 2012 to 2014 for the Lac Knife project. The EBS's include information on the physical, biological and social environments. The information was collected from literature sources, site specific surveys and from the knowledge of land users. The Environmental Impact Assessment (EIA) is ongoing.

During 2014, Focus conducted a geochemical characterization study of ore, waste rock and tailings samples. In all, a total of 34 waste rock samples, 8 ore samples and 6 tailings samples were collected and tested for geochemical analysis.

The majority of the waste rock samples (85%) show a potential for acid generation. Results indicate that all ore samples show a potential for acid generation and that concentrator tailings are also indicating a potential for acid generation.

Samples of waste rock, ore and tailings have also been tested for their metal leaching (ML) potential. According with definition of Quebec's Directive 019 and TCLP results, the waste rock is not leachable, the ore is leachable for zinc, and the tailings are leachable for cadmium and zinc. Results from other more representative tests (SFE, SPLP and CTEU-9) indicate that the waste rock, the ore and the tailings did not show average exceedances of any parameters.

The management of the waste rock pile, ore stockpile and tailings storage facility as well as surface run-off were designed accordingly.

Mine closure and rehabilitation cost have been estimated at $ 7.8 M. The closure cost estimate is based on capping the tailings pond with an impermeable cover to limit infiltration and on the re-vegetation of the overburden layer that will cover the waste rock pile. The overburden stockpile will be re-vegetated.

1.15 Capital and Operating Costs

1.15.1 Capital Cost

The capital cost estimate of Focus Graphite's Lac Knife Project for graphite concentrate production at a milling rate of 950 tpd is based on Met-Chem's standard methods applicable for a Feasibility Study to achieve an accuracy level of ±15%.

The capital cost estimate consists of the direct and indirect capital costs as well as contingency. Provision for sustaining capital is also included, mainly for tailings storage expansion to reach its final design elevation. Amounts for closure and rehabilitation of the site and required working capital have been estimated as well and were included in the Economic Analysis of the Project.

The pre-production initial capital cost for the scope of work is $ 165.6 M, of which $ 108.7 M is direct cost, $ 39.8 M is indirect cost and $ 17.1 M is contingency.

A provision of $ 17.4 M is also required for sustaining capital; this provision excludes the amounts for closure and rehabilitation of the site and working capital.

Table 1.5 presents a summary of the pre-production initial capital and the sustaining capital costs for the Project.

Table 1.5 – Summary of the Investment Capital Costs Estimate

Description	Pre-production Initial Capital Costs $ M	Sustaining Capital Costs $ M	Total Investment Capital Costs $ M
Direct Costs			
Open pit mine	4.2	0.1	4.3
Process	69.3	0.5	69.8
Tailings Storage	8.2	16.8	25.0
Power and Communication	15.4		15.4
Main Road and Access	4.8		4.8
Infrastructure	6.9		6.9
Sub Total Direct Cost	108.7	17.4	126.1
Indirect Costs			
Project Development	0.5		0.5
EPCM	12.0		12.0
Owner’s Costs	10.6		10.6
Personnel and Contractor’s logistics	16.7		16.7
Sub Total Indirect Cost	39.8		39.8
Contingency	17.1		17.1
Total	**165.6**	**17.4**	**182.9**

The totals may not add up due to rounding.

1.15.2 Operating Cost

Operating costs have been developed for the Project and covers Mining, Processing, Site Services and Administration. The sources of information used to develop the operating costs include in-house databases and outside sources particularly for materials, services and consumables. All amounts are in Canadian dollars (CAD), unless specified otherwise.

The life of mine average operating cost estimate, given as dollar per tonne of concentrate, is summarized in Table 1.6.

Table 1.6 – Summary of Life of Mine Average Operating Cost Estimate

Area	Average Operating Cost ($/tonne of concentrate)
Mining	126.95
Processing	239.37
Plant Administration, Infrastructure & Tech. Serv.	74.70
Total Average Operating Costs	441.02

Table 1.7 presents the estimated personnel requirements for the Project. This workforce is comprised of staff as well as hourly employees. Supervisory personnel as well as the administration employees will work on a 5 days per week basis.

The hourly workforce at the plant will work on rotation to provide 24 hour per day coverage, 7 days per week. It is assumed that all employees will come from the area.

Table 1.7 – Total Personnel Requirement[1]

Area	Number
Mine	3
Processing	59
Management, Administration and Technical Services	19
Total Manpower	81

1.16 Economic Analysis

The economic/financial analysis of the Lac Knife Project of Focus Graphite Inc. is based on second-quarter 2014 price projections in U.S. currency and cost estimates in Canadian currency. An exchange rate of 0.91 USD per CAD is assumed to convert USD market price projections and particular components of the pre-production capital cost and operating cost estimates into CAD. The annual cash flow model prepared in Microsoft Excel is based on a graphite concentrate production rate of 44,300 tonnes per year. No provision is made for the effects of inflation. The evaluation is carried out on a 100%-equity basis. Current Canadian tax regulations are applied to assess the corporate tax liabilities while the recently proposed regulations in Quebec (Bill 55, December 2013) are applied to assess the mining tax liabilities.

The model reflects the base case macro-economic and technical assumptions given in this report and assumes that the owner will rely on a mining contractor to provide and operate the mining equipment.

[1] Mining contractor operators and staff excluded. Owner supervisory personnel only.

The main technical assumptions used in the base case are given in Table 1.8.

Table 1.8 – Technical Assumptions

Total Ore Mined (Life Of Mine)	M tonnes	7.837
Average Ore Mined per Year	tonnes per year	313,470
Average Stripping Ratio	(w : o)	1.70
Nominal Processing Rate	tonnes/day	954
Mine Life	years	25
Average ROM Grade to Mill	% Cgr	15.1
Average Concentrate Grade	% Cgr	97.8
Average Process Recovery over Mine Life	%	90.9
Average Tonnes of Concentrate Produced per year	tonnes per year	44,300
Total Tonnes of Concentrate Produced over Mine Life	M tonnes	1,102
Average Mining Operating Cost	($ / tonne milled)	17.85
Average Mining Operating Cost	($ / tonne concentrate)	126.95
Average Process Operating Cost	($ / tonne milled)	33.66
Average Process Operating Cost	($ / tonne concentrate)	239.37
Average General & Administration Cost	($ / tonne concentrate)	74.70

On average, 313,470 tonnes of run of mine ore will be supplied per year to the concentrator when full production is reached. The amount of concentrate produced is a function of head grade, process recovery and concentrate grade, and is on average 44,300 tonnes per year.

The financial results indicate a positive before-tax Net Present Values (NPV) of CAD 383.3 M at a discount rate of 8%. The before-tax Internal Rate of Return (IRR) is 30.1% and the payback period is 3.0 years.

The after-tax Net Present Value is CAD 224.2 M at a discount rate of 8%. The after-tax Internal Rate of Return is 24.1% and the payback period is 3.2 years.

Table 1.9 – Project Evaluation Summary

Description	Million CAD
Total Revenue Sept-Îles (LOM)	2,074.4
Total Concentrate Transport Cost (LOM)	97.0
Total Mining Operating Cost (LOM)	139.9
Total Process Operating Cost (LOM)	263.8
Total General & Administration Operating Cost (LOM)	82.3
Pre-production Capital Cost	165.6
Initial Working Capital	4.8
Total Sustaining Capital Cost (LOM)	17.4

Description	Million CAD
Mine Closure and Rehabilitation	7.8
BEFORE TAX	
Total Cash Flow	1,300.7
NPV@ 8%	383.3
NPV@ 6%	509.8
NPV @ 10%	290.6
IRR (%)	30.1
Payback Period (years)	3.0
AFTER TAX	
Total Cash Flow	797.9
NPV@ 8%	224.2
NPV@ 6%	304.0
NPV @ 10%	165.4
IRR (%)	24.1
Payback Period (years)	3.2

1.17 Other Relevant Data and Information

A project implementation schedule was prepared for the Project. Considering an environmental authorization to proceed with construction expected in March 2016, the full production start-up will be beginning of Q3 2017 providing an order is placed with suppliers for long lead items by end of 2015. Efforts will be made to identify opportunities to improve the start of the construction.

A risk register has been developed for the Project and is expected to be carried over to next phases of the project for updates.

A risk review was conducted with Focus Graphite towards the end of the Feasibility Study and all risk items were identified, discussed, and gauged where appropriate. Where ever possible, mitigation measures were incorporated in the design reducing the level of risk. As a result of the risk review meeting, no very high risks were identified as part of the Lac Knife FS. The risks that were identified will be prioritized and addressed in next phases of the project.

1.18 Interpretation and Conclusions

Geology and Mineral Resources

Based upon a review of the QA/QC program, data validation, and statistical analysis, AGP draws the following conclusions:

- AGP has reviewed the methods and procedures used to collect and compile geological, geotechnical, and assaying information and found them to meet accepted industry standards and suitable for the style of mineralization found on the Lac Knife deposit;

- The resource estimate uses historical and newer drill data. The historical data was compiled from logs and technical reports. For the historical assays, Focus had access to the original certificate but no longer has access to the core;
- For the historical holes, samples have been prepared and assayed at the Chimitec facility using an assay procedure similar to ACTLABS. Historical assays were validated via a twin drill program in 2012 and with follow up in 2013. The twin drill hole results indicated that while the high grade and low grade sections were reproduced accurately, the twin hole could not reproduce individual assays within the various zones. Overall, the grade distribution in the twin versus the original historical hole was found to be in close agreement and it is AGP's opinion that the use of historical holes in the resource estimate would not introduce a significant bias;
- Samples for all newer holes were prepared at the IOS facility and assayed at the COREM laboratory. A routine 10% check assay was done at ACTLABS. COREM pre-treated the samples with nitric acid followed by LECO furnace with the resulting CO2 gas measured with an infrared detector. ACTLABS uses a similar approach and the assays duplicate between ACTLABS and COREM were found to correlate extremely well;
- A QA/QC program was established for the 2010 drill program which includes the insertion of blank, standard, and duplicate samples. Improvements to this program were made during the 2012 and 2013 campaign which included the addition of an in-house reference material and the routine submission of 10% of the pulp assayed at COREM to ACTLABS. The QA/QC submission rates meet industry accepted standards with IOS routinely monitor the QA/QC program;
- Data verification was performed by AGP through site visits, collection of independent character samples, and a database audit prior to the mineral resource estimation. AGP found the database to be well-maintained and virtually error-free and usable in mineral resource estimation;
- The bulk density samples collected by IOS in 2012 and 2013 indicated that an average of 2.80 g/cm^3 which correctly reflect the density expected for this type of deposit;
- Core handling, core storage, and chain of custody are consistent with industry standards;
- In AGP's opinion, the current drill hole database is sufficiently complete and accurate for interpolating grade models for use in resource estimation;
- Mineral resources were classified using logic consistent with the CIM definitions referred to in National Instrument 43-101. At the Lac Knife deposit the mineralization, density, and position of the drill holes allow the resource to be

classified into the Measured, Indicated and Inferred categories without restriction on the categorization;

- A Graphite price of US $2,000 per tonne was used in the calculation of the suggested cut-off grade;
- This independent mineral resource estimate supports the January 28, 2014 disclosure by Focus Graphite of the mineral resource statement for the Lac Knife deposit.

AGP concludes that at the 3.0% Cg cut-off and within the Learch Grossman resource constraining shell, the model returned 9.6 million tonnes in the Measured and Indicated category grading at 14.77% graphitic carbon containing 1.4 million metric tonnes of in situ graphite. The Inferred resources amounted to 3.1 million tonnes, grading 13.25% graphitic carbon and containing 0.41 million metric tonnes of in situ graphite.

Mining, Process and Project Economics

Proven and probable mineral reserves were developed from the open pit mine design for the Lac Knife deposit. These mineral reserves which account for dilution and ore loss formed the basis of the life of mine plan that was prepared.

The open pit design includes 429 kt of Proven Mineral Reserves and 7,428 kt of Probable Mineral Reserves for a total of 7,857 kt at a grade of 15.13% Cg. In order to access these reserves, 2,746 kt of overburden, 10,926 kt of waste rock and 231 kt of Inferred Mineral Resources must be mined. This total waste quantity of 13,903 kt results in a stripping ratio of 1.8 to 1. At the planned production rate of 328 kt of ore per year, the pit contains roughly 25 years of mineral reserves. The 231 kt of Inferred Mineral resources will undergo definition drilling to attempt to convert those resources to reserves prior to production startup.

The objective of achieving a graphite concentrate with grade of 97.8% C and recovery 90.7% was achieved during a pilot plant testing program conducted at SGS Minerals in Lakefield.

The processing plant is designed to process an average of 950 t/d of ore to produce approximately 44,300 t/y of graphite concentrate grading at about 97.8% Cg based on a concentrate recovery of 90.7%. A suitable process flow sheet includes crushing, grinding, polishing, flotation, and concentrate thickening, filtering and drying. Mining equipment, tailings storage facility, concentrate transportation as well as infrastructure and services have been added to complete the investment cost estimate of the project.

The pre-production capital expenditure, at an accuracy level of ± 15%, is estimated at CAD 165.6 M and the total sustaining capital requirement was estimated at CAD 17.4 M, for a total capital expenditure over the project life of CAD 182.9 M.

The life of mine average operating cost estimate is evaluated at 441 $/tonne of concentrate.

Preliminary environment considerations have been addressed and legislative framework, environmental sensitive areas, issues and project stakeholders have been identified.

Geochemical testing was conducted on mine rock and tailings samples to produce an assessment of the metal leaching (ML) and acid rock drainage (ARD) potential of the tailings generated by the project. Testing results show that both waste rock and tailings can be considered potentially acid generating but show a low risk for metal leaching. Design and concept have been included in the tailings management facility design to include an impermeable liner at the bottom of the pond taking into consideration the permeability of the soil. Run-off from the waste rock pile as well as from open pit dewatering will be collected and directed to the tailings management facility where the final discharge will be tested and discharged after treatment, if required, to the natural environment.

Mine closure and rehabilitation costs have been estimated at CAD 7.8 M.

The economic analysis of the project has demonstrated positive results using an estimated average sale price of US$ 1,713/tonne of concentrate. The economic results indicate a before-tax Net Present Values (NPV) of CAD 383.3 M at discount rate of 8%. The before-tax Internal Rate of Return is 30.1% with a payback period of 3.0 years. The after-tax Net Present Value is CAD 224.2 M at a discount rate of 8%. The after-tax Internal Rate of Return is 24.1% and the payback period is 3.2 years.

1.19 Recommendations

Geology and Mineral Resources

a) QA/QC

AGP recommends implementing the deliberate insertion of a "crushable blank" material in order to ensure that contamination during the sample preparation protocol is adequately monitored. This modification to the current QA/QC protocol should is not expected to add any cost to the program.

It is also recommended that for future drill programs, Focus should abandon using the current Standard Reference Material to replace them with the new graphitic carbon reference material now available from CDN Laboratories (Spring 2014) or Geostats Pty (Spring 2013). Cost for replacing the material is expected to be minimal.

b) Mineral Resource Estimate Recommendations

AGP considered that for the estimate presented in this report, the usage of the sub-parallel holes did not materially affect the stated resource; it is however recommended that in future resource estimate the holes sub-parallel to the mineralization should be eliminated from the dataset.

c) Exploration

- Phase I

It is proposed to complete the exploration/condemnation drilling designed to test the EM anomalies identified as part of the 2012 fall's ground Max-Min geophysical survey in the areas where this feasibility study identified as suitable location for the future surface infrastructures. This program consists of approximately 27 holes averaging 125 meters each for a total of 3,400 meters of drilling. Estimated cost for this program is $ 1,020,000 using an all inclusive $ 300 per meter of drilling.

It is also proposed to conduct an infill drilling program in the southwest extension of the deposit with the goal of upgrading the existing 3.1 million tonnes of Inferred Resources into Indicated and Measured Resource categories. This program will consist of 36 drill holes from 50 to 130 meters per hole for 3,600 meters of drilling. Cost for the program is estimated at $1,080,000.

- Phase II

Phase II drill program targets the completion of the exploration drilling to test the EM anomalies outside of the planned surface infrastructure. This program comprises of 1,700 meters of drilling for a budgeted cost of $510,000. Phase II drilling is not contingent of the successful completion of the Phase I drill program.

Mining

- Complete in-fill drilling to better define the geology in the initial areas of mine development;
- Re-evaluate the decision to use a contract miner using firm pricing.

Infrastructure

As the Project progresses to further development stages, a detailed geotechnical field investigation will be required to confirm civil design criteria related to foundations of mills and the process plant as well as for other infrastructure such as administration offices, run-of-mine stockpile, electrical substation and tailings management facility areas.

Investigation to locate gravel pits for suitable construction materials of the various dykes, pads and roads as well as concrete aggregates should be undertaken during Detailed Engineering phase to determine the quantities that area available and at what distance they are located from the various facilities.

Environmental Considerations

Meetings with Stakeholders should continue as the project progresses to further development stages.

A summary table of Issues/Potential Impacts identified by Stakeholders is underway associated to the ongoing ESIA study and should be maintained rigorously going forward.

A Focus is preparing a detailed schedule of environmental permitting requirements will need to be prepared in collaboration with government ministries. This schedule should be integrated in the Project Implementation Schedule of the project during the detailed engineering study phase.

2.0 INTRODUCTION

Focus Graphite Inc. **("Focus")** is an Ottawa based company contemplating a project for the construction, installation and operation of a graphite mine and processing facility (the Lac Knife Graphite Project) to be located near Fermont, Quebec.

Focus received a Preliminary Economic Assessment **("PEA")** report on the Lac Knife Graphite Project in October 2012 prepared by Roscoe Postle Associates Inc. **("RPA")**. The PEA report reviewed the work completed by Focus to date and recommended further actions by Focus to develop the project further. The PEA results were later updated with more recent metallurgical results and announced in a November 8, 2013 Press Release.

Mineral resources were updated based on additional drilling conducted on the Lac Knife Project in 2012 and 2013 and these results allowed the Project to advance to the Feasibility Study stage.

This National Instrument 43-101 **("NI 43-101")** Technical Report **("Report")** on the Lac Knife Graphite Project has been prepared at the request of Focus to present the Feasibility Study's **("FS")** major findings.

The FS Report was prepared by Met-Chem with economic results completed on June 25, 2014.

The effective date of the Technical Report is June 25, 2014.

2.1 Terms of Reference – Scope of Work

Met-Chem Canada Inc. **("Met-Chem")** was requested by Focus to provide a Feasibility Study Report for the exploitation of the Lac Knife deposit. Met-Chem was to provide leadership for the mining, process design, tailings, infrastructure, and compilation of capital and operating cost estimates at a confidence level of ± 15 % as well as the economic analysis of the project. The mandate included as well the preparation of the NI 43-101 Technical Report integrating the Feasibility Study, the geology and mineral resources as well as metallurgical testing for which information was provided by other consultants.

Process flow sheets were developed from a recent metallurgical and pilot plant testing program performed by SGS Mineral Services. The capital cost and the operating cost estimates have been developed for a 950 t/d milling rate.

The Feasibility Study is intended to establish the viability of the Project at a production rate of about 44,300 tonnes of graphite concentrate in order to justify proceeding with the implementation of the project.

Services from specialized firms were retained during the execution of this scope of work.

Table 2.1 provides a list of qualified persons and their respective sections of responsibility. The certificates for people listed as Qualified Persons **("QP")** can be found at the beginning of the Report under Date and Signature – Certificates.

Table 2.1 – Qualified Persons and their Respective Sections of Responsibility

Section	Title of Section	Qualified Person
1.0	Summary	Met-Chem – Mary Jean Buchanan
2.0	Introduction	Met-Chem – Mary Jean Buchanan
3.0	Reliance on Other Experts	Met-Chem – Mary Jean Buchanan
4.0	Property Description and Location	AGP Mining Consultants – Pierre Desautels
5.0	Accessibility, Climate, Local Resources, Infrastructure and Physiography	AGP Mining Consultants – Pierre Desautels
6.0	History	AGP Mining Consultants – Pierre Desautels
7.0	Geological Setting and Mineralization	AGP Mining Consultants – Pierre Desautels
8.0	Deposit Type	AGP Mining Consultants – Pierre Desautels
9.0	Exploration	AGP Mining Consultants – Pierre Desautels
10.0	Drilling	AGP Mining Consultants – Pierre Desautels
11.0	Sample Preparation, Analyses and Security	AGP Mining Consultants – Pierre Desautels
12.0	Data Verification	AGP Mining Consultants – Pierre Desautels
13.0	Mineral Processing and Metallurgical Testing	Met-Chem – Ewald Pengel
14.0	Mineral Resource Estimates	AGP Mining Consultants – Pierre Desautels
15.0	Mineral Reserve Estimates	Met-Chem – Jeffrey Cassoff
16.0	Mining Methods	Met-Chem – Jeffrey Cassoff
17.0	Recovery Methods	Met-Chem – Ewald Pengel
18.0	Project Infrastructure (with exception of 18.6)	Met-Chem – Mary Jean Buchanan
18.6	Tailings Management Facility	Journeaux &Assoc. – Nicolas Skiadas
19.0	Market Studies and Contracts	Met-Chem – Mary Jean Buchanan
20.0	Environment Studies, Permitting and Social or Community Impact (with the exception of 20.6 and 20.7)	Golder – Normand D'Anjou
20.6	Waste Rock, Ore and Tailings Characterization and Management	Met-Chem – Mary Jean Buchanan
20.7	Mine Closure and Rehabilitation	Met-Chem – Mary Jean Buchanan
21.0	Capital and Operating Costs	Met-Chem – Mary Jean Buchanan
22.0	Economic Analysis	Met-Chem – Michel L. Bilodeau
23.0	Adjacent Properties	AGP Mining Consultants – Pierre Desautels
24.0	Other Relevant Data and Information	Met-Chem – Mary Jean Buchanan
25.0	Interpretation and Conclusions	Met-Chem – Mary Jean Buchanan
26.0	Recommendations	Met-Chem – Mary Jean Buchanan
27.0	References	Met-Chem – Mary Jean Buchanan

Capital and Operating Cost estimates as well as Conclusions and Recommendations were provided by those consultants involved in relevant areas of the Study.

2.2 Sources of Information

The information presented in this Technical Report has been derived from the Feasibility Study results as well as various studies and fieldwork done by Focus Graphite and Consultants for the development of the Project. The reports are listed in Section 27.

Two (2) previous NI 43-101 compliant technical reports were completed for the Lac Knife Project:

- Technical Report on the Lac Knife Graphite Project authored by G Saucier, Ing. of Roche Ltd. Consulting Group, E. Lyons, P. Geo. of Tekhne Research and F. Baril, Ing. of Bumigeme Inc., dated January 18, 2012;
- Technical Report on the Lac Knife Project, Northern Quebec, Canada authored by M. Lavigne M. Sc. Ing., R. de l'Étoile, M.Sc.A., Ing. and P. Roy, M.Sc., P. Eng., Ing. of Roscoe Postle Associates Inc. dated October 30, 2012.

These reports are filed on the SEDAR website (www.sedar.com).

2.3 Personal Inspection on the Property by Each Qualified Person

The following qualified persons visited the site in relation with this work:

a) Pierre Desautels P. Geo. AGP Mining Consultants Inc. **("AGP")** visited the site on October 29 and October 30, 2013;

b) Nicolas Skiadas Eng. M. Eng. Journeaux Assoc. visited the site on November 5, 2013;

c) Jeffrey Cassoff, Eng. Met-Chem visited the site on November 5, 2013;

d) Mary Jean Buchanan, Eng. M. Env. Met-Chem visited the site on November 5, 2013.

2.4 Units and Currency

In this Report, all prices and costs are expressed in Canadian Dollars (CAD or $). Quantities are generally stated in *Système International d'Unités* (SI) metric units, the standard Canadian and international practice, including metric tonnes (tonnes, t) for weight, and kilometre (km) or metres (m) for distance.

2.5 Abbreviations

Abbreviations used in this report are listed in Table 2.2.

Table 2.2 – List of Abbreviations

Abbreviation	Description	Abbreviation	Description
"	Inch	AQ	Drill Core Size (27 mm diameter)
$	Dollar Sign	ARD	Acid Rock Drainage
%	Percent Sign		
%w/w	Percent solid by weight	BM	Ball Mill
~	Approximately	BQ	Drill Core Size (36.5 mm diameter)
≈	Approximately Equal	BWI	Bond Ball Mill Work Index
°	Degree		
°C	Degree Celsius	C(t) or Ctot	Carbon Total
2D	Two Dimensions	CA	Collaboration Agreement
3D	Three Dimensions	CAD	Canadian Dollar
		CAGR	Compound Annual Growth Rate
AC	Alternative Current	CAPEX	Capital Expenditures
ACSR	Aluminium, Cable, Steel Reinforced	CCR	Central Control Room
ACTLABS	Activation Laboratories Ltd.	CCTV	Close Circuit Television
AGP	AGP Mining Consultants Inc.	CDC	*Claim désigné sur carte*
ALS	ALS Minerals	CDE	Canadian Development Expenses

Abbreviation	Description
CDP	Closure and Decommissioning Plan
Ce	Cesium
CEAA	Canadian Environmental Assessment Act
CEE	Canadian Exploration Expenses
CEPA	Canadian Environmental Protection Act
cfm	Cubic feet per minute
CFR	Cost and Freight
Cg or Cgr	Graphitic Carbon
CIF	Cost Insurance and Freight
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIS	Commonwealth Independent States
CITES	Convention on International Trade in Endangered Species
cm	Centimetre
cm^2/g	Centimeter Square per Gram
COG	Cut Off Grade
COREM	*Consortium de Recherche Appliquée en traitement et transformation des substances minérales*
COV or CV	Coefficient of Variation
CPESI	*Corporation de protection de l'environnement de Sept-Îles*
CPM	Critical Path Method
CRM	*Centre de Recherches Minérales*
Cs	Calcsilicates
Cw	Concentration by Weight
d	Day
d/w	Days per Week
d/y	Days per Year
DB	Database
dB	Decibel
dBA	Decibel with an A Filter
DC	Direct Current
DCS	Distributed Control System
DDD	Downdraft Drying
DDH	Diamond drill hole
deg	Angular degree
DEM	Digital Elevation Model
DFO	Department of Fisheries and Oceans
DGPS	Differential Global Positioning System
DLOI	Double Loss on Ignition
D-LRS	Dual Liquid Rheostat Starter
DMS	Dense Media Separation
DWI	Drop Weight Index
DWT	Drop Weight Test
Dx	Deformation
DXF	Drawing Interchange Format

Abbreviation	Description
E	East
EA	Environmental Assessment
EAB	Environmental Assessment Board
EBS	Environmental Baseline Study
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EM	Electro-Magnetic
EMP	Environmental Management Plant
EOH	End of Hole
EP	Environmental Permit
EPA	Environmental Protection Agency
EPCM	Engineering, Procurement and Construction Management
EQA	Environmental Quality Act
ER	Electrical Room
ERT	Endangered, Rare or Threatened
ESBS	Environmental and Social Baseline Study
ESIA	Environmental and Social Impact Assessment
EUR	Euro
FDS	Fused Disconnect Switch
Fe	Iron
Fm	Formation
FOB	Free on Board
Focus	Focus Graphite Inc.
FRCS	Fatal Risk Control Standards
FS	Feasibility Study
ft	Feet
FVNR	Full Voltage Non Reversible
Fx	Foliation
g	Grams
G&A	General and Administration
g/cm^3	Gram per cubic centimeter
g/l	Grams per Litre
g/ml	Grams per milliliter
g/t	Grams per Tonne
Ga	Billion Year
gal	Gallons
GC	Green Cherty
GCW	Gross Combined Weight
GEMS	Gemcom GEMS Software
GEMS	Global Earth-System Monitoring Using Space
GIS	Gas Isolated Switchgear
GNL	Government of Newfoundland and Labrador
GNSS	Global Navigation Satellite System
GoC	Government of Canada
GOH	Gross Operating Hours

Abbreviation	Description
GoQ	Government of Quebec
GP	Graphitic Paragneiss
GPS	Global Positioning System
Gr	Graphite
h	Hour
h/d	Hours per Day
h/y	Hour per Year
H	Hydrogen
ha	Hectare
HDPE	High Density PolyEthylene
HF	Hydrofluoric Acid
HFO	Heavy Fuel Oil
HG	High Grade
HGL	Hydraulic Gradient Line
HL	Heavy Liquid
HLEM	Horizontal Loop Electromagnetic
HMI	Human Machine Interfaces
HOA	Heads of Agreement
hp	Horse Power
HQ	Drill Core Size (64 mm diameter)
H-Q	Hydro-Québec
HSE	Health, Safety and Environment
HV	High Voltage
HVAC	Heating Ventilation and Air Conditioning
Hz	Hertz
I/O	Input / Output
ICP	Inductively Coupled Plasma
ICP-AES	Inductively Coupled Plasma – Atomic Emission Spectroscopy
ICP-MS	Inductively Coupled Plasma – Mass Spectroscopy
ICP-OES	Inductively Coupled Plasma – Optical Emission Spectroscopy
ID	Identification
IDW	Inverse Distance Weighted
IDW^1	Inverse Distance to the power of one
IDW^2	Inverse Distance Squared Method
in	Inches
IN	Innu Nation
INREST	*Institut Nordique de Recherche en Environnement et en Santé au Travail*
IOS	*IOS Services Géoscientifiques Inc.*
IP	In-Phase
IR	Infrared
IRA	Inter-Ramp Angle
IRR	Internal Rate of Return
ISO	International Standard Organization
IT	Information Technology
IUCN	International Union for the Conservation of Nature

Abbreviation	Description
JVE	Joint Venture Enterprise
kb	kilo bar
KE	Kriging Efficiency
kg	Kilogram
kg/l	Kilogram per Litre
kg/t	Kilogram per Metric Tonne
kl	Kilolitre
km	Kilometre
km/h	Kilometre per Hour
km^2	Square kilometer
kPa	Kilopascal
KPI	Key Performance Indicators
KSR	Kriging Slope Regression
kt	Kilotonne (‘000 tonnes)
kV	Kilovolt
kVA	Kilovolt Ampere
kW	Kilowatt
kWh	Kilowatt-hour
kWh/t	Kilowatt-hour per Metric Tonne
L	Line
l	Litre
l/h	Litre per hour
lbs	Pounds
LCP	Local Control Panels
LCR	Local Control Rooms
LCT	Lock-cycle tests
Le Fonds	*Le Fonds d’exploration minière du Nouveau Québec*
LFO	Light Fuel Oil
LG	Low Grade
LG-3D	Lerchs-Grossman – 3D Algorithm
LiDAR	Light Detection and Ranging
LIMS	Low Intensity Magnetic Separator
LNG	Liquid Natural Gas
LOI	Loss On Ignition
LOM	Life Of Mine
LTI	Loss Time Incidents
LV	Low Voltage
m	Metre or meter
m/h	Metre per Hour
m/s	Metre per Second
m^2	Square Metre
m^3	Cubic Metre
m^3/d	Cubic Metre per Day
m^3/h	Cubic Metre per Hour
m^3/y	Cubic Metre per Year
mA	MilliAmpère
Mag	Magnetic

Abbreviation	Description
Mazarin	*La Société d'Exploration Minière Mazarin Inc.*
MCC	Motor Control Center
MDDELCC	*Ministère du Développement Durable, de Environnement et de la Lutte contre les Changements Climatiques*
MERN	*Ministère de l'Énergie et des Ressources Naturelles du Québec*
Met-Chem	Met-Chem Canada Inc.
mg/l	Milligram per Litre
MIBC	Methyl Isobutyl Carbinol
MIBK	Methyl Isobutyl Ketone
min	Minimum
min	Minute
min/h	Minute per Hour
Min/shift	Minute per Shift
ML	Metal Leaching
ml	Millilitre
mm	Millimetre
mm/d	Millimetre per Day
mm/y	Millimetre per Year
Mm^3	Million Cubic Metres
Mm^3	Million Cubic Metres
MMER	Metal Mining Effluent Regulation
MMU	Mobile Manufacturing Units
MNDM	Ministry of Northern Development and Mines
MNRW	Ministry of Natural Resources and Wildlife
MOE	Ministry of Environment
MOU	Memorandum of Understanding
MPD	Mean Percentage Difference
MPMO	Major Projects Management Office
MRC	*Municipalité Régionale de comté*
MSDEFCC	Ministry of Sustainable Development, Environment and the Fight against Climate Change
Mt	Million Metric Tonnes
Mt/h	Million Tonnes per hour
Mt/y	Millions of Metric Tonnes per year
MV	Medium Voltage
MVA	Mega Volt-Ampere
MW	Megawatts
MWh	Megawatts per hour
MWh/d	Megawatt Hour per Day
My	Million Years
N	North
NAD	North American Datum
NAG	Non Acid Generating
Nb	Number
NCC	NunatuKavut Community Council

Abbreviation	Description
N-E	Northeast
NEB	National Energy Board
NEBA	National Energy Board Act
NEQA	Northeastern Québec Agreement
NFPA	National Fire Protection Association
NGR	Neutral Grounding Resistor
NI	National Instrument
NIMLJ	Nation Innu Matimekush-Lac John
Nm^3/h	Normal Cubic Metre per Hour
NN	Nearest Neighbour
NNK	Naskapi Nation of Kawawachikamach
NPV	Net Present Value
NQ	Drill Core Size (47.6 mm diameter)
NRRI	Natural Resources Research Institute
NSR	Net Smelter Return
NTP	Normal Temperature and Pressure
NTS	National Topographic System
N-W	North West
O/F	Overflow
OB	Overburden
OD	Outside Diameter
OK	Ordinary Kriging
OPEX	Operating Expenditures
ORF	Ontario Research Foundation
OT&R	Ore Testing and Research Laboratory
oz	Ounce (troy)
oz/t	Ounce per Short Ton
P&ID	Piping and Instrumentation Diagram
p/h	Per Hour
PA	Public Address
PBX	Private Branch Exchange
PCC	Point of Client Connection
PCS	Plant Control System
PDF	Portable Document File
PEA	Preliminary Economic Assessment
PF	Power Factor
PFS	Pre-Feasibility Study
PGC	Pink Grey Cherty
PGGS	Permit for Geological and Geophysical Survey
ph	Phase (electrical)
pH	Potential Hydrogen
PIR	Primary Impurity Removal
PLC	Programmable Logic Controllers
PP	Preproduction
ppb	Part per Billion
PPE	Personal Protective Equipment
ppm	Part per Million
PQ	Drill Core Size (85 mm diameter)
PS	Pumping Station

Abbreviation	Description
psi	Pounds per Square Inch
PSTN	Public Switched Telephone Network
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QKNA	Quantitative Kriging Neighbourhood Analysis
QNS&L	Quebec North Shore and Labrador Railway
QP	Qualified Person
R^2	Correlation coefficient
RCM	Regional County Municipality
RCMS	Remote Control and Monitoring System
Report	NI-43-101 Technical Report
RER	Rare Earth Magnetic Separator
RMR	Rock Mass Rating
Roche	Roche Ltd., Consulting Group
ROM	Run of Mine
ROW	Right of Way
RPA	Roscoe, Postle Associates Inc.
rpm	Revolutions per Minute
RQD	Rock Quality Designation
RWI	Bond Rod Mill Work Index
S	South
S	Sulfur
S/R	Stripping Ratio
SAG	Semi-Autogenous Grinding
SAGDesign	SAGDesign Consulting Group
scfm	Standard Cubic Feet per Minute
SCIM	Squirrel Cage Induction Motors
SCR	Silicon Controlled Rectifier
SE	South East
sec	Second
Set/y/unit	Set per Year per Unit
SFP	State Forest Permit
SG	Specific Gravity
SGS	SGS Canada
Si	Silicates
SI	*Système International d'Unités*
SIPA	Port Authority of Sept-Îles
SIR	Secondary Impurity Removal
SL	Sanitary Landfill
SMC	SAG Mill Comminution
SMYS	Specified Minimum Yield Stress
SNRC	Système National de Référence Cartographique
SolFe	Sulfate Ferrous
SPI	SAG Power Index
SPLP	Synthetic Precipitation Leaching Procedure
SPT	Standard Penetration Tests
SR	Stripping Ratio
SRM	Standard Reference Method
Stot	Total Sulphur
Su	Sulphides
SW	Switchgear
S-W	South West
t	Metric Tonne
t/d	Metric Tonne per Day
$t/d/m^2$	Metric Tonne per Day per Square Meter
t/h	Metric Tonne per Hour
t/h/m	Metric Tonne per Hour per Metre
$t/h/m^2$	Metric Tonne per Hour per Square Metre
t/m	Metric Tonne per Month
t/m^2	Metric Tonne per Square Metre
t/m^3	Metric Tonne per Cubic Metre
t/y	Metric Tonne per Year
Ta	Tantalum
TCLP	Toxicity Characteristic Leaching Procedure
tCO_2 eq/y	tonnes of CO_2 equivalent/year
TIN	Triangulated Irregular Network
TMF	Tailings Management Facilities
TMI	Total Magnetic Field Intensity
TNO	*Territoire non organisé*
ton	Short Ton
tonne	Metric Tonne
TOR	Terms of Reference
TotFe	Total Iron
TRT	Tshiuetin Rail Transportation Inc.
TSS	Total Suspended Solids
TSX	Toronto Stock Exchange
U	Uranium
U/F	Under Flow
U/S	Undersize
ULC	Underwriters Laboratories of Canada
UMD	University of Minnesota at Duluth
URC	Upper Red Cherty
USA	United Stated of America
UTM	Universal Transverse Mercator
V	Vanadium
V	Vertical
V	Volt
VAC	Ventilation and Air Conditioning
VE	Value Engineering
VFD	Variable Frequency Drive
Vl	Limiting Velocity
VLF	Very Low Frequency
VLF-EM	Very Low Frequency - Electro-Magnetic

Abbreviation	Description	Abbreviation	Description
VoIP	Voice Over Internet Protocol		
		X	X Coordinate (E-W)
W	Watt	XRD	X-Ray Diffraction
W	West	XRF	X-Ray Fluorescence
WAN	Wide Area Network	Y	Y coordinate (N-S)
WHIMS	Wet High Intensity Magnetic Separation	y	Year
WHO	World Health Organization		
WRA	Whole Rock Analysis Method	Z	Z coordinate (depth or elevation)
WSD	World Steel Dynamics	Zr	Zirconium
wt	Wet Metric Tonne	μm	Microns, Micrometre

3.0 RELIANCE ON OTHER EXPERTS

This Report has been prepared by Met-Chem for Focus. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Met-Chem at the time of the preparation of this Report with an effective date of June 25, 2014;
- Assumptions, conditions and qualifications as set forth in this Report; and
- Data, reports, and opinions supplied by Focus Graphite and other third party sources.

The reports supplied and forming the basis of this Technical Report are listed in Section 27.

Met-Chem believes that information supplied to be reliable but does not guarantee the accuracy of conclusions, opinions, or estimates that rely on third party sources for information that is outside the area of technical expertise of Met-Chem. As such, responsibilities for the various components of the Summary, Conclusions and Recommendations are dependent on the associated sections of the Report from which those components were developed.

Met-Chem relied on the following reports and opinions for information that is outside the area of technical expertise of Met-Chem:

- Information on metallurgical and pilot plant testing that was provided by SGS Minerals Services;
- Information on main access road alignment and cost was provided by BBA;
- Information relative to environmental studies, permitting and social or community impact was provided by Golder;
- Information relative to geochemical characteristics of ore, waste rock and tailings was provided by Focus;
- Information on market study was provided by Focus with the Industrial Minerals Data report.

The geology sections of this report are based on recent data collected by AGP during a site visit and include additional information provided by Focus and IOS along with a summary of recent technical reports as follow:

- Much of the text in the geology related Sections 5 to 10 of this Report was sourced from the following technical reports with edits and additions from Mr. Benoit Lafrance, V.P. Exploration for Focus Graphite and Mr. Pierre Desautels, Principal Resource Geologist for AGP, geology QP for this report:

  Lavigne, M., de l'Étoile, R., Roy, P., 2012. Technical Report on the Lac Knife Project, Northern Québec, Canada. Roscoe Postle Associates Inc. (RPA).

  Saucier, G., Lyons, E. and Baril, F., 2011. Technical Report on the Lac Knife Graphite Project, Référence 061975,001-200, Roche Groupe-Conseil.

- Text related to the quality control and quality assurance program, twin drill program, re-sampling campaign and the 2012 to 2013 drilling program results was summarized from these reports:

  Barrette J-P P. Geo, Girard R. P. Geo. (Oct. 2012), IOS Services Géoscientifiques Inc., Internal report, Resource Confirmation Drilling Campaign: Lake Knife Graphite Deposit.

  de l'Étoile R. Eng, (April 2013) RPA, Technical assistance of Lac Knife Graphitic project - Phase 1: Resolution of the graphitic carbon analytical issue.

  Girard R., Gagne K (April 2013), IOS Services Géoscientifiques Inc., Internal report, Project Lac Knife Ré-échantillonnage de la campagne de forage 2010.

  Godin R., Gagne K (May 2013), IOS Services Géoscientifiques Inc., Internal report, Project Lac Knife Campagne de Forage de définition pour le graphite Fermont, Quebec.

  Godin R., Gagne K (July 2013), IOS Services Géoscientifiques Inc., Internal report, Project Lac Knife Campagne de Forage d'exploration pour le graphite et le fer Fermont, Quebec.

AGP has not verified the legal status or legal title to any permit, or to the legality of any underlying agreements for the subject properties regarding mineral rights, surface rights and permitting presented in Section 4 of this technical report; AGP has relied on information provided by Benoit Lafrance VP Exploration for Focus Graphite in a document dated June 13, 2014. The only verification performed by AGP was to validate that the claims are valid and properly registered to Focus Graphite Inc. on the Province of Quebec GESTIM claim management system.

Data used in this Report has been verified where possible, and this Report is based upon information believed to be accurate at the time of completion.

This Report is intended to be used by Focus Graphite as a Technical Report with Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Except for the purposes contemplated under provincial securities laws, any other use of this Report by any third party is at the party’s sole risk.

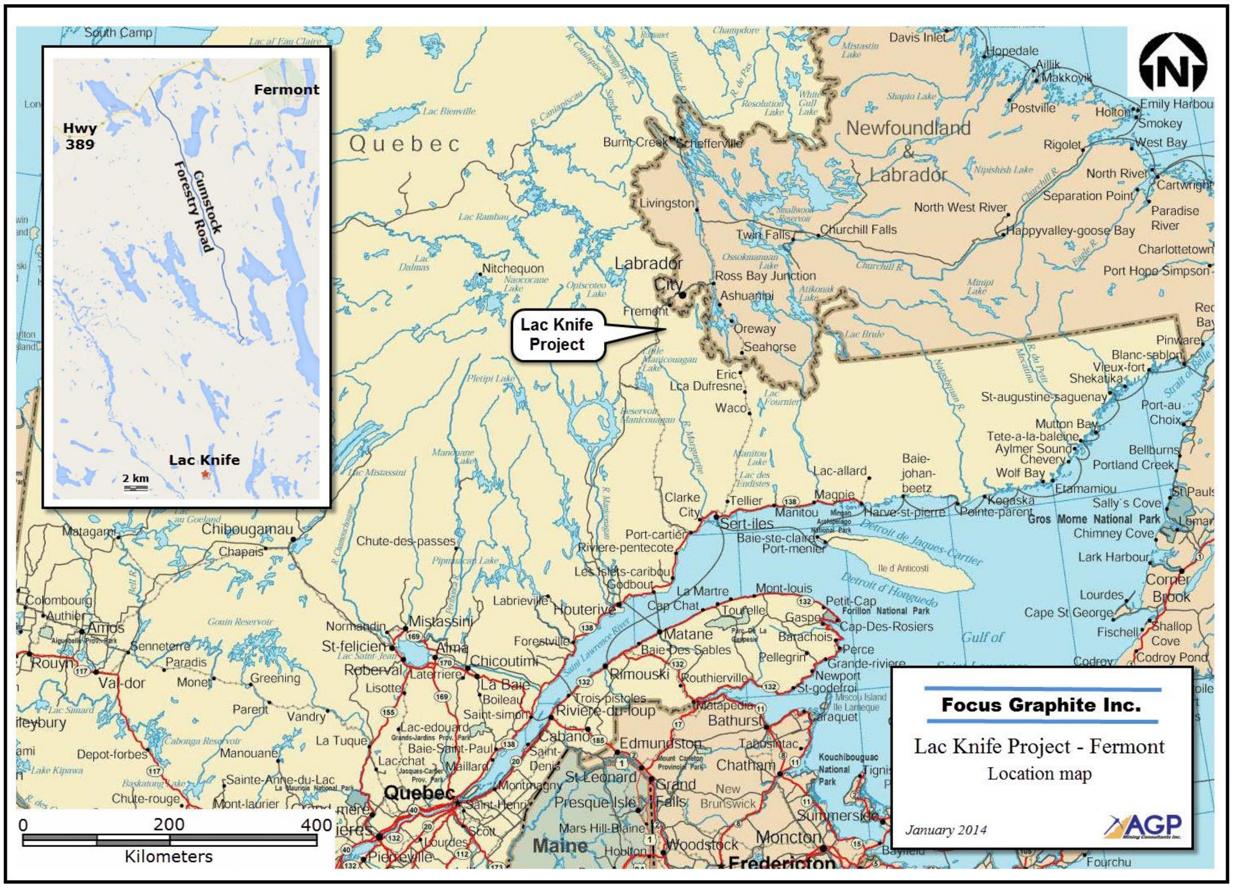
Permission is given to use portions of this Report to prepare advertising, press releases and publicity material, provided such advertising, press release and publicity material does not impose any additional obligations upon, or create liability for Met-Chem.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Project Location

The Lac Knife Project is situated in the Esmanville Township on NTS map sheet 23B11 south of town of Fermont, Quebec. The project site is accessible via a combination of paved and gravel surface road from Fermont. The temporary exploration camp which is located on the western shore of Lac Knife, is within 45 km driving distance from Fermont. Road distance from Montreal to Lac Knife is approximately 1,300 km by all-season Highway 389, approximately 500 km from Baie-Comeau to Fermont. The Project is centered at 52°33'N and 67°11'W and covers 2,986.31 ha (Figure 4.1).

Figure 4.1 – Location Map



4.2 Mining Titles

In the Province of Quebec, mining is principally regulated by *Ministère de l'Énergie et des Ressources naturelles du Québec* (the Ministry of Natural Resources and Energy of Quebec, **("MERN")**. The ownership and granting of mining titles is primarily governed by the Mining Act and related regulations. In Quebec, land surface rights are distinct property from mining rights.

On December 10, 2013 the National Assembly of Quebec adopted Bill 70. The most important change increase obligations for mining rights holder, enhanced powers for the Minister and Municipalities, and impose additional measures on prospecting and exploration activities with the goal to ensure environmental sustainability.

A mineral claim gives its holder the exclusive right to carry out normal activities connected to mineral exploration. The claim holder must notify the municipality and the landowner concerned within 60 days after registering the claim. They must also inform the municipality at least 30 days before performing any work.

A mining lease is required for the exploitation of the resource. It is granted to the holder of one or several claims upon proof (scoping and market study) of the existence of a workable deposit on the area covered by a group of claims and other requirements. A mining lease has an initial term of 20 years but may be renewed for three (3) additional periods of 10 (ten) years each.

The electronic map designation is the most common method of acquiring new claims from the MERN whereby an applicant makes an online selection of available pre-mapped claims administered by the Province of Quebec GESTIM claim management system. A claim has a term of two (2) years, which is renewable for additional periods of two (2) years any number of times, subject to performance of minimum exploration work on the claim and compliance with other requirements set forth by the Act.

The claims, mining leases, and concessions obtained from the MERN may be sold, transferred, hypothecated or otherwise encumbered without the MERN's consent. However, a release from the MERN is required for a vendor or a transferee to be released from its obligations and liabilities owing to the MERN.

Claim holders have an obligation to submit an annual report on the work that is performed. There is a 4.5 km radius within which the work credits accumulated for a claim can be used to renew other claims and a 12 year limit of the lifespan of the work credits with an increase in the amount to be paid to double the cost of the work that should have been performed for purposes of renewing the claim.

For the Lac Knife Project, the mining titles consist of a total of 57 claims covering 2,986.31 ha (Figure 4.2) which are 100% owned by Focus. All claims are located in the province of Québec, Canada and are registered as *Claim désigné sur carte* **("CDC")**. The boundaries are regulated by the Province of Québec, GESTIM claims management system and have not been surveyed by Focus.

At the time of writing this Report, the claims are registered under Focus Graphite Inc. as Quebec GESTIM claims client No. 90809. Figure 4.3 below presents the status of the property claims as reported on GESTIM (https://gestim.mines.gouv.qc.ca) on May 25, 2014. The expenditure credits to date total $ 2,978,121 applied against statutory work obligations of $ 142,500. Taxes of $ 7,239 are due on the expiry date of the claims.

There is no restriction related to the mineral tenure renewal however the claim block forms an enclave in the proposed *Rivière Moisie* aquatic reserve area.

Figure 4.2 – Claims Map

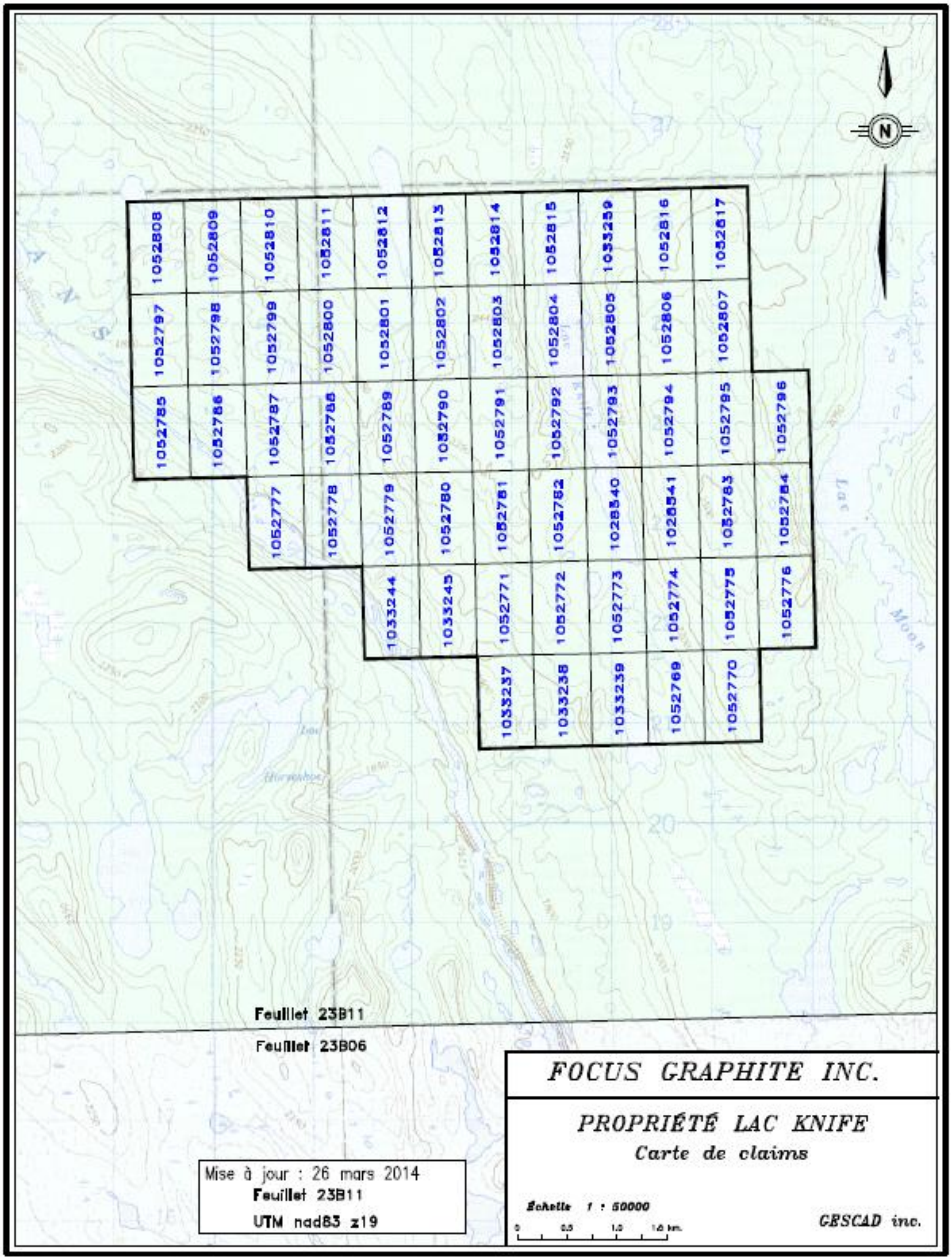


Figure 4.3 – Mineral Tenure of the Lac Knife Project

NTS Sheet	Tenure Type	Tenure Number	Status	Recording Date	Expiration Date	Area (ha)	Owner) (Percentage)
23B11	CDC	1028540	Active	2001-09-21	2015-09-20	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1028541	Active	2001-09-21	2015-09-20	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033237	Active	2001-11-01	2015-10-31	52.42	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033238	Active	2001-11-01	2015-10-31	52.42	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033239	Active	2001-11-01	2015-10-31	52.42	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033244	Active	2001-11-01	2015-10-31	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033245	Active	2001-11-01	2015-10-31	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1033259	Active	2001-11-01	2015-10-31	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052769	Active	2002-03-26	2015-12-11	52.42	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052770	Active	2002-03-26	2015-12-11	52.42	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052771	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052772	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052773	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052774	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052775	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052776	Active	2002-03-26	2015-12-11	52.41	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052777	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052778	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052779	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052780	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052781	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052782	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052783	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052784	Active	2002-03-26	2015-12-11	52.40	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052785	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052786	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052787	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052788	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052789	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052790	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052791	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052792	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052793	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052794	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052795	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052796	Active	2002-03-26	2015-12-11	52.39	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052797	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052798	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052799	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052800	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052801	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052802	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052803	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052804	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052805	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052806	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052807	Active	2002-03-26	2015-12-11	52.38	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052808	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052809	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052810	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052811	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052812	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052813	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052814	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052815	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052816	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %
23B11	CDC	1052817	Active	2002-03-26	2015-12-11	52.37	Focus Graphite inc. (90809) 100 %

AGP independently validated the data above provided by Focus against the information provided on the Quebec government web site and found the information is correct as of the date the Report was written.

4.3 Agreements

On August 10, 2010, Focus Metals Inc. (now Focus Graphite Corp.) announced that it had reached an agreement with a subsidiary of IAMGOLD Corporation **("IAMGOLD")**, to acquire the Lac Knife Graphite Project. Pursuant to the terms of the share purchase agreement by the parties, Focus acquired all of the issued and outstanding shares of 3765351 Canada Inc. a subsidiary of IAMGOLD and registered owner of the Property, in exchange for a cash payment, the issuance of common shares of the corporation, and the execution of an indemnity agreement in favour of IAMGOLD. Effective April 1, 2012, 3765351 Canada Inc. was liquidated and its assets were transferred to Focus. 3765351 Canada Inc. was formally dissolved effective September 30, 2012.

There is no royalty held by any party in regards to the Property.

4.4 Surface Rights

The Lac Knife project is bordered to the west by the *rivière aux Pékans* which discharge in the *rivière Moisie* 55 km downstream of the Lac Knife project area. Since the *rivière aux Pékans* is part of the *rivière Moisie* drainage basin, the river watershed is part of the proposed *rivière Moisie* aquatic reserve. Under the Minister's Order dated 18 March 2003 published in the Gazette officielle du Québec of 9 April 2003, the proposed *rivière Moisie* aquatic reserve was created to protect a large part of the river watershed. The western part of the Lac Knife claim block is located within the *rivière aux Pékans* watershed but is currently excluded from the proposed aquatic reserve area.

All activities carried on within the proposed *rivière Moisie* aquatic reserve are governed by the provisions of the Natural Heritage Conservation Act (R.S.Q., c. C-61.01). It is important to note that under the Natural Heritage Conservation Act, the main activities prohibited in an area designated as a proposed aquatic reserve includes mining, and gas or petroleum development. Also included is the prohibition of mining, gas or petroleum exploration, brine and underground reservoir exploration, prospecting, and digging or boring, where such activities necessitate stripping, the digging of trenches, excavation or deforestation. In the proposed *rivière Moisie* aquatic reserve, any type of activity likely to degrade the bed, banks or shores or to otherwise affect the integrity of any body of water or watercourse in the reserve is also prohibited.

At the time of writing this report, no restriction to exploration and development on the mining titles of the Lac Knife Project is expected.

4.5 Permits and Environmental Liability

For the exploration activities during the period between 2010 to 2014, Focus received land use permits from the *Ministère des Ressources Naturelles du Québec* and the permits for temporary camp construction from the MRC de Caniapiscau. Focus also obtained the required certificate of authorization from the *Ministère du Développement Durable, de l'Environnement, de la Faune et des Parcs* to drill three (3) geotechnical holes on a lake in the winter of 2013.

To the knowledge of Focus, there are no environmental liabilities pertaining to the Property. Section 20.0 will provide detailed information on environmental impacts and permitting requirements.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

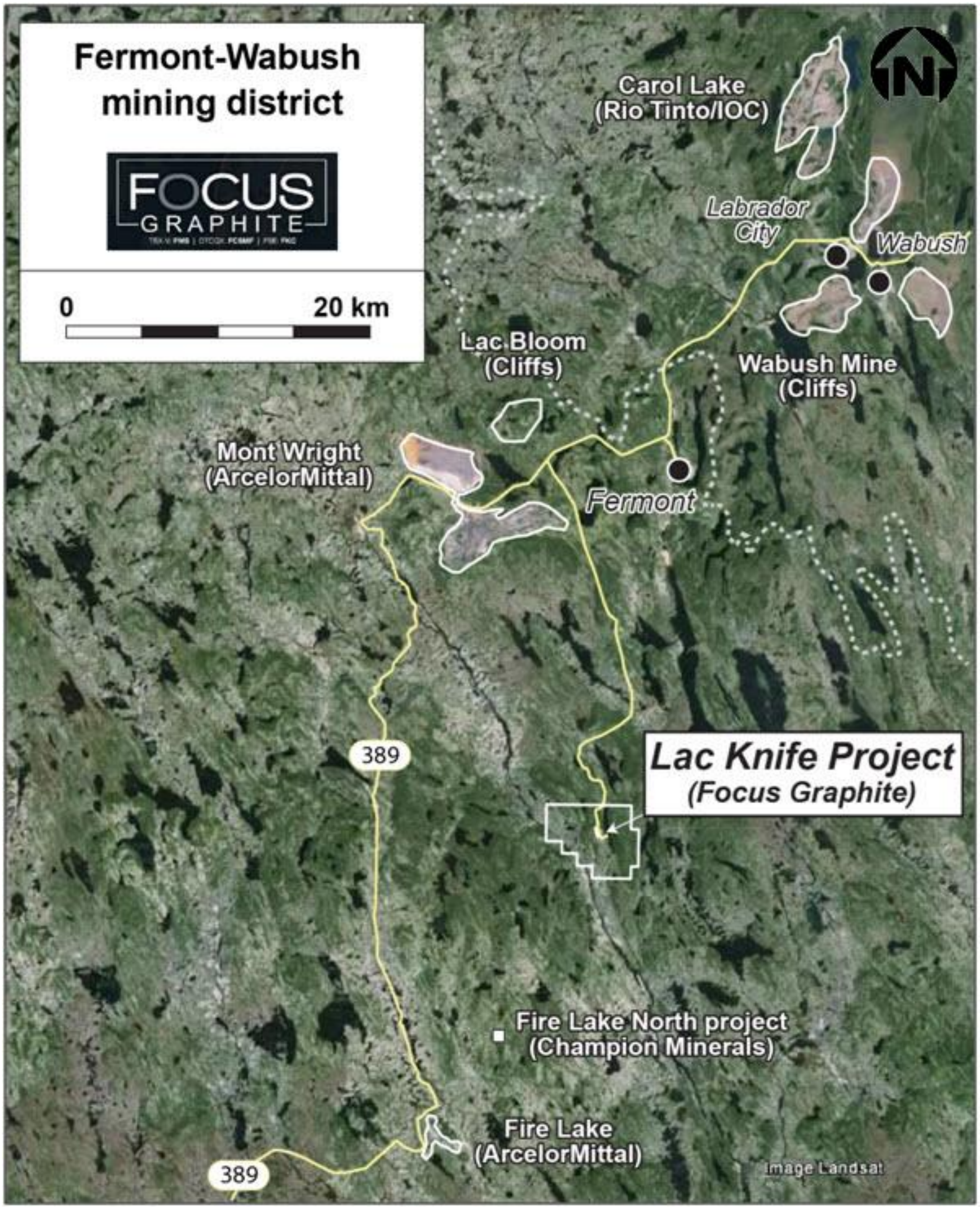
5.1 Accessibility

Highway 389 is the only all-season highway that connects the towns of Fermont and Baie-Comeau, Quebec to the south and with Labrador City and Wabush, Newfoundland to the north.

From road 389, the Lac Knife project is accessible by four wheel drive vehicle along a 32 km public dirt road that starts about 3.2 km east of the ArcelorMittal Mount Wright mine entrance (Figure 5.1).

This road, constructed in 1989 by Mazarin Inc., which is now maintained by the local snowmobile club during the winter season, gives access directly to the deposit area. Float planes can land on Lac Knife adjacent to the deposit and commercial air service is available to the Wabush Airport 32 km northeast of Fermont.

Figure 5.1 – Lac Knife Project Access Map



5.2 Climate

The climate in the region is typical of north-central Quebec. Winters are harsh, lasting approximately six (6) to seven (7) months, with heavy snow from December through April. Summers are generally cool and wet; however extended day-light enhances the summer work-day period. Table 5.1 shows average climate data from the town of

Fermont. Early and late-winter conditions are acceptable for ground geophysical surveys and drilling operations. Mines in the area operate all year round.

Table 5.1 – Climate Data (Fermont Area)

Month	Daily Temperature (°C)			Precipitation		
	Average	Minimum	Maximum	Rainfall (mm)	Snowfall (cm)	Total (mm)
January	-23.2	-29.4	-17	1.1	50.1	51.2
February	-20.6	-27.4	-13.8	0.5	30.9	31.4
March	-14	-20.7	-7.3	0.9	42	42.8
April	-3.9	-9.8	2	13.8	26.7	40.5
May	3.1	-2.5	8.7	35.3	11.3	46.6
June	9.6	3.5	15.6	86.6	1.2	87.7
July	13.2	7.5	19	118.7	0	118.7
August	12.2	6.7	17.8	103.7	0	103.7
September	6.2	1.6	10.8	102.9	3	106
October	-0.5	-4.4	3.5	43.3	23.9	67.2
November	-8.7	-13	-4.4	6.8	51.8	58.6
December	-18.7	-24.4	-13.1	1.5	50.7	52.2
Year	-3.8	-9.4	1.8	515	291.5	806.5

5.3 Local Resources and Infrastructure

Since the start of iron ore mining at Mont-Wright approximately 50 years ago, significant infrastructure has been installed to service the exploitation of four (4) iron mines in the region: Mont-Wright (ArcelorMittal Minerals Canada), Carol Mine (Iron Ore Company of Canada IOCC), Wabush Mine and Lac Bloom Mine (Cliffs Natural Resources).

Fermont, Quebec is the closest municipality with approximately 3,200 inhabitants. Including the Towns of Labrador City and Wabush in Labrador, located approximately 30 km away, the regional population is approximately 15,000. These municipalities have the infrastructure to provide services for accommodations, community services, a skilled mining labour force, as well as mining contractors and related services due to the significantly smaller scale of operation planned for Lac Knife compared to the iron ore mines in the area. ArcelorMittal's Mont Wright Mine recently expanded and is being commissioned for 24 million tonnes of concentrate per year whereas the planned production for Lac Knife is 44,300 tonnes of concentrate per year.

Several truck transportation companies regularly service the region from Baie-Comeau. The Wabush airport is the nearest point for scheduled and charter flights from Sept-Îles, Quebec, Montreal and Newfoundland-Labrador destinations with four scheduled airlines operating daily flights.

Two (2) railway systems service the region. The Quebec Cartier Railway Company is a privately-owned and operated railroad that links ArcelorMittal's Mont-Wright facility located approximately 15 km away from the Lac Knife Project to their Port Cartier pellet plant and port on the shore of the St. Lawrence River (416 km). The Quebec North Shore and Labrador ("QNS&L") Railway Co., owned by IOCC is a common-carrier railroad that links Labrador City located approximately 30 km to the north from the Project to the Port of Sept-Îles (360 km).

The Hydro-Quebec main power line to Fermont servicing the town and the local iron mines passes less than 5 km northeast of the deposit area.

The Project's infrastructure is discussed in detail in Section 18 of this report.

5.4 Physiography

Most of the Lac Knife area lies within a rolling glacial peneplain at approximately 670 m above sea level with local relief in the order of 75 m. More specifically, the deposit is situated on the north-trending ridge approximately 200 m west of Lac Knife.

Glaciation left a veneer of silt-sand and sand-cobble-boulder moraine till covering the local bedrock. Much of the glacial cover is lacking gravel in the region. The average overburden depth estimated from both Mazarin and Focus drill holes and trenches in the deposit area average 6.2 m with a standard deviation of 4.8 m. Glacial deposits dominate the local topography and control most of the surface drainage. Lakes, swamps and grassy meadows fill bedrock and drift depressions.

Most of the area on the Project and surrounding terrain is treed with moss and grass-cover. The intact forest includes the typical boreal 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.

6.0 HISTORY

6.1 Prior and Current Ownership

Interest in the discovery of a graphite deposit increased in the 1980s due to the price increase for natural graphite flakes. In 1987, with the aim of discovering other metallic or industrial prospects other than iron, *La Société d'Exploration Minière Mazarin Inc.* **("Mazarin")** and *Le Fonds d'exploration minière du Nouveau Québec* **("*Le Fonds*")** signed an exploration agreement wherein Mazarin retained 100% of the mineral rights and *Le Fonds* retained a 10% net profit royalty. Mazarin staked the Lac Knife Project in 1987 and kept the claims in good standing until 2003 when the Project was acquired by Cambior Inc.

In December 1989, Mazarin and Princetown Mining Corporation signed an agreement to put the deposit into production. At the end of February 1990, Princetown withdrew from the Project. In August 1990, Cambior signed a joint venture for an equal partnership with Mazarin for the Lac Knife Project. Cambior retained Magloire Bérubé to review the original Mazarin mineral resource. In 1991, Mazarin hoped to bring the deposit in production, but the economy went into recession and graphite prices declined.

In 2000, interest in the Lac Knife Project increased as the graphite market was emerging for hydrogen fuel cells and other uses. In May 2000 UCAR Graph-Tech and Mazarin signed an agreement with the goal of starting production in 2004. However, the graphite market again declined due to an increased supply from Chinese producers and the Project did not proceed. In December 2003, Mazarin spun off its niobium, dolomite and graphite (Lac Knife) assets into Sequoia Minerals. Five months later, Cambior acquired Sequoia Minerals mainly for the Niobec Mine located in Chicoutimi, Quebec. In 2006, IAMGOLD purchased Cambior which included the Lac Knife asset.

IAMGOLD sold its 100% interest in the Lac Knife Project to Focus on October 5, 2010.

6.2 Summary of Historical Exploration Work

Table 6.1 summarizes the exploration work on the Lac Knife Project. Historical resources estimates pre-dating the 2012, Roche estimate quoted in the table are historic in nature; and used categories other than the ones set-out in the National Instrument 43-101 Standard of Disclosures for Mineral Projects or modern Mineral Resource estimation practices, and should not be relied upon. The Qualified Person has not done sufficient work to classify them as current mineral resources or mineral reserves and Focus Graphite is not treating the historical estimates as current mineral resources or mineral reserves.

Table 6.1 – Summary of Historical Exploration Work on the Lac Knife Property

Year	Company	Type of work	Summary Result
1959	Quebec Ministry of Energy and Resources.	Regional Geological Mapping	D.L. Murphy discovered the Lac Knife Showing
1982	Le Fonds d'Exploration Minière du Nouveau-Québec ("Le Fonds")	Geophysical surveys (Mag, EM-VLF)	East of Lac Knife
		Geological Mapping	
1986	Le Fonds/Mazarin	Prospecting	Boulder uncovered with 15% graphite
1987	Mazarin/Le Fonds	Prospecting	Lac Knife showing is found again. The area is prospected in detail
		Geological Mapping	
		Geophysical survey (EM-VLF)	
		Trench	Channel sample from a trench returned 13.08% Cg over 5 meters
1988	Mazarin/Le Fonds	Geological Mapping	The Lac Knife showing was extended over a length of 120 metres with an average width of 8 metres. The best trench returned 16.5% Cg over a sample length of 25 m
		Geophysical survey (EM-VLF)	
		Mechanical stripping	
1989	Mazarin	Diamond drill campaign	93 infill holes for a total of 7,367 metres; 6 exploration holes for a total of 293 metres. Deposit is defined over 500 meters in strike length.
		Geophysical survey (Max-Min and MAG)	Over general Property grid and Lac Knife showing grid
		Bulk samples of 30 tonnes collected from three sites (during winter)	First pilot plant run at Centre de Recherches Minérales (CRM)
		Bulk samples of 210 tonnes from two sites (summer)	Second pilot plant run at Centre de Recherches Minérales (CRM)
		Historical estimate by Mazarin under Roche Consulting supervision.	Proven and Probable reserve of 4.9 million tonnes grading 17.27% Cg with a Possible reserve of 3.6 million tonnes grading 16% Cg
		Pre-Feasibility Study (Roche)	
		Feasibility Study (Roche and Davy), incorporating a revised Historical estimate using a lower density	Proven and Probable reserves of 4.7 million tonnes grading 17.27% Cg with a Possible reserves of 3.4 million tonnes grading 16 % Cg
1990	Mazarin/ Cambior	Historical estimate (Magloire Bérubé). Same parameters as the Roche and Davy estimate with a reduced area of	Proven and Probable reserves of 3.9 million tonnes grading 17.57% Cg with a Possible resource of

Year	Company	Type of work	Summary Result
		influence.	1.6 million tonnes grading 15.9% Cg
1991	Mazarin/ Cambior	Feasibility Study (Mazarin/Cambior with consultants)	
2000	Mazarin/UCAR Graph-Tech	Surveying	New base map
		Stripping	Stripping of three (3) selected site
2001	Mazarin/UCAR Graph-Tech	Bulk samples totaling 3,366 tonnes	Bulk samples from two (2) selected sites
2008 2009	IAMGOLD	Relocating bulk sample material back to the Lac Knife site and rehabilitation of the site	
2010	Focus	Acquisition of the Project	

The Lac Knife graphite showing was discovered by D.L Murphy during a geological survey performed by the Quebec Ministry of Energy and Resources. The showing was described as a massive strip of graphite, one meter thick. Between 1959 and 1960 only mapping work was done (Murphy, 1960).

In 1982, *Le Fonds* conducted a preliminary geophysical survey and a prospecting campaign on the east side of the Lac Knife Project.

In 1986, *Le Fonds* retained Mazarin to manage the exploration field work for the Fermont project, a project that targeted minerals other than iron in the aim to diversify the Fermont area economy. In the same year, Mazarin began their exploration work by a prospecting campaign and managed to locate the 1959 Murphy graphite showing west of Lac Knife. Only one (1) boulder containing 15% graphite was found.

In 1987, Mazarin/*Le Fonds* continued exploration activities under the supervision of Explograph Inc., a consultant that conducted more extensive geological mapping west of the Lac Knife Project. The historic showing was located and a ground VLF-EM geophysical survey was conducted over the showing area. At the end of the summer, a second detailed ground VLF-EM geophysical survey was realized and some trenches tested the best geophysical anomalies. A channel sample of 5 m in length from one (1) trench graded 13.08% Cg.

In 1988, Mazarin followed up on the exploration work over the Lac Knife showing area but also over all of the new 1987 staked claims (Lac Knife Project). Completed work included; line cutting (2.3 line-km) and grid chaining (95 line-km), geological mapping of the eastern part of the claim block, VLF-EM survey (Sabre Model 27 instrument) over all the claim block and the Lac Knife showing, stripping and trenching over the showing area. The results permitted to outline the Lac Knife showing over 120 m of strike length. The best trench returned an intersection of 16.5% Cg over 25 m.

From January to April 1989, Mazarin completed the cutting of a grid line and a topographic survey in the Lac Knife showing area in order to outline the first drilling program at the Lac Knife Property. A description of the 99 holes drilling program (7,660 m) is provided in Section 10. In support of the drilling program, a ground Max-Min geophysical survey (Apex Max-Min II instrument) was conducted over the general grid project area (23,975 m) and the grid that covered the showing area (15,650 m) to help to locate the drill holes with more precision. A bulk sample of the Lac Knife showing came from three different sites. The 30 t sample was expedited to the *Centre de Recherches Minérales* of Quebec City in about 100 45-gallon plastic barrels. In the summer 1989, a second bulk sample of 210 tonnes was sampled from two (2) blasted sites in the aim to conduct a second pilot plant run at CRM.

Following the drilling campaign at Lac Knife, Mazarin completed in May 1989 an initial Resource Estimate under Roche's supervision. A Prefeasibility Study realized by Roche followed in July and a complete Feasibility Study was completed by Roche and Davy in October of the same year. The first era of work at Lac Knife ended with an update of the Resource Estimate and the Feasibility Study by Mazarin/Cambior in 1990-1991.

The second phase of exploration work at Lac Knife was performed between the years 2000-2001. In 2000, Mazarin/UCAR Graph-Tech mandated Explograph Inc. to prepare the site for bulk sampling that was planned for a pilot plant scale run in 2001. In July and August 2000, a site reconnaissance was performed by Explograph Inc. and Strathcona Mineral Services (mandated by UCAR Graph-Tech to monitor the bulk sampling procedure), followed by a survey of the grid lines over the deposit and overburden stripping of selected sites with a tractor. The survey of the grid lines over the deposit was carried out by Jean-Marc Tremblay, using a Sokkisha 72C Total Station. The objective of the survey was to reposition and identify the stations along the cut grid lines and to define the location and elevations of the stations in relation to established bench marks (labelled HQ AG 1331 91KG282S and owned by the provincial government and RAYNALD BABIN AG 1449 9309). The measurements of the grid survey 2000 were used to produce a new base map from which the topography, overburden thickness and various exploration work was re-compiled. The overburden was removed over three (3) selected sites with a D8R tractor equipped with a ripper in preparation for the extraction of a sample in 2001.

From the end of June to the end of August 2001, a bulk sampling program was carried out and produced a total of 3,366 t of mineralized rock from the Lac Knife graphite deposit. The material was extracted from two (2) sites, site 2000-1 (1,705 t) located in the northern part of the deposit and, site 2000-2 (1,661 t) in the southern part. The mineralized rock from both sites was transported by truck to the O'Connell quarry north of Fermont to be crushed and was stored on distinct concrete platforms to prevent contamination. The crushed mineralized rock was then stored on concrete pads in the O'Connell quarry and in the Lesage Transport facilities in Fermont. Before drilling and blasting the two (2) sites, detailed geological mapping of the uncovered zones were produced by Strathcona Mineral Services which is very helpful in understanding the folded geometry and structural geology of the deposit.

Following this project period, the graphite market declined. The crushed mineralized stock piles from the bulk sample stayed at the storage sites until 2008 when IAMGOLD proceeded to rehabilitate the Lac Knife site and used the bulk sample material to re-fill the 2001 blasted site number 2. In 2009, IAMGOLD finalized the rehabilitation of both sites 1 and 2.

7.0 GEOLOGY SETTINGS AND MINERALIZATION

7.1 Regional Geology

The graphite-rich Menihek Formation paragneiss and paraschist and the Sokoman Iron Formation of the Gagnon Group in the Grenville Province were derived from Paleoproterozoic Labrador Trough basin sediments.

In the Labrador Trough, original sedimentary textures show that the Iron Formation lithological units were deposited principally as chemical sediments with high iron and silica (chert) and characteristically low aluminum in a series of linked basins. Deposition probably was enhanced by biological activity. There is also evidence for clastic deposition and the Formation of ferruginous oolites. Global iron deposition is related to several periods of biogenic oxygen increases in the atmosphere between 3.5 Ga and 1.7 Ga, and the Labrador Trough and Minnesota-Michigan iron sediments were both deposited between events that were estimated to be between1.88 Ga and 1.7 Ga.

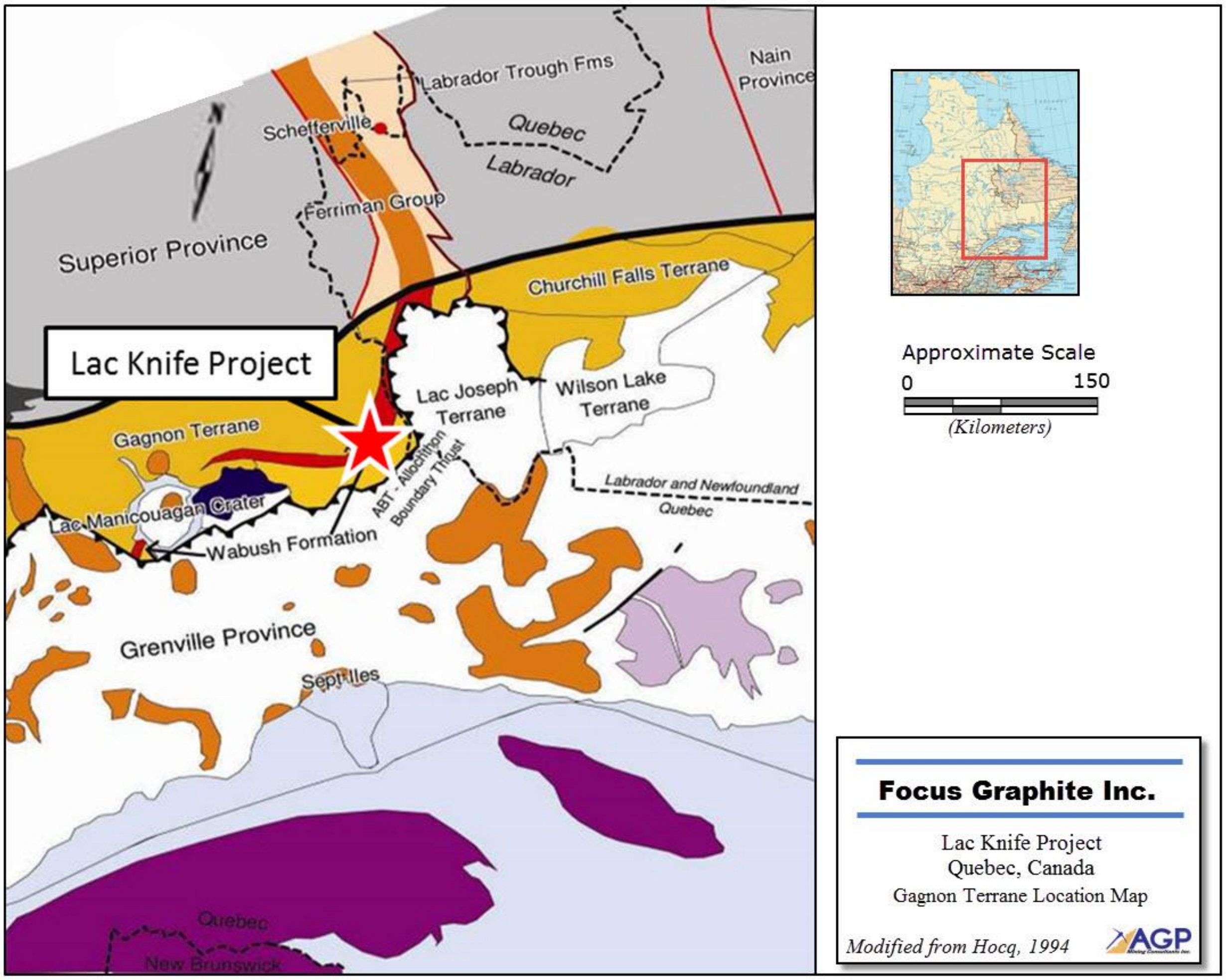
Clark and Wares (2005) described the current synthesis of the Labrador Trough lithostratigraphy. The Trough extends some 1800 km from the northern shores of Québec south and southwest with the original Labrador Trough rocks being the low-metamorphic component north of the Grenville Front and the metamorphosed equivalents southwest of the Front. The formational nomenclature of the southwest Labrador Trough geology is derived from the less-metamorphosed Labrador Trough Formations. These units continue across the Grenville Front and their general relationships continue in the high metamorphic grade environment of the southern Labrador Trough.

The Grenville orogeny (1.16 – 1.13 Ga; Emslie and Hunt, 1989) compressed the southwestern portion of the Labrador Trough into what is now known as the Gagnon Terrane within the Grenville Province (Figure 7.1). The deformation superimposed medium to high metamorphic facies onto the older deformed and metamorphosed Labrador Trough geology.

Grenvillian rocks are subdivided into a set of allochthonous terranes arranged in the form of a south-easterly dipping thrust stack emplaced over the southern margin of the Archean age Superior Province. Rock units within the thrust stack, range in age from Archean to late Mesoproterozoic, with older units occupying the lower levels of the thrust stack and the younger units located at the higher levels of the thrust stack further to the southeast. The first-order subdivision of the Grenville involves recognition of:

- An external "parautochthonous" belt composed of Archean, Paleoproterozoic, and Mesoproterozoic rocks representing the southern margin of Laurentia during the Mesoproterozoic;
- An "allochthonous polycyclic" belt composed of transported Paleoproterozoic and Mesoproterozoic rocks separated from the Parautochthonous belt by the Allochthon Boundary Thrust **("ABT")**;
- An "allochthonous monocyclic" belt formed of rocks largely of Mesoproterozoic age.

Figure 7.1 – Gagnon Terrane Location Map



The Gagnon Terrane where the Lac Knife Project is located has two (2) lithostratigraphic assemblages with distinct ages (Hocq, 1994): older migmatitic paragneiss and younger mixed-lithology metasedimentary rocks. The Archean Ashuanipi migmatitic paragneiss forms the boundary against the Grenville fault in the Gagnon Terrane to the base of the Ferriman Group. The younger Ferriman Group extends from the Grenville Front to the area located southwest of the Manicouagan Reservoir.

The Gagnon Group stratigraphy is correlated with the Ferriman Group stratigraphy of the Labrador Trough (Figure 7.2). The Ferriman Group was metamorphosed into several formations within the Gagnon Group, which is the older stratigraphical terms used prior to Clark & Wares' 2005 study. The Ferriman/Gagnon Groups include from oldest to youngest; the Denault reefal dolomite/ Duley marble formation overlain by the Wishart/Wapussakatoo arenaceous and cherty quartzite and quartz-rich gneisses near the top of the formation and are overlain by the Ruth Formation of ferruginous mudstones and cherts. The Sokoman/Wabush Iron Formation with its chemically derived oxide-, silicate-, and carbonate-rich facies are the most studied component. The Menihek

Formation mudstone/mica schist is derived from later uplift and increasing detrital sedimentation within basins. The basal units include the last remnants of the Sokoman chemical sedimentary periods and the start of the sediments in the basins that contain the graphite-rich horizons of interest; it becomes more uniform above the Sokoman-Menihek contact. The lower contact of the Nault Formation that hosts the graphite deposits in the Gagnon Terrane is located above the upper contact of the Wabush Formation.

Figure 7.2 – Correlation of Labrador Trough and Equivalent Grenville Stratigraphy[2]

Labrador Trough		Grenville Province	
Paleoproterozoic	<2.06 Ga to 1.89 Ga	Neoproterozoic	(1.19 Ga to 1.12 Ga
KANIAPISKAU SUPERGROUP			
Choak & Tamarack River Formations		No known equivalent Grenville Formations	
CYCLE 3 STARTS			
---------- unconformity ----------			
FERRIMAN GROUP		GAGNON GROUP	
Basalt dykes/sills	1.884 Ga	"Hornblende-biotite-garnet" gneiss (intrudes & caps Menihek Fm)	
Menihek Fm flysch turbidite		Nault Fm quartz-biotite ± garnet paragneiss ± Graphite = *"Upper Paragneiss" of Clarke (1977)*	
Sokoman Fm iron formation	1.879 Ga	Wabush Fm iron formation, various oxide-carbonate-silicate facies (*date from felsic dykesin Lab Trough*)	
Ruth Fm ferruginous mudstone, chert		Basal Silicate Iron Fm – in Gagnon iron deposits	
Wishart Fm arenitic quartzite		Wapussakatoo Fm quartzite and "dirty" quartzite w/ variable mica and calcite	
CYCLE 2 STARTS			
---------- unconformity ----------			
CYCLE 1 ENDS			
ATTIKAMAGEN GROUP			
Denault Fm dolomite, marble	< 2.06 Ga	Duley Fm marble with quartz, calcsilicate	
---------- unconformity ----------			
Archean			
Ashuanipi Gneiss	2.17-2.14 Ga	Katsao Fm migmatic paragneiss	

Of the three (3) Grenville deformational events, the two (2) major ones, being the D_1 and D_2 deformation events, dominate the formational interference folding patterns that resulted in several large polyphase anticlinoria throughout the Gagnon Terrane. The D_1

[2] Deposition ages of Gagnon Group units are for the Labrador Trough Formation equivalents (Clark and Wares 2005)

event formed the F_1 schistosity during the early part of the Grenville orogeny. The D_2 event deformed the D_1 schistosity due to high ductility caused by increased pressure and temperatures at depth during the peak or slightly post-peak of the orogenic deformational event and intense folding, but it did not generate a second schistosity.

The older D_1 deformational event compressed the rocks from the south-southeast, direction probably marking the onset of the Grenville orogeny. It broadly controls the Sokoman-Menihek Formation spatial distribution. The fold pattern shows a bimodal style. The dominant pattern has narrow, linear fold belts along the margins of broad anticlinoria (a series of anticlines and synclines). The fold belts are tightly folded with steeply dipping limbs. Widths tend to be narrow in proportion to strike length. The fold belt extends several hundred kilometres in a generally west-southwest trend from the Grenville Front north of Wabush, Newfoundland to the southwest side of Lac Manicouagan. The second and less common style of folding occurs within the core of the anticlinorium. There, it occurs as relict broad areas of shallow dipping Iron Formation stratas often with sharply folded contacts. Examples of the first style of folding are Mont Reed, Mont Wright, Lac Bloom, and the Carol Lake orebodies. The second type of folding is characterized by the Lac Jeannine and Fire Lake orebodies, and the Lac Olga, Peppler and Lamêlée deposits. Clarke (1977) notes that the Sokoman Formation often is more intensely folded than the basement paragneissic rocks. The reason may be that the Sokoman Formation and the graphite rich marker horizons were more distinctly ductile as rock units during deformation and these horizons are more continuous and easier to outline in the field, while the Katsao paragneiss and Denault marble lack marker horizons used to map and document folds at the semi-regional scale.

The younger D_2 event compressed the D_1 folds from the east-northeast. They form steep, tight folds with vertical to steeply northeasterly dipping fold limbs. The complex interference fold pattern is expressed on both regional and local deposit scales. On the flanks of the anticlinoria, D_2 folds are probably as deep as the D_1 set. In the core of the anticlinorium, however, they appear to be shallower. This is expressed by the steeply folded flanks of the Lamêlée, Fire Lake, Peppler Lake, and Lac Bloom iron ore deposits that did not significantly fold the central cores of these open, bowl-shaped deposits. This feature may be explained by uplifted cores of the anticlinorium.

The interference patterns of D_1 and D_2 are variable across the Gagnon Terrane. To the centre and west, four separate anticlinoria dominated by D_2 folding occur from the southwest edge of the Gagnon Group to the Carol Lake deposit in Labrador. To the east, the increased D_2 compressional event leads to more thrust faulting and steeply dipping folds (Van Gool et al., 2008).

The Project is located in the western part of the easternmost anticlinorium that hosts the Mont-Wright and Kami iron deposits. The thrust movement also appears to have local dextral transpresssional movement combined with concomitant shearing and displacement.

The Grenville Province rocks characteristically have been subjected to amphibolite and granulite facies metamorphism in the regional area of Lac Knife and Mont-Wright.

The principal economic commodity in the region is iron oxide deposits within the Gagnon Group; the meta-sedimentary graphite rich horizons occur more specifically near the base of the Menihek Formation above the Sokoman Iron Formation.

7.2 Local Geology

The property is underlain principally by the mica-quartz-feldspar paragneiss and schist of the Nault Formation with graphite bands scattered throughout. Mineralogy locally includes garnet and kyanite plus minor bands of calcsilicate (calcite-tremolite-diopside). The host rocks of the graphitic zones are similar with the only significant variable being the graphite content (Bonneau and Raby, 1990) and variations in quantity of calcsilicate bands (Birkett, et al., 1989).

The schist forms where the micas constitute a relatively high portion of the rock relative to associated quartz, feldspar and other prismatic minerals. The incipient gneissic texture forms with an increase in prismatic minerals, but it does not form the full banded gneissic texture (Birkett et al, 1989). There are few outcrops present, and this is based on regional mapping by Murphy (1960) and property scale mapping by Mazarin (1989). Birkett noted two types of gneiss: silicate and calcsilicate. The silicate type contains more Si and Al and less Ca as expressed by the proportions of quartz, K-feldspar > Ca-feldspar, mica, garnet, and kyanite. The calcsilicate type bands are marked by the presence of lower Si (less quartz and K-feldspar) and higher Ca expressed by the presence of minerals such as scapolite, tremolite, diopside, clinozoisite, calcite, and anorthosite plagioclase feldspar.

Murphy interpreted a complexly folded, Y-shaped syncline with one arm trending north-northwest, the second striking west-northwest and the third striking south to south-southeast. The syncline boundary is marked by the contact with the underlying iron formation with variable iron-mineral facies.

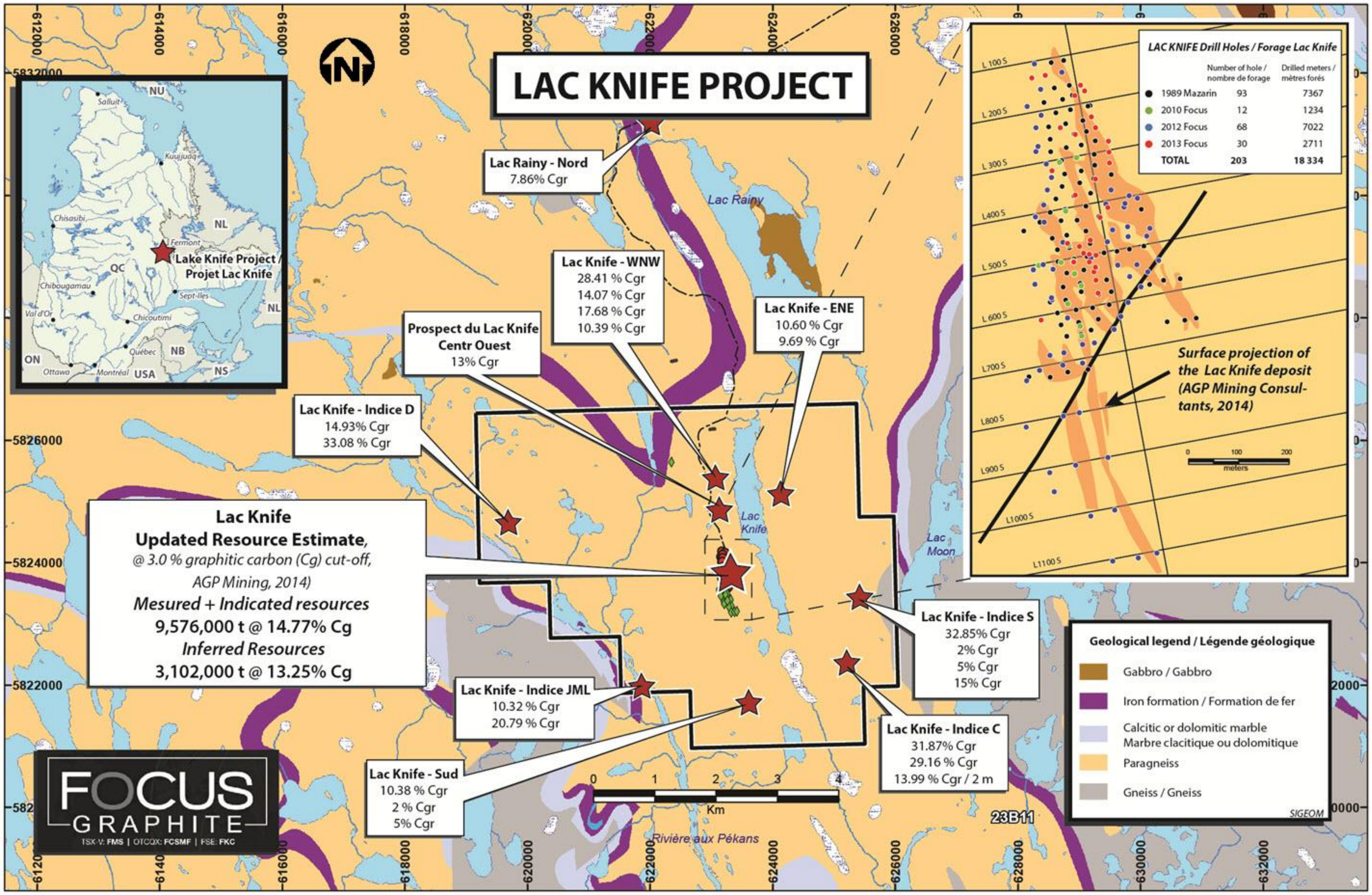
The Wabush Formation that bounds the north and west part of the Nault Formation appear to be quartz-Fe-carbonate facies since it does not have a magnetic signature on airborne surveys. The Wabush unit located east of the project contains some magnetite in Fe-carbonate and Fe-silicate-rich units. The third, complexly folded Sokoman Formation horizon located southwest of the *Rivière aux Pékans* is a mixture of non-oxide and oxide facies of the more typical Wabush iron formation with the Duley Formation marble lying beneath it to the west.

The drill grid area west of Lac Knife lies on the north-trending eastern limb of a regional fold containing the Wabush Iron Formation located in the northern part of the project area. Mazarin prospected the project area and discovered other graphite showings, suggesting the potential for future graphite discoveries (Figure 7.3).

Previous interpretations of the detailed drilling by Mazarin showed a number of closed folds that formed part of their initial resource estimation in 1989. The present interpretation recognizes the previous fold patterns of the graphitic rocks. In general, the mineralized envelope forms open to tight overturned folds that strike ~N175° and plunge gently at ~20-25° to the south-southeast with axial plans that dip to the west at about ~45-55°. One fault that strikes N029° with a ~55° south easterly dip has been interpreted from the drill hole database (Figure 7.3).

Mineral assemblages related with the Lac Knife host rocks include quartz + feldspath (orthose or plagioclase) + muscovite+kyanite for the silicate rock type and calcite + tremolite + diopside for the calcsilicate rock type (Tremblay, 2014). These metamorphic assemblages suggest metamorphic conditions associated to the upper amphibolite transitional to lower granulite facies (650-700°C at 4-5 kb).

Figure 7.3 – Lac Knife Project Geological Map



7.3 Mineralization

Graphite occurs within the Nault Formation as a paragneiss which is a metamorphic equivalent of the graphitic black shales in the Labrador Trough located further north. There is no indication of secondary hydrothermal or other transported, post-metamorphic deposition. The present distribution and crystallinity of the graphite units are due to the Grenville high grade metamorphic events. However, deformation favoured the thickening of graphitic horizons by transposition towards the fold noses.

Birkett et al. examined 28 core samples for petrographic, electron-microscope and chemical studies (Birkett et al., 1989). They noted that the host rocks of the graphite deposit are of the silicate or calcsilicate categories. Tremblay (2014) examined three samples from the deposit and confirmed that the silicate type host rock correlated more with the massive and low-grade mineralization whereas the calcsilicate type is more associated with semi-massive mineralization. Mazarin geologists logged the diopside and minor calcite, but did not record the other pale coloured, low-Fe calcsilicates, which can be difficult to identify visually without previous experience or microscopic determination. Thus the distinction of host-rock lithologies observed in the Birkett study was not reliably reflected in the core logs. Birkett et al. (1989) also noted that within a given host rock, the presence/quantity of graphite was the only variable; no other mineral proportions changed with respect to graphite presence/content. These observations have been confirmed since then by Focus and IOS Service Géoscientifiques **("IOS")** geologists (Block and Gagné, 2014).

Birkett et al. (1989) also noted that the amount of total iron in whole rock analyses was similar to the silicate rocks; the calcsilicate mineralogy suggests that, likely during metamorphism, the iron migrated to the original sulphides, changing pyrrhotite to pyrite, and deriving low-Fe calcsilicate minerals. Another point was that vanadium (V) was enriched in the phlogopite mica near the graphite, which is consistent with a sedimentary origin for the carbon, since V is commonly scavenged by carbon in other sedimentary carbon-rich deposits.

The margins of the graphite lenses and bands are sharp to rapid grade changes with background graphite on the order of <1% graphite increasing to ~5% graphite near the lense contacts. Grades within the lenses range from 5-60% graphite with thin waste bands included. The lenses form continuous elongated horizons from 90 to over 300 m in length based on the limited geometry of the target horizons tested to date. The depth of the graphite rich lenses range from 40 to over 120 m on the down dip plane, while thicknesses of individual graphite rich horizons range from < 1.5 m to up to 70 m in the fold noses (typically 20-30 m thick).

The mineralization has been categorized by Focus into 3 types: massive, semi-massive and low grade mineralization categories (Table 7.1). All three types are intercalated within the mineralized envelope (repetition of several massive horizons with semi-massive and low grade type horizons) with both edges of the deposit characterized by low grade type mineralization. The massive type forms metric scale bands (up to 25 m thick) that contain more than 60% graphite with up to 15-20% sulphides (Figure 7.4). The semi-massive type, contains 20 to 60 percent graphite, and is characterized by metric to decametric horizons intercalated with the massive and low grade types (Figure 7.4). The low grade type (5-20% graphite; Figure 7.4) forms horizons a few meters thick that are intercalated with the two previous mineralization types and is present on both eastern and western edges of the deposit forming a zone of 5-10 m of transition between deposit and barren host rocks. Transition from the low grade type to the barren quartzofeldspathic paragneiss is often less than 1 m.

Table 7.1 – Lac Knife Mineralization Types

Mineralization Types	Description	Visual graphite content	Approximate graphitic carbon equivalent content
Massive	Almost just graphite and sulfides (up to 15-20%) without host rock	>60% graphite	> 20% Cg
Semi-massive	Banded-type (massive decimetric to decametric bands within low grade or barren host rock)	20-60% graphite	10-20% Cg
	Speckled or Breccia-type (graphite and host rock)	20-60% graphite	
Low grade	Disseminated isolated graphite flakes in the host rock	5-20% graphite	2-10% Cg
Host rock (barren)	Disseminated	Trace of graphite	0-1% Cg

Graphite occurs as flakes ranging from 2 mm to very fine grain size in hand sample. Commonly the coarser flakes appear to be associated with Cg grades below ~25% and finer flakes above that. The industrial term for coarse flake is 0.2 mm (200 microns), so that even "fine-grained" to the eye can still provide high quality natural flake graphite.

Birkett, et al. (1989) and Tremblay (2014) observed that the graphite occurs in four modes:

a) Independent grains with coarse to medium flakes > 0.7 mm. These are disseminated flakes up to 2 mm in size and rosette clusters up to 9 mm in size.

b) Independent grains in the fine grained category (<0.7 mm) includes the higher grade graphite with ribbons of coarsely crystalline graphite.

c) Graphite inclusions in gangue minerals as scattered fine grains, may be relicts of the original, nonmetamorphosed graphite protected from metamorphic recrystallization.

d) Graphite inclusion interlayered with mica, mainly muscovite.

Figure 7.4 – Mineralization Types Photographs

The independent coarse grains (Type 1) are observed within the massive, semi-massive and low grade types of mineralization. Low grade mineralization contains only large isolated flakes. Fine flakes (Type 2) can be found in semi-massive mineralization but are largely associated with massive mineralization. Fine flakes of Type 3 represent only a weak proportion of the overall flake categories and Type 4 can be observed within all 3 types of mineralization associated with schistose rocks.

8.0 DEPOSIT TYPE

According to the British Colombia Ministry of Energy and Mines Mineral Deposit Classification, graphite deposits are within the metamorphic hosted group of deposits and can occur as:

- Microcrystalline Graphite (BC Deposit # P03)
- Crystalline Flake Graphite (BC Deposit # P04)
- Vein Graphite (BC Deposit # P05)

The mineralization at the Lac Knife project (Section 7.3) is consistent with the description of a crystalline flake graphite deposit. These types of deposits are described (Simandl and Kenan 1997) as being commonly hosted by porphyroblastic and granoblastic marbles, paragneisses and quartzites. The alumina-rich paragneisses and marbles in upper amphibolite or granulite grade metamorphic terrains are the most favourable host rocks. Highest grades are commonly associated with rocks located at the contacts between marbles and paragneisses and deposits are thickest within fold hinges. Minor feldspathic intrusions, pegmatites, and iron formations also contain disseminated natural flake graphite.

Crystalline Graphite deposits may be found in any geological setting with a favourable paleo-environment that leads to the accumulation and preservation of organic materials, such as intracratonic or continental margin-type basins. Deposits typically display stratiform lens-shapes or saddle-shapes. Individual, economically significant deposits are several metres to tens of metres thick and hundreds of metres in strike length. They can occur in large tonnage, low grade stratabound deposits or higher grade deposits commonly associated with fold crest.

Graphite deposits hosted in the Menihek Formation and in the Gagnon Terrane appear to have been formed by graphitization of the organic material within pre-metamorphic protolith (black shales of the Labrador Trough). The graphite crystallinity is linked to the degree of metamorphism. The Menihek Fm is interpreted to have formed as pelitic carbonaceous mud sediments filling emerging basins, probably with a number of localized anoxic basins. The Lac Knife deposit corresponds to the higher grade type of mineralization associated with fold hinges. Simandl and Kenan stated that the grade and tonnage of producing mines and development projects can vary substantially. The median grade and size is quoted at 9.0% Cg and 2.4 million tonnes respectively meaning the resource grade and size of the Lac Knife project is above the median.

9.0 EXPLORATION

A description of the historical exploration work conducted on the property is provided in Section 6.2.

Since 2010, the year the project was acquired, Focus has conducted exploration programs including: a due diligence evaluation, bulk sampling, LiDAR topographic surveys, ground geophysical surveys, and 3 diamond drilling exploration and definition drilling programs. Results of these drilling campaigns (2010-2011, 2012, and 2013) are described in Section 10 of this report.

9.1 Due Diligence Evaluation

Exploration work by the Company at Lac Knife started in 2010 with a geological and environmental due diligence evaluation of the project and a technical review of the historical project database by Roche. The results were used to plan a new diamond drilling campaign, the first at Lac Knife in over 20 years.

9.2 Bulk Sampling

In August 2012 as mandated by Focus, G.L. Géoservice Inc. of Rouyn-Noranda, Quebec, completed the excavation of a bulk sample in the northern part of the deposit (former bulk sampling site 2000-1). Approximately 35 t of semi-massive mineralized rocks were blasted. The sample was later transported in September by Transport Lesage of Fermont to the IOS facilities in Laterrière, Quebec. The sample was then crushed to 0-6 inches and stored in one (1) t bulk pouches until utilized for different metallurgical tests conducted by Metchib and Graphite Zero. The sample was also used for pilot plant test work. (Figure 9.1). The bulk sample was fully utilized and no material remains.

Figure 9.1 – Stored Bulk Samples at IOS' Facilities in Laterrière, Quebec

9.3 LiDAR Topographic Survey

In August 2012, the Company sponsored a remotely sensed Light Detection and Ranging ("LiDAR") topographic survey of the entire Lac Knife claim block and access road which was supplemented by optical air photography coverage. The helicopter-supported survey was carried-out by Mosaic 3D of La-Pêche, Québec. Deliverables included a high resolution geo-referenced LiDAR image; an ASCII database of XYZ elevation points; a geo-referenced air photo mosaic; and a geo-referenced topographic contour map in digital format. The high resolution LiDAR survey data is used for detailed engineering and site infrastructure studies as well as for planning the access road work for the project.

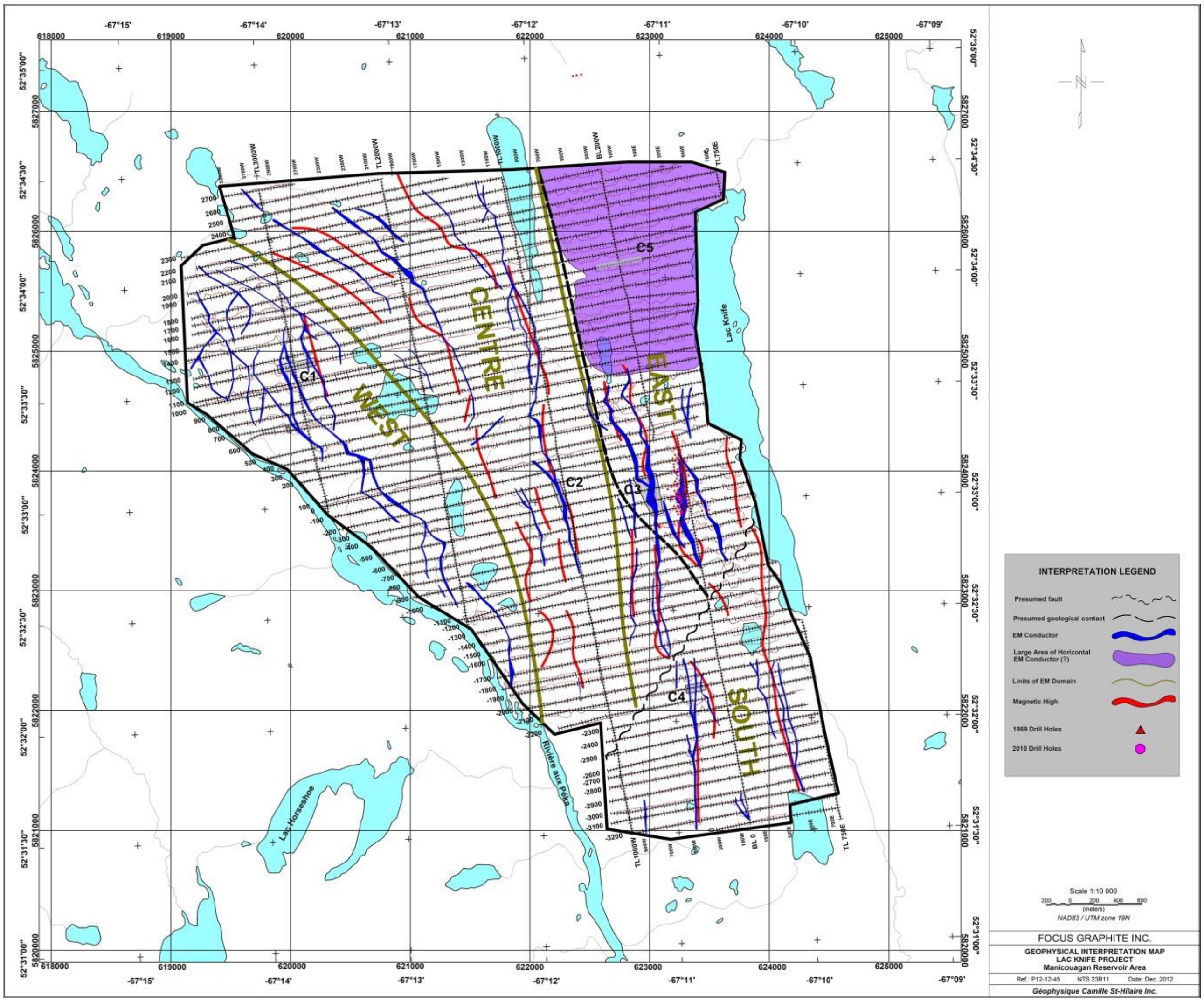
9.4 Horizontal Loop Electromagnetic ("HLEM") Ground Geophysical Survey

From August 13 - October 4, 2012, G.L. Géoservice Inc. of Rouyn-Noranda, Quebec, completed a magnetic and horizontal loop electromagnetic (HLEM) ground geophysical survey on the Lac Knife Project. The line cutting and geophysical survey covered the entire project area west of Lac Knife. The magnetic survey covered 202 line-km and the electromagnetic survey was performed over 182.2 line-km. The line spacing for both geophysical surveys was 100 m.

A GEM GSM-19 Overhauser magnetometer was used to acquire Total Magnetic Field Intensity data along grid lines, with a spacing of 5 m. A second GSM-19 magnetometer was used as a base station in order to monitor diurnal variations of the TMI with a rate of one reading every 20 seconds. The base station was located near the eastern end of the baseline. An Apex Parametrics MaxMin 1-5 Electro-magnetometer was used for the horizontal loop EM survey. In-phase (IP) and quadrature (OP) components of the secondary magnetic field were observed at stations 25 m apart, with a transmitter-receiver coil separation of 75 m. EM components were acquired using two transmitting frequencies (111 and 444 Hz). Due to strong topographic relief variations present on the survey area, a Suunto Clinometer was used to measure terrain elevation and slopes along each traverse.

The Company received the survey data results and interpretation reports (submitted by Géophysique Camille St-Hilaire of Rouyn-Noranda) in December 2012. The geophysical anomalies identified by the surveys (Figure 9.2) have been investigated during the summer of 2013 exploration drilling program.

Figure 9.2 – Horizontal Loop Electromagnetic and Magnetic Ground Geophysical Survey Interpretation Map



10.0 DRILLING

10.1 Historical Drilling

From January to April 1989, Mazarin completed the first drilling program at the Lac Knife property scale. The program targeted different showings on the property however; encouraging results on the area west of Lac Knife led Mazarin to focus almost all exploration efforts in that portion of the project. A total of 93 definition holes (7,367 m) and 6 exploration holes in the northern part of the claims block (293 m) were completed for an overall 99 BQ-sized hole for 7,660 drilled m. The holes were collared at 25 m spacing on average and were distributed on 25 m spaced sections. The 93 definition drill holes defined three main graphite-bearing zones, extending more than 500 m in length and to a minimum depth of 125 m.

A total of 2,606 samples (1.5 m in general) were analyzed for graphitic carbon by Chimitec of Ste-Foy, Québec. Two series of samples have been reanalyzed by Metri-Lab of Montreal and Centre de Recherches Minérales (CRM) of Québec City as part of the QA/QC program. Drilling was conducted by Forage Béland of Val-d'Or under supervision of Mr. Pierre Poison, geologist of Explograph Inc. on a 24 hour / 7 days per week work schedule.

For each sample, a representative piece of core measuring between 5 and 10 cm long was preserved as a witness and stored in core boxes. At the time, the witness core boxes were transported from Lac Knife to the Justair Aviation sea plane base near Fermont. In order to prevent deterioration of the boxes the witness core was subsequently moved and stored in a warehouse in Fermont. The waste section of the core was stored outside in cross piles at the Lac Knife project. Today, only drill logs and assay certificates remain. The original drill core was returned and discarded on Lac Knife 2001 bulk sample location sites in 2009 by IAMGOLD as part of the site re-habilitation work.

No information is available in regards to the chain of custody from the drill to the laboratory. Following a review of a selection of historical drill logs, AGP believes the logging procedures were executed to industry standards at the time the work was performed.

10.2 Focus Drilling

Since 2010, IOS Service Geoscientifiques of Chicoutimi, Québec (IOS) was responsible for managing all aspects of the drill program including sample preparation, logistics, crew management, and monitoring of the QA/QC program for Focus. At the end of each drill program, IOS also authored a comprehensive internal report. IOS is an independent company providing exploration, sample preparation, and geographical information services to various exploration companies and government agencies.

To date, a total of 106 definition holes for 9,583 m and 36 exploration holes for 4,865 m for a global 142 holes for 14,448 m have been completed by Focus since 2010.

Table 10.1 summarizes the different drill programs completed on the Lac Knife project.

Table 10.1 – Summary of Focus Diamond Drill Programs for the Lac Knife Project

Year	Type of Work	Summary Results
2010-2011	**Twin Hole Drill Program** to confirm Mazarin's historical drilling	12 NQ-sized holes for a total of 1,234 metres
2012	**Infill and Deposit Margin Drill Program** aim to upgrade the Inferred mineral resources in the southeastern part to the Indicated category, to map the limits of the deposit and to provide sufficient mineralized material for metallurgical and pilot plant test programs	56 PQ-sized holes for a total of 5,638 metres
	Exploration Drill Program aimed to extend the deposit's southwest portion and test the iron formation	13 NQ-sized holes for a total of 1,674 metres
	Re-Sampling of the 2010-2011 Drill Campaign to correct issues related to the original 2011 assays	
2013	**Infill Drill Program** aimed to upgrade the quality of existing Indicated and Inferred Resources into the higher quality category of Indicated and Measured Resources	24 PQ-sized holes for a total of 1,368 metres
	Twin Hole Drill Program to increase confidence in the Mineral Resource Estimate	8 PQ-sized holes for a total of 713 metres
	Down-Dip Drill Program to generate mineralized material for metallurgical and research studies	6 PQ-sized holes for a total of 630 meters
	Exploration Drill Program aimed to test geophysical anomalies west and southeast of the deposit as well as in the northern portion of the claim block	23 NQ-sized holes for a total of 3,191 metres

10.3 Twin Hole Drilling Campaign 2010-2011

The twin hole drilling program was planned by Mr. Edward Lyon geological, representative of the Roche Groupe-Conseil with the support of Mr. Marco Gagnon, geologist and President and subsequently by Mr. Tony Brisson, geologist and Vice-President Exploration both of Focus. The drilling campaign was conducted under contract by IOS of Chicoutimi, Québec between December 7, 2010 and February 4, 2011. The field program was halted in mid-December until early January due to unseasonably cold weather, which made access impossible and that hindered access to bring in local supplies, as well as year-end holiday season. Roche selected the deepest historical drill holes into the graphite mineralization. The "twin" drill hole program aimed to replicate the best historical holes in terms of grade and depth of penetration through the graphitic horizons. A total of 12 drill holes were completed for a total length of 1,234 m. The drill data is summarized in Table 10.1.

The Mazarin drill grid was reconstructed and geo referenced into UTM coordinates by IOS surveying several known old drill sites marked by casing, or sometimes by the center of drill pad clearings, as well as Differential GPS (DGPS) surveying by Raynald Babin & Associés of Baie-Comeau, Québec, who has experience in surveying mines in the region. The new hole locations were generally within 2-9 m of the Mazarin drill hole coordinates. One hole, LK-10-102 was farther from its twin than expected for unknown reasons.

Services de forage D.V. Inc. of St-Honoré, Québec used one skid-mounted hydraulic drill rig to drill NQ-sized core. The rig was operated on two 12-hour shifts, seven days a week. Drill holes were intended to duplicate Mazarin holes, using the same collar location as much as possible with the same azimuth, inclination, and depth. The program was supervised by Mr. Steve Lavoie, a geologist in training for IOS. The 12 drill holes were labelled LK-10-101 to LK-10-112, sequential with Mazarin's 1989 holes.

Hole deviation was measured with the use of a Flex-It surveying instrument measuring magnetic orientation and inclination with readings approximately every 25 m on average. Information on the ground temperature and magnetic intensity of the rock was collected as well.

Table 10.1 – 2010-2011 Twin Drill Holes Summary

Twin Drill Hole	Easting	Northing	Elevation	Azimuth	Dip	Length (m)	Historical Hole
LK-10-101	623203	5823595	687.2	76	-46	96.32	LK-89-58
LK-10-102	623215	5823538	683.2	75	-45	92.74	LK-89-65 & LK-89-67*
LK-10-103	623201	5823478	681.3	77	-46	72.12	LK-89-19
LK-10-104	623228	5823514	687.8	80	-48	87.05	LK-89-77
LK-10-105	623197	5823663	686.7	74	-46	141	LK-89-89
LK-10-106	623229	5823413	676.7	90	-46	126.25	LK-89-14
LK-10-107	623212	5823562	684.4	76	-45	87.31	LK-89-34
LK-10-108	623188	5823560	686.4	80	-46	107.83	LK-89-32
LK-10-109	623143	5823554	688.3	80	-50	99.3	LK-89-30
LK-10-110	623184	5823760	688.1	90	-45	111	LK-89-62
LK-10-111	623219	5823769	688.4	75	-45	93	LK-89-64
LK-10-112	623226	5823433	678.8	90	-46	120	LK-89-83
Total						1,233.92	

Notes:
1. Coordinate system UTM NAD 27 zone 19 surveyed by Raynald Babin & associates
2. LK-10-102 is a near twin, approximately equidistant between LK-89-97 (18m) and LK-89-77 (20m). Other holes are < 9m from the historical hole.

Core was shipped by truck to the IOS facility in Chicoutimi, Québec since no core logging facility was built on-site. During that program only the RQD and fracture density were recorded in the field. At the IOS facility the core was measured and core boxes were labelled with aluminum tags showing the drill hole number, box number, and from-to metres. The core was logged by Mr. Jean-Paul Barrette, geologist, assisted by Mr. Steve Lavoie, a geologist in training. The twin drill holes were logged using industry standard practices. The historical Mazarin drill logs were reference during the logging in order to keep consistency in the between the twin and the historical holes. The 1980's geological coding was not considered by IOS and Focus to be sufficiently detailed. Implemented during the 2010 drill campaign, IOS established new lithological names based on a classification of mineralized and non-mineralized lithologies that were coded according to a legend adapted from the Quebec Department of Natural Resources. The core was logged for lithology, structure, alteration, and mineralization.

Core angles of significant structures were measured with a drill core protractor. Pictures of the core, both general and detailed views, were taken with a digital camera. Percentages of graphite and sulphides were systematically estimated.

Descriptions and logs were captured in Excel spreadsheets and imported in Access databases compatible with Gemcom GEMS© (GEMS) software. Sections were drafted using GEM's Explorpac software and imported into Bentley Microstation for editing.

All graphite bearing intervals have been fully sampled, including shoulder samples spanning a few metres on both sides of the zone. Selected sample intervals were marked on the core, and indicated with sample tags stapled into the core boxes. Sample intervals are typically 1.5 m long but can range from 0.48 m to a maximum of 2.4 m in order to capture specific lithological or mineralogical sections of interest.

The core was shipped to IOS for sample preparation (crushing and grinding). The core was stored in wooden core-boxes in a dry warehouse to avoid sulphide oxidation, until completion of the project, and then transferred to regular core racks in IOS facilities. The pulps were forwarded to Inspectorate Laboratory in Vancouver.

A modern standard quality assurance and quality control program was implemented for this drilling program. Upon receiving results from the laboratory, IOS identified numerous quality problems, including sample tag inversion and under-estimation of the grade of the reference material. The sample tag inversion was corrected by re-assaying; however, for hole LK-10-104 and LK-10-108 it was decided to re-sample the core and send the pulps to ALS Minerals for analysis. At the time, results obtained from Inspectorate Laboratory showed the 1989 sample results globally overestimated the 2010/11 results by a factor approaching 15%. More precisely, the difference was directly proportional to the grade with differences significantly higher than 15% when carbon grade was higher than 15% Cgr. Focus believed that the analytical method used in 2010/2011, was different to the one used in 1989, this caused the underestimation of the Cg grade. Results from this limited re-sampling program reinforced the belief that the 2010/11 assays were under estimating the actual grades of graphitic content.

In the October 2012 technical report, RPA considered the 2010/11 drilling campaign did not reach the program's objective in terms of analytical results but nevertheless the 2010/11 drill holes confirmed the presence of graphitic carbon as well as the confirmation of the lithological interpretation of the mineralized zones. At that time, RPA and IOS recommended to carry out a detailed study of the analytical methods best suited to assay graphitic carbon using certified reference materials (CRM), and also to carry out a laboratory round-robin survey with the objective of selecting an appropriate laboratory and analytical procedure. This was in order to remove the any uncertainty, and restore a high level of confidence in the Mineral Resource Estimates. This detailed study program was completed by Focus prior to initiating the 2012 exploration drilling campaign.

10.4 Re-Sampling of the 2010-2011 Twin Hole Drilling Campaign

Following the results of the round robin program, COREM laboratory was selected for assaying the 2012 drill campaign. Focus implemented the recommendation by IOS and RPA to have every core interval from the 2010 twin drill hole program re-sampled and assayed at COREM. The goal was to remove uncertainties regarding the differences observed between the 1989 drill holes assays and the 2010/11 twin holes assays (described in Section 12). The drill core of each sample was quarter-sawed, or even eighth-sawed for holes LK-10-101 and LK- 10-112, and submitted to COREM for assaying. As a result of this campaign, RPA recommended discarding the sample assay results from the 2010 twin hole drilling campaign produced by Inspectorate in 2010/11 and replace them with the corresponding assay results produced by COREM in 2012. A second examination of the twin drill hole results using the COREM assays indicated the 1989 drill hole data was adequately confirmed by the 2010 twin drill hole program rendering them suitable for use in mineral resource estimation.

10.5 Infill and Deposit Margin Drilling Campaign 2012

The 2012 summer definition drilling program at Lac Knife was comprised of 56 large diameter (PQ-sized, 4-inch) core holes for a total of 5,638 m. The drilling program was designed to map the limits of the Lac Knife graphite deposit and provide sufficient additional data on mineralization to be increase the categorization quality of a new resource estimate. The drilling was also designed to provide enough mineralized material for Phase II metallurgical testing and for subsequent pilot plant trials.

The drilling program was planned by Mr. Tony Brisson, geologist and Vice-President Exploration for Focus and managed by IOS of Chicoutimi, Québec. The definition drilling program started on July 1st and ended on September 17, 2012. Drilling was performed with one skid-mounted HTM 2500 rig owned by G4 Drilling of Val-d'Or, Québec under the supervision of Mr. Réjean Godin, project geologist for IOS. The rig was operated on two 12-hour shifts, with a foreman seven days a week. Most of the holes were oriented to an azimuth of N080 with a dip of -45º with lengths ranging from 40 to 170 m long. All the casings were left in place and are identified with a metallic plug equipped with a 1 m stem of rebar to signal their presence. Hole deviation was measured with the use of a Reflex Gyro surveying instrument that is not affected by the magnetism of the rocks. During the 2012 and 2013 drill campaign IOS built and maintained a temporary field camp located on the western shore of Lac Knife allowing the core to be logged in the field. Core logging was completed by the IOS' geologist at the field camp site with the GeoticLog software. The core was partially sawed at the field camp and completed at the IOS' laboratory in Laterrière, Québec.

The 56 PQ-sized holes (85 mm diameter) were spread over the western, central and eastern zones of the deposit (Table 10.2). Collars were surveyed by Roussy & Michaud of Sept-Îles in the UTM NAD83 coordinates system. The 56 drill holes were labelled LK-12-113 to LK-12-165, sequential to the 2010 drill holes.

Core was collected at the drill daily and brought to the camp where it was measured and marked for logging. Geotechnical data was collected, including fracture frequency counts and types, and rock hardness (qualitative scale) prior to logging.

The core was logged for lithology, structure, alteration, and mineralization using the lithofacie names implemented in 2010. Pictures of the core, both with full-box and detailed views were taken with a digital camera. All data was entered using the Geotic software of Val d'Or, Quebec. Core boxes were labelled with aluminum tags showing the drill hole number, box number, and from-to metres.

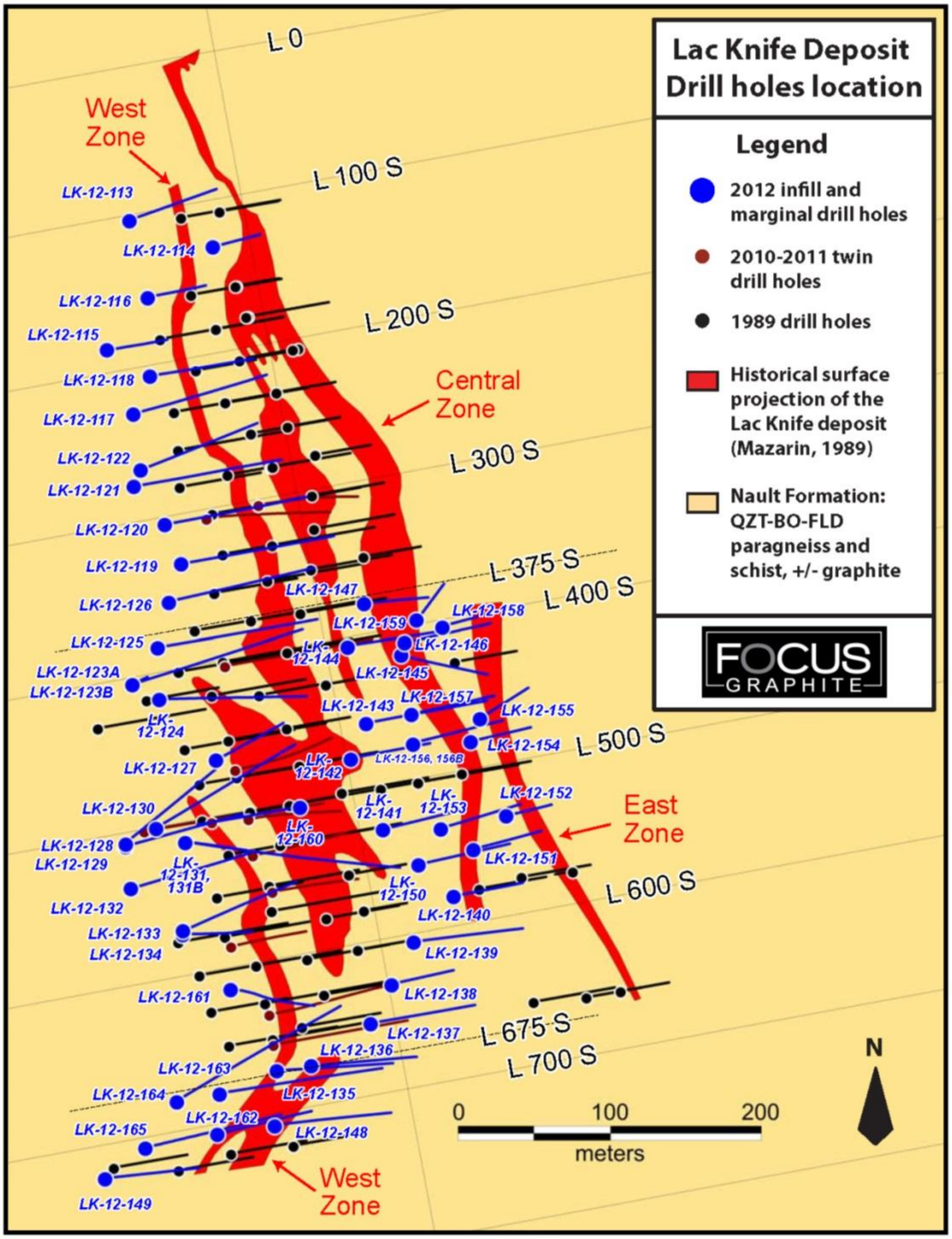
Sample intervals were between 0.5 to 1.5 m and respected the different lithologies wherever possible. The shoulder at the margin of mineralization was typically sampled over 3 m intervals before and after the zone. Low grade intervals within the mineralized interval were collected separately if the length was > 1 m.

Two slabs of about 1/4 of the 4 inch diameter PQ core were sawed parallel on each side of the central axis of the core. One of the slabs was earmarked for geochemical analysis while the other slab was kept as a witness sample. Center parts of the core were used as graphite-bearing material for the Phase II metallurgical testing and for the subsequent pilot plant testing program.

A three-part unique and sequential numbering of sample tags was used with one part stapled in the core box at the start of the sample interval, one in the sample bag, and the last tag was retained in the sample book.

For the portion of the 2012 drill program, the core was sawed in the field while the second part of the program and the 2013 drill core was expedited as whole drillcore. Transport was by truck to Fermont and then forwarded to the IOS preparation facility located at Laterrière Quebec by road using a bonded commercial carrier.

Figure 10.2 – 2012 Infill and Deposit Margin Drill Holes Location Map



A total of 2,131 sub-sample slabs of the PQ drill core were collected from all 56 holes and prepared by IOS at their laboratory (crushing and grinding). Once prepared, the samples were sent to the Consortium de Recherche Appliquée en Traitement et Transformation des Substances Minérales ("COREM") which is an ISO/IEC 17025:2005 certified facility in Québec-City, for graphitic carbon (Cg) analysis as discussed in Section 11 of this report.

In addition to graphitic carbon, under the QA/QC program, approximately 10% of the samples for a total of 199 core samples were analyzed for total, organic and inorganic carbon. The same samples were also sent to ACTLABS Laboratories of Ancaster, Ontario (ISO/IEC 17025:2005 with CAN-P-1579) for graphitic carbon, and total sulphur assays, and for a 35 multi-element analysis. IOS introduced 181 standards, 173 duplicates and 159 blank samples into the batches of core samples as part of the QA/QC program.

Most of the drill holes intercepted significant graphite intersections* along the strike length of the West, Central, and East zones of the deposit as evidenced by the holes:

- Hole LK-12-128 drilled on section 500 S: 42.8 m grading 20.43% graphitic carbon (Cg) (from 60.7 to 103.5 m), including 11.8 m grading 36.08% Cg (from 79.7 to 91.5 m)
- Hole LK-12-135 drilled on section 675 S: 60.5 m grading 17.88% Cg (from 61.0 to 121.5 m), including 13 m grading 32.33% Cg (from 70 to 83 m) and 11.8 m grading 26.39% Cg (from 106.7 to 118.5 m)
- Hole LK-12-147 drilled on section 375 S: 42.8 m grading 17.59% Cg (from 12.4 to 55.2 m), including 5.4 m grading 39.56% Cg (from 15.4 to 20.8 m)

*Significant intercepts are defined as graphitic carbon (Cg) >5% over a minimum of 6 m; maximum internal dilution of 6 m; maximum external dilution of 0 m.

All 40 significant intercepts are summarized in Table 10.2.

Table 10.2 – Summary of Significant Graphitic Carbon Drill Core Intersections (Cg >5% and 6 m Minimum Intersection) from 2012 Infill and Deposit Margin Drilling Program at Lac Knife

Hole	Azimuth	Dip	Total Length (m)	From (m)	To (m)	Core Length** (m)	Cg*** (%)	S (%)
LK-12-116	N078	-45	56	35.7	48.8	13.1	10.11	3.62
LK-12-117	N075	-50	135	64.5	79.5	15.0	7.08	3.18
LK-12-119	N081	-47	147	49.5	72.8	23.3	13.10	7.42
				112.8	129.9	17.1	13.43	7.03
LK-12-120	N080	-47	138	54.7	68.2	13.5	12.60	5.30
				114.5	126.7	12.2	10.45	5.47
LK-12-121	N081	-47	146	71.6	88.5	17.0	12.52	4.32
LK-12-123B	N073	-47	171	23.3	41.8	18.5	15.84	5.18
LK-12-124	N089	-47	141	33.4	48.8	15.4	21.69	5.90
				100.5	117.7	17.2	13.12	6.12
LK-12-125	N080	-47	159	6.9	18.0	11.2	17.93	5.22

Hole	Azimuth	Dip	Total Length (m)	From (m)	To (m)	Core Length** (m)	Cg*** (%)	S (%)
				24.2	31.4	7.2	15.62	4.22
				84.0	102.5	18.5	12.63	7.81
LK-12-126	N078	-47	146	66.0	85.5	19.5	9.09	7.52
LK-12-127	N062	-69	131	16.6	33.1	16.5	19.08	4.98
				90.2	112.3	22.1	12.19	6.29
LK-12-128	N075	-52	125	60.7	103.5	42.8	20.43	5.25
LK-12-129	N051	-47	111	75.0	93.0	18.0	20.97	6.72
LK-12-130	N059	-45	156	31.5	43.4	11.9	20.48	6.17
				61.5	72.0	10.5	21.19	6.92
				117.2	153.2	36.1	12.98	5.39
LK-12-131	N099	-48	215	22.6	92.3	69.7	15.81	5.44
				112.0	130.8	18.8	12.04	4.45
				147.6	214.5	66.9	17.89	9.46
LK-12-131-B	N099	-48	59	17.8	58.5	40.7	12.37	4.03
LK-12-132	N073	-46	116	60.7	74.1	13.4	16.25	5.12
				80.2	108.3	28.1	20.20	7.12
LK-12-133	N090	-65	101	32.5	58.3	25.8	13.73	4.56
				68.2	92.0	23.8	18.19	5.96
LK-12-134	N065	-46	118	36.3	87.0	50.7	18.53	5.13
LK-12-135	N087	-53	125	61.0	121.5	60.5	17.88	5.40
LK-12-141	N076	-45	77	38.7	73.8	35.1	13.98	3.61
LK-12-142	N080	-45	75	0.0	13.5	13.5	10.62	2.88
				26.0	41.2	15.2	20.28	4.13
LK-12-143	N079	-47	120	11.0	25.0	14.0	17.09	3.80
				84.8	92.1	7.3	17.05	6.50
LK-12-144	N080	-45	96	27.6	92.2	64.6	17.70	7.96
LK-12-145	N104	-49	90	59.4	74.0	14.6	18.16	6.50
LK-12-146	N077	-45	81	44.3	61.9	17.6	16.84	8.20
LK-12-147	N085	-45	60	12.4	55.2	42.8	17.59	8.50
LK-12-149	N084	-55	108	67.1	78.9	11.8	14.11	3.86
LK-12-150	N078	-45	89	46.5	59.2	12.7	18.94	3.43
LK-12-153	N074	-45	78	19.0	40.2	21.2	13.17	3.07
				52.1	72.0	19.9	17.05	8.05
LK-12-154	N077	-45	59	21.1	28.6	7.5	17.26	7.88
LK-12-156	N077	-45	90	9.8	18.2	8.4	19.85	3.96

Hole	Azimuth	Dip	Total Length (m)	From (m)	To (m)	Core Length** (m)	Cg*** (%)	S (%)
				56.0	70.2	14.2	19.51	7.80
LK-12-157	N077	-45	81	26.3	36.5	10.2	11.22	3.16
				54.8	67.4	12.6	19.73	7.14
LK-12-158	N075	-45	41	17.5	34.0	16.5	17.79	7.38
LK-12-159	N036	-45	44	23.6	39.9	16.3	16.38	8.40
LK-12-160	N259	-50	110	10.5	109.5	99.0	26.21	6.81
LK-12-161	N098	-64	131	37.6	60.9	23.3	15.86	5.88
				80.9	88.9	8.0	12.69	7.47
LK-12-162	N076	-45	92	7.5	49.0	41.5	14.23	5.20
				63.7	72.0	8.3	8.07	3.91
LK-12-163	N081	-50	156	7.6	24.8	17.2	18.49	6.45
				49.5	63.8	14.3	13.48	4.81
				82.8	115.5	32.7	11.09	4.86
				123.3	140.6	17.3	11.89	9.05
LK-12-164	N059	-45	182	2.0	21.6	19.6	9.50	2.98
				74.5	88.5	14.0	16.06	6.79
				114.9	124.5	9.6	15.96	8.54
				164.4	181.5	17.1	10.85	4.08
LK-12-165	N077	-45	131	29.5	55.5	26.0	9.46	3.43
				108.0	122.6	14.6	5.74	3.06

***Significant Cg intersections are expressed as core length because the host rocks are highly metamorphosed and locally migmatized and folded. However, the mineralization envelope interpreted from the historical data cross-cuts the drill holes at a high angle.*

****All core sample carbon analyses performed by COREM and delivered as graphitic carbon (Cg), internal analytical code LSA-M-B10, LECO high frequency combustion method with infrared measurement.*

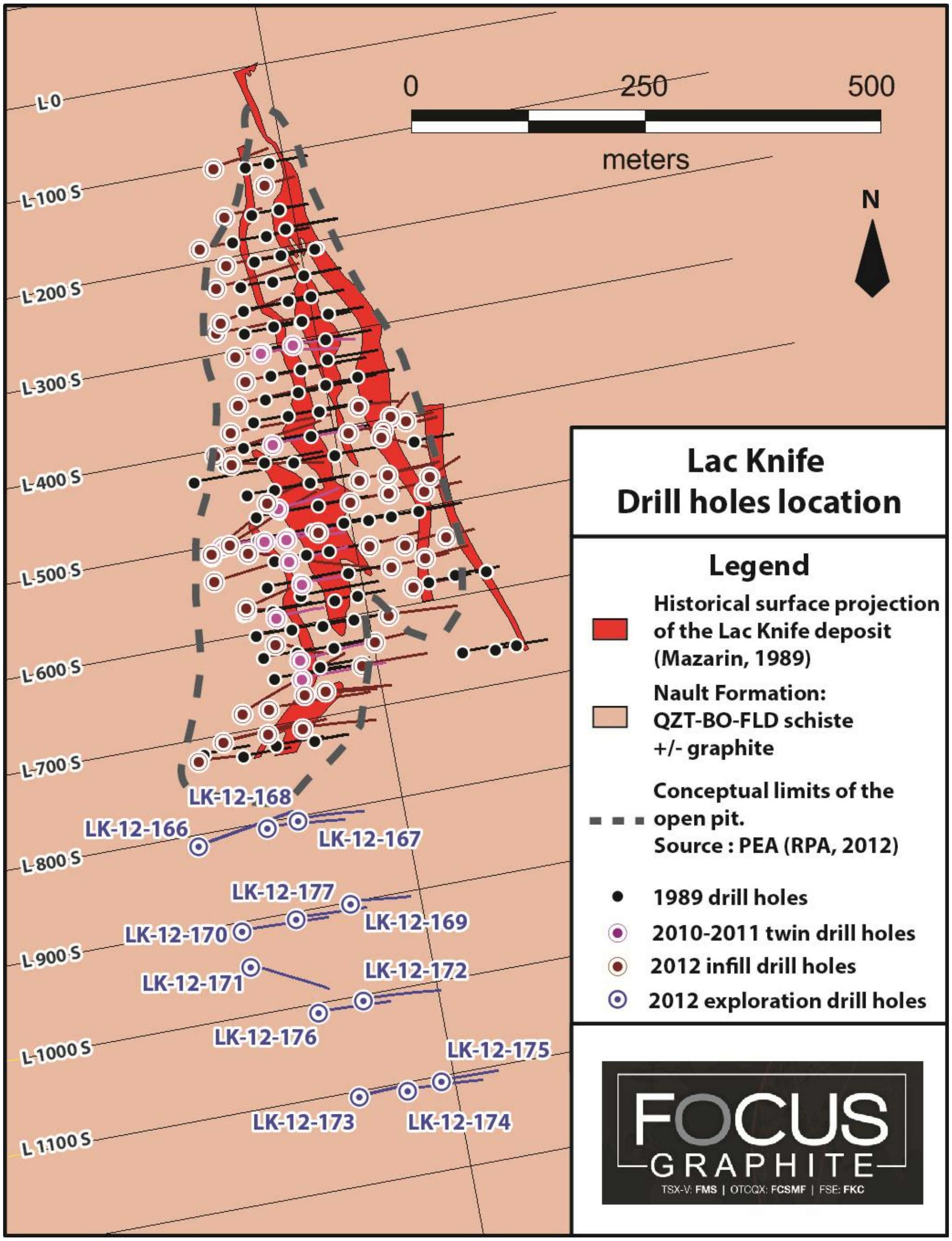
10.6 Exploration Drilling Campaign 2012

The fall 2012 exploration drilling program at Lac Knife comprised 13 exploration NQ-sized core holes (total 1,674 m) designed to test the southern extension of the Lac Knife graphite deposit over a total strike length of 375 m and the iron formation in the northern part of the project (one hole that failed to intersect the iron formation). The diamond drill program was planned by Mr. Tony Brisson, geologist and Vice-President Exploration for Focus. The drill holes were labelled LK-12-166 to LK-12-178, sequential with 2012 infill drill holes.

The 12 holes located in the southwest extension were spread over four 100 m spaced drill fences (800S, 900S, 1000S and 1100S). Each fence is comprised of three holes spaced

50 m apart with the exception of hole LK-12-171 which is located 50 m north of fence 1000S due to land terrain conditions (Figure 10.3).

Figure 10.3 – 2012 Southwest Extension Exploration Drill Holes Location Map



The exploration drilling program at Lac Knife started in mid-September 2012 and ended on September 26. The drilling was performed by G4 Drilling of Val-d'Or, Québec under the supervision of Mr. Réjean Godin, project geologist of IOS Services Géoscientifiques ("IOS") of Chicoutimi, Québec.

All the parameters of the drilling campaign are the same as described in the previous sections regarding definition drilling campaigns. A total of 558 half-split NQ drill core samples were collected from 12 holes (no samples for the hole that targeted the iron formation) and shipped to IOS for sample preparation (crushing and grinding). Same analytic procedures were applied for the infill program samples. Under the QA/QC program a total of 51 core samples analyzed at COREM were duplicated by ACTLABS. IOS introduced 42 standards, 51 duplicates, and 36 blank samples into the batches of core samples as part of the QA/QC program.

Hole LK-12-170 drilled 175 m south of the deposit on Line 900 S returned the best graphitic carbon (Cg) intersection*:

- Hole LK-12-170: **66.8 m** grading **14.68% graphitic carbon** (Cg)** (from 54.9 to 121.7 m), including:
- **8.0 m** grading **21.73% Cg** (from 54.9 to 62.9 m),
- **21.7 m** grading **17.99% Cg** (from 70.0 to 91.7 m) and
- **21.3 m** grading **18.22% Cg** (from 100.4 to 121.7 m)

**Intersections are expressed as core length because the host rocks are highly metamorphosed and locally migmatized and folded. However, the drill holes crosscut the mineralization envelope at a high angle. The interpretation is based on historical data including Focus' drill holes.*

***All core sample carbon analyses were performed by COREM and delivered as graphitic carbon (Cg) results from the internal analytical method code LSA-M-B10, a LECO high frequency combustion analytical method using an infrared measurement system.*

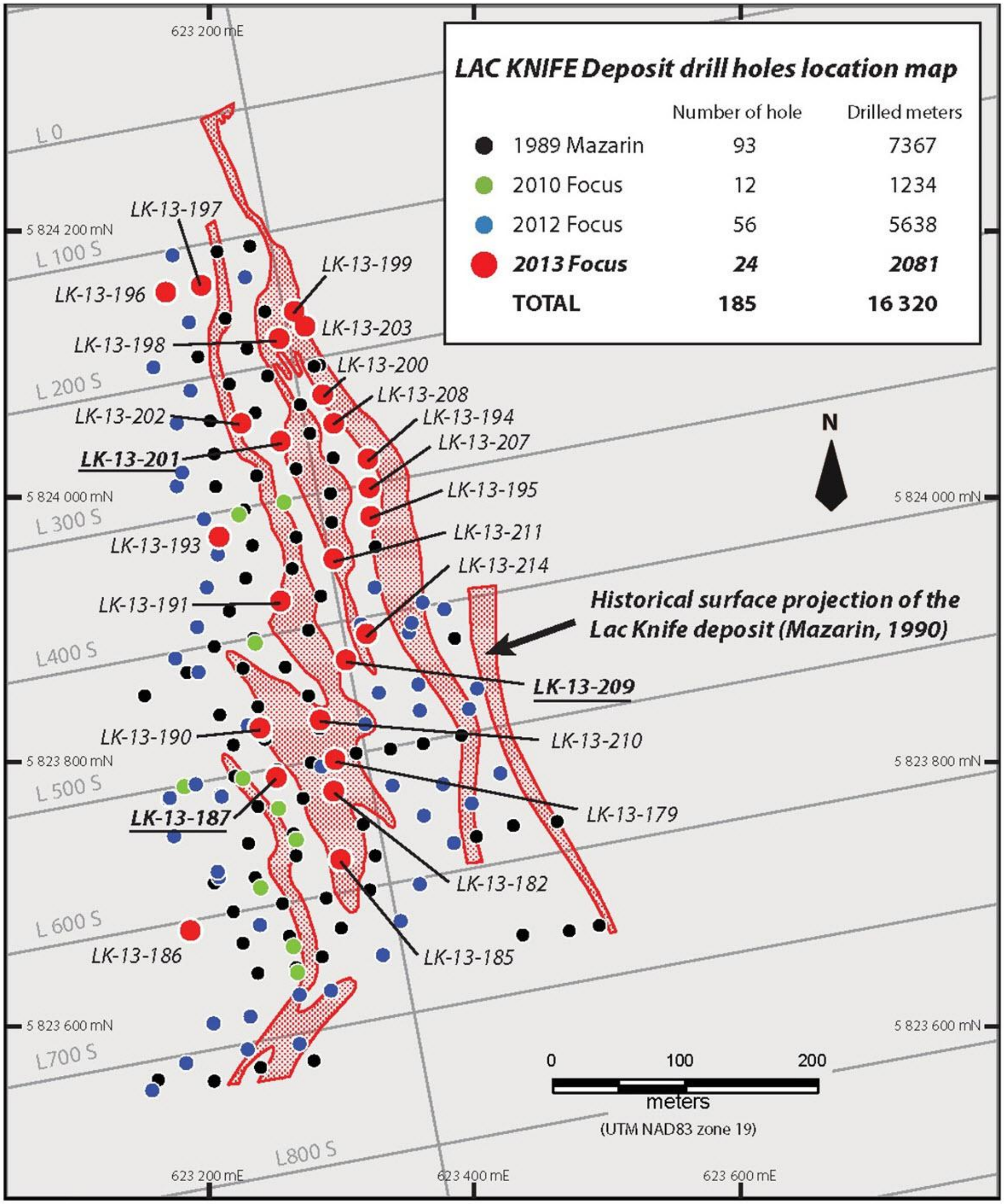
**** Significant intercepts are defined as Cg >5% over a minimum of 6 m; maximum internal dilution of 6 m; maximum external dilution of 0 m.*

Significant graphite intercepts*** are still encountered up to 375 m south of the deposit as illustrated by Hole LK-12-174 that was drilled on Line 1100 S and intersected 20.9 m grading 19.31% Cg (from 20.0 to 40.9 m) indicating that the deposit remains open to the south.

10.7 Infill Drilling Campaign 2013

The 2013 summer infill drilling program at Lac Knife comprised 24 large diameter (PQ-sized, 4-inch) core holes for a total of 2,081 m. Sixteen holes were completed in different parts of the deposit, mostly central and northeast parts, to complete the 25 m drill spacing coverage, and another eight holes were for twin hole checks of historical drill holes to increase confidence in the planned update of the Mineral Resource Estimate (Figure 10.4). The drilling program was designed with the objective of upgrading the current Inferred and Indicated mineral resource to the Measured and Indicated Mineral Resource categories. An additional 630 m of down-dip drilling for metallurgical testing purposes and graphene technology research (a total of 6 PQ-sized holes) were also completed. A grand total of 30 holes for 2,711 m were drilled.

Figure 10.4 – 2013 Infill Drill Holes Location Map



The drilling program was planned by Mr. Benoit Lafrance, geologist and Vice-President Exploration of Focus. The drilling campaign was managed by IOS Services Geoscientifiques ("IOS") of Chicoutimi, Québec. The infill drilling program started on

July 6 and ended on August 10 in 2013. The drilling was performed with one skid-mounted HTM 2500 rig type of Forage Rouillier of Amos, Québec under the supervision of Mr Mikaël Block, project geologist assisted by Mr. Jordi Turcotte, geologist and Mr. Levin Castillo, geologist in training for IOS. The rig was operated on two 12-hour shifts, seven days a week. Most of the holes had an azimuth of N080 and a dip of -45º in accordance with the previous drilling with the exception of the 6 down-dip holes that have an azimuth of N260 and a dip of -50º. All the casings have been left in place and are identified with a metallic plug equipped with a 1 m stem to signal their presence. Hole deviation was measured after the drillhole was completed with the use of a Reflex Gyro surveying instrument that is not affected by the magnetism of the rock lithologies. Collars were surveyed after the drilling by Daniel Michaud, surveyor of Sept-Îles in UTM NAD83 coordinates system. The drill holes were labelled LK-13-179 to LK-13-214, with the exception of LK-13-192, 204, 205, 206, 212 and 213 attributed to the exploration program.

All the drill cores were logged at the Lac Knife camp with the GeoticLog software and shipped to the IOS laboratory in Laterrière, Québec for sawing and sample preparation. The sample protocol is the same as the one used in the 2012 drill campaign. A total of 1,309 sub-sample slabs of the PQ drill core (mostly 1.5 m in length with variances from 0.5 to 1.8 m) were collected from 23 holes. Slab samples were dried before processing for density measurement, crushing and grinding at the IOS sample preparation laboratory.

Once prepared, the samples were sent to the COREM laboratory for graphitic carbon analysis. Under the QA/QC program, about 10% of the samples were also analysed for total, organic, inorganic carbon and total sulphur (a total of 130 core samples). Duplicates of the same 130 samples were also sent to ACTLABS Laboratories of Ancaster, Ontario for graphitic carbon, total sulphur, and for 35 multi-element analysis using ICP methods. IOS introduced 115 standards, 59 duplicates (sawing, crushing, or grinding duplicates) and 115 blank samples into the batches of core sample as part of the QA/QC program.

Hole LK-13-187 drilled on Line 500 S targeted the western zone of the south part of the deposit and returned one of the best graphitic carbon (Cg) intersections of the program with 67.8 m grading 21.10% Cg (from 17.4 to 85.2 m). All the drill holes (except LK-13-203) intercepted significant graphite intersections* along the strike length of the deposit. The 36 significant intercepts are summarized in Table 10.3.

Table 10.3 – Summary of Significant Graphitic Carbon Drill Core Intersections* (Cg >5% and Minimum Intersection of 6 m) from the 2013 Definition Drilling Program at the Lac Knife Project

Hole	Azimuth	Dip	Total Length (m)	From (m)	To (m)	Core Length** (m)	Cg*** (%)	S (%)
LK-13-179	N074	-45	150	16.6	47.0	30.4	14.96	4.99
				58.2	75.4	17.2	20.02	4.51
				119.6	145.3	25.8	19.18	8.04

Hole	Azimuth	Dip	Total Length (m)	From (m)	To (m)	Core Length** (m)	Cg*** (%)	S (%)
LK-13-182	N081	-51	111	15.1	52.0	36.9	16.10	5.10
				59.5	82.6	23.1	21.25	4.01
LK-13-185	N072	-45	150	9.4	58.0	48.6	19.76	5.00
				89.6	114.0	24.4	17.36	3.90
LK-13-186	N080	-45	114	12.9	30.8	17.9	7.60	3.32
				61.2	111.5	50.4	12.19	4.20
LK-13-187	N075	-47	90	17.4	85.2	67.8	21.10	5.99
LK-13-190	N085	-46	90	11.5	75.9	64.4	13.36	5.33
LK-13-191	N078	-45	111	13.4	36.5	23.1	19.37	6.20
				55.8	96.5	40.7	16.73	8.33
LK-13-193	N081	-45	141	42.1	53.0	10.9	10.04	7.03
				97.0	129.3	32.3	14.88	8.31
LK-13-194	N086	-45	43.5	23.8	38.2	14.4	17.18	8.29
LK-13-195	N084	-45	55.5	18.0	30.8	12.8	15.62	5.82
LK-13-196	N071	-45	111	63.8	85.8	22.0	7.03	3.16
LK-13-197	N076	-45	81	5.9	12.1	6.2	20.47	3.64
				22.7	29.2	6.5	18.88	9.70
				47.7	57.0	9.3	10.32	5.64
LK-13-198	N080	-48	51	5.5	27.6	22.1	16.85	8.38
LK-13-199	N080	-48	30	6.3	17.8	11.6	7.08	3.69
LK-13-200	N084	-45	51	13.0	21.1	8.2	17.41	7.88
LK-13-201	N080	-45	70.5	22.0	56.7	34.7	19.34	7.33
LK-13-202	N080	-45	91	53.5	87.4	34.0	17.02	8.82
LK-13-207	N075	-45	48	19.8	41.8	22.0	21.31	9.52
LK-13-208	N078	-45	40.5	13.8	36.1	22.3	21.87	8.84
LK-13-209	N073	-55	130.5	21.5	28.7	7.2	27.03	4.31
				38.2	63.5	25.3	30.94	5.65
LK-13-210	N076	-45	99	9.0	44.5	35.5	13.78	5.41
				70.7	95.8	25.1	22.77	7.28
LK-13-211	N074	-45	70.5	10.3	31.8	21.5	16.63	3.34
				38.4	56.9	18.5	19.66	8.51
LK-13-214	N088	-50	120	34.7	55.7	21.0	24.53	7.10
				68.3	103.4	35.1	18.11	9.25

** Significant intercepts are defined as graphitic carbon >5% over a minimum of 6 m; maximum internal dilution of 6 m; maximum external dilution of 0 m.*

***Significant Cg intersections are expressed as core length because the host rocks are highly metamorphosed and locally migmatized and folded. However the drill holes crosscut at a high angle to the deposit's mineralized envelope that was interpreted from the historical drillhole data and Focus' more recent drill hole data.*

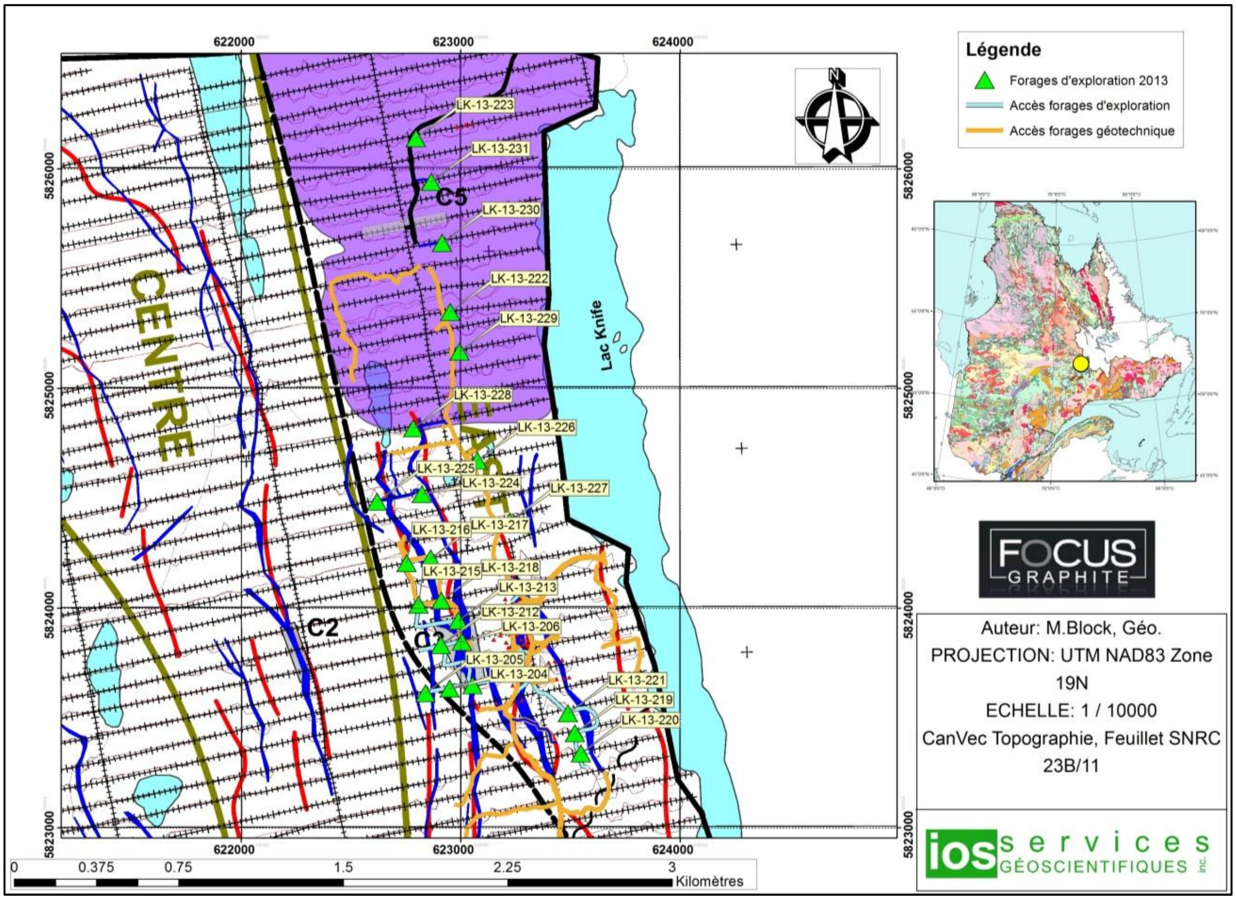
****All drill core sample carbon analyses performed by COREM and reported as graphitic carbon (Cg), using internal analytical method code LSA-M-B10, a LECO high frequency combustion method using an infrared measurement system.*

10.8 Exploration Drilling Campaign 2013

The 2013 summer initial exploration-drilling program was conducted outside of the deposit limits at the same time and immediately after the definition-drilling program on the Lac Knife project (see previous section). A total of fifteen NQ-sized core holes for a total of 2,181 m were completed from August 10 to 25. The drill holes were labelled LK-13-192, 204, 205, 206, 212, 213 and 215 to 223. A second drilling program was conducted on October 8 to 25 that included eight NQ-sized holes for a total of 1,010 m. The drill holes were labelled LK-13-224 to LK-13-231.

Both programs were designed to test geophysical anomalies identified during the fall of 2012 with ground magnetic and horizontal loop electromagnetic (HLEM) surveys. The drill program was planned by Mr. Benoit Lafrance, geologist and Vice-President Exploration for Focus. The holes are located west and southeast of the deposit, as well as in the northern part of the claim block (Figure 10.5). The two exploration drilling campaigns were also managed, as with the definition drill program, by IOS Services Geoscientifiques ("IOS") of Chicoutimi, Québec and drilled by Forage Rouillier of Amos, Québec under the supervision of IOS.

Figure 10.5 – 2013 Exploration Drill Holes Location Map



The drilling was performed with one skid-mounted HTM 2500 rig type for the first program and an tractor mounted drill rig, mounted on a Morrooka, for the second program under the supervision of Mr. Mikaël Block, project geologist assisted by Mr. Jordi Turcotte, geologist and Mr. Levin Castillo, geologist in training for IOS. The rig was operated on two 12-hour shifts, seven days per week. The entire drill hole program had an azimuth of N080 and a dip of -45º. All the casings have been left in place and are identified with a metal cap equipped with a 1 m stem of rebar to signal their presence. Hole deviation was measured with the use of a Reflex Gyro surveying instrument for the first summer program and with a Deviflex instrument for the fall program. Collars were surveyed after the drilling by Mr. Daniel Michaud, surveyor of Sept-Îles in the UTM NAD83 coordinates system.

The drillcore was logged at the Lac Knife camp using the GeoticLog software and shipped to the IOS laboratory in Laterrière, Québec for sawing and sample preparation. A total of 474 half-sawed NQ drill core samples were collected from 23 holes. Slab samples were dried before processing for density measurement, crushing, and grinding at the IOS sample preparation laboratory.

The same assay procedures used for the infill program were used here (see previous section). Under the QA/QC program, an additional 47 samples were processed for re-analysis at ACTLABS. IOS introduced 61 standards, 22 duplicates (sawing, crushing, or grinding duplicates) and 63 blank samples into the batches of core samples as part of the QA/QC program.

Only semi-massive and disseminated graphitic intervals were intersected. The mineralized core lengths vary from 0.5 to 15 m with grades ranging from 1.3 to 13% graphitic carbon (Cg). The better intersections are located in the southeast extension of the deposit.

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Drill Sample Preparation 1989

A report from Explograph titled "Report on the Summer 2000 Field Work" dated October 2000 indicated that the mineralized core that was shipped from the Lac Knife deposit was whole when sent to the laboratory crushing and assaying. The crushed rejects were used to constitute bulk samples for the preliminary metallurgical testing at COREM.

The Davy-Roche Feasibility Study provided the following information in regard to the sample preparation protocol for the 1989 drill core samples. All samples collected, were sent to the Chimitec Ltd laboratory formerly located in the town of Sainte-Foy Quebec. Core was crushed in a jaw crusher to -1/2 inch and riffle split to extract a sub-sample between 200 to 300 grams. This sub-sample was pulverized to -150 mesh.

11.2 Sample Preparation Twin Drill Hole Program 2010

During the 2010 drill campaign, core boxes were collected by the IOS crew and returned to the Fermont facility by truck. At the IOS facility the core was measured and core boxes were labelled with aluminum tags showing the drill hole number, box number, depth (from-to) in metres, and logged as described in Section 10 of this report.

At the IOS facility, the core was split in half longitudinally with a diamond saw. When required, sample twins were prepared by quartering the half core intended for assaying. Samples are described in samples booklets: one tag is placed with the sample, and a second tag is stapled into the core-box.

Quality control samples were inserted prior to sample shipment to the laboratory. Samples were shipped to the Inspectorate Exploration and Mining Services Inc, based in Richmond, British Columbia by road. Inspectorate is an ISO-9001-2008 certified laboratory, but at the time, was not registered as ISO-17025. Each hole being sent had a separate work order.

In order to resolve problems at the laboratory, half-core witness samples from drill holes LK-10-104 and LK-10-108 were quarter-split in order to prepare a twin sample to be shipped to ALS-Minerals for inter-laboratory crosscheck. Sample numbers were maintained the same as initial Inspectorate samples. A total of 91 such replicates were prepared.

The sample preparation indicated above is no longer relevant since all samples from the 2010 twin drill program were re-sampled and submitted to COREM Laboratory in 2012.

11.3 Sample Preparation 2012 and 2013

At the IOS facility, the core is cut in half longitudinally with a diamond saw. For PQ core used in the 2012-2013 drill campaign and due to the large diameter of the core, two (2) 1 cm slices were cut from each side of the core. The one slice is used for the geochemical analysis, and the second slice is inserted back into the box along with the center portion intended to provide material for metallurgical testing.

At the IOS facility the sample preparation including the re-sampling of the twin drill hole program is described as follows:

- Core was sawed longitudinally if received whole from the field and bagged.
- The bags containing the samples are left open in a heated and ventilated room for drying.
- Since the 2012 drill program, density measurements are carried out on all samples using the water immersion method. Samples are not coated due to the low porosity.
- Samples are crushed in a Chipmunk type jaw crusher then riffle split to create a sub-sample weighting between 200-250 grams.
- The entire aliquot is pulverized in a standard ring mill pulveriser supplied by RockLab. The rings of the pulveriser are either composed of chrome steel or carbon steel. The speed and time of the pulverization is determined at the beginning of each project by conducting pulverization tests. The granulometry is monitored every 10 samples using a laser granulometric analyser. The ideal size is 85% passing 75 micron however for the Lac Knife project this ideal size is difficult to achieve due to micaceous minerals that break into flakes generally greater than 75 microns in size. For these samples a visual examination using a stereomicroscope was performed and a decision was made to pulverize the sample a second time or leave it as is. A 60 gram aliquot is collected off the pulverised material for shipping to the analytical laboratory. The remaining material is stored at the IOS facility. It is unlikely that using carbon steel in the pulverizing ring would introduce significant contamination of the sample.
- Prior to shipping a technician insures that all the samples are present and labelled properly. The technician also insures that the internal quality control samples (blanks, duplicate and standard reference material) are weighted and inserted in the sampling chain.
- Pulp samples weighing 50-55 grams were then sent to COREM laboratory. Duplicate samples (1 in 10) were also shipped to ACTLABS for analysis.

AGP reviewed the laboratory preparation protocols implemented by IOS since 2012 and found the procedure described in the various reports to respect industry standards. AGP inspected the IOS facility and although the author is not a specialist in laboratory procedures, the facility was found to be well maintained, clean and appeared to be operated in similar fashion as other facilities previously visited by the author.

11.4 Analytical Method

Graphitic carbon assaying is challenging due to the intrinsic difficulty for analysis of specific carbon species. Carbon in rocks can be lodged in graphite, pseudo graphite, and organic matter as well as carbon in carbonate and other minerals. (Barrette, Girard 2012)

The assaying procedures for graphite assume (a) the removal of the non-graphitic carbon prior to assaying, or (b) the subtraction of the non-graphitic carbon from total measured carbon to obtain the graphitic carbon content.

For laboratories that choose to remove the non-graphitic carbon, inorganic carbon and organic matter are either roasted or oxidized at low temperatures or removed using an acid pre-treatment prior to assaying for graphitic carbon using equipment such as LEICO™ or Eltra CS-2000™ analyser. Graphitic carbon resists the heat from roasting and acid leaching.

For laboratories that subtract the non-graphitic carbon from the total carbon, the organic matter is oxidized during roasting; the carbonate carbon is often measured by colorimetric methods. The total carbon is typically determined using assay equipment such as the LEICO™ or Eltra CS-2000™ analyser. A formula is used to derive the graphitic carbon assay by subtracting from the total carbon the inorganic (carbonate carbon) and organic carbon portion of the sample.

IOS commented that the difficulty with removing the non-graphitic carbon prior to analysis is that the errors are cumulative. The induction furnace works by integrating through time the CO_2 or SO_2 emissions, which is thus cumulating errors. Therefore, graphitic carbon measurements are plagued with a sum of errors of all the other manipulations or assays.

Excessive pulverization of a sample is also known to reduce a portion of the flake graphite to amorphous graphite, rendering it more susceptible to digestion by the acid pre-treatment and compounding the problem.

11.4.3 Chimitec Laboratory 1989

The Davy-Roche Feasibility Study provided the following information in regards to the analytical procedure for the 1989 drill core samples. All samples were analysed at the Chimitec Ltd laboratory. Determination of the total carbon was by LECO™ analyser. Determination of the organic carbon was by colorimetric methods. The graphitic carbon was calculated by subtracting the organic carbon from the total carbon. The report did not indicate the handling of the inorganic carbon in the analytical procedure however, at the Lac Knife project the inorganic portion of the total carbon is known to be very low.

11.4.4 Inspectorate Laboratory 2010 Twin Drill Hole Campaign

Samples from this laboratory were completely replaced with assays from the COREM Laboratory and therefore discussion on the analytical procedure used in the 2010 twin drill hole campaign at the Inspectorate facility is no longer relevant.

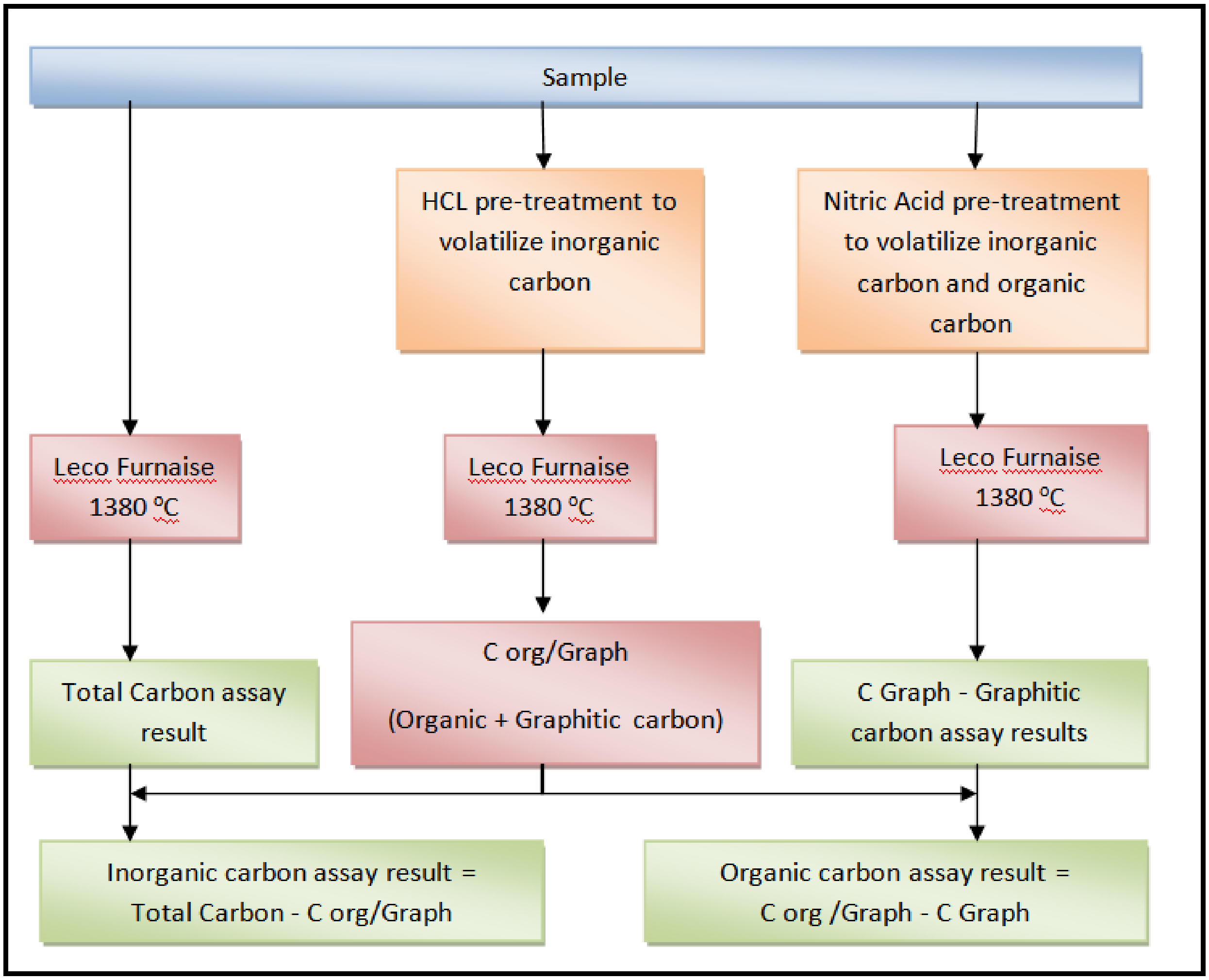
11.4.5 COREM 2012, 2013 and 2010/2011 Re-Sampling Program

Samples for the 2012, 2013 drill program and all the re-sampling of the 2010/2011 twin drill hole program was submitted to COREM Laboratory. COREM is an ISO/CEI 17025-2005 certified laboratory located in Quebec City, Quebec, Canada.

Every core sample was analyzed for Graphitic Carbon and Total Sulphur and every tenth sample was also analyzed for total carbon, inorganic and organic carbon.

The procedures described below are sourced from documents obtained by COREM. Figure 11.1 illustrates the procedure used for the various assay results.

Figure 11.1 – Summary of COREM Analytical Procedure



a) Total Carbon and Total Sulfur

COREM procedure code LSA-M-B45 dated October 01, 2012 is applicable for the determination of total carbon in rocks, coal, cast iron, ore, and concentrates whose content is between 0.05 and 100%. For sulphur, the LSA-M-B41 procedure dated October 1, 2012 is applicable for the determination of total sulphur in rocks, ore, petroleum products, coal, and cast iron whose content is between 0.005 and 100%.

The sample is placed in a LECO capsule and then introduced into the furnace (1,380°C) under an atmosphere of oxygen. Carbon is oxidized to CO_2. After the removal of moisture, gas (CO_2) is measured by an infrared detector. Sulphur is oxidized to SO_2 after the carbon and is measured by the infrared detector. A computerized system calculates and displays the concentration of the total carbon and total sulphur present in the sample.

b) Graphitic Carbon

COREM procedure code LSA-M-B10 dated October 22, 2012 is applicable for the determination of graphitic carbon in rocks, coal, cast iron, ore, and concentrates whose content of graphitic carbon is between 0.10 and 100%.

A sample 0.1 or 0.2 grams is pre-treated with nitric acid in order to remove the inorganic (carbonate) and organic carbon. The 0.1 gram charge is used for high graphite samples in order to improve the efficiency of the nitric acid attack. Then, the sample is placed in a LECO capsule and introduced into the furnace (1,380°C) under an atmosphere of oxygen. The residual carbon is oxidized to CO_2. After the removal of moisture, the gas (CO_2) is measured by an infrared detector. A computerized system calculates and displays the concentration of the graphitic carbon present in the sample. It is noted that nitric acid digestion requires delicate sample manipulation that can introduce small errors in the final graphitic carbon grade.

c) Organic Carbon

COREM procedure code LSA-M-B58 is performed for the determination of organic carbon in rocks, coal, cast iron, ore, and concentrates whose content of organic carbon is between 0.4 and 100%.

First, the sample is pre-treated with hydrochloric acid to volatilize inorganic carbon; organic carbon and graphite will remain (C org/graph). A second portion of the sample is pre-treated with nitric acid to volatilize the inorganic and organic carbon; the graphitic carbon will remain (C graph).The samples are placed in a LECO capsule and then introduced into the furnace (1,380°C) under an atmosphere of oxygen. Carbon is oxidized to CO_2. After the removal of moisture, gas (CO_2) is measured by an infrared detector. A computerized system calculates and displays the concentration of the organic / graphitic carbon and the graphitic carbon present in the sample. The result of the organic carbon is obtained by a calculation using the following equation: Organic Carbon = C org/graph – C graph.

d) Inorganic Carbon Analysis

COREM procedure code LSA-M-B11 is performed for the determination of inorganic carbon in rocks, coal, cast iron, ore and concentrates whose content of inorganic carbon is between 0.4% and 100%.

The sample is pre-treated with hydrochloric acid. Then, the sample is placed in a LECO capsule and introduced into the furnace (1,380°C) under an atmosphere of oxygen. Carbon is oxidized to CO_2. After the removal of moisture and ash, gas (CO_2) is measured by an infrared detector. A computerized system calculates and displays the concentration of the organic/graphitic carbon in the treated sample. A second part of the untreated sample is analyzed to determine its total carbon concentration. Inorganic carbon is determined by a calculation subtracting the concentration of organic carbon / graphite concentration of total carbon.

11.4.6 ACTLABS 2012 and 2013 Duplicate Samples

Ten percent of the 2012-2013 pulps were analysed for Graphitic Carbon and Total Carbon along with multi element ICP at Activation Laboratory (ACTLABS). The ACTLABS Ancaster facility is an ISO/IEC 17025:2005 with CAN-P-1579 certified laboratory located in Ancaster, Ontario, Canada.

The procedures described below are sourced from documents obtained from ACTLABS.

a) Total Carbon and Total Sulphur

For the ACTLABS procedure code 4F, an accelerator material is added to a 0.2 g sample. The inductive elements of the sample and accelerator couple with the high frequency field of the induction furnace. The pure oxygen environment and the heat generated by this coupling cause the sample to combust. During combustion, carbon-bearing elements are reduced, releasing the carbon, which immediately binds with the oxygen to form CO and CO_2, the majority being CO_2. Also, sulphur-bearing elements are reduced, releasing sulphur, which binds with oxygen to form SO_2. Sulphur is measured as sulphur dioxide in the first IR cell. A small amount of carbon monoxide is converted to carbon dioxide in the catalytic heater assembly; SO_2 is converted to SO_3, while sulphur trioxide is removed from the system in the cellulose filter. Carbon is measured as carbon dioxide in the IR cell as gases flow through the IR cells. Carbon dioxide absorbs IR energy at a precise wavelength within the IR spectrum. Energy from the IR source is absorbed as the gas passes through the cell, preventing it from reaching the IR detector. All other IR energy is prevented from reaching the IR detector by a narrow bandpass filter. Because of the filter, the absorption of IR energy can be attributed only to carbon dioxide (CO_2). The concentration of CO_2 is detected as a reduction in the level of energy at the detector. An Eltra CS-2000TM analyzer is used for the analysis.

b) Graphitic Carbon

For ACTLABS procedure code 5D, a 0.5 g sample is subjected to a multistage furnace pre-treatment to remove all forms of carbon with the exception of graphitic carbon. Either a resistance or induction furnace is used for analysis. The inductive elements of the sample and accelerator couple with the high frequency field of the induction furnace. The pure oxygen environment and the heat generated by this coupling cause the sample to combust. During combustion, carbon-bearing elements are reduced, releasing the carbon, which immediately binds with the oxygen to form CO and CO_2, the majority being CO_2. Carbon is measured as carbon dioxide in the IR cell as gases flow through the IR cells. Carbon dioxide absorbs IR energy at a precise wavelength within the IR spectrum. Energy from the IR source is absorbed as the gas passes through the cell, preventing it from reaching the IR detector. All other IR energy is prevented from reaching the IR detector by a narrow bandpass filter. Because of the filter, the absorption of IR energy can be attributed only to carbon dioxide (CO_2). The concentration of CO_2 is detected as a reduction in the level of energy at the detector. An Eltra CS-2000™ analyzer is used for the analysis.

c) Multi-Element ICP

For ACTLABS procedure code 1E2, a 0.5 g of sample is digested with aqua regia for 2 hours at 95°C. Sample is cooled then diluted with de-ionized water. The samples are then analyzed using a Varian™ Inductively coupled Plasma - Optical Emission Spectrometer ICP-OES for the 35 element suite.

11.4.7 AGP Comments on Analytical Procedure

The main difference between COREM and ACTLABS in the Graphitic Carbon analysis is related to the nitric acid pre-treatment used by COREM that is replaced by loss on ignition multistage furnace pre-treatment to rid the sample from the organic and inorganic carbon at the ACTLABS facility. Both methods compare very well as indicated in Section 11.7.1 of this report.

11.5 Quality Assurance and Quality Control Program

The Lac Knife Project drill hole assays have been monitored by a quality assurance program and quality control program (QA/QC) since 1989. The programs in place during the 1989 campaign were limited in scope and only consisted of pulp duplicate and check assays. AGP notes this program was consistent with the industry practice at the time the drilling was conducted.

Under the supervision of IOS Service Geoscientific a more comprehensive program was implemented in 2010. This program consisted of quarter split duplicates, blanks, and insertion of commercially available certified reference material.

Prior to the 2012 drill campaign, the QA/QC program was reviewed in light of the issues encountered at the Inspectorate Laboratory. IOS carried out a round-robin assay program to help in the selection of a primary laboratory and to resolve the graphitic carbon analytical issue. The program was reviewed by consulting firm Roscoe Postle and Associates (RPA) of Toronto, Canada. As part of the round robin program an internally developed reference material was also added to the suite of the commercially available material.

Changes were implemented for the 2012 campaign; IOS added the insertion of internally generated reference material, crusher duplicates and pulp duplicates. IOS also implemented a 10% check assays program at an umpire laboratory.

These QA/QC protocols remained in place for the 2013 drill campaign.

AGP notes that IOS, as part of their contract with Focus, routinely monitors results of the internal QA/QC program along with the QA/QC program of the analytical laboratory during the drill program execution in order to insure quality assays. AGP reviewed and commented on the information provided by IOS in the various end-of-campaign drill reports which are summarized below.

11.5.1 QA/QC Program 1989

The Davy-Roche Feasibility Study provided the following information in regards to the QA/QC protocol in place at the time the drilling was conducted. In order to control the quality of the analysis from the Chimitec laboratory, two protocols of verification were implemented.

- ***Pulp Duplicate:*** Fifty-five pulps analysed at Chimitec were re-analysed at Metric Lab of Montreal.
- ***Check assays:*** Fifteen samples pulps were re-analysed three times at the Chimitec laboratory and then forwarded to the Centre de Recherche Mineral de Quebec for re-analysis.

Results from the pulp duplicate program show that with the exception of four outliers, the grade differences between Chimitec and Metric Lab were evenly spread about the zero line. The sum of the differences indicated +24.44% Cg, however once the four outliers were removed from the dataset, the sum of the difference was reduced to -0.72% Cg which translated to an average lower value of 0.01% Cg per sample for the Chimitec laboratory.

Results from the check assay program indicated that on average the Centre de Recherche Mineral reported values 0.29% Cg higher than the Chimitec laboratory. The average relative difference was 4.07% which was considered acceptable by Davy-Roche.

AGP reviewed the information presented and although details of the analytical procedure used for the Metric Lab and Centre de Recherche Mineral were lacking in the report reviewed, AGP concurs with the assessment of the author of the Davy-Roche Feasibility Report.

11.6 QA/QC Twin Drill Hole Campaign 2010

Samples from this drill campaign had numerous issues related to the QA/QC results. Recommendations were made to re-sample the core and replace all assay results with assays from COREM, Focus's primary laboratory. Discussion on the QA/QC protocol and results for the twin drill hole campaign conducted in 2010 is no longer relevant.

11.7 QA/QC Drill Hole Campaign 2012

11.7.1 COREM versus ACTLABS

A total of 10% of the pulps submitted to COREM were also analyzed at ACTLABS allowing the comparison of the graphitic carbon and total sulphur assays. The correlation between the labs is excellent despite the differences in the pre-treatment of the samples. For 2012, the 199 duplicates indicated an R^2 correlation coefficient of 0.9967 and 0.9975 for Cg and Stot respectively.

11.7.2 Core Duplicates

A total of 45 core duplicates consisting of a second 1 cm thick slice of the PQ core were inserted in the sample chain with non-consecutive sample numbers. The correlation of the graphitic carbon is excellent with an R^2 correlation coefficient of 0.9724. The correlation coefficient was slightly lower for sulphur at 0.8824. The slope of both regressions is near 1 indicating a lack of bias.

11.7.3 Crusher Duplicates

A total of 37 crusher duplicates collected at the riffle splitter were inserted in the sample chain with non-consecutive sample numbers. The correlation coefficient R^2 for the graphitic carbon and the total sulphur assay of 0.9918 and 0.9975 respectively is excellent. The slope of both regressions is near 1 which is indicative of a lack of bias.

11.7.4 Pulp Duplicate

A total of 28 pulp duplicates consisting of a second cut weighing between 50 and 60 grams were submitted into the sample chain with non-consecutive sample numbers. No issues were reported by IOS. The correlation coefficient R^2 for the graphitic carbon and the total sulphur assay of 0.9899 and 0.9988 respectively is excellent. The slope of both regressions is near 1 which is indicative of a lack of bias.

11.7.5 Reference Material

Six (6) types of certified reference material (CRM) were inserted in the sample chain. Reference material correctly certified for graphite was not available from an Australian or North American supplier. The material used at Lac Knife was sourced from Mongolia and China and a number of issues were noted in the IOS report:

- The number of measurements used to determine the certified values was not mentioned in the documentation;
- The laboratories participating in the round robin program were mentioned but a number of them are not certified;
- The assaying methods for the graphitic carbon are not necessarily comparable to the North American market.

IOS concluded that the reliability of the graphitic carbon assay is found to be questionable in regards to the specification required by the project.

Reference material CGL003 and CGL004 were ordered from Techlab and originate from the Central Geological Laboratory in Mongolia. Both materials originated from graphite deposits located in Mongolia. The certified value is expressed as total carbon.

Reference material NCS DC 6019, 6029, 6021 were ordered from Sylab in France and are approved by the China National Analysis Center for Iron and Steel in China. Table 11.1 shows the certified material expected value and the average grade obtained by the laboratory used by Focus.

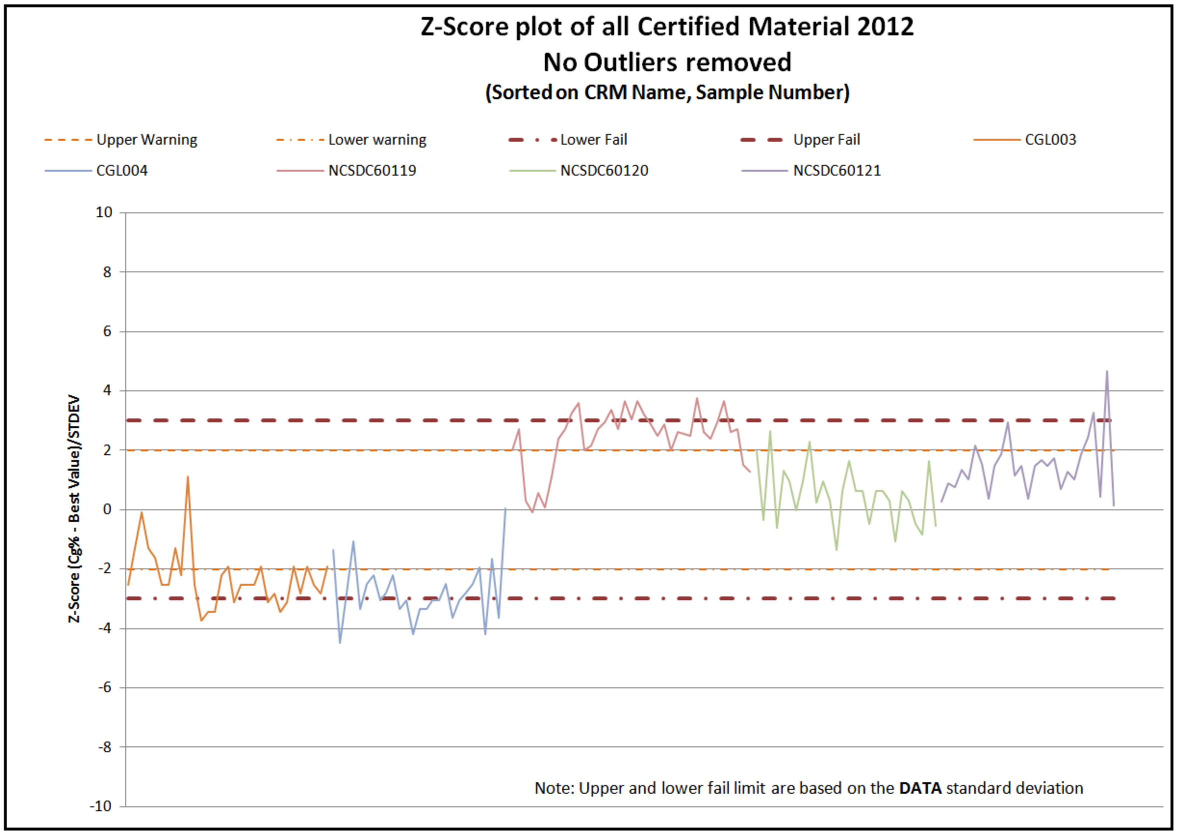
Table 11.1 – Certified Material

CRM	Element	Certified Value (%)	Average Cg 2012 (%)	Count 2012
CGL 003	C Total	14.43 ± 0.64	13.7	31
CGL 004	C Total	13.38 ± 0.67	12.4	27
NCS DC 60119	C Graphitic	2.90 ± 0.12	3.2	37
NCS DC 60120	C Graphitic	9.91 ± 0.08	10.1	28
NCS DC 60121	C Graphitic	76.5 ± 0.08	78.8	27

IOS generally reported that the precision was good for the certified reference materials GL003 and CGL004. For reference materials DC 60119, DC60120 and DC60121 the values obtain by COREM and ACTLABS generally remained fair but imprecise.

AGP reviewed the performance of the certified material for the 2012 drill campaign. Results indicated that on average, the laboratories used by Focus under-estimated the grade of the Mongolian CGL003 and CGL004 reference material and overestimated the grade of the Chinese reference material. The average grade is somewhat closer to the ±95 confidence limit of the certified value. AGP noted the CGL003 and CGL004 reference grade is expressed as total carbon and not graphitic carbon that would explain the lower grades reported by COREM and ACTLABS. A Z-Score chart produced with the 2012 certified reference material using the **data** standard deviation indicated the SRM analyzed at COREM marginally stayed within 3 standard deviations of the data as shown in Figure 11.2.

Figure 11.2 – CRM Z-Score chart (pass limits are based on the data standard deviation)



11.7.6 Blanks

Blank material used by IOS originates from a high purity quartz vein at Lac Bouchette. The material was clean, crushed, and pulverized using a ceramic disk pulveriser supplied by Bico Braun Int. and also using a mini rod mill with stainless steel rods. The quartz is certified sterile with metal assays under detection limit. The material allows the detection of contamination at the analytical level.

Approximately 230 blank samples were inserted into the sampling chain that was submitted to COREM during the 2012 drill campaign. IOS reported that no sample contamination was detected which was confirmed by AGP.

11.7.7 Internal Reference Material

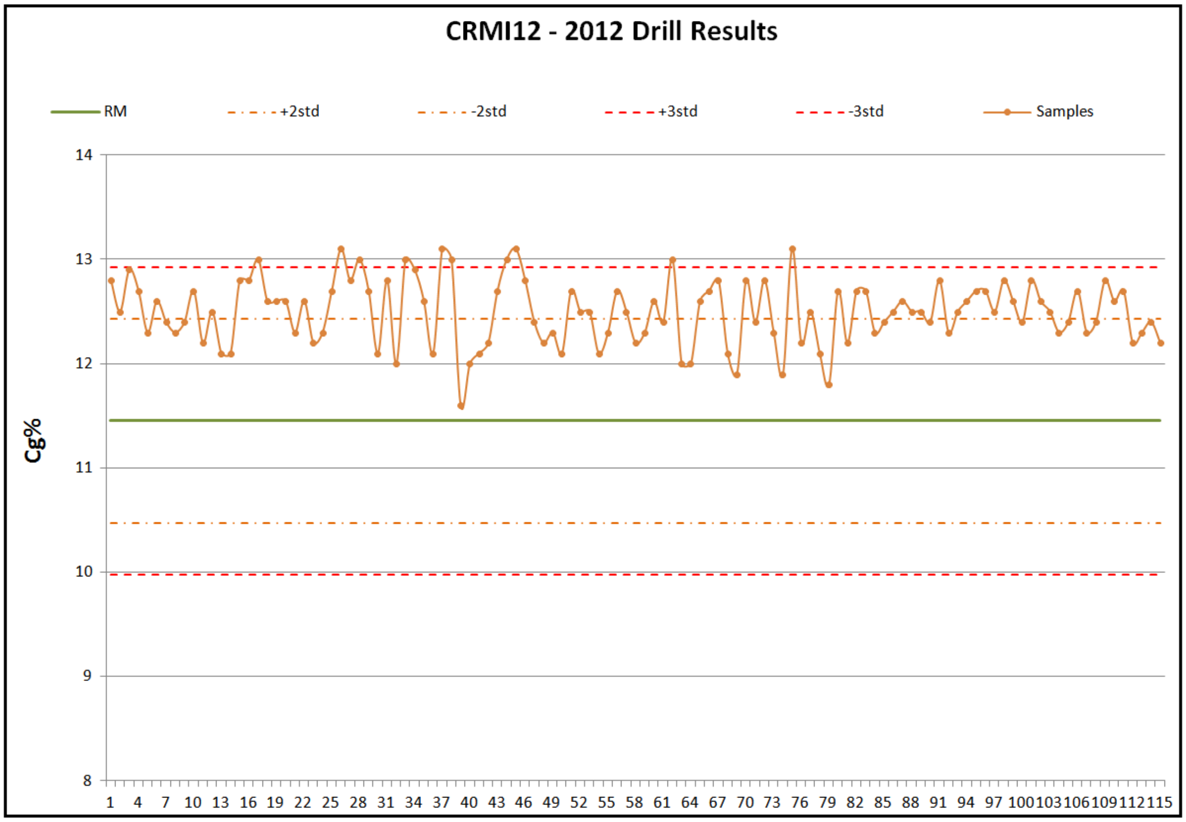
In addition to the above commercial reference materials, IOS has prepared an in-house standard material made from the reject sample material from the 2010 drilling campaign. The pulps were placed in an empty, clean, plastic barrel containing rods of various diameters and the barrel was rolled for 2 hours to homogenize the material. IOS screened the material to 1 mm then bagged it in 10 kg lots. This standard is referred to as CMRI12. The material was sent to five accredited laboratories, each of the laboratories received nine samples to assay. The result is that for CMRI12, at the round robin stage, 45 assay results were available to derive an average value for this reference material.

The global average for CMRI12 from the 45 results is 11.45% Cg. It must be noted that not all laboratories have reported results as graphitic carbon; the results have been interpreted for ALS and SRC to derive a graphitic carbon value. If the results from these two laboratories are excluded, the remaining 27 results average 11.20% Cg. Either from 45 or 27 samples, the average value of CMRI12 can be determined with a reasonable level of confidence. AGP noted that the number of samples for the internal reference material was low when compared to commercial standards. Smee and Associate Consulting Ltd recommend a minimum of 60 analyses using a minimum of five laboratories be used for the preparation of a geological standard.

In excess of 150 CMRI12 were inserted in the sample chain during the 2012 drill campaign. IOS reported the assay results for graphitic carbon from COREM and ACTLABS averaged 12.4% Cg and were “stable” with a coefficient of variation of 3.2% Cg and 1.6% Ctot.

RPA reported the round robin assay results for the internally developed CMRI12 returned a global average grade of 11.45% Cg grade. AGP graphed 115 CMRI12 results analysed at COREM against the inter laboratory round robin data. Results indicated that COREM consistently overstated the grade of the CMRI12 by an average of 1.05% Cg. Results also show that the COREM assays (with a few exceptions) stayed within the +3 and +2 standard deviation limits as shown in Figure 11.3.

Figure 11.3 – CRMI12 Results for the 2012 Drill Campaign at COREM



11.8 QA/QC 2013 Drill Hole Campaign

11.8.1 COREM versus ACTLABS

A total of 10% of the pulps submitted to COREM were also analysed at ACTLABS allowing for the comparison of the graphitic carbon and total sulphur assays. The correlation between the labs is excellent despite the differences in the pre-treatment of the samples. For 2013, the 130 duplicates indicated a R2 correlation coefficient of 0.9981 and 0.9867 for Cg and Stot respectively.

11.8.2 Core Duplicates

A total of 26 core duplicates consisting of a second 1 cm thick slice of the PQ core were inserted in the sample chain with non-consecutive sample numbers. The correlation of the graphitic carbon is excellent with a R^2 correlation coefficient of 0.9565. The correlation coefficient was slightly lower for sulphur at 0.9374. The slope of both regressions is near 1 indicating a lack of bias.

11.8.3 Crusher Duplicates

A total of 17 crusher duplicates collected at the riffle splitter were inserted in the sample chain with non-consecutive sample numbers. The correlation coefficient R^2 for the graphitic carbon and the total sulphur assay of 0.9899 and 0.9784 respectively, is excellent. The slope of both regressions is near 1 which is indicative of a lack of bias.

11.8.4 Pulp Duplicates

A total of 16 pulp duplicates consisting of a second cut weighing between 50 and 60 grams were in the sample chain with non-consecutive sample numbers. No issues were reported by IOS. The R^2 correlation coefficient for the graphitic carbon and the total sulphur assays were 0.9975 and 0.9967 respectively and considered excellent. The slope of both regressions is near 1 which is indicative of a lack of bias.

11.8.5 Reference Materials

For the 2013, the six types of certified reference materials (CRM) sourced from Mongolia and China remained in use along with the internally developed reference material.

Table 11.2 shows the certified material expected value and the average grade obtained by the laboratory used by Focus.

Table 11.2 – Certified Material for the 2013 Drill Program

CRM	Element	Certified Value (%)	Average Cg 2013 (%)	Count 2013
CGL 003	C Total	14.43 ± 0.64	13.6	11
CGL 004	C Total	13.38 ± 0.67	12.3	12
NCS DC 60119	C Graphitic	2.90 ± 0.12	3.3	13
NCS DC 60120	C Graphitic	9.91 ± 0.08	10.1	14
NCS DC 60121	C Graphitic	76.5 ± 0.08	78.0	11
CRMI12	C Graphitic	11.45	12.5	54

IOS generally reported that the precision was good for the certified reference materials GL003 and CGL004.

The average value returned by the laboratories and used by Focus remains lower than the expected grade however the grade of the CRM is reported in total carbon and not graphitic carbon.

For reference material DC 60119, DC60120, and DC60121 the value obtained by Focus`s laboratory was higher than the expected value of the CRM. IOS reported the value remained imprecise.

Results for the internally developed CRMI12 mimic results from the 2012 drill program.

The average value obtained by the COREM laboratory is about 1.05% Cg higher than the expected value derived from the inter lab round robin program.

11.8.6 Blanks

Approximately 115 blank samples were inserted in the sampling chain submitted to COREM during the 2013 campaign. IOS reported no contamination of the samples were detected which was confirmed by AGP.

11.9 Comments by AGP

In light of the QA/QC review, AGP would like to make the following recommendations:

- AGP recommends implementing the deliberate insertion of a “crushable blank” material in order to ensure that contamination during the sample preparation protocol is adequately monitored. The material currently in use is inadequate to monitor cross sample contamination originating from the sample preparation protocol steps.
- It is also recommended that for future drill program, Focus should consider using the graphitic carbon reference material now available from CDN Laboratories (Spring 2014) or Geostats Pty (Spring 2013) to replace the Mongolian and Chinese reference material.
- Overall, the QP concludes the IOS implemented a complete QA/QC program that meets or exceeds industry standard. The difficulty in obtaining suitable commercial certified reference material hindered IOS’ ability to adequately monitor the analytical accuracy of the COREM laboratory. Despite this minor shortcoming, AGP considers that the assay results are adequate to support the Mineral Resource Estimate presented in this report.

11.9.1 Security

Samples collected by IOS were accessible only to authorized IOS of Focus personnel until the samples were received at the laboratory. AGP believes the chain of custody described in various reports and observed by Roche's consultants for the sampling at the Lac Knife project is to industry standards. The author could not observe the procedures described during the site visit since the drill program was completed and the camp was dismantled.

12.0 DATA VERIFICATION

12.1 Data Verification

IOS Service Geoscientifiques (IOS) has managed drill programs for Focus since 2010. IOS is an independent company providing exploration, sample preparation, and Geographical Information System ("GIS") services to various exploration companies and government agencies. IOS has made a strong commitment to the geological and assay database and have, as far as is possible, produced a database that is complete, well documented, and traceable. Prior to 2010, the former owner Mazarin, managed the drill programs. The original drill core was discarded and no longer available for review.

Field inspection and database validation was carried out by a number of authors prior to this resource update. The following text summarizes the field inspection carried out prior to the AGP site visit in October 2013.

12.2 Summary of Previous Field Inspections

12.2.1 Roche Field Inspection (2010 to 2011)

Mr. Edward Lyons, P. Geo. of Tekhne Research visited several work sites on the Lac Knife project between October 2010 and March 2011. He also visited the IOS laboratory and office located in Chicoutimi, QC. Mr. Lyons reported that the original Mazarin drill hole sites were located from several areas using existing drill casing or definitive evidence of a drilling site, including old burlap pieces, core bits, pieces of drill pipe, etc.

At the time of the visit, the reconstructed grid coordinates were in NAD 27 and were reportedly validated in the field. The twin hole drill program was in progress during his last visit and Mr. Lyons reported the holes were carefully marked and all coordinates were surveyed using a hand held GPS unit. At the rig, the core was properly marked and handled with due care. Core boxes were transported to a small field logging facility where a reconnaissance log was performed by the geologist on site. The core was then covered and shipped by truck to the IOS facility in Chicoutimi.

At the IOS laboratory, the core was received and stored in a secure yard adjacent to the facility for later processing. Core was detailed and logged following as much as possible the procedures that were established by Mazarin. Samples were saw-cut in half, tagged and shipped to the Inspectorate Exploration and Mining Services Ltd., based in Richmond, British Columbia.

Mr. Lyons recommended that Mazarin's drill collars be verified in the field during the summer season and that all holes be properly marked and surveyed using a differential GPS unit competently operated.

Mr. Lyons concluded the work was satisfactory and that he was of the opinion that the core was properly handled and tracked and that the sampling was done with a reasonable standard of care.

No independent samples were reported to have been collected by Roche.

12.2.2 RPA/Soutex Field Inspection (2012)

RPA engineers Mr. R. de l'Etoile and Mr. Lavigne visited the site on June 28, 2012. At the time of the visit, a crew of geologists and operators were establishing a base camp as the 2012 drilling campaign was being set-up.

Several drill sites from the 2010/11 drilling program were visited and the location of the holes were clearly identified by metal casings with a metal cap engraved with the drill hole number. RPA commented that the position of the 1989 drill holes could not be verified in the field due to a lack of casing or hole identification. RPA also added that at the expected drill hole locations, evidence of human activity and drilling was observed.

RPA engineers also observed several locations where bulk sample material was taken in the 1990s. Evidence of work and earth moving could be observed. Exposed, mineralized, graphite-bearing rocks were outcropping and able to be examined from within the stripped area.

RPA concluded it was reasonably confident the drill holes from 1989 did actually exist and considers it is acceptable to use the information related to these drill holes for a Mineral Resource Estimate. RPA reported that they did not collect independent samples during the site visit.

12.3 AGP Field Inspection 2013

Mr. Pierre Desautels, P.Geo, visited the Lac Knife property on October 30, 2013, accompanied by Mr. Mikaël Block P. Geo., Exploration Geologist for IOS, and Mr. Michel Lecuyer who is a local outfitter. Drilling was completed at the time of the visit and the exploration camp was dismantled.

The 2013 site visit entailed brief reviews of the following:

- Overview of the geology and exploration history of the Lac Knife Project
- Management of the Lac Knife exploration program by IOS
- Drill hole collar locations
- Description of the drill rig procedures including core handling
- Sample collection protocols at IOS's core logging facility
- Discussion on the transportation of samples and the sample chain of custody including security
- Core recovery
- QA/QC program (insertion of standards, blanks, duplicates, etc.)
- Monitoring of the QA/QC program
- Review of diamond drill core, core logging sheets and core logging procedures (the review included commentary on typical lithological units, alteration, and mineralization styles, and contact relationships at the various lithological boundaries)
- Specific gravity sample collection

During the 2013 site visit, AGP collected three character samples. AGP packaged the samples that were subsequently shipped by Focus to AGP's office in Barrie, Ontario. The samples were examined for tampering prior to being shipped to Activation Laboratories Ltd. at 1428 Sandhill Drive, Ancaster, Ontario, via Canada Post. The sample analysis allowed an independent laboratory to confirm the presence of graphite in the deposit and assess differences in terms of grade ranges. Samples were analysed for graphitic carbon using procedure code 4F-C-Graphitic Infrared which is described by ACTLABS as follows:

> *"Accelerator material is added to a 0.2 g sample. The inductive elements of the sample and accelerator couple with the high frequency field of the induction furnace. The pure oxygen environment and the heat generated by this coupling cause the sample to combust. During combustion, carbon-bearing elements are reduced, releasing the carbon, which immediately binds with the oxygen to form CO and CO_2, the majority being CO_2. A small amount of carbon monoxide is converted to carbon dioxide in the catalytic heater assembly. Carbon is measured as carbon dioxide in the IR cell as gases flow through the IR cells. Carbon dioxide absorbs IR energy at a precise wavelength within the IR spectrum. Energy from the IR source is absorbed as the gas passes through the cell, preventing it from reaching the IR detector. All other IR energy is prevented from reaching the IR detector by a narrow bandpass filter. Because of the filter, the absorption of IR energy can be attributed only to carbon dioxide (CO_2). The concentration of CO_2 is detected as a reduction in the level of energy at the detector. An Eltra CS-2000 is used for the analysis."*

This methodology is similar to the methodology used by the COREM laboratory which is described as:

> *"The sample is pre-treated with nitric acid to volatilize the inorganic carbon and organic carbon. Then, the sample is placed in a LECO capsule and then introduced into the furnace (1,380°C) under an atmosphere of oxygen. Carbon is oxidized to CO_2. After the removal of moisture, gas (CO_2) is measured by an infrared detector. A computerized system calculates and displays the concentration of the graphitic carbon present in the sample."*

The assay results of the independent character samples are shown in Table 12.1. AGP notes that due to the small number of samples, the results are not statistically significant however the samples confirm the presence of graphitic carbon in the deposit in what appears to be within the same range of grades as what was reported by Focus, which was the main intent of collecting these samples.

Table 12.1 – Character Sample Results - Cg %

AGP Sample Nb	AGP Cg (%)	Hole Number	From	To	IOS Sample Nb	IOS Cg (%)	Cg (%) diff GEMS-IOS
83601	28.2	LK13-179	64.0	65.2	80314095	23.9	4.3
83602	15.3	LK12-142	3.3	4.8	80312288	17.6	-2.3
83603	10.4	LK10-101	46.95	48.45	80310029	11.3	-0.9

Drilling programs were completed prior to the AGP site visit; therefore the core handling procedures described by IOS cannot be confirmed. The site was snow covered which impeded the observation of the outcropping of the graphitic unit. The bulk samples Area1 and Area2 were readily recognizable due to the lack of trees and evidence of ground disturbance.

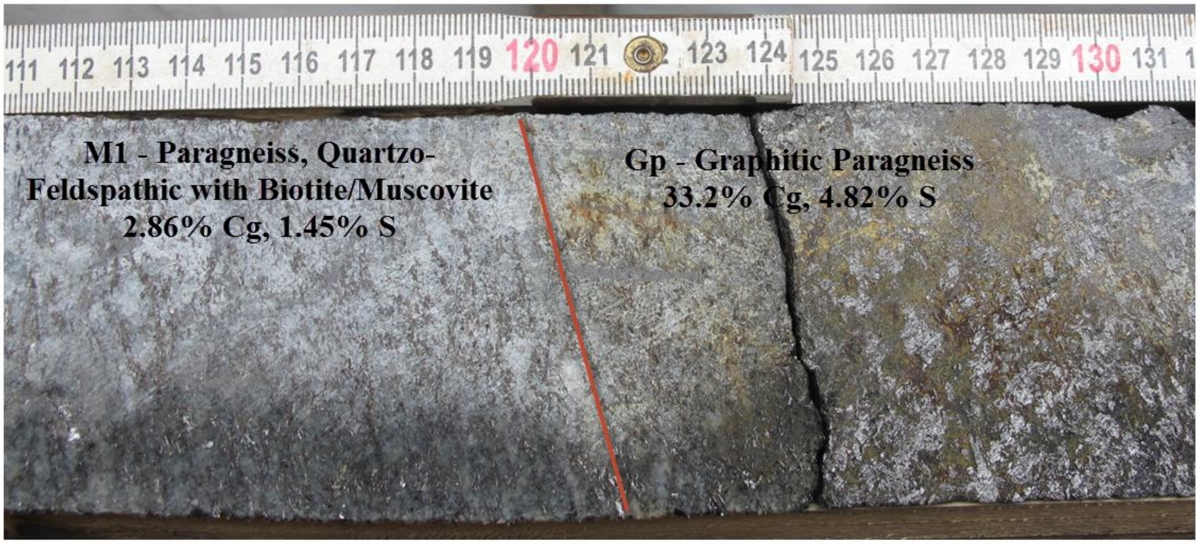
Since 2010, IOS has been responsible for managing all aspects of the drill program, sample preparation, logistics, and management and monitoring of the QA/QC program for Focus. At the end of each drill program, IOS also authored a series of comprehensive internal reports. Since 2012, all in-fill definition drill holes are PQ diameter in size in order to provide sufficient material for metallurgical testing.

Since 2012 and 2013, the core was reportedly logged in the field directly into the Geotic logging software and marked for sampling. Core was then shipped from the field to the IOS facility by truck. The sample preparation facility was inspected during the site visit.

Approximately 95% of the holes are drilled perpendicular to the graphite lens at an azimuth ranging from 036 to 104 degrees (averaging 078 degrees). Five percent of the holes were drilled sub-parallel to the zones at an azimuth ranging from 250 to 290 degrees (averaging 263 degrees) in order to generate sufficient material for graphene testing.

The drill holes inspected show the core was properly marked. Sampling intervals were approximately 1.5 m in length. Transition from the mineralized graphitic paragneiss (“GP”) to the un-mineralized quartzo-feldspathic gneiss (“M1”) is often less than 1 m, except in areas where the GP inter-fingered with the M1. The contact zone appears to be visually distinguishable in the core reviewed by AGP as illustrated in Figure 12.1. The sampling intervals honour the geological boundaries with proper shoulder samples as stated in the IOS field report.

Figure 12.1 – Example of a contact between M1 and GP in drillhole LK-13-179



Hole LK-13-179 @ 58.20m

Inspection of the grade distribution at the high grade/waste boundary appears to show a sharp degradation in tenor and the QP is fairly confident that the un-sampled intervals beyond the shoulder samples consist of waste grade material in the sub 1% Cg range. AGP would prefer a number of representative holes be sampled from top to bottom in order to confirm the actual grade range in the un-mineralized sections of the deposit and also to provide sulfur content for acid rock drainage studies.

In the logs, the field geologist visually estimates the graphitic content. On average, the visual estimate is pessimistic below 4% Cg and optimistic above 4% Cg, meaning when the core is visually estimated at 0, 1, 2 and 3% Cg the actual laboratory average will be between 3% and 4% Cg. More importantly, when the core is visually estimated as "Trace" or "Tr-2%", the actual Cg grade will, on average, be above the 3% resource cut-off. This could be a reflection of a weak gradational contact in the 0-3% Cg range in the shoulder samples not readily discernible by eye and it is not indicative that the bulk of the un-mineralized gneiss may be above cut-off. As stated above, AGP would prefer a number of holes be sampled from top to bottom in order to assess the grade range in the un-mineralized sections of the deposit since it appears difficult to visually estimate grade within the range of the open pit cut-off grade.

The contact with the GP and M1 unit can be considered sharp for resource modeling purposes and in the QP's opinion, it is doubtful this interpretation will change following additional assays of the un-mineralized portions of a few representative holes.

The PQ sized core is "filleted" longitudinally with a diamond saw resulting in two (2) thin slices (1 cm thick) and a thicker central section that is typically used for metallurgical testing. The saw blade in the cutting operation uses fresh water as a coolant to minimize contamination. One fillet is left in the box and the other is crushed, riffle split to 200 - 250 g and pulverized at the IOS facility. Between samples, compressed air is used to clean the crusher. The pulveriser is cleaned with compressed air and a damp cloth. The prepared sample pulps weighting between 50 and 55 g each are then sent to COREM Laboratory for analysis along with the QA/QC samples inserted in the sampling chain.

QA/QC samples consist of reference material, pulverized blank material, core duplicates, crush and pulp rejects. For 10% of the samples, a duplicate is also sent to ACTLABS for analysis. AGP notes the blank material is suitable for monitoring contamination at the analytical level but inadequate to monitor contamination during crushing and pulverizing cycles.

Focus is currently storing the core on pallets at the IOS facility located in Chicoutimi within a locked fenced yard; the core is considered secure by AGP. No core remains at the project site near Fermont.

At the project site, holes drilled since the 2010 program are clearly marked with steel flags inserted over the casing. One casing from the 1989 drill program was located. The remaining historical drill sites were no longer visible. The camp was not operational during the site visit with no drilling underway on the property at that time. The snow cover prevented inspection of outcrops. Figure 12.2 shows a few photographs taken during the site visit by AGP.

Figure 12.2 – 2013 Site Visit Photographs

Hole LK-89-04 Drillcollar

New Drillhole Marked LK-13-184

Massive Graphite LK13-179 @ 64 m (23.9% Cg)

PQ Size Core Storage at IOS

Boulder in Blast Area 1

Lac Knife from the Camp Area

Overall, AGP concludes the logging, sampling, sample preparation, security, and chain of custody procedures reviewed during the site visit are to industry standards and adequate to support the Mineral Resource Estimate. AGP recommends using a crushable blank material to monitor the contamination at the crushing and pulverizing stages of the sample protocol.

12.3.1 Database Validation

Following the site visit and prior to the resource evaluation, AGP carried out an internal validation of the drill holes in the Focus database.

Details of the database validation used for the previous NI43-101 report authored by Roche are not available. RPA stated the work done by Roche was verified and the verification extended to a summary review of the drill hole database and geological interpretation.

The historical drillcore, sample pulps and rejects pre-dating the 2010 drill campaign are no longer available. Original logs and assay certificates from the Chimitec laboratory were available for review. During the 2012 drill program and continuing in 2013, Focus twinned a number of historical holes in order to improve confidence in those analyses and to allow for their use in resource estimation at the pre-feasibility and feasibility study levels.

12.3.2 Twin Hole Validation and Usage of the 1989 Drill Holes

The main goal of the 2010 drill campaign was to validate the historical grade stated by Mazarin to allow for the inclusion of the historical drillholes in the resource estimation and improve confidence in those assays. To accomplish this goal, Focus twinned twelve historical drillholes and submitted the core for analysis to Inspectorate Laboratory of Vancouver. The analytical method involved an HCl digestion to remove the carbonates followed by Leco induction furnace, typically set at 1050^o, in order to burn off the organic graphite. CO_2 and SO_2 emissions are measured with an infrared spectrometer. It was also recommended by Roche to use a Double Loss on Ignition (DLOI) for samples above 40% Cg however the Inspectorate certificates do not indicate if the DLOI procedure was actually used on any or all samples above the 40% Cg.

The twelve twin drill holes successfully intersected the graphitic mineralization with a comparable grade profile as the former holes. However, Roche reported individual assays could vary as much as 75%. Additionally, the composite grade was found to be systematically lower grade when compared to the 1989 Mazarin data. At that time, IOS explained the discrepancies by geological heterogeneities related to lateral variations of the geology when the holes are located near the twin hole. For the “true twins”, the difference in the grade profiles should be limited to a depth-shift. For those holes, a near similar grade profile is indicative of the same geological material that has been intersected and sampled. However, IOS and Roche noted the 2010 results systematically underestimated the grade of the 1989 Mazarin holes by 15%.

IOS introduced a QA/QC program at that time consisting of reference material, blank and duplicates. A number of problems were identified with Inspectorate Laboratory including sample mix up, but more importantly a 10-15% underestimation of the reference material and the replicate assays conducted by ALS Chemex of Val d’Or.

On October 30, 2012, RPA commented on the twinned drill program and the 2010/2011 drilling campaign. The grade difference was attributed by Focus to the different analytical methods used between the 1989 drillcore assay results and the drillcore assay results from the 2010 drill campaign. At that time, RPA considered the 2010/11 campaign did not reach its objective in terms of analytical results but nevertheless the 2010/11 holes were able to confirm the presence of graphitic carbon and also the lithological interpretation of the mineralized zones.

In order to alleviate doubts in relation to the quality control problems and possible analytical issues encountered at the Inspectorate laboratory in 2010-2011, Focus followed up on the IOS (and RPA) recommendation and re-assayed the entire 2010 drilling campaign using a different laboratory.

A round robin program using commercial reference material was sent to five laboratories and this is what drove the selection of the laboratory. Five commercial reference materials originating from China and Mongolia were used. Two of the reference materials reported grade in total carbon and not graphitic carbon. Quality of the reference material is questionable and the analytical procedure for the material is reportedly gravimetric and therefore different from the spectrometry method used for the Lac Knife Project. From the results of the round robin and from an examination of the laboratory procedures, Focus and IOS selected the COREM laboratory to re-assay the 2010 holes and to assay all samples from the 2012 and 2013 drilling campaign. The re-assay program was managed by IOS and the results of the program were described by IOS in a report titled “PROJECT LAC KNIFE RÉCHANTILLONNAGE DE LA CAMPAGNE DE FORAGE 2010” dated April 24, 2013. RPA also reviewed the re-sampling campaign and the twin hole drilling program in an internal memo entitled “Technical Assistance of Lac Knife Graphite project – Phase 1: Resolution of the graphitic carbon analytical issue” in an internal report dated April 30, 2013. On the selection of the laboratory, RPA commented that:

- Too few samples were submitted to each laboratory to draw conclusions on the quality of the laboratory.
- The results of the round robin campaign highlighted the difficulty of assaying graphitic carbon.
- The current reference materials are of limited use in a QA/QC program.
- It was also noted the average value of all reference material assays done at COREM overestimated the grade of the reference materials compared to its round-robin assay. AGP notes that it compared between 28 to 38 reference material assays in the 2012 program versus 1 in the round robin program and therefore AGP considered the difference in grade is not statistically significant.

Prior to the re-assaying campaign and the 2012 drilling program, and because there were questions on the reliability of the Chinese and Mongolian reference material, IOS prepared an internal reference material using pulps returned from the Inspectorate laboratory. The internal reference material (CMRI12) was sent to five laboratories and each laboratory received nine samples to assay. RPA noted that from this work, the average value of the material could be determined with reasonable confidence however, the number of samples submitted was considered small when compared to the commercially prepared reference material.

Following the re-assay of the 2010 twin hole campaign, the results from the program was re-examined using the COREM laboratory assays. The QA/QC program in place during the re-assaying campaign indicated that no significant contamination exists. COREM Laboratory was found to overestimate the grade of all reference material including the internally prepared reference material with the exception of the two reference materials where the assays were reported as total carbon values. The internal reference material was prepared from a limited number of assays and included the Inspectorate Laboratory which was suspected of producing lower results. During the entire 2012 drill campaign COREM and ACTLABS produced consistent results with the same average for the internal reference material. From a total of 94 assays, the internally developed reference material (CMRI12) returned an average of 12.5% Cg with a standard deviation of only 0.3% Cg. AGP expresses some concern since the 12.5% Cg average is higher than the 11.67% Cg obtained by COREM and also higher than the 10.76% Cg average at ACTLABS on the nine samples used to prepare the reference material. The reason for this discrepancy is still unknown. It is known that pulverizing graphitic mineralization in a ring mill may convert a portion of the crystalline graphite to amorphous graphite that is sensitive to the pre-treatment with acid. If COREM or ACTLABS changed the pre-treatment methodology in 2012 after the production of the reference material, it is possible that less of the amorphous graphite was digested, resulting in a higher grade of the CMRI12 in the 2012-2013 assays. RPA concluded the reference material used was not adequate for QA/QC purposes and no conclusion could be drawn from the examination of the results. AGP adds that since COREM now provides all assays, if a bias exists, it will be consistent for the entire resource estimate.

Prior to the re-assaying program, a new QA/QC protocol was introduced. The new protocol submits 10% of the samples to an empire laboratory. The correlation between COREM and ACTLABS, the empire laboratory selected by IOS and Focus, was found to be very high with no bias. This was an improvement over Inspectorate that showed a widely scattered and 15% bias; and also adds to the confidence in the assay results.

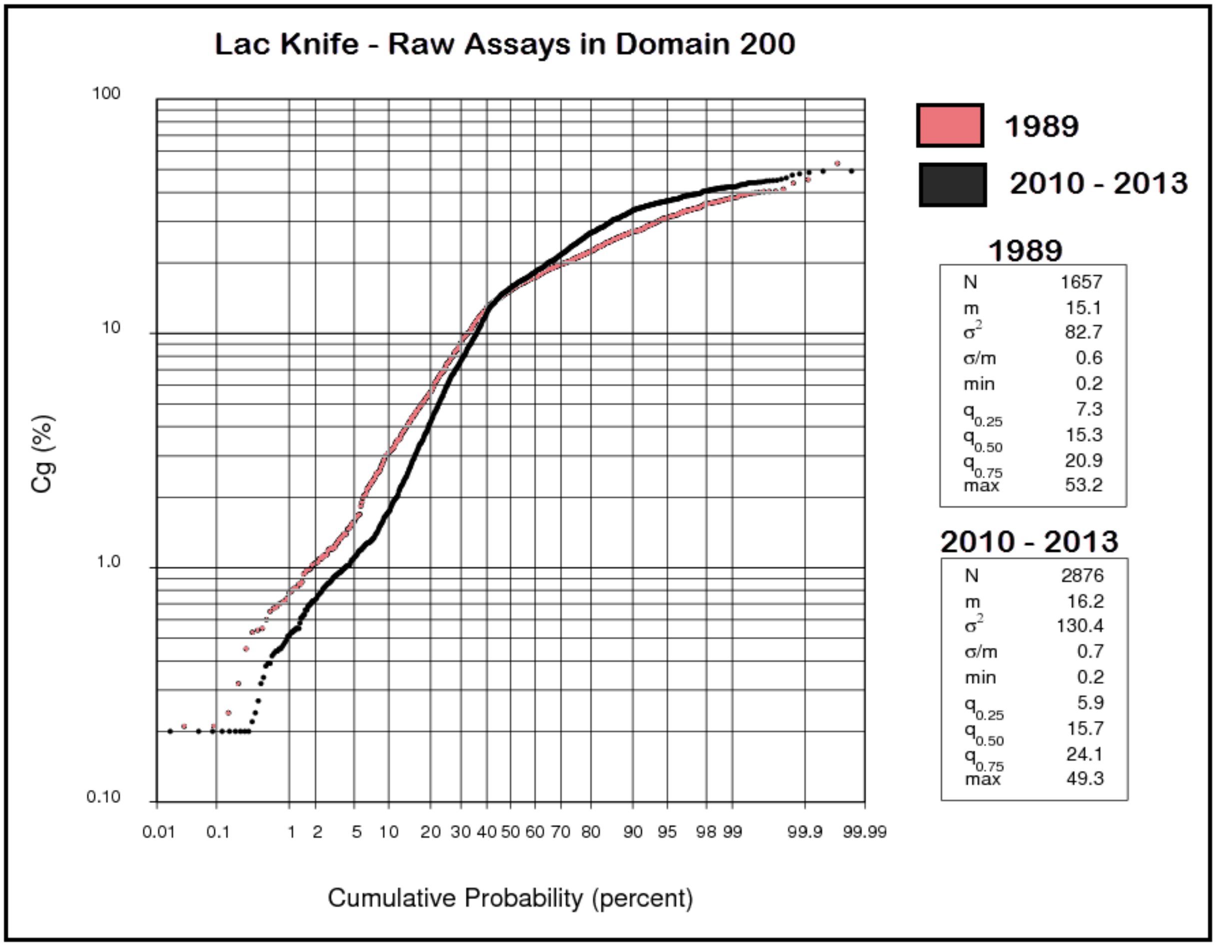
It was found by IOS and RPA that the twin holes with the new COREM results reasonably match the average grade of the mineralized material. The positions of the high-grade zones correlate reasonably well however the individual assays differ quite significantly. The local discrepancy is attributed to the offset between the twin drillhole collar location versus the original holes that causes shifts in the individual alignment of the pairs. Additionally, the twin holes may be farther from the original hole than expected due to the uncertainty of the position of the historical holes and lastly, the rapidly changing mineralization resulting from multi phase folding and faulting.

RPA and IOS concluded that the 2010 assay results be replaced by the 2012 COREM assays and both independent consultants are of the opinion that the 1989 drill hole data was adequately confirmed by the 2010 twin hole program when using the COREM assay results.

AGP reviewed the information provided in the various reports. AGP also visually inspected the twin drill holes on sections and produced probability plots comparing the 1989 and 2010 twin holes and agrees with the assessment of IOS and RPA.

AGP also examined the raw assay statistics by year, within the main mineralized domain. Results indicated the shape of the distribution is similar. The mean grade of the 1989 assays is 15.1% Cg compared with a mean grade of 16.2% Cg in the COREM assays. The median is 15.3% Cg in the old holes versus 15.7% Cg in the newer holes. Between the 5% Cg and 20% Cg the distribution is virtually identical (Figure 12.3). Additionally, the reproducibility of the COREM assays when compared to the ACTLABS assays is very good with no bias. AGP does not believe mixing assays from the 1989 drill holes with the assays from the 2010 to 2013 assays by COREM would introduce a bias in the resource estimation.

Figure 12.3 – Probability Plot 1989 Drill Results versus Recent Drilling



12.3.3 Collar Coordinate Validation

Original 1989 drill hole collars were supplied to IOS prior to the 2010 drill program in local grid coordinates. The 1989 grid had been surveyed by Raynald Babin, land surveyor from Baie-Comeau and are relatively accurately located in regards to the 0.0 datum. Using two benchmarks, an azimuth of 350°34' for the baseline, and correction from NAD-27 to NAD-83, IOS converted the drill holes from the local grid coordinate system to the UTM-83, Zone 19 coordinates with a precision now believed to be within a few metres from this calculation. Raynald Babin used a global positioning system total station unit to survey all of the 2010 drill collars. Holes from the 2012 and 2013 drill campaigns were surveyed using a Trimble R8 Global Navigation Satellite System (GNSS) with base station and rover operated by Roussy and Michaud (now Groupe Cadoret Arpenteur-Geomètres) land surveyor of Sept-Îles, an independent contractor to Focus. The azimuth of the holes at the collar location was derived by inserting a rod in the casing and surveying two points along at the top and bottom of the rod.

Collar coordinates were validated by AGP with the aid of a hand-held Garmin GPS Map, model 60CSx during the site visit. Collars were randomly selected from various drill campaigns and the GPS position was recorded. The difference with the GEMS database was calculated in an X-Y 2-D plane using the following formula:

$$\boldsymbol{X - Y\ difference} = \sqrt{(\Delta \boldsymbol{East})^2 + (\Delta \boldsymbol{North})^2}$$

As shown in Table 12.2, results indicated an average difference in the X-Y plane of 3.7 m. On the Z plane, an average difference of 1.4 m was recorded. Only one collar from the 1989 drill program was visible.

Table 12.2 – Collar Coordinate Verification

Gemcom Database Entry				GPS Points Recorded During Site Visit			Differences between GEMS and GPS	
Point-ID	**East**	**North**	**Elev.**	**East**	**North**	**Elev.**	**X-Y plane (m)**	**Z plane (m)**
LK-13-221	623489.5	5823521.0	671.6	623491	5823525	672	4.3	-0.4
LK-13-185	623300.4	5823726.2	680.9	623301	5823729	681	2.9	-0.1
LK-13-184	623293.0	5823758.0	685.7	623294	5823765	685	7.1	0.7
LK-13-187	623251.1	5823784.1	683.7	623252	5823787	681	3.1	2.7
LK-13-181	623284.8	5823787.2	689.2	623285	5823791	690	3.8	-0.8
LK-10-107	623249.8	5823788.9	684.4	623251	5823787	681	2.2	3.4
LK-12-154	623396.0	5823840.0	681.0	623396	5823845	679	5.0	2.0
LK-10-110	623222.3	5823986.9	688.1	623224	5823990	685	3.5	3.1
LK-89-04	623234.6	5824063.6	696.1	623235	5824068	693	4.4	3.1
LK-13-200	623286.8	5824078.5	689.4	623287	5824082	688	3.5	1.4
LK-13-198	623253.4	5824119.1	689.9	623252	5824119	688	1.4	1.9
LK-13-203	623275.6	5824124.9	686.4	623276	5824129	686	4.1	0.4
Lk-13-199	623266.7	5824141.3	690.4	623267	5824144	690	2.7	0.4
Average Difference							3.7	1.4

12.3.4 Down-Hole Survey Validation

Focus 2012 and 2013 drill holes were surveyed with a Reflex Gyro style of equipment that is not affected by magnetism. The 2010 program was surveyed with a Flex-it instrument that is affected by magnetism. IOS staff reviewed data and bad readings were discarded. The historical holes were surveyed with acid tests that do not record azimuth deviations.

AGP reviewed the down-hole deviation data comparing each entry with the previous ones. There were no obvious erroneous entries noted. Only two azimuths had a greater than five degree discrepancy from the previous entry and three dip entries displaying a change in dip in excess of 0.5 degrees from the previous test. Two of those entries are from the 1989 drill program and within the accuracy of a normal acid test.

12.3.5 Assay Certificate Validation

A total of 25 assay certificates were reviewed by AGP. COREM certificates covering the 2010 to 2013 drill programs were obtained directly from the issuing laboratory in signed Portable Document File (PDF) format. The Chimitec certificates covering the 1989 Mazarin drill holes were scanned by the author from the original paper copies located at the Focus exploration office in Chicoutimi. The more recent certificates were preferentially selected to target the highest graphitic carbon grade while the historical certificates were randomly selected from appendices of various drill reports.

Out of the 1,039 assays reviewed, only one error was noted and corrected prior to interpolating the resource model. Two values could not be located on the historical certificates that were scanned and were assumed to have been re-assayed. During the review, it was noted that for values below detection limit (<0.2% Cg), IOS would enter 0% Cg or -0.2% Cg in the database. While it is a minor issue that does not affect the resource estimate, AGP prefers to have detection limits entered in a consistent manner in the database. Assay validation by AGP covers 13% of all received assays in the database as indicated in Table 12.3.

Table 12.3 – Assay Validation Rate

Drill Program Year	Number of Assays	Number Validated	Percent Validated
2010	634	238	38%
2012	2689	400	15%
2013	1779	238	13%
1989	2791	163	6%
Total	7893	1039	13%

The QP identified no material sample bias during the review of the drill data and assays. The data collected by Focus adequately represents the style of mineralization present on the Lac Knife Project without a restriction on resource classification. The error rate in the Lac Knife drill database, for the data that was validated by the QP, was found to be very low. Focus has now settled on using the COREM laboratory exclusively with a 10% check at the ACTLABS facility that insures all recent assays in the database are analyzed using a consistent methodology.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

A Preliminary Economic Assessment **("PEA")** study was completed in 2012.

SGS Canada, in Lakefield **("SGS")** developed a flow sheet based on pilot plant test work on a sample from the Lac Knife deposit. The proposed flow sheet comprised of two-stage grinding followed by mechanical flotation and polishing followed by column flotation. The flow sheet was capable of producing a final graphite concentrate greater than 99% carbon in the +100 mesh size fraction and above 94% carbon in the finer size fractions. Concentrate generated from the pilot test work were further used for additional testing at select equipment suppliers.

13.1 Historical Test Work Summary

Cambior and Mazarin performed a feasibility analysis in 1991 on the Lac Knife Project. The metallurgical test work, both on a laboratory and pilot plant scale were performed at the Mineral Research Centre of the Ministry of Energy and Resources of Quebec.

In 2002, a series of tests aimed at characterizing the ore and developing the flow diagram were completed.

During 2011 and 2012, Focus completed a series of metallurgical test work at SGS on composite samples extracted from different drilling areas and at various depths. The test work confirmed the good response of graphite to flotation with the inclusion of polishing using ceramic media facilitated improving graphite recovery by flotation. Results from the fine particles (-200 mesh) separation step followed by polishing are inconclusive. Overall, the results from the 23 laboratory tests and lock-cycle tests on various drill core samples were consistent and reproducible.

13.2 Bench Scale Test Work

SGS performed a metallurgical test work program on a composite sample from the Lac Knife deposit with the objective of developing a flow sheet that can produce saleable graphite concentrate, while minimizing graphite flake breakage and optimizing overall graphite recovery. Test work was conducted in addition to head analysis and mineralogical characterization of the sample. The results from the head analysis are presented in Table 13.1.

Table 13.1 – Head Analysis of Composite Sample

		Assay (%)		
C(t)	**C(g)**	**CO_3**	**S**	**Si**
22.2	19.3	7.49	6.27	16.7

The total carbon and graphitic carbon content were 22.3% and 19.3% respectively. The balance of the carbon was found in both organic carbon and carbonates. A sulphur content of 6.27% S was analysed, flotation tailings may be acid generating. The high carbonate content may decrease the acid generating potential of the tailings, especially if the carbonates are present as calcite. The mineralogical study by QEMSCAN identified graphite (21%), sulphides (17.3%), quartz (19.9%), clinopyroxene (11.4%), plagioclase (8.8%), mica (6.8%), carbonates (5.7%), orthoclase (4.9%), other silicates (1.9%) and chlorite (1.4%) as major minerals in the sample.

Heavy liquid tests aimed at graphite pre-concentration prior to milling and flotation failed to produce good separation for the application of dense media separation (DMS). Based on the results from the test work for flow sheet development, the front end of the processing circuit revealed that a two-stage grind-float approach is suitable to recover 99% of the graphite units into a combined flash and rougher concentrate thus minimizing breakage of graphite flakes. Flotation reagents used were fuel oil #2 as collector and methyl isobutyl carbinol (MIBC) as the frother. A total of 18 batch cleaner tests were conducted to develop the cleaning circuit. The unit operations evaluated during the development of cleaning circuit were polishing with ceramic media, magnetic separation and flotation. Column flotation was not evaluated due to the limited sample mass in the cleaning circuit. Two lock-cycle tests **("LCT")**, each comprising of six cycles were performed to evaluate the flow sheet. The mass balance of the lock-cycle test 2 (LCT-2) is presented in Table 13.2.

Table 13.2 – Simplified Mass Balance of LCT-2

Sample Identification	Weight (%)	Assay (%) C(t)	Graphite Distribution (%)
Combined Concentrate	20.4	91.6	92.6
Combined Tailings	79.6	1.89	7.4
Head (calc)	100.0	20.3	100.0
Head (direct)		19.3	

A total of 92.6% of the graphite was recovered into the three concentrate products at a combined concentrate grade of 91.6% C(t).

The size analysis of combined concentrate for the lock-cycle test (LCT-2) presented in Table 13.3 show that the coarser size fractions greater than 100 mesh have achieved target concentrate grade of greater than 94% C and the +200 mesh fraction graded 93.2% C(t). The main reason for the lower concentrate grade for the -200 mesh fraction was attributed to the high level of impurities present in that fraction. The Test work summary presented here is based on the metallurgical testing program described in SGS July 2013 Report.

Table 13.3 – Size Analysis of Combined Concentrate from LCT-2

Size fraction	Weight (%)	Assay % C(t)	Distribution (%)
+48 mesh	16.2	95.8	16.9
-48+65 mesh	13.9	94.8	14.3
-65+80 mesh	6.9	94.9	7.1
-80+100 mesh	7.1	94.6	7.3

Size fraction	Weight (%)	Assay % C(t)	Distribution (%)
-100+200 mesh	24.6	93.2	24.9
-200 mesh	31.4	86.5	29.6
Final Concentrate	100.0	92.0	100.0

13.3 Pilot Plant Test Work

SGS completed a pilot plant test work program on two (2) composite samples to demonstrate the suitability of the proposed flow sheet from the lab-scale test work on a larger scale and continuous operation. A larger concentrate mass was produced for testing at select supplier companies for downstream processes such as concentrate thickening, filtration, drying and screening of the dried product.

Two (2) composite test samples tested were identified as the commissioning composite sample and the drill core composite sample. The pilot plant test results for the drill core composite sample produced comparable results obtained from the bench-scale tests on the variability composites, attesting the robustness of the proposed flow sheet for the Lac Knife deposit. The results from the pilot plant test number 16 (PP-16) were selected for the process design criteria. The combined concentrate grade for the pilot plant test PP-16 was 97.8% C(t) with a carbon recovery of 88.3%. The flake size distribution into the final concentrate shows that 33% of the mass reported to the +80 mesh size fraction at a concentrate grade greater than 99% C(t). In the medium flake range, -80+150 mesh, 31.4% of the concentrate mass reported at an average grade greater than 99% C(t). For the finer flake product, -150 mesh fraction, 35.7% of the concentrate mass reported with an average concentrate grade greater than 95% C(t). The work presented here is described in the SGS April 2014 Report.

13.3.1 Pilot Plant Operations Summary

Nineteen pilot plant tests, PP-01 to PP-19, were conducted on two bulk composite samples, weighing about 47 tonnes received from Lac Knife deposit. Due to the complexity of the circuit, the pilot plant was commissioned in three phases, allowing proper configuration of each part of the flow sheet.

During the pilot plant test, PP-01, phase 1 was commissioned and the flash and rougher graphite flotation circuits were operated to produce a combined flash and rougher concentrate for the processing of phase 2. Pilot plant test, PP-02 focused on the operation of magnetic separation and cleaning circuits. Phase 3 was the commissioning and operation of the pilot plant flow sheet at start-up presented in Figure 13.1. During the pilot plant test, PP-03, the circuit was operated phase 1 and phase 2 together and generated additional feed for phase 3 of the pilot test operation. The phased commissioning approach proved successful with the mechanical commissioning of the entire flow sheet at the end of PP-05.

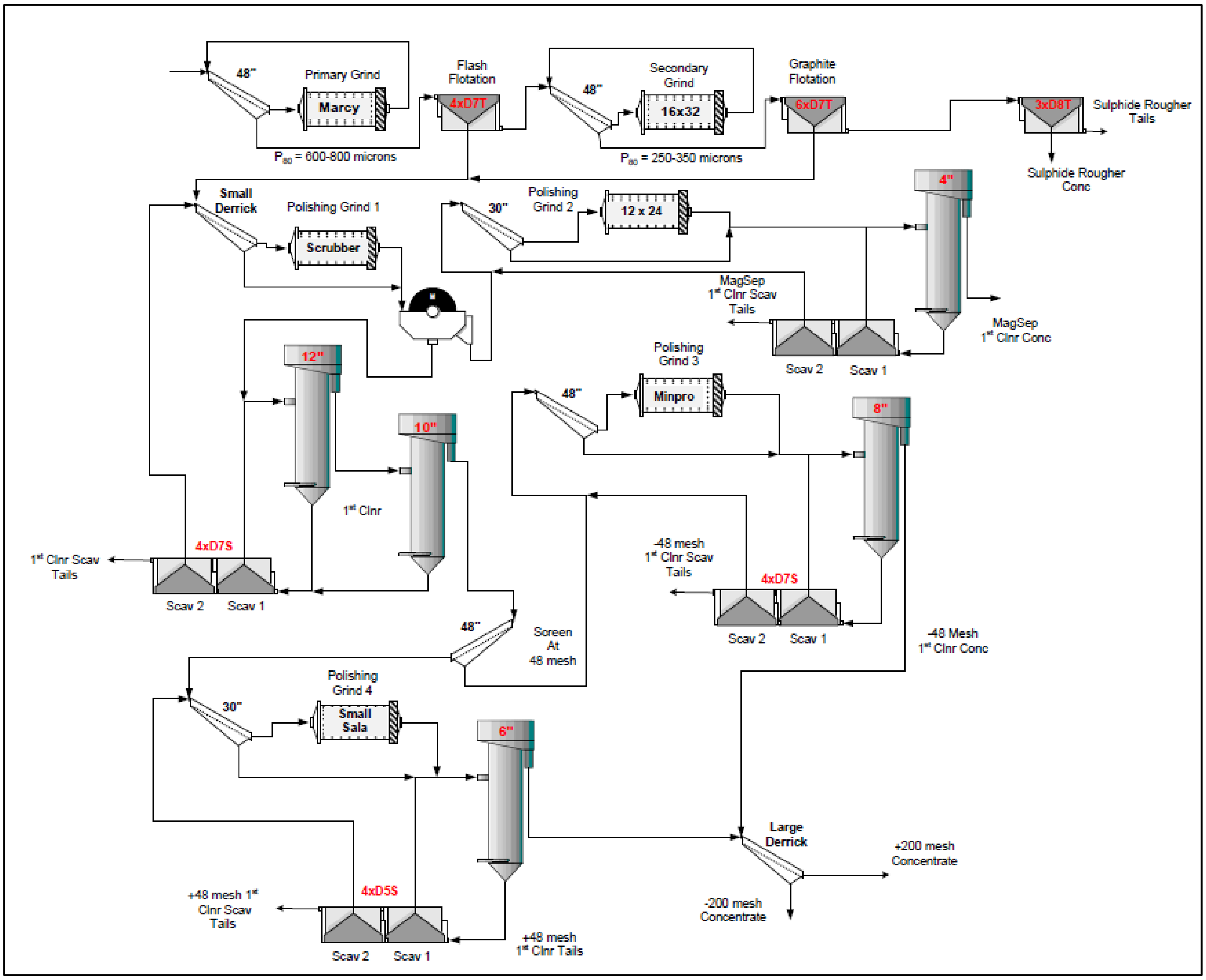
Test runs PP-06 to PP-11 processed the commissioning composite sample, generating concentrate for downstream testing and to optimize metallurgy, while test runs PP-12 to

PP-19 processed the drill core composite sample for generating mass balance data for the development of the process design criteria.

A total of 40 streams were sampled 5 times over the course of one-hour sampling period. Sizing and assaying were performed on various products. All products were assayed for carbon total, C(t) and the tailings streams with lower graphite content were assayed for carbon graphite, C(g). Mass balances were generated using data reconciliation software (BILMAT^{TM}). Grab assay samples were also collected at every hour from different product streams throughout the test campaign and the assay turnaround times were typically less than one hour for rapid evaluation of performance. Size analysis of the primary and secondary grinding circuits and selected internal and product streams were performed to ensure the grind conditions were met and served as indicators of potential problems arising out of the pilot plant tests.

SGS recommended that the data collected from drill composite runs be used for process design criteria for the Feasibility Study and Met-Chem agrees with this statement.

Figure 13.1 – Lac Knife Pilot Plant Flow Sheet at Start-up



Source: SGS Canada Inc., Project 13330-003A — Final report dated April 23, 2014

13.3.2 Metallurgical Results

Two batch cleaner flotation tests and one locked cycle test were performed before and during the pilot plant campaign.

The metallurgical response of the two pilot plant composites outperformed the performance of the Master composite that was used in the original flow sheet development program.

A summary of the testwork result comparison is shown in Table 13.4.

Table 13.4 – Comparison of the Metallurgical Performance of Batch Cleaner Tests

Sample Identification	Product	Weight (%)	Assay (%)	Distribution (%)
Commissioning Composite	Combined Concentrate	14.9	94.4	89.8
	Head Grade		15.7	
Drill Core Composite	Combined Concentrate	9.56	98.3	87.6
	Head Grade		10.7	
Master Composite	Combined Concentrate	15.1	94.9	70.0
	Head Grade		20.4	

The commissioning composite sample produced comparable graphite grades as the master composite sample with about 20% higher recovery. The recovery of the drill core sample was about 18% higher with 4% higher graphite grade than the master composite sample. The details can be found in SGS April 2014 Report.

The average (BILMAT^{TM}) adjusted head assay of the eight (8) pilot plant runs from PP-12 to PP-19 was 11.5% C(t). Test results of PP-15 and PP-17 were excluded from analysis since the tests were not operating under steady state conditions. The average concentrate grades of the pilot plant tests excluding PP-15 and PP-17 was 96.6% C(t) compared to 96.4% C(t) of the lock-cycle tests for the variability composites. This grade was achieved despite the fact that the -200 mesh fraction was not subjected to further cleaning during the pilot plant tests. The average grade of the size fractions greater than 200 mesh was 98.0% C(t) compared to the average grade of 97.2% C(t) from the lock-cycle tests.

Pilot plant test PP-16 results were used to develop the process design criteria for the feasibility study based on its overall metallurgical performance. A summary of the mass balance is presented in Table 13.5.

Table 13.5 – Summary of Mass Balance of Pilot Plant Test PP-16

Product Stream	Weight, (%)	Assay, % C(t)	Distribution, % C(t)
Primary Mill Screen U/S	100	12.2	100.0
+48 mesh Concentrate	3.4	98.6	27.6
-48 mesh Concentrate	7.6	97.4	60.6
Combined Concentrate	11.0	97.8	88.3
Combined Tails	89.0	1.60	11.7

The mass balance presented in Table 13.5 reveals that the test achieved an overall concentrate grade of 97.8% C(t) with a carbon recovery of 88.3%. The lower than expected graphite recovery is attributed to a lower feed grade of 12.2% C(t) than the average grade of the ore deposit.

Table 13.6 shows that the concentrate grades greater than 99% C(t) were achieved for most of the size fractions except the finer size fractions of 200 mesh that achieved graphite grades of 98.4% C(t) and 93.3% C(t) respectively. The mass recovery of flakes into the coarser fractions, +80 mesh was 33% for the test.

Table 13.6 – Size by size analysis of Final Graphite Concentrate (PP-16)

Concentrate Size Fraction	Weight (%)	Grade, C(t) %
+48 mesh	10.0	99.7
-48+65 mesh	14.5	99.6
-65+80 mesh	8.5	99.8
-80+100 mesh	11.0	99.7
-100+150 mesh	20.4	99.3
-150+200 mesh	17.1	98.4
-200 mesh	18.6	93.3
Total (Calculated)	100.0	98.2
Total Direct Assay		97.8

Based on the pilot plant results, a revised flow sheet was proposed. The revised flow sheet presented in Figure 13.2 is used for process design criteria. The main differences in the revised flow sheet compared to the flow sheet proposed for the pilot test work are:

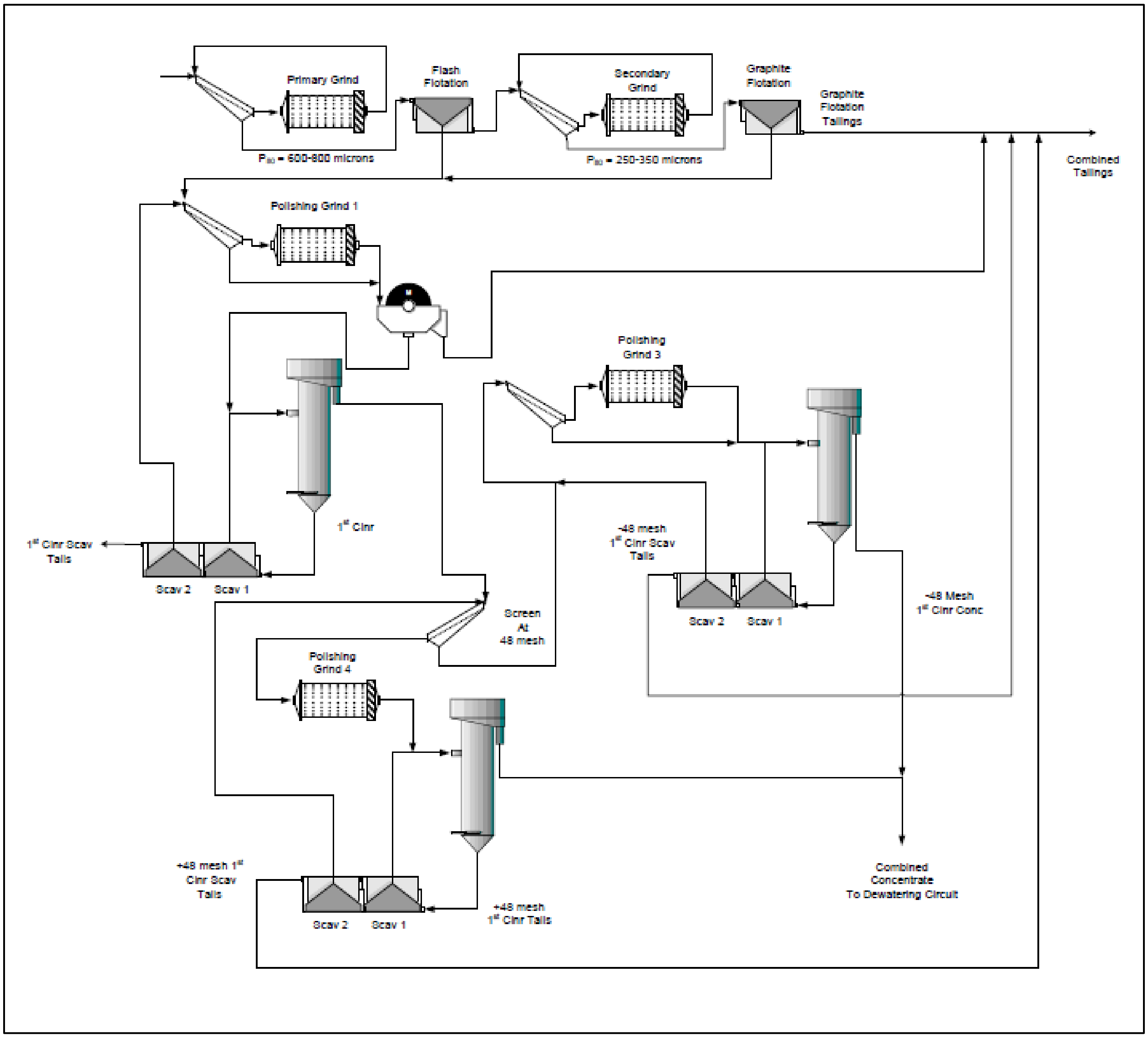
a) The sulphide circuit was removed as it was not effective in producing suitable tailings;

b) A single stage column cleaning after primary polishing proved sufficient for achieving acceptable grades for the combined flash and rougher concentrate prior to sizing at 48 mesh and subsequent secondary cleaning;

c) The magnetic concentrate cleaning flotation circuit was eliminated as the amount of magnetic concentrate was small and the cleaner concentrate grade achieved was low;

d) The separate cleaning circuit for the -200 mesh size fraction has been eliminated, as the immediate financial benefit was not obvious.

Figure 13.2 – Proposed Revised Flow Sheet



Source: SGS Canada Inc., Project 13330-003A — Final report dated April 23, 2014

13.4 Additional Testing

13.4.1 Concentrate Thickening

Two (2) suppliers conducted graphite concentrate thickening test work.

Test #1. Static settling and dynamic tests were done to evaluate the most effective flocculant. Percol-E10 was selected for sizing the thickener. Based on a solids loading rate of 0.196 m^2/t/d, the selected high capacity thickener can produce an underflow with contents of greater than 38% solids and an overflow containing less than 100 ppm solids using a flocculant dosage of 16 g/t.

Test #2. A second set of static and dynamic thickening tests were done with the flocculant MF-351. The test work indicated solids loading rate of 0.05-0.25 t/m^2h and a rise rate of

0.60-2.98 m/h. At flocculant dosage of 2-20 g/t, the thickener underflow density between 36 to 40% solids was achievable with overflow clarity of 50-150 ppm total suspended solids.

Both the test work produced sizing criteria that would suggest a thickener of similar size.

13.4.2 Concentrate Filtration

One supplier performed pressure filtration tests.

The filtration tests were conducted on a graphite concentrate sample provided by SGS. The results from the test work indicate that cake moisture content between 13-18% with cake thickness of 31-53 mm can be achieved at filtration rates of 183 to 423 kg /m^2h.

The test work evaluated filter cloth selection, filter cake thickness, filtration rate, cake moisture content and cake handling characteristics for achieving less than 15% w/w moisture for the filter cake.

13.4.3 Concentrate Drying

Several suppliers performed drying test work on graphite concentrate to determine the most effective and efficient method of drying.

The graphite concentrate samples produced by SGS during pilot plant test work ranging 45% to 50% solids required filtration to a solid content of 60% to 65% prior to dryer test work at the different dryer suppliers. All dryers produced a small amount of aggregates or balls. The balls were formed as wet very fine graphite rolled over slightly bigger pieces and then stuck to the larger graphite particles. The balling or aggregate formation varied between the dryer types. The aggregates were fragile and most failed during material handling.

The test work using a small a rotary vertical tray dryer was able to achieve the target moisture content of less than 1%, while producing very few aggregates during the drying process.

The twin screw dryer test work was able to achieve the target moisture content of less than 1%, however it did produce aggregates during the drying process.

The rotary dryer test work was able to achieve the target moisture content of less than 1%, however produced aggregates during the drying process.

The fluid bed dryer test work failed to produce results.

13.4.4 Dry Graphite Screening

Dry screening test work was done to determine the model and number of screens for making 48 mesh, 80 mesh, 100 mesh, 200 mesh and 325 mesh separations. Screening tests were performed on two samples delivered from the dryer test work. The screening tests indicated that each screen could produce clean products at a rate of about 1 t/h.

14.0 MINERAL RESOURCE ESTIMATES

A mineral resource update has been completed by AGP for the Focus Graphite Lac Knife deposit located in the Esmanville Township, at approximately 45 km driving distance from the town of Fermont, Quebec, Canada. Gemcom GEMS Version 6.5™ software was used for the resource estimate, in conjunction with SAGE 2001™ for the variography. The metal of interest at the Lac Knife deposit is graphite.

14.1 Data

On November 18, 2013, Mr. Mikael Block, Project Geologist for IOS, provided AGP with a digital drill hole database in MS Access format consisting of collar, survey, major and minor lithologies, mineralization, structure and rock quality designation. This relational database is maintained by IOS Services Geoscientifiques as part of their contract with Focus. A LiDAR digital topography dataset was obtained during the site visit along with historical drill logs and matching assay certificates from Chimitec. With the exception of minor corrections, no further additions were done to the database after that date which constitutes the official data cut-off date for this resource estimate.

The Lac Knife database consists of a mix of historical holes drilled in 1989 and supplemented with more recent drilling from 2010 through to 2013 and carried out under the supervision of Focus and its consultants. Drill holes were typically sampled fully in the graphitic bearing gneiss with proper shoulder samples. The un-mineralized quartzofeldspathic gneiss is generally not sampled. Birkett (Birkett et al., 1989) identified two (2) types of graphitic host rock and identified them as “silicate gneiss” and “calc-silicate gneiss”. The distinctions of host-rock lithologies observed in the Birkett study are not reflected in the core logs due to the difficulty of identifying the low-Fe calcsilicate visually without microscope determination. This is not considered to affect the domain model since it was documented by Strathcona Mineral Services (Guttenberg, 2001) that both rock types have similar amounts of graphite and sulphide and the graphite flake distribution is also similar.

Table 14.1 shows a summary of the number of holes and assays used in the resource estimate. Holes that were omitted from the estimate include exploration holes drilled too far away to influence the resource, historical holes that were twinned by more recent drilling, and short holes that could not be completed due to problems with the drill. Hole LK-13-178 did not make the data cut-off date and is therefore omitted from the resource. A complete list of the holes used in the resource is available.

Table 14.1 – Summary of Number of Holes used in the Resource Estimate

Number of Holes	Number of Holes	Total Meterage	Total Number of Assay Intervals
Historical (1989) used in Resource	82	6,279	2,229
Recent Holes (2010, 2012, 2013) used in Resource	115	12,041	4,660
Total used in Resource	197	18,320	6,889
Not used in Resource	36	3,817	1,004
Total in Database	233	22,137	7,893

14.2 Geological Interpretation

The 3D wireframes developed to control the grade interpolation of the resource model were based upon grades and lithology.

Wireframes were constructed by AGP from a set of interpreted sections provided by Benoit Lafrance P. Geo., VP Exploration for Focus. The mineralized zone follows a series of rather tight overturned folds gently plunging to the south-south west. An interpreted fault is located in the southern portion of the deposit that cut and offset the mineralization. This fault is assumed to strike at 029° azimuth with a 55° south east dip. No evidence of the fault can be observed in the topography; the fault was purely interpreted from diamond drill hole information.

The grade profile typically shows a sharp reduction in grade near the boundary between the graphitic gneiss bearing a lithology code of “Gp” and the quartzofeldspathic gneiss featuring a lithology code of “M1”. For the most part, the wireframe envelope follows the graphitic gneiss lithology. Focus does not assay much past the graphitic gneiss contact therefore it is logical that the wireframe boundary would be close to that lithological contact.

The polylines defining the extent of the mineralization were drawn on grade generally in excess of 3.0% Cg with disseminated mineralization in the range of 2 to 3% Cg, incorporated in the wireframe if the interval was adjoining the mineralized horizon. Zones of lower grade material were also occasionally incorporated in the mineralized wireframe to allow zonal continuity. The fold nose was modelled at depth and also above the topography to help the construction of the model in 3D. The resulting wireframes were then clipped to the overburden bottom surface.

When queried against the lithology, the wireframe is composed of 76% high-grade graphitic gneiss and 24% of the low-grade to waste quartzofeldspathic gneiss.

a) Topography

The topography originated from a Laser Imaging Detection and Ranging (LiDAR) survey. The topography was constructed in GEMS using a 1 m contour resolution. Surveyed drill hole collars for the most recent drill campaign coincide well with the topography surface. This is not the case for the historical drilling that was often drilled in areas that were subsequently excavated and then backfilled and re-graded as part of the reclamation work conducted by IAMGOLD. The geo-referenced Tiff images are very detailed and clearly show the location of bulk sample areas, roads, cut lines, recent drill set-ups, and the exploration camp on the western shore of Lac Knife.

b) Overburden

The overburden surface was constructed using the information provided by the drill holes and introducing additional data points in the bulk sample Area1 and Area2. A Laplace transform 50 m x 50 m grid was used in areas away from the core of the deposit which was supplemented with a Laplace transform 10 m x 10 m grid in areas with good drill support. In areas where the overburden surface protruded through the topography, the surface was lowered by 0.2 m below the topography. AGP noted that during the site visit, high ridges were often surrounded with swampy ground and the actual overburden thickness is expected to be more variable than what the model shows.

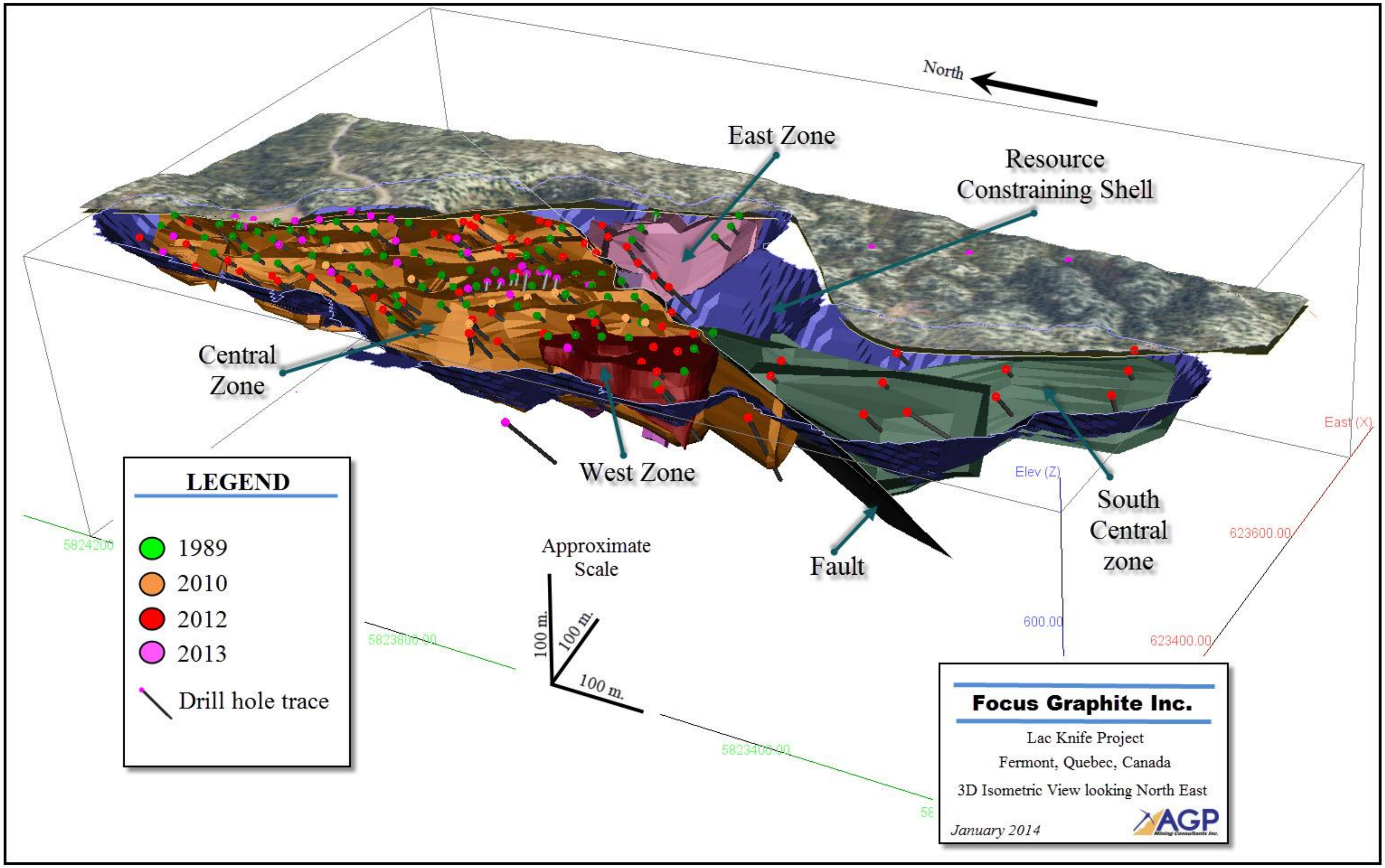
c) Wireframe Volume

All wireframes were clipped to the overburden for volume reporting. The total volumes for the resource wireframes are shown in Table 14.2 and Figure 14.1.

Table 14.2 – Total Wireframe Volume (below Overburden)

Zone Name	Gemcom Name 1	Gemcom Name 2	Gemcom Name 3	Volume (m^3)	Rock Code Name	Rock Code
West Zone	ORE1	WestZ	Clip	190,825	ORE1	100
Central Zone “b”	ORE2b	CentralZ_b	Clip	25,822	ORE2B	210
Upper Zone	ORE4	UpperZ	Clip	647	ORE4	400
Central Zone South	ORE5	CentralZ_S	Clip	567,980	ORE5	500
West Zone South	ORE5a	WestZ_S	Clip	345,975	ORE5A	510
East Zone	OREE	EastZ	Clip	145,707	OREE	600
Central Zone “c”	ORE2c	CentralZ_c	Clip	17,588	ORE2C	220
Central Zone “d”	ORE2d	CentralZ_d	Clip	1,651	ORE2D	230
Deep Extension “a”	ORE3a	Deep	Clip	91,038	ORE3A	310
Deep Extension	ORE3	Deep	Clip	22,367	ORE3	300
Central Zone	ORE2	CentralZ	Clip	3,557,417	ORE2	200
Total Wireframe Volume				4,967,017		

Figure 14.1 – Position of the 3D Wireframe Volumes



d) Exploratory Data Analysis

Exploratory data analysis is the application of various statistical tools to characterize the statistical behaviour or grade distributions of the data set. In this case, the objective is to understand the population distribution of the grade elements in the various domains using such tools as histograms, descriptive statistics, and probability plots.

e) Assays

The raw assay statistics were evaluated by grouping all assays intersecting the Lac Knife deposit. Frequency distribution for Domains 100 and 200 comprising the bulk of the mineralization are shown in Figure 14.2. The distribution is more or less normal, with 90% of the graphitic carbon values below 30%. The probability plot is showing two (2) major inflection points at 12% Cg and 35% Cg. Raw assays bracketing the 1.2% to 12% Cg range and the 12% to 35% Cg range were posted in 3D in order to assess the possibility of using separate low grade and high grade domains within the mineralized envelope. Close inspection of the spatial distribution showed these two grade ranges were inter-mixed and could not be cleanly separated with a wireframe. Table 14.3 provides descriptive statistics for raw Cg.

Contact plot studies conducted on the assays within the mineralized wireframes and its surrounding lower/waste grade hanging wall and footwall zone show the 3D mesh captures most of the mineralization, leaving very little mineralized material outside the wireframe. It also shows the grade transition at the contact where the high-grade mineralization is not gradational, but sharp.

Figure 14.2 – Cg Main Mineralized Domain Probability

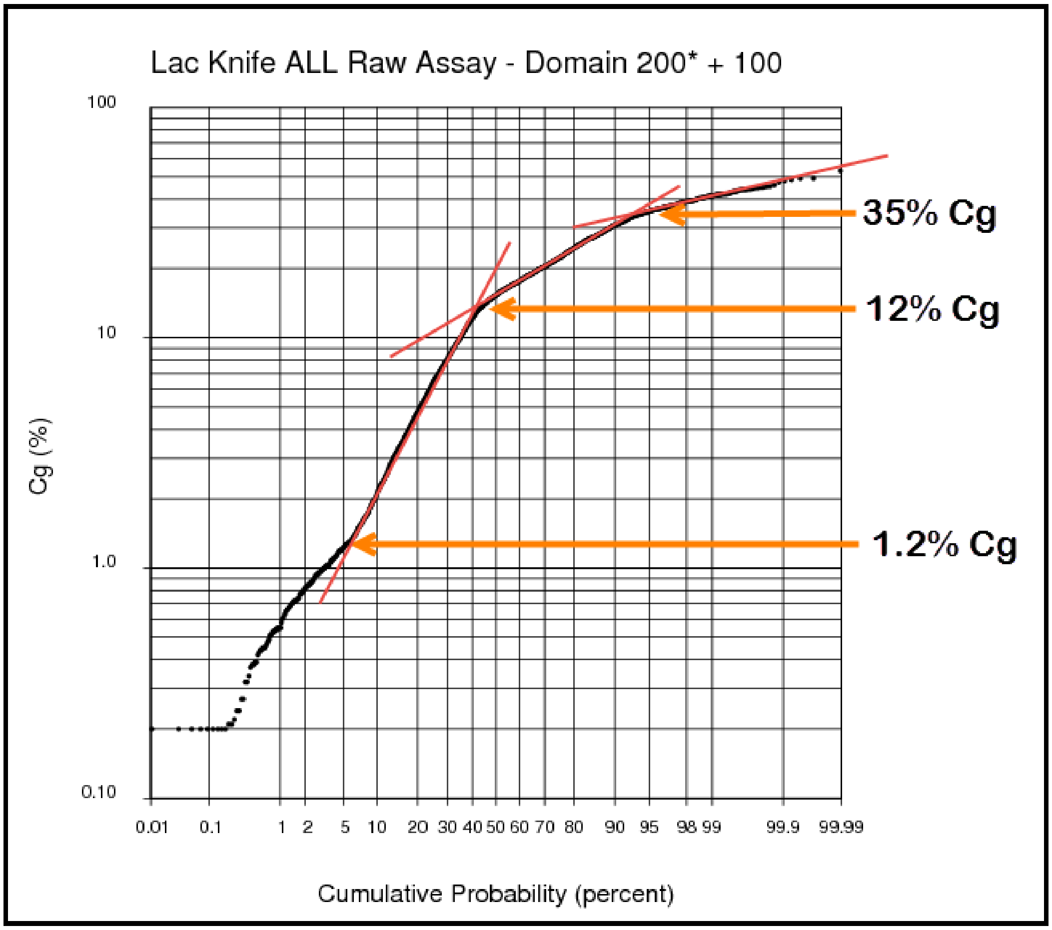


Table 14.3 – Descriptive Raw Assays Statistics Cg %

Domain Description	All Data	West Zone	Central Zone	Deep Extension	Upper Zone	Central Zone South	East Zone
Domain Name		**ORE1**	**ORE2 +b, c, d**	**ORE3 +a**	**ORE4**	**ORE5 +a**	**OREE**
(Domain Code)		**(100)**	**(200*)**	**(300*)**	**(400)**	**(500*)**	**(600)**
Valid cases	6889	211	4540	59	1	238	116
Mean	12.0	11.6	15.8	16.5	20.0	13.2	11.9
Variance	120.2	48.1	113.5	43.8	----	102.0	78.0
Std. Deviation	11.0	6.9	10.7	6.6	----	10.1	8.8
Variation Coefficient	0.9	0.6	0.7	0.4	----	0.8	0.7
Minimum	0.0	0.0	0.0	2.0	20.0	0.0	0.6
Maximum	53.2	27.0	53.2	33.4	20.0	41.6	37.7
1st percentile	0.00	0.28	0.53	----	----	0.00	0.57

Domain Description	All Data	West Zone	Central Zone	Deep Extension	Upper Zone	Central Zone South	East Zone
Domain Name		ORE1	ORE2 +b, c, d	ORE3 +a	ORE4	ORE5 +a	OREE
(Domain Code)		(100)	(200*)	(300*)	(400)	(500*)	(600)
5th percentile	0.20	1.10	1.20	3.73	----	0.29	1.10
10th percentile	0.70	1.82	2.06	5.92	----	0.76	1.87
25th percentile	1.65	5.53	6.46	12.90	----	2.74	4.44
Median	9.56	11.80	15.50	16.70	20.01	13.65	10.50
75th percentile	19.46	17.19	22.50	20.30	----	21.70	16.87
90th percentile	27.80	21.26	31.10	24.50	----	26.13	24.26
95th percentile	33.62	22.56	35.60	27.70	----	28.51	29.15
99th percentile	40.34	25.79	41.56	----	----	37.32	37.53

f) Capping

In a mining project, high-grade outliers can contribute excessively to the total metal content of the deposit. A combination of decile analysis and a review of probability plots were used to determine the potential risk of grade distortion from higher-grade assays. A decile is any of the nine values that divide the sorted data into ten equal parts so each part represents one tenth of the sample or population.

Typically, in a decile analysis, capping is warranted if:

- The last decile has more than 40% metal.
- The last decile contains more than 2.3 times the metal quantity contained in the one before last.
- The last centile contains more than 10% metal.
- The last centile contains more than 1.75 times the metal quantity contained in the one before last.

For the Lac Knife deposit, the decile analysis results indicated grade capping was not warranted. In the “Applied Mineral Inventory Estimation” (Cambridge University Press, 2002), Alistair Sinclair stated that:

> *...in a geologic context, outliers represent a separate grade population characterized by its own continuity; generally, the physical continuity of high grade is much less than that of the more prevalent low grades. Thus, serious overestimation of both tonnage and average grade above a cut-off can occur if the same interpolation methodology for a model, normally dominated by the lower, more continuous grades, is applied to very high-grade values. The problem is acute when the high grades are isolated in a field of lower values.*

After conducting a careful examination of the data set, AGP elected to impose a sample search restriction on values above 38% Cg. This strategy has the benefit of acknowledging the high-grade values in the model but limiting their spatial influence.

The 38% threshold affected 34 composites out of 2,390 or 1.4% of the composite data. The value was selected based on the probability plot of the composited data combined with information derived from a suite of seven Indicator variograms. All of the affected composites were located in the Central Zone high-grade domain. The distance used for the search restriction was set to 30 x 30 x 30 m restricting the selection of the samples above 38% Cg thresholds to a 5-block distance from the interpolated block regardless of the size of the search ellipsoid. Table 14.4 shows a summary of the treatment of high-grade outliers during the interpolation process.

Table 14.4 – High Grade Treatments

Search Restriction Grade Threshold (% Cg)	Number of Samples Affected by Grade Threshold	Search Restriction Dimension (X, Y, Z)
38	6	30 m x 30 m x 30 m

14.3 Composites

a) Sampling Length Statistics and Composites for Veins

Sampling intervals on the Lac Knife deposit averaged 1.37 m with a median of 1.50 m and an upper 3rd quartile of 1.50 m. AGP elected to use a composite length of 3 m, generating 2 data points per 6 m bench mimicking a grade control sample interval of 3 m.

Assays were length-weight averaged. True gaps in sampling and assays below detection limits were composited at zero grade. There is no stope void, drift or other underground excavation to cause concern while compositing the raw assays.

Composite intervals were created down from the collar of the holes toward the hole bottoms within the mineralized wireframes, leaving small remnants at the lower intersection of the wireframes. The compositing methodology restarted the compositing interval at each intersection with the wireframes. Remnants less than 1.5 m were backstitched to the previous composite. No composites were created outside the wireframes. Table 14.5 shows the descriptive statistics for composites.

Table 14.5– Descriptive Statistics for Composites

Domain Description	All Data	West Zone	Central Zone	Deep Extension	Upper Zone	Central Zone South	East Zone
Domain Name		ORE1	ORE2 +b, c, d	ORE3 +a	ORE4	ORE5 +a	OREE
(Domain Code)		(100)	(200*)	(300*)	(400)	(500*)	(600)
Valid cases	5168	98	2110	28	1	102	51
Mean	7.4	11.8	15.8	16.3	20.0	13.4	11.9
Variance	94.4	34.1	84.1	20.3	----	79.1	53.1
Std. Deviation	9.7	5.8	9.2	4.5	----	8.9	7.3
Variation Coefficient	1.3	0.5	0.6	0.3	----	0.7	0.6
Minimum	0.0	0.0	0.0	6.3	20.0	0.1	2.7
Maximum	45.9	22.9	45.9	23.4	20.0	33.8	35.9
1st percentile	0.00	----	0.77	----	----	0.11	----
5th percentile	0.00	2.94	2.23	6.44	----	0.66	3.20
10th percentile	0.00	4.25	4.39	6.85	----	2.13	3.62
25th percentile	0.00	7.31	8.50	13.99	----	5.07	5.61
Median	1.41	11.66	15.34	16.85	20.01	13.71	10.36
75th percentile	14.23	16.30	21.05	19.42	----	20.61	16.38
90th percentile	21.73	20.85	28.46	21.35	----	24.34	22.23
95th percentile	27.42	22.04	33.10	22.50	----	28.58	26.30
99th percentile	36.50	----	39.83	----	----	33.79	----

14.4 Bulk Density

The mineralized material is a mix of graphitic gneiss with minor intervals of quartzofeldspathic gneiss with pyrhotite, and pyrite in various amounts ranging from a trace up to 50% in volume. The textbook density of gneiss ranges between 2.6 to 2.9 g/cm^3. IOS has collected density measurements on all samples since the 2012 drill program. A total of 5,133 well-distributed core measurements now exist in the database. The bulk density taken on all these samples averaged 2.80 g/cm^3 with a median of 2.78 g/cm^3.

There is a variation of 0.05 g/cm^3 between the graphitic gneiss lithology (2.82 g/cm^3) and the quartzofeldspathic gneiss lithology (2.77 g/cm^3). Bulk density correlation plots with the Cg Grade shows indication of a bimodal population. For that reason the R-squared correlation coefficient is low at 0.01. Correlation within the sulphur assays is much better, clearly indicating that the sulphide content has the most influence on the bulk density. The best correlation is achieved via a third order polynomial equation with a R^2 of 0.551.

Since there was a bulk density measurement for each of the sulphur assays and considering the close relationship with sulphur, AGP elected to interpolate the bulk density in the resource model. The model was first initialize to 2.77 g/cm^3 then the bulk density was kriged in two passes using the same parameters as the sulphur kriging run. Table 14.6 shows the bulk density value for each of the domains in the resource model.

Table 14.6 – Specific Gravity by Domain in the Final Resource Model

Domain	Minimum	Maximum	Mean	Standard Deviation	Variance
West Zone *ORE1* (100)	2.72	2.92	2.78	0.05	0.00
Central Zone *ORE2* (200 +b, c, d)	2.64	3.05	2.81	0.07	0.00
Deep Extension *ORE3* (300 +a)	2.82	2.82	2.82	0.00	0.00
Upper Zone *ORE4* (400)	2.82	2.82	2.82	0.00	0.00
Central Zone South *ORE5* (500 +a)	2.73	2.91	2.82	0.02	0.00
East Zone *OREE* (600)	2.65	2.82	2.76	0.06	0.00

14.5 Spatial Analysis

a) Variography

Geostatisticians use a variety of tools to describe the pattern of spatial continuity, or strength of the spatial similarity of a variable with separation distance and direction. If we compare samples that are close together, it is common to observe their values as quite similar. As the separation distance between samples increases, there is likely to be less similarity in the values. The experimental variogram mathematically describes this process. It is commonly represented as a graph that shows the variance in measure with distance between all pairs of sampled locations.

In all semi-variograms, the distance where the model first flattens out is known as the range. Sample locations separated by distances closer than the range are believed to be spatially auto correlated. The sill is the value on the Y-axis where the model attains the range while the nugget is the value at the location where the model intercepts the Y-axis. The nugget typically represents variation at a micro scale that can be attributed to measurement errors or sources of variation at distances smaller than the sampling interval or both. Therefore, the shape of the semi-variogram describes the pattern of spatial continuity. A very rapid decrease near the origin indicates short scale variability; a more gradual decrease moving away from the origin suggests longer-scale continuity.

Various semi-variogram types exist and using commercially available SAGE 2001™ software, experimental correlograms for Cg were computed in 73 directions from the composites for West and Central Zone (ORE1, ORE2). In order to obtain a semi-variogram that pointed along the expected geological controls on the mineralization, variable lag distances were used to optimize the model. Anisotropy models generated by SAGE 2001™ were visually inspected in GEMS Version 6.5™.

The effective range at 95% of the sill in the down-dip direction is typically between 88 m to 125 m and on strike the range is shorter (around 50 m). Nugget is low to moderate at 30% of the sill as illustrated in Figure 14.3.

Figure 14.3 – Representative Variogram

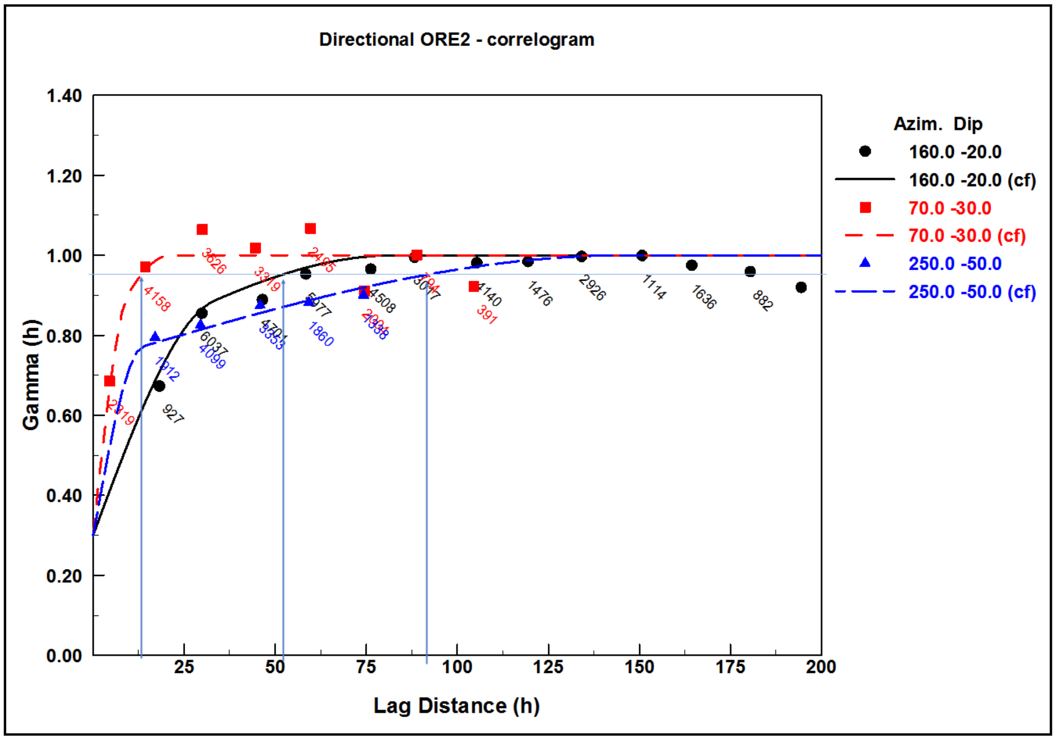


Table 14.7 summarizes the results of the variography for the domains that returned a conclusive variogram. The rotation angles, based on the Gemcom ZXZ convention, are variable and based on the search ellipsoid orientation described in the "Search Ellipsoid Dimension and Orientation" section of this document.

Table 14.7 – Kriging Parameters

Domains	Type	Value	Rotation Z	Rotation X	Rotation Z	Range X	Range Y	Range Z
All Domains (Cg)	nugget	0.3						
	Spherical	0.435	37	9.1	-29	9.1	59.6	16.4
	Spherical	0.265	32	73	-37	21	198.1	113.9
All Domains (S and SG)	nugget	0.471						
	Spherical	0.127	60	-28	-18	36.3	38.9	18.0
	Spherical	0.402	41	70	-44	32.1	195.1	108.8

b) Search Ellipsoid Dimension and Orientation

While it is common to use the variogram model as a guide to set the search ellipsoids' range and attitude, the geologist modeling the deposit must consider the strike and dip of the mineralized horizon, as well as the drill hole spacing and distribution. For this model, AGP used the overall geometry of the mineralized zones as one of the guiding principles to set the search ellipsoid dimension in combination with the ratio between the variogram axes.

The first pass was sized to reach at least the next drill section spacing. A second and third multiplier was used to set the subsequent search dimension for Pass 2 and Pass 3.

The sub-domains allowed for the rotation of the search ellipsoid, in order to optimize the sample search with the orientation of the mineralization, without resorting to any unfolding methodology. At Lac Knife, one special sub-domain was delineated to handle the grade interpolation in the fold nose of the Central Zone. The limbs of the Central, West, East and Upper Zones were oriented more or less parallel to each other allowing the use of the single sample search orientation. This was not the case of the South Central Zones where an additional sub-domain was defined to handle the rotation of the search ellipsoid.

Table 14.8 lists the final values used in the resource model for the range of the major, semi-major, and minor axis. The order and direction of rotation are based on the Gemcom ZXZ methodology that uses a conventional right hand rule:

- The first rotation is around the Z axis;
- The second rotation is around the rotated X axis;
- The third rotation is around the rotated Z axis.

Table 14.8 – Search Ellipsoid Dimension for Cg, S

Domain	Rotation Z, X, Z (degrees)	Pass 1 Range X, Y, Z (m)	Pass 2 Range X, Y, Z (m)	Pass 3 Range X, Y, Z (m)
West Zone	35, 46, -30	8, 52, 30	15, 99, 56	21, 138, 79
Central Zone Sub-Domain 0	35, 46, -30	8, 52, 30	15, 99, 56	21, 138, 79
Central Zone Sub-Domain 1	35, 46, -30	15, 25, 15	25, 50, 25	40, 69, 40
Deep Extension	35, 46, -30	8, 52, 30	15, 99, 56	21, 138, 79
Upper Zone	35, 46, -30	8, 52, 30	15, 99, 56	21, 138, 79
Central Zone South	78, 34, -68	8, 52, 30	15, 99, 56	21, 138, 79
East Zone	35, 46, -30	8, 52, 30	15, 99, 56	21, 138, 79

14.6 Resource Block Model

The block model was constructed using GEMS Version 6.5™ software. AGP selected a block size of 6 m horizontally by 6 m across and 5 m vertically based on the above mentioned mining selectivity considerations and the density of the dataset.

The block model was defined on the project coordinate system with no rotation. Table 14.9 lists the upper southwest corner of the model, and is defined on the block edge.

The rock type model was coded by combining the geology model code with the sub-domain code, controlling the search ellipsoid orientation. The 100, 200, 300, 400, 500 and 600 series codes represent the West Zone, Central Zone, Deep Extension, Upper Zone, South Central and East Zone domains respectively. Minor zones that were considered branches of the main zones were coded by adding a 10, 20 or 30 to the main zone code. The sub-domains were simply assigned a code of 0 and 1 and were added to the main zones and minor zones. For example, code 210, represents the Central Zone “b” in sub-domain 0. Table 14.9 shows the resource model origin, number blocks in each direction, and the block size.

Table 14.9 – Block Model Definition (Block Edge)

Resource Model Items	Parameters
Easting	623,112
Northing	5,823,108
Top Elevation	750
Rotation Angle (counter clockwise)	0
Block Size (X, Y, Z in metres)	6 x 6 x 5
Number of Blocks in the X Direction	77
Number of Blocks in the Y Direction	196
Number of Blocks in the Z direction	50

14.7 Interpolation Plan

The resource model was created in GEMS Version 6.5™ employing a single folder set-up using ordinary krige interpolation with an inverse distance squared and nearest neighbor models used for validation. The inverse distance check model used a true distance weighting. The interpolation was carried out in a multi-pass approach, with an increasing search dimension coupled with decreasing sample restrictions, interpolating only the blocks that were not interpolated in the earlier pass.

- Pass 1 used an ellipsoid search with seven (7) samples minimum, and 16 maximum. A maximum of three (3) samples per hole was imposed on the data selection forcing a minimum of 3 holes.
- Pass 2 uses an ellipsoid search with five (5) samples minimum, and 16 maximum. A maximum of three (3) samples per hole was imposed on the data selection, forcing a minimum of 2 holes.
- Pass 3 uses an ellipsoid search with three (3) samples minimum, and 16 maximum. A maximum of three (3) samples per hole was imposed on the data selection, allowing a block to be interpolated by a single hole.

The maximum of 3 samples per hole had the benefit of mitigating the number of composites originating from the 10 holes that were drilled sub-parallel to the mineralization. No composites from one domain were used for the interpolation of the adjacent domain, treating the boundaries of all mineralized zones as hard boundaries. Exception was made for the 300 and 310 domains that were combined in order to provide sufficient data points for the interpolation.

All sub-domain boundaries were treated as soft boundaries, allowing samples from one sub-domain to be used in the interpolation of the adjacent sub-domain. This is the correct methodology since the sub-domains were only used to control the orientation of the sample search ellipsoids, and do not correspond to any known lithological contact or fault.

The model was interpolated to the topographic surface allowing adjustment to the overburden without having to re-interpolate the model. Volume for the global mineral inventory was only reported from the bottom of the overburden.

14.8 Mineral Resource Classification

Several factors are considered in the definition of a resource classification:

- Canadian Institute of Mining **("CIM")** requirements and guidelines
- Experience with similar deposits
- Spatial continuity
- Confidence limit analysis
- Geology

No environmental, permitting, legal, title, taxation, socio-economic, marketing, or other relevant issues are currently known to the QP that may affect the estimate of mineral resource. Mineral reserve can only be estimated on the basis of an economic evaluation that is used in a pre-feasibility or feasibility study of a mineral project. This model is intended for use in a feasibility study. Mineral resources, which are not mineral reserves, do not have demonstrated economic viability.

Typically, the confidence level for a grade in the block model is reduced with the increase in the search ellipsoid size, along with the diminishing restriction on the number of samples used for the grade interpolation. This is essentially controlled via the pass number of the interpolation plan described in the previous section. A common technique is to categorize a model based on the pass number and distance to the closest sample. For the Lac Knife deposit, AGP categorized the model primarily on pass number, distance to closest sample, and krige variance. Modifiers were applied to the model as follows:

- Measured blocks were only retained in areas showing physical evidence of mineralization such as bulk sampling site or extremely dense drilling. All other measured blocks were downgraded to Indicated.
- All Indicated blocks in the South Central Zone were downgraded to Inferred to reflect the lower drill density in this area of the model.

Three (3) confidence categories now exist in the model. The usual CIM guidelines of Measured, Indicated and Inferred classes are Coded 1, 2 and 3 respectively. A special Code 4 called “Potential Mineralization” represents mineralization that was considered too far away from the existing drilling to be classified as Inferred resource. As per NI 43-101 guidelines, the tonnage and grade for the potential mineralization is not included in this report and is only intended to assist future exploration activity.

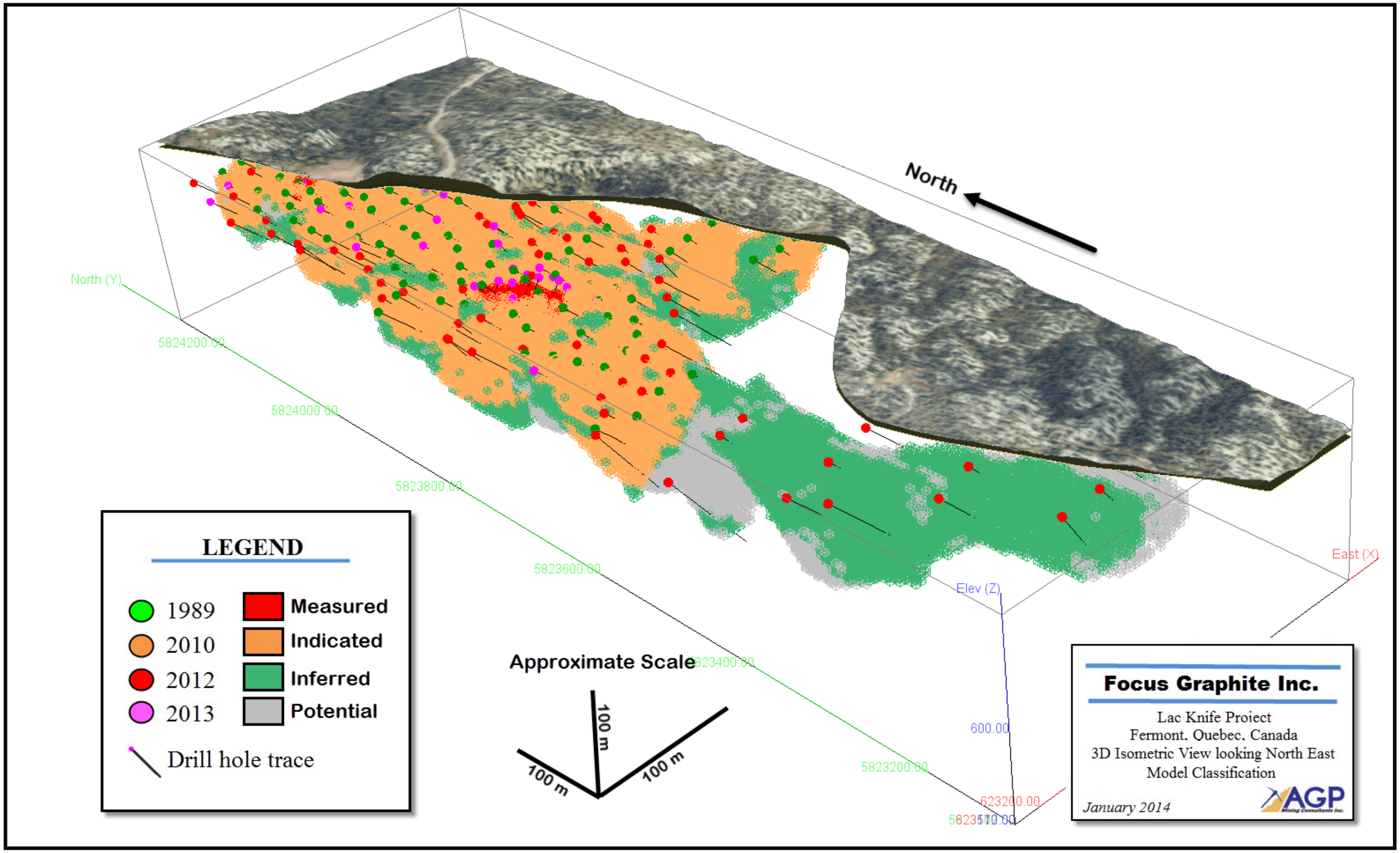
Table 14.10 lists the parameters used for the classification and Figure 14.4 illustrates the block classification at Lac Knife.

Table 14.10 – Classification Parameters

Pass Number	Retained As	Downgraded To
Pass 1	Measured if distance to the closest composite is < 10 m	Indicated if distance to closest composite is >= 10 m and < 85 m or if kriging variance is below 0.6 or if the area is lacking physical evidence such as a bulk sample site or extremely dense drilling
Pass 2	Indicated if distance to the closest composite is < 85 m	Inferred if distance to closest composite is >= 85 m and < 115 m. or if kriging variance is below 0.6 or If block is located in the South Central zone

Pass Number	Retained As	Downgraded To
Pass 3	Inferred if distance to the closest composite is < 115 m	Potential Mineralization (Code 4) distance to the closest composite exceeds 115 m or if kriging variance is below 0.6

Figure 14.4 – Block Model Classification



Final adjustments to the classification of individual blocks are often required to create areas suitable for mine planning. This is accomplished by adjusting the confidence values of isolated blocks to create contiguous resource blocks with reasonably smooth class values. This is accomplished by using a GEMS™ Cypress-enabled script that adjusts or “grooms” isolated blocks by upgrading or downgrading their classification, depending on the class value of the 26 surrounding blocks.

AGP checked the final block classification values by visual inspection of the model versus the drill hole position. A krige efficiency model was also used for validation along with histograms displaying the distance to the closest composites versus the class model value. Table 14.11shows the statistical distribution of the distance to the nearest composite by class.

On the basis of the criteria outlined above, and of the 465,996 blocks that were interpolated in the model, 1% is classified as Measured, 40% as Indicated, and 25% as Inferred. The remaining blocks are either non-interpolated or flagged as potential mineralization. Table 14.11 illustrates the distribution of the class model.

Table 14.11 – Distance to the Nearest Composite Distribution

	Measured (m)	Indicated (m)	Inferred (m)	Potential (m)
Mean	6.6	13.2	27.6	35.3
25th Percentile	4.2	8.0	16.7	23.0
Median	6.2	11.9	25.3	31.9
75th Percentile	8.7	16.8	36.7	43.0

14.9 Global Mineral Inventory

AGP has estimated the global mineral inventory for the Lac Knife Project using 197 diamond drill holes totalling 18,320 m of historic and recent drilling. This estimate is an update to the resource model supporting the PEA study by RPA dated October 30, 2012 that incorporated 104 additional in-fill holes drilled by Focus since 2010.

The global mineral inventory is reported between the bottom of the overburden and the bottom of the resource model. Base case cut-off grades selected considered results of the Preliminary Economic Assessment Study with adjusted metal prices.

Table 14.12 summarizes the global mineral inventory with the base case cut-off of 3% highlighted.

Table 14.12 – Global Mineral Inventory

Classification	Cg % Bin	Tonnage (Tonnes)	Cg (%)	Graphite (Metric Tonnes)
Measured	> 10.0	428,000	23.8	102,000
	> 5.0	432,000	23.7	102,000
	> 3.0	432,000	23.7	102,000
	> 2.0	432,000	23.7	102,000
Indicated	> 10.0	7,477,000	15.8	1,179,000
	> 5.0	9,100,000	14.4	1,312,000
	> 3.0	9,181,000	14.3	1,315,000
	> 2.0	9,183,000	14.3	1,315,000
Measured + Indicated	> 10.0	7,905,000	16.2	1,281,000
	> 5.0	9,532,000	14.8	1,414,000
	> 3.0	9,613,000	14.7	1,418,000
	> 2.0	9,615,000	14.7	1,418,000
Inferred	> 10.0	2,272,000	15.8	360,000
	> 5.0	3,073,000	13.7	421,000
	> 3.0	3,258,000	13.2	428,000
	> 2.0	3,271,000	13.1	429,000

Since the Lac Knife deposit is amendable to open pit extraction, the global mineral inventory was forwarded to Met-Chem's Engineering team for further refinements.

14.10 Resources Tabulation

Effective January 28, 2014, AGP estimated a National Instrument 43-101 (NI 43-101) compliant mineral resource update for the Lac Knife deposit located in the Esmanville Township at approximately 45 km driving distance from the town of Fermont, Quebec, Canada. The Mineral Resource Estimate presented in Table 14.13 below is based on 197 diamond drill holes totaling 18,320 m of historic and recent drilling, including 105 surface diamond drill holes completed by Focus since 2010.

Under CIM definitions, mineral resources should have a reasonable prospect of economic extraction. In order to meet this requirement, Met-Chem carried out an economic analysis using the resource model which was transferred from AGP. The tonnes and grades of the global mineral inventory were compared between Met-Chem and AGP to ensure the model was transferred correctly.

The economic analysis provided a pit shell to constrain the Mineral Resources using the 3D Lerchs-Grossman algorithm and the economic parameters presented in Table 15.1 of this report. The pit shell that was used to constrain the Mineral Resources is larger than the one used to estimate the Mineral Reserves since it includes the Inferred Resources, was run with a higher selling price ($2,000/t) and did not account for discounting of the cash flows.

The economic analysis demonstrated that the entire global mineral inventory has a reasonable prospect for economic extraction and the resulting pit shell encompasses practically all of the interpolated blocks.

Within the resource constraining shell, at the 3.0% Cg cut-off, the model returned 9.6 million tonnes of Measured and Indicated mineralization grading at 14.77% graphitic carbon containing 1.4 million metric tonnes of in situ graphite. The Inferred resources amounted to 3.1 million tonnes, grading 13.25% graphitic carbon and containing 0.41 million metric tonnes of in situ graphite.

Table 14.13 – Mineral Resource Estimate effective January 28, 2014

	Measured + Indicated Resources			Inferred Resources		
Cut-off	**Tonnage**	**Cg %**	**In Situ Graphite (t)**	**Tonnage**	**Cg %**	**In Situ Graphite (t)**
3.0	9,576,000	14.77	1,414,000	3,102,000	13.25	411,000

Mineral resources cannot be considered Mineral Reserves until they have demonstrated economic viability. Environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues may materially affect the estimate of mineral resources. The quantity and grade of reported Inferred mineral resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred mineral resources as Indicated or Measured mineral resources and it is uncertain if further exploration will result in upgrading them to the Indicated or Measured mineral resource categories.

Table 14.14 shows the sensitivity of the model to changes in cut-off. In the following table, rounding of tonnes as required by reporting guidelines may result in apparent differences between tonnes, grade, and contained metal.

Table 14.14 – Cut-off Sensitivity with Base Case Highlighted

Classification	Cut-off	Tonnage (t)	Cg (%)	In Situ Graphite (t)
Measured	> 10.0	428,000	23.81	102,000
	> 5.0	432,000	23.66	102,000
	> 3.0	432,000	23.66	102,000
	> 2.0	432,000	23.66	102,000
Indicated	> 10.0	7,466,000	15.77	1,177,000
	> 5.0	9,065,000	14.44	1,309,000
	> 3.0	9,144,000	14.35	1,312,000
	> 2.0	9,146,000	14.35	1,312,000

Classification	Cut-off	Tonnage (t)	Cg (%)	In Situ Graphite (t)
Measured + Indicated	> 10.0	7,894,000	16.21	1,279,000
	> 5.0	9,497,000	14.86	1,411,000
	> 3.0	9,576,000	14.77	1,414,000
	> 2.0	9,578,000	14.77	1,415,000
Inferred	> 10.0	2,196,000	15.81	347,000
	> 5.0	2,941,000	13.75	404,000
	> 3.0	3,102,000	13.25	411,000
	> 2.0	3,116,000	13.20	411,000

14.11 Resource Compared with October 2012 PEA Model

Comparing the new resource estimate to the figures stated in the October 30, 2012 PEA Mineral Resource Estimate revealed that at the common 5% Cg cut-off used in the PEA study, the Measured and Indicated tonnes increased by 92.3% from 4.9 to 9.5 million tonnes. Grade is lower in the AGP model from 15.76% Cg down to 14.86% Cg resulting primarily from the use of a search restriction on grades above 38% Cg. Despite the slightly lower grade the total graphitic tonnes increased by 81.4% from 778,000 tonnes to 1,411,000 tonnes.

Since the intent for the 2012 and 2013 drill program was to up class Inferred material, the increase seen in the Measured and Indicated category was accompanied by a reduction of the Inferred resources however, most of the tonnage that was converted to Indicated resources was recuperated by the addition of the South Central Zone. As a result, at the 5% Cg cut-off, the tonnage in the Inferred category decreased slightly from 3.0 million tonnes to 2.9 million tonnes (a -2.0% change). Grade decreased by 1.83% from 15.58% Cg to 13.75% Cg consequently, the AGP model returns 13.5% less graphite tonnes from 467,000 down to 404,000 tonnes for the Inferred category.

Overall, at the 5% Cg cut-off, the AGP model bears 56.7% more tonnes and 45.8% more graphite than the PEA model as shown in Table 14.15.

Table 14.15 – Resource Comparison

		New Mineral Resource Estimate (3.0% Cg Cut-off Base Case)			October 30, 2012 (5.0% Cg Cut-off Base Case)			Percent Change	
	Cut-off	Tonnes	Cg %	Cg Tonnes	Tonnes	Cg %	Cg Tonnes	Tonnage	Graphite
Measured	> 10.0	428,000	23.81	102,000	0		0		
	> 5.0	432,000	23.66	102,000	0		0		
	> 3.0	432,000	23.66	102,000					
	> 2.0	432,000	23.66	102,000					
Indicated	> 10.0	7,466,000	15.77	1,177,000	4,533,000	16.43	745,000	64.7%	58.0%
	> 5.0	9,065,000	14.44	1,309,000	4,938,000	15.76	778,000	83.6%	68.3%
	> 3.0	9,144,000	14.35	1,312,000					
	> 2.0	9,146,000	14.35	1,312,000					
Measured + Indicated	> 10.0	7,894,000	16.21	1,279,000	4,533,000	16.43	745,000	74.1%	71.7%
	> 5.0	9,497,000	14.86	1,411,000	4,938,000	15.76	778,000	92.3%	81.4%
	> 3.0	9,576,000	14.77	1,414,000					
	> 2.0	9,578,000	14.77	1,415,000					
Inferred	> 10.0	2,196,000	15.81	347,000	2,861,000	15.92	455,000	-23.2%	-23.7%
	> 5.0	2,941,000	13.75	404,000	3,000,000	15.58	467,000	-2.0%	-13.5%
	> 3.0	3,102,000	13.25	411,000					
	> 2.0	3,116,000	13.20	411,000					

14.12 Block Model Validation

The Lac Knife grade models were validated by five methods:

a) Visual comparisons of colour-coded block model grades with composite grades on section, plan, and long section plots

b) Comparison of the global mean block grades for inverse distance, nearest neighbour models, composite, and raw assay grades

c) Comparison using grade profiles to investigate local bias in the estimate

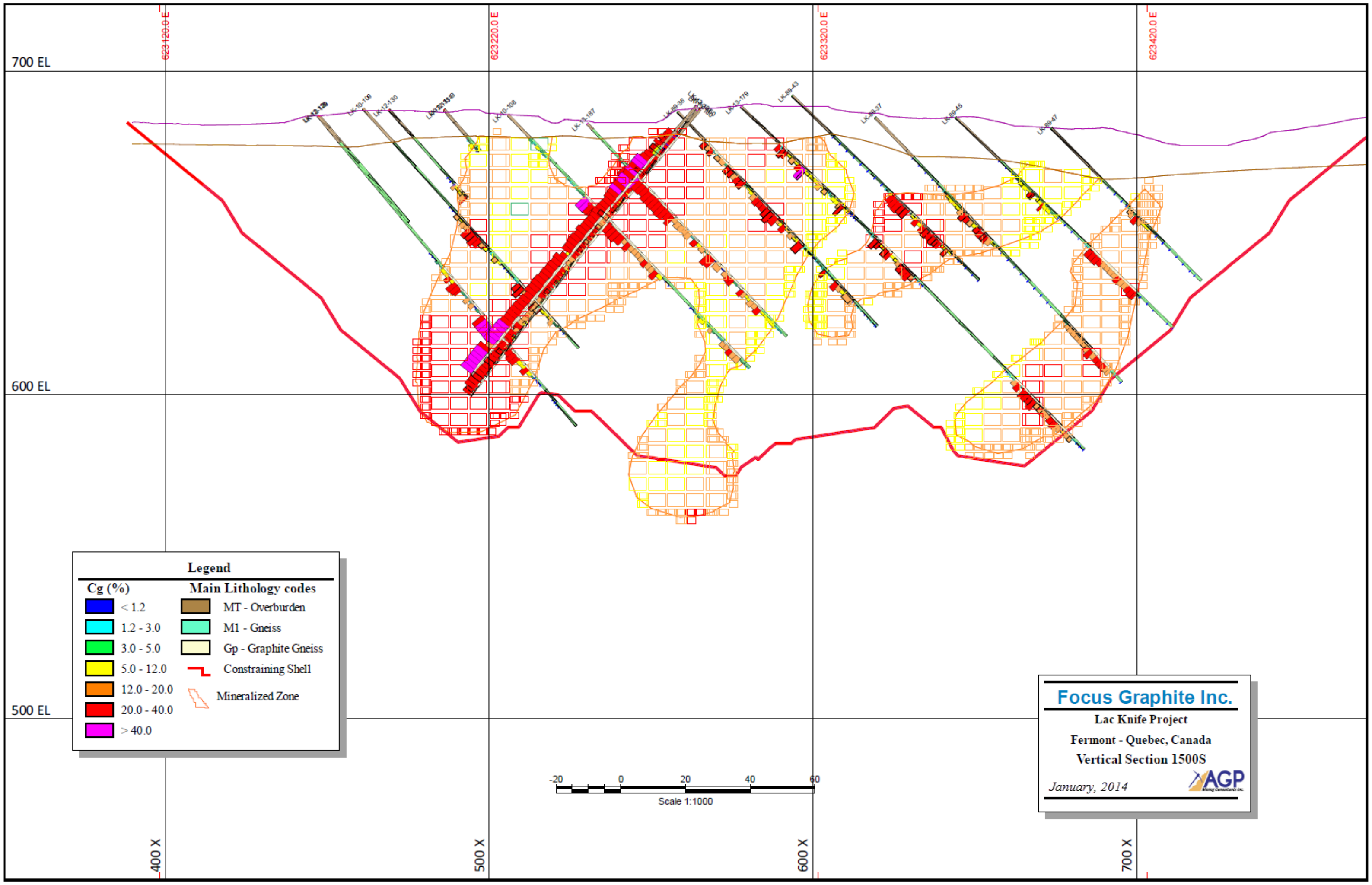
d) Naive cross validation tests with composite grade versus block model grade

e) Bulk sample grade comparisons

14.13 Visual Comparison

The visual comparisons of block model grades with composite grades show a reasonable correlation between values. No significant discrepancies were apparent from the sections reviewed. The orientations of the estimated grades on sections follow more or less the projection angles defined by the search ellipsoid. A representative section (1500S) is shown in Figure 14.5. All sections and plans are available.

Figure 14.5 – Representative Cross Section 10850E



14.14 Holes Sub-parallel to the Mineralization

This resource model included a number of holes that were drilled sub-parallel to the mineralization. While not ideal, the impact of the sub-parallel holes to the surrounding blocks was mitigated by the maximum number of sample used in the interpolation and the search restriction on the mild outliers.

During the validation process, it was recognized that a possible bias could have been introduced to the resource. In order to correctly assess the impact of the hole, the resources were re-estimated with the sub-parallel holes removed from the composite dataset. A new volumetric report was compiled and compared against the original report.

The usage of the sub-parallel holes affected a total of 360 blocks grading above 20% Cg out of a total of 57,742 blocks (0.62% of all the blocks in the model). Additionally, inspection in 3D of the high grade (> 20%) distribution did not change drastically with or without the holes. The volumetric report indicated a 0% change in tonnage and a -2% percent changes in Cg tonnes in the Measured plus Indicated category at the reported > 3.0% cut-off within the $2,000 pit shell. Grade is also comparable; the re-interpolated model without the sub-parallel holes return a grade of 21.85% Cg in the Measured category versus the original grade of 23.66% Cg. In the Indicated category the grade in the re-interpolated model was 14.18% Cg compared to the original grade of 14.38% Cg.

AGP therefore considered that the usage of the sub-parallel holes did not materially affect the stated resource although it is recommended that in future resource estimate the holes sub-parallel to the mineralization should be eliminated from the dataset.

14.15 Global Comparisons

Table 14.6 shows the grade statistics for the raw assays, composites, nearest neighbour, inverse distance and ordinary krige models. Statistics for the Cg composite mean grade compare well to the raw assay grade with small degradation in value mostly due to smoothing related to volume variance and also to a much lesser extent, the introduction of zero grade composites in area of un-sampled core. More importantly, the grade of the nearest neighbour, inverse distance and ordinary krige models are all within 0.8% of each other indicating no global bias was introduced from the interpolation methodology.

Table 14.16 – Global Comparisons (Mean Grade at Zero Cut-off)

Model	Cg (%) All Domain (MII)	Cg (%) All Domain (MIIP)
Raw Assays (Mean grade/ De-clustered Mean)	15.42/13.90	
Composite (Mean grade / De-clustered Mean)	15.42/13.79	
Nearest Neighbour	14.27	14.22
Inverse Distance	14.38	14.30
Ordinary Kriging	14.33	14.25

14.16 Local Comparisons – Grade Profile

The comparison of the grade profiles (swath plots) of the raw assay, composites, and estimated grade allow for visual verification of an over or under estimation of the block grades at the global and local scale. A qualitative assessment of the smoothing and variability of the estimates can also be observed from the plots. The output consists of three (3) swath plots generated at 50 m intervals in the X direction, 50 m in the Y direction, and 15 m vertically.

The krige and inverse distance estimate should be smoother than the nearest neighbour estimate, thus the nearest neighbour estimate should fluctuate around the krige and inverse distance estimate on the plots, or display a slightly higher grade. The composite line is generally located between the assay and the interpolated grade. A model with good composite distribution should show very few crossovers between the composite and the interpolated grade line on the plots. In the fringes of the deposits, as composite data points become sparse, crossovers are often unavoidable. The swath size also controls this effect to a certain extent; if the swaths are too small, fewer composites will be encountered that usually results in very erratic lines on the plots.

Due to the orientation of the Lac Knife deposit, the swath plot in the Y-axis and Z-axis should show the best results for this model. The X-axis is oriented more or less parallel to the orientation of the mineralization.

In general, the swath plots show good agreement with the three (3) methodologies showing no major local bias. The composite follows the interpolated model closely with a few minor crossovers noted, expect in fringe areas where the number of composites is reduced. Grade profiles for Cg are presented in Figure 14.6 and Figure 14.7. The profile for the X chart was omitted since this orientation is parallel to the deposit.

Figure 14.6 – Y Axis Swath Plots

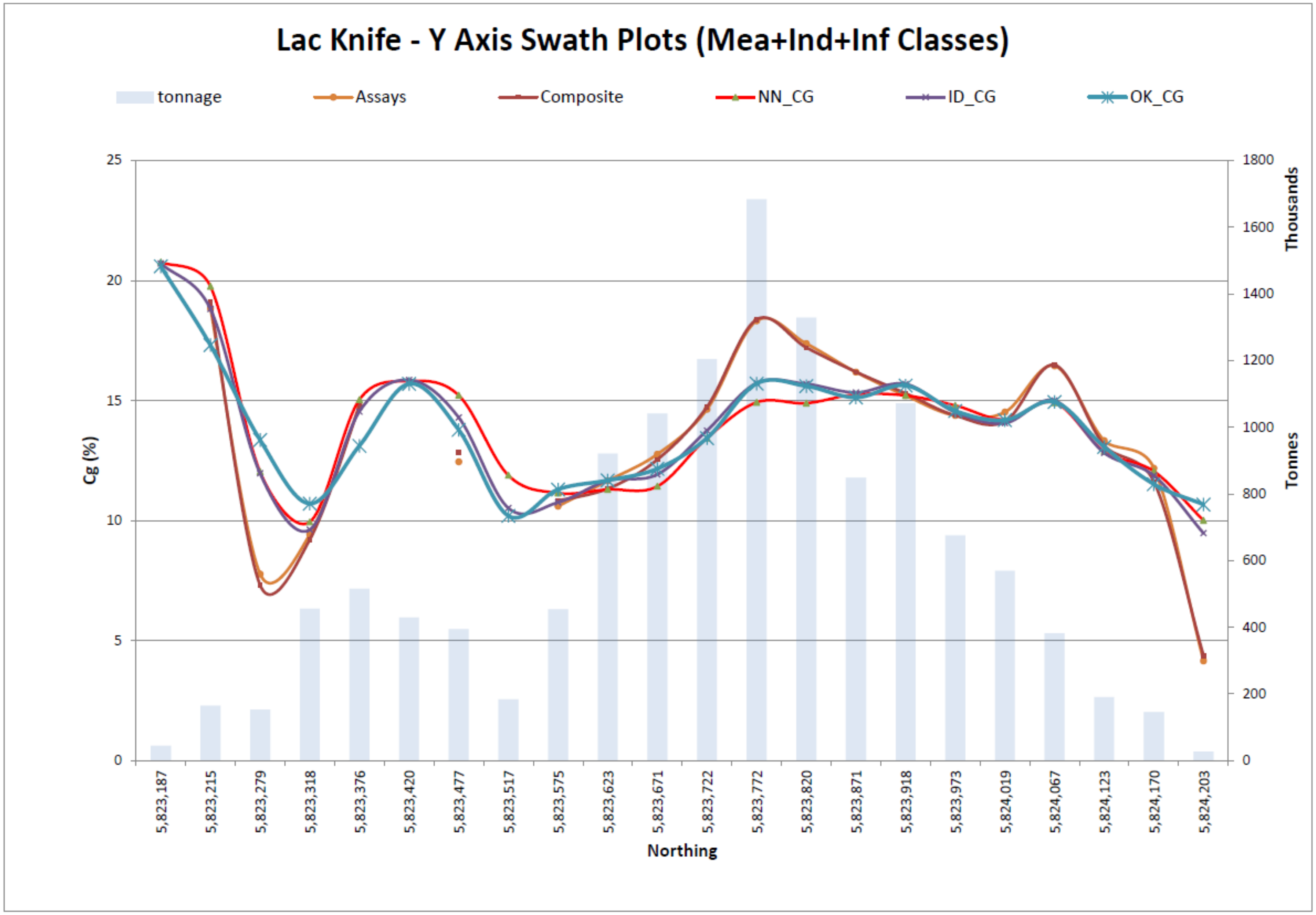
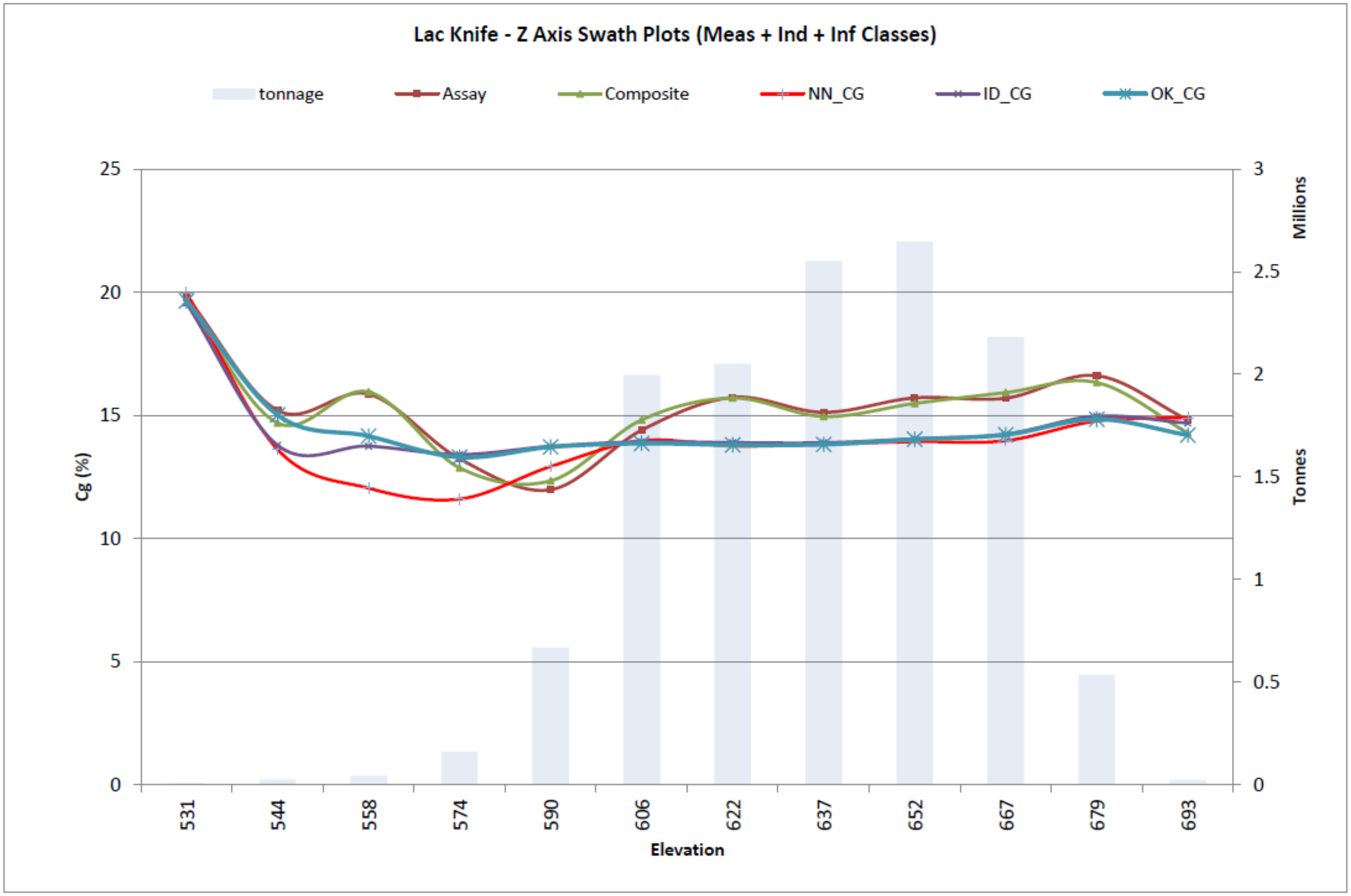


Figure 14.7 – Z Axis Swath Plots



14.17 Naïve Cross – Validation Test

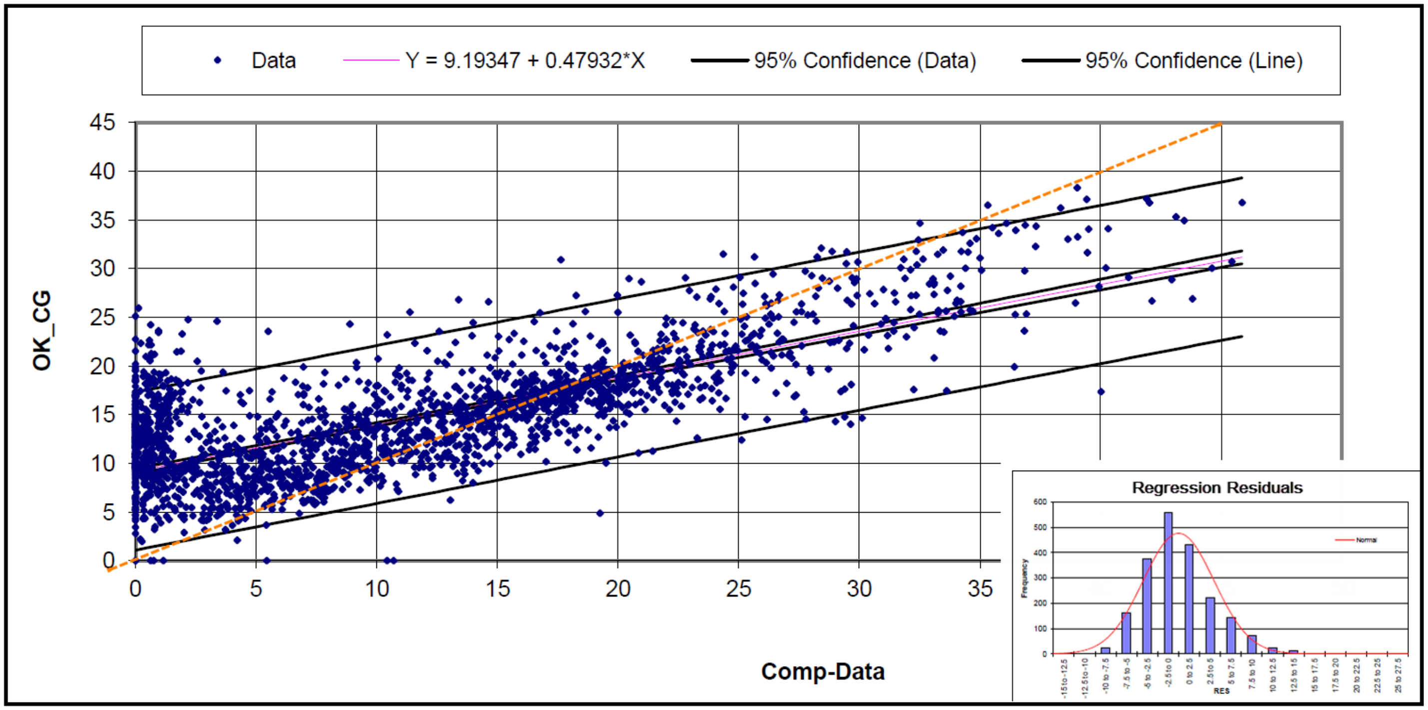
A comparison of the average grade of the composites within a block, with the estimated grade of that block, provides an assessment of the estimation process close to measured data. Pairing of these grades on a scattered plot gives a statistical valuation of the estimates. This methodology differs from "Jack Knifing" which replaces a composite with a pseudo block at the same location. Jack Knifing evaluates and compares the estimated grade of the pseudo-block against that of the composite grade.

It is anticipated the estimated block grades should be similar to the composited grades within the block, but without being of exactly the same value. This is especially true with deposits, where grades typically bear a higher nugget component.

A high correlation coefficient will indicate satisfactory results in the interpolation process, while a medium to low correlation coefficient will indicate larger differences in the estimates, and would suggest a further review of the interpolation process, or it might simply be related to a low data density. Results from the pairing of the composited and estimated grades within the Measured, Indicated and Inferred blocks pierced by a drill hole are presented in Figure 14.8. The R2 value is moderate at 0.56 with three outliers removed. The best fit line crosses the 1:1 line at about 18% Cg, meaning the resource model tends to underestimate the high grade composite and over-estimate the lower grade composites due to smoothing of the composite grade when kriging. The slope of the regression is 0.479.

The regression residuals are the differences on a case-by-case basis between the actual Y values and the values calculated by the best-fit equation. The regression residual shows that the pairs are very close to being normally distributed about the regression line.

Figure 14.8 – Naïve Cross Validation Tests Results



14.18 Bulk Sample Grade Comparison

The resource model was compared to the reported tonnes and grade from the 2001 bulk sample program completed under the supervision of Strathcona Mineral Services Limited.

The goal of the bulk sample program was to provide a better understanding of the geology and grade distribution near the surface of the deposit and to establish a basic flow sheet for a production-scale process plant. Approximately 100 tonnes of graphite concentrate was to be produced from the bulk-sampling program. In order to achieve this, approximately 3,000 tonnes of graphite mineralization was mined from two bulk sample areas. The material was hauled and crushed to 3 inches with half of this volume to be transported to an intermediate storage facility in Fermont and then later to the COREM pilot plant in Sainte-Foy, Quebec. The two sample areas were selected mainly based on overburden thickness and were also influenced by the limits imposed by the work permit. The bulk samples represented cuts across the mineralized zone, which should allow comparison with resource grades predicted from drilling however, Strathcona noted that the tight folding of the host rocks and the varying thickness of the quartz-rich gneiss bands will make any horizontal cut through the mineralized zone somewhat arbitrary with respect to the volume of high-grade and low grade graphite gneiss. Another uncertainty is introduced during mining of the samples with approximately 50% more mineralization blasted than what was actually processed. This was done to ensure that 1,500 tonnes could be crushed without having to re-blast large blocks. Since most of the oversize blocks were generated at surface and at the edge of the blasted area, the bulk sample material originated predominantly from the bottom of the slots. This selectivity results in grade variation and also in the ratio of the host rocks in the sample compared to those present at the sample site.

Despite these limitations, AGP is of the opinion the bulk sample grade should be in the same grade range. As shown in Table 14.17 for Area 1, the resource model grade of 16.9% Cg indicated a good agreement with the bulk sample grade of 18.1% Cg (-6.6% change). For Area 2, the comparison is not as good with the resource model returning a much lower grade of 10.7% Cg compared to the bulk sample grade of 19.7% Cg. AGP notes the resource model grade understates the bulk sample grade for both Area1 and Area2.

Table 14.17 – Bulk Sample Grade versus Resource Model Grade

Excavation	Resource Model				Bulk Sample			Differences		
	Volume (m^3)	Tonnage (tonnes)	Cg (%)	S %	Tonnage after Crushing (tonnes)	Cg (%)	S (%)	Actual Tonnes vs GEMS Wireframe (T)	Cg Bulk Sample Grade vs Resource Grade	S Bulk Sample Grade vs Resource Grade
Area1 Blast1	232	673	17.8	7.3						
Area1 Blast2	604	1,709	15.4	6.4						
Area1 Blast3	525	1,498	18.2	6.4						
Total (Area 1)	1,361	3,880	16.9	6.6	1,662	18.1	9.0	2,218	-6.6%	-26.7%
Total (Area 2)	1,172	3,261	10.7	4.3	1,619	19.7	7.3	1,642	-84.1%	-41.0%

15.0 MINERAL RESERVE ESTIMATES

The Mineral Reserves for the Lac Knife deposit were prepared by Jeffrey Cassoff, Eng., Lead Mining Engineer with Met-Chem Canada Inc. and Qualified Person. The Mineral Reserves have been developed using best practices in accordance with CIM guidelines and National Instrument 43-101 reporting. The effective date of the Mineral Reserve estimate is June 25, 2014.

The Mineral Reserves were derived from the Mineral Resource Block Model that was presented in Section 14. The Mineral Reserves are the Measured and Indicated Mineral Resources that have been identified as being economically extractable and which incorporate mining loses and the addition of waste dilution. The Mineral Reserves form the basis for the mine plan presented in Section 16.

Met-Chem performed a cursory review of the mineral resource estimate during the Feasibility Study and recommends that the holes drilled sub-parallel to the mineralization should be removed from any subsequent mineral resource estimates. Met-Chem does not feel that the results of the Feasibility Study or the mineral reserve estimate have been compromised. It is also important to note that the mining of the Measured Resources have been distributed across the 25 year mine plan.

15.1 Geological Information

The following section discusses the geological information that was used for the mine design and mineral reserve estimate. This information includes the topographic surface, the geological block model and the material properties for ore, waste and overburden. Overburden is the layer of material covering the orebody that is composed mainly of sand soils, silty sand and gravelly sand.

The mine planning work carried out for the Feasibility Study was done using MineSight® Version 8.50. MineSight® is a commercially available mine planning software that has been used by Met-Chem for over 30 years.

15.1.1 Topographic Surface

The mine design for the Feasibility Study was carried out using a topographic surface that originated from a Laser Imaging Detection and Ranging Survey (LiDAR). The topographic surface was supplied to Met-Chem as 0.5 m elevation contours.

15.1.2 Resource Block Model

The mine design for the Feasibility Study is based on the 3-dimensional geological block model that was prepared by AGP Mining Consultants Inc. (AGP), and presented in Section 14. Each block in the model is 6 m wide, 6 m long and 5 m high and there is no model rotation. Only blocks that contain mineralization are included in the 3-dimensional geological block model.

Each block in the model contains the Cg grade, the resource classification (Measured, Indicated and Inferred) and the percentage of the block that contains mineralization.

Using the overburden surface provided by AGP, Met-Chem was able to differentiate the non-mineralized material as either overburden or waste rock.

15.1.3 Material Properties

The material properties for the different rock types are outlined below. These properties are important in estimating the mineral reserves, the equipment fleet requirements as well as the dump and stockpile design capacities.

a) Density

As was discussed in Section 14 of this report, the in-situ dry density of the mineralized material is a function of the Cg grade and varies between 2.65 and 3.05 t/m^3. The average density of the Measured and Indicated Mineral Resources is 2.81 t/m^3.

Based on a recommendation from AGP, Met-Chem used a density of 2.8 t/m^3 for the waste rock. A density of 2.1 t/m^3 was used for the overburden.

b) Swell Factor

The swell factor reflects the increase in volume of material from its in-situ state to after it is blasted and loaded into the haul trucks. A swell factor of 45% was used for the Feasibility Study, which is a typical value used for open pit hard rock mines. Once the rock is placed in the waste dumps and stockpiles, the swell factor is reduced to 30% due to compaction.

c) Moisture Content

The moisture content reflects the amount of water that is present within the rock formation. It affects the estimation of haul truck requirements and must be considered during the payload calculations. The moisture content is also an important factor for the process water balance. Since the mineral reserves are estimated using the dry density, they are not affected by the moisture content value. A moisture content of 5% was used for the Feasibility Study. This value is typical for similar projects in the region.

15.2 Open Pit Optimization

The first step in the mineral reserve estimate is to carry out a pit optimization analysis. The pit optimization analysis uses economic criteria to determine the cut-off grade and to what extent the deposit can be mined profitably.

The pit optimization analysis was done using the MS-Economic Planner module of MineSight® Version 8.5. The optimizer uses the 3D Lerchs-Grossmann algorithm to determine the economic pit limits based on input of mining and processing costs and revenue per block. In order to comply with NI 43-101 guidelines regarding the Standards of Disclosure for Mineral Projects, only blocks classified in the Measured and Indicated categories are allowed to drive the pit optimizer. Inferred resource blocks are treated as waste, bearing no economic value.

Table 15.1 presents the parameters that were used for the pit optimization analysis. All figures are in Canadian Dollars. The cost and operating parameters that were used are preliminary estimates for developing the economic pit and should not be confused with the operating costs subsequently developed for the Feasibility Study and presented in Section 21. The pit optimization analysis considered the Cg grades after mining dilution was accounted for. Mining dilution is discussed in the next section of this report. Using the cost and operating parameters, a series of 15 pit shells was generated by varying the selling price (revenue factor) from 350 to 1,600 $/t. Figure 15.1 shows a typical section through the deposit with several of the pit shells. The tonnages and grades associated with each of the pit shells are presented in Table 15.2. The Net Present Value (NPV) of each shell was calculated assuming a selling price of $ 1,600 /t of concentrate (FOB Sep-Îles), a discount rate of 8% and an annual production of 44,300 tonnes of concentrate.

Figure 15.2 presents the results in a graphical format.

The pit optimization analysis shows that the open pit design should be based on PIT11 (Revenue Factor - 0.378). This pit shell contains 7.5 Mt of Measured and Indicated Mineral Resources at a strip ratio of 1.2 to 1. Mining additional resources with an open pit beyond the limits of this pit shell increases the strip ratio but does not provide much of an increase in NPV. For example, the difference in PIT12 and PIT11 is 300,000 tonnes of ore but the incremental strip ratio to access this ore is 3.7 to 1. Upon completion of the Feasibility Study, Met-Chem confirmed that the pit optimization exercise was still valid using the updated cost estimate developed in the Study.

Table 15.1 – Pit Optimization Parameters

Item	Value	Units
Mining Cost (Overburden)	4.00	$/t (mined)
Mining Cost (Ore and Waste)[1]	5.50	$/t (mined)
Processing Cost	42.50	$/t (milled)
Transportation Cost	25.00	$/t (conc.)
Administration Cost	2.50	$/t (milled)
Sales Price (FOB Sep-Îles)	1,600	$/t (conc.)
Mill Recovery	91.0	%
Concentrate Grade	97.8	%
Pit Slope[2]	40 and 48	degree

1 The mining cost was increased by 0.02 $/t for each 10 m increment in pit depth. The 5.50 $/t represents the average mining cost.
2 A pit slope of 40° was used on the north east side of the deposit to account for the eventual ramp design. A pit slope of 48° was used on the south west side of the deposit where there will be no ramp.

Figure 15.1 – Pit Optimization Shells

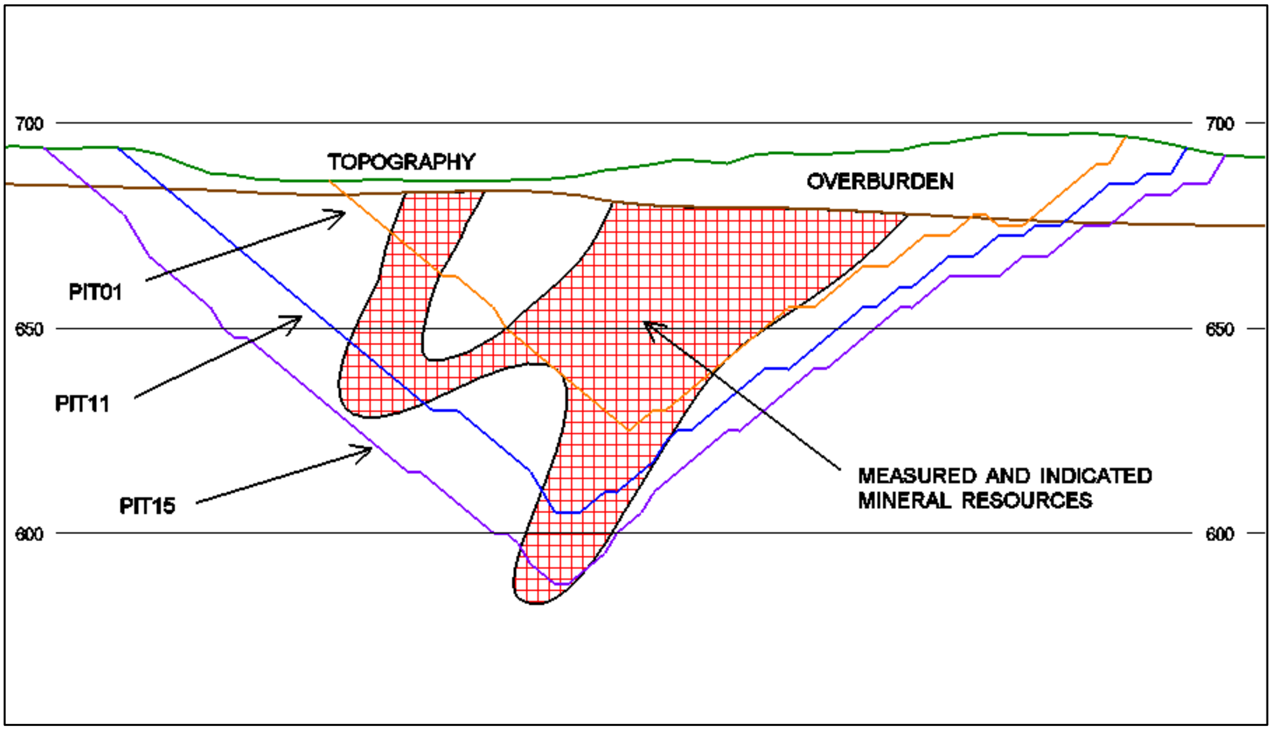
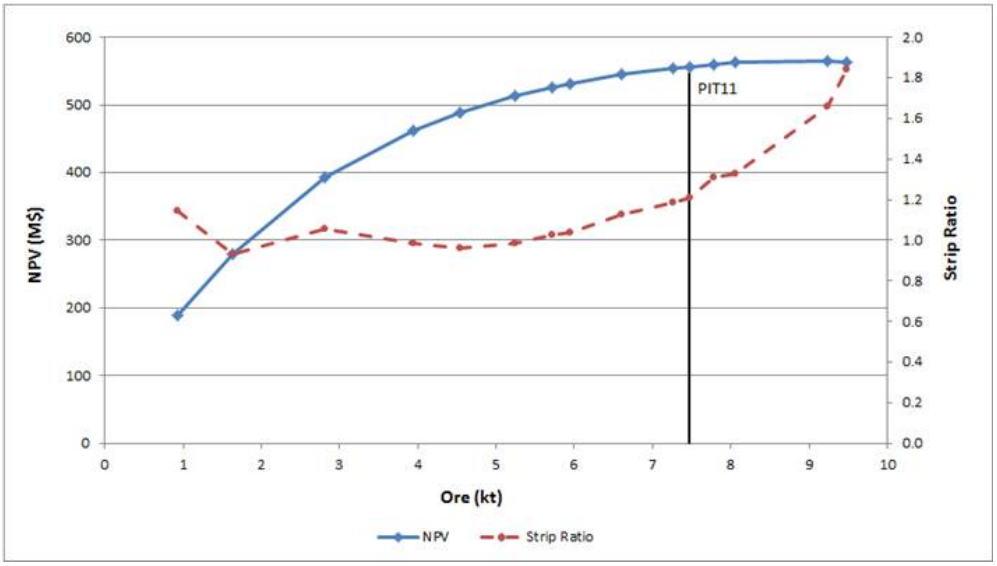


Table 15.2 – Pit Optimization Results

Pit	Revenue Factor	Ore (Mt)	Cg (%)	Waste (Mt)	Strip Ratio	Concentrate (Mt)	NPV (M$)	Mine Life (y)
PIT01	0.219	0.9	20.7	1.1	1.1	0.2	190	5
PIT02	0.234	1.6	19.1	1.5	0.9	0.3	279	7
PIT03	0.244	2.8	18.4	3.0	1.1	0.5	393	11
PIT04	0.266	3.9	17.6	3.9	1.0	0.6	463	15
PIT05	0.281	4.5	17.2	4.4	1.0	0.7	489	17
PIT06	0.297	5.2	16.8	5.2	1.0	0.8	513	19
PIT07	0.313	5.7	16.5	5.9	1.0	0.9	526	20
PIT08	0.328	5.9	16.4	6.2	1.0	0.9	532	21
PIT09	0.344	6.6	16.1	7.4	1.1	1.0	545	23
PIT10	0.369	7.3	15.7	8.6	1.2	1.1	554	24
PIT11	0.378	7.5	15.6	9.1	1.2	1.1	556	25
PIT12	0.381	7.8	15.5	10.2	1.3	1.1	560	26
PIT13	0.391	8.1	15.4	10.7	1.3	1.2	562	27
PIT14	0.625	9.2	14.8	15.3	1.7	1.3	565	29
PIT15	1.000	9.5	14.7	17.5	1.8	1.3	562	30

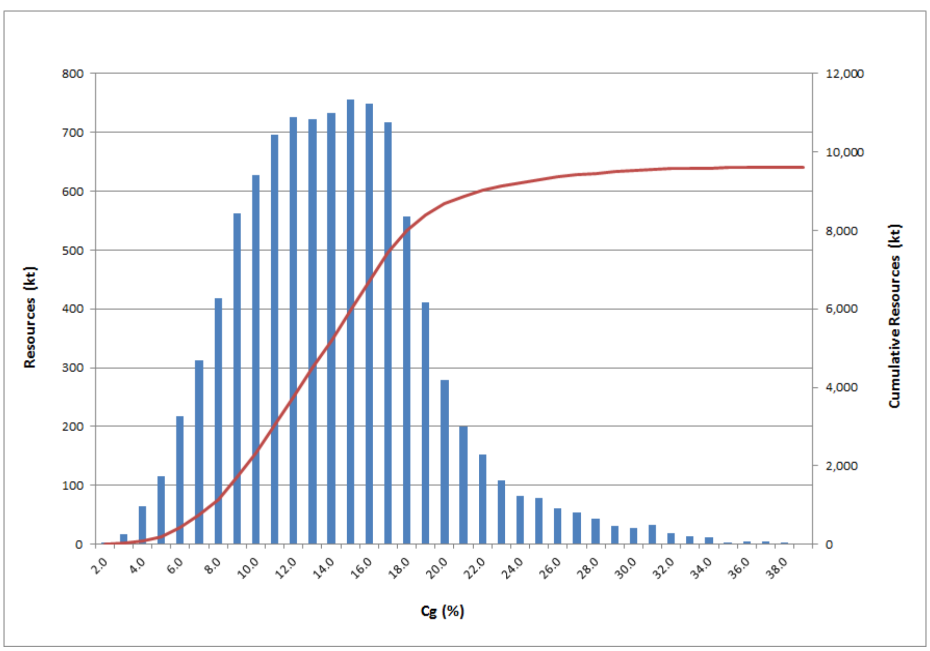
Figure 15.2 – Pit Optimization Results



Using the economic parameters presented in Table 15.1, the open pit cut-off grade was calculated to be 3.1%. The cut-off grade is used to determine whether the material being mined will generate a profit after paying for the processing, transportation and G&A costs. Material that is mined below the cut-off grade is sent to the waste dump.

Figure 15.3 presents a histogram of the grades and tonnage of the Measured and Indicated Mineral Resources. The histogram shows that the Lac Knife deposit contains very little tonnage below the cut-off grade.

Figure 15.3 – Grade Tonnage Curve



15.3 Open Pit Design

The next step in the mineral reserve estimation process is to design an operational pit that will form basis of the production plan. This pit design uses the pit shell as a guideline and includes smoothing the pit wall, adding ramps to access the pit bottom and ensuring that the pit can be mined using the selected equipment. The following section provides the parameters that were used for the open pit design and presents the results.

15.3.1 Geotechnical Pit Slope Parameters

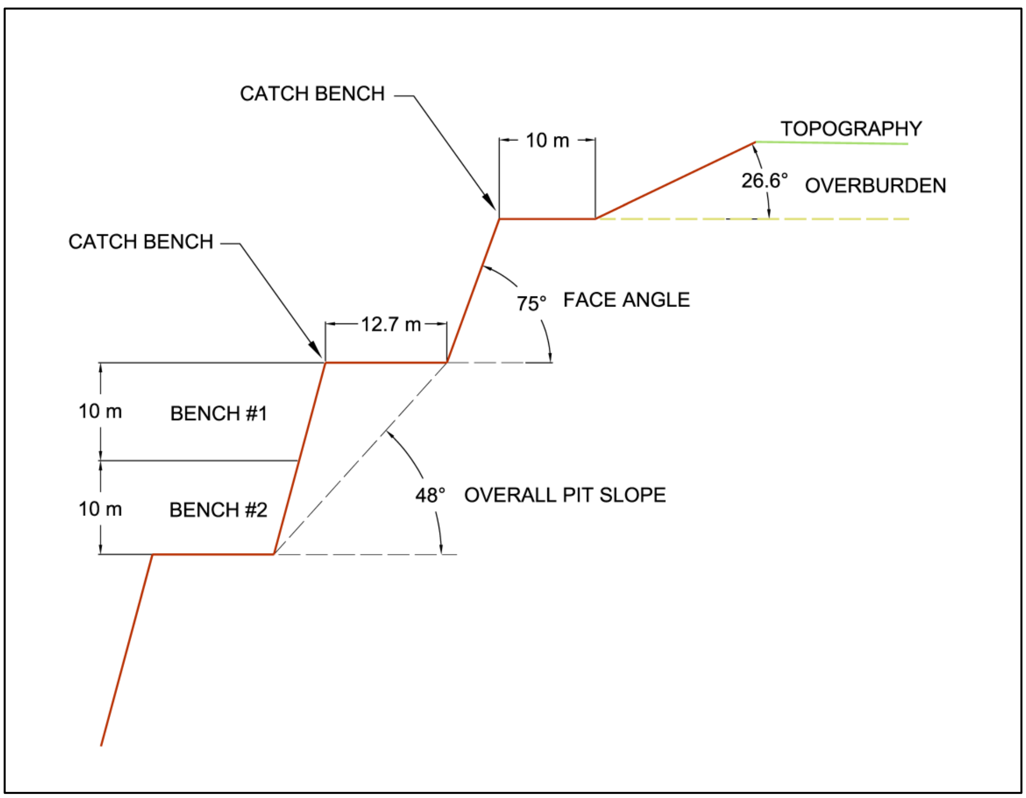
The geotechnical pit slope parameters were provided by Journeaux Assoc. in a report titled "Preliminary Open Pit Slope Design – Lac Knife Deposit, July 24, 2014".

The report recommends an overall pit slope of 45° for the northeast wall from azimuth 280° (NW) to 100° (SE) and an overall pit slope of 48° for the southwest wall. The 45° slope is achieved with 10 m bench heights, a bench face angle of 75° and a 14.6 m wide catch bench per two (2) benches. For the 48° slope the catch bench is 12.7 m wide.

The recommended slope through the overburden formation is 26.6° with a 10 m wide catch bench at the contact between the overburden and the bedrock. The pit wall configuration is presented in Figure 15.4.

The recommended slopes assume that pre-shearing blasting techniques will be used.

Figure 15.4 – Pit Wall Configuration

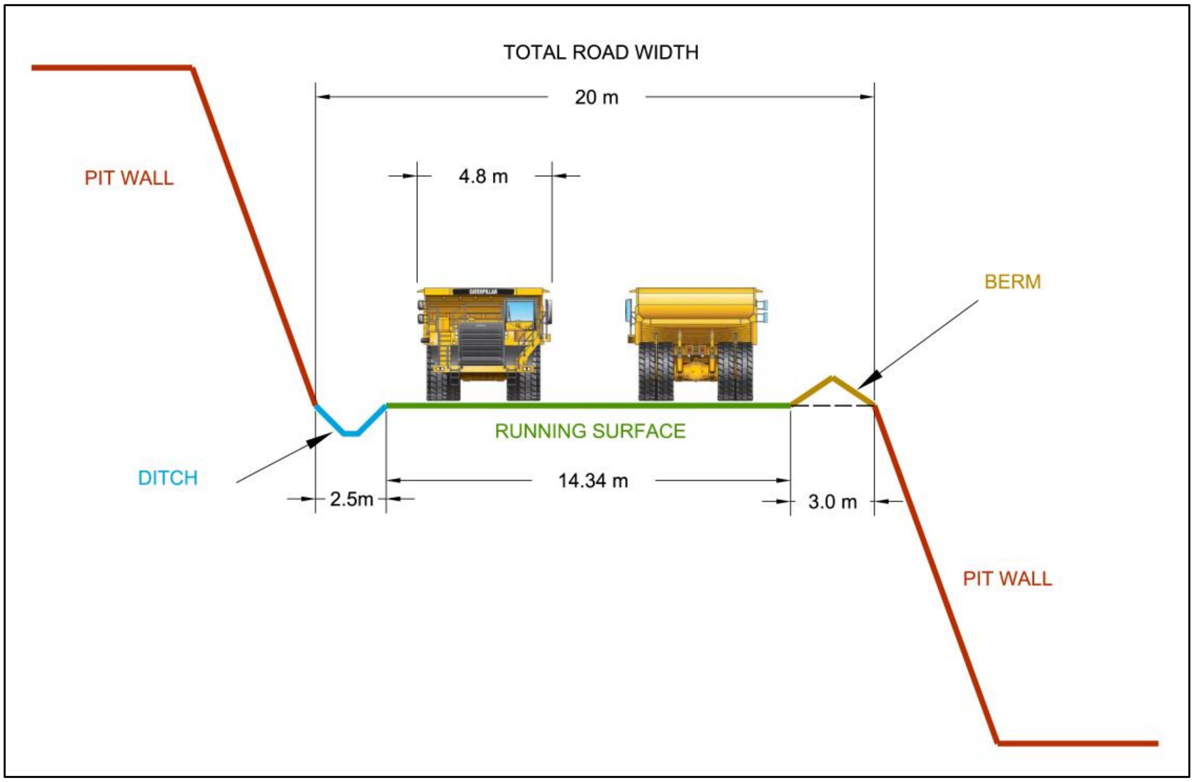


15.3.2 Haul Road Design

The ramps and haul roads were designed with an overall width of 20 m. For double lane traffic, industry practice indicates the running surface width to be a minimum of three (3) times the width of the largest truck. The overall width of a 36.5-tonne rigid frame haul truck is 4.8 m which results in a running surface of 14 m. The allowance for berms and ditches increases the overall haul road width to 20 m.

A maximum ramp grade of 10% was used. This grade is acceptable for a 36.5-tonne rigid frame haul truck. Figure 15.5 presents a typical section of the in-pit ramp design.

Figure 15.5 – Ramp Design



15.3.3 Mine Dilution and Ore Loss

In every mining operation, it is impossible to perfectly separate the ore and waste as a result of the large scale of the mining equipment and the use of drilling and blasting. In order to account for mining dilution, Met-Chem assign a diluted Cg grade value for each block of ore that neighbours a waste block.

The mining dilution was estimated at 10%, meaning that for each 5 m wide block of ore, 0.5 m of the neighbouring waste block was included as dilution. A Cg grade of 0% was used for the waste. The addition of mining dilution resulted in lowering the Cg grade of the mineral reserves from 15.28% to 15.13%.

The gain in tonnage that results from including the 0.5 m wide slice of waste was not included in the mineral reserves in order to remain conservative with the methodology of applying mining dilution and ore losses.

15.3.4 Minimum Mining Width

A minimum mining width of 15 m was considered for the open pit design. This is based on a 9 m turning radius for a 36.5-tonne haul truck plus several metres on each side for safety.

15.3.5 Open Pit Design Results

The pit that has been designed for the Lac Knife deposit is approximately 700 m long and 400 m wide at surface with a maximum pit depth from surface of 100 m. The total surface area of the pit is roughly 200,000 m^2. The overburden thickness averages 7 m and ranges from 0 to 20 m.

The pit ramp enters the pit in the north east corner at the 680 m elevation. The ramp heads south down the east wall of the pit to the 630 m elevation where there is a switch back. The deepest part of the open pit is at the 600 m elevation.

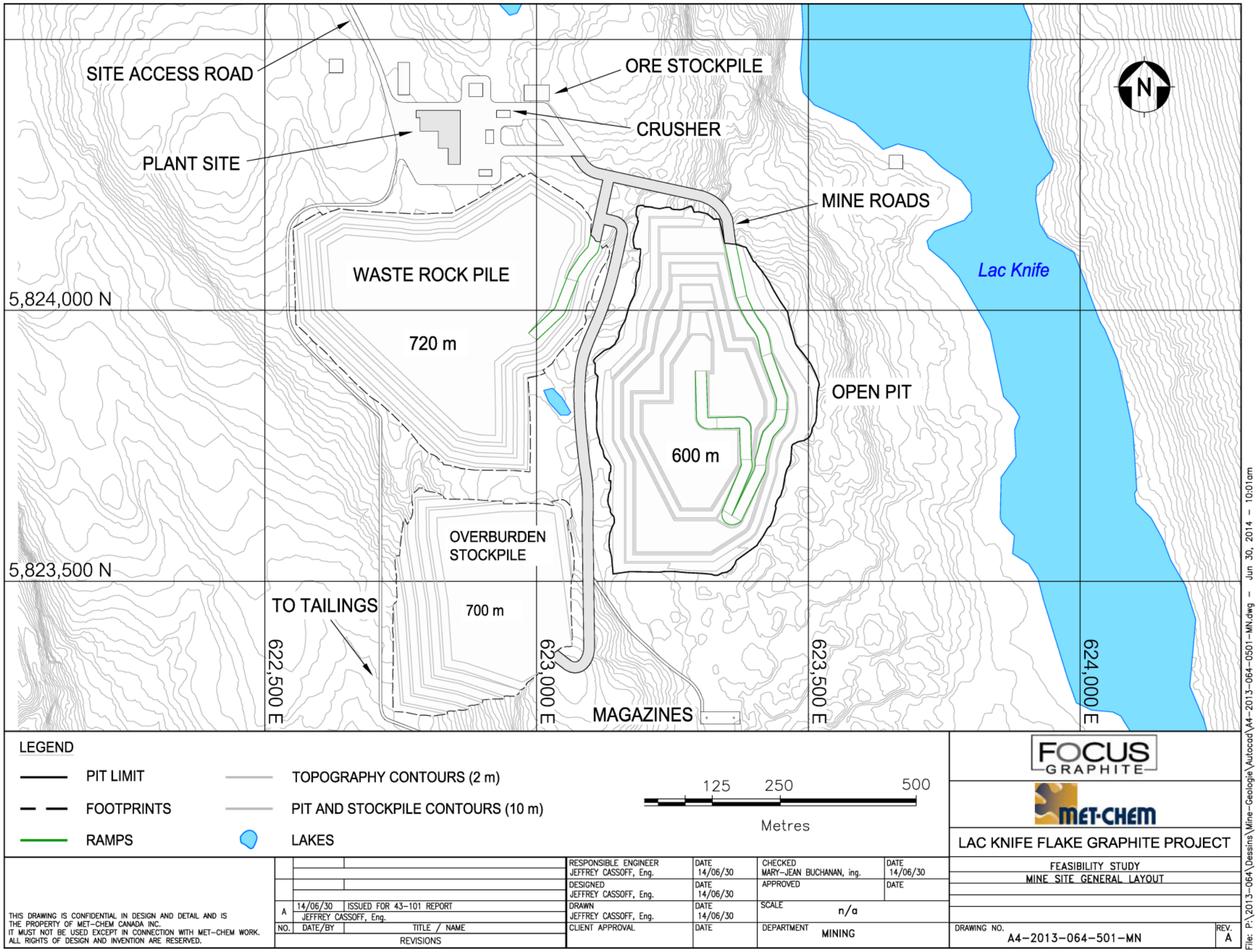
The closest point from the pit to Lac Knife is 350 m. Figure 15.6 presents the open pit design for the Lac Knife deposit.

The open pit design includes 429 kt of Proven Mineral Reserves and 7,428 kt of Probable Mineral Reserves for a total of 7,857 kt at a grade of 15.13% Cg. In order to access these reserves, 2,746 kt of overburden, 10,926 kt of waste rock and 231 kt of Inferred Mineral Resources must be mined. This total waste quantity of 13,903 kt results in a stripping ratio of 1.8 to 1. Table 15.3 presents the open pit mineral reserves for the Lac Knife deposit.

Table 15.3 – Lac Knife Open Pit Mineral Reserves

Category	Tonnage (kt)	Cg Grade (%)
Proven	429	23.61
Probable	7,428	14.64
Proven & Probable	7,857	15.13

Figure 15.6 – Mine Site General Layout



16.0 MINING METHODS

The mining method selected for the Project is a conventional open pit, truck and shovel, drill and blast operation. Vegetation, topsoil and overburden will be stripped and stockpiled for future reclamation use. The ore and waste rock will be mined with 10 m high benches, drilled, blasted and loaded into rigid frame haul trucks with hydraulic excavators.

16.1 Contract Mining Trade-Off Study

A trade-off study was carried out during the Feasibility Study which evaluated the benefits of operating the mine with a contractor rather than the mine owning and operating the equipment themselves. The trade-off study also evaluated the benefits of financing the mining fleet and investigated if there was an advantage to have a maintenance and repair contract **("MARC")**.

For the scenario where the owner will operate the mine, Met-Chem followed the usual Feasibility Study procedures which include equipment selection, fleet calculations and manpower requirements, followed by the capital and operating cost estimate that was based on budgetary pricing from the equipment suppliers.

For the contract mining scenario, Met-Chem requested a budgetary price from several local contract mining companies. Met-Chem supplied the mine plan to the contractors in order to assist with the accuracy of the pricing.

One of the main differences between the owner operation and the contractor is that the owner would operate the mine year round while the contractor would operate the mine seasonally, reclaiming from an ore stockpile during the winter.

Using a contract miner reduces the initial capital cost for the Project since the mine does not need to purchase the equipment fleet nor does it need to build a maintenance garage. However, the operating costs with a contract miner are higher since the contractor must amortize his equipment and account for a profit margin.

The results of the trade-off study showed that the net present value of the mining expenditures (initial capital, sustaining capital and operating cost) are pretty close for the scenario where the owner operates the mine and the scenario where the mine is operated by a contractor.

Focus Graphite chose to base the Feasibility Study on a contract mining operation but will re-evaluate this decision if the Project advances to the next stage using firm pricing rather than budgetary pricing.

16.2 Geotechnical Pit Slope Parameters

The geotechnical pit slope parameters were presented in Section 15.

16.3 Hydrogeology and Hydrology Parameters

The four (4) sources of water that affect the mining operation are surface run-off, rainfall, snowmelt and groundwater. The quantity for each of these sources of water was estimated for each period of the mine plan in order to calculate the mine dewatering requirements:

a) Surface Run-off

The topography around the mine area is favourable for the surface water run-off to flow away from the open pit. In areas where the topography drains towards the pit, low berms will be constructed to redirect the water away.

b) Rainfall and Snowmelt

The amount of rainfall and snowmelt that is expected in the area of the Project for each month was provided in the Preliminary Economic Assessment for the Lac Knife Project, October 2013. Using this data, Met-Chem estimated that the total annual precipitation around the open pit averages 807 mm. Using the surface area of the open pit for each period of the mine plan, Met-Chem estimated that the amount of precipitation that is expected to be collected in the open pit will range from 133 m3/d during the first few years of the operation to 442 m3/d at the end of the mine life. These figures are averages and do not represent years of extreme precipitation. The mine may have to shut down temporarily during periods of extreme rainfall.

c) Groundwater

The expected groundwater inflows were estimated by Golder Associated Ltd. based on the hydrogeological field investigation program from 2013. Golder created a numerical groundwater model using the FEFLOW software which was used to estimate the groundwater inflows for each five (5) year period of the mine plan. The groundwater inflows range 100 to 230 m3/d.

d) Pumping Requirements

The mine dewatering pumping requirements were designed for the month of June which is expected to receive the maximum precipitation and groundwater infiltrations. The total precipitation and groundwater during June is estimated to range from 503 to 799 m3/d.

The precipitation, snowmelt and groundwater will be collected in a sump that will be established on the lowest point of the pit floor. The water will be pumped from the sump to the surface and directed to the sedimentation basin which will be located to the south of the open pit.

The pump that has been selected for the mine dewatering is a Goodwin HL130 with a 220 kW diesel powered motor. Based on the flow rate, pumping distance and head, one (1) pump can manage the quantities of water that will need to be pumped. A second pump has been added as a backup and to be used during periods of heavy rainfall. The cost to purchase and operate the pumps as well as piping and other accessories has been included in the mine capital and operating cost estimate presented in Section 21.

16.4 Phase Design

An initial starter pit was designed which will supply the majority of the run of mine ore for the first five (5) years of the operation. The purpose of the starter pit is to maximize the feed grade and minimize the strip ratio during the early years of the operation. The starter pit, which is presented in Table 16.1 contains 1.7 Mt of ore with an average grade of 16.6% Cg at strip ratio of 1.1 to 1.

16.5 Waste Rock and Overburden Stockpile

A topsoil and overburden stockpile has been designed on the west side of the open pit, to the south of the plant site. The stockpile was designed with an overall slope of 26.6 (2H:1V), has a capacity of 1.7 Mm^3, a footprint area of 120,000 m^2, a top elevation of 700 m and a maximum height of 60 m. Material that is placed in this stockpile will be used for future reclamation.

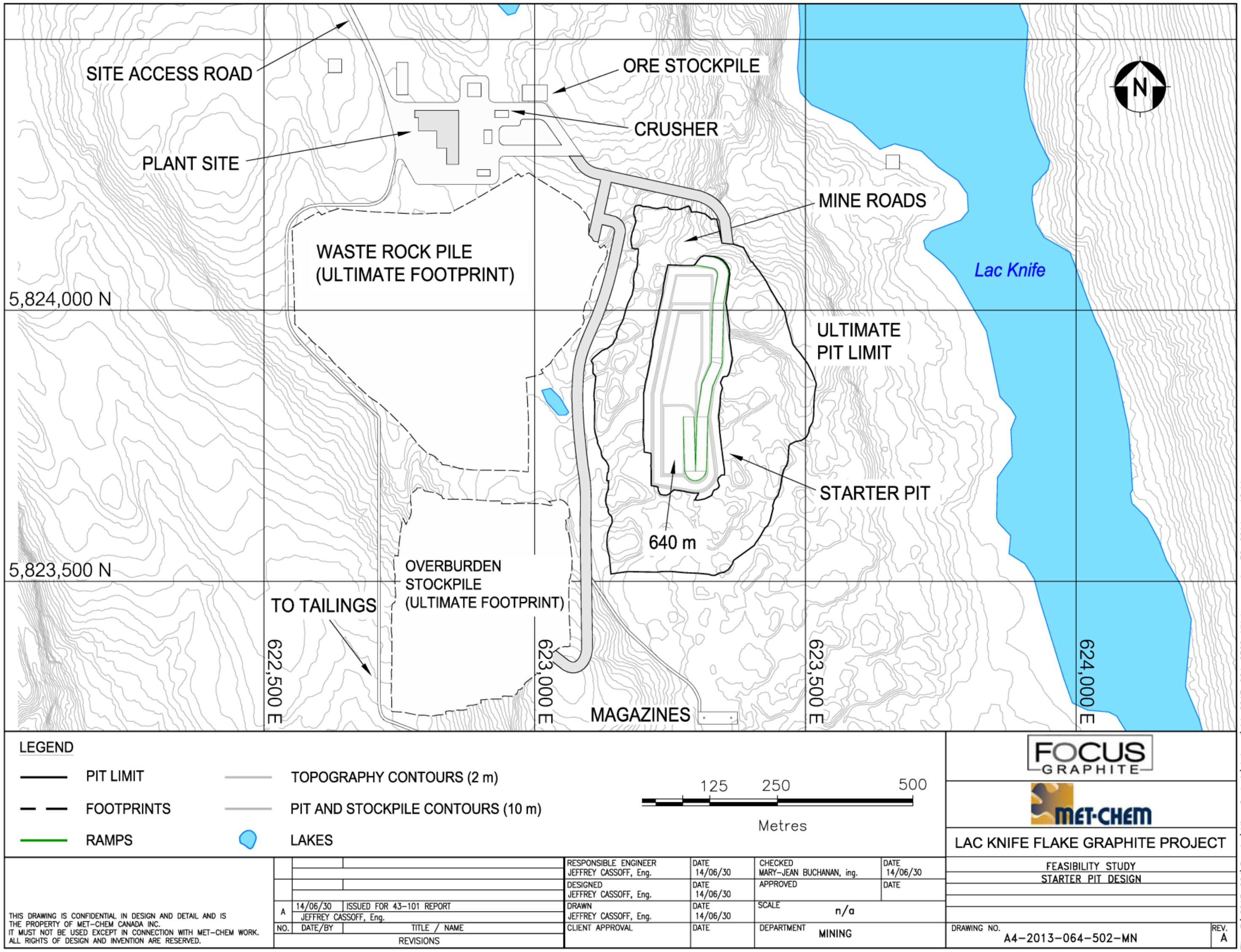
A waste rock pile has been designed on the west side of the open pit, between the plant site and the overburden stockpile. The waste rock pile was designed with an overall slope of 26.6 (2H:1V), has a capacity of 5.2 Mm^3, a footprint area of 210,000 m^2, a top elevation of 720 m and a maximum height of 40 m. The waste rock pile will be built in 10 m high lifts and compacted by a dozer.

Since the waste rock has a potential to be acid generating, all run-off will be collected and directed to the tailings pond. Further details concerning the water management of the run-off water from the waste rock pile are discussed in Section 18 of this report.

16.6 Ore Stockpile

An ore stockpile has been designed to the east of the crusher pad. The capacity of the ore stockpile is 75,000 m^3 which will contain 150,000 t of ore, roughly five (5) months of production. The ore stockpile will be 10 m high and has a footprint area of 10,000 m^2. The ore stockpile is required since the contract miner will operate the mine seasonally. The base of the ore stockpile will also be lined due to the potential for acid generation.

Figure 16.1 – Starter Pit Design



16.7 Mine Planning

The following section discusses the mine plan that was prepared for the Feasibility Study. This mine plan forms the basis of the mine capital and operating cost estimate presented in Section 21. The mine plan was established annually for the first ten (10) years of production, followed by three (3), five (5) year periods for the remaining 15 years.

16.7.1 Mine Planning Parameters

a) Work Schedule

Since the average of 870,000 tonnes per year of total excavation is quite small for a mine, the contract miners have decided to operate the mine seasonally. The contractor will operate five (5) days per week, ten (10) hours per day, seven (7) months of the year, from May until the end of November. Overburden removal will take place during the winter to take advantage of the frozen ground conditions. Since the concentrator is designed to operate year round both on the day and night shift, an ore stockpile is required to maintain the run of mine ore feed to the plant during the nights, weekends and when the mine is shutdown during the five (5) month period.

The design of the concentrator includes a coarse ore storage bin with a 24-hour capacity to store crushed ore which will reduce the amount of re-handling required. The ore storage been will be filled during the day shift so that the plant can operate during the night shift. During the weekend and the five (5) month shutdown period, the re-handling of ore will be done with a front end wheel loader.

b) Annual Production Requirements

The mine plan is based on an annual production of 44,300 tonnes of concentrate. The production in Year 1 was limited to 42,100 tonnes of concentrate (95% of full production), to account for start-up and commissioning.

c) Mill Recovery and Concentrate Grade

The mill recovery is a function of the head grade and is calculated using the following formula. The average mill recovery for the mine plan is 90.9%.

Mill Recovery= - 0.0397×Cg Grade×Cg Grade+1.9143×Cg Grade+71.042

The following calculation is used to determine the amount of concentrate that is produced from the run of mine ore. The concentrate grade is 97.8%.

Concentrate Tonnage = Run of Mine Ore (t) x Cg Grade (%) x Mill Recovery (%)/(Concentrate Grade (%)

16.7.2 Mine Production Schedule

Table 16.1 presents the mine production schedule that was developed for the 25-year life of the open pit mine. This schedule includes a pre-production phase of one (1) year which is required for overburden stripping, road construction and pit development. During this period, 500,000 tonnes of overburden and 100,000 tonnes of waste rock will be mined. A total of 20,000 tonnes of ore will also be stockpiled during pre-production.

The total material mined per year during the 25-year period ranges from 400 kt in Year 1 to a maximum of 1,317 kt in Year 8. Figure 16.2 presents a chart showing the tonnages mined each year. The tonnages shown are annualized for the five (5) year periods. The average annual grade of Cg varies from 14.0% to 17.6% during the 25-year period.

Figure 16.3 and Figure 16.4 show the pit, waste pile and overburden stockpile advances as of Year 7 and 15 respectively.

Figure 16.2 – Mine Production Schedule

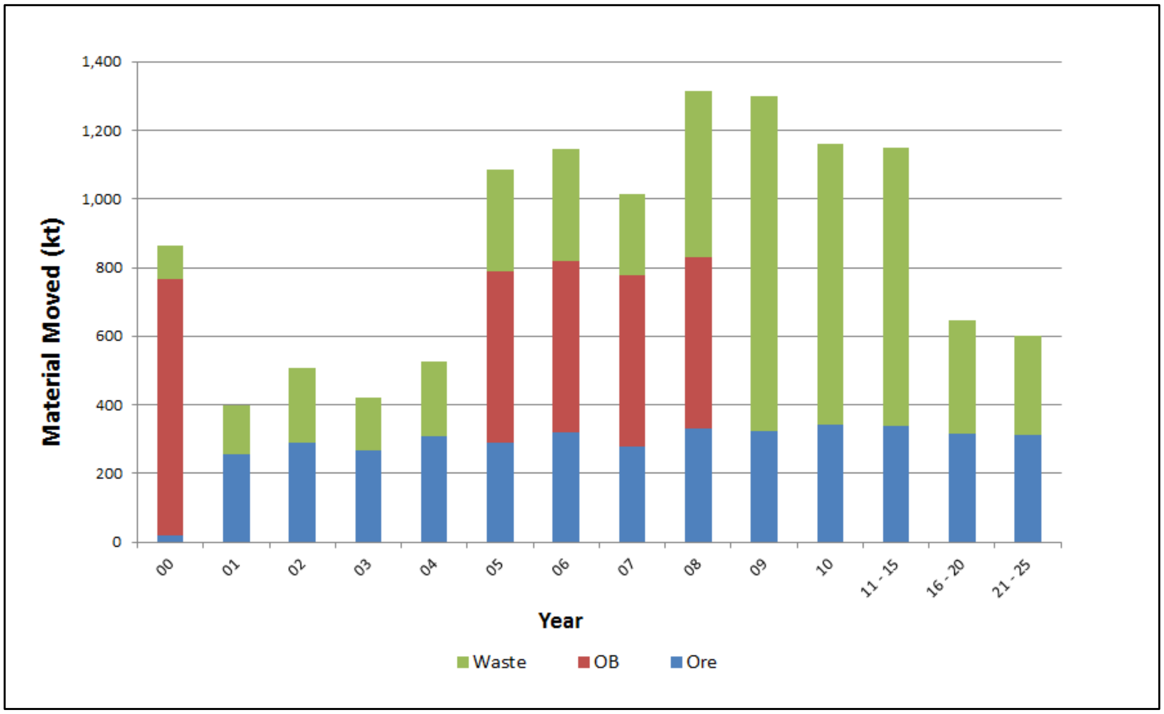


Table 16.1 – Mine Production Schedule

Description	Units	Pre-Prod	Year 01	Year 02	Year 03	Year 04	Year 05	Year 06	Year 07	Year 08	Year 09	Year 10	Years 11 - 15	Years 16 - 20	Years 21 – 25	Total
Concentrate	**kt**	**0.0**	**42.1**	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**221.5**	**221.5**	**221.5**	**1,105**
Mill Recovery	%	92.4	92.3	91.7	92.5	91.1	91.7	90.8	92.1	90.5	90.7	90.1	90.2	90.9	90.8	**90.9**
Run of Mine Ore	**kt**	**20**	**256**	**289**	**266**	**308**	**291**	**318**	**278**	**330**	**323**	**344**	**1,688**	**1,581**	**1,565**	**7,857**
Cg	%	17.5	17.4	16.4	17.6	15.4	16.3	15.0	16.9	14.5	14.8	14.0	14.2	15.1	15.0	**15.1**
Total Waste	**kt**	**846**	**143**	**220**	**157**	**218**	**796**	**827**	**736**	**987**	**978**	**818**	**4,071**	**1,658**	**1,450**	**13,903**
Overburden	kt	500	246	0	0	0	500	500	500	500	0	0	0	0	0	**2,746**
Waste Rock	kt	100	143	220	157	218	296	327	236	487	978	818	4,071	1,658	1,450	**11,157**
Total Material	**kt**	**866**	**399**	**509**	**422**	**526**	**1,087**	**1,145**	**1,014**	**1,317**	**1,301**	**1,162**	**5,759**	**3,238**	**3,015**	**21,760**
Stripping Ratio		**n/a**	**0.6**	**0.8**	**0.6**	**0.7**	**2.7**	**2.6**	**2.6**	**3.0**	**3.0**	**2.4**	**2.4**	**1.0**	**0.9**	**1.8**

Note: Run of mine tonnages are on a dry basis.

Figure 16.3 – End of Year 07

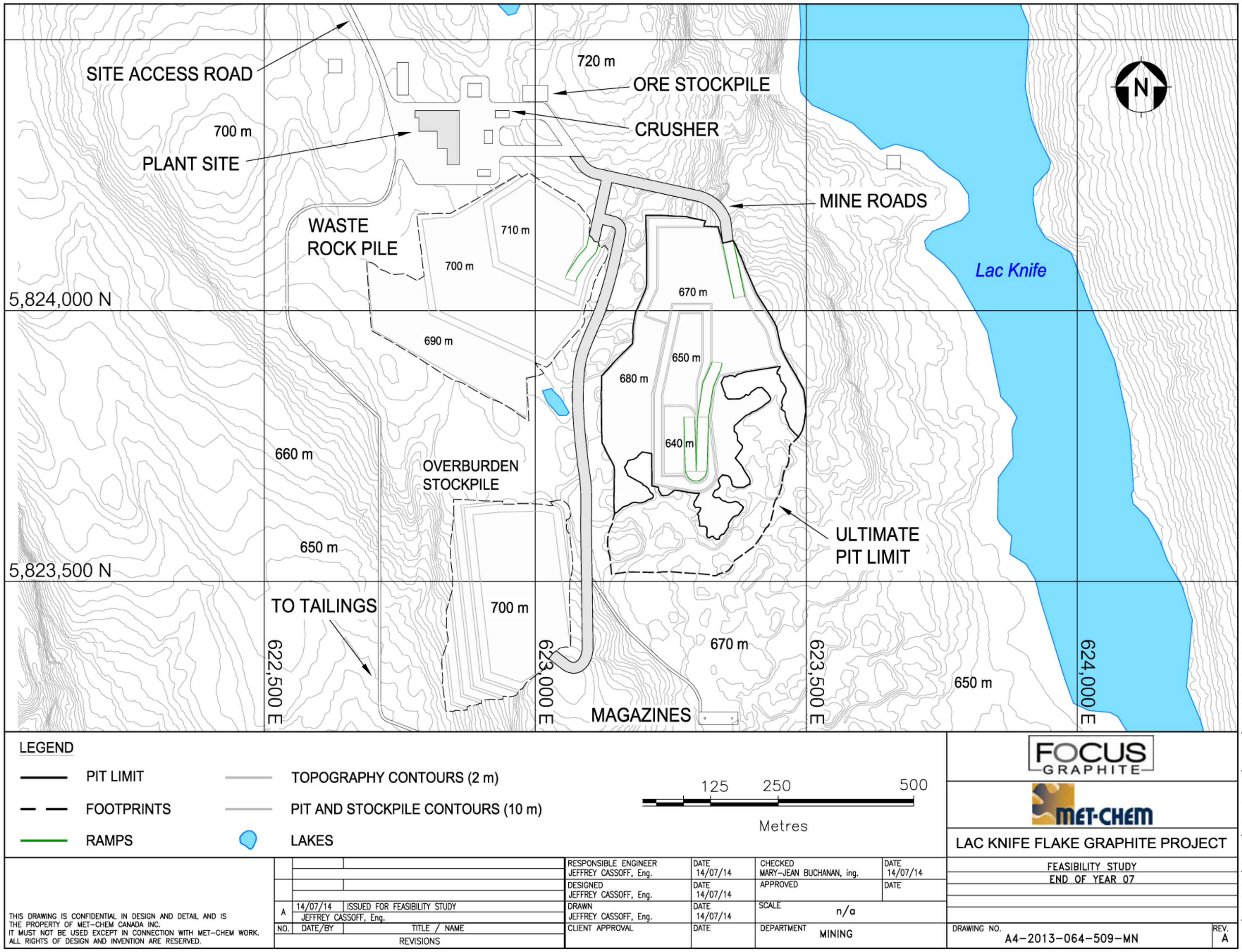
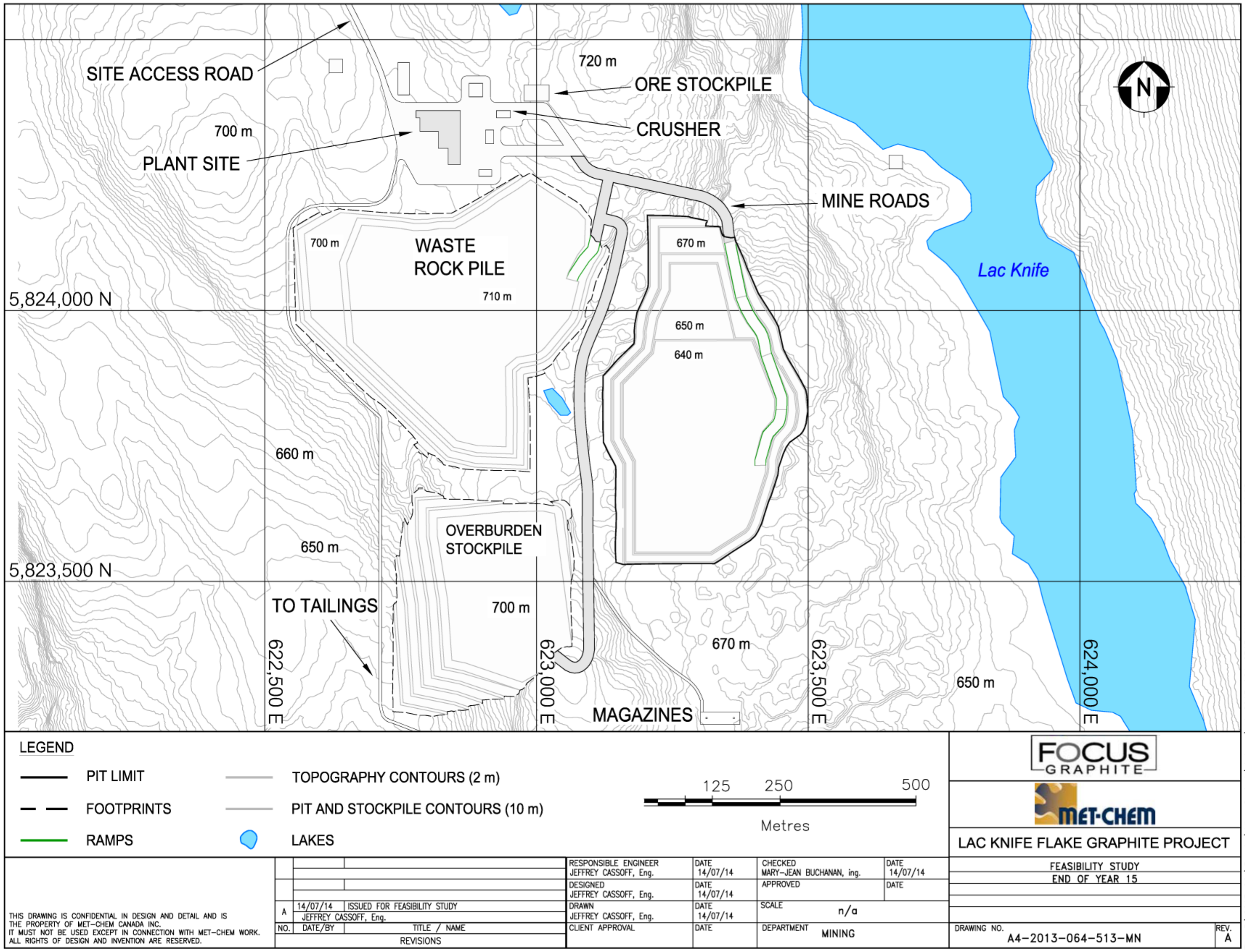


Figure 16.4 – End of Year 15



16.8 Mine Equipment Fleet and Manpower (Owner Operation)

The following section presents the mine equipment selection and methodology that used to estimate the fleet requirements for the owner operation scenario as well as the manpower requirements. The contractor fleet and manpower are presented in the following section.

The table identifies the Caterpillar equivalent to give the reader an appreciation for the size of each machine although the specific equipment selection will be done during the procurement phase of the Project. The owner fleet is based on a four (4) days per week, ten (10) hours per day work schedule, operating year round (as was previously mentioned, the contractor fleet was based on a five (5) day per week schedule). Since the mine will only be operating 10 h/d, it will be important to park the equipment in a heated garage overnight during the winter. The production drill will be equipped with a special heating system to minimize start up time at the beginning of each shift.

Table 16.2 – Mining Equipment Fleet

Equipment	Typical Model	Description	Units
Major Equipment			
Haul Truck	770G	Payload – 36.5 t	4
Hydraulic Excavator	390D	Bucket – 4 m^3	1
Production Drill	MD 5125	114 mm hole	1
Support Equipment			
Wheel Loader	988K	373 - 393 kW	1
Track Dozer	D8T	235 - 265 kW	1
Road Grader	160M2	160 - 170 kW	1
Water Truck	Peterbuilt 365	20,000-litre	1
Powder Truck	Ford F250	300 kW	1
Light Plant	n/a	6 kW	3
Fuel and Lube Truck	Peterbuilt 365	330 kW	1
Mechanic Truck	Peterbuilt 348	250 kW	1
Pickup Truck	Ford F250	300 kW	5
Dewatering Pump	HL130M	220 kW	2

16.8.1 Haul Trucks

The haul truck selected for the Project is a rigid frame mining truck with a payload of 36.5 tonnes. This size truck was selected since it matches well will the production requirements and results in a manageable fleet size. The following parameters were used to calculate the number of trucks required to carry out the mine plan. These parameters result in 1,301 working hours per year for each truck as is presented in Table 16.3.

- Mechanical Availability – 85%;

- Utilization – 90% (non-utilized time is accrued when the truck is not operating due to poor weather, blasting, excavator relocation and no operator available);
- Nominal Payload – 36.5 tonnes (25.9 m^3 heaped);
- Shift Schedule – One (1), ten (12) hour shift per day, four (4) days per week;
- Operational Delays – 55 min/shift (this includes 15 minutes for shift change and 40 minutes for lunch and coffee breaks. Re-fuelling will be carried out at the end of the shift;
- Job Efficiency – 90% (54 min/h; this represents lost time due to queuing at the shovel and dump as well as interference on the haul road);
- Rolling Resistance – 3%.

Table 16.3 – Truck Hours (h/y)

Description	Hours	Details
Total Hours	2,080	4 days per week, 10 hours per day, 52 weeks per year
Down Mechanically	312	15% of total hours
Available	1,768	Total hours minus hours down mechanically
Standby	177	10% of available hours (represents 90% utilization)
Operating	1,591	Available hours minus standby hours
Operating Delays	146	55 min/shift
Net Operating Hours	1,445	Operating hours minus operating delays
Working Hours	1,301	90% of net operating hours (reflects job efficiency)

Haul routes were generated for each period of the mine plan to calculate the truck requirements. These haul routes were imported in Talpac©, a commercially available truck simulation software package that Met-Chem has validated with mining operations. Talpac© calculated the travel time required for a 36.5-tonne haul truck to complete each route. Table 16.4 shows the various components of a truck's cycle time. The load time is calculated using a hydraulic excavator with a 4 m^3 (8-tonne) bucket as the loading unit. This size excavator which is discussed in the following section loads ore and waste rock in a 36.5-tonne haul truck in five (5) passes, six (6) for overburden.

Table 16.4 – Truck Cycle Time

Activity	Duration (sec)
Spot @ Excavator	30
Load Time[1]	150
Travel Time	Calculated by Talpac©
Spot @ Dump	30
Dump Time	30

1. Five (5) Passes @ 30 sec/pass.

Haul productivities (tonnes per work hour) were calculated for each haul route using the truck payload and cycle time.

Table 16.5 shows the cycle time and productivity for the mineralization and waste haul routes in Year 5 as an example.

Table 16.5 – Truck Productivities (Year 05)

Material	Cycle Times (min)					Productivity	
	Travel	Spot	Load	Dump	Total	Loads/h	t/h
Ore	7.00	0.50	2.50	1.00	11.00	5.45	198
Overburden	5.00	0.50	3.00	1.00	9.50	6.32	229
Waste	8.00	0.50	2.50	1.00	12.00	5.00	182

Truck hour requirements were calculated by applying the tonnages hauled to the productivity for each haul route.

A fleet of two (2) trucks is required from pre-production until Year 5 when the number increases to four (4).

16.8.2 Excavator and Loader

The main loading machine selected for the Project is a hydraulic excavator (backhoe) with a of 4 m^3 bucket. To maximize loading productivity, the excavators will be placed on top of the muck pile and the haul trucks will be at the bottom of the loading face. It was estimated that one (1) excavator can manage the amount of tonnages in the mine plan.

The re-handling from the ore stockpile during the three (3) day mine shutdown will be done with a front end wheel loader equipped with a 6 m^3 bucket. The loader will tram the ore from the stockpile to the crusher. The loader can also be used in the open pit as a back-up to the hydraulic excavator.

In order to calculate the operating costs associated with ore re-handling, it was assumed that 40% of the run of mine will be stockpiled and re-handled. The ore re-handling will be done for five (5) hours, each day during the three (3) day mine shutdown. The loader will be operated by one of the mine employees who will be on overtime.

16.8.3 Drilling and Blasting

Production drilling will be carried out with a diesel powered track mounted down the hole (DTH) drill. Using the following parameters; 85% mechanical availability, 75% utilization and a penetration rate of 25 m/h, Met-Chem calculated that one (1) drill is sufficient to complete the drilling requirements for the mine plan. Table 16.6 presents the drilling and blasting parameters for both production and pre-shear holes that have been designed for the Feasibility Study. Pre-shear drilling and blasting techniques will be used for the development of the final pit walls and will be completed with the same DTH drill. The table shows one (1) value for both ore and waste rock since the two (2) rock types have relatively similar densities. The blast pattern has been designed with the intention of preserving the large graphite flake size as much as possible.

Since there are two (2) major emulsion production facilities within 50 km from the mine site, Dyno Nobel’s Mont Wright Plant and Orica’s Carol Lake Plant, the most efficient method of explosives would be for the local suppliers to provide down-the-hole service using bulk emulsion that is produced locally. The selected supplier would transport the emulsion to site and load the blast holes. The mine would require two (2) small magazines, one for the storage of primers and the other for the storage of blasting caps. The mine will also be equipped with a powder truck to transport the explosive accessories from the magazines to the blast patterns. The pit foreman will be trained as a blaster and be responsible for overseeing the loading of the holes and the blasting.

The magazines have been located to the south of the open pit. The site selection meets the minimum distance requirements as specified by Natural Resources Canada Explosives Regulatory Division.

Both suppliers currently have binding contracts with the iron ore mines that they supply explosives to which prohibit them from selling their emulsion to other operations from their facilities.

Since the Lac Knife operation will be relatively small and would not be considered a major competitive threat to the large iron ore operations, Met-Chem and Focus Graphite are confident that an arrangement could be made such that it would be possible to supply explosives to the Lac Knife Project.

The blasting will be carried out with non-electric detonators.

Met-Chem solicited budgetary pricing from both suppliers to arrive at the cost for explosives.

Table 16.6 – Drilling and Blasting Parameters

Parameter	Units	Production	Pre-Shearing
Bench Height	m	10	10
Blasthole Diameter	mm	114	89
Burden	m	3.3	n/a
Spacing	m	3.3	1.8
Subdrilling	m	1.2	0.6
Stemming	m	2.1	1.0
Explosives Density	g/cm^3	1.20	1.18
Powder Factor	kg/t	0.39	n/a
Shear Factor	kg/m^2	n/a	0.79

16.8.4 Mine Manpower Requirements

The total mine manpower requirements ranges from 13 during the first five (5) years of production and increases to 16 when the two (2) additional trucks are required (2 operators and 1 mechanic).

Table 16.7 shows the mine manpower requirement during peak production.

Table 16.7 – Mine Manpower Requirements

Description	Personnel
Engineering / Supervision	
Mine Superintendent	1
Mining Engineer	1
Geologist	1
Surveyor	1
Mine Operations	
Pit Foreman	1
Truck Operator	4
Excavator Operator	1
Drill Operators	1
Dozer Operators	1
Grader Operator	1
Mechanic	3
Total Mine Workforce	16

The grader operator will also operate the water truck.

16.9 Mine Equipment Fleet and Manpower (Contract Mining)

The contract miner whose pricing was used for the cost estimate that is presented in Section 21 has elected to use a very similar fleet to the one that was presented in the previous section of this report.

The contractor's workforce includes the equipment operators, a mining technician, a drill and blast superintendent, an excavation superintendent, a mechanic, a surveyor and an administrative assistant.

The contractor will set-up an office, a lunch room, a garage, several storage containers and two (2) explosive magazines.

In order to supervise the contractor and to provide engineering and geology support, the mine will have the following three (3) personnel included in its staff as well as three (3) pickup trucks; Mine Superintendent, Mining Engineer, Geologist.

17.0 RECOVERY METHODS

17.1 Lac Knife Processing Plant – 44,300 Concentrate Tonnes per Year

The graphite concentrate will be recovered by froth flotation. The upgrading will be done by polishing and column flotation.

The processing facility or concentrator consists of a crushing area, beneficiation, dewatering and bagging areas.

The concentrator is designed to produce a graphite concentrate containing 98% C(t) from an ore containing 14.8% C(t). To achieve this concentration the beneficiation processes include crushing, grinding, conventional flotation, polishing, magnetic separation and column flotation. Further the facility will perform thickening, filtration, drying, screening, bagging and material handling.

17.1.1 Design Criteria

The graphite quality is measured in flake size and purity. Therefore during the design of the processing facility great care is taken to avoid degradation of graphite flakes, while producing high purity graphite. All throughput rates are based on the production of 44,300 dry tonnes of 97.8% C(t) graphite concentrate from a feed grade of 14.76% C(t). The weight recovery of 13.7% and the graphite recovery of 90.7% are average figures based on the pilot plant test work results and may change depending on the ore composition.

The Lac Knife concentrator will operate 24 hours per day, 7 days per week, 52 weeks per year. The concentrator operating availability is 93% except for the crusher. The concentrator capacity has been established at an average rate of 887 dry tonnes per day or a nominal throughput rate of 39.7 dry tonnes of ore per hour.

Table 17.1 – Design Criteria

Plant Capacity		
Parameter	**Units**	**Value**
Total ore processing rate	dry tonnes per year	323,673
Nominal ore processing rate	dry tonnes per day	954
Average ore processing rate	dry tonnes per day	887
Ore moisture	percentage	5.0
Graphite ore grade	percentage	14.76
Crusher operating time	percentage	16.0
Nominal ore crushing rate	dry tonnes per hour	211.7
Concentrator operating time	percentage	93.0
Nominal ore processing rate	dry tonnes per hour	39.7
Final graphite concentrate grade	percentage	97.8

Plant Capacity		
Parameter	**Units**	**Value**
Final graphite concentrate recovery	percentage	90.7
Flakes (+48 mesh) graphite production	dry tonnes per year	4,430
Coarse (-48+80 mesh) graphite production	dry tonnes per year	10,176
Intermediate (-80+150 mesh) graphite production	dry tonnes per year	13,888
Fine (-150+200 mesh) graphite production	dry tonnes per year	7,575
Very Fine (-200 mesh) graphite production	dry tonnes per year	8,231
Total graphite production	dry tonnes per year	44,300

17.1.2 Mass Balance and Water Balance

The process plant mass balance has been calculated based on the developed flow sheet and the design criteria previously discussed. Table 17.2 below shows a summary of the Mass Balance at a throughput rate in tonnes per day. The throughput and flow are average rates in t/d and m^3/d. One m^3/d of water is one t/d.

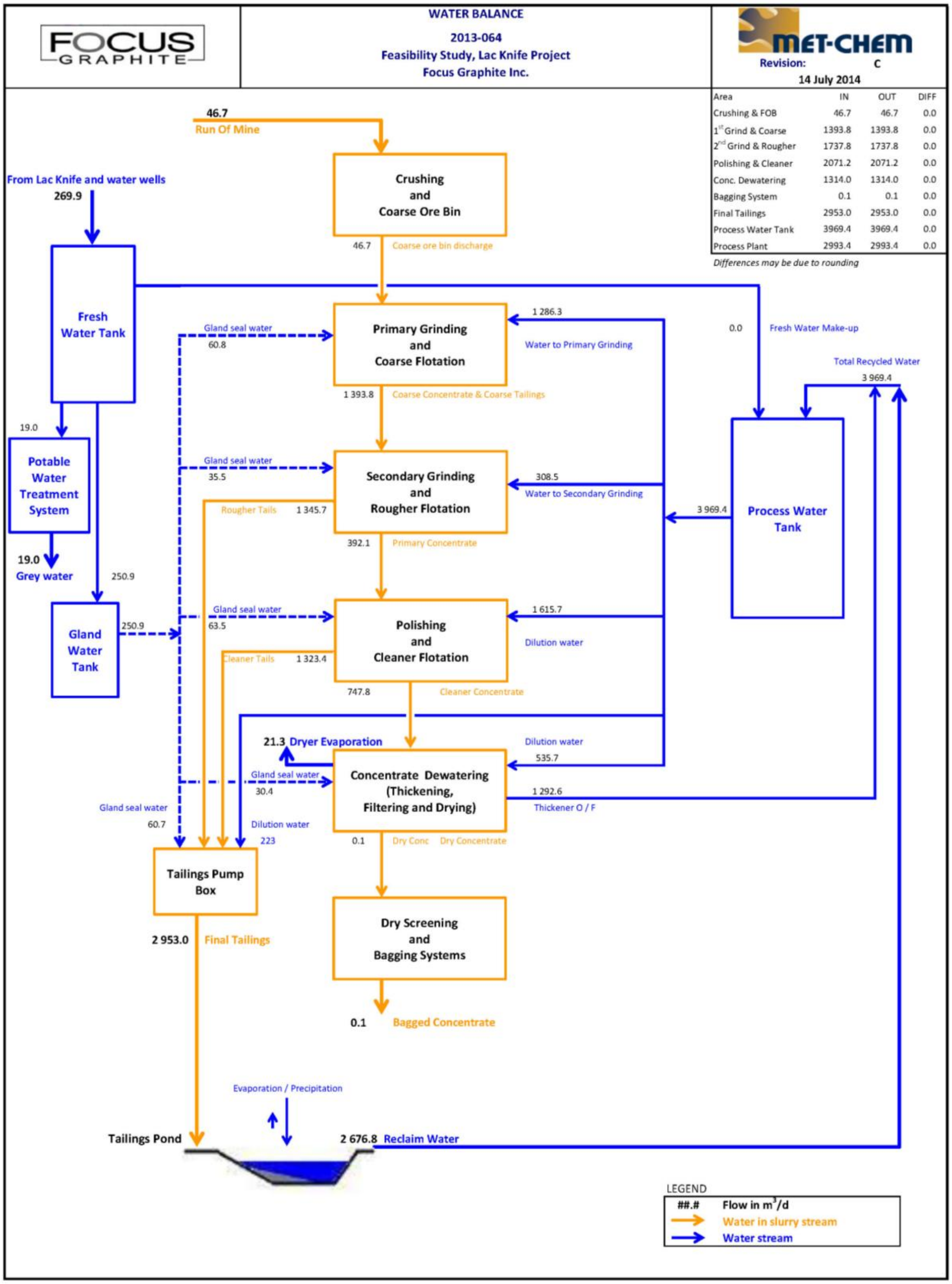
Table 17.2 – Lac Knife Concentrator Summarised Process Mass Balance

Mass Entering System				Mass Exiting System			
Streams	**Dry Solids (t/d)**	**Water (m^3/d)**	**Total Mass (t/d)**	**Streams**	**Dry Solids (t/d)**	**Water (m^3/d)**	**Total Mass (t/d)**
Graphite ore to Concentrator	886.8	46.7	933.4	Water evaporation from Dryer	-	21.3	21.3
Fresh water from lake and wells	-	269.9	269.9	Grey Water	-	19.0	19.0
Reclaim water from Tailings Pond	-	2,678.8	2,678.8	Final Concentrate	121.4	0.1	121.5
				Final Tailings	765.4	2,953.0	3,718.4
Total Entering	886.8	2,993.4	3,880.2	Total Exiting	886.8	2,993.4	3,880.2

A detailed process plant mass balance was prepared for the Feasibility Study.

Figure 17.1 below shows a more detailed water balance. The tailings pond is not considered part of the processing facility water system and is only added for illustrative purposes.

Figure 17.1 – Water Balance



17.1.3 Flow Sheets and Process Description

Simplified flow sheets are presented in Figure 17.2 and Figure 17.3. Both flow sheets are indicative of the process. The concentrator has four distinct areas, crushing, grinding and flotation, dewatering and bagging. Figure 17.2 shows the crushing, and grinding and flotation. The crushing facility will operate independent from the rest of the concentrator. Figure 17.3 shows the dewatering and bagging. The dewatering area covers thickening, filtration and drying. The bagging area consists of final product screening and bagging.

These simplified flow sheets are very general, the detailed description of the process areas are below. Detailed flow sheets were prepared for the Feasibility Study and are available.

Figure 17.2 – Simplified Flow Sheet of Crushing, Grinding and Flotation

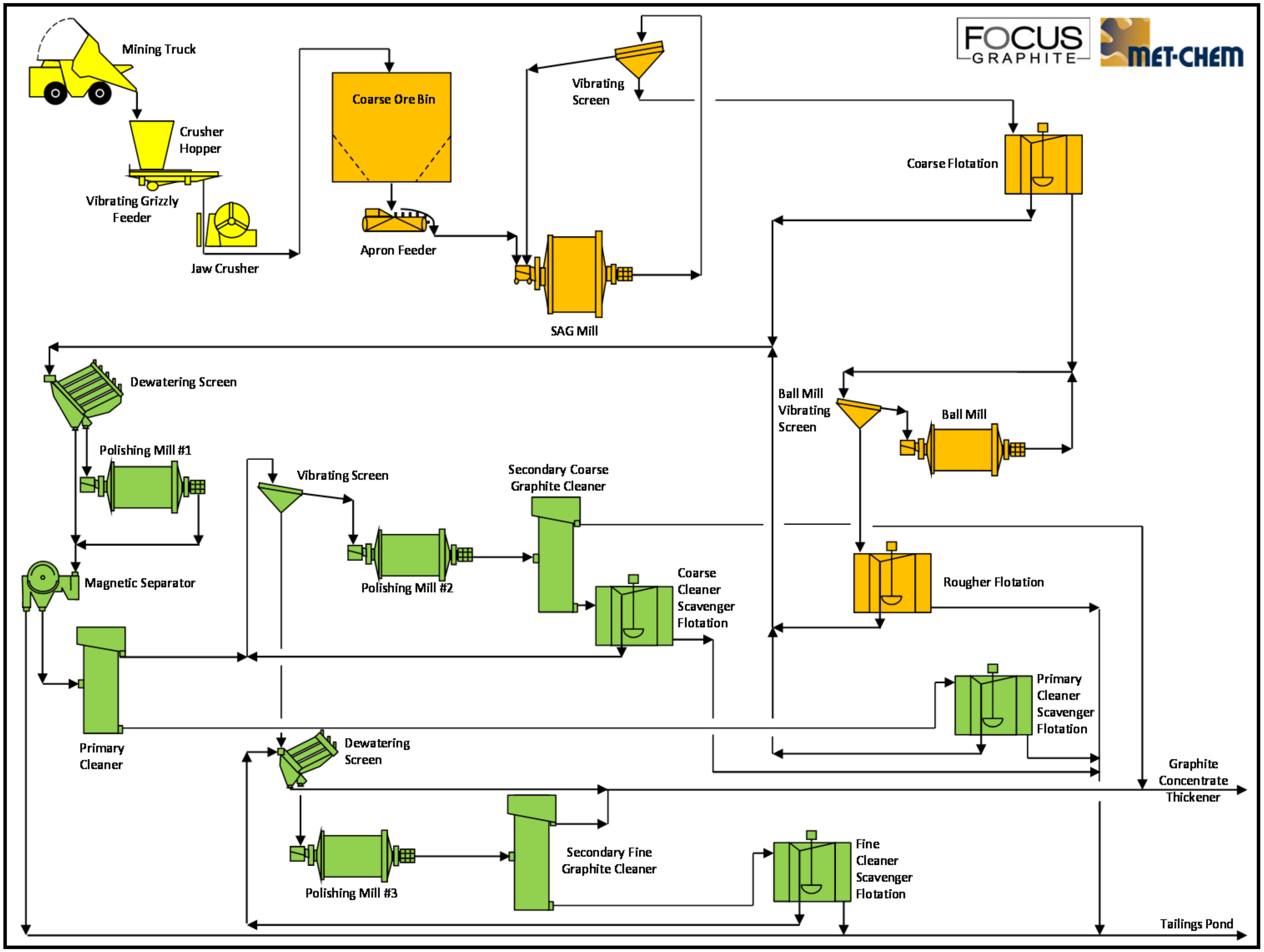
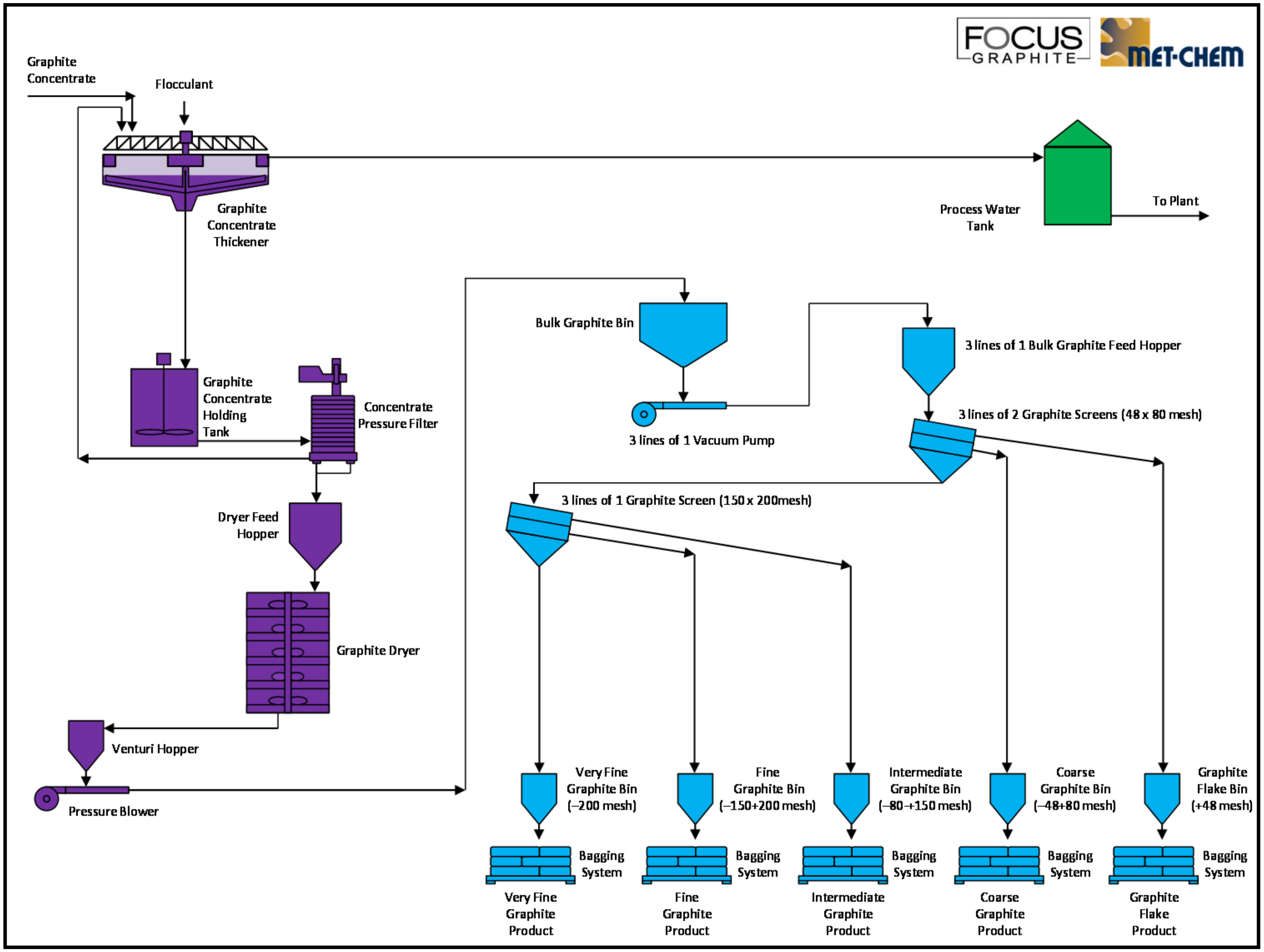


Figure 17.3 – Simplified Flow Sheet of Dewatering and Bagging



17.1.4 Crushing

There will be accommodation for a 160 day run of mine ore stockpile at the crusher. The large stockpile is to allow for seasonal mining. The run of mine ore, containing 14.8% graphite with a moisture content of 5%, is dumped onto a material feeder by the mine haul trucks in the summer and loaders during the winter. The material feeder transports the ore via a hopper and grizzly feeder underneath the hopper into the jaw crusher. The jaw crusher breaks the ore and the broken material is transported via conveyor to a coarse ore bin, see Simplified Flow Sheet in Figure 17.2. The jaw crusher discharges rock with a particle size distribution of 80% less than (P_{80}) 140 mm.

17.1.5 Primary Grinding and Coarse Flotation

Crushed ore is withdrawn from the 940 tonnes capacity coarse ore bin using two Apron feeders. The Apron feeders transfer the crushed ore via a conveyor to a SAG mill. The SAG mill is in closed circuit a double deck vibrating screen. The SAG mill discharge is pumped to the vibrating screen. This screen has a top deck with 4.8 mm openings and a bottom deck with 1.7 mm openings. Proper density control with the appropriate ball charge will produce a continuous coarse grinding product with a P_{80} = 0.68 mm. The screen undersize is pumped to the coarse flotation circuit.

The coarse flotation circuit is for the removal of very large graphite flakes at the earliest opportunity possible. Fuel Oil and MIBC are added to aid with the flotation process. There is no modifier required in the flotation process. The coarse flotation consists of four flotation cells to avoid short circuiting and sanding. The four cells will provide 13½ minutes of retention time. The coarse graphite concentrate contains 66% C(t), while the coarse flotation tailings, containing 4.1% C(t) go to the secondary grinding circuit.

17.1.6 Secondary Grinding and Rougher Flotation

The secondary grinding circuit is the first part of the rougher flotation circuit. The ball mill circuit is required to liberate the finer graphite particles and operates in closed circuit with a single deck vibrating screen. The coarse flotation tailings are combined with the secondary ball mill discharge. The combined ball mill discharge is pump to the ball mill vibrating screen. The screen will have panels with apertures of 0.500 mm. The screen oversize reports to the ball mill. The screen undersize, at a particle size distribution of 80% less than (P_{80}) 0.274 mm, is pumped to the rougher flotation circuit.

The rougher flotation circuit consists of six mechanical cells with the intension of floating all of the remaining graphite. The six cells will provide 20 minutes of retention time. The rougher graphite is floated with fuel oil and MIBC.

The rougher concentrate containing 37% C(t) goes to the primary cleaner circuit, while the rougher tailings containing 0.6% C(t) are pumped to the tailing pond. The coarse and rougher flotation concentrate circuit graphite recovery is 97%.

17.1.7 Primary Cleaner Circuit

The cleaning of graphite concentrate is done in two distinct phases. The primary cleaning phase is the first cleaning phase and consists of polishing, magnetic separation and column flotation; the second cleaning phase consists of two separate steps, coarse and fine graphite concentrates are upgraded separately both by polishing and column flotation.

The primary cleaning circuit is for the removal of surface contaminants from the graphite. The circuit starts with dewatering by a set of Stack-sizer screens with screen openings of 0.045 mm. Dewatering is done to control the density to the polishing mill. The dewatering screen oversize, which is almost all graphite concentrate, goes to polishing mill #1. The polishing mill using ceramic media scrubs gangue minerals from the surface of the graphite flakes. The screen undersize and the polishing mill discharge are re-combined and pumped to the LIMS.

The low intensity magnetic separator (LIMS) removes the loosened magnetic minerals from the combined coarse and rougher concentrates. The non-magnetic material goes to a primary flotation cleaner column. This column selectively floats the graphite flakes and thereby upgrading the combined coarse and rougher concentrates from 57% C(t) to a primary cleaner concentrate of 88% C(t). The column tailings are recovered using mechanical flotation cells and the primary cleaner scavenger concentrate is redirected back to the polishing mill #1.

Both cleaner scavenger tailings containing 6.4% C(t) and LIMS magnetics containing 6.8% C(t) report to final tailings. The primary cleaning circuit recovery is 95%.

17.1.8 Secondary Cleaner Circuit

The primary cleaner concentrate is screened over a single deck vibrating screen with screen panel openings of 0.30 mm. The screen oversize will have a P_{80} = 0.37 mm and goes to polishing mill #2. The polishing of the coarse flakes requires only gentle scrubbing. The polishing mill discharge goes to the secondary coarse cleaner flotation column. This coarse cleaner column produces a concentrate of above 99% C. The column concentrate goes directly to the concentrate thickener. The coarse column tailings are recovered using mechanical flotation and the secondary coarse cleaner scavenger concentrate is redirected back to the polishing mill #2. The coarse cleaner tailings go to final tailings.

The vibrating screen undersize goes to a separate dewatering screen with 0.045 mm screen openings. The dewatered concentrate then goes to polishing mill #3. The polishing mill #3, will perform a slight harsher polishing to scrub the smaller flakes from unwanted gangue minerals. This polishing mill discharge goes to the secondary fine cleaner flotation column. The fine cleaner concentrate is above 97% C and goes to the concentrate thickener. The fine column tailings are recovered with mechanical flotation cells and the secondary cleaner scavenger concentrate is redirected back to the polishing mill #3. The fine cleaner scavenger tailings go to final tailings. The secondary cleaning circuit recovery is 96%.

17.1.9 Dewatering

The concentrates from both secondary cleaner flotation columns are thickened to 37% solids in a high capacity thickener. The thickened underflow is temporarily stored in a concentrate holding tank where after the thickened concentrate is then filtered to 15% moisture using a horizontal pressure filter. The filtered concentrates are dropped onto a conveyor and are transported via a hopper to the dryer.

The electric graphite dryer will dry the graphite concentrate to 0.1% moisture. The low moisture content is to ensure total free flow during pneumatic transportation and is this is also an end product requirement. The electric option was chosen for Opex reasons. See Simplified Flow Sheet in Figure 17.3.

17.1.10Graphite Dry Screening and Bagging

Focus Graphite will be able to produce a minimum of five different size products at the same time. After the dryer, dry graphite is pneumatically transported to a bulk graphite bin. From this bulk bin graphite is blown to six separate primary double deck sizing screens via three distributors. The oversize products are collected in graphite flake and coarse graphite holding bins. The undersize of the primary screens drops onto three double deck secondary sizing screens. The three product size fractions are collected in an intermediate graphite, a fine graphite and a very fine graphite holding binds.

Table 17.3 – Lac Knife Graphite Concentrate Quality

Graphite Concentrate Size Fraction	Weight (%)	Grade (%) C(t)
+48 mesh	10.0	99.7
-48+80 mesh	23.0	99.7
-80+150 mesh	31.3	99.4
-150+200 mesh	17.1	98.4
-200 mesh	18.6	93.3

Below each bin is a semi-automatic bagging system with an automated product sampler. Each bag can contain up to 750 kg graphite. Small amounts of bags can be stored in the bagging facility. The will be a separate bag storage facility for larger shipments.

17.2 Lac Knife Processing Plant - Equipment Sizing and Selection

The equipment selection was based on the fulfillment of the design criteria. The equipment list was prepared and the equipment was sized according to the design criteria developed from the flow sheet drawings and the mass balance. The design factor for crushing equipment was set at 30%, for most of pieces of processing equipment the design factor is set at 20% and 5% for slurry pumps. A detailed mechanical equipment list was prepared for the Feasibility Study and is available.

17.2.1 Primary Crushing

Crushing takes place in a light structure with a fabric roof. For cost reduction preference was given to a modular concept. As primary crusher a jaw crusher as it is the most appropriate crusher for this facility based on throughput rate and cost.

Run of mine ore is hauled from the open pit mine. The ore comes from mine haul trucks dump directly or introduced by wheeled loader from the run of mine stockpile into the material feeder. This 1.8 m wide × 17 m long, variable speed drive feeder drops the ore in a surge hopper. A vibrating grizzly feeder metres the ore in one 940 mm ×1 240 mm - 150 kW Jaw Crusher. The crushed product has a particle size distribution of 80% less than (P_{80}) 140 mm. A conveyor transports the crushed ore to the coarse ore bin.

17.2.2 Primary Grinding and Coarse Flotation

The crushed product is stored into a coarse ore bin with a capacity of 940 tonnes. Ore is withdrawn from the bottom of the ore bin using two Apron feeders with variable speed drives. Both feeders operate at 50% capacity and discharge onto the SAG mill feed conveyor.

The SAG mill is 4.2 m in diameter by 2.1 m long with 435 kW variable speed motor. The SAG mill operates in closed circuit one double deck 1.22 m wide × 3.05 m long vibrating screen with top deck screen panel apertures of 4.8 mm and the bottom deck screen panel apertures of 1.7 mm. Both top deck and bottom deck oversize are returned to the SAG mill for more comminution. The screen undersize has a P_{80} of 0.68 mm and is pumped to coarse flotation. The coarse flotation circuit are four mechanical cells each with a volume 5 m^3. Each cell will have separate air and level controls with a step between each cell to avoid sanding.

The Lac Knife SAG mill, vibrating screen and coarse flotation circuit design are based on test work and Met-Chem experience. The variable speed motor and automatic ball addition for the SAG mill should create excellent size reduction control. Mechanical flotation cells are selected due to the risk of sanding processing very coarse material.

17.2.3 Secondary Grinding and Rougher Flotation

The secondary grinding circuit is consists of a ball mill in closed circuit with a vibrating screen. The ball mill is 2.0 m in diameter by 2.8 m long with 105 kW variable speed motor. The vibrating screen is a one single deck 1.52 m wide × 3.05 m long with screen openings of 0.50 mm. The screen oversize goes to the ball mill for further grinding, while the screen undersize (P_{80} of 0.27 mm) is pumped to the rougher flotation circuit. The rougher flotation circuit is six mechanical cells with a volume of 5 m^3 each, three groups of two cells.

The ball mill, vibrating screen and rougher flotation circuit design are based on test work and Met-Chem experience. The variable speed motor for the ball mill, should control the size reduction and mechanical flotation cells are selected due to the risk of sanding.

17.2.4 Primary Cleaning Circuit

The primary cleaning circuit consists of a dewatering screen, a polishing mill, a magnetic separator, a flotation column and four mechanical cleaner scavenger flotation cells.

The combined coarse flotation and rougher flotation concentrates are dewatered using a dewatering screen (a five set Stacker-sizer screen with 0.045 mm openings) to obtain a polishing density of 68% solids.

The polishing mill scrubs the graphite flakes and loosens the gangue minerals from the graphite surface. Polishing mill #1 is 2.5 m in diameter by 6.5 m long, equipped with a 150 kW motor. The gentle polishing does not to compromise the graphite flake integrity. The polishing mill discharge is re-combined with the dewatering screen undersize and flows into a low intensity magnetic separator. The magnetic separator magnetics are tailings. The non-magnetics are pumped to the primary cleaner flotation column. This column is 2.4 m in diameter by 6.0 m high and is aerated using spargers. The column concentrate goes to the secondary cleaning circuit.

The column tailings are pumped to four mechanical cleaner scavenger cells with a volume of 0.8 m^3 each. The primary cleaner scavenger concentrate is re-circulated back to the dewatering screen of polishing mill #1, while the cleaner scavenger tailings are final tailings.

The dewatering screen, polishing mill #1, magnetic separator, the primary flotation column and the cleaner scavenger flotation circuit designs are based on test work, supplier input and Met-Chem experience. Column flotation using spargers should reduce graphite flake degradation as compared to mechanical cells. Mechanical cells are used as scavenger cells only.

17.2.5 Secondary Cleaning Circuit

The secondary cleaning circuit consists of a vibrating screen, a dewatering screen, two polishing mills, two flotation columns and two set of two mechanical cleaner scavenger flotation cells.

The secondary cleaner flotation concentrate is screened over a1.2 m wide × 3.6 m long, vibrating sizing screen with 0.30 mm screen panel openings. The screen oversize reports to Polishing mill #2. Polishing mill #2 is 1.5 m in diameter by 3.2 m long, equipped with a 20 kW motor. This mill polishes of the coarse flakes gently to maintain graphite flake integrity. Polishing mill #2 discharge is pumped to the secondary coarse cleaner flotation column.

This column is 1.2 m in diameter × 4.0 m high and produces a coarse graphite concentrate of above 99% C(t). The coarse column tailings are recovered in the secondary coarse cleaner scavenger circuit using one mechanical flotation cell with volume of 0.8 m^3. The secondary cleaner scavenger concentrate is re-circulated back to Polishing mill #2 vibrating screen, while the cleaner scavenger tailings are final tailings.

The Polishing mill #2 vibrating screen undersize reports to the Polishing mill #3 dewatering screen. This dewatering screen is a three set Stacker-sizer screen with 0.045 mm screen panel openings. The dewatering screen oversize goes to Polishing mill #3. Polishing mill #3 is 2.5 m in diameter by 5.0 m long, equipped with a 113 kW motor. This mill polishes of the small flakes gently to maintain graphite flake integrity. The polishing mill discharge is goes to the secondary fine cleaner flotation column. This column is 1.8 m in diameter × 5.0 m high and produces a fine graphite concentrate above 97% C. The fine column tailings are recovered in the secondary fine cleaner scavenger circuit using two mechanical flotation cells with volume of 0.8 m^3 each. The secondary cleaner scavenger concentrate is re-circulated back to polishing mill #3 dewatering screen, while the cleaner scavenger tailings are final tailings.

Dewatering screen undersize, which consists mainly of water, is pumped directly to the concentrate thickener.

Polishing mill #2 and Polishing mill #3, the vibrating screen, dewatering screen, secondary flotation columns and cleaner scavenger flotation circuits designs are based on test work, supplier input and Met-Chem experience. The design is to minimize graphite degradation while improving the graphite grade.

17.2.6 Graphite Concentrate Dewatering

The dewatering circuit consists of high rate concentrate thickener, a pressure filter and dryer.

The final cleaner concentrate is pumped to the 6.3 m diameter concentrate thickener. The thickener overflow is pumped to the process water tank for recirculation of process water, while the concentrate thickener underflow at 37% solids is pumped to graphite concentrate holding tank 2.85 m diameter × 3.0 m high. The solids are kept in suspension with an 18.6 kW agitator.

From the holding tank the concentrate is pumped to the graphite concentrate pressure filter. The filter press will have a total filter area of 22 m^2. The filtrate is re-circulated to the graphite concentrate thickener by a filtrate pump. The filter cake at 15% moisture is conveyed to a dryer hopper.

The dryer hopper evenly distributes the filtered graphite into the dryer. The dryer is an electric Turbo dryer 7.6 m in diameter × 5.5 m high with two electric heaters totaling 900 kW. The dryer is complete with bag house and exhaust fan. The dried product is pumped using pneumatic conveyance to a bulk graphite holding bin.

The concentrate thickener, pressure filter and dryer circuits’ designs are based on test work, supplier input and Met-Chem experience.

17.2.7 Graphite Dry Screening and Bagging

From the bulk graphite holding bin the dried concentrate is pneumatically transported to three feed hoppers. Each feed hopper distributes the graphite over two product double deck flake sizing screens. There are a total of six screens. The screens have top deck openings of 0.30 mm for flakes and the bottom deck openings are 0.18 mm for coarse graphite. The screen oversize is air pumped into coarse graphite holding bins. The flake screen undersize drops by gravity onto double deck fine graphite sizing screens. There is one fine screen for two flake screens, for a total of three fine graphite screens. The fine screens have top deck openings of 0.105 mm for intermediate graphite and the bottom deck openings are 0.075 mm for fine graphite. The fine screen oversize is air pumped into an intermediate and a fine graphite holding bins. The screen under size is considered very fine product is pneumatically transported to a fine graphite holding bin.

If different graphite product sizes are required, screen panels can be changed in a very short time.

The bagging system is semi-automatic system with an automatic sampling system for quality control. The actual super sack filling is automated; the super sack positioning is manually accomplished. Thus the operator places a super sack into position and then presses the "start" bottom to fill the bag to pre-set weight. The filled bags have to be removed manually.

The graphite concentrate dry screening and bagging circuits' designs are based on test work, supplier input and Met-Chem experience.

17.2.8 Reagents

a) Fuel Oil

Fuel oil #2 is used as collector for the graphite flotation. The fuel oil will be delivered by the mine fuel truck on request from the mill and stored in a 950 L double walled tank. The expected fuel oil usage is 63 litres per day.

b) Methyl Isobutyl Carbinol (MIBC)

MIBC is used as frother for the graphite flotation. The MIBC will be delivered by tanker truck, which will transfer its contents into a storage 46 m^3 holding tank. MIBC will be transferred from the storage tank to a 1 m^3 holding tank within the mill for distribution. The bulk shipment of MIBC will remove possible container disposal issues. The expected MIBC consumption is 140 litres per day.

c) Flocculant

Flocculant is used in the graphite concentrate thickener to aid the settling of graphite concentrate. The flocculant requirement is small and therefore 25 kg bags and a small mixing system have been selected. The expected flocculant consumption is 2 kg per day.

d) Lime

Lime is not used in the process. Lime will be available to Lac Knife environmental group in case it is required for increasing the tailings pond alkalinity.

17.3 Lac Knife Processing Plant – Utilities

17.3.1 Concentrator Water Services

The water consumption is based on concentrator plant nominal water consumption per hour.

a) Fresh Water

Lac Knife and underground water wells will be the main water source of fresh water near the concentrator. The fresh water is pumped to a 3.0 m diameter × 3.0 m high fresh water tank at nominal flow rate of 12.1 m^3/h. Potable water will be used at a rate of 0.9 m^3/h. The gland water is the remainder at flow rate of 11.2 m^3/h.

b) Gland Water

The gland water system has a separate 3.0 m diameter × 3.0 m high gland water tank. The source is fresh water with a flow rate of 11.2 m^3/h.

c) Process Water

Reclaim Water is recycled back, at a nominal rate of 120 m^3/h, from the tailings and concentrate thickeners. The remainder of the water 60 m^3/h comes from overflow of the concentrate thickener. The process water tank will be a 6 m diameter × 8 m high process water tanks with a capacity of 204 m^3.

d) Fire Water

Fire water comes from the fresh water system, under normal circumstances the flow rate is 0. However, the system can pump water up to 325 m^3/h. The fire water tank will be 9.5 m diameter × 11.5 m high with a capacity of 750 m^3.

17.3.2 Concentrator Pressurised Air

a) High Pressure Air

The concentrator will have two sets of high pressure air compressors. Set #1 is for plant air and for the pressure filter air use. Set #1 includes an air dryer and separate instrumentation air receiver. Both compressors of this set will have variable displacement capabilities.

Set #2 consists of two air compressors dedicated to the flotation columns. One air compressor will be variable speed, while the stand-by compressor will be fixed speed.

b) Low Pressure Air

The concentrator will have two air blowers for the mechanical flotation cells.

17.4 Processing Opportunities

17.4.1 Magnetic Separator

There is an opportunity to remove the magnetic separators as it only seems to achieve moderate results. This removal requires additional testing to confirm the expected results.

17.5 Power Requirements

The peak power requirement for the concentrator plant is estimate at 3.75 MW. The Plant will be hooked up to the Hydro Quebec Grid. All power consumed will be hydroelectric.

17.5.1 Plant Lay-Out

The site layout and detail layouts are presented in section 18.

18.0 PROJECT INFRASTRUCTURE

18.1 General

This section describes infrastructure, buildings, and other facilities such as access road and power line, that are required to complement the processing of graphite ore at a throughput rate of 950 t/d.

All topographic information for locating infrastructure was based on LiDAR topographic survey data that was made available by Focus for the Feasibility Study.

Geotechnical investigations were conducted in April 2014 for surface infrastructure including the concentrator and the tailings pond. Additional geotechnical investigations will need to be performed at the detailed engineering stage to confirm civil design criteria related to the foundation requirements for mills and process concentrator and other infrastructure such as the administration offices, run-of-mine stockpile and electrical substation.

Provision for site preparation and earthwork is based on a 41,500 m^2 area for the industrial site.

An overall general site layout and access (at a scale of 1:10 000) is provided on Drawing A1-2013-064-0001-L shown on Figure 18.1 below. Figure 18.2 (scale of 1: 1 000), shows the concentrator processing plant and related infrastructures more precisely.

The Feasibility Study also included a series of layouts of the concentrator processing plant to illustrate the arrangement of mechanical equipment.

Figure 18.1 – Overall General Site Layout and Access

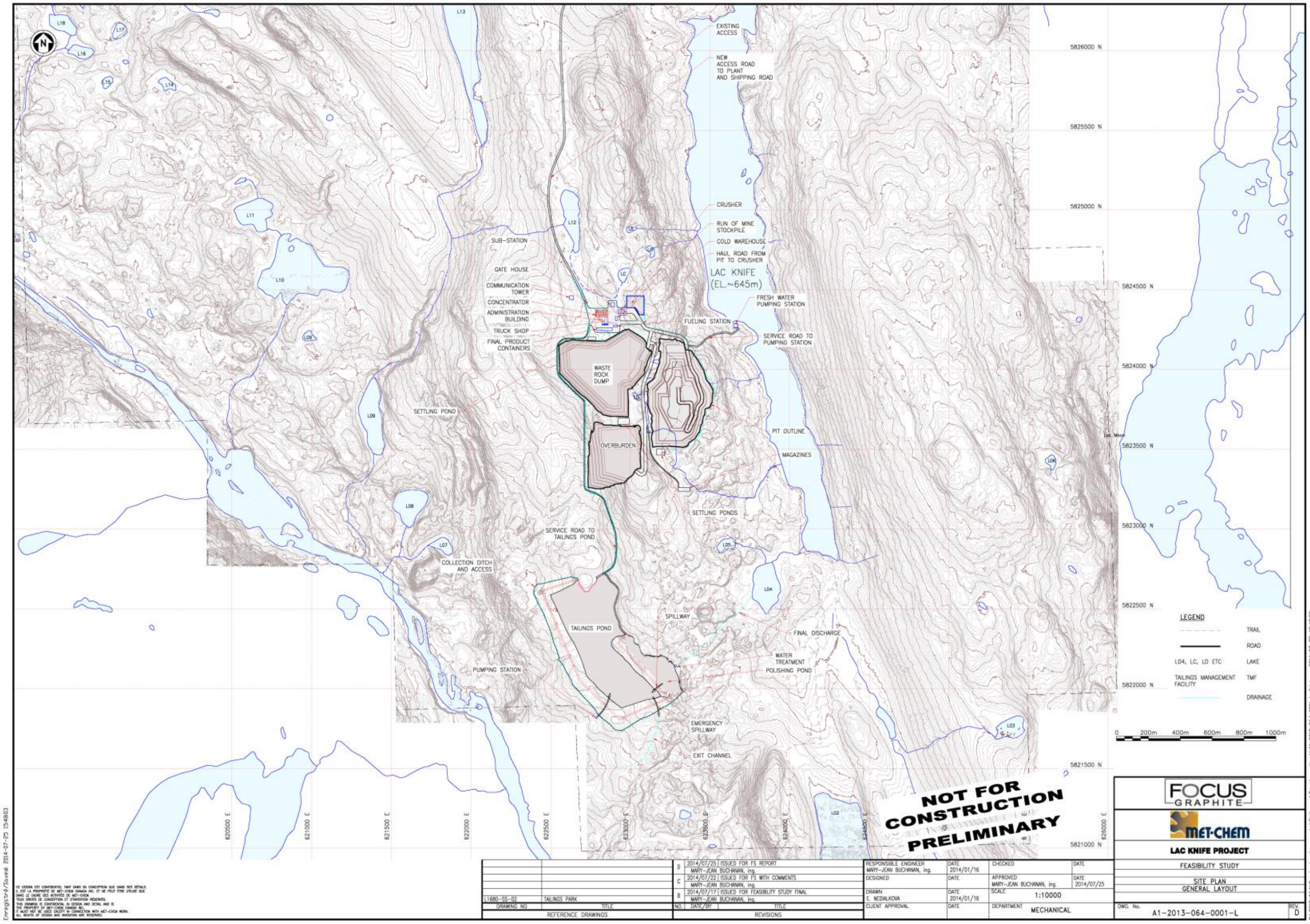
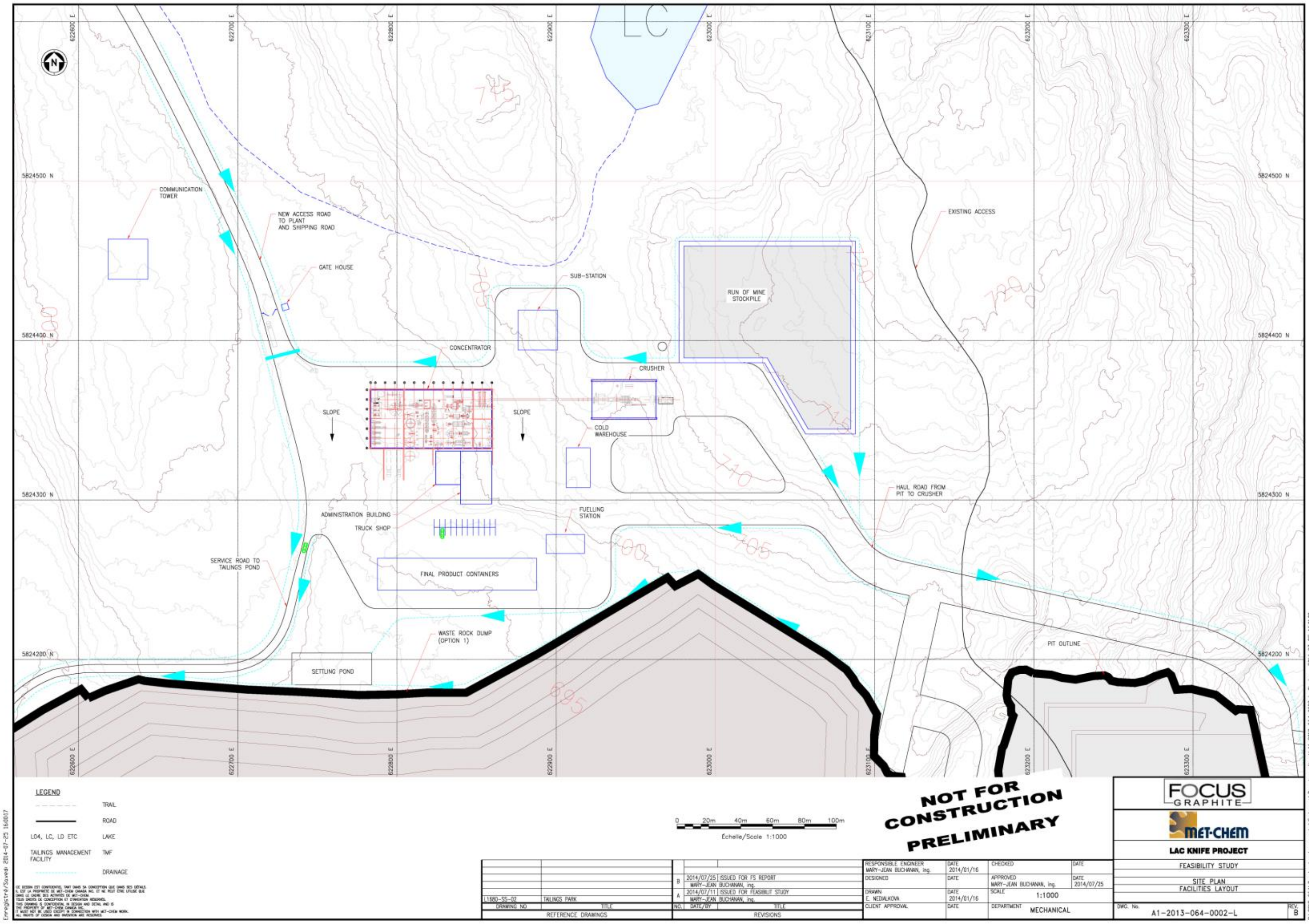


Figure 18.2 – Processing Plant and Related Infrastructures



18.2 Main Access Road

The 32 km public gravel project access road starts southward from Highway 389 about 3.2 km east of the ArcelorMittal Mont-Wright mine entrance. The road is presently accessible by four-wheel drive vehicles and is maintained as a major snowmobile route by the snowmobile club in Fermont during the winter months. This access road meanders in and out of the right of way area along Hydro-Québec's 315 kV electrical power line for approximately 20 km. Provision has been made to realign and widen this access road to 10 m to allow two-lane traffic for transportation trucks up to a point located at about 2.3 km North of the site. An additional 2.3 km of new road construction was added to reach the mine site.

18.3 Power Line

To supply the power requirements of the plant, a new 34.5 kV overhead power line (wood pole) is incorporated. The new powerline will be taped to the existing Hydro Quebec substation Normand located in Fermont. The new 34.5 kV pole line will be approximately 50 km long and will be installed along Highway 389 and the local road to the mine site.

18.4 Accommodations

Considering the proximity of a well developed iron ore mining industry in the Fermont area and that the total workforce is not expected to exceed 81 people, no permanent camp has been provided for the project. It is expected the nearby towns of Fermont or even Labrador City and Wabush will provide both work force and housing to the employees.

Employees will be transported by company buses from Fermont over a distance of about 45 km.

18.5 Site Roads

A series of mine site roads will be constructed and give access to the waste rock and overburden stockpiles to mine trucks and other mining equipment. A separate haulage road will mainly be used by the run-of-mine ore haulage trucks to reach the crusher site and feed the concentrator. All mine dedicated roads will be 20 m wide to accommodate the size of mining trucks. The haul road from the pit to the crusher site will be approximately 500 m long.

A turn off from the haulage road will give access to the maintenance facilities for the mining equipment. All off-road equipment traffic will be limited to the east of the industrial complex to eliminate intersections between off-highway equipment and highway trucks

A service road will give access to the magazines for the mine's drill and blast blasting operations.

Service roads to the tailings management facility will be required. The tailings discharge pipe and the water reclaim pipe will run above ground side by side and located on the east side of the tailings pond service road.

Finally, a service road is required to reach the water make-up pumps located on the Lac Knife shoreline.

All service roads will be 8 m wide.

18.6 Tailings Management Facility

Tailings disposal requirements to store and manage the concentrator tailings and process water were assessed and prepared for the Lac Knife Project's mine life.

The Tailings Management Facility (TMF) is composed of a tailings containment impoundment area, a polishing pond and miscellaneous structures such as diversion channels or berms as required.

The operational scheme proposes the transfer of free water from the tailings pond to a polishing pond to allow for the sedimentation of fine particles and other minerals. Water will then be transferred from the polishing pond to the concentrator processing plant to be used for the mill's process needs.

18.6.1 Design Criteria

The tailings storage requirements were based on the production of a total of 6.6 M tonnes of tailings to be pumped to the tailings pond over a 25 year period.

It is projected that the tailings will be pumped to the storage facility as a slurry with about 20% solids w/w. The proposed mine is estimated to produce some 4.12 Mm^3 of tailings at a final depositional dry density of 1.60 t/m^3.

The tailings management facility (tailings pond bottom, polishing pond bottom and dykes) will be impermeable to comply with environmental requirements: testing indicates an acid generating potential for the tailings and a liner is provided in the design.

18.6.2 Tailings Storage Options

Several scenarios were examined in order to optimize the TMF location with respect to infrastructure, to minimize environmental impacts, and also consider additional mineral exploration potential on the project as well as costs.

The project area is wooded with a north-south hill centered on the Project with plateaus to the west of this hilly area towards the *rivière aux Pékans* and to the east towards the Lac Knife. Topography generally slopes from east towards west on both sides of Lac Knife. Numerous lakes and streams of various sizes surround the site. The proposed Moisie River Aquatic Reserve is adjacent to the north-west, west and to the south-east of the Focus claim blocks. A small wetland area is located to the south of the southern shore of Lac Knife.

Various areas were examined within a 10 km radius of the processing plant (outside and inside Focus mining claims) to optimize the location of a tailings pond, i.e. minimize the height of the various dykes (and hence material quantities and costs), to consider the distance from the processing plant and to take into account environmental considerations such as bodies of water and watersheds.

The TMF site selected for the project was the most beneficial and cost efficient from both construction (foundation soil types and depth to bedrock) and operation points of view, as well as for minimizing the impact on potential fish habitats. The selected site is located 2.0 km to the south-west of the area occupied by the plant and open pit mine.

18.6.3 Selected Tailings Storage Facility and Water Management

The tailings pond was sized to contain at least 4.12 Mm^3 of tailings that would be produced over a 25 years mine life.

It is estimated that on average 93% of the water volume pumped into the tailings pond will be released and be available for recycling back to the processing plant. The polishing pond was sized for a maximum capacity of 146,000 m_3 of water. This will allow for sedimentation of suspended solids before recycling the water back to the processing plant.

A freeboard of 1.4 m was allowed for the tailings and polishing ponds to account for extreme precipitation events (water or snow), waves due to high winds or icing during the winter. The emergency spillways are 0.6 m high, placing the crest of the dykes at an elevation of 2 m above the operating levels of the tailings and polishing ponds.

The topography and orientation of the TMF permitted to locate a polishing pond “inside” the tailings pond. The tailings pond is bound by higher topography on its east side, and dykes are required on the other three of the four sides. The dyke located on the west side is the longest one. On the east side (high ground) a service road will be constructed which will also act as a cut-off barrier to prevent clean surficial water from draining into the tailings pond area from the watershed area on the east side of the TMF.

The polishing pond requires a dyke only on its west side to separate it from the tailings pond. Emergency spillways for the polishing and TMF will be constructed on the south side of the ponds such as water from the polishing pond will overflow into the TMF and, in a rare event of water overflowing the TMF, water will flow through the south dyke emergency spillway of the TMF. A drainage channel will be excavated at the TMF spillway exit to direct the water southwards and away from the toe of the dyke located on the south side of the TMF following the natural drainage.

The average yearly water volume that is expected to be pumped from the plant into the TMF is 0.9 Mm^3 for years 1 to 7 and 1.1 Mm^3 for years 8 to 25. It is estimated that between 72,818 and 83,281 m^3 will be available per month for the mill process water requirements. Precipitation-Evapotranspiration and snow melt run-off from the various watersheds as well as pit dewatering will add to the TMF/polishing ponds a monthly average of 37,296 m^3 varying from 6 996 to 244 929 m^3 per month during a typical year. Retention time in the polishing pond is expected to vary between 13 and 40 days.

18.6.4 Basis of cost estimate

The types of materials required for the construction of the impervious dykes are given in Table 18.1 below.

Table 18.1 – Type of Materials Required for Construction

Type of Material	Dimension (mm)	Volume or Area Polishing Pond	Volume or Area TMF
DYKE			
Coarse Rockfill	> 600 mm	122,519 m^3	1,263,012 m^3
Rockfill	300 - 600 mm	25,631 m^3	159,831 m^3
Fine Rockfill	0 - 300 mm	53,655 m^3	500,920 m^3
Silty sand - Gravel	In-situ overburden (free of stones)	12,815 m^3	79,916 m^3
Impermeable membrane	LLDPE	21,664 m^2	121,980 m^2
Geotextile	----	43,328 m^2	243,961 m^2
POND BOTTOM			
Impermeable membrane	LLDPE	52,800 m^2	345,400 m^2
Geotextile	----	105,600 m^2	690,800 m^2

The estimation of the quantities for each of the various materials required for construction of impervious dykes is presented in the Journeaux and Associates report. For the TMF impoundment dykes, a downstream stage construction approach is considered as tailings will occupy the upstream side of the dykes. Volumetric relationships, based on the presently available topographic maps, were obtained for each pond in order to determine the capacities required.

The construction of the TMF dykes will begin in pre-operation (during the mine construction period). Construction of the dykes will continue yearly up to year 24 (during the summer period). The polishing pond will be completed in two stages, i.e. pre-operation (during the mine construction period) and by year 5. Raised embankments (dykes) will be actually constructed in phases determined by the need for additional disposal capacity based on anticipated blasting quantities of waste rock from the mine and updated mine plans.

The cumulative quantities of the different materials required for the construction of the TMF dykes were estimated for years 1, 2, 3, 5, 7, 10, 15, 20 and 25.

18.7 Buildings

18.7.1 Processing Plant Area

The processing plant area is located North-West of the open-pit. The site is approximately 200 m by 150 m at elevation 696 m and slightly sloping towards south. The access road reaches the site from the North-West and the service road towards the TMF exits from the south-west. The ditch system north of the site, collects run-off before reaching the site and drains it to the west, under the access road. The ditch system south of the plant site collects run-off from the site towards the site collection pond which drains along the ditch on the east side of the service road towards the TMF.

18.7.2 Concentrator Building

The concentrator building is a conventional ore processing type building. The layout of the plant had been developed keeping in mind potential expansion along the North side of the building.

The concentrator building houses the coarse ore bin and the grinding area on the east side of the building. The flotation area and regrind area are located in the center of the plant. The graphite concentrate thickening and filtering area is located to the west-center of the building. The concentrate dryer and the bagging system will be located in the west side of the building. The load out section of the building is located on the southwest corner.

Provisions were made in the design to isolate the dried graphite concentrate area in order to ensure effective graphite dust control and venting.

Two (2) electrical rooms are provided in the design: one on the second floor along the east wall of the plant with the compressor room area and a second one in the concentrate filtration area near the laboratory and sample preparation area. Mechanical and electrical maintenance shops are located on the ground floor in the coarse ore bin area.

The employee’s changing room and cafeteria are located on the first floor of the building above the compressor room. Offices are located on the third floor.

For the concentrator’s average processing rate of 950 t/d, the size of the building is determined to be 76 m x 37 m and will be 26 m high.

18.7.3 Office Complex

Provision has been made for administration offices adjacent to the south wall of the concentrator building. The single level 21 m x 14.6 m building will accommodate about 15 offices for administration, staff, visitors, and sub-contractors.

Provision has also been made for a first aid station as well as a conference room and a lunchroom for employees.

18.7.4 Mine Equipment Maintenance Building

The mining contractor whom will be responsible to provide ore to the concentrator will also provide for the mine equipment maintenance building. Facilities provided consist typically of a light structure building that will provide maintenance bays to accommodate the largest mining equipment. One maintenance bay is also provided as a wash bay as well as a space for the compressor room and the workshop area. The wash bay will be equipped with a pressure washing system and an oil/water separator would be included.

18.7.5 Product Warehousing

Storage space is allocated for in the drying/bagging area of the plant to store some of the 1-tonne bags. Provision has also been made for a series of shipping containers as well as a roll-off trailer to temporarily store the graphite bags in containers and to move them in the yard. These containers will be located to the south of the yard and are for the purposes of short-term storage as the containers would regularly be shipped to the Wabush train station load out for shipping towards Sept Îles. This short-term storage area is principally in case of snowstorms or if the access road was temporarily closed.

18.7.6 Cold Warehouse

A lightweight dome type structure cold warehouse is provided for temporary storage of mechanical equipment parts.

18.7.7 Mine Dry – Change House

Provision for a change house area is provided on the first floor of the concentrator above the compressor room. It has a floor space of 216 m^2 and includes showers and changing rooms, which will be ventilated. It will be able to accommodate the employees of the concentrator up to 64 people. A direct access to the lunch room also located on the same floor is provided.

18.8 Water Systems

Most of the water required for the concentrator process will be recirculated from the TMF. Limited fresh water make-up (270 m^3/day) will be required for the plant gland seal water system, the potable water system and to fill the fire protection water tank at the beginning of operation. It is assumed that the fresh water intake is from Lac Knife and water wells.

Similarly, a ditch system around the waste rock stockpile will collect water towards a settling pond where the water will be sampled and tested prior to discharge towards the Lac Knife watershed.

A ditch system will limit precipitation run-off to accumulate in the open pit. Precipitation and groundwater collected in the in-pit sump will be pumped to the surface to the settling pond located south of the pit. It will then be rerouted towards the waste rock stockpile settling pond and eventually towards the collector ditch system that runs toward the TMF.

The reclaim water system is composed of a floating pumping system that will be located on the TMF. It will be required to pump water towards the polishing pond. From the polishing pond another set of pumps will recycle backwater towards the concentrator.

If, during an extreme event, excess water reaches the emergency spillway, it will drain towards a ditch to the South away from the dam and towards the environment. The tailings pond is designed to collect precipitation and some of the watershed but the level will be controlled during operation to not reach the spillway. The water quality will be tested and pumped to the water treatment system located at the polishing pond, if required. Treated water will be discharged first in a transitional collection pond and then through a ditch system towards L04 and eventually to Lac Knife.

It is expected that the TMF and polishing pond that collects run-off water and pit dewatering will be sufficient to comply with Directive 019 water quality requirements. Before release towards the Lac Knife watershed, the water quality will be tested. In the event that further water treatment is required, provision has been made in Year 3 of the operation for a water treatment system.

18.9 Potable Water Treatment

Provision is made for a potable water treatment based on ultra filtration membrane system to provide service water for the employees considering that there will be no camp on site.

18.10 Sanitary Waste Water Treatment

One sanitary waste water treatment system will be provided for the concentrator and administration building facilities designed for a maximum of about 100 people. No other sanitary waste water treatment system is required for the site.

Provision is made for a modular-type sanitary waste water treatment unit using a Rotating Biological Contactor (RBC) type process. Sanitary and shower waste water are collected from each building via underground piping and discharged into these modularized sanitary waste water treatment units. Sludge will need to be removed about twice a year by a local contractor.

18.11 Fuel Storage and Fuelling Station

Diesel for mining equipment will be stored in one (1) double walled horizontal tanks located in the vicinity of the maintenance facility south-east of the plant and close to the main hauling road to the pit. The tank will have a capacity of 45,000 litres to cover 21 days of storage. The fuel storage and fuelling station are located near the mine equipment workshop.

Due to the double wall system, spill protection is not required and the tanks can be mounted on a simple concrete base. Provision has been made within the civil works for cement bollard blocks to prevent machinery to come to close to the tanks.

18.12 Plant Mobile Equipment

Provision has been made for a budget to be allocated to plant mobile equipment.

The following equipment is typically identified as plant mobile equipment:

- Light vehicles such as pickups and buses
- Material handling vehicles such as mobile crane, articulated manlift, boom truck, fork lifts, etc.
- Emergency vehicle such as the mine rescue truck

Provision is made for a roll-off type trailer to move product containers within the yard.

18.13 Solid Waste Disposal

It is assumed that the environmental management system will promote recycling at the mine site and that the residual matters will be collected regularly and sent to the Baie-Comeau area. No capital cost allowance is included.

18.14 Mine Magazine Storage

The explosives will be transported to site from the closest explosives plant. No explosives will be stored on site since regular delivery will accommodate the relatively small amount for this scale of operation is required. However, it is expected that two small magazine will be required on site: one magazine will be required for the storage of primers and one magazine for detonators. They will be located approximately 500 m South of the pit.

18.15 Site Power

To supply the power requirements of the Lac Knife Project, a new 34.5 kV overhead power line on wood poles, approximately 50 km long is necessary. The new line will be taped to the existing Hydro Québec electrical substation Normand located in Fermont. The new pole line will be installed along the road 389 and along the local road to the mine site.

18.15.1 Site Load

The total power demand is estimated at 6.1 MW with 3.4 MW for the concentrator process. The remaining power is required to service the following: Administration, Offices, Mechanical Shop, Laboratory, Electric Rooms, Truck Maintenance, Cold Warehouse, Fuelling Station, Guard House, Communication Tower, heating of the Concentrator as well as losses in transformers and feeders. The Mine Site does not require electrical power since all the mining equipment (shovels, drills, pumps) will be diesel operated. The process power demand was estimated based on data from the Mechanical Equipment List prepared for the project. A breakdown by area is presented below in Table 18.2.

Table 18.2 – Project Power Requirements

Process Areas	Description	Power Demand Requirements (kW)
100	Crushing	330
200	Grinding & Flotation	919
300	Polishing & Coarse/Fine Cleaner Flotation	364
400	Graphite Concentrate Dewatering and Drying	1056
500	Dry Screening	90
600	Bagging System	43
800	Reagents Preparation	32
900	Air & Water Services	526
Total Process		3,361
	Process Plant - Heating for Concentrator Building	1,654
	Process Plant – Services, HVAC, Lighting (Crusher, ER-s, Mechanical Shop, Laboratory, Offices)	577
	Other (Truck Shop, Warehouse, Fuelling Station, Gate House, Communication Tower, Losses)	552
Total General Process and Services		6,144

The electrical installation for the entire plant (process and services) is presented on the single line diagrams that were prepared for the project.

The plant will be supplied by a 34.5 kV/4.16 kV Main Substation installed north-east of the Concentrator. The step-down transformer (7.5/10 MVA, dry type) is sized to provide the operation of the entire site and to allow some future expansion. The transformer is protected on the primary side by the recloser VCR-01. The electrical equipment will be installed in the Main Substation Electrical Room (prefabricated type) and in three Electrical Rooms: ER-100 for process area 100, ER-200 for process areas 200 and 300 and ER-400 for process areas 400, 500, 600, 800 and 900. The Fresh Water Source Pumps, the Pond Water Pumps and the Reclaim Water Pumps are locally supplied and controlled.

The three ERs (ER-100, ER-200 and ER-400) will be 4.16 kV supplied with buried cable from the Main Substation's Electrical Room to the Concentrator building and then in cable trays. The cable supplying the Crusher (ER-100) will be partially installed on the conveyor. The 4.16 kV pole lines site distribution network supplies to the following sites:

- One line for the Fresh Water Pumping Station and for temporary construction facilities;
- One line for the Communication Tower, Guard House, Cold Warehouse, Fuel Station, the three Reclaim Water Pumps stations and for the Pond Water Transfer Pump.

18.15.2 MV and LV Distribution Levels, Systems Grounding and Load Ranges

The proposed distribution voltage levels for equipment and the type of motors are defined as indicated in the table below:

Table 18.3 – Voltage and Loads

Voltage	Grounding	Loads
4.16 kV, 3Ph, 3W	HRG (25 A)	MV Distribution Fixed speed and variable speed motors 4 kV
600 V, 3Ph, 3W	HRG (5 A)	Fixed speed and variable speed motors 575V Non process loads larger than 6 kW
600/347 V, 3Ph, 4W	Solidly Grounded	Large HVAC Lighting in Process Area Welding receptacles
208/120 V, 3Ph, 4W or 120 V, 1Ph	Solidly Grounded	Small motors 115 V Lighting in Buildings and Small HVAC Small loads up to 6 kW

18.15.3 Hazardous Locations

Part of the Graphite Concentrate and Bagging System areas related to the dry screening equipment and the area around the Graphite Concentrate Dryer is classified as hazardous area Class II, Division 2, Group F[3]. These areas are located in the concentrator building between the columns 1-5 and are separated from the rest of the building by a wall.

The electrical enclosures will be as per NEMA 7 & 9 and the motor enclosures will be as per Explosion Proof, Class II, Division 2, Group F.

The electrical equipment used in this area will be marked with the group of the specific dust for which it has been approved.

The luminaries, receptacles, cable trays, cables and the electrical installation will be conform to the rules of the Canadian Electrical Code, Section 18 Hazardous Location.

18.15.4 Emergency Power

An emergency power system will be provided as a standby source of power to feed essential services (emergency and exit lighting, fire pumps, etc.) as well as critical process loads in the event of power loss from the power grid. The standby power source consists in one Diesel Generator (1.0 MW, 4.16 kV, PF = 0.8) located at the Main-Substation.

18.15.5 Electrical Rooms (ER)

The main electrical equipment is installed in four (4) Electrical Rooms (ERs).

The Main substation’s Electrical Room is a walk-in and outdoor type and it is located in the Main Substation yard. The main equipment installed is:

- MV-SW-200: MV Switchgear (5 kV, 2000 A, 250 MVA) to provide the general distribution 4.16 kV.
- MV-PFC-200: MV Power Factor Correction and Harmonic Filter, 750 kvar.

ER-100 is installed in a prefabricated container and it is in the vicinity of the crusher and feeds the Crusher Area. The ER is supplied by a dedicated feeder from MV-SW-200. The cable is partially buried in the region of MV-SW-200 and mostly installed on the conveyor until the crusher area. The main equipment installed is:

- TR-100: 1 MVA, 4.16 kV/0.6 kV, distribution transformer, dry type c/w NGR 5A.
- LV-MCC-100: feeds the motors’ starters and the auxiliary loads related to the area.

ER-200 is located in the Concentrator and feeds the equipment related to areas: 200 - Grinding & Flotation (partially), 400 - Graphite Concentrate Dewatering and Drying, auxiliary services and also partially to the electrical heating of the Concentrator. The main equipment installed is:

- MV-MCC-201: MV-VFD to supply the Sag Mill (200-SAM-01)

[3] atmosphere containing carbon black, coal or coke dust; ignitable dust suspensions or hazardous dust accumulations only under abnormal conditions

- TR-200: 2.5/3.3/4.1 MVA, 4.16 kV/0.6 kV, distribution transformer, dry type c/w NGR 5A.
- LV-SW-200: low voltage switchgear to supply the 600V loads.
- LV-MCC-200: for the motors' starters and the auxiliary loads related to the area 200 (partially).
- LV-MCC-300: for the motors' starters and the auxiliary loads related to the area 300.
- LV-MCC-901: dedicated to the electrical heating of the Concentrator and to auxiliary services.

ER-400 is located in the Concentrator and feeds the equipment related to areas: 200 - Grinding & Flotation (partially), 400 - Graphite Concentrate Dewatering and Drying, 500 - Dry Screening, 600 - Bagging System, 800 - Reagents Preparation, 900 - Air & Water Services and also partially to the electrical heating of the Concentrator building and to auxiliary services. The main equipment installed is:

- TR-400: 2.5/3.3/4.1 MVA, 4.16 kV/0.6 kV, distribution transformer, dry type c/w NGR 5A.
- LV-SW-400: low voltage switchgear to supply the 600V loads.
- LV-MCC-400: for the motors' starters and the auxiliary loads related to the areas: 200 (partially), 400 and 500.
- LV-MCC-900: for the motors' starters and the auxiliary loads related to the areas 600, 800 and 900.
- LV-MCC-902: dedicated to the electrical heating of the Concentrator and to auxiliary services.

18.15.6Motors and Starting Methods

All the motors are induction motors, high efficiency or premium efficiency. A starting method is selected depending on the motor size, on the type of starting torque, on the process needs (fixed speed or variable speed) but also on the grid reliability and on the starter cost. The retained starting methods are:

Direct-on-line ("DOL") starting is the most common method. The advantage is that it is: simple, reliable and less expensive. The disadvantage is that the starting line current is five to six times rated current. The DOL method is used for all low voltage motors, fixed speed applications.

The Variable Frequency Drives (VFD) enables low starting currents because the motor can produce the required torque at the rated current from zero to full speed. The VFD start provides smooth, step-less acceleration of motor and load while controlling inrush current and the starting torque. As a voltage regulator they can be used to control the stopping of the process.

The equipment provided with VFDs is enumerated in the following chapter.

18.15.7 Power Factor Correction and Harmonics Filters

In order, to meet the Hydro-Quebec requirements concerning the connexion to the distribution grid the power factor value must be equal or greater than 0.95, the harmonics must be under the limits of all Hydro-Québec requirements[4].

For the power factor correction and harmonic filtration, a Power Factor Correction Unit (MV-PFC-200, 750 kvar, synchronized to 4.85-th harmonic) was installed at the Main Substation.

The equipment generating harmonics are the VFD-s used in the process equipment requesting variable speed in operation.

The main equipment supplied by VFD-s is:

- 200-SAM-01 SAG mill 435 kW
- 200-APF-01 SAG mill apron feeder 3.7 kW
- 200-APF-02 SAG mill apron feeder 3.7 kW
- 200-BAM-01 Ball mill 105 kW
- 400-FAN-01 Recirculation Fan 22 kW
- 400-FAN-02 Dust Collector Exhaust Fan 13.4 kW
- 400-SLP-03 Pressure filter feed pump 55 kW
- 400-SLP-04 Pressure filter feed pump 55 kW
- 900-COM-03 Flotation air compressor #1 112 kW

Part of the 600 V heaters, controlled by SCRs, will also generate harmonics.

To reduce the harmonics limits, the VFDs supplying the SAG mill and the Ball mill will be the Very Low Harmonics Type (AFE or minimum 24 pulses); the other VFD-s will be provided with 3% line reactors.

18.15.8 Grounding

For System Grounding, the neutral of the Main Substation Power Transformer and the neutrals of the distribution transformers will be resistance grounded to provide a better protection to equipment and personnel and limit damage due to arcing faults.

For Equipment Grounding, a grounding system, consisting of a network of copper conductors, will be provided for each process building and substation. The ground conductors will run externally around each building with taps thermo-welded to every other column. The individual ground grids will be tied together with interconnecting ground cables.

[4] "C.25-01 Exigences techniques relatives à l'émission d'harmoniques par des installation des clients raccordées au réseau de distribution d'Hydro-Québec".
"C.22-03 Exigences techniques relatives au raccordement des charges fluctuantes au réseau de distribution d'Hydro-Québec".

All major electrical equipment such as transformers, switchgears, large motors, motor controllers, cable tray systems, water and fuel tanks, substation fencing, etc. will be individually connected to the ground network from two points.

The grounding system will be designed to limit the overall resistance to ground to four ohms (4 Ω) or less.

A separate ground bus in electrical rooms and/or control room will be dedicated to instrumentation cables and equipment grounding. This ground bus shall be connected to an isolated grounding system and insulated from the main plant ground. An insulated green ground wire will run to the instrumentation equipment ground studs to ensure instrument grounding system integrity. The instrument ground bus will be connected to the main plant grounding system.

18.15.9 Cables and Cable Trays

The power cables will consist of a single conductor or three conductors, Copper, XLPE-insulated, Aluminium or Steel Armour, PVC sheathed 90°C.

Cable trays will be ladder type, galvanised steel. Cable trays for instrument cables will have a separated section. Separate trays will be provided for cables of different voltage ratings, or if installed in the same tray, separating barriers will be provided.

18.15.10 Lighting and Small Power

The necessary illumination levels will be provided for all areas.

Process areas with high headroom (3 m +) will be lit by metal halide industrial high or low bay lighting fixtures with integral ballast. Other internal areas of the plant (process areas that are less than 3 m high, offices, electrical and control rooms, etc.) will be lit by energy saving fluorescent lamps.

Outdoor areas (process yards, roads, parking, etc.) will be lit by high-pressure sodium roadway lighting fixtures and floodlights installed on steel poles.

Process working areas, control and electrical rooms, etc. will be fitted with rapid restarting fixtures to provide partial or full illumination after voltage dips or normal power failure.

To permit movement of personnel during a power failure or emergency situation, all areas will be fitted with individual battery pack units located near passages, stairwells and exits. The exit lights will have built-in batteries and energy efficient lights; the modules will be located near the exits.

The lighting system and receptacle power will be fed by 120/240 V dry type transformers and panel boards located in electrical rooms.

Lighting in process and production areas will be switched from panel boards. Outdoor lighting will be controlled by photo-cells or timers.

Welding/power outlets will be installed at appropriate locations for supplying power to portable welders and similar loads.

18.15.11 Electrical Equipment Specification

The characteristics of major electrical equipment have been based on design criteria and the cost estimate on the information received from suppliers invited to quote on the project.

18.16 Automation

18.16.1 Control System Philosophy

The Lac Knife Graphite Project includes production facilities such as crusher, concentrator and concentrate packaging equipment. There are remote locations that include the fresh water and the reclaim water pumping stations.

The above mentioned production facilities are controlled and supervised from the central control room equipped with a SCADA control system located in the ore processing plant.

The control system philosophy is based on the utilisation of Programmable Logic Controller (PLC's) in all key areas of the plant. The ring topology is proposed to reduce the risk of downtime.

The PLC's network will include one (1) PLC for the crusher area, three (3) PLC's for the concentrator and one (1) PLC for each remote location.

There will be remote operator control stations for the following areas: crusher, grinding, flotation, dewatering and drying, the laboratory, and administration office.

The proposed control system is built with standard industrial automation equipment and is easily expandable.

The proposed automation concept for the Project was based on documents prepared for the study such as:

- Automation Control Philosophy and Design Criteria
- Control Architecture drawings
- Telecommunication system Architecture

Automation costs for the project are included in the overall capital cost estimate.

18.16.2 Project Typical P&ID

The project process flow sheets and typical P&ID drawings from Met-Chem's database were used to prepare automation quantity estimates. No formal P&ID drawings were prepared for the project.

Met-Chem has also used supplier preliminary drawings and technical information received from bidders.

18.16.3 Instrumentation List & Input / Output Count

An instrument list for the project was developed using the process flow sheets, typical P&ID drawings and technical information from potential suppliers.

The Input / Output count is derivate from the instrument list. The I/O count includes the digital points, the process instruments, the on / off valves, the control valves and the instruments supplied with the mechanical equipment.

All the I/O's of the process areas are integrated in local PLC automation panels rack located in electrical room of the area.

The following method was used to calculate the I/O count:

- All fix speed motor starters and Variable Frequency Drive are supplied with electronic overload. The electronic overload includes input / output module and a communication link to transfer motor status and command to the PLC. All motor local push button stations will be wired to the electronic overload.
- Four digital inputs and one or two digital outputs for process valves equipped with position switches to indicate the close/open status and the local push button station. Local push button only for the mainstream valves;
- All instruments will support the Hart protocol and will be wired to the PLC I/O rack with a 4 to 20 ma signal.
- All pump boxes are equipped with a non-contact level detector (Ultrasonic or Radar type for dusty applications).
- All conveyors are equipped and supplied with safety pull cords, misalignment switches and zero speed switches. All switches are wired to PLC I/O cards. The pull cords are wired to the motor starter for safety.

The overall I/O count total for the project is 1621.

18.16.4Local Control System & Instruments

The proposed control system includes local push button stations for all motors and the main stream on/off valves for maintenance and safety.

The push button stations include a local start/stop station for all motor but no selector switch manual/ automatic in the field. The manual / automatic function is accessible only at the Scada operating station and is programmed by area. The push button station can only be activated when the plant operator has selected which process area to change to manual mode for the push button function start. The stop function is always functional

For the critical equipment, an extra push button (Emergency Stop) is added directly connected to the motor starter.

All the control loops are integrated and controlled by the PLC. For complex instrument or equipment supplied with programmable logic controller (PLC), a communication link is added to get remote status and diagnostics for the plant supervision control system.

All the field instruments and switches are wired to the PLC through junction boxes and digital and analogue input/output modules mounted in automation panels located in area electrical rooms. The standard 4-20 mA signal with Hart protocol is the standard for instrumentation. The control logic is performed by the Programmable Logic Controller (PLC).

The proposed PLC wiring includes junction boxes for instrument power supply, digital signals and analogue signals. The junction boxes will be located and installed in all the process areas. The junction boxes are interconnected to the remote Input / Output rack panel by multi-conductor cables.

18.16.5Fibre Optic Network

An Ethernet network will be installed in the Ore Processing Plant.

The proposed network communication system includes one fibre optic cable (16 fibres) with patch panels for the PLC and operator stations. The PLC communication network and the operator stations used different fibers from the same cable.

The details of the proposed configuration and the cable path are shown on control architecture drawings.

The Ethernet protocol communication system for a PLC application is fast, reliable and is the industry standard. All PLC manufacturers support the Ethernet protocol.

The remote facilities such as the fresh and reclaim water pump houses will have local PLC control link to the main control system by radio communication system with antenna.

18.16.6System Server / Software

For the Ore processing plant, the proposed system includes a redundant system server, one historian server and two operator workstations located in the central control room and remote operator stations in the field. The redundant server insures Network availability and data protection.

An Engineering station is also supplied for the system programming and the maintenance debugging. The station will be located in plant electrical rooms or in the central control room.

The proposed system is designed with Programmable Logic Controllers (PLC's) and the equipment is supplied with standard PLC programming software and standard software for the supervisory and control system (Scada). This type of equipment is available from any major PLC supplier.

The Scada system includes a development licence and run time licenses for the supervision and control of the entire plant operation and has the capacity to communicate with management's computer network.

The electrical power supply for all PLC and servers will include UPS (Uninterrupted Power Supply) units located in pressurized electrical rooms.

18.17 Telecommunication

The plant telecommunication system will be linked to the service provider by microwave link with provision for future Cell Phone telecom equipment and installed in the local telecommunication tower and shelter. The site plant communication system will be based on Ethernet links throughout the ore processing plant and the administrative building.

A single mode fiber optic cable will be deployed through the plant for telephony and Internet communication. The proposal included also redundant plant servers and firewall routers and a back-up server located in the telecom shelter. The monthly cost for the local telephony, internet access and mobile radio is included in the operation costs.

18.17.1Telecommunication System and Mobile Radio System

The telecommunication services include the communication tower located on site and a communication shelter hosting the plant communication interface.

The telecommunication systems include:

- IP PBX phone system;
- Internet access;
- Mobile radio communication system;
- Camera and security system.

The mobile radio system will be used for the construction phase, the operation of the mine site and the maintenance crew.

18.17.2Telecommunication services

The site will be connected to Telebec / Bell Internet service provider (ISP) and IP PBX phone system (ITSP) via a microwave communications link between the production site and Fermont. The microwave link will be supplied and maintained by the service supplier.

For the study, the bandwidth cost has been evaluated with one (1) Gbps. The communication system will be installed in phases.

18.17.3Telecommunication Distribution

Telecommunication distribution will be through the concentrator fiber optic network covering all areas of the concentrator, offices and gate house.

A radio communication system will be used for the mine and other auxiliary outside of the concentrator.

18.17.4Camera and Security system

A camera system, with recorder and viewer, will be installed in the main gate office. Aside from the gate cameras, five (5) cameras will be installed in the concentrator for metallurgical process supervision. One (1) viewer station will be installed in the central control room.

19.0 MARKET STUDIES AND CONTRACTS

An independent market study was carried out by Industrial Minerals Data to report on the world supply and demand for flake graphite concentrate and provide a price forecast for the 2014-2017 period. The following is a summary of the report.

Focus Graphite signed an offtake agreement in December of 2013 with a Chinese Conglomerate from Dalian City, China. The offtake covers a minimum of 50% of production.

19.1 Introduction

Flake graphite pricing is dictated by both the physical size of the grain and the carbon purity of the flake.

Larger mesh sizes demand a premium price. Tighter supply conditions for these grades mean that prices can escalate rapidly at mesh sizes larger than +80 mesh. Similarly, flake graphite concentrate with greater carbon purity receives a premium price because it requires more processing from ore to remove disruptive impurities and is less widely produced (see Figure 19.1).

A carbon content of 90% C and above is generally required in all refractory, foundry and crucible applications. The most common grade used in refractory applications is 92-94% C, but some major producers will demand a purity of up to 96% for specialist refractory and foundry applications. The price of grades greater than 94% C increase at an accelerated rate as the carbon content increases, due to the greater cost involved in refining the material towards the higher purities required for high-tech and more specialist applications.

Q1 2014 Flake graphite concentrate prices are considered at a four-year low. They have now reached these low prices that are still 52% higher than 2006 levels. It is felt that these prices represent the bottom of the market. Demand is expected to return to the market in Q2-Q3 2014 as consumers are expected to start replenishing their inventories.

Figure 19.1 – Relationship between flake size carbon content and price

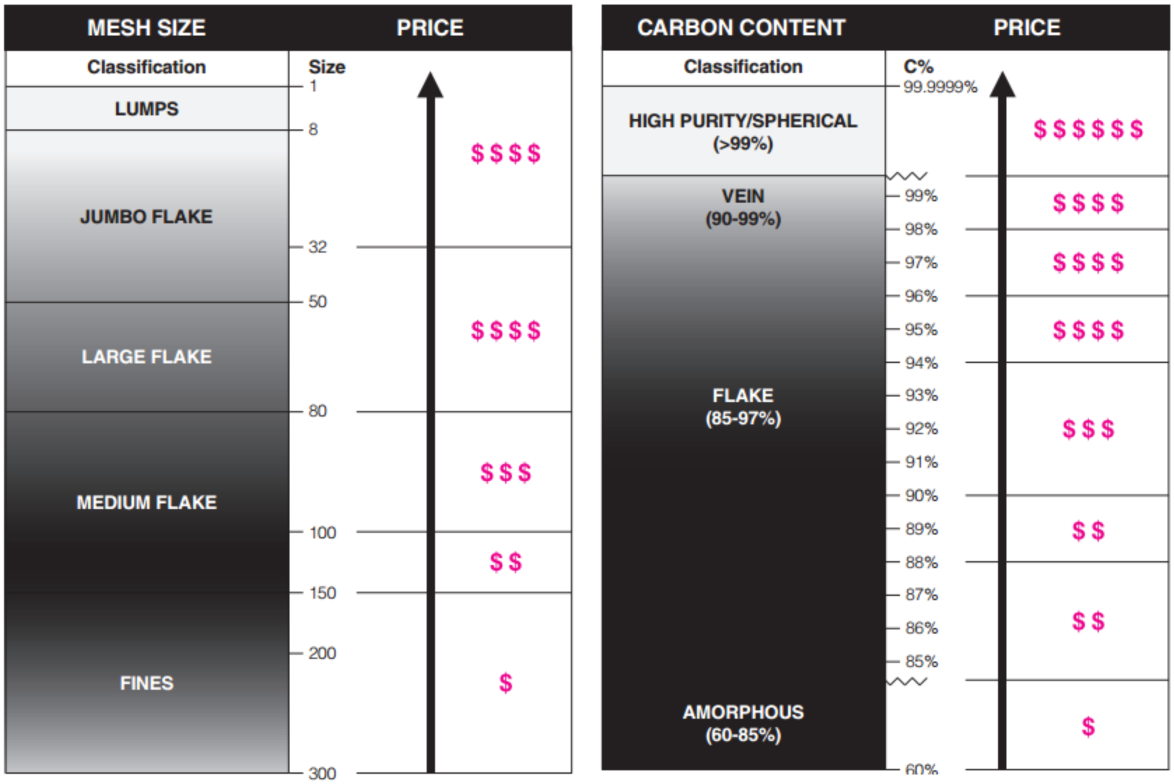
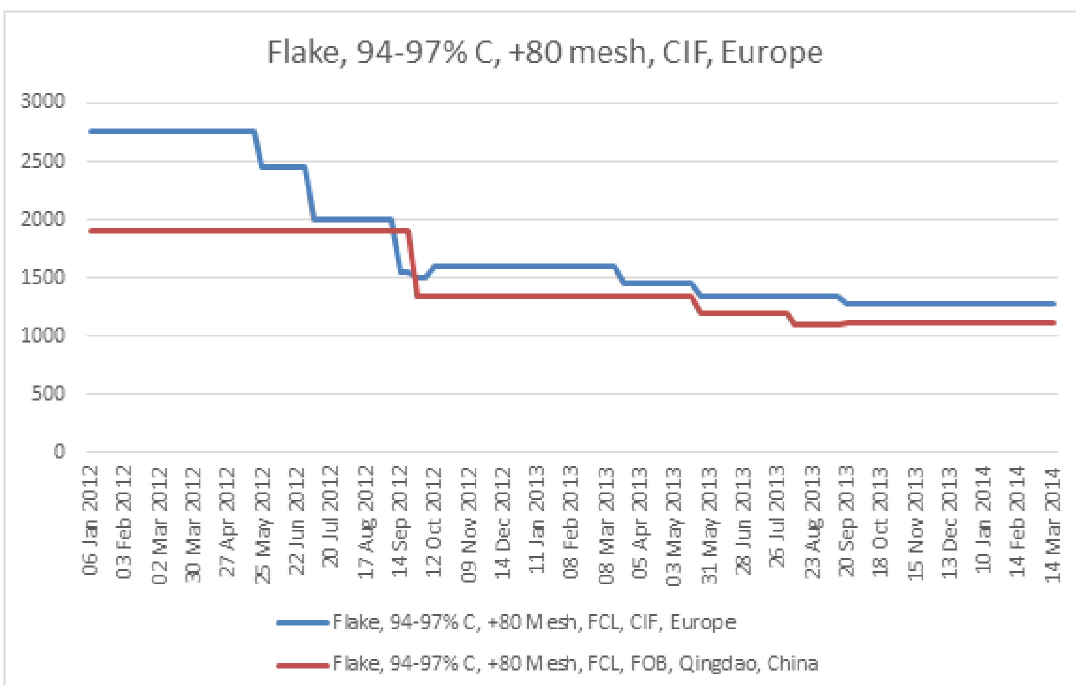


Figure 19.2 – Historical (2012-2014) pricing for CIF Europe 94-97% C +80 mesh flake



19.2 Supply

The main flake graphite producing countries in the world are China, Brazil, India and Canada as shown in Table 19.1. The largest producer of flake graphite is China, which in 2013 accounted for 58% of global output or 220,000 t/y from a capacity of 676,000 t/y as seen on table 19.2. Figure 19.3 illustrate China's export breakdown.

However, over the period analyzed, it is expected that China will reduce its output of flake graphite concentrate from 220,000 tonnes in 2013 to 180,000 tonnes by 2016 primarily as a result of consolidation in the two leading producing regions in the country. It is therefore expected that output from China will fall over the next three years at the same time demand is expected to increase.

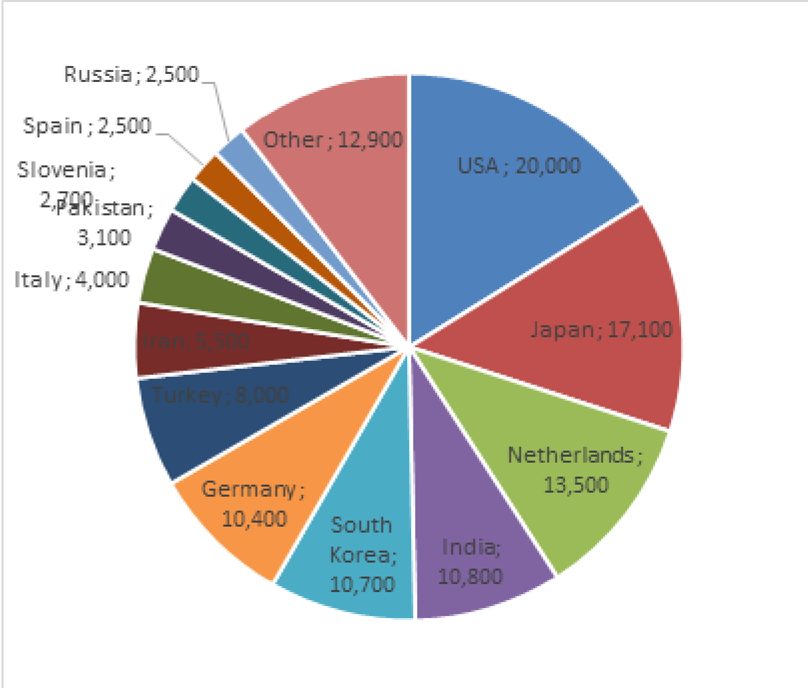
Table 19.1 – Global Flake Graphite Production in 2013 (tonnes)

Country	Country totals
Brazil	87,000
Canada	16,000
China	219,500
Germany	300
India	27,000
Madagascar	6,000
Norway	5,000
Russia	6,000
Ukraine	6,000
Zimbabwe	3,000
Total	375,800

Table 19.2 – Global Flake Graphite Production capacity in tonnes

Country	Producers	Capacity
China	>20 producers	1.2 M
Brazil	2 producers	102,000
India	7 producers	30,000
Canada	2 producers	30,000
Norway	Skaland Graphite	12,000
Ukraine	Zavalasky Graphite Complex	10,000
Madagascar	Etablissements Gallois	7,000
Zimbabwe	Zimbabwe German Graphite Mines	7,000
Russia	JSC Uralgrafit	5,000
Germany	Graphit Kropfmuhl	5,000
Total		1.471 M

Figure 19.3 – China's flake graphite export breakdown



Brazil is the second-largest flake graphite producer with a capacity of 102,000 tonnes. No major changes are expected in the supply of flake graphite from Brazil.

India with an output capacity of 27,000 tonnes is also a major producer of flake graphite, predominantly for its internal domestic markets. Production is situated in the states of Jharkhand, Tamil Nadu and Odisha. Graphite extraction is not particularly economic and efficiency problems are expected. The supply forecast is expected to slightly decrease.

Canada is the fourth largest flake graphite supplier with an estimated production capacity of 25,000 tonnes and a total output of 16,000 tonnes in 2013.

The country's major producing operation in Quebec is expected to be near the end of its economic life. It is reportedly shut down at present to develop more resources. Additional or increased output quantity is not expected from this mine in the future. Any new significant volume increases will come from new mining operations.

There are also active graphite mines in Norway, Madagascar, Russia, Ukraine, Zimbabwe and Germany. However, these are not expected to increase capacity in the near future.

New and significant production is however expected from Mozambique with production expected to begin towards the end of 2015 with more significant output in 2016. However the company has an unrealistic target of 200,000 t/y. The project is at a scoping study level.

19.3 Demand

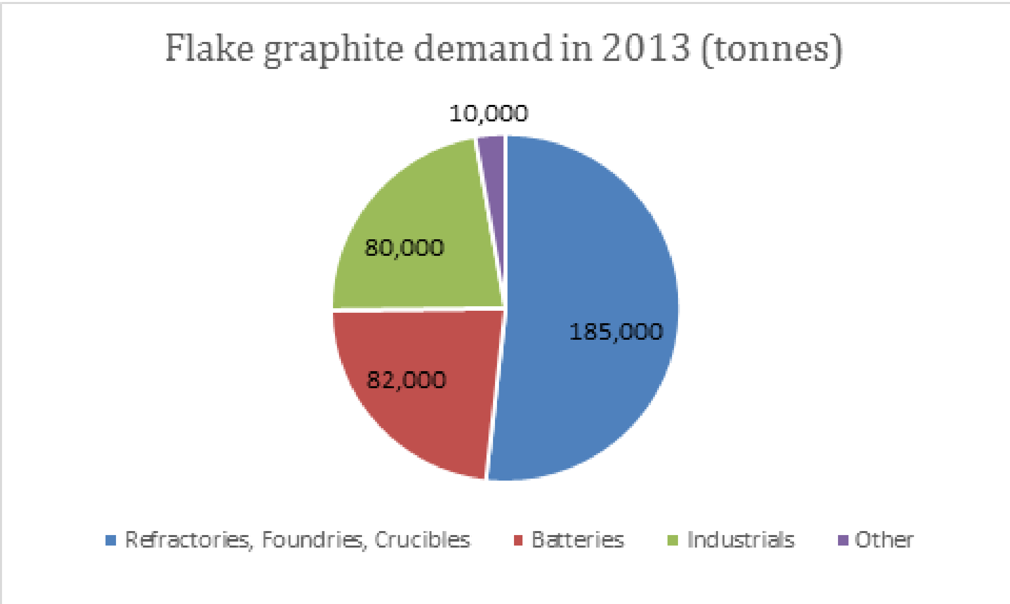
The primary end-market for flake graphite is the refractory, foundries and crucible sector as indicated in Figure 19.4.

The lithium ion battery sector is the main emerging market for flake graphite. With only small quantities of spherical graphite required in many lithium-ion batteries, greater capacity batteries, such as the ones required for electric vehicles, will drive demand from this sector over the coming years. Spherical graphite accounts for 90% of battery-grade graphite demand with purified just 10%.

Flake graphite also has applications in other industrial markets such as oil drilling. Consumption from these industries is expected to remain stable over the coming five years.

Other non-industrial applications for graphite include such as graphene, pencils, bakery equipment, and trucking industries.

Figure 19.4 – World flake graphite demand in 2013



The battery and refractory, foundry and crucible sectors are expected to sustain the strongest increase over the 2014 to 2016 period.

19.4 Three-Year Price Forecast

A three-year price forecast was developed for the three main traded grades of flake graphite:

- Large flake: + 80 mesh
- Large to medium flake: - 100 to + 80 mesh
- Medium to small flake: - 100 mesh

Prices for the two main trading regions were **identified:** Europe and China.

Three scenarios were reviewed: conservative, base case and bullish (optimistic).

The analysis below presents the base case forecast on each of these grades.

19.4.1 Europe

A steady increase in prices of all three major trade graphite grades is expected between 2014 and early 2016 shipped into Europe on a CIF basis.

a) +50/+80 mesh

As indicated in Figure 19.5, prices could reach as high as $2,100/tonne between Q2 2014 and Q1 2016 for the +50/+80 fractions as demand from steel refractories and batteries in particular is expected to make a steady comeback from the down years of 2012 and 2013.

The majority of product shipped into Europe comes from China so the strength of the price increase will depend on two major factors: demand for steel in Europe and supply restrictions within China.

Additional demand from EV batteries is expected closer to 2016 within Europe and growth in this sector will lead to significant price volatility and higher prices than forecast. While significant growth is unlikely, it cannot be ruled out.

New graphite supply to increase from today’s levels is not expected until mid-2016 when 50,000 t/y of new supply is expected to enter the open market. It is expected that this to be sourced from Mozambique and that it will result in softening of prices from a peak of $2,100/tonne to $1,500/tonne. A significant proportion of Mozambique’s output will be large flake. The extend of any graphite price fall, or any other directly the prices moves, will be dictated also by any consolidation or closures of graphite mines in China, specifically Heilongjiang province. If the government begins to restructure operations here, significant price increases on the international market will be expected – prices increases on a par or greater than the 2011 peak.

Some niche markets for +50 mesh product include crucibles and expandable graphite. These industrial markets are expected to grow in line with refractories and therefore steel demand.

b) +100 -80 mesh

Medium flake graphite will follow in similar fortunes to large flake rising to a peak of $1,850/tonne in Q2 2016, an increase of 68% on today’s levels.

The drivers will be the same as +80 mesh product and the price rises will likely suffer from new significant supply from Mozambique.

c) - 100 mesh

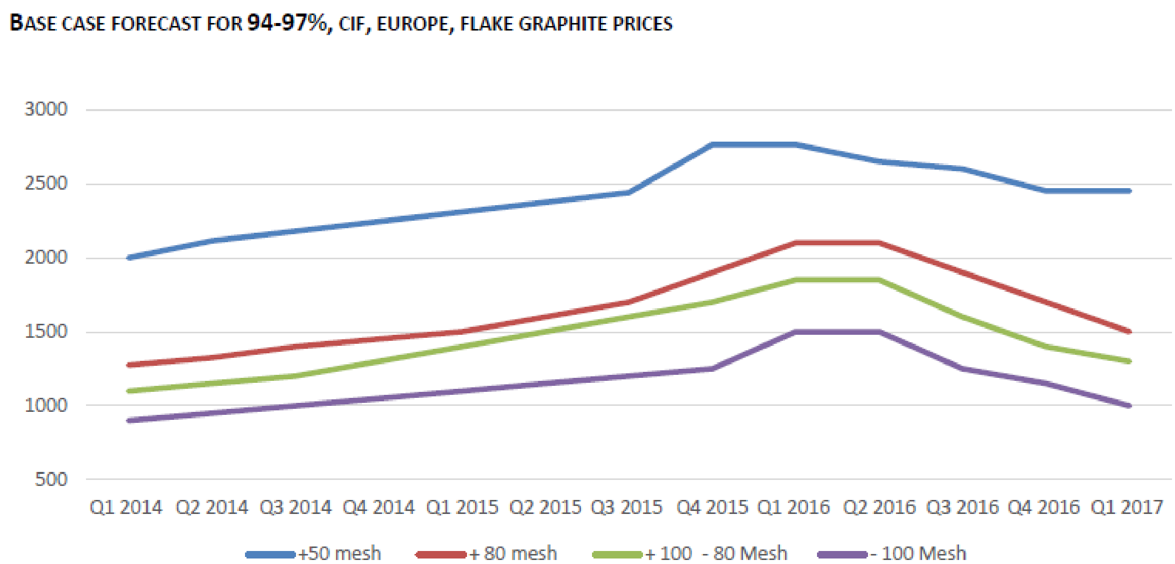
In the base case above, it is expected smaller flake graphite products to rise in line with industrial demand in Europe and around the world to a peak of $1,500/tonne.

It is not foreseable that prices would rise any higher than the optimistic case peak of $1,650/tonne owing to the limited uses for small flake graphite concentrate. Should this small flake product being processed into micronized / purified, then higher prices could be attained, otherwise significant price growth in small flake graphite is not expected.

It is expected, however, that -100 mesh products to reach a peak price in Europe between Q1 and Q2 2016 when shortages in higher quality grades will see consumers turn to smaller flake to fill the supply gap.

Regarding CIF, USA, East Coast prices, flake graphite prices shipped into the USA from China will carry a premium on product shipped into Europe, owing to the further distance transported. On average prices will be 5% higher for flake graphite transported into the US than into Europe, this could rise to as high as 10% depending on shipping rates at the time.

Figure 19.5 – Base Case Forecast for 94-97%, CIF, EUROPE, Flake Graphite Prices (2014-2017)



19.4.2 China

A steady increase is expected in prices of areas of the market between 2014 and early 2016 shipped out of China to the rest of the world on an FOB basis.

+50 / +80 mesh: Base level prices are expected to rise from $1,125 today to a peak of $2,000/tonne in Q1 2016.

A strongest growth is expected in large flake graphite prices out of China compared to the medium flake and small flake analyzed.

Large flake graphite prices will be dependent on Chinese restrictions internally which will determine the amount of product on the international market place.

Any consolidation of operations in Shandong or Heilongjiang will impact prices significantly. This forecast assumes a capacity cut back in Shandong province in 2014 or 2015 which will keep prices rising during soft demand from major end markets.

Consolidation in Heilongjiang has not been taken into account in this prices forecast.

Similarly the rationale behind the price fall in H2 2016 is because of expected new supply from Mozambique coming onto the market place at a competitive cost to China. It is expected that much of Mozambique’s output to be sold into China. The question is whether this replaces large flake mined in Shandong or displaces product onto the global market which could cause an excess in supply.

Either way, the indicators as they stands today point towards a downwards price trend in H2 2016.

+100 -80 mesh: Base level prices are expected to rise from $850/tonne today to a peak of $1,500/tonne in Q1 2016.

Medium flake prices will track a similar trajectory to large flake, a larger price gap is expected to be maintain on the premium large flake product than compared with Europe and the USA.

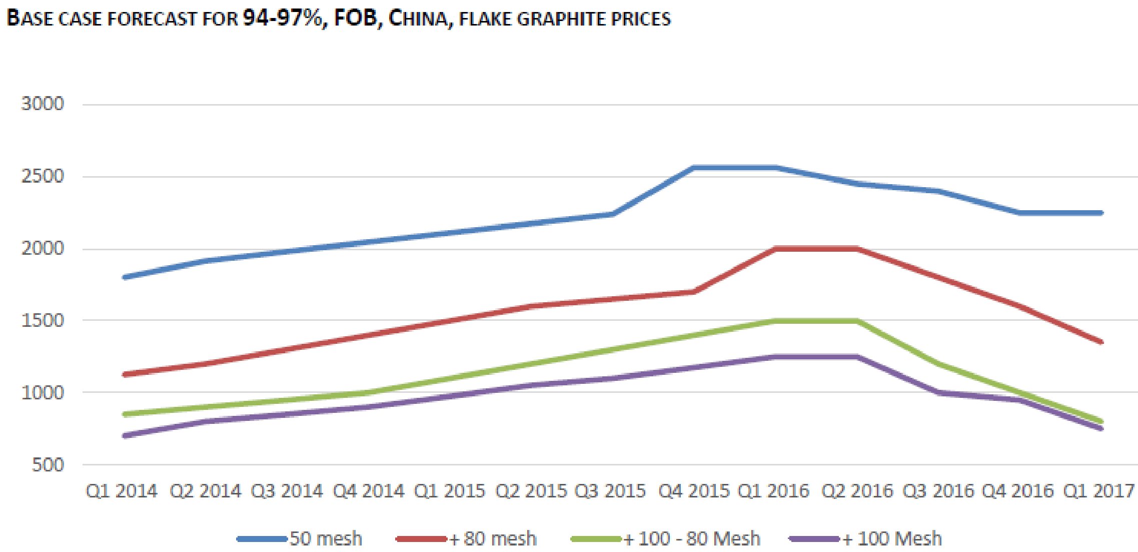
The predominant reason for this larger gap is the quality of medium flake graphite being exported out of China. With demand expected to be soft until late 2015, medium flake produced in other areas at higher quality will keep demand and prices for the Chinese grade lower.

- 100 mesh: The base case prices for smaller flake graphite out of China are expected to rise from $700/tonne today to $1,250/tonne by Q2 2016.

The price is not expected to be as volatile as the medium and large flake grades and therefore the price ascension – between Q2 2014 and Q1 2016 to be a steady increase with no sudden rises.

This is the most common grade that is traded in China by volume. Steady demand from all markets will support these price rises.

Figure 19.6 – Base Case Forecast for 94-97%, FOB, CHINA, Flake Graphite Prices (2014-2017)



19.5 2016 Flake Graphite Price Scenario

Considering the unique properties of the Lac Knife deposit, Industrial Minerals have also conducted a supplementary forecast for specific grades that Focus Graphite intent to produce. Even though these grades are not directly covered as part of Industrial Minerals' pricing service, projections have been calculated in line with the analysis, the accompanying pricing data and IMD's independent market knowledge.

These forecasts are based on the gradual recovery in the market expected throughout 2015 followed by the period of sharper price rises in 2016, as demand competition prevails and supply conditions tighten.

These forecasts have been calculated under the assumption that no new capacities come on stream over the examined time horizon.

Graphs of natural flake graphite concentrate forecasts between Q1 2014 and Q1 2017 in US $ (CIF USA East Coast) are provided on Figure 19.7, Figure 19.8, Figure 19.9 and Figure 19.10 for +50 mesh, +80 mesh, +100 -80 mesh and -100 mesh.

Figure 19.7 – Natural Flake Graphite Forecast for + 50 mesh (94-97%C CIF USA ,East Cost)

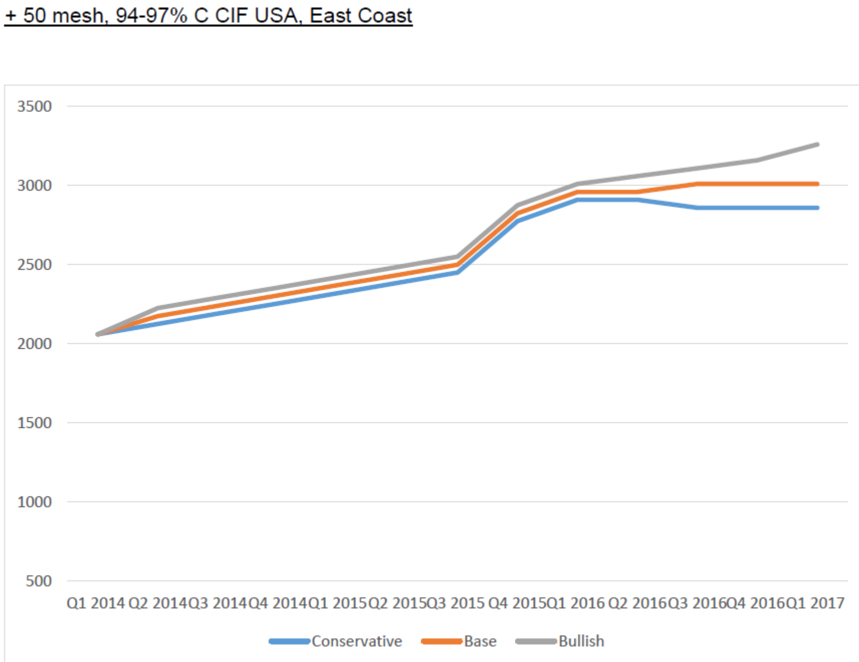


Figure 19.8 – Natural Flake Graphite Forecast for + 80 mesh (94-97%C CIF USA ,East Cost)

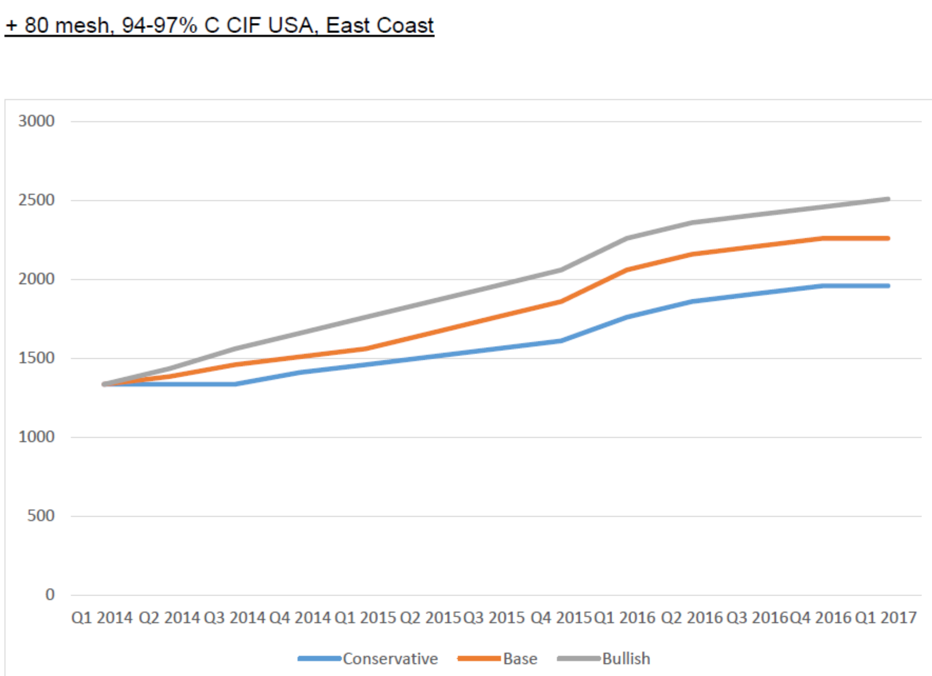


Figure 19.9 – Natural Flake Graphite Forecast for + 100 -80 mesh (94-97%C CIF USA ,East Cost)

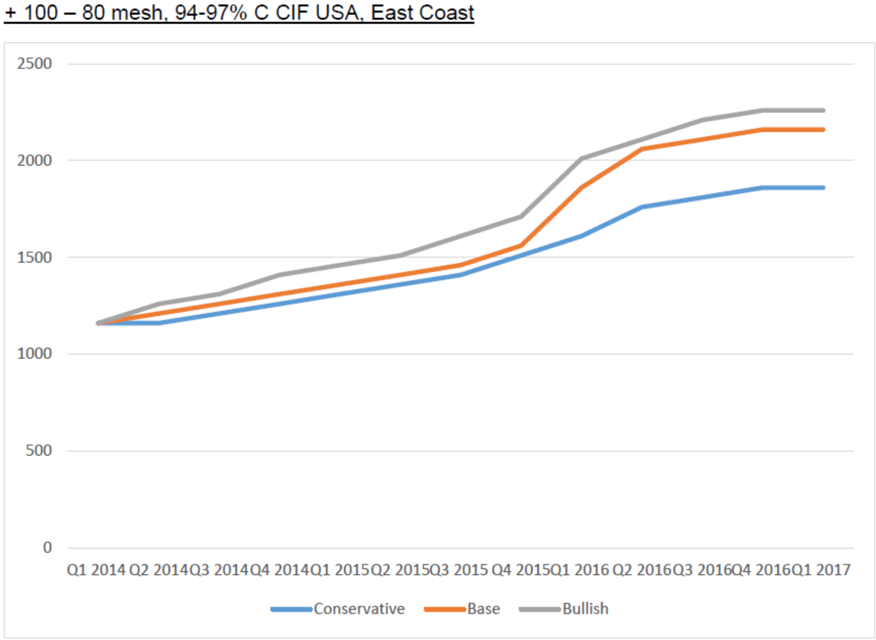
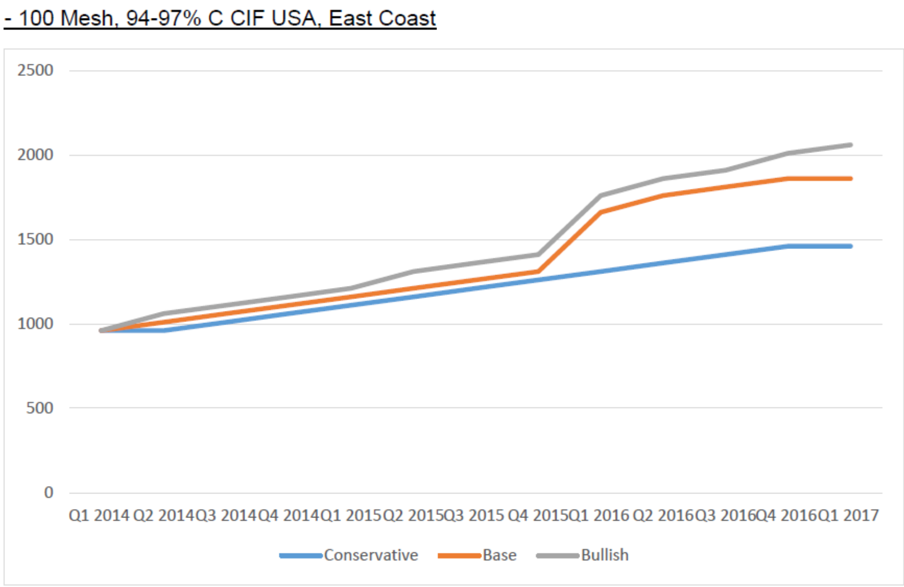


Figure 19.10 – Natural Flake Graphite Forecast for -100 mesh (94-97%C CIF USA ,East Cost)



Based on this information, and considering premiums for graphite expected grades, the price forecast for Focus Graphite Lac Knife is given in Table 19.3.

Table 19.3 – Graphite Price Forecast

Concentrate size fraction	Weight (%)	Grade C(t)%	Price USD/t
+48 mesh	10.0	99.7	3,160
–48+65 mesh	14.5	99.6	2,160
–65+80 mesh	8.5	99.8	1,910
–80+100 mesh	11.0	99.7	1,710
–100+150 mesh	20.4	99.3	1,310
–150+200 mesh	17.1	98.4	1,310
–200 mesh	18.6	91.4	1,310
Average	100	97.8	1,713

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

Environmental Baseline Studies (EBS) were conducted during 2012 to 2014 for the Lac Knife project. The EBS's include information on the physical, biological and social environments. The information was collected from literature sources, site specific surveys and from the knowledge of land users.

The Environmental Impact Assessment (EIA) is ongoing and under the responsibility of Golder Associates.

20.1 First Nations and Public Engagement

Public and First Nations engagement activities have been conducted by Focus Graphite and will continue as the development of the project progresses. The objectives of the activities conducted to date were to inform the Innu of Uashat Mak Mani-Utenam (ITUM) First Nation and the public on the project activities, to address their concerns and to document their comments.

Focus Graphite has already held public information and consultation activities in Fermont, Sept-Îles and Uashat in 2013 and 2014 with the following participants:

- Takuaikan Uashat Mak Mani-Uternam Innu band council;
- Grégoire family (traditional users of the Lac Knife territory);
- Former Chiefs committee;
- Fermont community;
- Fermont town council;
- Caniapiscau Regional County Municipality;
- Recreotouristic associations (ATV & snowmobile clubs) in Fermont;
- Moisie River Ecological Protection Association (*Association de protection de la rivière Moisie*).

The main concerns and questions raised by stakeholders were addressed and documented during these activities.

20.2 Environmental Approval and Permitting Requirements

20.2.1 Introduction

This section presents environmental approvals and permitting requirements based on current knowledge of the project and on the current environmental provincial, federal and municipal laws and regulations.

a) Provincial Regulatory Framework

Environmental Quality Act

Focus Graphite will follow the Québec environmental impact assessment (EIA) process and obtain an authorization certificate (Decree) from the Government under the Environment Quality Act, RSQ, c Q-2, (EQA) that will authorize the project to proceed.

Section 2 of the Regulation respecting environmental impact assessment and review (that are applicable to projects south of the 55th parallel) describes the types of projects that are subjected to the Quebec provincial EIA process. Regulatory elements that are relevant to the proposed project include the following subsections:

- n.8) the construction of an ore processing plant for any other ore, where the processing capacity of the plant is 500 metric tonnes or more per day;
- p) the opening and operation of any other mine that has a production capacity of 500 metric tonnes or more per day.

The anticipated production and processing capacities of the project is approximately 950 tonnes/day. As such, the project is subjected to the provincial EIA process.

The provincial process contains specific steps that are summarized below:

- The Project notice is to be sent to the *Ministère de Développement durable, Environnement, et Lutte contre les changements climatiques* **(“MDDELCC”)**[5] that describes the general nature of the proposed project. The project notice was sent in March 2013.
- Issuance of the MDDELCC guidelines that provide details on the scope of the EIA. These guidelines were sent to Focus Graphite in April 2013.
- Based on these guidelines, the EBS were reviewed and adapted as the EBS were ongoing since 2012.
  - The EIA is ongoing, and when completed, it will be submitted to the MDDELCC for their review. Depending on requests from the public, the *Bureau des Audiences Publiques sur l’Environnement* **(“BAPE”)** could hold public hearings regarding the project.
  - After considering the review of the EIA by the MDELCC and the recommendations of the BAPE, the government grants or refuses project approval. If it is approved, a Decree will be granted.

During the review of the EIA, the MDDELCC may ask other ministries such as the Ministry of Energy and Natural Resources to provide comments on certain aspects of the project.

After the issuance of a decree for the project, other provincial permits and authorizations will be required. Among them are Certificates of Authorization (C of A) under Section 22 of the EQA. Authorizations under Section 32 (waterworks, water supply intake, water purification equipment, or work with respect to sewers or the installation of devices for waste water treatment) and

[5] Formerly known as *ministère du Développement durable, de l’Envrionnement, de la Faune et des Parcs du Québec* (MDDEFP), *ministère du Développement durable, de l’Environnement et des Parcs du Québec* (MDDEP*), ministère de l’Environnement du Québec* (MENV) ou *ministère de l’Environnement et de la Faune du Québec* (MEF)

Section 48 (installation of apparatus or equipment to prevent, reduce or stop emissions of contaminants into the atmosphere) are often requested at the same time as the C of A.

In Quebec, the Directive 019 (March 2012) is used by the MDDELCC in order to provide guidelines to assess mining projects regarding mostly the management of water, tailings and waste rock and the protection of surface and groundwater. It also gives tools to characterize mine wastes and gives criteria for any water effluent released to the environment.

Mining Act

The Mining Act, RSQ, c M-13, covers different aspects of any mining activities. Regarding the environmental aspects, it covers mostly the reclamation of mine sites. It states that the holder of mining rights must restore the lands on which exploration and development activities have been carried out. Focus Graphite will have to submit a mine closure plan (**"MCP"**) according to the *Ministère de l'Énergie et des Ressources naturelles* **("MERN")** guidelines and this MCP will have to be approved by the MERN after a review by the MDDELCC.

The MCP will address the cost that will be required to reclaim the entire mine site including the removal of infrastructure, the reclamation of mine wastes (waste rock pile and tailings management facility) and a budget for the environmental follow-up. A financial guarantee covering all of the reclamation work will be given to the MERN covering 100% of the total mine closure cost over a three-year payment schedule.

Other Laws and Regulations

Other provincial laws and regulations pertain to the obligation of obtaining permits, licences or authorizations applicable to both the construction and operational phases of the project. The laws and regulations that could potentially apply to the project include:

- Regulation Respecting Pits and Quarries;
- Groundwater Catchment Regulation;
- Sustainable Forest Development Act;
- Act Respecting Threatened or Vulnerable Species;
- Act Respecting the Conservation and Development of Wildlife; and
- Watercourses Act.

b) Canadian Regulatory Framework

The federal government has also adopted several environmental laws and regulations that could cover mining activities such as those for Focus Graphite's Lac Knife project.

An EIA process also exists under the Canadian Environmental Assessment Act, 2012, SC 2012, c. 19. However, because of its technical and environmental specifications, the Lac Knife project is not submitted to the federal process.

Nevertheless, other federal laws and regulations pertain to the obligation of obtaining permits, licences or authorizations applicable to all phases of the project. Laws and regulations that could potentially apply to the project include:

- The Fisheries Act,
- The Migratory Birds Regulations; and
- The Species at Risk Act.

20.2.2 Municipality (Regional County Municipality)

The project site is located within the un-organized territory of *rivière Mouchalagane* in the RCM of Caniapiscau. According to the land use plan, no request for a change in zoning is required.

20.3 Environmental Studies

The following sections summarize the environmental setting surrounding the Lac Knife Project.

20.3.1 General Setting

The Lac Knife project is located in the Côte-Nord region, approximately 30 km south of the city of Fermont, QC. The project sits in the spruce-moss domain (MRNF, 2012), which has a subarctic climate. The climate is characterized by long cold winters and short cool summers. Based on Fermont's meteorological station, monthly mean temperatures range from -22.1 ^{o}C to 13.5 ^{o}C (MDDEP, 2012b). The average precipitation is around 535 mm of rain and 290 cm of snow per year.

The region is characterized by a topography dominated by hills. The valleys are mostly covered by bogs with numerous small streams.

20.3.2 Physical Environment

a) Hydrogeology and Groundwater Quality

The hydrogeological context at the Project site is characterized by the presence of two main hydrostratigraphic units: variable thickness glacial overburden materials (mainly moraine and locally from alluvial origin) composed of fine to coarse sand with traces of gravel and fractured paragneiss bedrock of the Menihek Formation (rich in graphite in the open pit area).

Based on available information, the regional groundwater flow is radial from the location of the proposed open pit and concentrator area towards the east and southeast to Lac Knife, and towards the west and southwest to the *rivière aux Pékans*. The estimated hydraulic conductivities range from $7x10^{-7}$ and $1x10^{-5}$ m/s for the overburden and from $1.5x10^{-9}$ and $5.1x10^{-6}$ m/s for the bedrock.

Groundwater has been analyzed at several locations since 2012 and it was generally of good quality with manganese, copper and the total phosphorous content being relatively high in some wells.

b) Hydrology and Surface Water Quality

Several lakes and streams are present within the project site. The most important water bodies and watercourses are Lac Rainy, farthest from the project site, Lac Knife and *rivière aux Pékans*. Most of the lakes are shallow; only three lakes show depths greater than 10 m. The *rivière aux Pékans* is an affluent of the *rivière Moisie* which is downstream of the project.

Surface water quality samples were collected in several watercourses and water bodies in 2012 and 2013. Natural concentrations of most metals are low (often below the detection limit) with aluminium, calcium, copper, lead, tin and zinc being slightly above surface water criteria.

20.3.3 Biological Environment

a) Vegetation and Wetlands

The project site is located within the subdomain of the eastern boreal spruce-moss as part of the spruce-moss domain. Black spruce (*Picea mariana*) and balsam fir (*Abies balsamea*) are the dominant species, whereas the tamarack (*Larix laricina*) are frequently associated with black spruce in bogs and fens (MNR, 2012). Wetlands are generally small in size, and sphagnum swamp is the most extensive wetland type in both sectors.

Six species of plants with special status were identified as having the potential to be present at the project site. However, none of these species was observed during the rare plant survey.

b) Mammals

According to the species ranges, 4 species of large mammals, 15 species of small mammals, 12 species of micromammals and one bat species could potentially inhabit the project site. Of these, four species with special status could potentially use the project site area based on their ranges, but only two species with special status, the woodland caribou (*Rangifer tarandus*) (forest-dwelling ecotype) and the little brown bat (*Myotis lucifugus*), were confirmed to inhabit the area (Groupe DDM, 2014).

Woodland caribou comprise three distinct ecotypes: the tundra ecotype (also called "migratory caribou"), the forest-dwelling ecotype (also called "sedentary caribou") and the mountain caribou. Only the tundra ecotype and the forest-dwelling ecotype could potentially inhabit the project site. The tundra ecotype has no legal status but the forest-dwelling ecotype is designated vulnerable under the Act Respecting Threatened or Vulnerable Species and threatened under the Species at Risk Act.

Based on data from the MDDELCC[6], the tundra caribou seems to have ceased to frequent forest stands of the Fermont area during winter. This ecotype has moved further north in the area of the Caniapiscau and Smallwood reservoirs. Land users confirmed not having seen caribou during the winter for several years. Small isolated forest-dwelling caribou groups could use the project site. A network of caribou trails near the project site was observed during an aerial survey in 1988 (Gingras et al., 1989). At least five incidences of caribou were recorded between 2011 and 2013 in or close to the project site (Groupe DDM, 2014). Observations suggest that it is possibly individuals of the forest-dwelling ecotype using the project site area. Forest-dwelling caribou primarily use mature black spruce forests and, to a lesser extent, balsam fir, but avoid disturbed habitats such as logging and recent burns.

A little brown bat was reportedly observed by local residents in the project area. This species is designated as endangered by the Committee on the Status of Endangered Wildlife in Canada but has no status under the Species at Risk Act. Based on interviews with local users, this species spends the summer in the old exploration camp at the south end of Lac Knife (Groupe DDM, 2014).

From the 15 species of small mammals potentially using the site, 11 species are considered fur animals under Schedule 0.1 of the Regulation respecting trapping and the fur trade. The most frequently trapped species on the fur-bearing animal management unit that includes the project site are the American marten (*Martes americana*), weasels and ermines (*Mustela sp.)*, red fox (*Vulpes vulpes)*, beaver (*Castor canadensis*) and mink (*Martes americana).*

c) Birds

Seven bird species having special status could potentially inhabit the project area based on species ranges. Preferred habitats for these species are limited within the project site which reduces the probability of their presence. Only two special status species were observed during the surveys: the olive-sided flycatcher (*Contopus cooperi*) and the rusty blackbird (*Euphagus carolinus*). These species are classified as likely to be designated as threatened or vulnerable under the Act Respecting Threatened or Vulnerable Species. Also, the olive-side flycatcher is classified as threatened and the rusty blackbird as a special concern under the Species at Risk Act.

The fieldwork within the project site area allowed for the observation of 32 species of forest birds, including 31 species considered possible, probable or confirmed breeding birds; six species of aquatic birds, five of which are considered breeding birds; and two species of birds of prey. Birds of prey that were observed were the osprey (*Pandion haliaetus*) and the great horned owl (*Bubo virginianus*).

[6] Available at : http://www.mddelcc.gouv.qc.ca/faune/cartes-caribou/cartes.htm

Amphibians and Reptiles

According to the amphibian and reptile ranges in Quebec, six species of amphibians potentially inhabit the project site (no reptiles). These species are common and widespread in Quebec. Three amphibian species were observed during fieldwork, being the American toad (*Anaxyrus americanus americanus*), the wood frog (*Lithobates sylvaticus*) and the mink frog (*Lithobates septentrionalis*). None of the species of amphibian observed or potentially occurring within the project site has a particular status under provincial or federal jurisdictions.

d) Fish

A total of 13 species were captured during the fish community survey:

- Brook trout (*Salvelinus fontinali*s);
- Burbot (*Lota lota*);
- Lake chub (*Couesius plumbeus*);
- Lake trout (*Salvelinus namaycush*);
- Lake whitefish (*Coregonus clupeaformis*);
- Longnose dace (*Rhinichthys cataractae*);
- Longnose sucker (*Catostomus catostomus*);
- Minnows sp;
- Mottled sculpin (*Cottus bairdi*);
- Northern pike (*Esox lucius*);
- Pearl dace (*Semotilus margarita*);
- Round whitefish (*Prosopium cylindraceum*); and
- White sucker (*Catostomus commersoni*).

No special status species of fish potentially inhabit the project site area.

Brook trout is the dominant species in most lakes. Four species were captured in the *rivière aux Pékans*: northern pike, longnose sucker, white sucker and lake whitefish.

A potential spawning ground for brook trout was identified in the northern portion of lac Knife. No potential spawning ground for brook trout was identified in the *rivière aux Pékans* in the vicinity of the project site.

e) Protected Areas

A proposed aquatic reserve, the *rivière Moisie* aquatic reserve, surrounds the southern, western and northwestern borders of the project site. The proposed aquatic reserve covers an area of 897.5 km². It consists of a corridor including the main river bed and a large band of its immediate watershed as well as the *rivière aux Pékans*.

Although the project site is not located within the proposed reserve, it is noted that the main prohibited activities on a territory with an aquatic reserve status, under the Natural Heritage Conservation Act, are the following:

- Mining, and gas or petroleum development;
- Forest development activities within the guidelines of the Sustainable Forest Development Act (Chapter A-18.1);
- The development of hydraulic resources and any production of energy on a commercial or industrial basis.

20.3.4 Social Environment

a) Land Use

The project site is located within the un-organized territory of *rivière Mouchalagane* of the Caniapiscau Regional County Municipality. Fermont is the closest municipality to the project at about 30 km to the north.

Land use in the vicinity of the project site is mainly recreational, as evidenced by the presence of public land leases for camps and cabins. None of the camps are located within the project site itself; the closest is located at about 1 km to the north. People also use the project site for snowmobiling and all terrain vehicles use. The Fermont snowmobile club trail network includes one trail that goes down through an old exploration camp built during the eighties on the southern shore of Lac Knife. Land use also includes hunting, fishing, trapping and canoeing. Downstream of the *rivière aux Pékan*s, the *rivière Moisie* is a major salmon river with important tourism and fishing activities.

The land use by First Nations investigation is currently ongoing with the Grégoire family and the ITUM band council.

b) Socio-economic

The project site area is inhabited by people occupying either camps or cabins. As previously mentioned, the nearest municipality is the town of Fermont with a population of approximately 2,900 people the majority being non Aboriginal.

Fermont (French contraction of “Fer Mont”, meaning “Iron Mountain”) was founded as a company town in the early 1970s to exploit rich iron ore deposits from, that is located west of the project area. Fermont is highly dependent on the iron ore mining industry. ArcelorMittal (Mont Wright) and Cliffs Natural Resources (Lac Bloom) are the main employers in Fermont.

The Iron Ore Company of Canada and Wabush mines have operated in the Labrador City and Wabush area since the 1960’s located nearby in Labrador.

The other sectors of activities (e.g., manufacturing and retail industries, and health care services) are strongly linked to support the mining industry.

c) Archaeology

As part of the environmental and social study aspects of the project, an archaeological potential study was conducted in 2012. No site with archaeological potential is located within the project site. The closest archaeological site is located near the *rivière aux Pékans* at about 9 km south of the project site.

20.4 Preliminary Identification of Potential Impacts

The EIA is underway and not completed. The assessment presented below is qualitative and only presents a preliminary identification of the main potential impacts based on the interactions between the project and the surrounding environment. These impacts will be assessed in more detail during the preparation of the EIA

At first sight, the potential impacts of the project are reduced by the relatively small size of the open pit mine and other project infrastructure footprints. The main potential challenge will be associated with the location and design of the tailings and waste rock management facilities and water management, but Focus Graphite is conducting studies to select the best environmental, social and technical option.

20.4.1 Physical Environment

The main potential impacts anticipated for the physical environment are briefly described below.

Local hydrology will be changed because of the project infrastructure and some small water courses might be lost. The open pit mine activities will require dewatering and will potentially draw down or lower the water table near the open pit area. The water table drawdown zone could reach Lac Knife, but it is anticipated that the amount of groundwater to be pumped to complete dewatering would be minor compared to the water input. The effluent will have to meet the provincial requirements (Effluent discharge objectives and Directive 019). The tailings management facility should be designed such as to avoid impacts on surface water and groundwater.

The local air quality will potentially be affected by contaminants and dust during the mine construction and operation. Atmospheric emissions from exhaust of engines, vehicles and heavy equipment will be the main sources of contaminants. Dust will be generated from a multitude of sources including vegetation clearing, erosion during the creation or upgrading of new road sections and the placement of installations, the movement of vehicles, loading, unloading of material, mining, blasting, crushing, processing or wind erosion on waste rock piles and in the tailings management facility area. Air disperion modelling will be completed to assist in evaluating the effect of the project on air quality and dust levels. Emissions will have to meet the Clean Air Regulation requirements that establish, notably, the emission standards and monitoring measures to prevent, eliminate, or reduce the emission of contaminants into the atmosphere.

The project will change the noise and vibration level in the areas surrounding the mining infrastructure. Sources of noise during the mine construction and operation include the use of machinery, vehicles, drilling, blasting and crushing of the ore. Focus Graphite will keep a register of data related to blasting in order to comply with the provincial requirements (Directive 019; MDDEP, 2012a). Noise modelling will be conducted to assess the magnitude and geographical extent of this impact.

20.4.2 Biological Environment

Some vegetation and wetlands will be lost by clearcutting in the immediate project area prior to construction of the new infrastructure at the open pit mining site, the concentrator, the tailings management facility site, and the widening of the access road and other associated infrastructure. Most of the vegetation lost will be from forest land. Clearcutting will be limited to predefined sectors and, as much as possible, disturbed areas will be used to implement infrastructure and minimize habitat loss. The project design will avoid wetland areas for road construction to the greatest extent possible. Other mitigation measures will also be put in place to minimize impacts on vegetation and wetlands.

Clearcutting and implementation of infrastructure will locally reduce the available habitats for mammals, amphibians, and birds. Generally, most of the affected habitat types are common in the surrounding areas of the project site. Mitigation measures will be put in place to minimize the impacts. However, the old exploration camp that is inhabited by bats will potentially be removed. An evaluation of the benefits for this species of keeping the old camp or removing and putting in place mitigation measures such as bat boxes will be considered.

New elements such as noise, lighting, dust and vibrations may cause a disturbance for terrestrial fauna and birds. The increase of noise and the presence of workers will potentially change the use of the territory by fauna. Some species will avoid the area, notably because of noise and light intensity. Another cause of potential impacts is vehicle-animal collision. As more vehicles travel on the access road, there is the possibility of a collision with an animal.

Some fish habitats will potentially be lost or modified from the installation of infrastructure and the release of effluent. However, it is expected that the loss of habitat will be minor. This impact will be assessed in detail during the EIA. Mitigation and compensation measures will also be implemented, as required.

20.4.3 Social Environment

Three public land leases for camps and cottages are found close to the project site at the North end of the Lac Knife). Clearcutting and implementation of new infrastructure will modify land and resource use within the project footprint. As previously mentioned, no camp or cottage is located within project site or will need to be moved. However, the access to a few camps or cabins will have to be modified as part of widening the access road to the project area.

Land-based activities that could be somehow impacted within the project site include trapping and canoeing in addition to hunting and fishing. Restrictions will be applied to the mine site for safety reasons.

The Caniapiscau RCM is heavily dependent on the iron mining industry and lacks economic diversity. The project operation will take place over a period of about 25 years and up to 200 workers will be employed for the project during the construction phase. Once in operation, the project will employ around 80 people. The development and operation of the mine will directly and indirectly have positive impacts on employment, training, and investment opportunities at the local and regional levels.

20.5 Monitoring and Follow-up Programs

Details of the environmental monitoring and follow-up programs will be developed as the project details are finalized and the EIA progresses.

The objective of the environmental monitoring program will be to ensure that the project will meet all relevant and applicable legislation and regulatory requirements, and the conditions to be set out in the governmental decree. The program will also aim to ensure that the commitments and mitigation measures presented in the EIA are fulfilled and optimized, if necessary or possible.

The objective of the environmental follow-up program will be to verify the accuracy of predictions presented in the EIA and to ensure the effectiveness of the mitigation and improvement measures. If required, corrective measures can also be proposed and applied during the environmental follow-up program, to meet the environmental standards and to ensure the protection of the environmental components within the study area.

20.6 Waste Rock, Ore and Tailings Characterization and Management

20.6.1 Waste Rock, Ore and Tailings Characterization

During 2014, Focus conducted a geochemical characterization study of ore, waste rock and tailings samples.

Quartz-feldpars-biotite gneiss with local garnet and kyanite is the principal lithological unit that hosts the deposit and is likely to end up in waste rock stockpiles. The geochemical characterization of this unit was done using static tests. Samples of drill core and mineral processing rejects were tested following the characterization program guidelines proposed by the *Ministère du Développement Durable, de l'Environnement et de la Lutte contre les Changements Climatiques* (MDDELCC*; Directive 019 sur l'Industrie minière, 2009*). Some additional tests were completed to identify chemicals that could be leached under different conditions.

The geochemical characterization program had two objectives:

- Classify the waste rock and the tailings according to the MDDELCC standards for acid rock drainage (ARD) and leachability in order to identify the surface disposal requirements;
- Identify chemicals that could potentially affect future surface water quality.

In all, a total of 34 waste rock samples, 8 ore samples and 6 tailings samples were collected and tested for geochemical analysis. The sampling protocol used as well as detailed results may be found in *Lamontagne, 2014*.

Geological cross-sections through the deposit were reviewed in order to select drill hole sample intervals that would be used to characterize the vertical and spatial variability of the lithological rock unit that will be extracted and stockpiled as waste rock from the open pit. The sampling plan was specifically designed to target the material that will be stored in the waste rock stockpile, that will be exposed in the final pit walls, and the material that will be sent to the mill to be processed (ore). The sample intervals were specifically selected to lie within the proposed open pit shell outline. The six (6) tailings samples produced from metallurgical pilot plant tests were derived from ore recovered from exploration and definition drillcore.

The potential that the mine waste rock and concentrator tailings material has to generate acid rock drainage (ARD) was evaluated through Modified Acid Base Accounting (MABA). Results of 34 samples of waste rock and 8 samples of ore taken in the drill holes show that most of them contain sulphides with almost no neutralisation potential. The majority of the waste rock samples (85%) show a potential for acid generation. Out of these samples, a total of five (5) can be classified as non acid generating, their total sulfur content being below the 0.3% threashold. Results indicate that all ore samples show a potential for acid generation with all of these samples having a total sulfur content above 2.12%. Concentrator tailings reported a potential to generate ARD as well.

The average values of all samples show that acidic drainage could occur during the time of weathering exposure during the mine life. Static tests done on the tailings showed that they are also acid generating.

Samples of waste rock, ore and tailings have also been tested for their metal leaching (ML) potential. Static tests under the Quebec Directive 019 that is used to characterize the metal leaching potential of rock materials consists of trace metals analysis (MA.200 – Mét. 1.2) combined with a short-term leaching test: the Toxicity Characteristic Leaching Procedure test (TCLP - EPA Method 1311 (1992)). An additional short-term leaching test that was conducted to characterize the ML potential of both the Lac Knife waste rock and ore: the Shake Flask Extraction test (SFE - ASTM D3987). The SFE tests use distilled or deionized water to determine water-leachable constituents of waste rock and ore. For the tailings, in addition to the TCLP test, two additional short-term leaching tests were conducted: the Synthetic Precipitation Leaching Procedure test (SPLP - EPA Method 1312 (1994)) and the Equilibrium Extraction test procedure (CTEU-9, Environment Canada, 1991). The SPLP tests simulate natural acid-rain-type conditions of water pH of 4.2 using sulphuric and nitric acid and the CTEU-9 used deionized water to evaluate the leachable constituents.

According with definition of Quebec's Directive 019, the waste rock is not leachable, the ore is leachable for zinc, and the tailings are leachable for cadmium and zinc in accordance with the TCLP test results. Although, the TCLP test uses an organic acid (acetic acid) as the leaching solution, it is not necessarily representative of the leaching conditions that would be at the Lac Knife site. Results from other more representative tests (SFE, SPLP and CTEU-9) indicate that the waste rock, the ore and the tailings did not show average exceedances of any parameters.

20.6.2 Waste Rock, Ore and Tailings Management

a) Waste Rock Management

Most of the waste rock from Lac Knife mining activities has a potential to generate acid rock drainage. As a mitigation measure, run-off from the waste rock stockpile will be ditched and directed to the tailings pond for testing prior to release to the environment or further treatment if required. However, the waste rock will not be leachage and will the stockpile will not be lined.

b) Ore Stockpile

Most of the ore from Lac Knife mining activities have a potential to generate acid rock drainage. The ore stockpile will be lined with a membrane and run-off will be ditched and returned to process plant.

c) Tailings Management Facility

The tailings have a potential to generate acid rock drainage and leachate. As a mitigation measure, the base of the tailings and polishing ponds will be lined with a membrane. In order to ensure long-term control of the quality of the final effluent from the tailings pond, provision for a water treatment plant is made in the project. This water treatment plant will have a capacity of approximately 50 m^3 per hour in order to manage average yearly precipitation that will need to be discharge some months of the year. The tailings pond freeboard will be designed to contain extreme precipitation.

20.7 Mine Closure and Rehabilitation

As stipulated in the current Mining Law, a rehabilitation plan will have to be prepared. The rehabilitation and restoration plan will have to be developed in accordance with the provincial Guidelines for preparing a mining site rehabilitation plan (MRNF and MDDEP, 1997).

Québec Mining Law as been updated recently and additional means to ensure the restoration of mining sites were enforced. The total amount of the rehabilitation costs have been increased to 100% and that the security payment schedule was accelerated into 3 payments (50%, 25% and 25% of total costs) with half of the cost having to be secured before the start of the operation.

The closure plan, that needs to be approved before the onset of the operations, will need to address the following items:

- Securing the mining area;
- Dismantling the infrastructures;

- Reclamation of waste rock disposal areas;
- Reclamation of tailings management facility;
- Contaminated waste characterisation and disposal;
- Waste water management;
- Emergency plan and monitoring.

Closure plan costs have been estimated based on the rehabilitation of the tailings disposal area and the waste rock disposal area

20.7.1 Closure Costs

The closure cost estimate is based on capping the tailings pond with an impermeable cover to limit infiltration and on the re-vegetation of the overburden layer that will cover the waste rock stockpile. The overburden stockpile will be re-vegetated.

The following rehabilitation designs based on the environmental characterisation results of the leaching tests have been used to develop closure costs:

- Overburden Stockpile: re-vegetation;
- Waste Rock Stockpile: 60 cm overburden and re-vegetation; Waste Rock Stockpile: 60 cm overburden and re-vegetation;
- Tailings Pond: geomembrane with protective layers of overburden, overburden layer and re-vegetation.

Table 20.1 indicates the areas of the tailings storage facility and stockpiles that were used to prepare the estimate.

Table 20.1 – Accumulation Areas for Stockpiles and Tailings Storage Facility

Accumulation Areas	Area (ha)
Tailings Pond	31.6
Waste Rock Pile	22.5
Overburden Pile	12.5
Ore stockpile	1.0

The open pit will be gradually fill with water through underground seepage until it eventually reaches the water table level. Whenever possible, diverted streams will recover their original flow paths.

The closure cost also includes restoration of the project infrastructure.

The site rehabilitation and closure plan will be reviewed as the project advances through Detailed Engineering and Construction stage to include any design changes and to include re-vegetation site parcel studies to assess plant growth potential.

21.0 CAPITAL AND OPERATING COSTS

The Project scope covered in this Study is based on the construction of a green field mining and processing facility with an average mill feed capacity of 323,670 tonnes per year of ore and producing 44,300 tonnes per year of graphite concentrate.

The capital and operating cost estimates related to the mine, the concentrator, and all required facilities and infrastructure have been developed by Met-Chem or consolidated from external sources.

The capital and the operating costs are reported in Canadian Dollars ("**$**").

21.1 Capital Cost

21.1.1 Capital Cost Summary

The capital cost estimate consists of the direct and indirect capital costs as well as contingency. Provision for sustaining capital is also included, mainly for tailings storage expansion. Amounts for closure and rehabilitation of the site and required working capital have been estimated as well.

a) Pre-production initial capital cost

The pre-production initial capital cost for the scope of work is $ 165.6 M, of which $ 108.7 M is direct cost, $ 39.8 M is indirect cost and $ 17.1 M is contingency.

A provision of $ 17.4 M is also required for sustaining capital as detailed in the following table; this provision excludes the amounts for closure and rehabilitation of the site and working capital.

Table 21.1 presents a summary of the pre-production initial capital and the sustaining capital costs for the Project.

Table 21.1 – Summary of the Investment Capital Costs Estimate

Description	Pre-production Initial Capital Costs $ M	Sustaining Capital Costs $ M	Total Investment Capital Costs $ M
Direct Costs			
Open pit mine	4.2	0.1	4.3
Process	69.3	0.5	69.8
Tailings Storage	8.2	16.8	25.0
Power and Communication	15.4		15.4
Main Road and Access	4.8		4.8
Infrastructure	6.9		6.9
Sub Total Direct Cost	**108.7**	**17.4**	**126.1**
Indirect Costs			
Project Development	0.5		0.5
EPCM	12.0		12.0
Owner's Costs	10.6		10.6
Personnel and Contractor's logistics	16.7		16.7
Sub Total Indirect Cost	**39.8**		**39.8**
Contingency	17.1		17.1
Total	**165.6**	**17.4**	**182.9**

The totals may not add up due to rounding.

b) Closure and rehabilitation costs

Based on site layouts, a provision of $ 7.76 M was estimated for the closure and rehabilitation of the mine site. Requirements were established and cost estimation was based on material take-off and unit rates from recent database.

The expenses were accounted for in the economic analysis according to the most recent Québec legislation as follows: $ 3.88 M will be spent as pre-production capital while $ 1.94 M will be spent in each of the 1st and 2nd year of production.

No provision is required for the dismantling and disposal of the industrial facilities as it is assumed that the costs will be compensated by the salvage value.

c) Working Capital

Requirements for Working Capital were estimated as three (3) months of operating expense to be maintained throughout the production period. A provision of $ 4.8 M is required at start of production and accounted for in the economic analysis.

21.1.2 Scope of the capital cost estimate

The capital cost estimate includes the material, equipment, labour and freight required for the mine pre-development, some mine service equipment, mine services and facilities, processing facilities, tailings storage and management, as well as all infrastructure and services necessary to support the operation.

The estimate is based on Met-Chem's standard methods applicable for a feasibility study to achieve an accuracy level of ± 15%. The effective calendar date for the cost estimate is Q2 2014. The estimate is expressed in Canadian dollars.

a) Major Assumptions

Cost estimation is based on the Project obtaining all relevant permits in a timely manner to meet the Project schedule.

Hydro-Québec will provide the permanent power line in month 5 of construction for use as construction power, while in the meantime temporary power will be available from diesel generators.

b) Major Exclusion

The following items were not included in this capital cost estimate:

- Provision for inflation, escalation, currency fluctuations and interests incurred during construction is excluded;
- Project financing costs is excluded;
- All duties and taxes are excluded from the capital cost, but are considered in the economic analysis.

21.1.3 Basis of Estimate for Direct Capital Cost

a) Currencies

Updated indices were used for quotations received before Q2 of 2014. The exchange rates used when quotations were received in foreign currencies are 1.00 CAD / 0.91 USD and 1.00 CAD / 0.66 EUR.

b) Material take-off and unit rates

All quantities generated for the estimate are mainly based on engineering material take-off (MTO) and deliverables which exclude contingencies of any kind. A design growth allowance of 10% for concrete and steel quantities only have been considered at the engineering level; no additional allowance for growth with respect to quantities and or pricing has been added at the estimation stage.

Based on quantities for each item, budget proposals for unit rates were obtained from qualified contractors for earthwork, concrete, structural steel and building cladding. The unit rates include the material, transportation, construction equipment and direct labour as described below. Budget provision for contractor's

Mob/Demob and site management were also provided separately on the same basis and are accounted for in indirect costs as described further below.

c) Construction Labour, Productivity Loss Factor

For works other than earthwork, concrete, structural steel and building cladding, the labour costs were estimated based on man hours and hourly rate as follows: the labour rate was developed for a typical crew from detailed tables of current rates developed by the *Corporation des Entrepreneurs Généraux du Québec* and the *Association de la construction du Québec.* The all-inclusive hourly rate includes the basic hourly rates for the tradesman, social benefits and employer's burden, industrial site premium as required, direct supervision, small tools, personal protection equipment, consumables, and contractor's overhead and profit. Indirect supervision and site establishment as well as contractor's mobilization/demobilization are excluded from the hourly rate but are provided for as indirect costs in the construction contractor's site management provision as described further below.

The productivity loss factor was established in consideration of the working calendar, the work rotation, the climatic conditions and remoteness of work site.

The working calendar was defined as one (1) shift per day, ten (10) hours per shift and seven (7) days per week for a total of 70 hours per week, and a rotation of three (3) weeks in and one (1) week out. Consequently, the hourly rate is established at $ 130 and productivity loss factor at 1.15.

Surveys showed that sufficient lodging would be available in Fermont or nearby; therefore, no construction camp is required and the Quebec construction regulations would apply. The provision for per diem allowances to cover room & board and traveling of workers is included in indirect costs as described further below.

In addition to the labour cost, a construction allowance based on delivered equipment cost was established from similar projects to cover for construction material, sub-contract and mobile cranes to be paid by the Owner; the middle range factor of 5.0% is applied.

General survey was performed with major qualified contractors to validate the basis for cost estimation of labour.

d) Contracting strategy and Contractor's Costs: Mob/Demob & Site Management

Provisions have been included in the indirect costs for contractor's mob/demob and site management to cover for contractor's major equipment and supplies, including owned and rented construction equipment, vehicles and other facilities such as trailers, tool cribs, power panels, containers, maintenance of area, janitorial and clean-up. Special installation tools, cranes, scaffolding, cribbing and dunnage were also included as well as work place weather protection. Workers transportation within the construction site is also included.

Provisions also cover for construction contractor's site management including supervision and support staff such as administration and procurement, coordination and scheduling, quality and safety.

The estimate is based on the assumption that construction contracts will be attributed on the base of a competitive bidding process amongst qualified contractors. Availability of local qualified contractors and skilled workers is expected. It is also expected that an average level of site management, contract administration, quality control and adequate safety requirements will be required from the contractors by the construction management. A realistic construction schedule is also expected, as well as good site conditions, limited number of contractors on site, limited work outside in winter and also limited work required in overtime.

e) Freight, Duties and Taxes

Based on recent surveys and studies and when not included in the cost, the freight was accounted for by adding a factor to the value of the goods; a factor of 12.0% is applied.

All duties and taxes were excluded from the capital cost, but relevant factors were considered for the after tax economic analysis.

f) Mining

The direct capital cost for the mine has been estimated using the following basis:

i) Mine Equipment

The direct capital cost for the mine covers the purchase of three (3) pick-up trucks. The cost is based on supplier pricing. The estimate does not include heavy mine equipment since the mining operation will be carried out by a contractor.

ii) Mine Development Cost (Contractor)

The mine development cost attributed to the contractor accounts for the activities that will be carried out during the six (6) month pre-production period to prepare the mine for operations. These activities include; clearing and grubbing, topsoil removal, overburden stripping and the preparation of several ore faces. The mine development cost is based on unit pricing that was received from several local mining contractors. The unit prices were applied to the quantities for each activity.

iii) Mine Development Cost (Owner)

The mine development cost attributed to the owner covers the salaries during pre-production of the three (3) employees whose roles will be to supervise the mining contractor and to complete the tasks related to mining engineering and geology.

iv) Mine Haul Road Construction

The direct capital cost for the mine includes the construction of 1,500 m of mine haul roads. These roads connect the pit to the crusher as well as the waste rock pile and overburden stockpile.

v) ROM Stockpile Membrane

Since the ore has the potential to be a generator of acid, the capital cost for the mine includes a provision to install an impermeable membrane at the base of the ore stockpile.

g) Process

The process facilities include the crushing plant, the concentrator and the dry products handling as well as some ancillary facilities, services and systems such as reagents and flocculants preparation and distribution, compressed air, fresh water and also tailings and water reclaim systems.

i) Process Buildings and facilities

The crushing plant is enclosed in a light structure fabric building. Based on preliminary design and requirements, a budget proposal was obtained from a qualified supplier and benchmarked with recent similar projects. The proposal includes all required services and accessories. The foundation as well as access platforms and crushing equipment structure and foundation cost estimation was based on material quantity take-off derived from preliminary design and budget unit prices from qualified contractor.

The process building includes the concentrator area, the product handling and storage area, some control and electrical rooms as well as the laboratory, the mechanical shop, some offices, a dry facility and lunch room. The cost for the process buildings was estimated based on quantity take-off from mechanical layouts and unit cost obtained from qualified contractors. The cost estimation for interior finishes, tools and storage racking, furniture, accessories and supplies was based on preliminary requirements and budget prices from industrial catalog or in-house database. All services were estimated as described further below.

ii) Process Equipment

The process equipment list was derived from the flow sheets. For major equipment, based on data sheets, data tables or technical description, budget prices were obtained from qualified suppliers for more than 80% of the value. The remaining equipment was estimated from databases from recent similar projects or in house cost estimation.

Labour for installation of process equipment was estimated for each piece of equipment based on in house database or industrial publication. Provision was also added by factor to cover for special lift, sub-contract or construction material.

iii) Piping and Pipelines

Process piping cost was established by factorisation on delivered process equipment based on recent similar projects. The tailings and water reclaim pipelines were estimated by sizing of the lines and unit prices from recent industrial cost estimation tables.

iv) Electrical

Electrical equipment list and quantities were derived from the single line diagrams. Budget prices were obtained from qualified suppliers for major equipment or based on databases from recent projects. Quantities and costs for material as well as man-hours were also established based on recent similar projects. Installation was estimated using hourly rate as described above.

v) Instrumentation

Instrumentation and automation material and equipment quantities were derived from the flow sheets. Budget prices were established based on databases from recent projects. Installation was estimated using hourly rate as described above.

vi) Buildings Services and Supplies

Requirements were established for HVAC and Fire Protection; cost estimation was based on budget proposal obtained from qualified suppliers.

Preliminary requirements were also established for some tooling and storage racking, interior finishing and living quarter's supplies. Cost estimation was based mainly on recent industrial catalogues and also on in-house database.

h) Tailings Storage and Management Facilities

The tailings storage site was identified based on requirements and a design was performed. Material quantities were derived from the drawings and cost estimation was based on unit rates from recent similar projects.

i) Power Supply, Main Sub-Station and Communication Tower

Requirements were established for the main power line and the cost was estimated based on the planning study estimate by Hydro-Quebec.

Based on the power demand and site layout, requirements were established for the main sub-station and for the site distribution power lines. Equipment budget prices and costs for material and installation were established based on qualified suppliers budget proposal and in-house database from recent similar projects.

Requirements were also established for emergency power supply. A budget price was estimated based on qualified supplier budget proposal.

Requirements were also established for communication needs and costs estimates for a communication tower were based on budget proposal from qualified supplier.

j) Main access to mine site and site roads

The estimate for the construction costs required for the main road to the mine site is based on the result of a scoping study completed by BBA in the fourth quarter of 2013 to evaluate the potential site access road and provide the cost estimate.

Other site roads to the tailings pond, to the explosive magazines and to the fresh water supply are also included. The unit cost derived from the above estimate and factored to account for reduced requirements was used to estimate the cost of the site roads.

k) Infrastructure: Site Preparation and Drainage

Site Preparation and Drainage include clearing and grading of the industrial site as well as drainage ditches and collection ponds for water management. Required area is available for vehicles parking.

Cost estimates were established based on quantities derived from general layouts and budget unit price based obtained from qualified contractors or in-house database.

l) Infrastructure: Ancillary Buildings, facilities and service vehicles

Ancillary buildings and facilities include the Gate House, the Administration Building, a Cold Warehouse, containers for products storage and service Vehicles. A designated area is also provided for the mine vehicle garage to be installed by the mining contractor.

Requirements were established for the administration building and the gate house and budget proposal were obtained from a qualified supplier. The proposal includes all required services, equipment and furniture.

The cold warehouse is a light structure fabric building. Cost estimation is based on a budget proposal obtained from a qualified supplier. The proposal includes all required services and accessories. The foundation cost estimation was based on material quantity take-off derived from preliminary design and budget unit prices from qualified contractor.

In consideration of product transport and logistics, requirements were established for products storage on site. Allowance was provided to cover the cost for eighteen (18) containers of 40 foot length.

Requirements were established for Service vehicles and equipment necessary for the operation. An allowance based on budget proposal from qualified suppliers or in-house database was provided for the following:

- Light vehicles include three (3) pick-up trucks and two buses, one (1) 70 passengers and one (1) 30 passengers for daily transport to town.

- Material handling vehicles include one (1) 27 t boom-truck, four (4) fork lift, one (1) scissor lift and one (1) 60 ft articulated manlift.
- Emergency vehicles includes only one (1) rescue truck since the mine site is close to town.

m) Infrastructure: General Services

General Services include the Fuel Station, the Fresh water and Fire Water supply systems and the Sanitary Waste disposal facilities.

Requirements were established for the fuel storage needs. The fuel station includes a 12,000 US gallon tank with unloading, dispensing and all accessories. The cost estimation is based on budget proposals obtained from several qualified suppliers.

Fresh water will be pumped from Lac Knife to feed the process and the fire water tank. The fresh water system includes the pumping station and pumps, the fresh water tank and the distribution pumps to the potable water treatment system, to the process water tank and to the gland seal water tank. One electrical pump and a jockey pump as well as one diesel pump will ensure supply of water to fire protection systems. All equipment is included and estimated with the process equipment while the fire loop cost estimate is included in the fire protection budget proposal as described above.

Sanitary Waste treatment includes the waste treatment package system sized for 100 persons. The cost estimation is based on budget proposal obtained from a qualified supplier.

Solid wastes will be transported periodically to Baie-Comeau.

21.1.4 Basis of estimate for Indirect Costs

a) Summary of Indirect Costs

The indirect cost covers for the following major items as detailed here under: Project Development, EPCM, Owner's costs and Personnel and Contractor's Logistics.

The provisions for indirect costs were established by detailed cost estimation of the items based on requirements and budget proposals from qualified suppliers or contractors, in-house database from recent similar projects or estimated allowances. Provisions for indirect costs are summarized in Table 21.2.

Table 21.2 – Summary of Indirect Costs (Before Contingency)

WBS	Description	Costs ($)
	Indirect Costs	
1100.0	**Project Development**	**475,000**
1200.0	**EPCM**	**12,000,000**
1300.0	**Owner's Costs**	
1300.1	**Spares and Consumables**	**1,570,000**
1300.2	**Dry and Wet Commissioning, Vendor's Rep, Contractor's**	**90,000**
1300.3	**Construction Site Owner's Costs**	**5,928,000**
1300.4	**Owner's Project Services / Project Team**	**2,975,000**
	Owner's Costs Sub-Total	**10,563,000**
1400.0	**Personnel and Contractor's Logistics**	**16,727,000**
	Indirect Costs Total	**39,765,000**

b) Scope and basis of estimation of the indirect costs

Project Development includes provisions for a new club-house for the snowmobile club, independent review of the project as well as for geotechnical and metallurgical studies. Cost estimation is based on allowances established from recent similar projects. No provisions are required for permitting, exploration drilling or condemnation drilling; these expenses are considered as already incurred at this stage of the project.

EPCM includes Detailed Engineering, Procurement and Construction Management as well as Commissioning Assistance and Site Assistance. Estimation of the cost is based on recent similar projects. Transportation and room and board are included in personnel and contractor's logistics below.

Owner's costs include Spares and consumables, dry and wet commissioning; construction site costs owner's costs and owner's project team and services.

- Spares and consumables include Capital and Commissioning Spare Parts, liners and media as well as First Fills for fuels, oil and lubricants. Cost estimation for the spare parts is based on factors, while liners, media and first fills cost estimation is based on requirements and unit costs. No provision is included for mining equipment since the mining will be executed by a contractor.
- Dry and Wet Commissioning includes Vendors Representative and contractor's workers. Cost estimation is based on requirements and unit hourly rates. No provision is included for rework.
- Construction site owner's costs include site power, temporary facilities and a batch plant as well as road maintenance, site security and QA/QC. Cost

estimation is based on requirements and unit costs. No construction camp is required since all lodging will be in nearby towns.

- Owner's project services & project team include site management personnel (namely health and safety personnel, nurse and owner's management team), pre-production operation group (namely production personnel hired before the beginning of production), as well as provision for project insurance, training and manuals. The cost estimation for the site management personnel is based on requirements and unit costs. The cost estimation for pre-production operation group is based on two months of production manpower. The provision for insurance is based on a factor while the provision for training and manuals is based on an allowance.
- It is assumed that legal fees will be covered by corporate and that no bonus to consultants or contractor is required. Also, no provision for royalties or NSR buyout is required. Provision for freight is included in the direct cost as detailed above.

Personnel and contractor's logistics include room and board and on site transportation for all personnel on site during construction as well as contractor's mob/demob and site management costs. The cost estimation for the room and board and transportation is based on personnel requirements on site during construction and the compensation for traveling expenses of the Québec collective agreements general rule for distance more than 120 km.

21.1.5 Contingency

A provision of $ 17.1 M is included to initial capital for contingency, based on the level of development stage of the Project as well as assessment of residual risk listed in the risks register.

In order to meet the budget established for the Project in this estimate, it is expected that sufficiently developed engineering, adequate project management, realistic construction schedule and appropriate controls will be implemented at the realisation stage.

21.1.6 Sustaining Capital Expenditures

A provision of $17,385,000 was estimated for sustaining capital and includes namely:

- $112,500 to replace the service pick-up trucks at Year 11-15;
- $500,000 to install a water treatment plant at Year 3;
- $16,772,000 to gradually expand the tailings storage facilities during the mine life;

For the pick-up trucks, the costs were estimated based on suppliers pricing. For the water treatment plant, a budget allowance was established based on recent similar projects. The cost estimation for the tailings storage facilities expansion was based on quantity take-off and unit prices as for the initial construction.

21.2 Operating Cost

This section provides information on the estimated operating costs of the Project and covers Mining, Processing, Site Services and Administration.

The sources of information used to develop the operating costs include in-house databases and outside sources particularly for materials, services and consumables. All amounts are in Canadian dollars (CAD), unless specified otherwise.

21.2.1 Summary Operating Costs

The life of mine average operating cost estimate, given as dollar per tonne of concentrate, is summarized in Table 21.3.

Table 21.3 – Summary of Life of Mine Average Operating Cost Estimate

Area	Average Operating Cost ($/tonne of concentrate)
Mining	126.95
Processing	239.37
Plant Administration, Infrastructure & Tech. Serv.	74.70
Total Average Operating Costs	441.02

21.2.2 Summary of Personnel Requirements

Table 21.4 presents the estimated personnel requirements for the Project. This workforce is comprised of staff as well as hourly employees. Supervisory personnel as well as the administration employees will work on a 5 days per week basis.

The hourly workforce at the plant will work on rotation to provide 24 hour per day coverage, 7 days per week. It is assumed that all employees will come from the area.

Table 21.4 – Total Personnel Requirement[7]

Area	Number
Mine	3
Processing	59
Management, Administration and Technical Services	19
Total Manpower	81

Total annual costs for the above manpower including base salary, bonus and fringe benefits have been estimated at $ 7.4 M.

The above manpower costs are detailed in the following sections.

[7] Mining contractor operators and staff excluded. Owner supervisory personnel only.

21.2.3 Mining Operating Costs

The mine operating cost was estimated based on budgetary pricing from local contract mining companies. The mine plan was provided to several firms to assist them with their estimate in order to ensure the accuracy of their pricing.

Table 21.5 presents the unit rates that were applied to the tonnages for each period of the mine plan to arrive at the total expenditures for the contractor. These rates include the supply of explosives, equipment maintenance and surveying services.

Table 21.5 – Contractor Rates

Activity	Rate	Units
Drill & Blast Ore	$/t	1.40
Drill & Blast Waste	$/t	2.10
Pre-shearing	$/m^2	35.00
Overburden Excavation	$/t	2.90
Ore Excavation	$/t	3.10
Waste Excavation	$/t	3.00
Pit Dewatering	$/d	760
Road Maintenance	$/y	230,000
Ore Rehandling	$/t	1.5

The mine operating cost also accounts for the salaries that will be paid to the mine's owners team which includes the Mine Superintendent, a Mining Engineer and a Geologist. This team is required to supervise the contractor and to provide engineering and geology support.

Table 21.6 presents a summary of the mine operating costs by type of material.

Table 21.6 – Summary of Estimated Mine Operating Costs by Type of Material

Type of material	Average Annual Cost ($)	Total ($/t mined)	Total ($/t concentrate)	Total (%)
Overburden	387,932	4.32	8.80	7
Ore	2,112,774	6.74	47.93	38
Waste	2,812,937	6.36	63.81	50
Rehandling	282,123	1.50	6.40	5
Total	5,595,766	6.62	126.95	100

21.2.4 Ore Processing Operating Costs

For a typical year, the estimated initial ore processing annual operating costs for the plant production of 44,300 t/y of graphite concentrate are summarized in Table 21.7 which shows the breakdown by the seven major components; labour costs, electrical power costs, grinding media and reagents costs, consumables costs, bagging system costs, material handling costs and spare parts and miscellaneous costs. These costs were derived from supplier information or Met-Chem experience.

Table 21.7 – Summary of Estimated Annual Initial Process Plant Operating Costs

Operating Cost Area	Cost (CA$/year[1])	Cost (CA$/tonne of mill feed[2])	Cost (CA$/tonne of graphite concentrate[3])	Total Costs (%)
Manpower	5,302,483	16.38	119.69	48.7%
Electrical Power	1,403,737	4.34	31.69	12.9%
Grinding Media and Reagent consumption	794,121	2.45	17.93	7.3%
Consumables consumption	1,296,508	4.01	29.27	11.9%
Bagging System	1,683,149	5.20	37.99	15.5%
Material Handling	136,675	0.42	3.09	1.3%
Spare parts and miscellaneous [4]	277,275	0.86	6.26	2.5%
Total Operating Cost	10,893,948	33.66	245.92	100.0%

1) 1 CA$ is one Canadian Dollar
2) Based on Mill throughput of 323 627 tonnes per year.
3) Based on Graphite production of 44 300 tonnes per year.
4) Spare parts estimated as 1.5% of total equipment capital cost.

a) Manpower Costs

In the 44,300 t/y concentrate process plant, it is estimated that there will be 59 employees. This includes the supervision staff for the crusher and process plant, the process plant operations and maintenance, as well as the mechanical, electrical and instrumentation repairmen. The total annual cost for the manpower is estimated at $5.3 million per year (Table 21.7). This corresponds to $119.69 per tonne of concentrate produced.

Table 21.8 – Concentrator Plant Manpower Operating Cost

Area	Number of personnel	Total Cost (CAD/y)	Unit Cost (CAD/t)
Mill Administration	2	244,608	5.52
Mill Operations	30	2,475,717	55.89
Mill Maintenance	18	1,722,858	38.89
Metallurgy	9	859,300	19.40
Total Manpower	59	5,302,483	119.69

b) Electrical Power Costs

In the 44,300 t/y concentrate process plant, electrical power is required for the equipment in the process plant such as: crushers, grinding mills, conveyors, screens, pumps, agitators, bagging system, services (compressed air and water), etc. The unit cost of electricity was established at $0.05/kWh. The total annual cost for the process plant electrical power is estimated at about $1.4 million per year. This corresponds to $31.69 per tonne of graphite concentrate produced.

Table 21.9 – Electrical Process Power Operating Cost

Area	Process Description	Power		Cost	
		Operational (kW)	Consumption (kW-h/y)	Total Cost (CAD/y)	Unit cost (CAD/t)
100	Crushing	429	1,157,040	57,852	1.31
200	Grinding & Flotation	975	7,689,981	384,499	8.68
300	Polishing & Cleaning	405	3,013,038	150,062	3.40
400	Dewatering	1,105	10,020,025	501,001	11.31
500	Dry Screening	116	831,065	41,553	0.94
600	Bagging	52	275,861	13,793	0.31
800	Reagent Systems	38	262,946	13,147	0.30
900	Utilities - Air and Water	633	4,824,779	241,239	5.45
Total		3,791	28,074,735	1,403,737	31.69

c) Grinding Media and Reagent Consumption Costs

In the 44,300 t/y concentrate process plant, the grinding mills will need a regular addition of balls to replace the worn media and exercise proper grinding action on the material.

The media consumption has been estimated based on steel consumption observed in similar operations and the abrasion indices and power consumption.

SAG mill grinding balls are added by an automated system to reduce the grinding ball consumption. In general grinding balls are added every day to maintain the steel load in the mills.

Fuel oil and MIBC are the reagents required for flotation and flocculant is required for thickener operation. Lime will be added to tailings as required.

The total cost for grinding media and reagents for the process plant are estimated at $0.8 million per year or $17.93 per tonne of concentrate produced.

Table 21.10 – Grinding media and reagents cost

Grinding Media and Reagents	Consumption (kg/y)	Price (CAD/kg)	Cost	
			(CAD/y)	(CAD/t)
SAG Mill Balls	272,050	1.31	356,114	8.04
Ball Mill Balls	301,596	1.29	135,232	3.05
Polishing Ceramic Media	16,184	6.05	97,911	2.21
Collector - Fuel Oil	20,391	1.09	22,165	0.50
Frother - MIBC	38,452	4.68	179,765	4.06
Lime	24,318	0.39	9,362	0.07
Flocculant	711	4.13	2,934	0.21
Total			794,121	17.93

d) Consumables Costs

In the 44,300 t/y concentrate process plant, the consumption and cost for the Jaw crusher liners, screen deck panels, grinding mill liners, polishing mill liners, flotation cell wear parts, pump wear parts, filter cloths, dryer wear parts, etc. for different equipment was obtained from the equipment suppliers and from experience with similar operations. The cost of consumables and wear parts are estimated at $1.3 million per year or $29.27 per tonne of concentrate produced.

e) Bagging System Costs

In the 44,300 t/y concentrate process plant, the consumption and cost for the bagging system was obtained from the equipment suppliers. The cost of consumables and wear parts are estimated at $1.7 million per year or $37.99 per tonne of concentrate produced.

Table 21.11 – Bagging System Costs

Bagging Hardware	Consumption (Unit/y)	Price (Unit/kg)	Cost	
			(CAD/y)	(CAD/t)
Small bags	221,500	0.649	143,754	3.25
Super sacks	53,160	14.850	789,426	17.82
Pallets	59,067	11.165	659,479	14.89
Stretch wrap	59,067	1.532	90,490	2.04
Total			1,683,149	37.99

f) Material Handling Costs

In the 44,300 t/y concentrate process plant, the material handling costs include the diesel fuel for mobile equipment, replacement of worn equipment parts. The total cost for material handling at the process plant is estimated at $137,675 per year or $3.09 per tonne of concentrate produced.

g) Spare parts and Miscellaneous Costs

In the 44,300 t/y concentrate process plant, the spare parts and miscellaneous costs were estimated as 1.5% of the total equipment capital cost. The total spares and miscellaneous costs are estimated at $277,275 per year or $6.26 per tonne of concentrate produced.

21.2.5 Plant Administration and Technical Services Costs

This section regroups the costs for Manpower related to Administration & Accounting, Purchasing & Stores and Human Resources, as well as Material & Technical Services, and Power for Heating. The operating cost summary, for a typical year, is given in Table 21.12. No requirement for catering for this project since manpower will be living in the nearby towns.

Table 21.12 – Summary of Estimated Annual Plant Administration and Services Costs

Description	Total annual Cost (CAD/year)	Unit cost (CAD/tonne of concentrate)
General Administration - Manpower		
Administration - Manpower Lac Knife	1,583,400	35.74
Administration - Material & Services		
Administration - Material & Services	940,000	21.22
Infrastructure		
Miscellaneous	107,000	2.42
Power for heating	669,104	15.10
Total	3,299,504	74.48

22.0 ECONOMIC ANALYSIS

22.1 General

The economic/financial analysis of the Lac Knife Project of Focus Graphite Inc. is based on second-quarter 2014 price projections in U.S. currency and cost estimates in Canadian currency. An exchange rate of 0.91 USD per CAD is assumed to convert USD market price projections and particular components of the pre-production capital cost and operating cost estimates into CAD. The annual cash flow model prepared in Microsoft Excel is based on a graphite concentrate production rate of 44,300 tonnes per year. No provision is made for the effects of inflation. The evaluation is carried out on a 100%-equity basis. Current Canadian tax regulations are applied to assess the corporate tax liabilities while the recently proposed regulations in Quebec (Bill 55, December 2013) are applied to assess the mining tax liabilities.

The model reflects the base case macro-economic and technical assumptions given in this report and assumes that the owner will rely on a mining contractor to provide and operate the mining equipment.

22.2 Assumptions

22.2.1 Price

The prices used for the economic analysis are based on a market study and price forecasts that were provided by Industrial Minerals Data. More details are provided in Section 19 of this Report.

Based on this information, Focus Graphite Inc. has provided the price forecasts given in Table 22.1 below for the Lac Knife graphite concentrates. The sensitivity analysis examines a range of prices that are 30% above and below the base case prices.

Table 22.1 – Graphite Concentrate Price Forecasts

Product Classification	Proportion (%)	Average Grade (% Cgr)	Price (USD/t)
+50 mesh	10.0	99.7	3,160
-50 mesh +65 mesh	14.5	99.6	2,160
-65 mesh +80 mesh	8.5	99.8	1,910
-80 mesh +100 mesh	11.0	99.7	1,710
-100 mesh +150 mesh	20.4	99.3	1,310
-150 mesh +200 mesh	17.1	98.4	1,310
-200 mesh	18.6	91.4	1,310
Weighted-average	100	97.8	1,713

22.2.2 Macro-Economic Assumptions

The main macro-economic assumptions used in the base case are given in Table 22.2.

Table 22.2 – Macro-Economic Assumptions

Item	Unit	Base Case Value
Exchange Rate	USD/CAD	0.91
Discount Rate	% per year	8.0
Discount Rate Variants	% per year	6.0 &10.0

An exchange rate of 0.91 USD per CAD is used to convert the USD market price projections into Canadian currency. Relevant components of the pre-production capital cost and operating cost estimates have been converted into CAD using this exchange rate as well.

The current Canadian tax system applicable to mining income is used to assess the Project's annual tax liabilities. This consists of federal and provincial corporate taxes as well as provincial mining taxes as per Bill 55 that was proposed in December 2013. The gradual transfer of preproduction development expenses from Canadian Exploration Expenses to Canadian Development Expenses and the phasing out of Class 41A accelerated depreciation announced in the 2013 federal budget are accounted for. The federal and provincial corporate tax rates currently applicable over the project's operating life are 15.0% and 11.9% of taxable income, respectively. The marginal tax rates applicable under the recently proposed mining tax legislation in Quebec (Bill 55, December 2013) are 16%, 22% and 28% of taxable income and depend on the profit margin.

The assessment is carried out on a 100%-equity basis. Apart from the base case discount rate of 8%, two variants of 6 and 10% are used to determine the net present value of the Project. These discount rates represent possible costs of equity capital.

22.2.3 Mineral Royalties

The project is not subject to mineral royalties.

22.2.4 Technical Assumptions

The main technical assumptions used in the base case are given in Table 22.3.

Table 22.3 – Technical Assumptions

Total Ore Mined (Life Of Mine)	M tonnes	7.837
Average Ore Mined per Year	tonnes per year	313,470
Average Stripping Ratio	(w : o)	1.70
Nominal Processing Rate	tonnes/day	954
Mine Life	years	25
Average ROM Grade to Mill	% Cgr	15.1
Average Concentrate Grade	% Cgr	97.8
Average Process Recovery over Mine Life	%	90.9
Average Tonnes of Concentrate Produced per year	tonnes per year	44,300

Total Tonnes of Concentrate Produced over Mine Life	M tonnes	1,102
Average Mining Operating Cost	($ / tonne milled)	17.85
Average Mining Operating Cost	($ / tonne concentrate)	126.95
Average Process Operating Cost	($ / tonne milled)	33.66
Average Process Operating Cost	($ / tonne concentrate)	239.37
Average General & Administration Cost	($ / tonne concentrate)	74.70

On average, 313,470 tonnes of run of mine ore will be supplied per year to the concentrator when full production is reached. The amount of concentrate produced is a function of head grade, process recovery and concentrate grade, and is on average 44,300 tonnes per year.

22.3 Financial Model and Results

The cash flow statement for the base case is given in Figure 22.1.

A summary of the base case cash flow results is given in Table 22.4.

This summary indicates total concentrate sales revenue of CAD 2,074.4 M. With total concentrate transportation cost from the mine site to Sept-Îles of CAD 97.0 M, the revenue at the mine site amounts to CAD 1,977.4 M.

The total operating cost (i.e. the sum of mining, process and G&A costs) is estimated at CAD 486.0 M for the life of the mine. This amounts to $ 62 / tonne milled or $ 441 / tonne of concentrate.

The pre-production capital expenditure was estimated at CAD 165.6 M and the total sustaining capital requirement was estimated at CAD 17.4 M, for a total capital expenditure over the project life of CAD 182.9 M.

The cash flow statement shows a capital cost breakdown by area and provides a capital spending schedule over a 2-year pre-production period.

Figure 22.1 – Cash Flow Statement

Year			-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total
Pit Mineralisation (t)				20,000	255,784	288,592	265,793	308,241	290,520	318,476	278,331	329,757	323,298	343,854	337,618	337,618	337,618	337,618	337,618	316,130	316,130	316,130	316,130	316,130	313,075	313,075	313,075	313,075	313,075	7,836,756
Grade (% Cg)				17.500	17.431	16.365	17.631	15.425	16.267	14.981	16.909	14.523	14.781	13.992	14.221	14.221	14.221	14.221	14.221	15.080	15.080	15.080	15.080	15.080	15.008	15.008	15.008	15.008	15.008	15.126
Pit Waste (t)				600,000	389,483	220,062	156,681	217,619	796,317	826,877	735,689	986,764	977,823	818,321	814,123	814,123	814,123	814,123	814,123	331,500	331,500	331,500	331,500	331,500	289,936.626	289,937	289,937	289,937	289,937	13,303,433
Pit Stripping Ratio (w : o)					1.523	0.763	0.589	0.706	2.741	2.596	2.643	2.992	3.025	2.380	2.411	2.411	2.411	2.411	2.411	1.049	1.049	1.049	1.049	1.049	0.926	0.926	0.926	0.926	0.926	1.698
	Concentrate Process Recovery (%)			92.38	92.35	91.74	92.45	91.12	91.68	90.81	92.06	90.47	90.66	90.05	90.24	90.24	90.24	90.24	90.24	90.88	90.88	90.88	90.88	90.88	90.83	90.83	90.83	90.83	90.83	
Concentrate Production (t)	Concentrate grade (% Cg)	97.8%			42,100	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	44,300	43,639	43,639	43,639	43,639	43,639	1,101,996
Less Handling Losses (t)		0.0%			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Graphite Production (t)					**42,100**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**44,300**	**43,639**	**43,639**	**43,639**	**43,639**	**43,639**	**1,101,996**
+48 mesh product (t)	+48 mesh product	10.0%			4,210	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,430	4,364	4,364	4,364	4,364	4,364	110,200
-48 +65 mesh product (t)	-48 +65 mesh product	14.5%			6,115	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,434	6,338	6,338	6,338	6,338	6,338	160,052
-65 +80 mesh product (t)	-65 +80 mesh product	8.5%			3,558	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,689	3,689	3,689	3,689	3,689	93,145
-80 +100 mesh product (t)	-80 +100 mesh product	11.0%			4,611	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,852	4,780	4,780	4,780	4,780	4,780	120,695
-100 +150 mesh product (t)	-100 +150 mesh product	20.4%			8,570	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	9,018	8,884	8,884	8,884	8,884	8,884	224,335
-150 +200 mesh product (t)	-150 +200 mesh product	17.1%			7,217	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,594	7,481	7,481	7,481	7,481	7,481	188,914
-200 mesh product (t)	-200 mesh product	18.6%			7,819	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,227	8,104	8,104	8,104	8,104	8,104	204,656
+50 mesh product Sales ($)	Sept-Îles Price (USD/t)	3160			14,619,388	15,383,125	15,383,451	15,383,462	15,383,127	15,383,308	15,383,398	15,383,378	15,383,341	15,383,453	15,383,282	15,383,282	15,383,282	15,383,282	15,383,282	15,383,277	15,383,277	15,383,277	15,383,277	15,383,277	15,153,787	15,153,787	15,153,787	15,153,787	15,153,787	382,671,162
-50 +65 mesh product Sales ($)	Sept-Îles Price (USD/t)	2160			14,513,642	15,271,855	15,272,179	15,272,189	15,271,857	15,272,036	15,272,126	15,272,106	15,272,069	15,272,180	15,272,011	15,272,011	15,272,011	15,272,011	15,272,011	15,272,006	15,272,006	15,272,006	15,272,006	15,272,006	15,044,175	15,044,175	15,044,175	15,044,175	15,044,175	379,903,197
-65 +80 mesh product Sales ($)	Sept-Îles Price (USD/t)	1910			7,468,864	7,859,048	7,859,214	7,859,220	7,859,049	7,859,141	7,859,187	7,859,177	7,859,158	7,859,215	7,859,128	7,859,128	7,859,128	7,859,128	7,859,128	7,859,125	7,859,125	7,859,125	7,859,125	7,859,125	7,741,882	7,741,882	7,741,882	7,741,882	7,741,882	195,501,945
-80 +100 mesh product Sales ($)	Sept-Îles Price (USD/t)	1710			8,664,565	9,117,214	9,117,407	9,117,413	9,117,215	9,117,322	9,117,376	9,117,364	9,117,342	9,117,408	9,117,307	9,117,307	9,117,307	9,117,307	9,117,307	9,117,304	9,117,304	9,117,304	9,117,304	9,117,304	8,981,291	8,981,291	8,981,291	8,981,291	8,981,291	226,800,133
-100 +150 mesh product Sales ($)	Sept-Îles Price (USD/t)	1310			12,337,587	12,982,120	12,982,395	12,982,404	12,982,121	12,982,274	12,982,350	12,982,333	12,982,302	12,982,396	12,982,252	12,982,252	12,982,252	12,982,252	12,982,252	12,982,248	12,982,248	12,982,248	12,982,248	12,982,248	12,788,577	12,788,577	12,788,577	12,788,577	12,788,577	322,943,667
-150 +200 mesh product Sales ($)	Sept-Îles Price (USD/t)	1310			10,389,547	10,932,311	10,932,543	10,932,551	10,932,313	10,932,441	10,932,505	10,932,491	10,932,465	10,932,544	10,932,423	10,932,423	10,932,423	10,932,423	10,932,423	10,932,419	10,932,419	10,932,419	10,932,419	10,932,419	10,769,328	10,769,328	10,769,328	10,769,328	10,769,328	271,952,562
-200 mesh product Sales ($)	Sept-Îles Price (USD/t)	1310			11,255,342	11,843,337	11,843,589	11,843,596	11,843,339	11,843,478	11,843,548	11,843,532	11,843,503	11,843,589	11,843,458	11,843,458	11,843,458	11,843,458	11,843,458	11,843,454	11,843,454	11,843,454	11,843,454	11,843,454	11,666,772	11,666,772	11,666,772	11,666,772	11,666,772	294,615,276
Total Graphite Sales ($)	Average Sept-Îles Price (USD/t)	1713			79,248,933	83,389,010	83,390,779	83,390,834	83,389,020	83,390,000	83,390,490	83,390,382	83,390,179	83,390,785	83,389,862	83,389,862	83,389,862	83,389,862	83,389,862	83,389,833	83,389,833	83,389,833	83,389,833	83,389,833	82,145,811	82,145,811	82,145,811	82,145,811	82,145,811	2,074,387,943
Total Revenue – Sept-Îles ($)	Base Case				79,248,933	83,389,010	83,390,779	83,390,834	83,389,020	83,390,000	83,390,490	83,390,382	83,390,179	83,390,785	83,389,862	83,389,862	83,389,862	83,389,862	83,389,862	83,389,833	83,389,833	83,389,833	83,389,833	83,389,833	82,145,811	82,145,811	82,145,811	82,145,811	82,145,811	2,074,387,943
Total Revenue – Sept-Îles ($)	Indexed for Sensitivity				**79,248,933**	**83,389,010**	**83,390,779**	**83,390,834**	**83,389,020**	**83,390,000**	**83,390,490**	**83,390,382**	**83,390,179**	**83,390,785**	**83,389,862**	**83,389,862**	**83,389,862**	**83,389,862**	**83,389,862**	**83,389,833**	**83,389,833**	**83,389,833**	**83,389,833**	**83,389,833**	**82,145,811**	**82,145,811**	**82,145,811**	**82,145,811**	**82,145,811**	**2,074,387,943**
Less:																														
Concentrate Transport Costs ($)		88.00			3,704,813	3,898,358	3,898,440	3,898,443	3,898,358	3,898,404	3,898,427	3,898,422	3,898,412	3,898,440	3,898,397	3,898,397	3,898,397	3,898,397	3,898,397	3,898,396	3,898,396	3,898,396	3,898,396	3,898,396	3,840,239	3,840,239	3,840,239	3,840,239	3,840,239	96,975,678
Total Revenue – Mine Site ($)	Base Case				75,544,120	79,490,653	79,492,339	79,492,391	79,490,662	79,491,596	79,492,064	79,491,961	79,491,767	79,492,344	79,491,465	79,491,465	79,491,465	79,491,465	79,491,465	79,491,437	79,491,437	79,491,437	79,491,437	79,491,437	78,305,572	78,305,572	78,305,572	78,305,572	78,305,572	1,977,412,265
Total Revenue – Mine Site ($)	Indexed for Sensitivity				**75,544,120**	**79,490,653**	**79,492,339**	**79,492,391**	**79,490,662**	**79,491,596**	**79,492,064**	**79,491,961**	**79,491,767**	**79,492,344**	**79,491,465**	**79,491,465**	**79,491,465**	**79,491,465**	**79,491,465**	**79,491,437**	**79,491,437**	**79,491,437**	**79,491,437**	**79,491,437**	**78,305,572**	**78,305,572**	**78,305,572**	**78,305,572**	**78,305,572**	**1,977,412,265**
Mining Costs ($)	$/year (see LOM Schedule)				3,825,176	3,680,529	3,234,171	3,774,174	6,279,840	6,361,659	5,679,817	7,238,000	8,257,522	7,555,064	7,394,976	7,394,976	7,394,976	7,394,976	7,394,976	4,817,566	4,817,566	4,817,566	4,817,566	4,817,566	4,589,096	4,589,096	4,589,096	4,589,096	4,589,096	139,894,144
Processing Costs ($)	$/t milled	33.66			8,609,689	9,714,007	8,946,592	10,375,392	9,778,903	10,719,902	9,368,621	11,099,621	10,882,211	11,574,126	11,364,208	11,364,208	11,364,208	11,364,208	11,364,208	10,640,922	10,640,922	10,640,922	10,640,922	10,640,922	10,538,098	10,538,098	10,538,098	10,538,098	10,538,098	263,785,207
G&A Mine Site Costs ($)	$/ year	3,299,504			3,135,691	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	3,299,504	82,323,778
Royalty Payments ($) (N/A)	$/t concentrate produced	0.000			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Operating Costs ($)	Base Case				15,570,556	16,694,039	15,480,267	17,449,070	19,358,247	20,381,064	18,347,942	21,637,124	22,439,236	22,428,694	22,058,688	22,058,688	22,058,688	22,058,688	22,058,688	18,757,992	18,757,992	18,757,992	18,757,992	18,757,992	18,426,698	18,426,698	18,426,698	18,426,698	18,426,698	486,003,129
Total Operating Costs ($)	Indexed for Sensitivity				**15,570,556**	**16,694,039**	**15,480,267**	**17,449,070**	**19,358,247**	**20,381,064**	**18,347,942**	**21,637,124**	**22,439,236**	**22,428,694**	**22,058,688**	**22,058,688**	**22,058,688**	**22,058,688**	**22,058,688**	**18,757,992**	**18,757,992**	**18,757,992**	**18,757,992**	**18,757,992**	**18,426,698**	**18,426,698**	**18,426,698**	**18,426,698**	**18,426,698**	**486,003,129**
Operating Profit ($)					**59,973,564**	**62,796,614**	**64,012,072**	**62,043,322**	**60,132,415**	**59,110,532**	**61,144,122**	**57,854,837**	**57,052,531**	**57,063,651**	**57,432,777**	**57,432,777**	**57,432,777**	**57,432,777**	**57,432,777**	**60,733,445**	**60,733,445**	**60,733,445**	**60,733,445**	**60,733,445**	**59,878,874**	**59,878,874**	**59,878,874**	**59,878,874**	**59,878,874**	**1,491,409,135**
Mine Pre-production Capital Expenditure ($)																														
MINE DEVELOPMENT : Pre-stripping			0	5,786,697																										5,786,697
INFRASTRUCTURE			7,075,931	10,613,896																										17,689,827
MINE EQUIPMENT AND INFRASTRUCTURE			251,271	376,906																										628,176
CRUSHING			4,276,304	6,414,456																										10,690,760
PROCESS PLANT			37,914,341	56,871,511																										94,785,852
TAILINGS AND WASTE MANAGEMENT			5,009,328	7,513,992																										12,523,321
INFRASTRUCTURE – Additional			9,378,902	14,068,353																										23,447,255
Total	Base Case		63,906,077	101,645,812																										165,551,889
Total	Indexed for Sensitivity		63,906,077	101,645,812																										165,551,889
Residual Value ($)	Crushing & Processing Plant	0.0%																											0	0
Working Capital ($)	Months of Annual Operating Costs	3.00		4,818,842	329,257	-303,422	492,201	477,273	255,716	-508,275	822,294	200,526	-2,629	-92,512	0	0	0	0	-825,174	0	0	0	0	-97,363	0	0	0	0	-5,566,734	0
Sustaining Capital Expenditure ($)																														
General – Mine					0	0	0	0	0	0	0	0	0	0	112,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112,500
Concentrator					0	0	500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	500,000
Tailings					4,959,060	977,638	356,836	356,836	408,269	408,269	396,912	396,912	396,912	526,428	526,428	526,428	526,428	526,428	420,848	420,848	420,848	420,848	420,848	563,022	563,022	563,022	563,022	563,022	563,022	16,772,154
Additional Site					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sustaining Capital Expenditure for the Mine and Concentrator	Base Case				4,959,060	977,638	856,836	356,836	408,269	408,269	396,912	396,912	396,912	526,428	638,928	526,428	526,428	526,428	420,848	420,848	420,848	420,848	420,848	563,022	563,022	563,022	563,022	563,022	563,022	17,384,654
	Indexed for Sensitivity				4,959,060	977,638	856,836	356,836	408,269	408,269	396,912	396,912	396,912	526,428	638,928	526,428	526,428	526,428	420,848	420,848	420,848	420,848	420,848	563,022	563,022	563,022	563,022	563,022	563,022	17,384,654
Total Capital Expenditure ($)			**63,906,077**	**106,464,655**	**5,288,317**	**674,215**	**1,349,037**	**834,109**	**663,985**	**-100,006**	**1,219,206**	**597,438**	**394,283**	**433,915**	**638,928**	**526,428**	**526,428**	**526,428**	**-404,326**	**420,848**	**420,848**	**420,848**	**420,848**	**465,659**	**563,022**	**563,022**	**563,022**	**563,022**	**-5,003,712**	**182,936,543**
Trust Fund Rehabilitation Payments – Mine ($)			**0**	**3,882,380**	**1,941,190**	**1,941,190**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,764,760**
Federal Corporate Income Tax			0	0	0	572,732	2,865,713	6,837,232	7,519,576	7,378,020	7,567,389	7,194,725	7,098,553	7,094,301	7,128,602	7,124,103	7,123,671	7,123,929	7,125,180	7,484,921	7,487,620	7,489,816	7,491,584	7,492,121	7,388,016	7,386,274	7,384,953	7,383,952	7,383,193	164,126,176
Provincial Corporate Income Tax			0	0	0	454,367	2,273,465	5,424,204	5,965,530	5,853,229	6,003,462	5,707,815	5,631,518	5,628,146	5,655,357	5,651,788	5,651,445	5,651,650	5,652,643	5,938,038	5,940,179	5,941,921	5,943,324	5,943,749	5,861,159	5,859,778	5,858,729	5,857,935	5,857,333	130,206,766
Quebec Mining Tax			0	0	116,412	1,125,003	4,663,726	5,833,409	6,960,298	7,546,292	8,815,216	8,383,903	8,502,044	8,734,191	8,988,489	9,103,565	9,184,119	9,240,507	9,288,846	10,246,873	10,270,560	10,287,140	10,298,747	10,294,928	10,116,421	10,114,550	10,113,241	10,112,324	10,111,682	208,452,486
Total Corporate Income and Mining Taxes ($)			**0**	**0**	**116,412**	**2,152,102**	**9,802,904**	**18,094,845**	**20,445,404**	**20,777,541**	**22,386,068**	**21,286,443**	**21,232,115**	**21,456,638**	**21,772,448**	**21,879,457**	**21,959,235**	**22,016,086**	**22,066,669**	**23,669,832**	**23,698,358**	**23,718,878**	**23,733,655**	**23,730,798**	**23,365,597**	**23,360,602**	**23,356,923**	**23,354,210**	**23,352,209**	**502,785,428**
BEFORE-TAX CASH FLOW			**-63,906,077**	**-110,347,035**	**52,744,057**	**60,181,209**	**62,663,035**	**61,209,213**	**59,468,430**	**59,210,537**	**59,924,916**	**57,257,399**	**56,658,247**	**56,629,735**	**56,793,849**	**56,906,349**	**56,906,349**	**56,906,349**	**57,837,103**	**60,312,597**	**60,312,597**	**60,312,597**	**60,312,597**	**60,267,785**	**59,315,852**	**59,315,852**	**59,315,852**	**59,315,852**	**64,882,586**	**1,300,707,832**
Cumulative B-T CF			-63,906,077	-174,253,111	-121,509,054	-61,327,846	1,335,189	62,544,402	122,012,832	181,223,369	241,148,285	298,405,684	355,063,931	411,693,667	468,487,516	525,393,865	582,300,214	639,206,563	697,043,666	757,356,263	817,668,859	877,981,456	938,294,052	998,561,838	1,057,877,690	1,117,193,542	1,176,509,394	1,235,825,246	1,300,707,832	
Payback period work area				1.00	1.00	1.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
AFTER-TAX CASH FLOW			**-63,906,077**	**-110,347,035**	**52,627,645**	**58,029,107**	**52,860,131**	**43,114,368**	**39,023,026**	**38,432,997**	**37,538,848**	**35,970,956**	**35,426,132**	**35,173,097**	**35,021,401**	**35,026,892**	**34,947,114**	**34,890,263**	**35,770,434**	**36,642,765**	**36,614,239**	**36,593,719**	**36,578,942**	**36,536,987**	**35,950,255**	**35,955,250**	**35,958,929**	**35,961,642**	**41,530,377**	**797,922,404**
Cumulative A-T CF			-63,906,077	-174,253,111	-121,625,466	-63,596,359	-10,736,229	32,378,140	71,401,165	109,834,162	147,373,010	183,343,966	218,770,098	253,943,195	288,964,596	323,991,489	358,938,603	393,828,866	429,599,300	466,242,064	502,856,303	539,450,022	576,028,964	612,565,951	648,516,206	684,471,456	720,430,385	756,392,027	797,922,404	
Payback period work area				1.00	1.00	1.00	1.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

FINANCIAL INDICATORS		
Before Tax		
Payback Period (years)		**3.0**
NPV @ ... ($)	6.0%	**509,812,743**
NPV @ ... ($)	8.0%	**383,296,857**
NPV @ ... ($)	10.0%	**290,591,580**
Internal Rate of Return		**30.1%**
After Tax		
Payback Period (years)		**3.2**
NPV @ ... ($)	6.0%	**304,009,197**
NPV @ ... ($)	8.0%	**224,202,087**
NPV @ ... ($)	10.0%	**165,429,470**
Internal Rate of Return		**24.1%**

A working capital equivalent to 3 months of total annual operating costs is maintained throughout the production period. A provision of CAD 4.8 M is required at the start of production.

A provision of CAD 7.8 M is required in the form of trust fund payments for mine closure and rehabilitation.

The financial results indicate a positive before-tax Net Present Values (NPV) of CAD 383.3 M at a discount rate of 8%. The before-tax Internal Rate of Return (IRR) is 30.1% and the payback period is 3.0 years.

The after-tax Net Present Value is CAD 224.2 M at a discount rate of 8%. The after-tax Internal Rate of Return is 24.1% and the payback period is 3.2 years.

Table 22.4 – Project Evaluation Summary

44,300 tonnes of concentrate per year (million CAD)	
Total Revenue Sept-Îles (LOM)	2,074.4
Total Concentrate Transport Cost (LOM)	97.0
Total Mining Operating Cost (LOM)	139.9
Total Process Operating Cost (LOM)	263.8
Total General & Administration Operating Cost (LOM)	82.3
Pre-production Capital Cost	165.6
Initial Working Capital	4.8
Total Sustaining Capital Cost (LOM)	17.4
Mine Closure and Rehabilitation	7.8
BEFORE TAX	
Total Cash Flow	1,300.7
NPV@ 8%	383.3
NPV@ 6%	509.8
NPV @ 10%	290.6
IRR (%)	30.1
Payback Period (years)	3.0
AFTER TAX	
Total Cash Flow	797.9
NPV@ 8%	224.2
NPV@ 6%	304.0
NPV @ 10%	165.4
IRR (%)	24.1
Payback Period (years)	3.2

22.4 Sensitivity Analysis

A sensitivity analysis has been carried out, with the base case described above as a starting point, to assess the impact of changes in graphite concentrate price (all seven (7) price categories are varied together), total pre-production capital costs (CAPEX) and operating costs (OPEX) on the project's NPV @ 8% and IRR. Each variable is examined one-at-a-time. An interval of ±30% with increments of 10% was used for all three (3) variables. It is to be noted that the margin of error for cost estimates at the feasibility study level is typically ±15%. However, the uncertainty in price forecasts usually remains significantly higher, and is a function of price volatility.

The before-tax results of the sensitivity analysis, as shown in Figure 22.2 and Figure 22.3, indicate that, within the limits of accuracy of the cost estimates in this study, the Project's before-tax viability does not seem significantly vulnerable to the under-estimation of capital and operating costs, when taken one at-a-time. The vertical dashed lines show the typical 15% margin of error associated with the cost estimates. As seen in Figure 22.2, the net present value is marginally more sensitive to variations in operating costs than it is to capital costs, as evidenced by the steeper slope of the OPEX curve. As expected, the net present value is most sensitive to variations in price. Nevertheless, the Project retains a positive net present value at the lower limit of the price interval.

Figure 22.2 – Before-Tax $NPV_{8\%}$: Sensitivity to Capital Expenditure, Operating Cost and Price

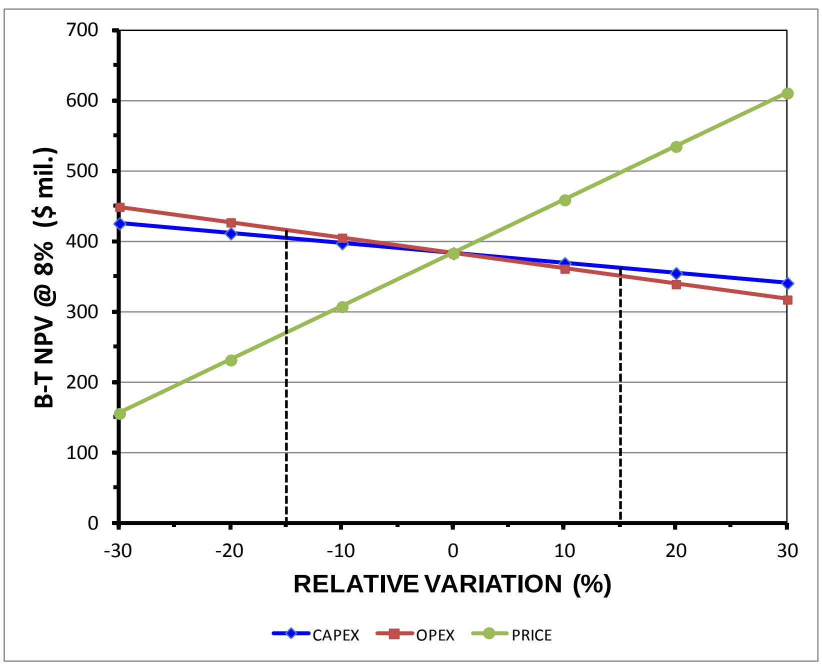
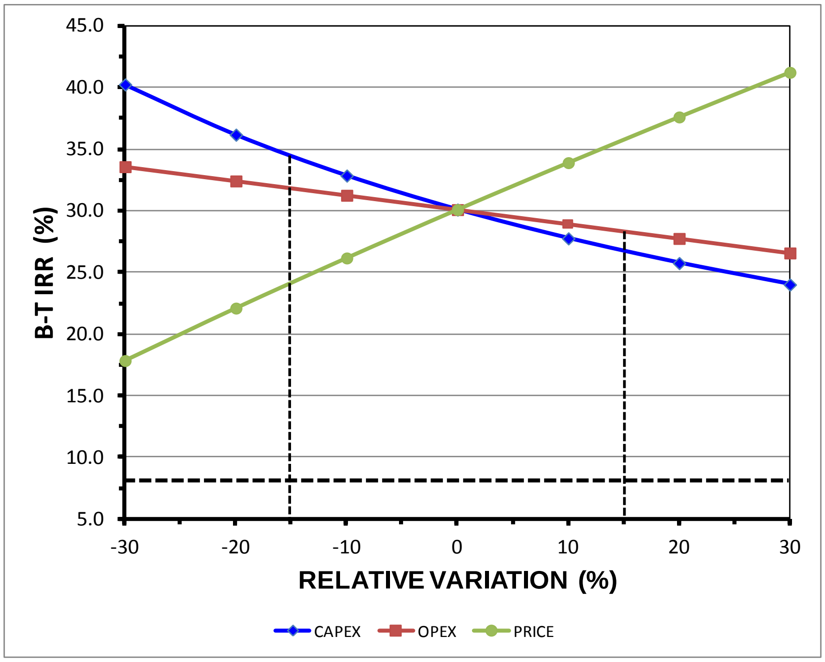


Figure 22.3, showing variations in internal rate of return, provides the same conclusions. The horizontal dashed line indicates the base case discount rate of 8%. In contrast with Figure 22.2, which shows linear variations in net present value for the three (3) variables studied, variations associated with internal rate of return shown in Figure 22.3 are not

linear. The internal rate of return is more sensitive to variations in capital costs than it is to operating costs, and as in the case of net present value, it is most sensitive to variations in price.

Figure 22.3 – Before-Tax IRR: Sensitivity to Capital Expenditure, Operating Cost and Price



The after-tax results of the sensitivity analysis are shown in Figure 22.4 and Figure 22.5. The same conclusions as those made for the before-tax case concerning the sensitivity of NPV and IRR to variations in capital costs, operating costs and price can be drawn here.

Figure 22.4 – After-Tax $NPV_{8\%}$: Sensitivity to Capital Expenditure, Operating Cost and Price

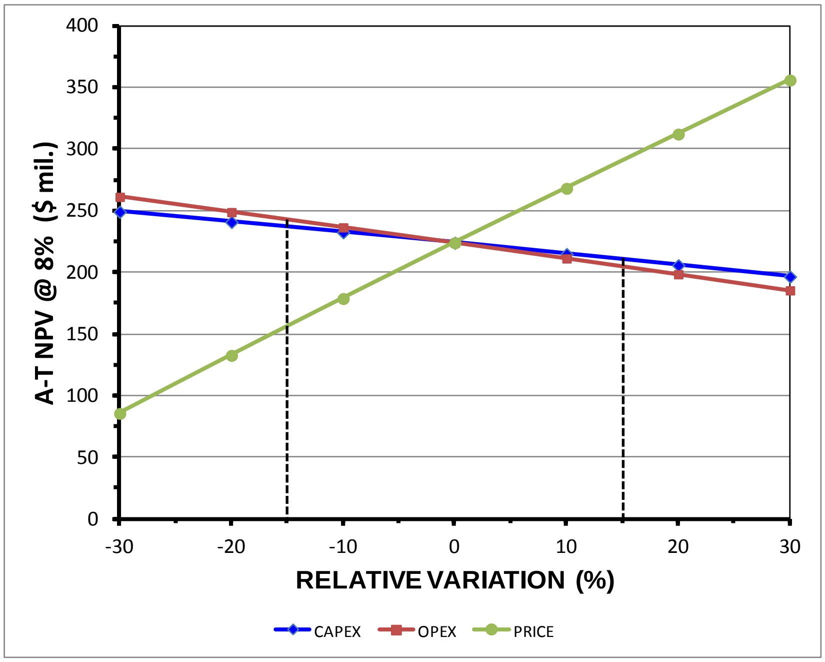
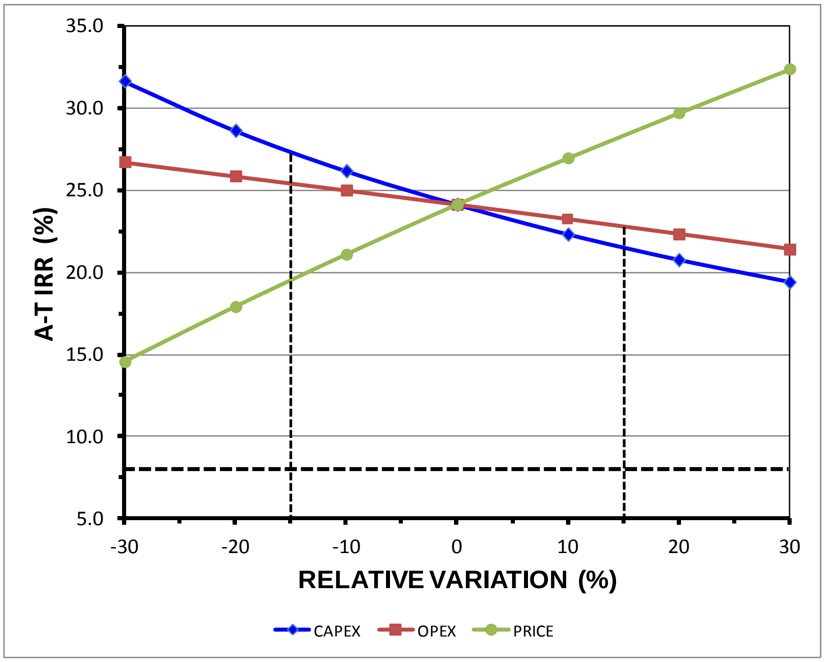


Figure 22.5 – After-Tax IRR: Sensitivity to Capital Expenditure, Operating Cost and Price



23.0 ADJACENT PROPERTIES

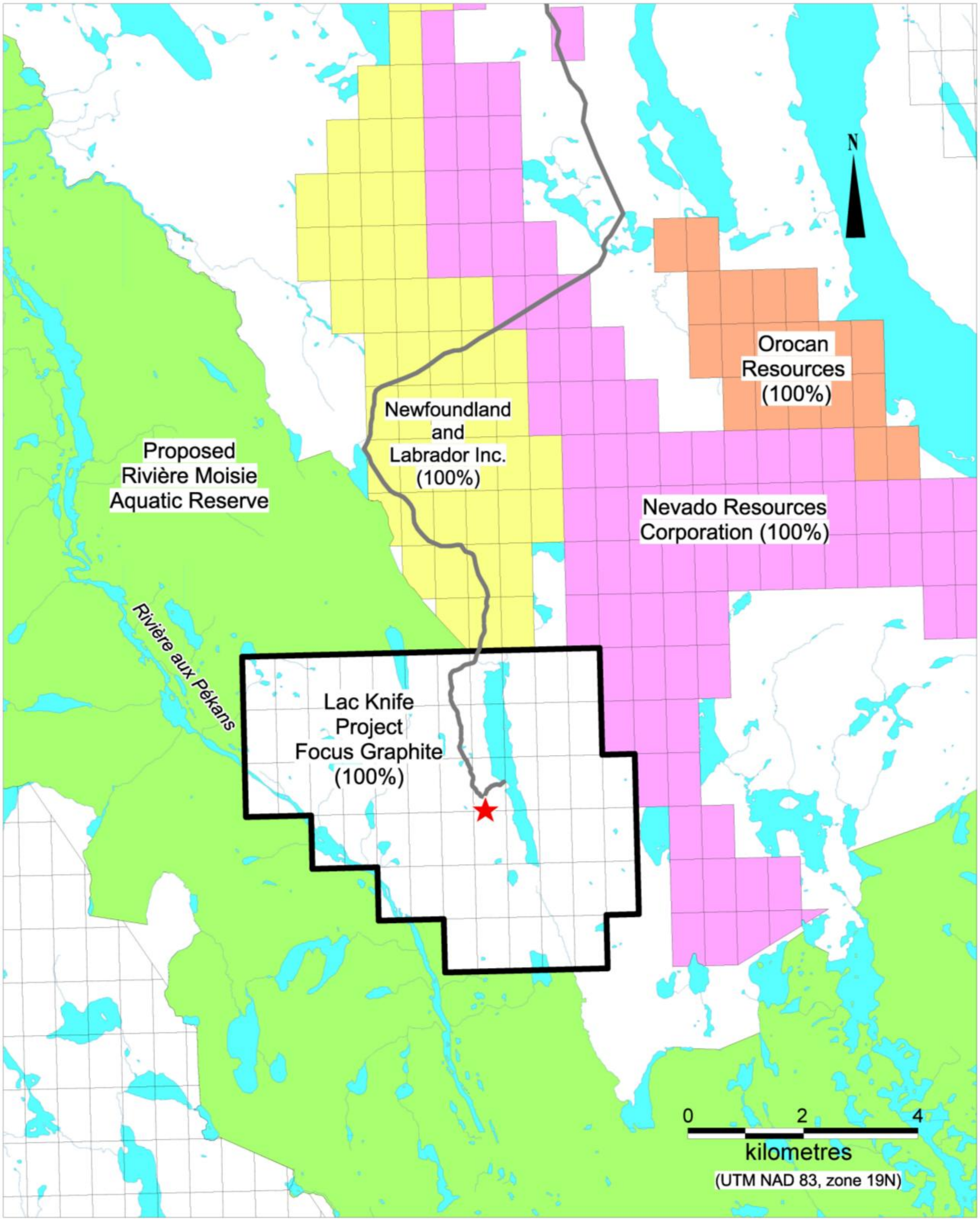
The Lac Knife claim block is bordered to the west and to the south by the proposed rivière Moisie aquatic reserve. The Rivière Moisie is one of the most important spawning grounds for the Atlantic salmon. Under the Minister's Order dated 18 March 2003 published in the *Gazette officielle du Québec* of 9 April 2003, the proposed rivière Moisie aquatic reserve was created to protect a large part of the river watershed. The western part of the Lac Knife claim block is located in the river watershed but predate the proposed aquatic reserve area. Currently, the proposed rivière Moisie aquatic reserve imposes restriction on exploration activity within its boundaries.

North of the Lac Knife project, Newfoundland and Labrador Inc. hold a large claim block.

Nevado Resources Corporation holds 341 claims covering an area of 17,540 hectares (175 km^2). The claims comprise two major blocks, Fermont and Fire Lake. The Fermont claim block is located on the eastern limit of the Lac Knife project. In May 2012, the Corporation announced that it had identified strong graphite potential on its Fermont graphite project. Following an exploration campaign, In February 2013, Nevado reported the results of its first drilling program. Fifteen significant intersections were reported including an intersection of 9.95 meters grading 11.24% Cg in one of the four holes drilled during the campaign.

There are no other significant claims holders in the area surrounding the Lac Knife project. The adjacent claim blocks and the proposed rivière Moisie aquatic reserve are shown in Figure 23.1. The information has been extracted from the Quebec Government claim management system GESTIM in date of July 19, 2014.

Figure 23.1 – Adjacent Properties



24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 Project Implementation Schedule

The project implementation schedule includes the main engineering, procurement and construction activities as indicated. The information contained in this schedule is derived from information taken from supplier's quotes or in-house database. The schedule presents the total duration of the project considering Project Financing is available first quarter (Q1) 2015 and environmental authorizations for construction are available first quarter (Q1) 2016.

Long lead delivery process equipment and manufacturing capacity for specific type of equipment such as grinding mills, mining equipment and others, need to be considered in order to foresee the duration of a project.

Emphasis should be made on:

- Advanced procurement of long lead process equipment items;
- Infrastructure and site preparation engineering to satisfy the pre-stripping and construction phases;
- Detailed mine planning to develop information for the mining contractor tender process and selection.

24.1.1 EPCM

The main tasks to be accomplished during this phase are:

- Engineering for the main access road, open pit mine, tailings management facilities, site preparation, site infrastructure, process buildings, offices;
- Procurement for the above including bid preparation and evaluation, organisation of site visits, contract preparation and contract administration;
- Mobilize the construction management team to site, provide site assistance when needed and supervise dry and wet commissioning and ramp-up.

24.1.2 Project Implementation Schedule

The project implementation schedule, presented in Figure 24.1 has been prepared for the project with the information available to date.

Considering an environmental authorization to proceed with construction expected in March 2016, the full production start-up will be beginning of Q3 2017 providing an order is placed with suppliers for long lead items by end of 2015. Efforts will be made to identify opportunities to improve the start of the construction.

Figure 24.1 – Project Implementation Schedule

PRELIMINARY IMPLEMENTATION SCHEDULE - LAC KNIFE GRAPHITE PROJECT - FS

N°	Task Name	Start	Finish
1	LAC KNIFE GRAPHITE PROJECT - PROJECT DEVELOPMENT SCHEDULE		
2	LAC KNIFE MINING AND PROCESS	2014-04-01	2017-09-0
3	PREPARATION AND OTHER STUDIES	2014-04-01	2016-03-30
4	Additional Definition/Exploration Drilling		2015-04-01
5	Environmental Assessment and Permitting		2016-03-30
6	Definitive Flowsheet		
7	Geotechnical Field Work and Survey		
8	Project Financing and Go-ahead		2015-04-01
9			
10	LAC KNIFE OPEN PIT	2014-12-01	2017-02-28
11	Engineering	2014-12-01	2017-02-28
12	Detailed Mine Planning		
13	Mining Contractor Tender / Selection and Procurement		
14	Mine Development Pre-Stripping		2017-02-28
15			
16	PROCESS PLANT ENGINEERING AND CONSTRUCTION	2015-01-01	2017-09-0
17	Early Engineering for Long Lead Procurement	2015-01-01	2016-01-07
18	Early Engineering for Long Lead Procurement		
19	Process Plant Engineering	2015-01-01	2017-08-3
20	Detailed Engineering		
21	Assistance to Construction		
22	Process Plant Construction	2016-03-30	2017-09-0
23	Construction Management		2017-08-31
24	Site Preparation		2016-12-30
25	Concrete Foundations		2016-12-30
26	Structural Steel		2017-03-07
27	Mechanical / Piping		2017-08-31
28	Electrical / Automation		2017-08-31
29	Commissioning		2017-08-31
30	Start of Production		2017-09-0
31			
32	INFRASTRUCTURE	2014-07-01	2017-03-31
33	Facilities and Buildings	2014-07-01	2016-10-31
34	Power Line design and construction		2016-07-29
35	Site Power and Electrical Distribution (Engineering and Construction)		2016-09-12
36	Mining Contractor Set-Up		
37	Administration Building (Tender and Construction)		2016-10-13
38	Tailings Storage Management	2016-06-01	2017-03-31
39	Tailings Storage Construction	2016-06-01	2017-03-31
40	Tailings Storage Facility Phase 1 for Year 1		2017-03-31

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24.2 Risk and Opportunities

A risk register has been developed for the Project and is expected to be carried over to next phases of the project.

A risk review was conducted with Focus Graphite towards the end of the Feasibility Study and a total of sixty-five (65) risk items were identified, discussed, and gauged where appropriate.

Risks were identified for categories that are typically addressed in the design of a mining project: geology, mining, process, tailings management facility, design, procurement, constructability, environment, health and safety and financial.

The risk review methodology that was employed by Met-Chem at the risk review meeting can be described as follows:

- Risks are identified and detailed;
- The possible consequences of each risk is discussed;
- If applicable, each risk is gauged according to Probability and Consequence Tables.

Where ever possible, mitigation measures were incorporated in the design reducing the level of risk. For example the proximity of the proposed Moisie River aquatic reserve was addressed throughout design stages and all projected infrastructure were located within Lac Knife Project active claim blocks. Another example is risks related to geochemical characteristics of the waste, ore and tailings that were mitigated and designed accordingly.

All sixty-five (65) risk items were identified, discussed, and gauged on the likelihood of consequences on capital expenditure, project schedule and operation costs and their seriousness. A risk level was obtained and classified.

As a result of the risk review meeting, no very high[8] risks were identified as part of the Lac Knife FS. Three (3) high risks[9] were identified and are as follows:

- Representativeness of Test Work Samples: This is a general risk which applies to many projects, particularly greenfield ones. It can lead to unexpected feed properties while in operation resulting in lower-than-expected plant performance. Even though, the selection of samples for pilot plant testwork was adequately documented and results are robust consideration should be made to review any new geological information that will be gathered moving forward to next stages of the project. This risk can be partially mitigated by good blending practices while in operation.
- Freezing of Run Of Mine (ROM) Ore: Having an outdoor ROM stockpile in northern Quebec is not common, and so the freezing behaviour/properties of such a stockpile is considered a risk. Freezing of product stockpiles is a common problem that many mining companies deal with in Quebec. Considering that the ROM

[8] Very High: Risks that significantly exceed the risk acceptance threshold and need urgent and immediate attention.
[9] High: Risks that exceed the risk acceptance threshold and require proactive management.

stockpile will be mainly composed of large blocks of blasted ore with limited amount of fines, it is believed that this risk can be mitigated. However, it is recommended that more effort be dedicated to better understand this issue and to determine if additional mitigation is required.

- Market: This is a general risk that applies to almost all projects. Uncertainties related to future graphite supply and demand (both locally and globally) can have an impact on future prices relative to those assumed in the FS study. Even though, the prices forecast assumed for the project were developed by recognized experts in the field, it is recommended that the graphite market continue to be tracked through activities such as market analyses to help mitigate this risk as the Lac Knife project moves forward.

Additionally, opportunities were identified and elaborated. Many of these have been incorporated into the FS study design following the risk review. Remaining opportunities should be further investigated early in the next phase of engineering.

25.0 INTERPRETATION AND CONCLUSIONS

Geology and Mineral Resources

Based upon a review of the QA/QC program, data validation, and statistical analysis, AGP draws the following conclusions:

- AGP has reviewed the methods and procedures used to collect and compile geological, geotechnical, and assaying information and found them to meet accepted industry standards and suitable for the style of mineralization found on the Lac Knife deposit;
- The resource estimate uses historical and newer drill data. The historical data was compiled from logs and technical reports. For the historical assays, Focus had access to the original certificate but no longer has access to the core;
- For the historical holes, samples have been prepared and assayed at the Chimitec facility using an assay procedure similar to ACTLABS. Historical assays were validated via a twin drill program in 2012 and with follow up in 2013. The twin drill hole results indicated that while the high grade and low grade sections were reproduced accurately, the twin hole could not reproduce individual assays within the various zones. Overall, the grade distribution in the twin versus the original historical hole was found to be in close agreement and it is AGP's opinion that the use of historical holes in the resource estimate would not introduce a significant bias;
- Samples for all newer holes were prepared at the IOS facility and assayed at the COREM laboratory. A routine 10% check assay was done at ACTLABS. COREM pre-treated the samples with nitric acid followed by LECO furnace with the resulting CO2 gas measured with an infrared detector. ACTLABS uses a similar approach and the assays duplicate between ACTLABS and COREM were found to correlate extremely well;
- A QA/QC program was established for the 2010 drill program which includes the insertion of blank, standard, and duplicate samples. Improvements to this program were made during the 2012 and 2013 campaign which included the addition of an in-house reference material and the routine submission of 10% of the pulp assayed at COREM to ACTLABS. The QA/QC submission rates meet industry accepted standards with IOS routinely monitor the QA/QC program;
- Data verification was performed by AGP through site visits, collection of independent character samples, and a database audit prior to the mineral resource estimation. AGP found the database to be well-maintained and virtually error-free and usable in mineral resource estimation;
- The bulk density samples collected by IOS in 2012 and 2013 indicated that an average of 2.80 g/cm^3 which correctly reflect the density expected for this type of deposit;

- Core handling, core storage, and chain of custody are consistent with industry standards;
- In AGP's opinion, the current drill hole database is sufficiently complete and accurate for interpolating grade models for use in resource estimation;
- Mineral resources were classified using logic consistent with the CIM definitions referred to in National Instrument 43-101. At the Lac Knife deposit the mineralization, density, and position of the drill holes allow the resource to be classified into the Measured, Indicated and Inferred categories without restriction on the categorization;
- A Graphite price of US $2,000 per tonnes was used in the calculation of the suggested cut-off grade;
- This independent mineral resource estimate supports the January 28th, 2014 disclosure by Focus Graphite of the mineral resource statement for the Lac Knife deposit.

AGP concludes that at the 3.0% Cg cut-off and within the Learch Grossman resource constraining shell, the model returned 9.6 million tonnes in the Measured and Indicated category grading at 14.77% graphitic carbon containing 1.4 million metric tonnes of in situ graphite. The Inferred resources amounted to 3.1 million tonnes, grading 13.25% graphitic carbon and containing 0.41 million metric tonnes of in situ graphite.

Mining, Process and Project Economics

Proven and probable mineral reserves were developed from the open pit mine design for the Lac Knife deposit. These mineral reserves which account for dilution and ore loss formed the basis of the life of mine plan that was prepared.

The open pit design includes 429 kt of Proven Mineral Reserves and 7,428 kt of Probable Mineral Reserves for a total of 7,857 kt at a grade of 15.13% Cg. In order to access these reserves, 2,746 kt of overburden, 10,926 kt of waste rock and 231 kt of Inferred Mineral Resources must be mined. This total waste quantity of 13,903 kt results in a stripping ratio of 1.8 to 1. At the planned production rate of 328 kt of ore per year, the pit contains roughly 25 years of mineral reserves. The 231 kt of Inferred Mineral resources will undergo definition drilling to attempt to convert those resources to reserves prior to production startup.

The objective of achieving a graphite concentrate with grade of 97.8% C and recovery 90.7% was achieved during a pilot plant testing program conducted at SGS Minerals in Lakefield.

The processing plant is designed to process an average of 950 t/d of ore to produce approximately 44,300 t/y of graphite concentrate grading at about 97.8% Cg based on a concentrate recovery of 90.7%. A suitable process flow sheet includes crushing, grinding, polishing, flotation, and concentrate thickening, filtering and drying. Mining equipment, tailings storage facility, concentrate transportation as well as infrastructure and services have been added to complete the investment cost estimate of the project.

The pre-production capital expenditure, at an accuracy level of ± 15%, is estimated at CAD 165.6 M and the total sustaining capital requirement was estimated at CAD 17.4 M, for a total capital expenditure over the project life of CAD 182.9 M.

The life of mine average operating cost estimate is evaluated at 441 $/tonne of concentrate.

Preliminary environment considerations have been addressed and legislative framework, environmental sensitive areas, issues and project stakeholders have been identified. Geochemical testing was conducted on mine rock and tailings samples to produce an assessment of the metal leaching (ML) and acid rock drainage (ARD) potential of the tailings generated by the project. Testing results show that both waste rock and tailings can be considered potentially acid generating but show a low risk for metal leaching. Design and concept have been included in the tailings management facility design to include an impermeable liner at the bottom of the pond taking into consideration the permeability of the soil. Run-off from the waste rock pile as well as from open pit dewatering will be collected and directed to the tailings management facility where the final discharge will be tested and discharged after treatment, if required, to the natural environment.

Mine closure and rehabilitation costs have been estimated at CAD 7.8 M.

The economic analysis of the project has demonstrated positive results using an estimated average sale price of US$ 1,713/tonne of concentrate. The economic results indicate a before-tax Net Present Values (NPV) of CAD 383.3 M at discount rate of 8%. The before-tax Internal Rate of Return is 30.1% with a payback period of 3.0 years. The after-tax Net Present Value is CAD 224.2 M at a discount rate of 8%. The after-tax Internal Rate of Return is 24.1% and the payback period is 3.2 years.

26.0 RECOMMENDATIONS

26.1 Geology and Mineral Resources

26.1.1 QA/QC

AGP recommends implementing the deliberate insertion of a "crushable blank" material in order to ensure that contamination during the sample preparation protocol is adequately monitored. This modification to the current QA/QC protocol should is not expected to add any cost to the program.

It is also recommended that for future drill programs, Focus should abandon using the current Standard Reference Material to replace them with the new graphitic carbon reference material now available from CDN Laboratories (Spring 2014) or Geostats Pty (Spring 2013). Cost for replacing the material is expected to be minimal.

26.1.2 Mineral Resource Estimate Recommendations

AGP considered that for the estimate presented in this report, the usage of the sub-parallel holes did not materially affect the stated resource; it is however recommended that in future resource estimate the holes sub-parallel to the mineralization should be eliminated from the dataset.

26.1.3 Exploration

a) Phase I

It is proposed to complete the exploration/condemnation drilling designed to test the EM anomalies identified as part of the 2012 fall's ground Max-Min geophysical survey in the areas where this feasibility study identified as suitable location for the future surface infrastructures. This program consists of approximately 27 holes averaging 125 meters each for a total of 3,400 meters of drilling. Estimated cost for this program is $1,020,000 using an all inclusive $300 per meter of drilling.

It is also proposed to conduct an infill drilling program in the southwest extension of the deposit with the goal of upgrading the existing 3.1 million tonnes of Inferred Resources into Indicated and Measured Resource categories. This program will consist of 36 drill holes from 50 to 130 meters per hole for 3,600 meters of drilling. Cost for the program is estimated at $1,080,000.

b) Phase II

Phase II drill program targets the completion of the exploration drilling to test the EM anomalies outside of the planned surface infrastructure. This program comprises of 1,700 meters of drilling for a budgeted cost of $510,000. Phase II drilling is not contingent of the successful completion of the Phase I drill program.

26.2 Mining

- Complete in-fill drilling to better define the geology in the initial areas of mine development;
- Re-evaluate the decision to use a contract miner using firm pricing.

26.3 Infrastructure

As the Project progresses to further development stages, a detailed geotechnical field investigation will be required to confirm civil design criteria related to foundations of mills and the process plant as well as for other infrastructure such as administration offices, run-of-mine stockpile, electrical substation and tailings management facility areas.

Investigation to locate gravel pits for suitable construction materials of the various dykes, pads and roads as well as concrete aggregates should be undertaken during Detailed Engineering phase to determine the quantities that area available and at what distance they are located from the various facilities.

26.4 Environmental Considerations

Meetings with Stakeholders should continue as the project progresses to further development stages.

A summary table of Issues/Potential Impacts identified by Stakeholders is underway associated to the ongoing ESIA study and should be maintained rigorously going forward.

A Focus is preparing a detailed schedule of environmental permitting requirements will need to be prepared in collaboration with government ministries. This schedule should be integrated in the Project Implementation Schedule of the project during the detailed engineering study phase.

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