

# CHAMPION IRON

February 16, 2017

## **Champion Iron Announces Completion of Bloom Lake Mine Feasibility Study**

*NOT FOR DISTRIBUTION TO UNITED STATES NEWSWIRE SERVICES OR FOR DISSEMINATION IN THE UNITED STATES*

**Montréal, Québec, Canada:** Champion Iron Limited (ASX: CIA, TSX: CIA) (“Champion” or the “Company”) is pleased to announce the results of the Feasibility Study for the Bloom Lake Iron Ore Mine (“Bloom Lake”), located near the town of Fermont, in north-eastern Quebec.

The Feasibility Study demonstrates that recommencing iron ore mining operations at Bloom Lake is financially viable and would be competitive in global iron ore markets with the potential to be one of the region’s leading long-life iron ore mines. A production restart at Bloom Lake would be a major contributor to the provincial and national economy.

Champion Iron Chairman and CEO Mr Michael O’Keeffe said, “This is a major result for the Company. Based on conservative assumptions, the Feasibility Study demonstrates that the Bloom Lake Iron Ore Mine is clearly viable. In fact, very few iron ore projects offer the potential of 20+ years of production at industry-low operating costs, whilst being strategically located in close proximity to all necessary infrastructure and situated in what we consider to be a superior mining jurisdiction. I am confident that the Feasibility Study, and these attributes, will allow Champion Iron to secure investor support and funding as we bring the Bloom Lake mine back into full-scale production.”

### **Highlights**

*(All quoted figures in CA\$ unless stated otherwise)*

- Net after-tax cash flow of \$2.3 billion (including all forecasted CAPEX);
- After-tax net present value at 8% discount rate of \$984 million and an internal rate of return of 33.3% after tax;
- Total revenue over life-of-mine of \$15.1 billion;
- Total capital costs of \$326.8 million including mine upgrade capital cost of \$157.2 million;

- Mineral Reserves for the Bloom Lake Project are estimated at 411.7 million tonnes at an average grade of 30.0% Fe;
- Concentrate production averages 7.4 million tonnes per annum at an assumed steady state over the 21-year life-of-mine. The concentrate, at 66.2% Fe is obtained with an expected metallurgical recovery that averages 83.3% Fe relative to plant feed at the 30% Fe average feed grade;
- Plant and processing upgrades are expected to deliver improvements in Fe recovery. The upgraded recovery circuit flowsheet replaces the existing 3-stage spiral circuit with a new gravity circuit that limits the recirculating process streams and reduces the chance of losses of iron to the rougher stage tailings. The recovery of additional iron minerals will also be achieved by a magnetic scavenging circuit;
- Life-of-mine average operating cost of production of \$44.62 per dry metric tonne, FOB Sept-Iles;
- Life-of-mine average iron ore price at 66.2% Fe CFR China (62% Fe index plus premium for extra Fe content) of US\$78.40 provided by a market study by Metalytics, a specialist economics consultancy in the metals and mineral resources sector.

### Summary of Economic Parameters and Feasibility Results

<b>Mining Parameters</b>	Reserve (Mt)	411.7
	Processed tonnage (Mtpa)	20.0
	Average Fe processing recovery (%)	83.3%
	Average mining dilution (%)	4.3%
	Average Recovered concentrate (Mtpa)	7.4
	Mine Life (years)	21 years
<b>Cost Parameters</b>	Initial CAPEX including Working Capital (CA\$M)	326.8
	LOM CAPEX (CA\$M)	329.5
	LOM OPEX (CA\$/t of ore)	16.85
	LOM OPEX (CA\$/t dry concentrate)	44.62
<b>Revenue Parameters</b>	Gross Revenue (CA\$M)	15,116
	Shipping Costs (CA\$M)	3,748
	Cash Operating Margin (CA\$M)	4,432
	Operating Margin %	29.3%
	After Tax Net Cash-Flow (CA\$M)	2,335
<b>Iron Ore Price Parameters</b>	LOM Av Iron Price at 66.2%Fe CFR China (US\$/ton)	78.40
	Inflation	Nil
	Average Exchange Rate	0.79 US\$:1.0 CA\$
<b>Valuation Parameters</b>	NPV – 8% Pre-Tax (CA\$M)	1,675
	IRR (pre-tax)	43.9%
	NPV – 8% After-Tax (CA\$M)	984
	IRR (after-tax)	33.3%
	Pay-back (pre-tax) (years)	2.5
	Pay-back (after-tax) (years)	3.1

## Mineral Resource and Reserve Estimates

The following table presents the mineral resource for the Bloom Lake Project estimated at a cut-off grade of 15% Fe, inside an optimized Whittle open pit shell based on a long-term iron price of USD \$60/dmt concentrate for 66% Fe content. The Measured and Indicated mineral resource for the Bloom Lake Project is estimated at 911.6 Mt with an average grade of 29.7% Fe, and Inferred mineral resource at 80.4 Mt with an average grade of 25.6% Fe.

**Mineral Resource Estimate for the Bloom Lake Project** (notes 1-9)

Classification	Tonnage (dry)	Fe	CaO	Sat	MgO	Al <sub>2</sub> O <sub>3</sub>
	kt	%	%	%	%	%
Measured	439,700	31.0	0.6	3.0	0.7	0.3
Indicated	471,900	28.5	2.5	6.8	2.3	0.4
Total M&I	911,600	29.7	1.6	5.0	1.5	0.4
Inferred	80,400	25.6	1.9	7.9	1.7	0.3

Notes on Mineral Resources:

1. The mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards for Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10th, 2014.
2. The independent and qualified person for the 2016 Bloom Lake resource estimate, as defined by NI 43-101, is Réjean Sirois, P. Eng., from G Mining. The effective date of the estimate is November 15, 2016.
3. The mineral resources are estimated at a cut-off grade of 15% Fe.
4. The mineral resources are estimated using a long-term iron price of USD \$60/dmt concentrate and an exchange rate of 1.30 CAD/USD.
5. The mineral resources are reported within an optimized Whittle open pit shell.
6. The average strip ratio is 0.97:1 (w:o).
7. "Sat" stands for Satmagan or Saturation Magnetization Analyser, an instrument which measures magnetite in mineralised material.
8. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves.
9. The number of metric tonnes was rounded to the nearest hundred. Any discrepancies in the totals are due to rounding effects; rounding followed the recommendations in NI 43-101.

The Proven and Probable mineral reserve is estimated at 411.7 Mt at an average grade of 30.0% Fe based on a cut-off grade of 15% Fe. The mineral reserve was estimated using a long-term concentrate price of US\$54/dmt for 66% Fe content and an exchange rate of 1.30 CA\$/US\$. The mineral reserve includes a 4.3% mining dilution at an average grade of 10.3% Fe. The average strip ratio of the open pit is 0.48.

### Mineral Reserve Estimate (notes 1-8)

Classification	Diluted Ore Tonnage (dry)	Fe	CaO	Sat	MgO	Al <sub>2</sub> O <sub>3</sub>
	kt	%	%	%	%	%
Proven	264,160	30.73	0.48	2.98	0.56	0.32
Probable	147,554	28.71	2.84	6.68	2.72	0.40
<b>Total P&amp;P</b>	<b>411,713</b>	<b>30.01</b>	<b>1.33</b>	<b>4.30</b>	<b>1.33</b>	<b>0.35</b>

#### Notes on Mineral Reserves:

1. CIM definitions were followed for mineral reserves.
2. Mineral reserves based on September 28, 2016 LIDAR survey
3. Mineral reserves are estimated at a cut-off grade of 15% Fe.
4. Mineral reserves are estimated using a long-term iron price reference price (Platt's 62%) of \$50/dmt and an exchange rate of 1.30 CAD/USD. An Fe concentrate price adjustment of \$4.00/dmt was added.
5. Bulk density of ore is variable but averages 3.63 t/m<sup>3</sup>.
6. The average strip ratio is 0.48:1.
7. The mining dilution factor is 4.3%.
8. Numbers may not add due to rounding.

### Updated Mine Plan

The restart of operations at Bloom Lake is based on different operating assumptions which include an upgrade to the concentrator plant and a mineral reserve and mining scenario updated for the current iron ore market.

The operation consists of a conventional surface mining method using an owner mining approach with electric hydraulic shovels and mine trucks. All major mine equipment required for the restart of Bloom Lake is present on-site as this equipment was among the assets purchased by the Company's subsidiary, Quebec Iron Ore Inc.

### Updated Concentrator Plant

Quebec Iron Ore Inc. intends to use Bloom Lake's existing crushing and storage facilities, along with the mill and the rail load-out facilities to produce 7.4 Mtpa of concentrate, with an expected recovery of 83.3% from the ore mined from the main pit.

The proposed concentrator plant upgrade was developed to improve the overall iron recovery previously achieved by the existing concentrator when Bloom Lake was in production from 2010 until 2014. The specific goal was to improve the recovery of both the coarser (+425 microns) and fine (-106 microns) iron minerals, while having no adverse effect on the recovery of other size fractions.

The concentrator upgrade development was based on proven technology for Labrador Trough iron ore deposits.

## **Logistics**

The mine already has operational processing facilities and rail loop infrastructure, with access to end markets via port and rail. The rail access consists of three separate segments. The first is the 31.9 km rail spur on-site that is operational and connects to the Quebec North Shore & Labrador (QNS&L) railway at the Wabush Mines facilities in Wabush, Labrador. The second segment uses the QNS&L railway between Wabush to the Arnaud junction in Sept-Iles. The third segment is from Arnaud to Pointe-Noire port facilities (Sept-Iles) where the concentrate will be unloaded, stockpiled and then loaded onto vessels for export.

Bloom Lake benefits from excellent access to power, water, roads, rail, ports and a highly professional mining labour market, as well as a government that continues to be supportive of new investment and mining.

## **Technical Report and Qualified Persons**

A National Instrument 43-101 Technical Report (“Report”) will be filed under the Company’s profile on SEDAR within 45 days of the date of this news release. The Report will consist of a summary of the Feasibility Study. The Feasibility Study will also contain contributions from the following independent Qualified Persons:

- Louis-Pierre Gignac, P.Eng. – G Mining
- Rejean Sirois, P.Eng. – G Mining
- Etienne Bernier, P.Eng. – G Mining
- Stéphane Rivard, P.Eng. – Ausenco
- Robin Jones, P.Eng. – Ausenco
- Michel L. Bilodeau, P.Eng. – Ausenco
- Edward Hart, MAusIMM – Mineral Technologies
- Philippe Rio Roberge, P.Eng. – WSP Canada Inc.

Each of these Qualified Persons has reviewed and approved the technical information contained in this news release that is relevant to their area of responsibility and verified the data underlying such technical information.

## **About Bloom Lake**

On April 11, 2016, the Company, through its subsidiary, Québec Iron Ore Inc., acquired the Bloom Lake assets from affiliates of Cliffs Natural Resources Inc. that were subject to restructuring proceedings under the Companies’ Creditors Arrangement Act (Canada). Québec Iron Ore Inc. is 63.2% owned by the Company, with the remaining 36.8% equity interest owned by Ressources Québec, acting as a mandatory of the Government of Quebec.

The Bloom Lake property is located on the south end of the Labrador Trough, approximately 13 km

north of Fermont, Quebec, and 10 km north of the Mount-Wright iron ore mining operation of ArcelorMittal Mines Canada. The Bloom Lake Mine is an open pit truck and shovel operation, with a concentrator. From the site, iron concentrate can be transported by rail, initially on the Bloom Lake Railway, to a ship loading port in Sept-Iles, Québec.

The Bloom Lake Mine has already been authorized for operation under the federal and provincial environmental authorities. The project was subject to an environmental impact assessment process under Section 31 of the Provincial Environment Quality Act, which led to the first decree issued by the Quebec government in 2008 authorizing mining activities at the Bloom Lake site.

An updated positive Feasibility Study on Bloom Lake is being completed and will be available under the Company's profile on SEDAR ([www.sedar.com](http://www.sedar.com)) within 45 days of the date of this news release.

## **About Champion**

Champion is an iron development and exploration company, focused on developing its significant iron resources in the south end of the Labrador Trough in the province of Québec. Following the acquisition of its flagship asset, the Bloom Lake iron ore property, the Company's main focus is to implement upgrades to the mine and processing infrastructure it now owns while also advancing projects associated with improving access to global iron markets, including rail and port infrastructure initiatives with government and other key industry and community stakeholders.

Champion's management team includes professionals with mine development and operations expertise who also have vast experience from geotechnical work to green field development, brown field management including logistics development and financing of all stages in the mining industry.

## **For further information please contact:**

Michael O'Keeffe, Executive Chairman and CEO at Tel. +1 514-316-4858

David Cataford, VP Engineering at Tel. +1 514-316-4858

*For additional information on Champion Iron Limited, please visit our website at **[www.championiron.com](http://www.championiron.com)**.*

*This news release includes certain information that may constitute "forward-looking information" under applicable Canadian securities legislation. All statements, other than statements of historical facts, included in this news release that address future activities, events, developments or financial performance constitute forward-looking information. The use of any of the words "will", "expect", "anticipate", "intend", "believe", "plan", "potential", "outlook", "forecast", "estimate" and similar expressions are intended to identify forward-looking information. Forward-looking information is necessarily based upon a number of estimates and assumptions that, while considered reasonable, are subject to known and unknown risks, uncertainties, and other factors which may cause the actual results and future events to differ materially from those expressed or implied by such forward-looking information, including the risks identified in Champion's annual information forms, management's discussion and analysis and other securities regulatory filings made by Champion on SEDAR (including under the heading "Risk Factors" therein). There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in*

*such forward-looking information. Accordingly, readers should not place undue reliance on forward-looking information. All of Champion's forward-looking information contained in this press release is given as of the date hereof and is based upon the opinions and estimates of Champion's management and information available to management as at the date hereof. Champion disclaims any intention or obligation to update or revise any of its forward-looking information, whether as a result of new information, future events or otherwise, except as required by law.*

## Appendix: JORC Code (2012) – Table 1

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Sampling was completed using diamond drilling core. Several drilling campaigns were conducted between 1957 and 2014 by various companies. The size of the core was BQ and NQ.</li> <li>The drill hole locations were designed and oriented to allow for spatial spread of samples across different rock units and iron formations. Samples are representative of geological units.</li> <li>The sampling procedure for the various analyses is relatively simple. The two factors that are taken into consideration are the grade cut-off for samples and the length of the samples. Samples are taken before, through and after the potentially mineralized zone.</li> <li>The iron content of samples must be equal to or greater than 15%. This estimate is done visually by the person core logger. In addition, a sample is taken directly before and after the potentially economic ore and its rock type is noted (quartzite or amphibolite). An argillized contact between iron formation and amphibolite is included in the amphibolite. Generally, a sample respects the lithological contacts (upper or lower) and does not overlap two distinct lithologies. Samples must isolate, if possible, areas of equal content, but also potentially contaminated zones.</li> <li>In case of planned heavy liquids tests, head chemistry results are required before selecting samples for gravity separation.</li> <li>The standard length of a sample is six (6) meters, the equivalent of a box of BQ core. Obviously, the sample is half the core previously divided. However, the sample must be between three (3) to six (6) meters to a maximum of seven (7) meters in length. For the NQ core the standard sample length is 4.5 meters.</li> <li>For the intervals of unrecovered core the samples are at least 1.6 m if the core is continuous on the interval. If interrupted intervals are too short (less than 1.6 m), the core not recovered is included and a single sample is made including the missing intervals, which is the equivalent of at least 1.6 m core present.</li> <li>Core boxes are handled with care during transportation and storage. Upon arrival at the core shack, the boxes are placed on a table and opened. The core intervals are carefully measured and compiled on a list that will then be used to identify each box using aluminium tape affixed to its end. The following is affixed to the front of each box: the number of the hole, the number of the box and "FROM / TO". When all the work of description and sampling is completed, the boxes are placed on stands to keep the remaining core intact as a reference or if required for further test work.</li> </ul>



CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The sample bags are stored in a core shack until removed to go, via pic-up trucks, to TST Overland Express in Wabush which then, transport them to SGS Lakefield Research Limited (Lakefield), in Lakefield, Ontario. Samples are crushed and pulverized to -150 mesh. This method is used to report, in percentage, the whole rock suite (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, MgO, CaO, Na<sub>2</sub>O, K<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, MnO, TiO<sub>2</sub>, Cr<sub>2</sub>O<sub>3</sub>, V<sub>3</sub>O<sub>5</sub>). Sample preparation entails the formation of a homogenous glass disk by the fusion of 0.2 to 0.5 g of rock pulp with 7 g of lithium tetraborate/lithium metaborate (50/50). The disc specimen was then analyzed by WDXRF spectrometry. The detection limits for all analyzed oxides is 0.01%.</li> <li>This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates and blanks to calculate accuracy, precision, linearity, range, limit of detection, limit of quantification, specificity and measurement uncertainty.</li> <li>The LOI at 1000°C is determined separately gravimetrically. The LOI is included in the matrix-correction calculations, which are performed by the XRF instrument software.</li> <li>Additional analysis included determination of magnetic iron with a Satmagan magnetic balance. The instrument is an equilibrated, level and clean Magnet Potentiometer scale (Satmagan). The magnetic force is read from the potentiometer scale. The magnetic Fe is calculated using the formula:   <math display="block">\% \text{ magnetic Fe} = \text{Reading from scale} \times \text{calibration factors} \times 0.724.</math> </li> <li>Other additional analysis included determination of sulphur by combustion-infrared detection on LECO instrumentation.</li> <li>Specific gravity was determined using an air comparison pycnometer. It should be noted that this method does not take into account existing porosity in a rock and some of the OIF does contain vugs due to calcite removal. Although the degree of porosity has not been quantified, it is estimated on the basis of visual examination of drill core to be generally less than 2%. It should be noted that specific gravity was not measured for all drill holes.</li> <li>Core samples were split using a hydraulic core splitter. The second half of the split core sample was returned to the core tray.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Historical drilling includes drilling campaigns conducted by J&amp;L and CCIC in 1956 and 1957, QUECO in 1971 and 1972, and WGM in 1998. Holes drilled by J&amp;L and CCIC are XRT and AXT size core holes, producing 19 mm diameter core and 32.5 mm diameter core, respectively. In 1971 and 1998, holes were drilled with BQ drill rods, producing 36.4 mm core, however some of the holes were started with NQ tools where the ground was expected to be difficult.</li> <li>The Bloom Lake West area was drilled during the years 1957 to 2007 following two dominant axes. The first one, EW oriented, is located approximately at latitude of 5,855,400 mN and the second, on a NS axis at 613,250 mE and 613,550 mE, where cross-sections were established.</li> <li>Between 2007 and 2008, CLM drilled BQ and NQ size core holes. Consolidated Thompson conducted drilling campaigns between 2007 and 2010 recovering BQ size drill in 2007, and subsequently NQ size tools were used.</li> <li>The drilling campaigns continued in 2009, 2010, 2012, and 2013. Most of the holes were drilled in the West Bloom area, as well as in the Bloom Pignac area. Much less drilling was in the Confusion Lake, Carot Lake and central Bloom areas. All this new information was added to the previous one and a new block model was created in 2014.</li> <li>Also for 2014, an exploration drilling campaign was planned, but only four (4) geotechnical holes have been drilled.</li> <li>The drilling contractors have been Forage CCL and Les Forages Lantech Drilling Services Inc. They produced both BQ and NQ size core.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The holes were collared on-site with a portable Garmin GPS. This position could vary from a few meters to accommodate drilling, depending on the ground conditions but still, was maintaining the relative position and spacing relative to the other holes.</li> <li>Drilling azimuth reference was provided through points of coordinates. The use of a compass was not recommended due to the high level of magnetism developed by some horizons of the underlying iron formations.</li> <li>Deviation and inclination tests were carried out in the holes. Tests with hydrofluoric acid (HF) were done for the drilling of 2006 - 2008 while, starting 2009, a Flexit instrument was used to measure both orientation and inclination of all the drill holes. This instrument provided useful magnetic susceptibility values. Readings were taken every 15 or 30 meters. All the data obtained with the Flexit instrument were analyzed and all the inappropriate data were eliminated if deviation was too large and/or if the magnetic susceptibility was too high.</li> <li>Deviation readings were not taken for drill holes that were lost or abandoned.</li> <li>All the drill hole collars were surveyed. The firm of land surveyors, Roussy Michaud from Sept-Îles, put in place stations on the pit site. These points were used as references for positioning the West Zone. Surveyors of Roussy Michaud and Consolidated Thompson used a Trimble R8 instrument to survey the drill hole collars.</li> <li>The inclination and direction of the drill collars were not precisely surveyed. An approximate direction was obtained in aiming at a 3 m rod inserted into the drill hole tubing and then, direction was verified against the Flexit readings.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Core recovery is recoded in the database.</li> <li>Core recovery was very good, generally more than 90%.</li> <li>There are no significant core loss or sample recovery issue.</li> <li>There is no apparent relationship between core-loss and grade.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>The core was logged using standard verified methods. Rock types were identified and intervals were measured according to the marks done by the drillers. Logging took into account the general color of the rock, the relative percentage of constituents, the grain size distribution, texture and the variation of these elements when significant. A particular attention was given to the orientation of foliations relative to the core axis. This was very useful in the structural interpretation.</li> <li>Logging was both qualitative and quantitative.</li> <li>The mineralized units to be sampled were marked with a grease pencil at 1 to 6 m intervals, depending on the mineral content.</li> <li>All the data were stored in the Geovia software, which uses an MS Access database.</li> <li>There is no apparent relationship between core-loss and grade.</li> <li>All the boxes were labelled, photographed in lots of five and most of them were photographed in detail, 3 to 4 pictures being taken for each box. The core boxes were systematically measured to validate the marks of the drillers. Measuring was also done to calculate the RQD and the core recovery.</li> </ul>
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>Core samples were split using a hydraulic core splitter. The second half of the split core sample was returned to the core tray.</li> <li>Quality control procedures included a number of 170 duplicates coming from the core of the 2010, 2012 and 2013 drilling programs were analysed for major oxides and sulfur.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>• Until 2009 quartz samples have been used as Blanks. These blank samples were obtained from the Daviault Lake silica quarry of Blackburn Quartz. This property, entirely owned by Quebec/ Labrador Exploration, is located 7 km north of Fermont. The samples of quartz were visually selected prior to their use as blanks, to avoid the presence of any impurity. The samples were crushed to 2 – 3 cm.</li> <li>• Starting with the 2012 drilling campaign, the silica Blanks have been replaced by samples coming from the waste lithology, mainly amphibolites. Even if they were considered as Blanks, these 69 samples have a variable amount of oxides that is related to the mineralogical composition and alteration of the selected samples. Because of this reason, these Blanks cannot offer any indication if the sample preparation and analytical results have been affected by contamination.</li> <li>• Standard samples made from mineralized material from the Bloom Lake deposit were used in the 2013 drilling campaign. Insufficient description of the material and procedures surrounding the Standard analyses lead to the conclusion that the Standards are not appropriate for the QA/QC.</li> <li>• At SGS Lakefield, the samples were dried at ~70 +/-10°C for a suitable amount of time, if received wet. The next step involved crushing to reduce each sample size to 2 mm (9 mesh). The sample was then split with a riffle splitter to divide the sample into two representative 0-2 mm portions. One portion was for analysis and the other for reject.</li> </ul>
<p>Quality of assay data and laboratory tests</p>	<ul style="list-style-type: none"> <li>• A whole rock analysis was done on each sample to measure the following parameters (in %): SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, MgO, CaO, Na<sub>2</sub>O, K<sub>2</sub>O, TiO<sub>2</sub>, P<sub>2</sub>O<sub>5</sub>, MnO, Cr<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub>, loss on ignition ("LOI") and S (in ppm).</li> <li>• Samples are crushed and pulverized to -150 mesh. This method is used to report, in percentage, the whole rock suite (SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, MgO, CaO, Na<sub>2</sub>O, K<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, MnO, TiO<sub>2</sub>, Cr<sub>2</sub>O<sub>3</sub>, V<sub>2</sub>O<sub>5</sub>). Sample preparation entails the formation of a homogenous glass disk by the fusion of 0.2 to 0.5 g of rock pulp with 7 g of lithium tetraborate/lithium metaborate (50/50). The disc specimen was then analyzed by WDXRF spectrometry. The detection limits for all analyzed oxides is 0.01%.</li> <li>• This method has been fully validated for the range of samples typically analyzed. Method validation includes the use of certified reference materials, replicates and blanks to calculate accuracy, precision, linearity, range, limit of detection, limit of quantification, specificity and measurement uncertainty.</li> <li>• The LOI at 1000°C is determined separately gravimetrically. The LOI is included in the matrix-correction calculations, which are performed by the XRF instrument software.</li> <li>• Additional analysis included determination of magnetic iron with a Satmagan magnetic balance. The instrument is an equilibrated, level and clean Magnet Potentiometer scale (Satmagan). The magnetic force is read from the potentiometer scale. The magnetic Fe is calculated using the formula:   <math display="block">\% \text{ magnetic Fe} = \text{Reading from scale} \times \text{calibration factors} \times 0.724.</math> </li> <li>• Other additional analysis included determination of sulphur by combustion-infrared detection on LECO instrumentation.</li> <li>• Specific gravity was determined using an air comparison pycnometer. It should be noted that this method does not take into account existing porosity in a rock and some of the OIF does contain vugs due to calcite removal. Although the degree of porosity has not been quantified, it is estimated on the basis of visual examination of drill core to be generally less than 2%. It should be noted that specific gravity was not measured for all drill holes.</li> <li>• Total iron was calculated from Fe<sub>2</sub>O<sub>3</sub> by dividing total iron expressed as Fe<sub>2</sub>O<sub>3</sub> by a factor of 1.4295.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

Verification of sampling and assaying	<ul style="list-style-type: none"> <li>G Mining has taken core samples to compare with assay grades available in the drilling database of the Bloom Lake Project. The sampling was carried out independently by the competent person responsible for the resource estimate, Réjean Sirois, during the site visit in September 2016. A total of 12 samples were selected and analysed for iron content. The check samples generally returned higher iron grades than those of the original assays in the database.</li> <li>G Mining is of the opinion that the check assay results are reasonably close to those of the original assays and that consequently, the assays results included in the database of the Bloom Lake Project are reliable and can be used for the resource estimation.</li> <li>Twelve twin holes have been drilled during 2006 – 2007.</li> <li>The protocols of data entry procedures, data verification and data storage have been checked.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>All data related to drilling done on the property are on the UTM NAD 83 geographical coordinates. The territory is covered by the zone 19. All the previous coordinates were converted in that system.</li> <li>All the drill hole collars were surveyed using a Trimble R8 instrument by the surveyors of Roussy Michaud and Consolidated Thompson.</li> <li>For hole deviation, tests with hydrofluoric acid (HF) were done for the drilling of 2006 - 2008 while, starting 2009, a Flexit instrument was used to measure both orientation and inclination of all the drill holes.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>The drill holes were planned to properly cover the mineralization domains with a 3D spacing of 150 m.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>The Bloom Lake West area was drilled following two dominant axes following the mineralized structures. The first one, EW oriented, is located approximately at latitude of 5,855,400 mN and the second, on a NS axis at 613,250 mE and 613,550 mE.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The sample bags are stored in a core shack until removed to go, via pic-up trucks, to TST Overland Express in Wabush. Here, the bags were put on pallets that were sealed with plastic wrap-ups. When the sample bags arrive at the SGS Lakefield Research Limited, Lakefield, Ontario, the security policy of the laboratory applies.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>In 2009, GENIVAR reported that verifications were done at the property itself in order to find the collars of holes done during prior drilling programs. Some of these drill hole collars could not be found. However, the deforest areas observed, were clear evidences of collars location. Further verifications were done on the drill core.</li> <li>Five visits were done on-site in Fermont by GENIVAR between October 2007 and February 2009. The objectives of these visits were to carry out visual inspections of the overall site, of the layout and organization of the installations as well as the examination of the drill cores.</li> <li>The Project was visited by SRK on September 7, 2011. The site visit consisted in the review of regional and property geology, review of drill core and comparison to drill logs, visit to the open pit mine, and visit to the process plant and tailings storage facility and discussion with key personnel on operating and capital costs.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

**Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>• The Bloom Lake property is owned by Quebec Iron Ore Inc. (QIO), a wholly owned subsidiary of Champion Iron Limited.</li> <li>• The Bloom Lake property is located in the northeastern part of the province of Quebec, adjacent to the Labrador/Newfoundland border, in Normanville Township, Kaniapiskau County. The Bloom Lake property is located 13 km west of the town of Fermont and 30 km southwest of the municipalities of Wabush and Labrador City.</li> <li>• In 2016, QIO was holding 100% of 114 active claims outside of the Mining Lease (BM 877) which has a total of 6857.7 ha. The mining lease boundaries are in compliance with the restriction zones and the claims within the mining lease have been suspended. QIO requested the renewal of 69 claims in October 2016. Those claims outside the mining lease remain active.</li> <li>• There are no royalties, agreements or encumbrances on the Mining site.</li> <li>• The mine has already been authorized for operation under the federal environmental authority including Fisheries and Oceans Canada, Transport Canada, Natural Resources Canada and Environment Canada. There is only one pending process with the federal government associated with the 2008 authorization for destruction of fish habitats. The authorization from DFO should be issued in 2017. This process does not prevent QIO from operating the mine.</li> <li>• A total of 38 certificates of authorization have been issued by the provincial government to the Bloom Lake iron mine in the past, and infrastructure such as the pit, waste rock piles, tailing management facilities, water management structure as well as the treatment plant have all been authorized. A few of these authorizations will require modifications to consider the new mine plan.</li> <li>• There are no known significant issues that are believed to materially impact the mine's ability to operate.</li> </ul>
Exploration done by other parties	<ul style="list-style-type: none"> <li>• Exploration was done, starting 1957, by several companies including Cliffs Iron Company (CCIC), Boulder Lake Mines Incorporated, a subsidiary of CCIC, Jalore Mining Company Limited, a subsidiary of J&amp;L, and QCM.</li> </ul>
Geology	<ul style="list-style-type: none"> <li>• The Bloom Lake Iron Deposit lies within the Fermont Iron Ore District (FIOD), a world-renowned iron-mining camp at the southern end of the Labrador Trough within the geological Grenville Province.</li> <li>• The Bloom Lake deposit comprises gently plunging synforms on a main east-west axis separated by a gently north to northwest plunging antiform. One of these synforms is centred on Triangle Lake, while the centre for the other is located just north of Bloom Lake. The Bloom Lake property is centred primarily on the eastern synform but covers a portion of the northern limb of the western synform.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The iron-formation and quartzite are conformable within a metasedimentary series of biotite-muscovite-quartz-feldspar-hornblende-garnet-epidote schists and gneisses in a broad synclinal structure. This succession, following the first stage of folding and faulting, was intruded by gabbroic sills which were later metamorphosed and transformed into amphibolite gneiss with foliation parallel with that in adjacent metasediments. Two separate iron-formation units are present; these join northwest of Bloom Lake, but are separated by several hundred feet of gneiss and schist in the southern part of the structure.</li> <li>Bloom Lake property mineralization style is a deposit typical of the Superior-Lake type.</li> <li>The mineralization is found in bands of iron formations of different composition including the Hematite Iron Formation, Magnetite Iron Formation and Silicate Iron Formation. The mineralization controls of the deposit are well understood.</li> <li>For iron formation to be mined economically, the iron content must generally be greater than 30%, but also iron oxides must be amenable to concentration (beneficiation) and the concentrates produced must be low in manganese and deleterious elements such as silica, aluminum, phosphorus, sulphur and alkalis.</li> </ul>
Drill hole Information	<ul style="list-style-type: none"> <li>221 drill holes were made between 1957 and 2009 for a total of 42,228 metres and 310 drill holes in 2010, 2012 and 2013 for a total of 93,563 meters. Four geotechnical holes have been drilled in 2014 (GT-14-07, GT-14-08, GT-14-09, GT-14-10).</li> <li>The drilling covers an area about 4.7 km in length and 1 to 2 km in width.</li> <li>All drill holes and associated assays and lithological data are currently held in the Bloom Lake database.</li> </ul>
Data aggregation methods	<ul style="list-style-type: none"> <li>The details related to intercepts and assay management for Mineral Resource estimation are to be found under the Mineral Resource estimation of the Table 1 (Section 3).</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>The geometry of the mineralization with respect to the drill hole angle is known.</li> </ul>
Diagrams	<ul style="list-style-type: none"> <li>Maps and geological sections (including the topography, the drill holes with lithology and assays) as well as plan views with drill hole collar locations are included in the FS study.</li> </ul>
Balanced reporting	<ul style="list-style-type: none"> <li>No exploration results in addition to those already published are included in the Mineral Resource estimate.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>All exploration results to date (drilling, geological, geochemical, geotechnical and geophysical data) are included.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>The geological model should be expanded to include the 23 drill holes located east of the Bloom Lake Project and south of Confusion Lake. The additional drilling information may lead to the modelling of new mineralization domains.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>Silica blanks and standard reference material of industry standards, as well as detailed descriptions of the QA/QC procedures should be introduced in the future drilling programs.</li> </ul>
--	---

### Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Commentary
Database integrity	<ul style="list-style-type: none"> <li>All data entries are compiled in the Geovia Gems database. The database was retrieved directly from the SQL server where backups files of the project are maintained. The database has internal validation procedures to minimise transcription errors, interval overlaps, duplicate information and missing entries. These validation procedures are executed automatically by the software.</li> <li>G Mining proceeded to verifications of the database, including validity checks for out-of-range values, missing intervals and overlapping intervals, visual inspection of drill holes for unusual azimuths, dips and deviations, assay checks for long intervals, extreme high values and reasonable minimum/maximum values, and drill hole checks for duplicate information. Additional verifications were done with the provided digital copies of the original log books and assay certificates. The database was found to be in good condition.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The Competent Person for this resource estimate has visited the mine site twice in September 2016. During the visits, the project site was inspected, including the core shack installations and mine facilities, and the open pit mine was visited to supervise the selection of in-pit material samples for metallurgical testing. The Competent Person has found all facilities visited conform to standard industry best practice.</li> <li>The geology and controls on mineralization were examined on drill core. The Competent Person conducted an independent core sampling program to verify the grades against original assays in the database.</li> <li>There were no drill rigs operating and the mine was not in operation at the time of the site visits.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>The confidence in the geological interpretation is based on mostly recent and historical drilling information, representing 88% and 12% of the database, respectively. Geological maps, ground magnetic surveys, pit mapping and ore control data provided additional information to complete the geological model of the Bloom Lake deposit. The geological confidence of the model is supported by multiple data sources and is considered high.</li> <li>The dataset (DDH, assays, geological maps, ground magnetic surveys and geological data from the open pit mine, etc.) is considered adequate to support a detailed geological model.</li> <li>The classification of the Mineral Resource estimates is reasonably reflecting the impact of possible alternative interpretations on the resource quantities. Measured material is defined in domains where sufficient drill hole data is available to identify the continuity of the grades and iron formation rock units. Indicated material is defined in domains where sufficient, but wider spaced, drill hole data is available to identify the grades and iron formations continuity. Inferred material is defined in areas where widely spaced drill hole data is available, but grades and geological continuity is not verified. Some geological reinterpretation could be expected in areas where Inferred material is identified.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The geological model of the deposit is composed of geological domains, including four (4) mineralized and three (3) major unmineralized units, and of sub-domains dividing the geological model into nine (9) structural groups. The geological domain boundaries correspond to sharp contacts between the iron formation and host rocks. The Mineral Resource was estimated inside the mineralization domains using interpolation parameters defined for each structural sub-domain. The Mineral Resource estimation is strongly based on the geological model of the deposit.</li> <li>Geological interpretation was done on 75 m to 150 m spaced vertical cross-sections and on plan views, every 14 m, from the top of the mine at elevation 816 m down to bench 410 m, and every 28 m down to elevation 18 m. The level of detail to which the geology model was constructed represents adequately the complexity of the folded structures and stratigraphy. The lower portion of the model, defined on 28 m spaced plan views, results in a more bulky model, but the latter is consequent to the fewer and wider spaced drill holes at depth.</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>The Bloom Lake deposit is located between 812,000 mE and 817,000 mE and 5,853,500 mN and 5,856,700 mN (UTM NAD83 geographical coordinates). The mineralization is located inside folded iron-formation units controlled by a synform structure and has a East-West strike extent of 4,5 km. The iron-formation units are, in some areas, separated by several dozen meters of host rocks, and mineralization can be found approximately on maximum 780 m at dip extension and up to a depth of 650 m below the topographic surface.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>The determination of composite length was based on assay average length (4.7 m), mineralization wireframe thicknesses and bench height (14 m) at the Bloom Lake mine. The assays were composited into regular 7.0 m run lengths within each mineralized unit.</li> <li>Grade variography analyses were completed on the 7.0 m composites, grouped by litho-structural domains.</li> <li>Large search ellipsoids and one pass run strategy were used to perform the ordinary kriging grade interpolation inside the block model. The dimensions of the blocks in the block model are (X)10 m by (Y)10 m by (Z)14 m. The interpolation was done strictly within the mineralization wireframes, using various search ellipsoid orientations established according to the structural sub-domains defined in the deposit.</li> <li>The neighborhood search required minimum three (3) composites, allowed a maximum of four (4) composites per hole, and restricted the selection to maximum 30 composites (maximums varying between 15 and 30 composites).</li> <li>Ranges and orientations of the search ellipsoids are representative of the anisotropy ratios and directions as determined from the variography analysis.</li> <li>Restrictions on search ellipsoid ranges were applied to composites of high grade to limit their influence during interpolation. High grade transition limits were chosen based on the statistical analysis of the 7.0 m composites and applied to the following variable/oxide search ellipsoids: Al<sub>2</sub>O<sub>3</sub>, CaO, Mag Fe (Sat), MgO, MnO, P<sub>2</sub>O<sub>5</sub>, Si Concentrate, and TiO<sub>2</sub>. No restrictions were applied to iron grades as those are thought to be geologically representative of the mineralization.</li> <li>The Mineral Resource estimation were completed using GEOVIA Gems software version 6.7.3.</li> <li>No assumptions were made regarding recovery of by-products.</li> </ul>



CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"><li>• The following oxides were estimated inside the mineralization domains: CaO (%), MgO (%), MnO (%), Al<sub>2</sub>O<sub>3</sub> (%), TiO<sub>2</sub> (%) and P<sub>2</sub>O<sub>5</sub> (%). Other non-grade variables, such as Sat (%) or magnetic iron measured from a Satmagan instrument, Fe Rec (%) or iron recovery, Si Conc (%) or Silica Concentrate, Rock Quality Designation (RQD) and Specific Gravity SG (g/cm<sup>3</sup>) were estimated in the resource model. Oxides and non-grade variables estimations were completed using specific interpolation parameters determined from the variography and statistical analyses for each variable.</li><li>• Block size was chosen to accommodate the drilling pattern, the thickness of the mineralization units, the folded nature of the lithological units and the open pit mine planning considerations i.e. 10 m (X) by 10 m (Y) by 14 m (Z).</li><li>• The selective mining unit is based on the open pit mining fleet configuration as utilized during production phase.</li><li>• No assumptions about correlation between variables were developed for this resource estimate.</li><li>• Mineralization domains were used to constrain the resource estimate; no grades were estimated outside the mineralization domains. The choice of using hard or soft boundaries between mineralization domains, was determined from contact and sensitivity analysis or by statistical similarities between geological domains and structural sub-domains. Differences in grades across domains and sub-domains are generally small and gradational which led to the use of soft boundaries between some domains and structural sub-domains for the iron and oxide grade interpolations.</li><li>• The Mineral Resource estimate is constrained by the mineralization domains, but also by an overburden cover and topography surface. The blocks were rock coded from the highest proportion of block volume inside the 3D geological wireframes, and coded overburden or topography, if at least 50% or 99% of the block volume is located above the overburden or topography surfaces, respectively.</li><li>• There was no top cutting applied to high-grade assays. Higher iron grades are thought to be geologically representative of the mineralization.</li><li>• Every step of the block modelling process, including assay and composite database, topography, drill hole location, down-hole survey, geology interpretation, geological coding, block model development and resource estimation and classification, was revised to ensure fair representation of the available data in the Bloom Lake resource model.</li><li>• Visual checks were completed on the block model and consisted of visualization of slices of the block model, mineralization envelopes and drill hole data. The slicing was performed vertically on 75 m intervals and horizontally on 14 m intervals. The data source was visually compared with the different model attributes (rock type and domains, density, grades) along the strike length of the deposit. Globally, the geology and structural domains are adequately represented in their proper attribute model. The ordinary kriging-based iron resource estimate was found to be a good representation of the drill hole composites.</li><li>• Swath plots were generated to assess the correlation between the grades of the composites used in the interpolation of each block versus the iron grade estimated. Swath plots were produced by vertical slices of 75 m and 14 m increments in elevation. Generally, the grades estimated in the blocks are close to the average grades provided by the data source; no bias was found in the resource estimate in this regard.</li><li>• Descriptive statistics of iron grades were tabulated for the assays, composites and blocks for each mineralized lithology. The average iron grade in the interpolated blocks was found to be slightly lower than the average grade available from the composites. This is a good indication that the initial grades were preserved throughout the estimation process.</li></ul>
--	---

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"><li>• The Ordinary Kriging (OK) based iron resource model was compared to an Inverse Distance Cubed (ID3) estimate and results were very close. This information provides a general indication that the resource model is reasonable.</li><li>• The performance of the block model for the Bloom Lake Project to predict resource estimates was evaluated through reconciliation comparisons using the mine production records between 2012 and 2014. Based on the reconciliation analysis, the block model produces acceptable predictions of the mine production numbers (±1% total difference in grade and tonnage).</li></ul>																																																																																		
Moisture	<ul style="list-style-type: none"><li>• All Mineral Resource tonnages are estimated and reported on a dry basis.</li></ul>																																																																																		
Cut-off parameters	<ul style="list-style-type: none"><li>• The Mineral Resources are estimated at a cut-off grade of 15% Fe. This cut-off grade is identical to that used for estimating Mineral Reserves.</li></ul>																																																																																		
Mining factors or assumptions	<div><ul style="list-style-type: none"><li>• Before exporting the block model to the Whittle pit optimization software, each block was assigned a material code, following different quality constraints based on iron and oxides content as presented below:</li></ul></div> <div><div>Contaminant Restriction Limits by Lithology Domain</div><table><tr><th rowspan="2">Material Type</th><th colspan="2">Lithology Domain</th><th rowspan="2">Material Code</th><th rowspan="2">% Fe</th><th rowspan="2">% CaO</th><th rowspan="2">% MgO</th><th rowspan="2">% Sat</th></tr><tr><th>Resource Model</th><th>Grade Control Model</th></tr><tr><td rowspan="8">Ore</td><td>IF</td><td>HEM</td><td>1</td><td>&gt; 15.0</td><td>0.0 - 2.5</td><td>0.0 - 3.0</td><td>0.0 - 12.0</td></tr><tr><td>IFM</td><td>MAG</td><td>2</td><td>&gt; 15.0</td><td>0.0 - 2.5</td><td>0.0 - 3.0</td><td>12.0 - 100.0</td></tr><tr><td rowspan="6">SIF</td><td>MAG_ACT_TREM</td><td>6</td><td>&gt; 15.0</td><td>2.5 - 8.0</td><td>3.0 - 8.0</td><td>12.0 - 100.0</td></tr><tr><td>MAG_ACT_TREM_1</td><td>7</td><td>&gt; 15.0</td><td>2.5 - 8.0</td><td>0.0 - 8.0</td><td>12.0 - 100.0</td></tr><tr><td>MAG_ACT_TREM_2</td><td>8</td><td>&gt; 15.0</td><td>0.0 - 8.0</td><td>3.0 - 8.0</td><td>12.0 - 100.0</td></tr><tr><td>HEM_ACT_TREM</td><td>9</td><td>&gt; 15.0</td><td>2.5 - 8.0</td><td>3.0 - 8.0</td><td>0.0 - 12.0</td></tr><tr><td>HEM_ACT_TREM_1</td><td>10</td><td>&gt; 15.0</td><td>2.5 - 8.0</td><td>0.0 - 8.0</td><td>0.0 - 12.0</td></tr><tr><td>HEM_ACT_TREM_2</td><td>11</td><td>&gt; 15.0</td><td>0.0 - 8.0</td><td>3.0 - 8.0</td><td>0.0 - 12.0</td></tr><tr><td rowspan="3">Waste</td><td rowspan="3">WSIF</td><td>GRUN</td><td>3</td><td>0.0 - 100.0</td><td>8.0 - 100.0</td><td>8.0 - 100.0</td><td>0.0 - 100.0</td></tr><tr><td>GRUN_1</td><td>4</td><td>0.0 - 100.0</td><td>0.0 - 100.0</td><td>8.0 - 100.0</td><td>0.0 - 100.0</td></tr><tr><td>GRUN_2</td><td>5</td><td>0.0 - 100.0</td><td>8.0 - 100.0</td><td>0.0 - 100.0</td><td>0.0 - 100.0</td></tr></table></div> <div><ul style="list-style-type: none"><li>• The Mineral Resource is reported within an optimized Whittle open pit shell generated using the following optimization parameters<ul style="list-style-type: none"><li>○ Fe recovery: 80%</li><li>○ Concentrate grade: 66%</li><li>○ Concentrate price: US\$64/dmt of concentrate (US\$60/dmt Platts reference price plus US\$4.0/dmt Fe content adjustment)</li><li>○ Exchange rate: 1.30 C\$/US\$</li><li>○ Total concentrate logistics cost: C\$33.30/dmt of concentrate</li><li>○ Total ore based cost: C\$7.15/t ore (includes processing, G&amp;A, tailings and water management)</li><li>○ Reference mining cost: C\$2.85/t plus C\$0.029/t per 14m bench</li><li>○ Mining recovery of 100%</li><li>○ Mining dilution of 3%</li></ul></li></ul></div>	Material Type	Lithology Domain		Material Code	% Fe	% CaO	% MgO	% Sat	Resource Model	Grade Control Model	Ore	IF	HEM	1	> 15.0	0.0 - 2.5	0.0 - 3.0	0.0 - 12.0	IFM	MAG	2	> 15.0	0.0 - 2.5	0.0 - 3.0	12.0 - 100.0	SIF	MAG_ACT_TREM	6	> 15.0	2.5 - 8.0	3.0 - 8.0	12.0 - 100.0	MAG_ACT_TREM_1	7	> 15.0	2.5 - 8.0	0.0 - 8.0	12.0 - 100.0	MAG_ACT_TREM_2	8	> 15.0	0.0 - 8.0	3.0 - 8.0	12.0 - 100.0	HEM_ACT_TREM	9	> 15.0	2.5 - 8.0	3.0 - 8.0	0.0 - 12.0	HEM_ACT_TREM_1	10	> 15.0	2.5 - 8.0	0.0 - 8.0	0.0 - 12.0	HEM_ACT_TREM_2	11	> 15.0	0.0 - 8.0	3.0 - 8.0	0.0 - 12.0	Waste	WSIF	GRUN	3	0.0 - 100.0	8.0 - 100.0	8.0 - 100.0	0.0 - 100.0	GRUN_1	4	0.0 - 100.0	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0	GRUN_2	5	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0	0.0 - 100.0
Material Type	Lithology Domain		Material Code	% Fe						% CaO	% MgO		% Sat																																																																						
	Resource Model	Grade Control Model																																																																																	
Ore	IF	HEM	1	> 15.0	0.0 - 2.5	0.0 - 3.0	0.0 - 12.0																																																																												
	IFM	MAG	2	> 15.0	0.0 - 2.5	0.0 - 3.0	12.0 - 100.0																																																																												
	SIF	MAG_ACT_TREM	6	> 15.0	2.5 - 8.0	3.0 - 8.0	12.0 - 100.0																																																																												
		MAG_ACT_TREM_1	7	> 15.0	2.5 - 8.0	0.0 - 8.0	12.0 - 100.0																																																																												
		MAG_ACT_TREM_2	8	> 15.0	0.0 - 8.0	3.0 - 8.0	12.0 - 100.0																																																																												
		HEM_ACT_TREM	9	> 15.0	2.5 - 8.0	3.0 - 8.0	0.0 - 12.0																																																																												
		HEM_ACT_TREM_1	10	> 15.0	2.5 - 8.0	0.0 - 8.0	0.0 - 12.0																																																																												
		HEM_ACT_TREM_2	11	> 15.0	0.0 - 8.0	3.0 - 8.0	0.0 - 12.0																																																																												
Waste	WSIF	GRUN	3	0.0 - 100.0	8.0 - 100.0	8.0 - 100.0	0.0 - 100.0																																																																												
		GRUN_1	4	0.0 - 100.0	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0																																																																												
		GRUN_2	5	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0	0.0 - 100.0																																																																												

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>• The Mineral Resources are reported without any mining dilution factors.</li> <li>• The average strip ratio of the Whittle shell is 0.97:1 (waste:ore).</li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>• Bloom Lake concentrate was previously sold into global markets for several years with sales of 5.9 million tonnes in 2014.</li> <li>• A comprehensive metallurgical testing program has been conducted using six bulk samples taken from the Bloom Lake deposit. The sample locations were selected based on the anticipated mine plan across the three main zones of the Bloom Lake deposit. The validated model predicts that iron recovery of 83.3% will be achieved in a continuous plant operation treating ore of similar characteristics to the sample tested at the expected life of mine feed grade of 30% iron. Concentrate quality requirements were met at greater than 66.2% Fe and less than 4.5% SiO<sub>2</sub>.</li> </ul>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>• In December 2006, an environmental impact assessment of the Bloom Lake mine project was submitted to the agencies. Decree 137-2008 authorizing the project was adopted on February 20, 2008 by the provincial government. Consolidated Thompson Iron Mines Limited (a former owner) began the construction of the mining infrastructures in 2008 and commenced mining operations in 2010 with the phase 1 concentrator plant.</li> <li>• The mine was sold to Cliffs Natural Resources Inc. (Cliffs) in 2011, which continued mining operations until they were suspended in December 2014, due to financial distress caused also by a sharp decrease of iron ore prices.</li> <li>• Cliffs maintained the site idled from December 2014 up to April 2016 when QIO became its owner. During the care and maintenance period, Cliffs improved some of the water management infrastructure, in order to meet all legal and environmental obligations.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>• Starting in 1998, density was determined for each sample using an air comparison pycnometer.</li> <li>• The method used for bulk density determinations i.e. air comparison pycnometer, does not account for existing porosity in a rock. Some of the iron formation rocks contain vugs from calcite removal, however, based on visual observations of drill core, the degree of porosity was estimated to be less than 2%. The method used to measure density is judged adequate for the determination of the different rock densities in the Bloom Lake deposit.</li> <li>• In 2012, a total of 4,054 pycnometer tests conducted at Lakefield were analysed and the equation derived from the analysis was used to assign a specific gravity result to some of the untested drill core sample intervals e.g. historical holes.   <math display="block">SG_{calc} = (2.6655 * (\exp (0.0086 * FeT)))</math> </li> <li>• From all specific gravity entries in the database, tested and calculated, density averages were estimated for each lithological unit and assigned to the block model for background density values. Blocks were estimated from density composites (regular 7.0 m run lengths, composited inside geological wireframes) and used interpolation parameters similar to those used for the iron grade estimation i.e. Ordinary Kriging interpolator, one pass run strategy, large search ellipsoid oriented along defined structural sub-domains, etc. The density values estimated from the interpolation run replaced background density values.</li> </ul>
Classification	<ul style="list-style-type: none"> <li>• In the block model, all the interpolated Fe % blocks were first categorized as inferred resources. Then, according to criteria based on data density and estimation efficiency, measured and indicated resources were identified leaving resources not meeting the criteria into the inferred category. The resources were ranked depending on slope of regression, number of holes and distance between composite and block as follow:</li> </ul>

**CHAMPION IRON LIMITED**  
**APPENDIX 5A**

	<b>Data Density and Kriging Efficiency Indicators</b>	<b>Measured</b>	<b>Indicated</b>	<b>Inferred</b>
	Slope of regression	0.8 - 1.0	0.5 - 1.0	All blocks where Fe % > 0 and where the measured and indicated resource category criteria are not met
	Minimum number of holes	8	8	
	Average distance between composites and block (m)	0 - 150	100 - 300	
		<ul style="list-style-type: none"><li>• A post processing interpretation of the resource classification was done on cross-section to homogenize the groups of resources by removing artificial features and isolated blocks or group of blocks.</li><li>• Reconciliation of the Mineral Resource against production data, between 2012 and 2014, supports the classification that has been applied to the Bloom Lake Mineral Resource.</li><li>• The classification of the interpolated blocks was undertaken by considering the quality and reliability of drilling and sampling data, distance between sample points (drilling density), confidence in the geological interpretation, continuity of the geological structures and continuity of the grade within these structures, statistics of the data population and quality of assay data.</li><li>• The Mineral Resource estimate appropriately reflects the Competent Person's view of the deposit.</li></ul>		
Audits or reviews	<ul style="list-style-type: none"><li>• The current Mineral Resource estimate is based on the 2014 Resource produced by Dassault Systèmes, Geovia and reported internally at Cliffs Natural Resources. G Mining audited the resource estimate and provided a Mineral Resource for the Bloom Lake Project that conforms to the CIM and JORC regulations. G Mining has reviewed the resource parameters presented by Geovia, including the following items: domaining strategy, statistical study of assays and composites, variography analysis, interpolation and search ellipse settings, estimation process and classification of the resource.</li><li>• The overall conclusion of the audit is that the model is reasonably robust, provides reliable resource estimates of the Bloom Lake Project, and is conform to the CIM and JORC regulations. Recommendations include: introducing silica blanks and standard reference material of industry standards in the future drilling programs, expanding the geological model to include 23 drill holes located east of the Bloom Lake Project and south of Confusion Lake, and reconciling the Mineral Resource against grade control based block models.</li></ul>			
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"><li>• The Competent Person has a relatively high confidence in the Mineral Resource estimate for the following reasons:<ul style="list-style-type: none"><li>○ The database is in good standing with respect to industry standard best practices.</li><li>○ The Mineral Resource estimate is based on a high proportion of recent drilling data of good quality in terms of geological information.</li><li>○ The geological model is based on highly detailed interpretations which were elaborated on vertical cross-sections and on plan views. The geological model is also supported by extensive surface mapping.</li><li>○ Iron grades continuity is good within the mineralization domains and this is expressed in the variography study by low nugget effect (10% to 15%) and ranges varying between 37 and 250 m.</li><li>○ The Mineral Resource is estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards for Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council May 10th, 2014. The Mineral Resource is also prepared and classified in accordance with the guidelines of the JORC Code (2012).</li></ul></li></ul>			

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The Mineral Resource should be considered as global and regional estimates only. The resource block model is considered reliable to support mining planning studies, but not considered suitable for production planning, or studies focusing on accuracy of local estimates.</li> <li>Based on the reconciliation analysis, the block model produces reasonable predictions of the mine production records compiled during years of production between 2012 to 2014. A total difference of <math>\pm 1\%</math> in grade and tonnage is reported.</li> </ul>
--	--

#### Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

The Ore Reserve at Bloom Lake, as at December 31 2016, presented within the body of this report is reported in accordance with the Australian JORC Code (2012) for reporting Ore Reserves and the Canadian NI43-101 for the reporting of Mineral Reserves. The Bloom Lake Ore Reserve Estimate uses the 2016 Mineral Resource estimate as detailed in this report and applies revenue analysis, mining dilution and ore loss, costs and metallurgical recovery assumptions. The Ore Reserve estimate is based on a 15% iron cut-off grade and mining of the Measured and Indicated Mineral Resource and has been classified respectively as Proven and Probable Ore Reserve based on the geological and mining confidence.

Following is a summary of the supporting information for the Ore Reserve estimate in the form of the JORC (2012).

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> <li>The Mineral Resource for the Bloom Lake Project was prepared by G Mining Services Inc. The Mineral Resource is estimated at a cut-off-grade of 15% Fe. Details of this mineral resource are presented in the report above.</li> <li>The Mineral Resources are reported inclusive of the Ore Reserves.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>A site visit was completed by the competent person from August 31st to September 2nd 2016. A thorough understanding of the available infrastructures and general arrangements was achieved. The state of mining equipment and site infrastructure placed on care and maintenance was noted during the visit.</li> </ul>
Study status	<ul style="list-style-type: none"> <li>The project is at a Feasibility Study level. Mineral Reserves are reported for the first time under the JORC Code. The reported Ore Reserve is reported based on the work completed in the Feasibility Study.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>The open pit cut-off grades were developed from the over-arching Feasibility Study assumptions (including commodity prices, exchange rates, recovery factors processing, freight, shipping, G&amp;A, tailings and water management). A cut-off grade of 15% Fe was applied.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>The ore body is mined using open pit mining techniques with electric hydraulic shovels and mining trucks. Most of the overlying overburden has been removed from prior operations and several benches have been mined. The open pit is currently accessible and electrified with existing mine roads connecting various mining infrastructure such as waste dumps, crusher, and maintenance facility.</li> </ul>

**CHAMPION IRON LIMITED**  
**APPENDIX 5A**

- Before exporting the block model to the Whittle pit optimization software, each block was assigned a material code, following different quality constraints based on iron and oxides content as presented below:

**Contaminant Restriction Limits by Lithology Domain**

Material Type	Lithology Domain		Material Code	% Fe	% CaO	% MgO	% Sat
	Resource Model	Grade Control Model					
Ore	IF	HEM	1	> 15.0	0.0 - 2.5	0.0 - 3.0	0.0 - 12.0
	IFM	MAG	2	> 15.0	0.0 - 2.5	0.0 - 3.0	12.0 - 100.0
	SIF	MAG_ACT_TREM	6	> 15.0	2.5 - 8.0	3.0 - 8.0	12.0 - 100.0
		MAG_ACT_TREM_1	7	> 15.0	2.5 - 8.0	0.0 - 8.0	12.0 - 100.0
		MAG_ACT_TREM_2	8	> 15.0	0.0 - 8.0	3.0 - 8.0	12.0 - 100.0
		HEM_ACT_TREM	9	> 15.0	2.5 - 8.0	3.0 - 8.0	0.0 - 12.0
		HEM_ACT_TREM_1	10	> 15.0	2.5 - 8.0	0.0 - 8.0	0.0 - 12.0
		HEM_ACT_TREM_2	11	> 15.0	0.0 - 8.0	3.0 - 8.0	0.0 - 12.0
Waste	WSIF	GRUN	3	0.0 - 100.0	8.0 - 100.0	8.0 - 100.0	0.0 - 100.0
		GRUN_1	4	0.0 - 100.0	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0
		GRUN_2	5	0.0 - 100.0	8.0 - 100.0	0.0 - 100.0	0.0 - 100.0

- The open pit limits were optimized using the Whittle software which is based on the Lerchs-Grossmann algorithm. The pit optimization parameters are described as follows and differ slightly from the final Feasibility Study values:
  - Fe recovery: 80%
  - Concentrate grade: 66%
  - Concentrate price: US\$54/dmt of concentrate (US\$50/dmt Platts reference price plus US\$4.0/dmt Fe content adjustment)
  - Exchange rate: 1.30 C\$/US\$
  - Total concentrate logistics cost: C\$33.30/dmt of concentrate
  - Total ore based cost: C\$7.15/t ore (includes processing, G&A, tailings and water management)
  - Reference mining cost: C\$2.85/t plus C\$0.029/t per 14m bench
  - Mining recovery of 100%
  - Mining dilution of 3%
- The optimisation was performed on the Mineral Resource model using only the Measured and Indicated resource. The Inferred resource was treated as waste. The optimal pit shell was selected to maximize the net present value of the project. The selected pit shell served as a guide to design the open pit inclusive of ramps and other pit slope design criteria. A double bench configuration with a 28m final bench height is proposed. Double lane ramps are designed at 35m wide with single lane ramps reduced to 22m.
- The open pit design is based on Feasibility Level pit slope recommendations which has three main pit slope profiles.
  - Slope profile 1 has 75° bench face angle, 14m catch bench and 52.5° inter-ramp angle
  - Slope profile 2 has 70° bench face angle, 13.3m catch bench and 50° inter-ramp angle

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>○ Slope profile 3 has 70° bench face angle, 15m catch bench and 48° inter-ramp angle</li> <li>○ Overburden is sloped at 2H:1V</li> </ul> <ul style="list-style-type: none"> <li>• The mining dilution estimate for Mineral Reserve reporting consists of a dilution skin of 1.5m across and along strike. The dilution model accounts for the geometry of the model and the number of contacts between ore and waste material. The dilution represents 4.3% of the total ore tonnage at a grade of 10.3% Fe.</li> <li>• A mining recovery of 100% was used for the study based on historical mine to mill reconciliations.</li> <li>• The minimum mining width corresponds to the block size of the resource model which is 10m in the X and Y direction.</li> <li>• There is a minimum mining width of 80m maintained between mining phases to allow for sufficient working room for equipment.</li> <li>• All Inferred resources have been treated as waste material in the production schedules and the project economics.</li> <li>• The existing mining infrastructure is suitable for the re-start of mining operations which includes: <ul style="list-style-type: none"> <li>○ Mine maintenance shop with 4 bays</li> <li>○ Mine secondary garage with 2 bays</li> <li>○ Mine equipment wash bay</li> <li>○ Electrical infrastructure for the mine including an electrical sub-station</li> </ul> </li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>• The proposed Phase 1 upgrade flowsheet improves the overall iron recovery achieved by the existing Phase 1 concentrator for both the coarser (+425 microns) and fine (-106 microns) iron minerals.</li> <li>• The Phase 1 upgrade flowsheet development was initially based on historical Phase 1 data, pilot testing data undertaken during the Phase 1 operation, the proposed Phase 2 flowsheet design and Mineral Technologies design data and information on spiral and UCC performance in iron ore applications in the Labrador Trough area.</li> <li>• The Phase 1 upgrade flowsheet includes a Mids Scavenger spiral stage and an additional magnetic separation stage to recover fine iron from the gravity circuit tailings. This enables improved iron recovery through the production of a lower grade gravity circuit tailings stream.</li> <li>• A comprehensive metallurgical testing program has been conducted using six bulk samples taken from the Bloom Lake deposit. The sample locations were selected based on the anticipated mine plan across the three main zones of the Bloom Lake deposit. The validated model predicts that iron recovery of 83.3% will be achieved in a continuous plant operation treating ore of similar characteristics to the sample tested at the expected life of mine feed grade of 30% iron. Concentrate quality requirements were met at greater than 66.2% Fe and less than 4.5% SiO<sub>2</sub>.</li> <li>• An additional 500kg sample from material which was prepared from drill core samples representing the first 5 years of operation was also processed. The main purpose for treating this sample was to confirm rougher Spiral performance using a sample at the expected 30-31% Fe spiral feed grade, as well as further validate the circuit performance by processing the sample through the whole circuit. The processing of the 500kg sample confirmed the expected plant performance results developed throughout this metallurgical testing campaign.</li> </ul>

CHAMPION IRON LIMITED  
APPENDIX 5A

Environmental	<ul style="list-style-type: none"> <li>The mine has already been authorized for operation under the federal environmental authority including Fisheries and Oceans Canada (DFO), Transport Canada, Natural Resources Canada and Environment Canada.</li> <li>There is only one pending process with the federal government associated with the 2016 authorization for destruction of fish habitats. There is still work to be completed regarding fish habitat compensation for 1,600 m<sup>2</sup>. The compensatory plan was submitted to DFO in January 2017 and the authorization from DFO to proceed with the compensation project is expected to be issued by March 2017. This process does not prevent QIO from operating the mine.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>All the infrastructure which was being used by the previous operator Cliffs is available for the Quebec Iron Ore operations which includes but is not limited to the administration building, railcar load-out, tailings pipelines and storage facility, waste water treatment plant, pump stations, megadome warehouse, mine maintenance facility, offices, main gate, truck wash bay, fuel and lube storage, phase 1 concentrator, employee accommodations, high voltage power lines and transformers and site access road.</li> <li>It is proposed to upgrade the phase 1 concentrator. Modification to the gravity circuit, addition of a new magnetic circuit and a series of other minor upgrades are planned.</li> <li>Tailings work is also required prior to the start of the project. It includes but is not limited to dykes construction, pumping stations, progressive restoration, etc.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>There is required capital expenditure ("CAPEX") to restart the project for the pre-stripping of the open pit, the tailings facility and the concentrator upgrade. The amounts are based on budget quotes from various vendors as part of the Feasibility Study.</li> <li>The CAPEX estimate qualifies as Class III – Feasibility Study Estimate – per AACE recommended practice R.P.18R-97. The accuracy of this CAPEX estimate has been assessed at <math>\pm 15\%</math>. The CAPEX estimate includes all the direct and indirect project costs, complete with the associated contingency.</li> <li>The operating expenditures ("OPEX") are estimated from first principles for all activities supported by budget quotes from various vendors. No allowance has been made for escalation. No estimate contingency has been considered for the OPEX.</li> <li>All calculations are in Canadian dollars.</li> <li>This project is not subject to any NSR agreement. However, the project is subject to an impact and benefit agreement with local First Nations communities.</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>Life-of-mine average iron price at 66.2% Fe CFR China of US\$78.40 was provided by a market study by Metalytics, a specialist economics consultancy in the metals and mineral resources sector.</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>An Iron Ore Market Study was prepared by Metalytics, an Australian base service company specialized in resource sector economics, to assess the market trends for global iron ore supply and demand, finished steel consumptions, projected steel demand and production.</li> <li>Metalytics also prepared a Bloom Lake positioning product pricing and potential market demand. The price assessment takes into account the specification of the Bloom Lake concentrate, its location and premiums for high quality product.</li> <li>At this time, QIO has not signed any supply contract agreements. Potential markets and buyers have been identified.</li> </ul>



CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"><li>Bloom Lake concentrate has a very low alumina level, also characteristic of traditional Canadian concentrates. Prior to Bloom Lake's shutdown in 2014, it mainly supplied China and so has a previously-established position in that market.</li><li>The indicative product specifications for the concentrate produced is considered readily marketable based on sample analysis conducted by potential buyers.</li><li>The Bloom Lake iron ore concentrate specifications are described as typical. The particle size distribution positions the Bloom Lake product as coarse-grained concentrate suitable for use as a sinter feed product and falls within the general sizing range of Canadian concentrates. Bloom Lake concentrate was previously sold into global markets for several years with sales of 5.9 million tonnes in 2014.</li></ul>																																																							
Economic	<ul style="list-style-type: none"><li>The main macro-economic assumptions are listed below:<table><tr><th>Item</th><th>Unit</th><th>Value</th></tr><tr><td>Avg. LOM Iron Ore Concentrate Price (66.2% CFR China)</td><td>USD/tonne</td><td>78.40</td></tr><tr><td>Exchange Rate (spot rate for cost estimates)</td><td>USD/CAD</td><td>0.76</td></tr><tr><td>Discount Rate</td><td>% per year</td><td>8</td></tr><tr><td>Discount Rate Variants</td><td>% per year</td><td>4 and 6</td></tr></table></li><li>The after-tax NPV 8% is most affected by iron price and CAD/USD exchange rate.</li></ul> <table><caption>A-T NPV @ 8% (M CAD) vs. Relative Variation (%)</caption><thead><tr><th>Relative Variation (%)</th><th>CAPEX</th><th>OPEX</th><th>PRICE</th><th>FX RATE</th></tr></thead><tbody><tr><td>-30</td><td>1000</td><td>1600</td><td>-700</td><td>1600</td></tr><tr><td>-20</td><td>1000</td><td>1400</td><td>-200</td><td>1400</td></tr><tr><td>-10</td><td>1000</td><td>1200</td><td>500</td><td>1200</td></tr><tr><td>0</td><td>1000</td><td>1000</td><td>1000</td><td>1000</td></tr><tr><td>10</td><td>1000</td><td>800</td><td>1500</td><td>800</td></tr><tr><td>20</td><td>1000</td><td>600</td><td>2000</td><td>600</td></tr><tr><td>30</td><td>1000</td><td>300</td><td>2400</td><td>300</td></tr></tbody></table>	Item	Unit	Value	Avg. LOM Iron Ore Concentrate Price (66.2% CFR China)	USD/tonne	78.40	Exchange Rate (spot rate for cost estimates)	USD/CAD	0.76	Discount Rate	% per year	8	Discount Rate Variants	% per year	4 and 6	Relative Variation (%)	CAPEX	OPEX	PRICE	FX RATE	-30	1000	1600	-700	1600	-20	1000	1400	-200	1400	-10	1000	1200	500	1200	0	1000	1000	1000	1000	10	1000	800	1500	800	20	1000	600	2000	600	30	1000	300	2400	300
Item	Unit	Value																																																						
Avg. LOM Iron Ore Concentrate Price (66.2% CFR China)	USD/tonne	78.40																																																						
Exchange Rate (spot rate for cost estimates)	USD/CAD	0.76																																																						
Discount Rate	% per year	8																																																						
Discount Rate Variants	% per year	4 and 6																																																						
Relative Variation (%)	CAPEX	OPEX	PRICE	FX RATE																																																				
-30	1000	1600	-700	1600																																																				
-20	1000	1400	-200	1400																																																				
-10	1000	1200	500	1200																																																				
0	1000	1000	1000	1000																																																				
10	1000	800	1500	800																																																				
20	1000	600	2000	600																																																				
30	1000	300	2400	300																																																				
Social	<ul style="list-style-type: none"><li>An Impact and Benefit Agreement (IBA) was signed between the previous Bloom Lake mine owner and Innu Takuaikan Uashatmak Mani-Utenam representing the local first nations. Negotiations are currently being held between QIO and Innu Takuaikan Uashatmak Mani-Utenam to finalize a new IBA.</li></ul>																																																							
Other	<ul style="list-style-type: none"><li>In 2016, QIO held 100% of 114 active claims outside of the Mining Lease (BM 877) which has a total of 6857.7 ha.</li><li>A total of 38 certificates of authorization have been issued by the provincial government to the Bloom Lake iron mine.</li></ul>																																																							

CHAMPION IRON LIMITED  
APPENDIX 5A

	<ul style="list-style-type: none"> <li>The new mine plan and the proposed tailing management will require modifications to the existing operational authorizations from the ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques ("MDDELCC").</li> </ul>
Classification	<ul style="list-style-type: none"> <li>The Ore Reserves was classified in accordance with the JORC Code and the 43-101 Standard.</li> <li>The methods used are considered by the competent persons to be appropriate for the style and nature of the deposit.</li> <li>The proportion of probable Ore Reserves represents approximately 35% of the total reserves.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>No Audits have been undertaken on the Bloom Lake Project Ore Reserves.</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>The competent person is of the opinion that the Mineral Reserves for the Bloom Lake Mine, which have been estimated using core drill and grade control data, appropriately consider modifying factors and have been estimated using industry best practices.</li> <li>Factors that can affect the Ore Reserves estimates are: <ul style="list-style-type: none"> <li>Ground conditions of certain unexposed slopes may be worse than expected. This may reduce the recovery of the ore in these areas.</li> <li>Dilution and recovery factors are based on assumptions that will be reviewed after mining experiences and have been adjusted based on past reconciliations with the concentrator.</li> <li>As always, changes in commodity price and exchange rate assumptions will have an impact on the cut-off grade and optimal size of the open pit</li> <li>G Mining Services Inc. is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, or political factors that could materially influence the Ore Reserves other than the modifying factors already described in this section of the report.</li> </ul> </li> </ul>

## CONSENTS

The Bloom Lake Mineral Reserve, mine design, production schedule and FS results have been produced or reviewed by G Mining Service Inc. under the direction of Mr. Louis-Pierre Gignac, Co-President and Principal Consultant (Mining). Mr. Gignac is a member of the l'ordre des ingénieurs du Québec (OIQ) and the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and is an Independent Qualified Person as defined by Canadian National Instrument 43-101 and a Competent Person as defined in the 2012 edition of the JORC Code: Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Gignac consents to the inclusion in this report of the matters based on his information in the form and context that it appears.

The information in this report that relates to Mineral Resources for the Bloom Lake Mine has been reviewed, and verified by Mr Rejean Sirois who is a full-time employee of G Mining Services Inc. Mr Sirois, who is a member of the l'ordre des ingénieurs du Québec (OIQ), the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) and the Society of Economic Geologists (SEG), takes responsibility for the integrity of Data that have been used to prepare the resource estimates, and for the Geological Model. Mr Sirois has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the resource estimation activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the JORC Code: Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves and a Qualified Person as this term is defined in Canadian National Instrument 43-101. Mr Sirois consents to the inclusion in this report of the matters based on his information in the form and context that it appears.