



LABRADOR IRON MINES HOLDINGS LIMITED

Schefferville Mines Inc.

TECHNICAL REPORT AND RESOURCE ESTIMATE  
ON THE DENAULT IRON ORE DEPOSIT  
PROVINCE OF QUEBEC  
CANADA

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## 1. SUMMARY (ITEM 3)

This report, compliant with the requirements of National Instrument 43-101, describes the Denault 1 deposit held by Schefferville Mines Inc. ("SMI"), a wholly-owned subsidiary of Labrador Iron Mines Holdings Limited ("LIMH").

The author is a "Qualified Person" within the meaning of National Instrument 43-101 – Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators. The author is not independent of either LIMHL or SMI as described in section 1.4 of NI 43-101.

Schefferville Mines Inc. ("SMI") holds an exclusive operating license in a mining lease covering 23 parcels totalling about 2,036 hectares, which are part of the original mining lease issued to Hollinger in 1953 under a Special Act of the Quebec Parliament enacted in 1946 (Table 3). The 1953 mining lease remains valid under its current term to 2013 and is renewable for a further twenty years to 2033. SMI has the option to take a sublease of the properties subject to the approval of the Government of Quebec. SMI also hold interests in 258 Mining Rights in the Schefferville area issued by the Ministry of Natural Resources, Province of Quebec, covering approximately 10,730 hectares (Table 4). These mining rights and the operating license in Quebec are held subject to a royalty of \$2.00 per tonne of iron ore produced from the properties.

SMI's current resource estimates for the Denault 1 deposit is 6.4 million tonnes of combined resources at an average grade of 54.8% Fe in the Measured and Indicated categories. It represents an increase of approximately 75% over the historical resources of 3.7 million tonnes (IOC, 1982). Included in the estimated resources, there is a total of 1.72 million tonnes of manganiferous iron ore resources at an average grade 52.1% Fe, 6.89% Mn and 5.3% SiO<sub>2</sub>. The Denault 1 deposit remains open to the northwest and southeast and to depth.

### Property Description and Location

The Denault Deposit partly included within the 1953 Mining Lease (Figure 3) is located in north-eastern Quebec approximately 210km north of Labrador City, NL and 550km north of Sept-Îles, Quebec (Figure 1). The town of Schefferville Quebec lies centrally within the iron ore district and is the logistical centre for the area.

There are no roads connecting the area to southern Labrador or to the rest of Quebec. Access to the area is by rail from Sept-Îles to Schefferville or by air from Montreal and Sept-Îles.

### History

The Quebec-Labrador Iron Range has a tradition of mining since the early 1950s and is one of the largest iron producing regions in the world. The former direct shipping iron ore ("DSO") operations at Schefferville operated by the Iron Ore Company of Canada ("IOC") produced in excess of 150 million tons of lump and sinter fine ores over the period 1954-1982. The first serious exploration in the Labrador Trough occurred in the late 1930s and early 1940s when Hollinger North Shore Exploration Company Limited ("Hollinger") and Labrador Mining and Exploration Mining Company Limited ("LM&E") acquired large mineral concessions in the Quebec and Labrador portions of the Trough. Mining and shipping from the Hollinger lands began in 1954 under the management of the IOC, a company specifically formed to exploit the Schefferville area iron deposits.

As the technology of the steel industry changed over the ensuing years more emphasis was placed on the concentrating ores of the Wabush area and interest and markets for the direct shipping Schefferville ores declined. Finally, in 1982, IOC closed their operations in the Schefferville area.

Hollinger, a subsidiary of Norcen Energy Ltd., was the underlying owner of the Quebec iron ore mining leases in Schefferville area. In the early 1990's, Hollinger was acquired by La Fosse Platinum Group Inc. ("La Fosse") who conducted feasibility studies on marketing, bulk sampling, metallurgical test work and carried out some stripping of overburden at the James deposit in Labrador. La Fosse sought and was granted a project release under the Environmental Assessment Act for the James deposit in June 1990 but did not go ahead with project development and the claims subsequently were permitted to lapse. In 2009 SMI acquired the properties in Quebec held by Hollinger. All of the properties comprising the Denault deposits were part of the original IOC Schefferville holdings and formed part of the 250 million tons of reserves and resources identified but not mined by IOC in the area.

## **Geology**

At least 45 hematite-goethite ore deposits have been discovered in an area 20 km wide that extends 100 km northwest of Astray Lake, referred to as the Knob Lake Iron Range, which consists of a tightly folded and faulted iron-formation exposed along the height of land that forms the boundary between Quebec and Labrador. The Knob Lake properties are located on the western margin of the Labrador Trough adjacent to Archean basement gneisses. The Central or Knob Lake Range section extends for 550 km south from the Koksoak River to the Grenville Front located 30 km north of Wabush Lake. The principal iron formation unit, the Sokoman Formation, part of the Knob Lake Group, forms a continuous stratigraphic unit that thickens and thins from sub-basin to sub-basin throughout the fold belt.

The sedimentary rocks in the Knob Lake Range strike northwest, and their corrugated surface appearance is due to parallel ridges of quartzite and iron formation which alternate with low valleys of shales and slates. The Hudsonian Orogeny compressed the sediments into a series of synclines and anticlines, which are cut by steep angle reverse faults that dip primarily to the east. The synclines are overturned to the southwest with the east limits commonly truncated by strike faults. Most of the secondary earthy textured iron deposits occur in canoe-shaped synclines, some are tabular bodies extending to a depth of at least 200m, and one or two deposits are relatively flat lying and cut by several faults. Subsequent supergene processes converted some of the iron formations into high-grade ores, preferentially in synclinal depressions and/or down-faulted blocks.

The Labrador Trough contains four main types of iron deposits:

- Soft iron ores formed by supergene leaching and enrichment of the weakly metamorphosed cherty iron formation; they are composed mainly of friable fine-grained secondary iron oxides (hematite, goethite, limonite);
- Taconites, the fine-grained, weakly metamorphosed iron formations with above average magnetite content and which are also commonly called magnetite iron formation;
- More intensely metamorphosed, coarser-grained iron formations, termed metataconites which contain specular hematite and subordinate amounts of magnetite as the dominant iron minerals;

- Minor occurrences of hard high-grade hematite ore occur southeast of Schefferville at Sawyer Lake, Astray Lake and in some of the Houston deposits.

Secondary enrichment included the addition of secondary iron and manganese which appear to have moved in solution and filled pore spaces with limonite-goethite. Secondary manganese minerals, i.e., pyrolusite and manganite, form veinlets and vuggy pockets. The types of iron ores developed in the deposits are directly related to the original mineral facies. The predominant blue granular ore was formed from the oxide facies of the middle iron formation. The yellowish-brown ore, composed of limonite-goethite, formed from the carbonate-silicate facies, and the red painty hematite ore originated from mixed facies in the argillaceous slaty members.

Only the direct shipping ore is considered amenable to beneficiation to produce lump and sinter fines and forms part of the resources for DSO Projects.

### **Exploration**

Most historic exploration on the properties was carried out by IOC prior to the closure of their Schefferville operation in the 1982. Between 1982 and 2010 several exploration companies carried out prospecting and sampling in the area including La Fosse Platinum, Energold Minerals, MRB Associates and Labrador Iron Mines Limited.

During 2010 SMI completed 2,726 metres of drilling in 50 RC drill holes in the Denault area collected 946 samples. Of the 50 holes in the Denault area 26 were on the Denault 1 deposit. This drilling totalled 1688m and yielded 588 samples.

Historical IOC data related to the Denault 1 deposit was located and incorporated into the Denault database. A total of 538 samples from 889.4m of drilling in 15 drill holes were found. In addition detailed maps showing location and geology of the deposit were located.

Only data obtained by SMI during 2010 and historic data from IOC was used in the resource estimation.

### **Drilling and Sampling**

Diamond drilling of the Schefferville area iron deposits has proven to be a challenge historically as the alternating hard and soft mineralized zones tend to preclude good core recovery. Traditionally IOC used a combination of reverse circulation drilling, diamond drilling and trenching to generate data for reserve and resource calculation. SMI has adopted the Reverse Circulation technique for its exploration and development drilling, a detailed description follows in section 12. The method utilizes a tricone bit with water injection. Sample material comes to the surface via dual tube drill rods where it passes through a cyclone and rotary splitter. The rotary splitter in conjunction with a “knife splitter” reduces the sample to a manageable size at the drill site. SMI keeps one geologist, a senior sampler and a junior sampler on the rig at all times during drilling. Logging of the drill chips is carried out as drilling advances.

The precise sampling procedures used by IOC are not completely known but it is believed that SMI has followed procedures that are similar to those used by IOC in the past. In order to achieve this SMI has used the drill company that carried out drill programs for IOC from the 1950’s to 1982. The company was Heath & Sherwood (“H&S”) of Kirkland Lake, Ontario. H&S has since been acquired by Cabo Drilling but they still have on staff people who drilled and sampled for IOC. They have been a valuable source of information on the drilling and sampling techniques used historically.



## Sample Preparation, Security and Data Verification

All drill samples were taken to a central secure facility in Schefferville where they were dried, weighed and packed for shipping to Actlabs in Ancaster, Ontario. Sampling as well as the shipping preparation was carried out under supervision of SMI personnel following well-established sampling and preparation procedures set for LIM & SMI operations in Labrador and Quebec.

## Mineral Resource Estimate

Tables 1 and 2 summarize the resources estimate for the Denault 1 deposit, which has been carried out in compliance with NI 43-101. No mineral reserves are reported in this document.

Table 1 – Resources for the Denault 1 deposit (NI 43-101 Compliant)

Category	Ore Type	SG	Tonnage (X 1000)	Fe%	P%	Mn%	SiO2%	Al2O3%
Measured	LNB-NB	3.4	3,003	56.6	0.078	0.8	7.4	1.0
	HSiO2	3.3	239	51.7	0.032	0.1	20.2	0.9
	LMN-HMN	3.3	1,213	52.2	0.082	6.8	5.2	1.1
	<b>Total</b>	<b>3.4</b>	<b>4,456</b>	<b>55.1</b>	<b>0.077</b>	<b>2.4</b>	<b>7.5</b>	<b>1.1</b>
Indicated	LNB-NB	3.4	1,259	55.4	0.078	0.7	9.0	1.1
	HSiO2	3.3	153	51.5	0.031	0.1	20.5	0.8
	LMN-HMN	3.3	516	52.1	0.077	6.8	5.6	1.0
	<b>Total</b>	<b>3.4</b>	<b>1,928</b>	<b>54.2</b>	<b>0.074</b>	<b>2.3</b>	<b>9.0</b>	<b>1.0</b>
Inferred	LNB-NB	3.4	208	55.0	0.071	0.6	10.4	0.9
	HSiO2	3.3	30	51.4	0.036	0.1	20.1	0.8
	LMN-HMN	3.3	132	52.8	0.073	6.6	5.4	0.8
	<b>Total</b>	<b>3.4</b>	<b>369</b>	<b>53.9</b>	<b>0.069</b>	<b>2.7</b>	<b>9.4</b>	<b>0.9</b>

<b>Measured and Indicated</b>	<b>3.4</b>	<b>6,384</b>	<b>54.8</b>	<b>0.076</b>	<b>2.3</b>	<b>8.0</b>	<b>1.0</b>
<b>Inferred</b>	<b>3.4</b>	<b>369</b>	<b>53.9</b>	<b>0.069</b>	<b>2.7</b>	<b>9.4</b>	<b>0.9</b>

SMI's current resource estimates for the Denault 1 deposit total **6.4Mt @ 54.8%Fe and 8% SiO2 (measured and indicated)** including ore with Mn grades greater than 3.5% in the Measured and Indicated categories. This resource represents an increase of approximately 75% over the historical resources of 3.7 million tonnes (IOC, 1982) (Table 2).

Including in the estimated resources, is a total of 1.72 million tonnes of manganiferous iron ore resources at an average grade 52.1% Fe, 6.89% Mn and 5.3% SiO2 (measured and indicated).

The original IOC ore definition was:  $\geq 50\%$  Fe,  $\leq 18\%$  (See Table 6) SiO<sub>2</sub> dry basis. SMI's resource definitions include Hi-SiO<sub>2</sub> ores ( $\geq 50\%$  Fe,  $\leq 30\%$  SiO<sub>2</sub> dry basis).

**Table 2 – Comparison LIM 43-101 vs. Historical resources**

	Class	43-101 (February 2011)				Historical 1982			
		Tonnes	Fe	Mn	SiO <sub>2</sub>	Tonnes	Fe	Mn	SiO <sub>2</sub>
		x 1000	%	%	%	x 1000	%	%	%
Fe Ore	M+IND	4,655	55.8	0.7	8.9	2,731	49.1	-	7.7
	INF	237	54.6	0.5	11.6	-	-	-	-
Mn Ore	M+IND	1,729	52.1	6.8	5.3	929	45.2	5.4	6.2
	INF	132	52.8	6.6	5.4	-	-	-	-
TOTAL	M+IND	6,384	54.8	2.3	8.0	3,660	48.8	-	7.6
	INF	369	53.9	2.7	9.4	-	-	-	-

IOC's estimated mineral resources and reserves were published in their Direct-Shipping Ore (DSO) Reserve Book prepared in 1983. The estimates were based on geological interpretations on cross sections and the calculations were done manually. IOC categorized their estimates as "reserves". The author has adopted the principle as in the 2007 Technical Report on LIM's Western Labrador Iron Deposits prepared by SNC-Lavalin that these "reserves" should be categorized as "resources" as defined by NI 43-101.

The IOC classification reported all resources (measured, indicated and inferred) within the total mineral resource. These historical estimates are not current and do not meet NI 43-101 Definition Standards and are reported here for historical purposes only. The historical estimates should not be relied upon.

### Block Modeling

SMI used Gemcom GEMS 6.4.2.1 software for the resource estimation. The ordinary kriging interpolation method was used to estimate the resources by block modeling with block sizes of 5x5x5 metres and block rotation of 47° which matches with the general trend of the deposit. SMI used different search ellipses derived from 3D semi-variogram analyses on 3-metre composite samples for the classification of the resources.

### Analyses

Analyses for all of the samples from the 2010 drilling program were carried out by Activation Laboratories of Ancaster, Ontario. The Actlabs Preparation Code used was "RX4" and the analytical package was "XRF 4C" (borate fusion whole rock X-Ray Fluorescence).

### Density

A variable specific gravity (density) was used for the modeled ore blocks. SMI used the following equation:  $SG \text{ (in-situ)} = (2.3388 + Fe \times 0.0258) \times 0.9$  which is the same used for resource estimations in LIMH's properties in Labrador.

### Conclusions

The author has reviewed all of the data in the possession of SMI relating to the Denault 1 deposit and has detailed personal knowledge of SMI's and LIM's projects from initial conception and property acquisition dating back to 2008. All of SMI's exploration work programs and technical evaluation programs carried out in 2010 were conducted under the supervision of the author.

The geological interpretation of the Denault deposits is restricted to the zones considered of economic quality. The historical IOC parameters of the Non-Bessemer and Bessemer ore types were considered together for the geological interpretations and modeling. The High Silica ore ( $\text{HiSiO}_2$ ) type containing  $\geq 50\%$  Fe and between 18% and 30%  $\text{SiO}_2$  were also considered for the geological interpretation and modeling of the selected mineral deposits.

The results of SMI's work to date on the Denault 1 deposit has shown that there is more than sufficient merit to continue with the development of the deposit and to carry out further exploration work to confirm and expand the resource potential of Denault 1. The author also considers that there is sufficient merit to progress detailed technical evaluation of the mining and processing of the Denault deposit.

### **Recommendations**

A 2011 drill program consisting of 25 drill holes (2500m) is recommended. In addition, an airborne gravity/magnetic survey is suggested with the objective to evaluate possible extensions of DSO mineralization and presence of possible taconite type mineralization of economic interest.

Denault 1; It is recommended that SMI conduct further drilling on the Denault 1 deposit to delineate any extensions of the ore body to the NW and SE. Ten drill holes (100m each) are planned for the 2011 drill season.

Denault 2; this area is indicated on historic maps but there are no associated resource calculations available at this time. As the 2010 drill program only indicated the location of this Fe enrichment a 2011 drill program of 5 drill holes (100m each) is planned. This program would determine the potential of the area.

Denault 3: this southern most area of Fe enrichment is located on historic IOC maps but no associated resources are available. The 2010 drill program did localize the Fe enrichment but it appears that the potential resource is farther to the south than expected. Ten drill holes (100m each) are planned for the 2011 season. This drilling should be sufficient to determine the extents of any ore body in the area.

Environmental baseline studies which were initiated in the Schefferville area in 2008 should be continued in support of any development plans and associated permitting for the Denault area.

Once the 2011 drill program is complete a new resource study should be completed. Should the results prove positive a formal feasibility study could be initiated.

## **2. INTRODUCTION (ITEM 4)**

The author is a director and senior officer of Labrador Iron Mines Holdings Limited (“LIMH”) or its wholly owned subsidiary Schefferville Mines Inc. (“SMI”), which holds an operating interest in the mineral lease on which part of the Denault iron deposits are located and holds mineral claims on which the other parts are located. The author is a “Qualified Person” within the meaning of National Instrument 43-101 – Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators but is not independent of LIMHL or SMI.

Previous reported resources estimates for the Denault deposit were based on estimates of made by IOC in 1982 and were consequently of an historic nature and are not compliant with NI 43-101. This report describes the Denault 1 iron deposit and presents a resource estimate compliant with the requirements of NI 43-101. The author has a personal knowledge of the Denault deposit and the other nearby iron deposits held by LIM, SMI and Hollinger, having conducted or supervised exploration and development programs in the area since 2008.

### **3. RELIANCE ON OTHER EXPERTS (ITEM 5)**

This report has been prepared for SMI. The findings, conclusions and recommendations are based on the author's interpretation of information in SMI's possession, comprising reports, sections and plans prepared by IOC during 1954 to 1982 and by LIM and SMI fieldwork conducted between 2008 and 2010.

Geological reports prepared for other claim holders subsequent to the IOC closure in 1982 and prior to LMI's involvement in 2008 have been reviewed but data generated by these reports have not been used in the present resource calculation.

The author has verified the ownership of the mineral claims by reference to the website of the Ministry of Natural Resources of the province of Quebec as of the date of this report but does not offer an opinion to the legal status of such claims.

The assistance of Erick Chavez, B.Sc., M.Sc., Howard Vatcher, B.Sc., Eldon Roul, B.Sc. and Tara Schrama, B.Sc., of LIMH's Exploration Department and Rodel Ortiz, LIM's CAD Manager in the preparation of this report and the underlying in-house technical reports is gratefully acknowledged.

## 4. PROPERTY DESCRIPTION AND LOCATION (ITEM 6)

The SMI project area is located in north-eastern Quebec approximately 210km north of Labrador City, NL and 550km north of Sept Îles, QC (Figure 1). The town of Schefferville Quebec lies centrally within the iron ore district and is the logistical centre for the area.

There are no roads connecting the Schefferville area to southern Labrador or to Quebec. Access to the area is by rail from Sept-Îles to Schefferville or by air from Montreal and Sept-Îles.

Denault occurs along a low hill immediately to the east of Denault Lake and is located 6 km northwest of Schefferville, QC. A year round gravel road from Schefferville crosses the property.



Figure 1 - Project Location Map

The Denault claims cover three separate occurrences which historically have been referred to as (from north to south) Denault 1, Denault 2 and Denault 3. Previous work by IOC and their subsequent resource estimate covers only the northern area historically referred to as Denault 1. The SMI resources estimation included in this report is for Denault 1 only. Additional work will be required on the Denault 2 and Denault 3 areas before a resource estimation on these areas can be completed.

Schefferville Mines Inc. ("SMI") holds interests in 258 Mining Rights in the Schefferville area issued by the Ministry of Natural Resources, Province of Quebec, covering approximately 10,730 hectares, (Table 4). SMI also holds an exclusive operating license in a mining lease covering 23 parcels totalling about 2,036 hectares, which are part of the original mining lease issued to Hollinger in 1953 under a Special Act of the Quebec Parliament enacted in 1946, (Table 3). The 1953 mining lease remains valid under its current term to 2013 and is renewable for a further twenty years to 2033. The lease includes fourteen separate properties some of which contain all or parts of various known mineral deposits. SMI has the option to take a sublease of the properties subject to the approval of the Government of Quebec. These mining rights and the operating license in Quebec are held subject to a royalty of \$2.00 per tonne of iron ore produced from the properties.

The Denault property is covered by mining lease 3C held by Hollinger and by title claims 2016790, 2168483, 2168485, 2168494 and 2168496 held by SMI (Figure 3).

Table 3 - Mining Leases in Quebec Held by Hollinger North Shore Inc.

	Title	NTS Map Sheet	Issued	Expiry	Area (Has)
1	1	23J15	03-Feb-90	02-Feb-13	65
2	2	23J10	03-Feb-90	02-Feb-13	12
3	4	23O03	03-Feb-90	02-Feb-13	780
4	5	23O02	03-Feb-90	02-Feb-13	96
5	6	23J15	03-Feb-90	02-Feb-13	56
6	7	23O06	03-Feb-90	02-Feb-13	129
7	39	23O05	03-Feb-90	02-Feb-13	118
8	3A	23J15	03-Feb-91	02-Feb-13	35
9	3B	23J15	03-Feb-91	02-Feb-13	338
10	3C	23J15	03-Feb-91	02-Feb-13	119
11	3D	23J15	03-Feb-91	02-Feb-13	32
12	3E	23J15	03-Feb-91	02-Feb-13	12
13	3F	23J15	03-Feb-91	02-Feb-13	45
14	3G	23J15	03-Feb-91	02-Feb-13	37
15	3H	23J15	03-Feb-91	02-Feb-13	22
16	3J	23J15	03-Feb-91	02-Feb-13	47
17	3K	23J14	03-Feb-91	02-Feb-13	18
18	3L	23J14	03-Feb-91	02-Feb-13	5
19	3M	23J14	03-Feb-91	02-Feb-13	15
20	3N	23J14	03-Feb-91	02-Feb-13	11
21	3P	23J14	03-Feb-91	02-Feb-13	29
22	3Q	23J14	03-Feb-91	02-Feb-13	15
			<b>TOTAL</b>	<b>22</b>	<b>2,036</b>

Table 4 – Title Claims in Quebec Held by Schefferville Iron Mines Inc.

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
1	CDC-58039	23J10	24-Feb-05	23-Feb-13	20.81
2	CDC-58040	23J10	24-Feb-05	23-Feb-13	4.44
3	CDC-58045	23J15	24-Feb-05	23-Feb-13	49.76
4	CDC-58048	23J10	24-Feb-05	23-Feb-13	47.86
5	CDC-2016779	23J15	20-Jun-06	19-Jun-12	49.64
6	CDC-2016780	23J15	20-Jun-06	19-Jun-12	49.63
7	CDC-2016781	23J15	20-Jun-06	19-Jun-12	49.61
8	CDC-2016787	23J15	20-Jun-06	19-Jun-12	49.11
9	CDC-2016789	23J15	20-Jun-06	19-Jun-12	46.99
10	CDC-2016790	23J15	20-Jun-06	19-Jun-12	44.96
11	CDC-2016791	23J15	20-Jun-06	19-Jun-12	24.97
12	CDC-2016797	23003	20-Jun-06	19-Jun-12	49.36
13	CDC-2016800	23003	20-Jun-06	19-Jun-12	49.35
14	CDC-2016803	23003	20-Jun-06	19-Jun-12	49.34
15	CDC-2016805	23003	20-Jun-06	19-Jun-12	48.01
16	CDC-2016806	23003	20-Jun-06	19-Jun-12	47.23
17	CDC-2016807	23003	20-Jun-06	19-Jun-12	45.14
18	CDC-2016808	23003	20-Jun-06	19-Jun-12	35.78
19	CDC-2016925	23003	20-Jun-06	19-Jun-12	49.45
20	CDC-2016926	23003	20-Jun-06	19-Jun-12	49.45
21	CDC-2016927	23003	20-Jun-06	19-Jun-12	49.45
22	CDC-2168457	23J14	30-Jul-08	29-Jul-12	3.35
23	CDC-2168458	23J14	30-Jul-08	29-Jul-12	23.81
24	CDC-2168459	23J14	30-Jul-08	29-Jul-12	0.60
25	CDC-2168460	23J14	30-Jul-08	29-Jul-12	26.64
26	CDC-2168461	23J14	30-Jul-08	29-Jul-12	46.59
27	CDC-2168462	23J14	30-Jul-08	29-Jul-12	1.39
28	CDC-2168463	23J14	30-Jul-08	29-Jul-12	48.09
29	CDC-2168464	23J14	30-Jul-08	29-Jul-12	49.62
30	CDC-2168465	23J14	30-Jul-08	29-Jul-12	49.62
31	CDC-2168466	23J15	30-Jul-08	29-Jul-12	9.96
32	CDC-2168467	23J15	30-Jul-08	29-Jul-12	14.85
33	CDC-2168468	23J15	30-Jul-08	29-Jul-12	3.07
34	CDC-2168469	23J15	30-Jul-08	29-Jul-12	0.31
35	CDC-2168470	23J15	30-Jul-08	29-Jul-12	19.86
36	CDC-2168471	23J15	30-Jul-08	29-Jul-12	8.07
37	CDC-2168472	23J15	30-Jul-08	29-Jul-12	14.42
38	CDC-2168473	23J15	30-Jul-08	29-Jul-12	5.02
39	CDC-2168474	23J15	30-Jul-08	29-Jul-12	24.43



	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
40	CDC-2168475	23J15	30-Jul-08	29-Jul-12	34.47
41	CDC-2168476	23J15	30-Jul-08	29-Jul-12	20.11
42	CDC-2168477	23J15	30-Jul-08	29-Jul-12	22.13
43	CDC-2168478	23J15	30-Jul-08	29-Jul-12	3.71
44	CDC-2168479	23J15	30-Jul-08	29-Jul-12	25.28
45	CDC-2168480	23J15	30-Jul-08	29-Jul-12	49.66
46	CDC-2168481	23J15	30-Jul-08	29-Jul-12	49.66
47	CDC-2168482	23J15	30-Jul-08	29-Jul-12	49.44
48	CDC-2168483	23J15	30-Jul-08	29-Jul-12	1.00
49	CDC-2168484	23J15	30-Jul-08	29-Jul-12	26.58
50	CDC-2168485	23J15	30-Jul-08	29-Jul-12	34.59
51	CDC-2168486	23J15	30-Jul-08	29-Jul-12	1.07
52	CDC-2168487	23J15	30-Jul-08	29-Jul-12	0.18
53	CDC-2168488	23J15	30-Jul-08	29-Jul-12	2.33
54	CDC-2168489	23J15	30-Jul-08	29-Jul-12	1.01
55	CDC-2168490	23J15	30-Jul-08	29-Jul-12	46.83
56	CDC-2168491	23J15	30-Jul-08	29-Jul-12	43.56
57	CDC-2168492	23J15	30-Jul-08	29-Jul-12	49.65
58	CDC-2168493	23J15	30-Jul-08	29-Jul-12	46.18
59	CDC-2168494	23J15	30-Jul-08	29-Jul-12	5.11
60	CDC-2168495	23J15	30-Jul-08	29-Jul-12	14.91
61	CDC-2168496	23J15	30-Jul-08	29-Jul-12	38.11
62	CDC-2168497	23J15	30-Jul-08	29-Jul-12	49.65
63	CDC-2168498	23J15	30-Jul-08	29-Jul-12	49.64
64	CDC-2168499	23J15	30-Jul-08	29-Jul-12	46.99
65	CDC-2168500	23J15	30-Jul-08	29-Jul-12	14.44
66	CDC-2168501	23J15	30-Jul-08	29-Jul-12	6.16
67	CDC-2168502	23J15	30-Jul-08	29-Jul-12	49.64
68	CDC-2168503	23J15	30-Jul-08	29-Jul-12	49.64
69	CDC-2168504	23J15	30-Jul-08	29-Jul-12	49.63
70	CDC-2168505	23J15	30-Jul-08	29-Jul-12	49.63
71	CDC-2168506	23J15	30-Jul-08	29-Jul-12	49.63
72	CDC-2168507	23J15	30-Jul-08	29-Jul-12	49.63
73	CDC-2168508	23J15	30-Jul-08	29-Jul-12	49.63
74	CDC-2168509	23J15	30-Jul-08	29-Jul-12	49.63
75	CDC-2168510	23J15	30-Jul-08	29-Jul-12	49.63
76	CDC-2168511	23J15	30-Jul-08	29-Jul-12	49.62
77	CDC-2168512	23J15	30-Jul-08	29-Jul-12	49.62
78	CDC-2168513	23J15	30-Jul-08	29-Jul-12	49.62
79	CDC-2168514	23J15	30-Jul-08	29-Jul-12	49.62
80	CDC-2168515	23J15	30-Jul-08	29-Jul-12	49.62

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
81	CDC-2168516	23J15	30-Jul-08	29-Jul-12	49.62
82	CDC-2168517	23J15	30-Jul-08	29-Jul-12	49.62
83	CDC-2168518	23J15	30-Jul-08	29-Jul-12	49.62
84	CDC-2168519	23J15	30-Jul-08	29-Jul-12	49.61
85	CDC-2168520	23J15	30-Jul-08	29-Jul-12	49.61
86	CDC-2168521	23J15	30-Jul-08	29-Jul-12	49.61
87	CDC-2168522	23J15	30-Jul-08	29-Jul-12	49.61
88	CDC-2168523	23J15	30-Jul-08	29-Jul-12	49.61
89	CDC-2168524	23J15	30-Jul-08	29-Jul-12	49.61
90	CDC-2168525	23J15	30-Jul-08	29-Jul-12	49.61
91	CDC-2168526	23J15	30-Jul-08	29-Jul-12	49.61
92	CDC-2168527	23J15	30-Jul-08	29-Jul-12	49.61
93	CDC-2168528	23J15	30-Jul-08	29-Jul-12	49.61
94	CDC-2168529	23J15	30-Jul-08	29-Jul-12	49.61
95	CDC-2168530	23J15	30-Jul-08	29-Jul-12	49.61
96	CDC-2168531	23003	30-Jul-08	29-Jul-12	20.33
97	CDC-2168532	23003	30-Jul-08	29-Jul-12	17.71
98	CDC-2168533	23003	30-Jul-08	29-Jul-12	27.79
99	CDC-2168534	23J14	30-Jul-08	29-Jul-12	3.06
100	CDC-2168535	23J15	30-Jul-08	29-Jul-12	0.37
101	CDC-2168536	23J15	30-Jul-08	29-Jul-12	13.02
102	CDC-2168537	23J15	30-Jul-08	29-Jul-12	34.11
103	CDC-2168538	23J15	30-Jul-08	29-Jul-12	29.59
104	CDC-2168539	23J15	30-Jul-08	29-Jul-12	21.17
105	CDC-2168540	23J15	30-Jul-08	29-Jul-12	36.25
106	CDC-2168541	23J15	30-Jul-08	29-Jul-12	48.39
107	CDC-2168612	23J15	31-Jul-08	30-Jul-12	3.45
108	CDC-2172892	23J14	14-Oct-08	13-Oct-12	40.63
109	CDC-2183131	23J15	7-May-09	6-May-11	49.66
110	CDC-2183132	23J15	7-May-09	6-May-11	49.66
111	CDC-2183133	23J15	7-May-09	6-May-11	49.65
112	CDC-2183173	23J15	8-May-09	7-May-11	49.74
113	CDC-2183174	23J15	8-May-09	7-May-11	49.74
114	CDC-2183175	23J15	8-May-09	7-May-11	49.67
115	CDC-2183176	23J15	8-May-09	7-May-11	39.78
116	CDC-2188494	23007	16-Sep-09	15-Sep-11	39.17
117	CDC-2188495	23007	16-Sep-09	15-Sep-11	49.11
118	CDC-2188496	23007	16-Sep-09	15-Sep-11	49.11
119	CDC-2188497	23007	16-Sep-09	15-Sep-11	49.11
120	CDC-2188498	23007	16-Sep-09	15-Sep-11	15.90
121	CDC-2188499	23007	16-Sep-09	15-Sep-11	48.83

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
122	CDC-2188500	23007	16-Sep-09	15-Sep-11	49.10
123	CDC-2188501	23007	16-Sep-09	15-Sep-11	49.10
124	CDC-2188502	23007	16-Sep-09	15-Sep-11	49.10
125	CDC-2188503	23007	16-Sep-09	15-Sep-11	49.10
126	CDC-2188504	23007	16-Sep-09	15-Sep-11	38.44
127	CDC-2188505	23007	16-Sep-09	15-Sep-11	49.09
128	CDC-2188506	23007	16-Sep-09	15-Sep-11	49.09
129	CDC-2188507	23007	16-Sep-09	15-Sep-11	49.09
130	CDC-2188508	23007	16-Sep-09	15-Sep-11	33.24
131	CDC-2188509	23007	16-Sep-09	15-Sep-11	49.08
132	CDC-2188510	23007	16-Sep-09	15-Sep-11	49.08
133	CDC-2188511	23007	16-Sep-09	15-Sep-11	20.81
134	CDC-2188512	23007	16-Sep-09	15-Sep-11	22.13
135	CDC-2188513	23007	16-Sep-09	15-Sep-11	25.20
136	CDC-2188514	23007	16-Sep-09	15-Sep-11	46.33
137	CDC-2188515	23007	16-Sep-09	15-Sep-11	49.07
138	CDC-2188516	23007	16-Sep-09	15-Sep-11	49.07
139	CDC-2188517	23007	16-Sep-09	15-Sep-11	11.28
140	CDC-2188518	23007	16-Sep-09	15-Sep-11	44.65
141	CDC-2188519	23007	16-Sep-09	15-Sep-11	49.06
142	CDC-2188520	23007	16-Sep-09	15-Sep-11	49.06
143	CDC-2188521	23007	16-Sep-09	15-Sep-11	49.06
144	CDC-2188522	23007	16-Sep-09	15-Sep-11	48.51
145	CDC-2188523	23007	16-Sep-09	15-Sep-11	49.04
146	CDC-2188524	23007	16-Sep-09	15-Sep-11	49.04
147	CDC-2188525	23007	16-Sep-09	15-Sep-11	49.05
148	CDC-2188526	23007	16-Sep-09	15-Sep-11	49.05
149	CDC-2188527	23010	16-Sep-09	15-Sep-11	48.71
150	CDC-2188528	23010	16-Sep-09	15-Sep-11	48.71
151	CDC-2188529	23010	16-Sep-09	15-Sep-11	48.71
152	CDC-2188530	23010	16-Sep-09	15-Sep-11	48.71
153	CDC-2188531	23010	16-Sep-09	15-Sep-11	48.71
154	CDC-2188532	23010	16-Sep-09	15-Sep-11	48.71
155	CDC-2188533	23010	16-Sep-09	15-Sep-11	48.70
156	CDC-2188534	23010	16-Sep-09	15-Sep-11	48.70
157	CDC-2188535	23010	16-Sep-09	15-Sep-11	48.70
158	CDC-2188536	23010	16-Sep-09	15-Sep-11	48.70
159	CDC-2188537	23010	16-Sep-09	15-Sep-11	48.70
160	CDC-2188538	23010	16-Sep-09	15-Sep-11	48.70
161	CDC-2188539	23010	16-Sep-09	15-Sep-11	48.69
162	CDC-2188540	23010	16-Sep-09	15-Sep-11	48.69

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
163	CDC-2188541	23010	16-Sep-09	15-Sep-11	48.69
164	CDC-2188542	23010	16-Sep-09	15-Sep-11	48.67
165	CDC-2188543	23010	16-Sep-09	15-Sep-11	48.67
166	CDC-2188544	23010	16-Sep-09	15-Sep-11	48.68
167	CDC-2188545	23010	16-Sep-09	15-Sep-11	48.68
168	CDC-2188546	23010	16-Sep-09	15-Sep-11	48.68
169	CDC-2188547	23010	16-Sep-09	15-Sep-11	48.68
170	CDC-2188548	23010	16-Sep-09	15-Sep-11	48.69
171	CDC-2188549	23010	16-Sep-09	15-Sep-11	48.69
172	CDC-2188826	23J10	17-Sep-09	16-Sep-11	49.77
173	CDC-2189054	23J14	17-Sep-09	16-Sep-11	0.09
174	CDC-2189055	23J15	17-Sep-09	16-Sep-11	45.36
175	CDC-2189056	23J15	17-Sep-09	16-Sep-11	47.34
176	CDC-2189057	23J15	17-Sep-09	16-Sep-11	49.66
177	CDC-2189058	23J15	17-Sep-09	16-Sep-11	49.66
178	CDC-2189059	23J15	17-Sep-09	16-Sep-11	49.66
179	CDC-2189060	23J15	17-Sep-09	16-Sep-11	49.65
180	CDC-2198039	23010	18-Dec-09	17-Dec-11	48.69
181	CDC-2198040	23010	18-Dec-09	17-Dec-11	48.66
182	CDC-2198041	23010	18-Dec-09	17-Dec-11	48.66
183	CDC-2198042	23010	18-Dec-09	17-Dec-11	48.66
184	CDC-2198043	23010	18-Dec-09	17-Dec-11	48.67
185	CDC-2198044	23010	18-Dec-09	17-Dec-11	48.67
186	CDC-2198045	23010	18-Dec-09	17-Dec-11	48.67
187	CDC-2198046	23010	18-Dec-09	17-Dec-11	48.65
188	CDC-2198047	23010	18-Dec-09	17-Dec-11	48.65
189	CDC-2198048	23010	18-Dec-09	17-Dec-11	48.65
190	CDC-2198049	23010	18-Dec-09	17-Dec-11	48.64
191	CDC-2198050	23010	18-Dec-09	17-Dec-11	48.64
192	CDC-2198889	23003	13-Jan-10	12-Jan-12	49.31
193	CDC-2198890	23003	13-Jan-10	12-Jan-12	49.31
194	CDC-2198891	23003	13-Jan-10	12-Jan-12	49.32
195	CDC-2198892	23003	13-Jan-10	12-Jan-12	49.30
196	CDC-2198893	23003	13-Jan-10	12-Jan-12	49.30
197	CDC-2198894	23003	13-Jan-10	12-Jan-12	49.30
198	CDC-2198895	23003	13-Jan-10	12-Jan-12	49.29
199	CDC-2198896	23003	13-Jan-10	12-Jan-12	49.29
200	CDC-2198897	23003	13-Jan-10	12-Jan-12	49.29
201	CDC-2198898	23003	13-Jan-10	12-Jan-12	49.29
202	CDC-2198899	23003	13-Jan-10	12-Jan-12	49.28
203	CDC-2198900	23003	13-Jan-10	12-Jan-12	49.28

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
204	CDC-2198901	23003	13-Jan-10	12-Jan-12	49.28
205	CDC-2198902	23003	13-Jan-10	12-Jan-12	49.28
206	CDC-2198903	23003	13-Jan-10	12-Jan-12	49.28
207	CDC-2198904	23003	13-Jan-10	12-Jan-12	49.27
208	CDC-2198905	23003	13-Jan-10	12-Jan-12	49.27
209	CDC-2198906	23003	13-Jan-10	12-Jan-12	49.27
210	CDC-2198907	23003	13-Jan-10	12-Jan-12	49.27
211	CDC-2198908	23003	13-Jan-10	12-Jan-12	49.26
212	CDC-2198909	23003	13-Jan-10	12-Jan-12	49.26
213	CDC-2198910	23003	13-Jan-10	12-Jan-12	49.26
214	CDC-2198911	23003	13-Jan-10	12-Jan-12	49.26
215	CDC-2198912	23003	13-Jan-10	12-Jan-12	49.25
216	CDC-2198913	23003	13-Jan-10	12-Jan-12	49.25
217	CDC-2198914	23003	13-Jan-10	12-Jan-12	49.25
218	CDC-2198915	23003	13-Jan-10	12-Jan-12	49.25
219	CDC-2198916	23003	13-Jan-10	12-Jan-12	49.25
220	CDC-2198917	23003	13-Jan-10	12-Jan-12	49.24
221	CDC-2198918	23003	13-Jan-10	12-Jan-12	49.24
222	CDC-2198919	23003	13-Jan-10	12-Jan-12	49.24
223	CDC-2214980	23007	16-Apr-10	15-Apr-12	49.01
224	CDC-2214981	23007	16-Apr-10	15-Apr-12	49.01
225	CDC-2214982	23007	16-Apr-10	15-Apr-12	49.01
226	CDC-2214983	23007	16-Apr-10	15-Apr-12	49.01
227	CDC-2214984	23007	16-Apr-10	15-Apr-12	49.01
228	CDC-2214985	23007	16-Apr-10	15-Apr-12	49.01
229	CDC-2214986	23007	16-Apr-10	15-Apr-12	49.00
230	CDC-2214987	23007	16-Apr-10	15-Apr-12	49.00
231	CDC-2214988	23007	16-Apr-10	15-Apr-12	49.00
232	CDC-2214989	23007	16-Apr-10	15-Apr-12	49.00
233	CDC-2214990	23007	16-Apr-10	15-Apr-12	49.00
234	CDC-2214991	23007	16-Apr-10	15-Apr-12	49.00
235	CDC-2214992	23007	16-Apr-10	15-Apr-12	48.99
236	CDC-2214993	23007	16-Apr-10	15-Apr-12	48.99
237	CDC-2214994	23007	16-Apr-10	15-Apr-12	48.99
238	CDC-2214995	23007	16-Apr-10	15-Apr-12	48.99
239	CDC-2214996	23007	16-Apr-10	15-Apr-12	48.99
240	CDC-2214997	23007	16-Apr-10	15-Apr-12	48.98
241	CDC-2214998	23007	16-Apr-10	15-Apr-12	48.98
242	CDC-2214999	23007	16-Apr-10	15-Apr-12	48.98
243	CDC-2215000	23007	16-Apr-10	15-Apr-12	48.98
244	CDC-2215001	23007	16-Apr-10	15-Apr-12	48.98

	<b>Title No.</b>	<b>Sheet</b>	<b>Issued</b>	<b>Expiry</b>	<b>Area (Has)</b>
245	CDC-2215002	23007	16-Apr-10	15-Apr-12	48.98
246	CDC-2223062	23J15	28-Apr-10	27-Apr-12	49.69
247	CDC-2223063	23J15	28-Apr-10	27-Apr-12	37.51
248	CDC-2223064	23J15	28-Apr-10	27-Apr-12	49.68
249	CDC-2223065	23J15	28-Apr-10	27-Apr-12	46.66
250	CDC-2223066	23J15	28-Apr-10	27-Apr-12	49.67
251	CDC-2223067	23J15	28-Apr-10	27-Apr-12	49.67
252	CDC-2233265	23J10	11-May-10	10-May-12	11.63
253	CDC-2233266	23J10	11-May-10	10-May-12	10.28
254	CDC-2233267	23J10	11-May-10	10-May-12	48.76
255	CDC-2233268	23J10	11-May-10	10-May-12	49.79
256	CDC-2233269	23J10	11-May-10	10-May-12	37.60
257	CDC-2233270	23J10	11-May-10	10-May-12	49.78
258	CDC-2259638	23J10	9-Nov-10	8-Nov-12	49.77
				<b>TOTAL</b>	<b>10,730.32</b>

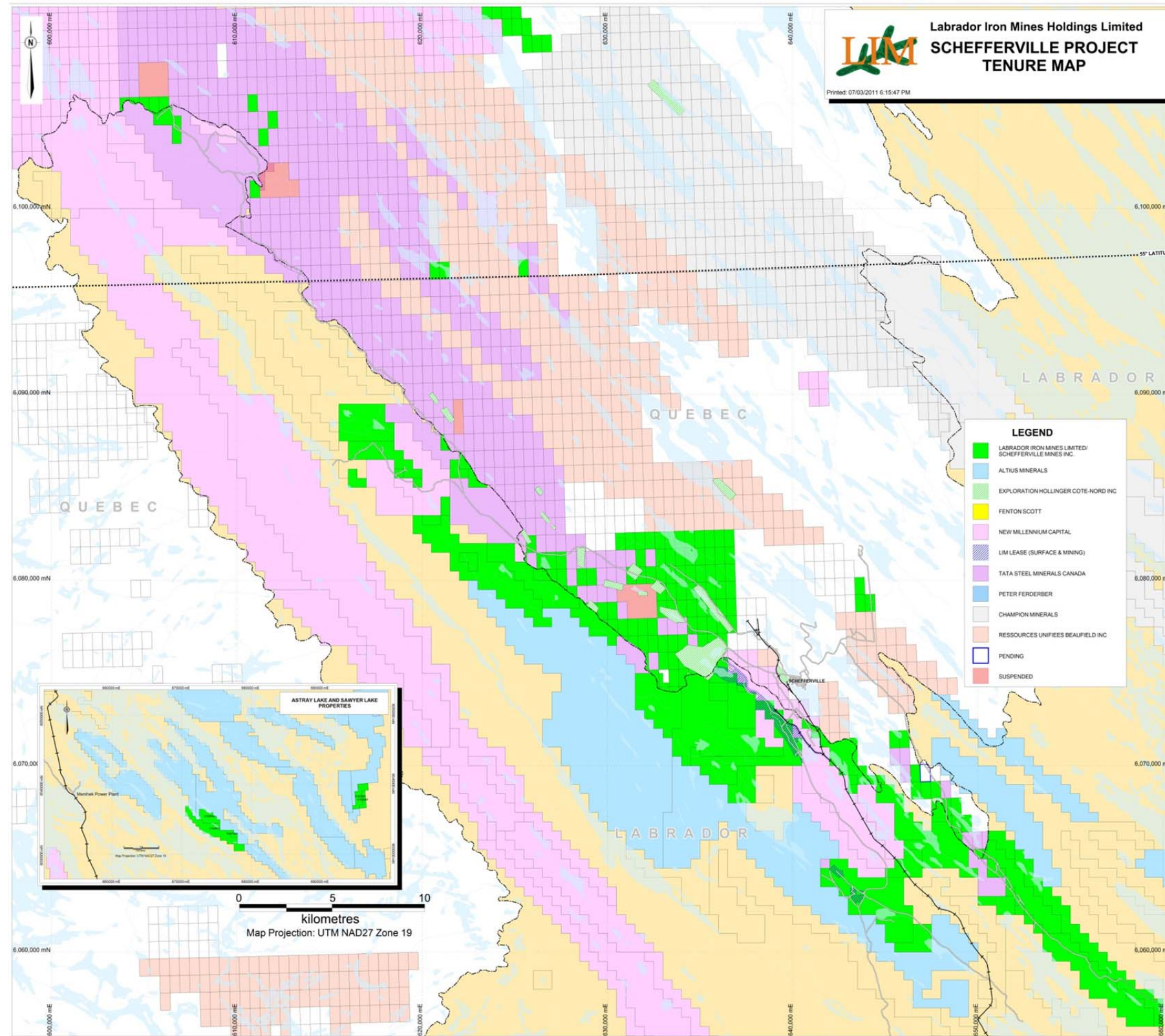


Figure 2 – Claims Map of the Schefferville Area



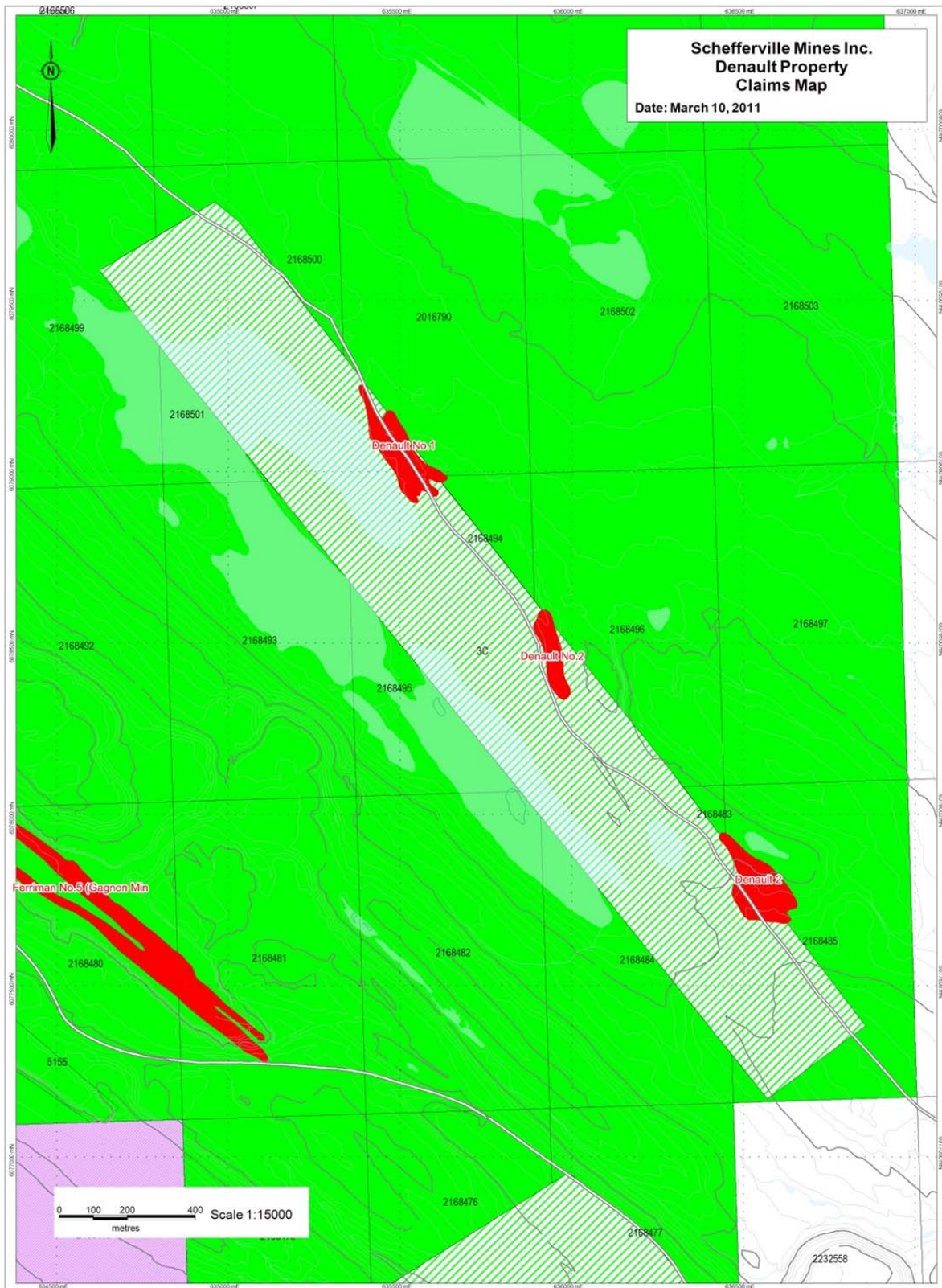


Figure 3 – Claims Map of the Denault Property



## **5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE, PHYSIOGRAPHY (ITEM 7)**

### **5.1 ACCESSIBILITY**

The SMI project area is located in north-eastern Quebec approximately 210km north of Labrador City, NL and 550km north of Sept Îles, QC (Figure 1). The town of Schefferville Quebec lies centrally within the iron ore district and is the logistical centre for the area. The Denault 1 deposit is located approximately 6.5km NW of Schefferville and is access by an all weather gravel road.

Schefferville has an airport with a 5000 ft paved runway capable of serving jet aircraft. Presently scheduled airline service is provided on a daily basis by Air Inuit linking Schefferville with Kuujjuaq in the north and Labrador City, Sept Isles and Montreal in the south.

The area is accessible by train from Sept-Îles by Tshiuetin Rail Transportation Inc. (TSH), a company owned by three Quebec First Nations. The mandate of TSH is to maintain the passenger and light freight traffic between Sept-Îles and Schefferville. Train departures from Sept-Îles and Schefferville occur three times a week.

The QNS&L was established by IOC to haul iron ore from Schefferville area mines to Sept-Îles a distance of some 568 km starting in 1954. After shipping some 150 million tons of iron ore from the area the mining operation was closed in 1982, although, as a common carrier, the railroad maintained a passenger and freight service between Sept-Îles, Labrador City and Schefferville up to 2005. In 2005 the IOC sold the 208 km section of the railway between Emeril Junction and Schefferville to TSH.

Five railway companies operate in the area; TSH which runs passengers and freight from Schefferville to Ross Bay Junction; QNS&L hauling iron concentrates and pellets from Labrador City/Wabush area via Ross Bay Junction to Sept-Îles; Bloom Lake Railway hauling ore from the CML mine to Wabush; and Arnault Railways hauling iron ore for Wabush Mines ("Wabush") and Consolidated Thompson Limited ("CLM") between Arnault Junction and Pointe Noire. CRC hauls iron concentrates from Fermont area to Port-Cartier for Quebec Cartier Mining Company. The latter railway is not connected to TSH, QNS&L, Bloom Lake or Arnault.

### **5.2 CLIMATE**

The Schefferville area and vicinity have a sub arctic continental taiga climate with very severe winters. Daily average temperatures exceed 0°C for only five months a year. Daily mean temperatures for Schefferville average -24.1°C and -22.6°C in January and February respectively. Mean daily average temperatures in July and August are 12.4°C and 11.2°C, respectively. Snowfall in November, December and January generally exceeds 50 cm per month and the wettest summer month is July with an average rainfall of 106.8 mm.

### **5.3 LOCAL RESOURCES**

There is a pool of labour available in the region coming mainly from the Montagnais and Naskapi First Nations communities. While these groups have provided the majority of the exploration workforce there are few local people with trades or professional degrees. Any future mining operations in the area would also draw heavily from Quebec for its labour force.

## 5.4 INFRASTRUCTURE

The Schefferville area receives hydroelectric power from the Menihék Power Dam located 40 km to the south in NL. The Town of Schefferville also has back-up diesel generators in case of power failures.

The town of Schefferville has a Fire Department with mainly volunteer firemen, a fire station and firefighting equipment. The Sûreté Du Québec Police Force is present in the town of Schefferville and the Matimekush-Lac John reserve.

There are three medical clinics in the area; one in Schefferville, another on the Reservation of Matimekush-Lac John and another on the nearby Reserve of Kawa. These clinics provide limited medical care.

A municipal garage, small motor repair shops, a local hardware store, a mechanical shop, and a local convenient store, 2 hotels, numerous outfitters accommodations are also present in Schefferville. A community radio station, recreation centre, parish hall, gymnasium, playground, childcare centre, drop-in centre are also present in Schefferville.

## 5.5 PHYSIOGRAPHY

The topography of the Schefferville mining district is bedrock controlled with the average elevation of the properties varying between 500 m and 700m above sea level. The terrain is generally gently rolling to flat, sloping north-westerly, with a total relief of approximately 50 to 100 m. In the main mining district, the topography consists of a series of NW-SE trending ridges while the Astray Lake and Sawyer Lake areas are within the Labrador Lake Plateau. Topographic highs in the area are normally formed by more resistant quartzites, cherts and silicified horizons of the iron formation itself. Lows are commonly underlain by softer siltstones and shales.

The mining district is within a “zone of erosion” in that the last period of glaciation has eroded away any pre-existing soil/overburden cover, with the zone of deposition of these sediments being well away from the area of interest. Glaciation ended in the area as little as 10,000 years ago and there is very little subsequent soil development. Vegetation commonly grows directly on glacial sediments and the landscape consists of bedrock, a thin veneer of till as well as lakes and bogs.

The thin veneer of till in the area is composed of both glacial and glacial fluvial sediments. Tills deposited during the early phases of glaciations were strongly affected by later sub glacial melt waters during glacial retreat. Commonly, the composition of till is sandy gravel with lesser silty clay, mostly preserved in topographic lows. Glacial melt water channels are preserved in the sides of ridges both north and south of Schefferville.

Glacial ice flow in the area has been recorded as an early major NW to SE flow and a later less pronounced SW to NE flow. The early phase was along strike with the major geological features and the final episode was against the topography. The later NE flow becomes more pronounced towards the southern end of the district near Astray Lake or Dyke Lake.

## 6. HISTORY (ITEM 8)

The Quebec-Labrador Iron Range has a tradition of mining since the early 1950's and is one of the largest iron producing regions in the world. The former direct shipping iron ore operations at Schefferville operated by IOC produced in excess of 150 million tons of lump and sinter fine ores over the period 1954-1982. The properties comprising LIM's Schefferville area project were part of the original IOC Schefferville operations and formed part of the 250 million tons of reserves and resources identified by IOC but were not part of IOC's producing properties.

There are currently four major iron ore producers in the Labrador City-Wabush region to the south, IOC, Quebec Cartier Mining Company Wabush Mines and Consolidated Thompson at Bloom Lake. Other major new iron ore projects in the Quebec-Labrador Peninsula are currently at the feasibility or construction stage.

The Labrador Trough which forms the central part of the Quebec-Labrador Peninsula is a remote region which remained largely unexplored until the late 1930's and early 1940's when the first serious mineral exploration was initiated by Hollinger and LM&E. These companies were granted large mineral concessions in the Quebec and Labrador portions of the Trough. Initially, the emphasis was on exploring for base and precious metals but, as the magnitude of the iron deposits in the area became apparent, development of these resources became the exclusive priority for a number of years.

Mining and shipping from the area began in 1954 under the management of the IOC, a company specifically formed to exploit the Schefferville area iron deposits. As the technology of the steel industry changed over the ensuing years more emphasis was placed on the concentrating ores of the Wabush area and interest and markets for the direct shipping Schefferville ores declined. Finally, in 1982, the IOC closed their operations in the Schefferville area. From 1954 to 1982, a total of some 150 million tons of ore was produced from the area.

In 1954, IOC started to operate open pit mines in Schefferville containing 56.58% Fe, and exported the direct-shipping product to steel companies in the United States and Western Europe. The properties and iron deposits that currently form LIM's Labrador Project were part of the original IOC Schefferville area operations.

During the 1960's, higher-grade iron deposits were developed in Australia and South America and customers' preferences shifted to products containing +62% Fe or higher. In 1963, IOC developed the Carol Lake deposit near Labrador City and started to produce concentrates and pellets with +64% Fe, so as to satisfy the customers' requirements for higher-grade products. High growth in the demand for steel, which began after the end of World War II, came to an abrupt end in the early 1980's due to the impact of increasing oil prices. The energy crisis affected steel production in the U.S. and Western Europe as consumers switched to energy-efficient products. As a result, the demand for iron ore plummeted, creating a severe overcapacity in the industry. Consequently, IOC decided to close the Schefferville area mines in 1982.

Hollinger, a subsidiary of Norcen Energy Ltd., was the underlying owner of the Quebec iron ore mining leases in Schefferville area. Following the closure of the IOC mining operations, ownership of the mining rights held by IOC in Labrador reverted to the Crown. In the early 1990's, Hollinger was acquired by La Fosse Platinum Group Inc. ("La Fosse") who conducted feasibility studies on marketing, bulk sampling, metallurgical test work and carried out some stripping of overburden at the James deposit. La Fosse sought and was granted a project release under the Environmental

Assessment Act for the James deposit in June 1990 but did not go ahead with project development and the claims subsequently were permitted to lapse.

In December 2009, SMI acquired all of Hollinger's interests in the Schefferville area.

## **7. GEOLOGICAL SETTING (ITEM 9)**

### **7.1 REGIONAL GEOLOGY**

The Knob Lake properties are located on the western margin of the Labrador Trough adjacent to Archean basement gneisses of the Superior Province. The Labrador Trough otherwise known as the Labrador-Quebec Fold Belt extends for more than 1,000 km along the eastern margin of the Superior craton from Ungava Bay to Lake Pletipi, Quebec. The belt is about 100 km wide in its central part.

The western half of the Labrador Trough, consisting of a thick sedimentary sequence, can be divided into three sections based on changes in lithology and metamorphism (North, Central and South). The Trough is comprised of a sequence of Proterozoic sedimentary rocks including iron formation, volcanic rocks and mafic intrusions known as the Kaniapiskau Supergroup. The Kaniapiskau Supergroup consists of the Knob Lake Group in the western part of the Trough and the Doublet Group, which is primarily volcanic, in the eastern part.

The Central or Knob Lake Range section extends for 550km south from the Koksoak River to the Grenville Front located 30km north of Wabush Lake. The principal iron formation unit, the Sokoman Formation, part of the Knob Lake Group, forms a continuous stratigraphic unit that thickens and thins from sub-basin to sub-basin throughout the fold belt.

The southern part of the Trough is crossed by the Grenville Front. Trough rocks in the Grenville Province to the south are highly metamorphosed and complexly folded. Iron deposits in the Grenville part of the Labrador Trough comprise Lac Jeannine, Fire Lake, Mounts Wright and Reed and the Luce, Humphrey and Scully deposits in the Wabush area. The high-grade metamorphism of the Grenville Province is responsible for recrystallization of both iron oxides and silica in primary iron formation producing coarse-grained sugary quartz, magnetite, specular hematite schists (meta-taconites) that are of improved quality for concentrating and processing.

The main part of the Trough north of the Grenville Front is in the Churchill Province and has been subjected to low-grade (greenschist facies) metamorphism. In areas west of Ungava Bay, metamorphism increases to lower amphibolite grade. The mines developed in the Schefferville area by IOC exploited residually enriched earthy iron deposits derived from taconite-type protores.

Approximately 45 hematite-goethite ore deposits have been discovered in an area 20km wide that extends 100km northwest of Sawyer Lake, referred to as the Knob Lake Iron Range, which consists of tightly folded and faulted iron-formation exposed generally along the height of land that forms the boundary between Quebec and Labrador. The iron deposits occur in deformed segments of iron-formation, and the ore content of single deposits varied from a million to more than 50 million tonnes.

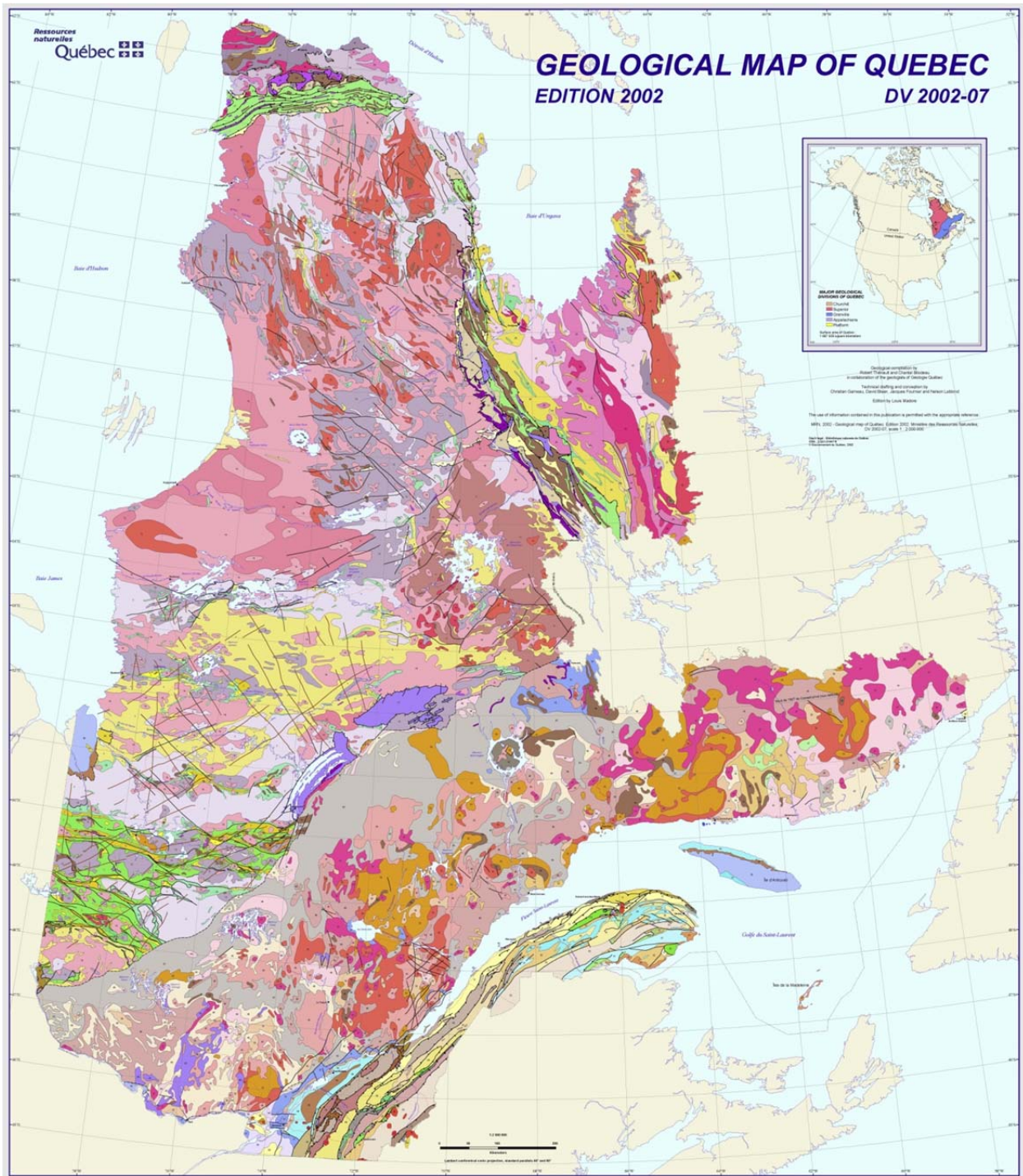


Figure 4 – Geological Map of the Province of Quebec

## 7.2 LOCAL GEOLOGY

The general stratigraphy of the Knob Lake area is representative of most of the Knob Lake Range, except that the Denault dolomite and Fleming Formation are not uniformly distributed. The Knob Lake Range occupies an area 100 km in length by 8 km in width. The sedimentary rocks, including the cherty iron formation, are weakly metamorphosed to green schist facies. In the structurally complex areas, leaching and secondary enrichment have produced earthy-textured iron deposits. Unaltered, banded, magnetite iron formation, often referred to as taconite, occurs as gently dipping beds west of Schefferville, in the Howells River area.

The sedimentary rocks in the Knob Lake Range strike northwest, and their corrugated surface appearance is due to parallel ridges of quartzite and iron formation which alternate with low valleys of shales and slates. The Hudsonian Orogeny compressed the sediments into a series of synclines and anticlines, which are cut by steep angle reverse faults that dip primarily to the east. The synclines are generally overturned to the southwest with the east limbs commonly truncated by strike faults.

Most of the secondary, earthy textured iron deposits occur in canoe-shaped synclines; some are tabular bodies extending to a depth of at least 200 m, and one or two deposits are relatively flat lying and cut by several faults. In the western part of the Knob Range, the iron formation dips gently eastward over the Archean basement rocks for about 10 km to the east, then forms an imbricate fault structure with bands of iron formation, repeated up to seven times.

Subsequent, supergene processes converted some of the iron formations into high-grade ores, preferentially in synclinal depressions and/or down-faulted blocks. Original sedimentary textures are commonly preserved by selected leaching and replacement of the original deposits. Jumbled breccias of enriched ore and altered iron formations, locally called rubble ores, are also present. Fossil trees and leaves of Cretaceous age have been found in rubble ores in some of the deposits (Neal, 2000).

## 7.3 THE STRATIGRAPHY OF THE SCHEFFERVILLE AREA

**Attikamagen Formation** - is exposed in folded and faulted segments of the stratigraphic succession where it varies in thickness from 30 metres near the western margin of the belt to more than 365 metres near Knob Lake. The lower part of the formation has not been observed. It consists of argillaceous material that is thinly bedded (2-3mm), fine grained (0.02 to 0.05mm), grayish green, dark grey to black, or reddish grey. Calcareous or arenaceous lenses as much as 30 cm in thickness occur locally interbedded with the argillite and slate, and lenses of chert are common. The formation grades upwards into Denault dolomite, or into Wishart quartzite in area where dolomite is absent. Beds are intricately drag-folded, and cleavage is well developed parallel with axial planes, perpendicular to axial lines of folds and parallel with bedding planes.

**Denault Formation** - is interbedded with the slates of the Attikamagen Formation at its base and grades upwards into the chert breccia or quartzite of the Fleming Formation. The Denault Formation consists primarily of dolomite, which weathers buff-grey to brown. Most of it occurs in fairly massive beds which vary in thickness from a few centimetres to about one metre, some of which are composed of aggregates of dolomite fragments.

Table 5 – Stratigraphy of the Central Portion of the Labrador Trough

<b>PROTEROZOIC - Helikian Shabogamo Group Intrusive Contact</b>	<b>Gabbro, Diabase</b>
PROTEROZOIC - Aphebian Kaniapiskau Supergroup <u>Knob Lake Group</u>	
Menihék Formation	Carbonaceous slate, shale, quartzite, greywacke, mafic volcanic rocks, minor dolomite and chert
Purdy Formation	Dolomite, developed locally
Sokoman Iron Formation	Oxide, silicate and carbonate lithofacies; minor sulphide lithofacies; interbedded mafic volcanic rocks (Nimish Formation); ferruginous slate and slaty iron formation, slate and carbonaceous shale
Wishart Formation	Feldspathic quartz arenite, arkose, minor chert, greywacke, slate and mafic volcanic rocks
Fleming Formation	Chert breccia, thin-bedded chert, limestone, minor lenses of shale and slate
Denault Formation	Dolomite and minor chert
Attikamagen Formation	Green, red, grey and black shale, and argillite interbedded with mafic volcanic rocks
Unconformity	
ARCHEAN Ashuanipi Complex	Granitic and granodioritic gneiss and mafic intrusives
	<b>Note:</b> Zajac (1974) redefined the Ruth Formation, located between the Wishart and Sokoman formations as part of the Sokoman Formation

Near Knob Lake the formation probably has a maximum thickness of 180 metres but in many other places it forms discontinuous lenses that are, at most, 30 metres thick. Leached and altered beds near the iron deposits are rubbly, brown or cream coloured and contain an abundance of chert or quartz fragments in a soft white siliceous matrix.

**Fleming Formation** – occurs a few kilometres southwest of Knob Lake and only above dolomite beds of the Denault Formation. It has a maximum thickness of about 100 metres and consists of rectangular fragments of chert and quartz within a matrix of fine chert. In the lower part of the formation the matrix is dominantly dolomite grading upwards into chert and siliceous material.

**Wishart Formation** – Quartzite and arkose of the Wishart Formation form one of the most persistent units in the Kaniapiskau Supergroup. Thick beds of massive quartzite are composed of well-rounded fragments of glassy quartz and 10-30% rounded fragments of pink and grey feldspar, well cemented by quartz and minor amounts of hematite and other iron oxides. Fresh surfaces of the rock are medium grey to pink or red. The thickness of the beds varies from a few centimetres to about one metre but exposures of massive quartzite with no apparent bedding occur most frequently.



**Ruth Formation** – Overlying the Wishart Formation is a black, grey-green or maroon ferruginous slate, 3 to 36 metres thick. This thinly banded, fissile material contains lenses of black chert and various amounts of iron oxides. It is composed of angular fragments of quartz with K-feldspar sparsely distributed through a very fine mass of chlorite, white mica, iron oxides and abundant finely disseminated carbon and opaque material. Much of the slate contains more than 20% iron.

**Sokoman Formation** – More than 80% of the ore in the Knob Lake Range occurs within this formation. Lithologically the iron formation varies in detail in different parts of the range and the thickness of individual members is not consistent.

A thinly bedded, slaty facies at the base of the formation consists largely of fine chert with an abundance of iron silicates and disseminated magnetite and siderite. Fresh surfaces are grey to olive green and weathered surfaces brownish yellow to bright orange where minnesotaite is abundant.

Thin-banded oxide facies of iron formation occurs above the silicate-carbonate facies in nearly all parts of the area. The jasper bands, which are 1.25 cm or less wide and deep red, or in a few places greenish yellow to grey, are interbanded with hard, blue layers of fine-grained hematite and a little magnetite.

The thin jasper beds grade upwards into thick massive beds of grey to pinkish chert and beds that are very rich in blue and black iron oxides. These massive beds are commonly referred to as “cherty metallic” iron formation and make up most of the Sokoman Formation. The iron oxides are usually concentrated in layers a few centimetres thick interbedded with leaner cherty beds. In many places iron-rich layers and lenses contain more than 50% hematite and magnetite.

The upper part of the Sokoman Formation comprises beds of dull green to grey or black massive chert that contains considerable siderite or other ferruginous carbonate. Bedding is discontinuous and the rock as a whole contains much less iron than the lower part of the formation.

**Menihék Formation** – A thin-banded, fissile, grey to black argillaceous slate conformably overlies the Sokoman Formation in the Knob Lake area. Total thickness is not known, as the slate is only found in faulted blocks in the main ore zone. East or south of Knob Lake, the Menihék Formation is more than 300 metres thick but tight folding and lack of exposure prevent determination of its true thickness.

The Menihék slate is mostly dark grey or jet black. It has a dull sooty appearance but weathers light grey or becomes buff coloured where leached. Bedding is less distinct than in the slates of other slate formations but thin laminae or beds are visible in thin sections.

## 7.4 DENAULT 1 GEOLOGY

Denault Fe/Mn enrichment occurs along a low hill immediately to the east of Denault Lake and is located 6 km northwest of Schefferville, QC. A year round road from Schefferville crosses the property. Denault is three separate occurrences which SMI refers to as the North (or Denault 1), Middle and South areas. Previous work by IOC and their subsequent resource estimate covers only the northern area historically referred to as Denault 1.

The iron formation in the area forms a homocline with north east dipping (60°) bedding that strikes NW. Enrichment of the iron formation appears to have occurred mainly in the silicate carbonate iron formation (SCIF) and in the underlying Ruth member near the contact of the two. A

manganiferous component of the iron formation occurs at or near the boundary of the SCIF and underlying Ruth member. Average ore depth is 60m with a maximum depth of 100m. Overburden is less than 3m for all three areas.

Historical resources listed by IOC for the Denault 1 Deposit are listed as 2.73M tonnes grading 49.1% Fe and 7.71% SiO<sub>2</sub>. A manganese resource for the same deposit is given as 929K tonnes grading 45.15% Fe, 5.36% Mn and 6.22 % SiO<sub>2</sub>.

## 8. DEPOSIT TYPES (ITEM 10)

### 8.1 IRON ORE

The Labrador Trough contains four main types of iron deposits:

-Soft iron ores formed by supergene leaching and enrichment of the weakly metamorphosed cherty iron formation; they are composed mainly of friable fine-grained secondary iron oxides (hematite, goethite, limonite).

-Taconites, the fine-grained, weakly metamorphosed iron formations with above average magnetite content and which are also commonly called magnetite iron formation.

-More intensely metamorphosed, coarser-grained iron formations, termed metataconites; which contain specular hematite and subordinate amounts of magnetite as the dominant iron minerals.

-Occurrences of hard high-grade hematite ore occur southeast of Schefferville at Sawyer Lake, Astray Lake and in some of the Houston deposits.

The LIM deposits are composed of iron formations of the Lake Superior-type. The Lake Superior-type iron formation consists of banded sedimentary rocks composed principally of bands of iron oxides, magnetite and hematite within quartz (chert)-rich rock, with variable amounts of silicate, carbonate and sulphide lithofacies. Such iron formations have been the principal sources of iron throughout the world.

The Sokoman iron formation was formed as chemical sediment under varied conditions of oxidation-reduction potential (Eh) and hydrogen ion concentrations (pH) in varied depth of seawater. The resulting irregularly bedded, jasper-bearing, granular, oolite and locally conglomeratic sediments are typical of the predominant oxide facies of the Superior-type iron formations, and the Labrador Trough is the largest example of this type.

The facies changes consist commonly of carbonate, silicate and oxide facies. Typical sulphide facies are poorly developed. The mineralogy of the rocks is related to the change in facies during deposition, which reflects changes from shallow to deep-water environments of sedimentation. In general, the oxide facies are irregularly bedded, and locally conglomeratic, having formed in oxidizing shallow-water conditions. Most carbonate facies show deep-water features, except for the presence of minor amounts of granules. The silicate facies are present in between the oxide and carbonate facies, with some textural features indicating deep-water formation.

Facies contains typical primary minerals, ranging from siderite, minnesotaite, and magnetite-hematite in the carbonate, silicate and oxide facies, respectively. The most common mineral in the Sokoman Formation is chert, which is closely associated with all facies, although it occurs in minor quantities with the silicate facies. Carbonate and silicate lithofacies are present in varying amounts in the oxide members.

The sediments of the Labrador Trough were initially deposited in a stable basin which was subsequently modified by penecontemporaneous tectonic and volcanic activity. Deposition of the iron formation indicates intraformational erosion, redistribution of sediments, and local contamination by volcanic and related clastic material derived from the volcanic centers in the Dyke-Astray area.

## **8.2 MANGANESE DEPOSITS**

The manganese deposits in the Schefferville area were formed by residual and second stage (supergene) enrichment that affected the Sokoman (iron) Formation, some members of which contain up to 1% Mn in their unaltered state. The residual enrichment process involved the migration of meteoric fluids circulated through the proto-ore sequence oxidizing the iron formation, recrystallizing iron minerals to hematite, and leaching silica and carbonate. The result is a residually enriched iron formation that may contain up to 10% Mn. The second phase of this process, where it has occurred, is a true enrichment process (rather than a residual enrichment), whereby iron oxides (goethite, limonite), hematite and manganese are redistributed laterally or stratigraphically downward into the secondary porosity created by the removal of material during the primary enrichment phase.

Deposition along faults, fractures and cleavage surfaces, and in veins and veinlets is also seen, and corroborates the accepted belief that the structural breaks act as channel-ways for migrating hydrothermal fluids causing metasomatic alteration and formation of manganiferous deposits. All the manganese occurrences in the Labrador Trough are considered to have been deposited by the processes described above.

## 9. MINERALIZATION (ITEM 11)

### 9.1 IRON ORE

The earthy bedded iron deposits are a residually enriched type within the Sokoman iron formation that formed after two periods of intense folding and faulting, followed by the circulation of meteoric waters in the fractured rocks. The enrichment process was caused largely by leaching and the loss of silica, resulting in a strong increase in porosity. This produced a friable, granular and earthy-textured iron ore. The siderite and silica minerals were altered to hydrated oxides of goethite and limonite. The second stage of enrichment included the addition of secondary iron and manganese which appear to have moved in solution and filled pore spaces with limonite-goethite. Secondary manganese minerals, i.e., pyrolusite and manganite, form veinlets and vuggy pockets. The types of iron ores developed in the deposits are directly related to the original mineral facies. The predominant blue granular ore was formed from the oxide facies of the middle iron formation. The yellowish-brown ore, composed of limonite-goethite, formed from the carbonate-silicate facies, and the red painty hematite ore originated from mixed facies in the argillaceous slaty members. The overall ratio of blue to yellow to red ore in the Schefferville area deposits is approximately 70:15:15 but can vary widely within and between the deposits.

Only the direct shipping ore is considered amenable to beneficiation to produce lump and sinter feed which will be part of the resources for LIM's development projects. The direct shipping ore was classified by IOC in categories based on chemical, mineralogical and textural compositions. This classification is shown in Table 6.

Table 6  
Classification of Iron Ore Types

<b>Schefferville Ore Types (From IOC)</b>					
<b>TYPE</b>	<b>ORE COLOURS</b>	<b>T_Fe%</b>	<b>T_Mn%</b>	<b>SiO2%</b>	<b>Al2O3%</b>
NB (Non-bessemer)	Blue, Red, Yellow	>=55.0	<3.5	<10.0	<5.0
LNB (Lean non-bessemer)	Blue, Red, Yellow	>=50.0	<3.5	<18.0	<5.0
HMN (High Manganiferous)	Blue, Red, Yellow	(Fe+Mn) >=50.0	>=6.0	<18.0	<5.0
LMN (Low Manganiferous)	Blue, Red, Yellow	(Fe+Mn) >=50.0	3.5-6.0	<18.0	<5.0
HiSiO2 (High Silica)	Blue	>=50.0		18.0-30.0	<5.0
TRX (Treat Rock)	Blue	40.0-50.0		18.0-30.0	<5.0
HiAl (High Aluminum)	Blue, Red, Yellow	>=50.0		<18.0	>5.0
Waste	All material that does not fall into any of these categories.				

The blue ores, which are composed mainly of the minerals hematite and martite, are generally coarse grained and friable. They are usually found in the middle section of the iron formation.

The yellow ores, which are made up of the minerals limonite and goethite, are located in the lower section of the iron formation in a unit referred to as the "silicate carbonate iron formation" or SCIF.

The red ore is predominantly a red earthy hematite. It forms the basal layer that underlies the lower section of the iron formation. Red ore is characterized by its clay and slate-like texture.

Direct shipping ores and lean ores mined in the Schefferville area during the period 1954-1982 amounted to some 150 million tons. Based on the original ore definition of IOC (+50% Fe <18% SiO<sub>2</sub>

dry basis), approximately 250 million tonnes of iron resources remain in the Schefferville area, exclusive of magnetite taconite

## 9.2 MANGANESE ORE

For an economic manganese deposit, there needs to be a minimum primary manganese content at a given market price (generally greater than 5% Mn), but also the manganese oxides must be amenable to concentration (beneficiation) and the resultant concentrates must be low in deleterious elements such as silica, aluminum, phosphorus, sulphur and alkalis. Beneficiation involves segregating the silicate and carbonate lithofacies and other rock types interbedded within the manganese-rich oxides.

The principle manganese deposits found in the Schefferville area can be grouped into three types:

Manganiferous iron deposits that occur within the lower Sokoman Formation. These are associated with in-situ residual enrichment processes related to downward and lateral percolation of meteoric water and ground water along structural discontinuities such as faults and fractures, penetrative cleavage associated with fold hinges, and near surface penetration. These typically contain from 5-10 % Mn.

Ferruginous manganese deposit, generally contain 10-35% Mn. These types of deposits are also associated with structural discontinuities (e.g., fault, well developed cleavage, fracture-zones) and may be hosted by the Sokoman (iron) Formation or by the stratigraphically lower silica-rich Fleming and Wishart formations. These are the result of residual and supergene enrichment processes.

So called manganese-occurrences or manganese-ore deposits contain at least 35% Mn. These deposits are the result of secondary (supergene) enrichment and are typically hosted in the Wishart and Fleming formations, stratigraphically below the iron formation.

## **10. EXPLORATION (ITEM 12)**

### **10.1 PAST EXPLORATION**

In 1929, a party led by J.E. Gill and W.F. James explored the geology around Schefferville, Quebec and named the area Ferrimango Hills. In the course of their field work, they discovered enriched iron-ore, or “direct-shipping ore” deposits west of Schefferville, which they named Ferrimango Hills 1, 2 and 3. These were later renamed the Ruth Lake 1, 2 and 3 deposits by J.A. Retty.

In 1936, J.S. Wishart, a member of the 1929 mapping expedition, mapped the area around Ruth Lake and Wishart Lake in greater detail, with the objective of outlining new iron ore occurrences.

In 1937, W.C. Howells traversed the area of the Ruth Lake Property as part of a watercourse survey between the Kivivic and Astray lakes – now known as Howells River.

In 1945, a report by LM&E describes the work of A.T. Griffis in the “Wishart – Ruth – Fleming” area. The report includes geological maps and detailed descriptions of the physiography, stratigraphy and geology of the area, and of the Ruth Lake 1, 2 and 3 ore bodies. Griffis recognized that the iron ore unit (Sokoman Formation) was structurally repeated by folding and faulting and remarked that “The potential tonnage of high-grade iron deposits is considered to be great.”

In 1946 and 1947, geological mapping of the southeast area of the Wishart Knob Lake area towards Astray Lake carried out by LM&E noted a number of areas with potential economic mineralization that led the discovery of the Houston 1 and 2 deposits in 1950.

Most exploration on the properties was carried out by the IOC from 1954 until the closure of their Schefferville operation in 1982. Most data used in the evaluation of the current status provided in the numerous documents, sections and maps produced by IOC or by consultants working for them.

In 1989 and 1990, La Fosse Platinum and Hollinger North Shore Exploration undertook an extensive exploration program for iron and manganese on 46 known occurrences in the Schefferville area, including those on the Denault Property.

Historic data used in the compilation of the new LIMHL/SMI resource is comprised of 15 IOC drill holes which account for 889.9m of drilling and 538 samples. This data was located and incorporated into the LIMHL project database. Additional data related to IOC drilling has been located but is incomplete.

Data generated by companies other than LIMHL or IOC was not used in the current resource study.

### **10.2 EXPLORATION 2010**

During the 2010 exploration season SMI carried out a Reverse Circulation (RC) drill program in the Denault area. A total of 2,726 metres of drilling in 50 drill holes was completed and a total of 946 samples taken.

The resource calculation in this report deals with the Denault 1 deposit. Of the 50 holes drilled in the 2010 field season 26 were drilled on Denault 1. A total of 588 samples were collected from the 1688m of drilling here. There was no trenching carried out by SMI during 2010 on the Denault Property.

### **10.3 DRILL HOLE SURVEY**

During the 2010 season, all drill hole locations were surveyed using a Trimble DGPS. The unit is mounted over the position to be surveyed and allowed to make readings for ~30 seconds. Real time corrections are received that give an accuracy of 1 - 3m in x, y & z. SMI also keeps a subscription with OmniStar where corrections can be downloaded within 24hrs via the internet. Corrected positions have an accuracy of 10 - 30cm in X, Y and Z. Designated SMI employees have also been trained to use the Trimble hardware and software. In addition to drill holes, any sample sites, trenches or historical markers are also surveyed. All survey data generated is downloaded into the Company's Access database.



## 11. DRILLING (ITEM 13)

Diamond drilling of the Schefferville iron deposits has been historically challenging in that the alternating hard and soft ore zones tend to preclude good core recovery. Traditionally IOC used a combination of reverse circulation (RC) drilling, diamond drilling and trenching to generate data for reserve and resource calculation. A large number of original IOC data have been recovered and reviewed by LIM and are included in the database that is used for the estimation of resources.

The 2010 drilling and exploration program used Cabo Ontario Limited from Kirkland Lake, ON to conduct the drilling. One Nodwell (track mounted) Acker RC drill and one skid mounted Acker RC drill rig were used. The rigs used a face sampling tricone bit where water was injected from the sides of the bit and water + drill cuttings returned via an inner tube along the centre of the drill rod (Figure 5). Once at the surface the cuttings entered a cyclone where the water and cuttings exited from the bottom and air through the top of the cyclone.

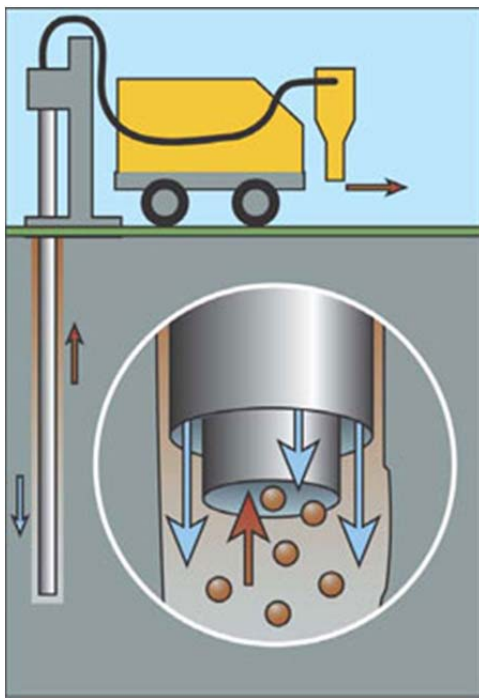


Figure 5 – Reverse Circulation drilling

## 12. SAMPLING METHOD AND APPROACH (ITEM 14)

Upon reaching the surface and passing thru the cyclone the sample flowed down into a rotary (wet) splitter where  $\frac{1}{2}$  of the material went to a discard exit and the remaining material to be sampled was split into two equal portions. One portion for assaying and one portion to be kept as a reference sample. All RC samples for assaying were 3m in length and to facilitate sampling the drill was limited to 3m advance every 30 minutes.

A small screen placed under one of the rotary splitter exits would collect material to be used for logging. Chips for logging were collected at 1m intervals. Chips for were taken by the on-site Rig Geologist for drying and logging. Chip trays were labelled with Hole ID and the interval in each compartment.

The sample and reference sample were collected in 5 gallon pails placed at the exits from the rotary splitter (Figure 6). Each exit from the splitter had two buckets connected inline. Once the primary sample bucket filled it would overflow into the second pail. After a 3m sample was collected the pails were removed and allowed to stand for 20 to 30 minutes. This was to let the finer fraction settle. The sample buckets were then decanted into another 5 gallon pail lined with a Sentry II Micro Pore sample bag.

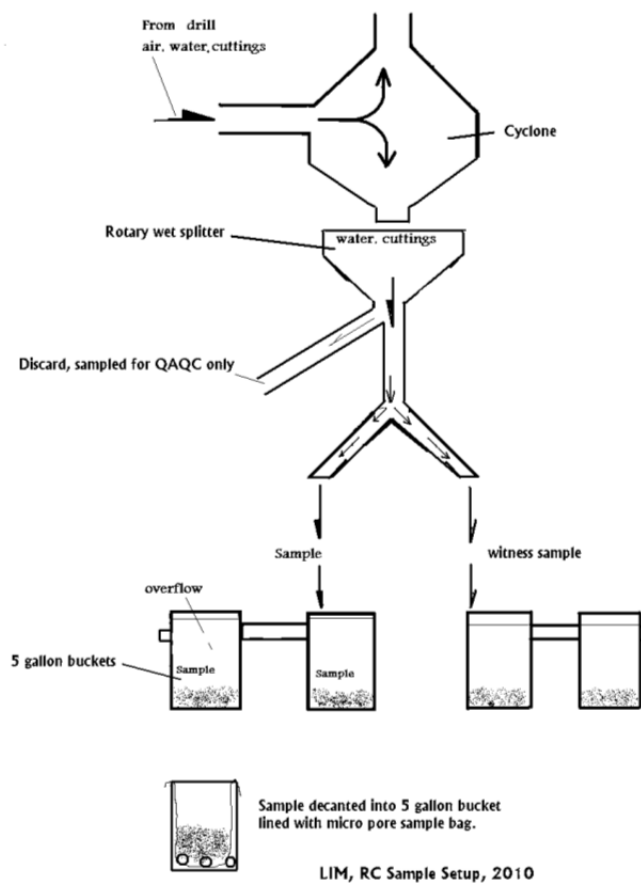


Figure 6 - Reverse Circulation Sampling set up

The material composing this sample bag allowed water to slowly drain thru while capturing very fine sample material. Holes in the side of this pail allowed water to flow out. The Micro Pore bag was then tied shut and sent to the SMI Schefferville warehouse. In order to dry the sample before shipping the sample would be placed in an oven for 3 hours at 200-250 degrees F. The weight of the sample before and after drying was recorded.

## **13. SAMPLE PREPARATION, ANALYSIS AND SECURITY (ITEM15)**

All samples were delivered from the drill rig to a central shipping building at the end of every shift. If drilling was progressing quickly during a day shift a mid day trip was made to the rigs by SMI staff to collect the samples. At this facility samples were placed on draining tables in numerical order. A sign in sheet was filled out by the sampler with the number of samples dropped off, sample reference numbers, time they were dropped off and the geologist on shift.

The RC samples would be documented and then allowed to air dry for 12 hours. The sample bags would then be weighed and placed in an oven to dry at 200 F to 250 F for 3 to 4 hours. After drying the sample bag would be removed from the oven and weighed once more. Both the sample and its "witness" would be dried and weighed in the above manner.

The sample bags used for the 2010 RC drilling were Hubco Sentry II Strong Spun Polypropylene types which are heat resistant to 250 deg F. This allowed the sample to be dried without removing it from the bag.

Once the sample was dry it would be packed in crates for shipping. The witness samples would be packed in crates and stored in a secure on site location.

All samples for the 2010 field season were shipped for analysis to:

Activation Laboratories  
1428 Sandhill Dr.  
Ancaster, Ontario  
L9G 4V5

### **13.1 SAMPLE PREPARATION AT ACTLABS**

During the 2010 exploration programme all trench and RC drill samples were shipped to Activation Laboratories (ACTLABS) facility in Ancaster, Ontario.

As a routine practice with rock and core samples, ACTLABS ensured the entire sample was crushed to a nominal minus 10 mesh (1.7 mm), mechanically split (riffled) to obtain a representative sample, and then pulverized to at least 95% minus 150 mesh (105 microns). All of their steel mills are now mild steel, and do not induce Cr or Ni contamination. As a routine practice, ACTLABS automatically used cleaner sand between each sample at no cost to the customer.

Quality of crushing and pulverization is routinely checked as part of their quality assurance program. Randomization of samples in larger orders (>100) provides an excellent means to monitor data for systematic errors. The data is resorted after analysis according to sample number. The following is a table describing the rock, core and drill cuttings sample preparation protocols used at the ACTLABS.

Table 7 -Rock, Core and Drill Cuttings Sample Preparation Protocols - ACTLABS

Rock, Core and Drill Cuttings	
code RX1	crush (< 5 kg) up to 75% passing 2 mm, split (250 g), and pulverize (hardened steel) to 95% passing 105 $\mu$
code RX1 Terminator	crush (< 5 kg) up to 90% passing 2 mm, split (250 g), and pulverize (hardened steel) to 95% passing 105 $\mu$
code RX1+500	500 grams pulverized
code RX1+800	800 grams pulverized
code RX1+1.3	1.3 kg pulverized
code RX2	crush (< 5 kg), split and pulverize with mild steel (100 g) (best for low
code RX3	oversize charge per kilogram for crushing
code RX4	pulverization only (mild steel) coarse pulp or crushed rock) (< 800 g)
code RX5	pulverize ceramic (100 g)
code RX6	hand pulverize small samples (agate mortar & pestle)
code RX7	crush and split (< 5 kg )
code RX8	sample prep only surcharge, no analyses
code RX9	compositing (per composite) dry weight
code RX10	dry drill cuttings in plastic bags
code RX11	checking quality of pulps or rejects

Following table shows the Pulverization Contaminants that are added by ACTLABS.

Table 8 -Pulverization Contaminants that are added by - ACTLABS

Mill Type	Contaminant Added
Mild Steel (best choice)	Fe (up to 0.2%)
Hardened Steel	Fe (up to 0.2%). Cr (up to 200ppm), trace Ni, Si, Mn, and C
Ceramic	Al (up to 0.2%), Ba, Trace REE
Tungsten Carbide	W (up to 0.1%), Co, C, Ta, Nb, Ti
Agate	Si (up to 0.3%), Al, Na, Fe, K, Ca, Mg, Pb

## 13.2 SAMPLE ANALYSIS AT ACTLABS

Following is a description of the exploration analysis protocols used at the Actlabs facility in Ancaster, Ontario.

### 13.2.1 X-RAY FLUORESCENCE ANALYSIS CODE: 4C

To minimize the matrix effects of the samples, the heavy absorber fusion technique of Norrish and Hutton (1969, Geochim. Cosmochim. Acta, volume 33, pp. 431-453) are used for major element oxide) analysis. Prior to fusion, the loss on ignition (LOI), which includes H<sub>2</sub>O+, CO<sub>2</sub>, S and other

volatiles, can be determined from the weight loss after roasting the sample at 1050°C for 2 hours. The fusion disk is made by mixing a 0.5 g equivalent of the roasted sample with 6.5 g of a combination of lithium metaborate and lithium tetraborate with lithium bromide as a releasing agent. Samples are fused in Pt crucibles using an AFT fluxer and automatically poured into Pt molds for casting. Samples are analyzed on a Panalytical Axios Advanced XRF. The intensities are then measured and the concentrations are calculated against the standard G-16 provided by Dr. K. Norrish of CSIRO, Australia. Matrix corrections were done by using the oxide alpha - influence coefficients provided also by K. Norrish. In general, the limit of detection is about 0.01 wt% for most of the elements.

### 13.2.2 ELEMENTS ANALYZED

SiO<sub>2</sub> Al<sub>2</sub>O<sub>3</sub> Fe<sub>2</sub>O<sub>3</sub>(T) MnO MgO CaO Na<sub>2</sub>O K<sub>2</sub>O TiO<sub>2</sub> P<sub>2</sub>O<sub>5</sub> Cr<sub>2</sub>O<sub>3</sub>, LOI

### 13.2.3 CODE 4C OXIDES AND DETECTION LIMITS (%)

The following table shows the Code 4C Oxides and Detection Limits (%)

Table 9 - Code 4C Oxides and Detection Limits (%)

Oxide	Detection Limit
SiO <sub>2</sub>	0.01
TiO <sub>2</sub>	0.01
Al <sub>2</sub> O <sub>3</sub>	0.01
Fe <sub>2</sub> O <sub>3</sub>	0.01
MnO	0.001
MgO	0.01
CaO	0.01
Na <sub>2</sub> O	0.01
K <sub>2</sub> O	0.01
P <sub>2</sub> O <sub>5</sub>	0.01
Cr <sub>2</sub> O <sub>3</sub>	0.01
LOI	0.01

### 13.2.4 ACTLABS SAMPLE QUALITY ASSURANCE, QUALITY CONTROL AND SECURITY

Following is a description of the quality assurance and quality control protocols used at the ACTLABS facility. This description is based on input from ACTLABS.

A total of 34 standards are used in the calibration of the method and 28 standards are checked weekly to ensure that there are no problems with the calibration.

Certified Standard Reference Materials (CSRM) are used and the standards that are reported to the client vary depending on the concentration range of the samples.

The re-checks are done by checking the sample's oxide total. If the total is less than 98% the samples are reweighed, fused and ran.

The amount of duplicates done is decided by the Prep Department, their procedure is for every 50 samples only if there is adequate material. If the work order is over 100 samples they will pick duplicates every 30 samples.

General QC procedure for XRF is: The standards are checked by control charting the elements. The repeats and pulp duplicates are checked by using a statistical program which highlights any sample that fail the assigned criteria. These results are analyzed and any failures are investigated using our QCP Non-Conformance (error or omission made that was in contrast with a test method (QOP), Quality Control Method (QCP) or Quality Administrative Method (QAP).

## 14. DATA VERIFICATION (ITEM16)

### 14.1 LIM SAMPLE QUALITY ASSURANCE, QUALITY CONTROL AND SECURITY

While drilling progressed Standards and Blanks were inserted into the sample stream at a rate of 1:50. Also rig duplicates, collected from the “discard line” were collected at a rate of once every 25 samples. The actual standard and blank material was inserted at the Schefferville shipping building.

In 2010, LIM/SMI completed the characterization of a high grade standard ( $60.93 \pm 1.47\%Fe$ ,  $9.96 \pm 1.36\%SiO_2$ ) and medium grade standard ( $56.47 \pm 1.21\%Fe$ ,  $8.31 \pm 1.07\%SiO_2$ ). Such materials were analyzed in 3 different laboratories (SGS, ALS Chemex and ActLabs) for characterization and certification.

#### 14.1.1 DUPLICATES

During 2010, the field duplicate came from a single discharge tube that flowed outside of the rig into a 5 gallon container. After the sample was collected it was decanted into another 5 gallon container lined with a Sentry II Micropore Polywoven bags. These bags allowed the excess water to flow through while catching the fines. The samples were dried in ovens for 3-4hrs prior shipping or storing. There were a total of 54 duplicates taken (Denault & Houston areas) over the course of the 2010 program. The overall Fe analysis of duplicates is good and repeatable as indicated in Figure 7 by the linear correlation of the samples versus their duplicates.

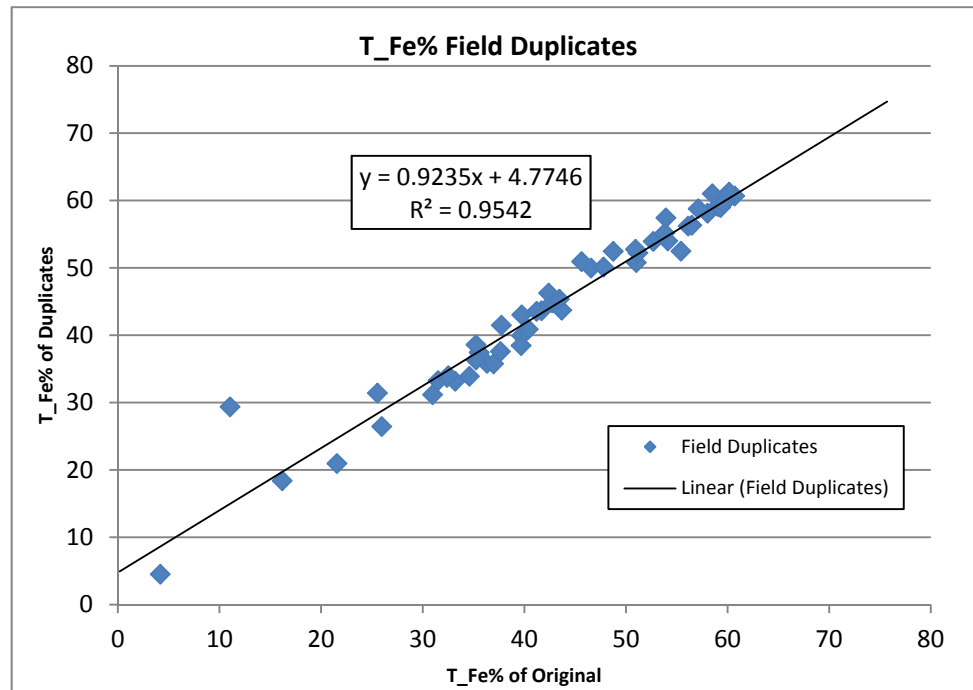


Figure 7 – Duplicates 2010



### 14.1.2 STANDARDS

The insertion of standard samples in the sampling sequence started in 2010 once characterization and analysis of the materials used was completed; however, only the high grade standard was used. A total of 39 standards were inserted and Figure 8 shows the results plotted. Samples 310008 and 310108 were over the  $3\sigma$  limits, which indicate that there were some issues with the assays in that period, perhaps equipment calibration.

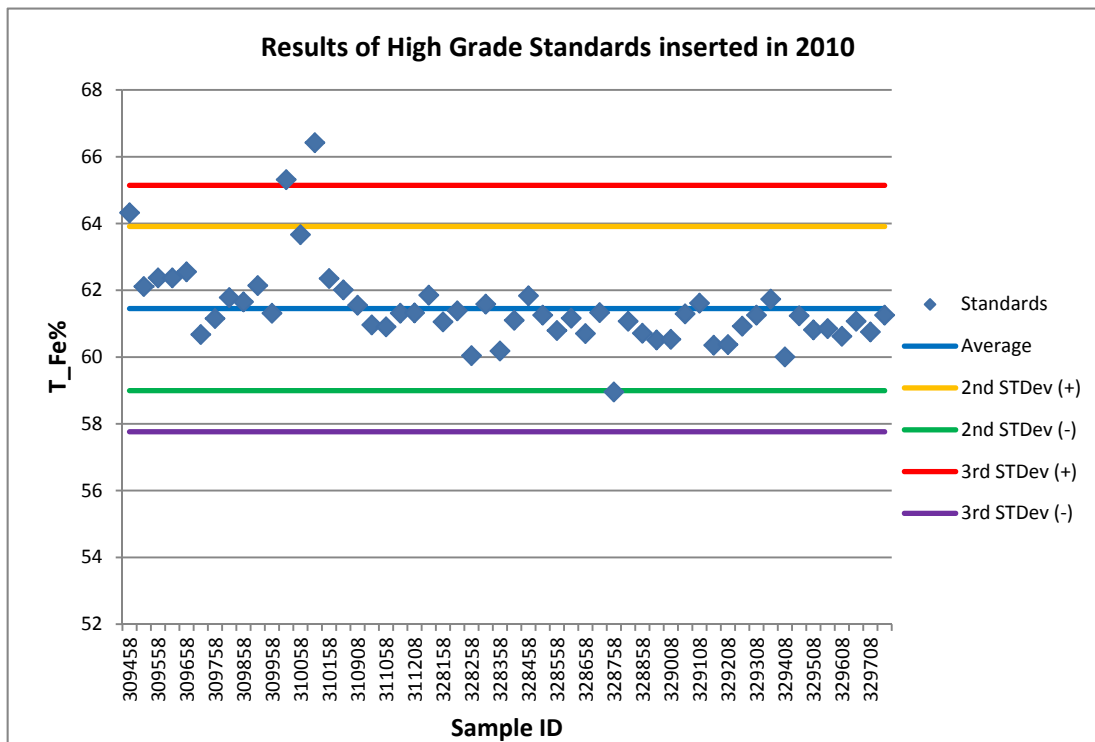


Figure 8 – Fe high grade standards in 2010

### 14.1.3 BLANKS

A total of 60 blank samples were used to check for possible contamination in the analytical laboratories. SGS Geostat prepared the blank sample from a known slate outcrop located near Schefferville. SGS Geostat homogenized an average 200 kg of material on site at the preparation lab in Schefferville. LIM and SGS Geostat also sent two separate batches of fifteen (15) blank samples to the Corem and ALS-Chemex independent laboratories of Vancouver and Quebec City, respectively, for analysis.

An average 4.82% Fe and 61.96% SiO<sub>2</sub> was noted for the entire batch of 60 blank samples. For SGS-Lakefield, an average of 5.37% Fe and 61.40% SiO<sub>2</sub> was noted. For ALS-Chemex, an average of 4.22% Fe and 62.60% SiO<sub>2</sub> was noted. For COREM, an average of 4.34% Fe and 62.25% SiO<sub>2</sub> was noted.

During the 2010 program, a total of 62 samples of blank material were systematically inserted in the sample batches sent for analyses. The results remained within the zone between the average

value and the  $2\sigma$ . This states that the sampling procedures within the lab are very good, and there is very little to no bias. Blank sample 329707 that went outside the  $(+/-)3\sigma$  zones is possibly related to contaminated blank since the standards and duplicates included in the same batch showed not apparent problems. The Figure 9 shows of the results of the analysis of the blank material for the 2010 program.

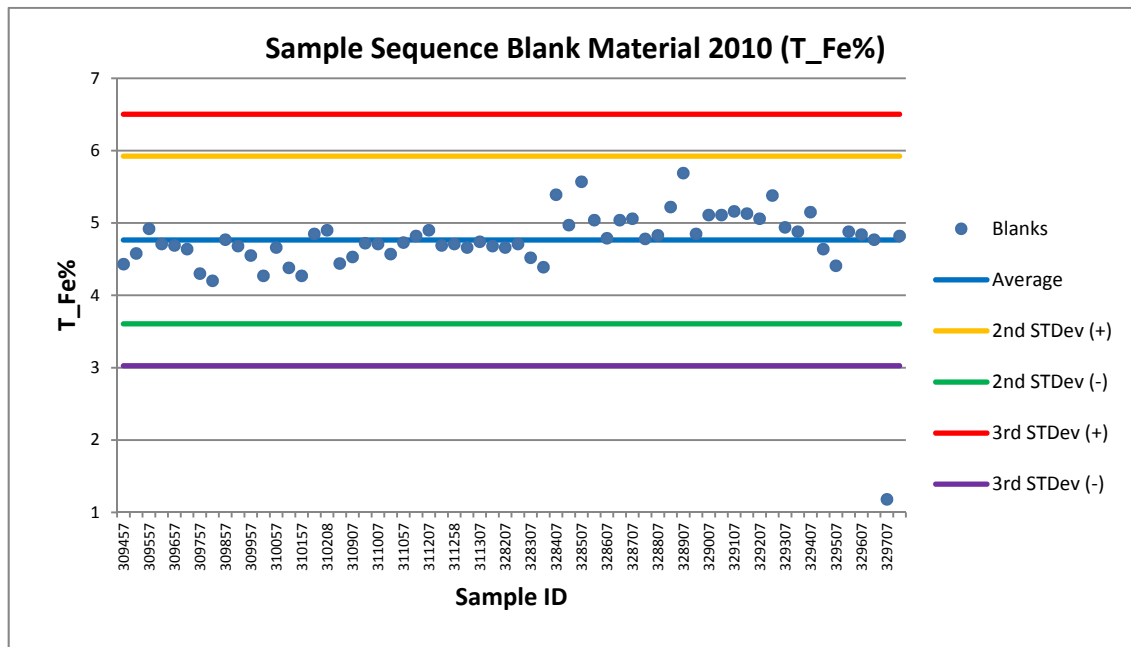


Figure 9 – Fe analysis on blank samples inserted in 2010

## 14.2 ASSAY CORRELATION OF TWINNED HOLES

The 2010 Denault program was designed to provide a drilling density sufficient for a drill indicated resource to be calculated exclusive of any historical data. At the time of drilling SMI had not located any supporting historical drill data for the Denault area from IOC. In January 2011 the historical data was located and added to the LIM Project Database.

No historical drill holes were surveyed in the field; instead they were located graphically from 1:1200 scale IOC plan maps. It is felt that this method gives SMI the correct drill holes location within 10m of accuracy.

While a twinning program had not been planned at the outset three of SMI’s 2010 drill holes were 5m to 7m away from the collar locations of historical IOC drill holes. The original drill holes were either core or “churn” type drills used by IOC until the reverse circulation drill was developed in the 1970’s. Considering the drilling/sampling methods being different and the uncertainty of exact locations of historic drill holes a systematic statistical analysis of Denault twins was not made. The visual analyses of three pairs of holes (Figure12) indicates satisfactory correlation between the respective pairs located in close proximity (5-10m) to each other.

Figure 10  
Graphic of Fe Assay Correlation of Twinned Holes

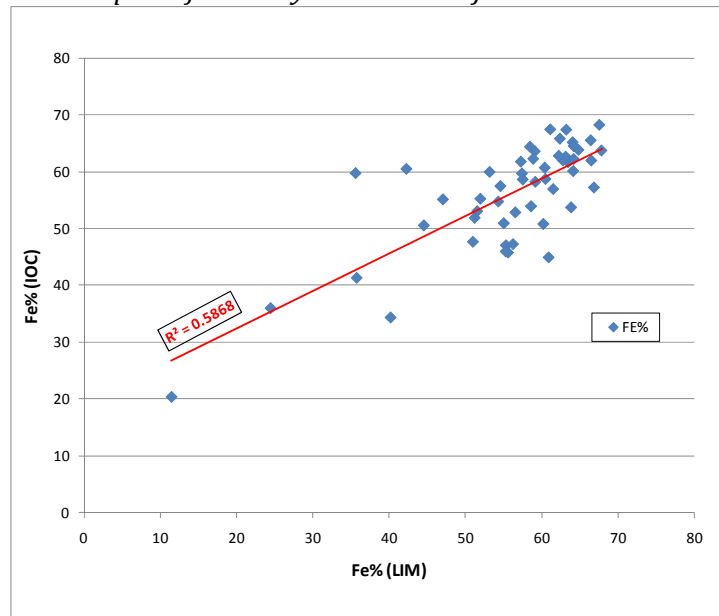


Figure 11  
Graphic of SiO<sub>2</sub> Assay Correlation of Twinned Holes

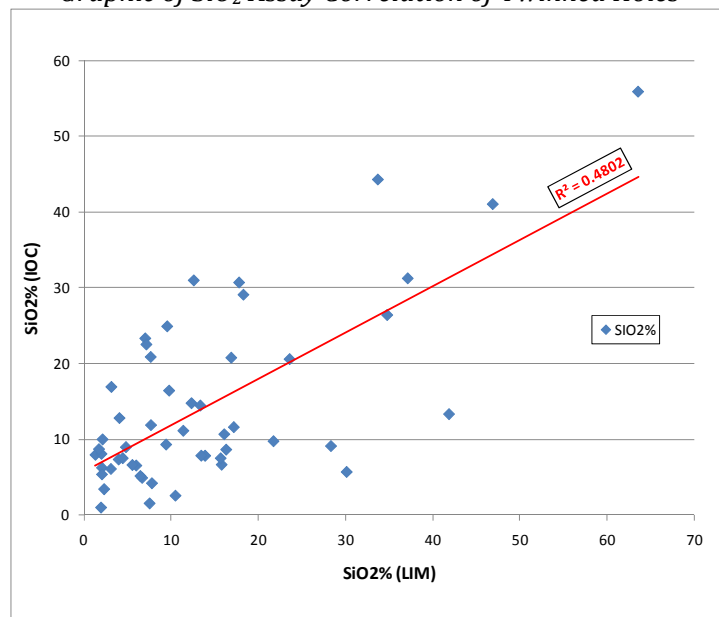
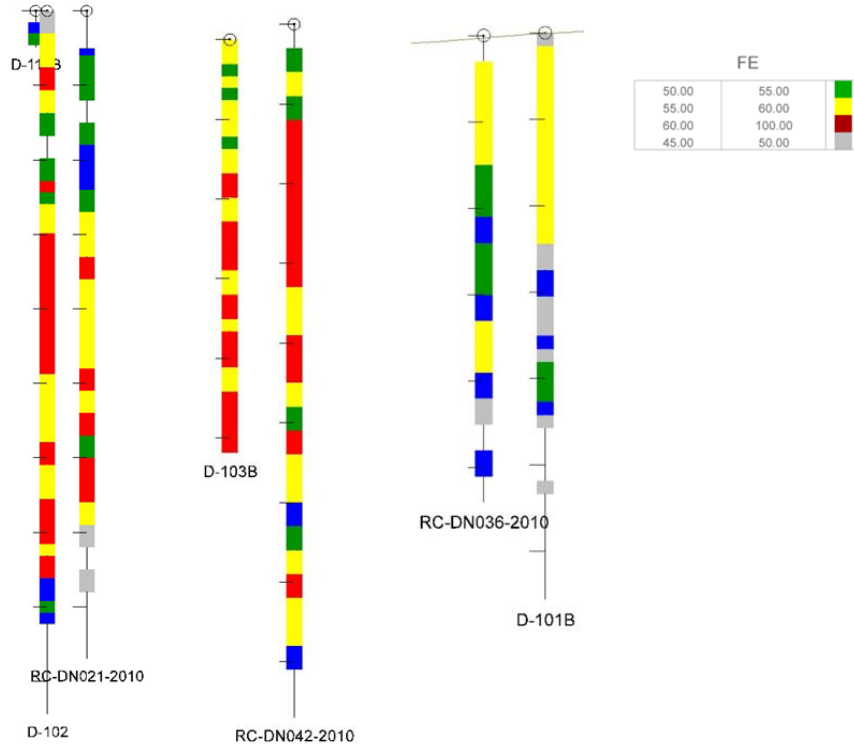


Figure 12  
Visual comparison of Fe grades of pairs of holes in Denault 1 deposit



## **15. ADJACENT PROPERTIES (ITEM 17)**

As of February 28, 2011, through its wholly-owned subsidiary Labrador Iron Mines Limited ("LIM"), LIMH holds title to three Mining Leases, eight Surface Leases and 53 Mineral Rights Licenses issued by the Department of Natural Resources, Province of Newfoundland and Labrador. The Mineral Rights Licenses cover an area of approximately 11,475 hectares. These Mineral Rights Licenses are held subject to a royalty of 3% of the selling price freight on board ("FOB") port of iron ore produced and shipped from the properties, subject to such royalty being not greater than \$1.50 per tonne.

LIMH's various properties comprise twenty different iron ore deposits which were part of the original IOC direct shipping Schefferville operations conducted from 1954 to 1982 and formed part of the 250 million tons of historical reserves and resources previously identified by IOC.

LIM has confirmed an indicated resource of 11 million tonnes on the James and Redmond deposits and measured and indicated resource of 19.4 million tonnes on the Houston deposits. The remaining seventeen deposits (excluding James, Redmond, Houston and Denault), have a total combined historical resource estimated to be approximately 122 million tons based on work carried out by IOC prior to the closure of its Schefferville operations in 1984. The historical estimate was prepared according to the standards used by IOC and, while still considered relevant, is not compliant with NI 43-101. The Company plans to bring the historical resources on these other deposits into NI 43-101 compliant status sequentially in line with their intended phases of production.

Exploration drilling at the Houston deposits during 2010 significantly increased the size of the resources to 19.5 million tonnes of measured and indicated resource and as a result, the Houston deposits are now of sufficient tonnage that merits evaluation of a stand-alone operation and the development of a new Stage 2 (South Central Zone).

The Astray and Sawyer deposits in Labrador, located approximately 50km to 65 km southeast of Schefferville (South Zone), do not currently have road access but can be reached by float plane or by helicopter.

The Kivivic deposit in Labrador and the Eclipse deposit in Quebec are located between 40 km to 85 km northwest of Schefferville (North Zone) and may eventually become Stage 5, but will require substantial infrastructure and building of road access.

A Joint Venture between Tata Steel Global Minerals Holdings, (80%) (a member of the Tata Group, the world's sixth largest steel producer) and New Millennium Capital Corp. (NML) (20%) is developing an adjacent DSO project on some of their claims in Labrador and Quebec about 30 km north of Schefferville.

NML published a Pre-Feasibility Study in April 2009 and on April 12, 2010 published a Feasibility Study on the development of the same project.

A Feasibility Study has also been carried out for NML on a taconite iron deposit known as the LabMag Property in the Howells River area of Labrador located some 30 km northwest of Schefferville. The property is owned by the partnership of New Millennium Capital Corp. and the Naskapi LabMag Trust and a Pre-Feasibility study has been carried out by NML on the adjacent K Mag taconite Property in Quebec.

In the Labrador City-Fermont area, 200 km to the south of Schefferville, iron ore mining and upgrade operations are being carried out by IOC at Carol Lake, by Cliffs Natural Resources at Wabush and at Bloom Lake (formerly Consolidated Thompson) and by Arcelor-Mittal at Mont-Wright

## 16. MINERAL RESOURCE ESTIMATE (ITEM 19)

### 16.1 INTRODUCTION

The mineral resources presented herein are reported in accordance with the National Instrument 43-101 and have been estimated in conformity with generally accepted CIM “Estimation of Mineral Resource and Mineral Reserves Best Practices” guidelines. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The Denault 1 deposit had historical reserves (non-compliant with NI 43-101) of DSO quality totalling 2.7Mt @ 49.1% Fe and 7.7% SiO<sub>2</sub> and 0.9Mt @ 45.2% Fe, 5.4% Mn and 6.2% SiO<sub>2</sub> of manganese iron ore (IOC Ore Reserves, 1983), which was based on geological interpretations on cross sections and calculations were done manually. It should be noted that the historical estimates are based on economics of 1983 and that although the geological, mineralogical and processing data will be the same today, economics and market conditions have changed.

The classification used in the IOC reports is as follows:

*Measured:* The ore is measured accurately in three dimensions. All development and engineering evaluations (economics, ore testing) are complete. The deposit is physically accessible and has a complete pit design. The reserve is economic and is marketable under current conditions.

*Indicated:* Development and engineering evaluations (economics, ore testing) are complete. Deposits in this category do not meet all the criteria of measured ore.

*Inferred:* Only preliminary development and evaluation are completed. Deposits may not be mineable because of location, engineering considerations, economics and quality.

The above shown terms, definitions and classification are not compliant with NI 43-101 but were used by IOC for their production reports. Current compliant mineral resources are categorized on the basis of the degree of confidence in the estimate of quantity and grade or quality of the deposit, as follows:

Inferred mineral resources,  
Indicated mineral resources and  
Measured mineral resources.

Compliant mineral reserves are that part of a measured mineral resource or indicated mineral resource which can be extracted legally and at a profit under economic conditions that are specified and generally accepted as reasonable by the mining industry and which are demonstrated by a preliminary feasibility study or feasibility study as follows:

Probable mineral reserve and  
Proven mineral reserve

Denault 1 data used for the estimation of current mineral resources was initially compiled and validated using MapInfo Professional software in combination with Encom Discover and Microsoft Office Access. Data was then imported into Gemcom GEMS Software Version 6.2.4.1., which was used to perform the final validation of the Denault 1 database, to construct solids, to build

composites, to run geostatistical analyses, to build the block model, to run grades interpolation and to estimate mineral resources.

The data used for the resource estimation is based on data obtained as of December 2010 and has been compiled, collected, managed and verified using industry's best practices.

## **16.2 DATABASE AND VALIDATION**

The historical data was entered from IOC's data bank listing print outs of drill holes, trenching and surface analyses. Most collar coordinate locations of drill holes were obtained using a Trimble DGPS with accuracies under 30cms. The locations of the remaining holes and trenches as well as geology were digitized using MapInfo v9.5 on historical maps that were geo-referenced using the DGPS surveyed points. The estimated accuracy of the digitized data is approximately 10 metres. Historical cross sections were also digitized using MapInfo/Discover software then imported into Gemcom GEMS 6.2.4.1.

The Denault1 database contains a total of 4,078 metres of drilling in 83 drill holes (including historical drilling). Table 10 provides a summary of the Denault database.

*Table 10  
Summary of Denault database*

<b>Source</b>	<b>Type</b>	<b>No.</b>	<b>Metres</b>	<b>Assays</b>
Historical	Drill hole	33	1,352	538
LIM (2010)	Drill hole	50	2,726	870
<b>TOTAL</b>		<b>83</b>	<b>4,078</b>	<b>1,408</b>

The final verification and validation of the collar information, downhole survey, lithology, mineralization and analytical data was performed using Gemcom GEMS validation tools that checked for missing and overlapping intervals as well as consistency in lengths. To the best knowledge of the author, all data used in this estimation is accurate.

## **16.3 GEOLOGICAL INTERPRETATION AND MODELING**

The geological and ore model interpretation of the Denault 1 deposit was completed considering a cut-off grade of 40% Fe+Mn; however the resources reported are based on a cut-off grade of 50% Fe for iron ore and 50% Fe+Mn for manganiferous iron ore. The IOC ore type parameters of Non-Bessemer (NB), lean non-Bessemer (LNB), high silica (HiSiO<sub>2</sub>), high manganiferous (HMN) and low manganiferous (LMN) were considered for the resource estimation.

The geological modeling of the Denault 1 mineral deposit was done using 15 vertical cross sections with a direction of N043° spaced approximately 30 metres apart (100 feet). Additional 03 historical sections were included in the interpretation with a direction of N066° (Figure 13).

The original geological and ore interpretations were updated with information obtained during recent exploration programs. The solids were created from the sectional wireframes combining geological and mineralization interpretation.



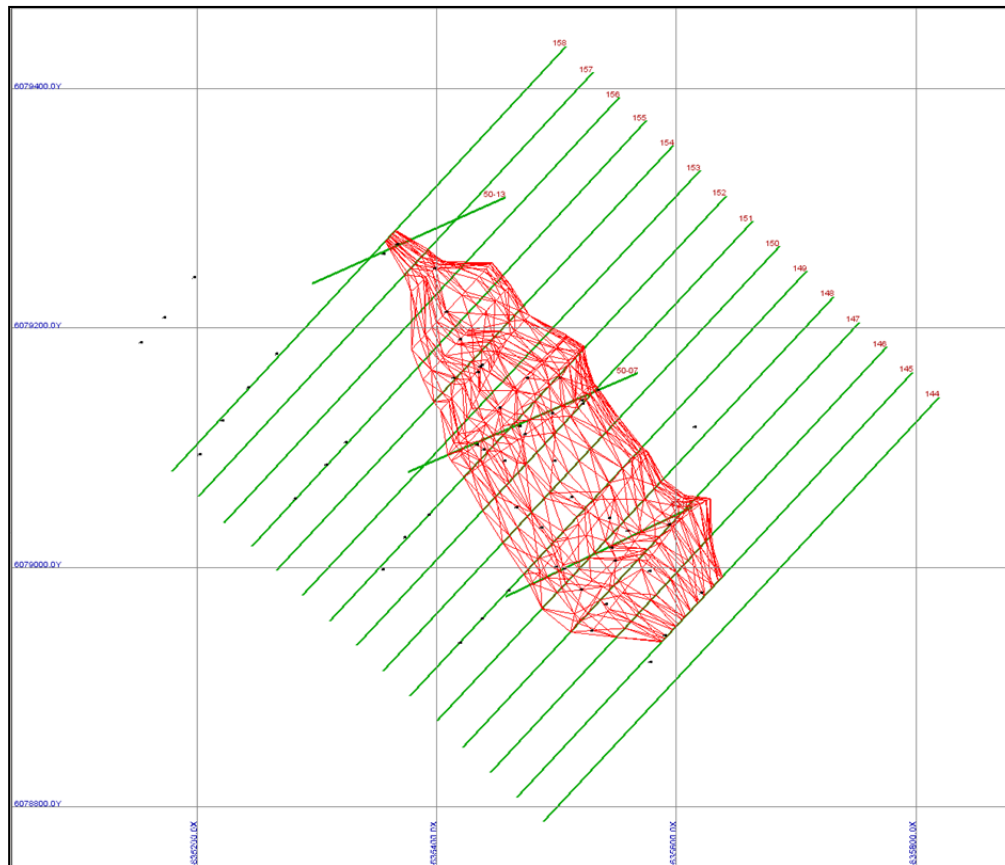


Figure 13– Section lines considered in the modeling of Denault 1 deposit

The study area of the Denault 1 deposit included in this report covers an extension of 700m long x 300m wide and 160m vertical. Further infill drilling will be required to better define mineralization in some areas within the ore body subject of this report. The Denault 2 and 3 areas located immediately to the south-east of Denault 1 require additional drilling to define their potential and resources.

## 16.4 SPECIFIC GRAVITY (SG)

The SG testing was carried out by LIM on reverse circulation drill chips. The SG was obtained by measuring a quantity of chips in air and then pouring the chips into a graduated cylinder containing a measured amount of water to determine the volume of water displacement. A volume of water equal to the observed displacement is then weighed and the SG of the chips is calculated using the equation listed below.

$$SG = \frac{A}{W_w}$$

SG=Specific Gravity of Sample

A=Weight of Sample in air (dry)

Ww=Weight of Water displaced

A variable specific gravity, Fe dependant, was used for the resource estimation which was calculated using the formula below.

$$SG_{(in\ situ)} = [(0.0258 * Fe) + 2.338] * 0.9$$

The formula was calculated from regression analyses in MS Excel using 229 specific gravity tests completed during the LIM’s 2009 drilling program in its properties in Labrador. The 0.9 factor corresponds to a security factor to take into account porosity of an estimated average of 10% volume. This formula was validated and used by SGS Geostat in prior technical reports.

## 16.5 STATISTICS

Composite samples were calculated in GEMS at equal lengths of 3 metres starting from the collars using Fe, Mn, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> and P grades. Composites were extracted into a “Point Area” workspace for statistical analysis and grade interpolation.

Figures 14 and 15 show basic statistics of Fe and SiO<sub>2</sub> in all samples considered in the resource estimation.

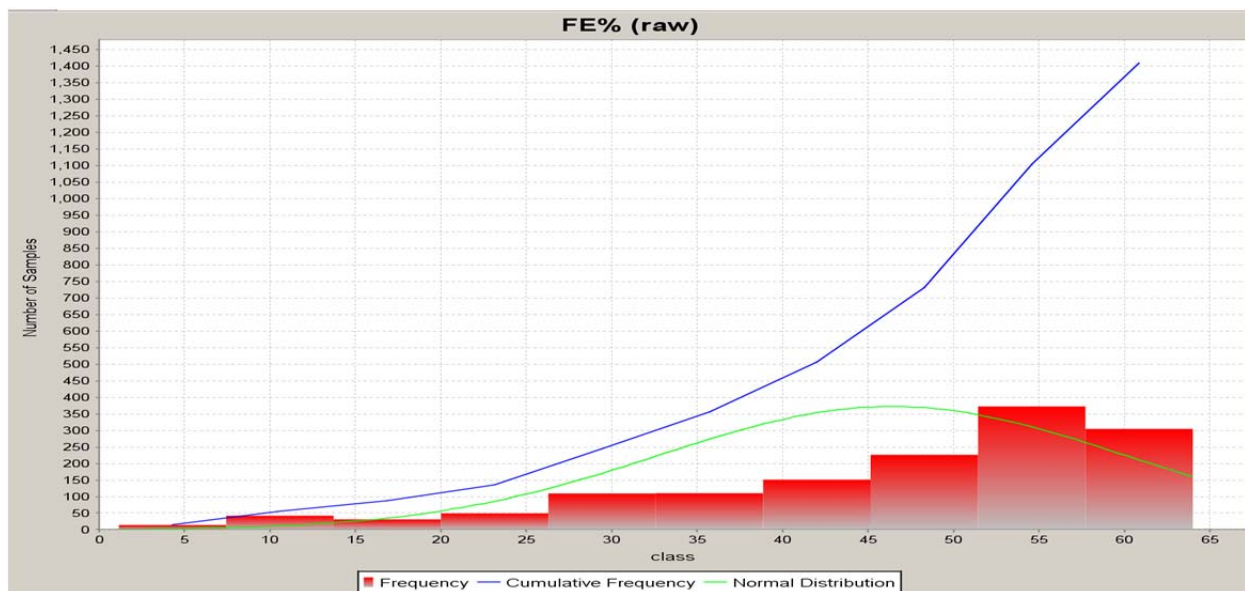


Figure 14 –Frequency, Cumulative Frequency and Normal Distribution chart of Fe

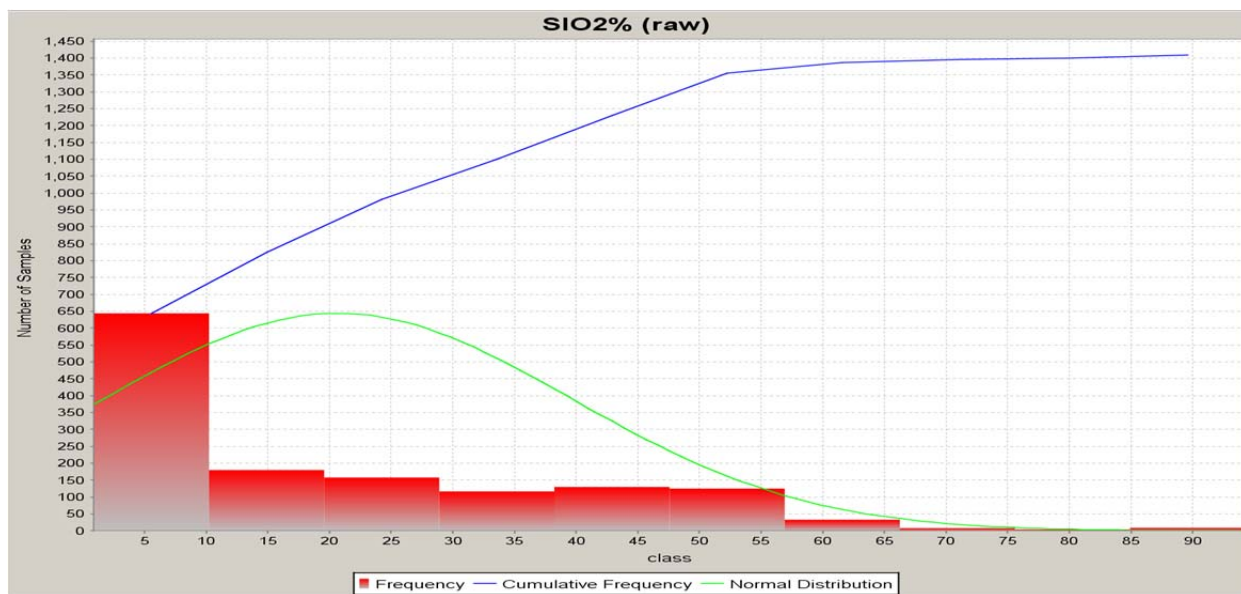


Figure 15 – Frequency, Cumulative Frequency and Normal Distribution chart of SiO2

## 16.6 BLOCK MODELING AND GRADE ESTIMATION

### 16.6.1 VARIOGRAPHY

3D semi-variogram analysis in GEMS using 1,169 composites of 3m in length with Fe grades  $\geq 40\%$  was done to determine directions of maximum continuity and various ranges of influence of ore grades. The information obtained from the variograms was used in the parameters for the search ellipses for grade estimations.

Table 11 – Results of the 3D semi-variogram analysis

Principal Azimuth	Principal Dip	Intermediate Azimuth	Nugget	Model	Sill	Anisotropy		
						X	Y	Z
151.0°	10.1°	220.0°	24.34	Spherical	67.62	116.1	53.6	92.6

### 16.6.2 GRADE ESTIMATION METHODOLOGY

The “Ordinary Kriging” interpolation method was used for grade estimate by block modeling with block sizes of 5x5x5 metres and block rotation of 47° which corresponds to the general strike of the Denault 1 deposit. The block size considered was to be the smallest estimated size for this type of mineralization to take into account sharp grade changes over short intervals.

Table 12 - Parameters of the block model

Number of Blocks	
Columns	200
Rows	360
Levels	40
Origin and Orientation	
X	635,850 mE
Y	6,078,200 mN
Z	550 m
Orientation	47°
Block Size	
Column size	5m
Row size	5m
Level size	5m

Three rock codes were used to assign to the blocks. These were Air, Ore and Waste. Blocks had to be at least 50% inside the ore solid model to be coded as “Ore”.

The ranges (radius of influence) obtained from variogram analysis suggest that the density of data is adequate; however, some areas will need additional drilling to increase confidence in the results obtained.

Block grade estimation was completed by interpolation in fifteen (15) passes using three search ellipses defined by 3D semi-variogram analysis for five grades (Fe, Mn, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub> and P). The three search ellipses were defined for resource classification (measured, indicated and inferred). Ranges assumed for search ellipses GEOS-1 and GEOS-2 are 20% and 40% respectively of the maximum range obtained from variogram analysis (GEOS-3). Figures 16 and 17 show results of the Fe interpolation on sections 152 and 149. Figure 18 shows a 3D view the blocks with resource classification.

Table 13 - Parameters of search ellipses used in the interpolation of grades and classification

Search Ellipse	Classification	Principal Azimuth	Principal Dip	Intermediate Azimuth	Anisotropy X	Anisotropy Y	Anisotropy Z
GEOS-1	Measured	151.0°	10.1°	220.0°	23.2	10.7	18.5
GEOS-2	Indicated	151.0°	10.1°	220.0°	46.4	21.4	37.1
GEOS-3	Inferred	151.0°	10.1°	220.0°	116.1	53.6	92.6

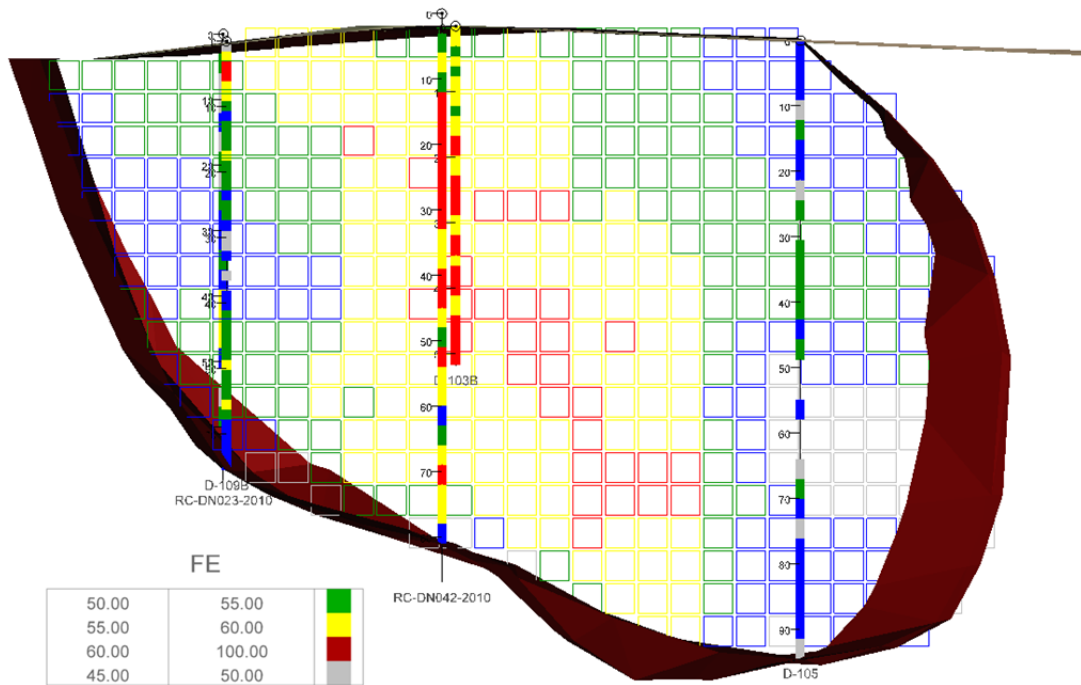


Figure 16 – Section 152 of Denault 1 with 15m corridor on both sides (Fe grades interpolation)

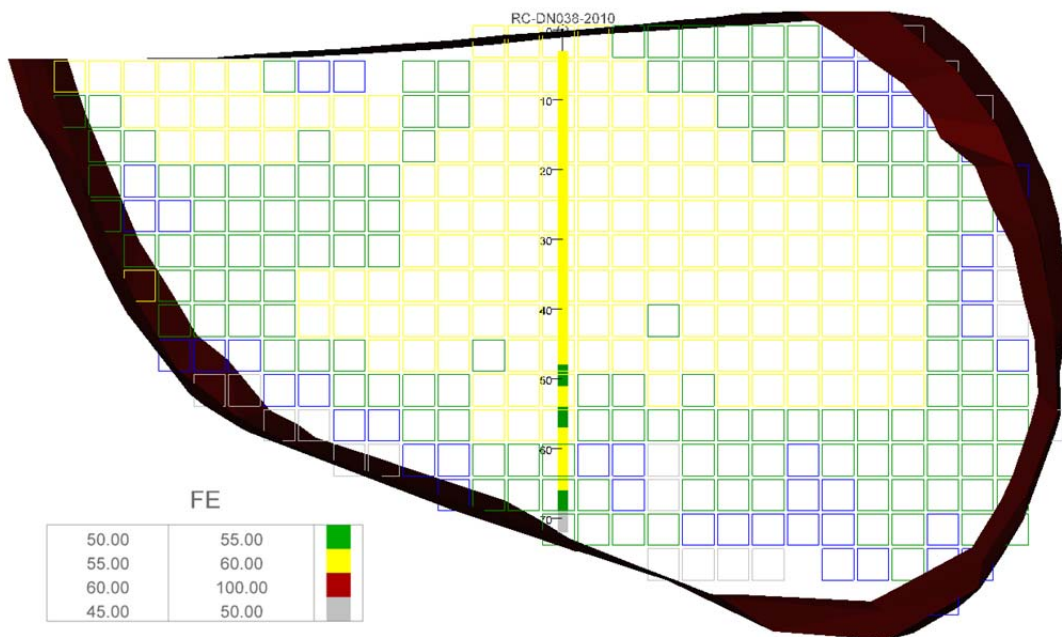


Figure 17 – Section 149 of Denault 1 with 15m corridor on both sides (Fe grades interpolation)

## 16.7 RESOURCE CLASSIFICATION

The estimated resources were classified in accordance with the specifications of the NI 43-101 Policy, namely in measured, indicated, and inferred resources.

SMI's current resource estimates for the Denault 1 deposit is 6.4 million tonnes (including LMN, HMN and HiSiO<sub>2</sub>) at a grade of 54.8% Fe in the Measured and Indicated categories and represents an increase of approximately 75% over the historical resources of 3.7 million tonnes. The Denault 1 deposit remains open to the northwest and southeast and to depth and additional exploration would be required to define the possible connection with Denault 2 and 3 deposits.

The results of the resource estimates for the Denault 1 deposit are shown on Table 14 and a comparison with historical resources in Table 15.

Mineral resources were classified using the following parameters:

Mineral resources were classified using the following parameters:

- Portion of block (50%) must be contained within the interpreted ore solid;
- Block had to have a minimum of 2 samples for interpolation;
- Measured Mineral Resources:
  - o Blocks estimated in first group pass;
  - o Search ellipse GEOS1 (x=17.61, y=11.93, z=10.95)
  - o Interpolated grades: Fe, Mn, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P
- Indicated Mineral Resources:
  - o Blocks estimated in second group pass;
  - o Search ellipse GEOS2 (x=35.21, y=23.86, z=21.90)
  - o Interpolated grades: Fe, Mn, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P
- Inferred Mineral Resources:
  - o Blocks estimated in third group pass;
  - o Search ellipse GEOS3 (x=88.03, y=59.66, z=54.75)

Interpolated grades: Fe, Mn, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P

Table 14 - Denault 1 Deposit - NI 43-101 Compliant Iron Ore Resources

Category	Ore Type	SG	Tonnage (X 1000)	Fe%	P%	Mn%	SiO2%	Al2O3%
Measured	LNB-NB	3.4	3,003	56.6	0.078	0.8	7.4	1.0
	HSiO2	3.3	239	51.7	0.032	0.1	20.2	0.9
	LMN-HMN	3.3	1,213	52.2	0.082	6.8	5.2	1.1
	<b>Total</b>	<b>3.4</b>	<b>4,456</b>	<b>55.1</b>	<b>0.077</b>	<b>2.4</b>	<b>7.5</b>	<b>1.1</b>
Indicated	LNB-NB	3.4	1,259	55.4	0.078	0.7	9.0	1.1
	HSiO2	3.3	153	51.5	0.031	0.1	20.5	0.8
	LMN-HMN	3.3	516	52.1	0.077	6.8	5.6	1.0
	<b>Total</b>	<b>3.4</b>	<b>1,928</b>	<b>54.2</b>	<b>0.074</b>	<b>2.3</b>	<b>9.0</b>	<b>1.0</b>
Inferred	LNB-NB	3.4	208	55.0	0.071	0.6	10.4	0.9
	HSiO2	3.3	30	51.4	0.036	0.1	20.1	0.8
	LMN-HMN	3.3	132	52.8	0.073	6.6	5.4	0.8
	<b>Total</b>	<b>3.4</b>	<b>369</b>	<b>53.9</b>	<b>0.069</b>	<b>2.7</b>	<b>9.4</b>	<b>0.9</b>
<b>Measured and Indicated</b>		<b>3.4</b>	<b>6,384</b>	<b>54.8</b>	<b>0.076</b>	<b>2.3</b>	<b>8.0</b>	<b>1.0</b>
<b>Inferred</b>		<b>3.4</b>	<b>369</b>	<b>53.9</b>	<b>0.069</b>	<b>2.7</b>	<b>9.4</b>	<b>0.9</b>

Table 15 - Denault 1 Deposit - Comparison of resources of the Denault 1 deposit

		43-101 (February 2011)				Historical 1982			
		Tonnes	Fe	Mn	SiO2	Tonnes	Fe	Mn	SiO2
Class		x 1000	%	%	%	x 1000	%	%	%
Fe Ore	M+IND	4,655	55.8	0.7	8.9	2,731	49.1	-	7.7
	INF	237	54.6	0.5	11.6	-	-	-	-
Mn Ore	M+IND	1,729	52.1	6.8	5.3	929	45.2	5.4	6.2
	INF	132	52.8	6.6	5.4	-	-	-	-
TOTAL	M+IND	6,384	54.8	2.3	8.0	3,660	48.8	-	7.6
	INF	369	53.9	2.7	9.4	-	-	-	-

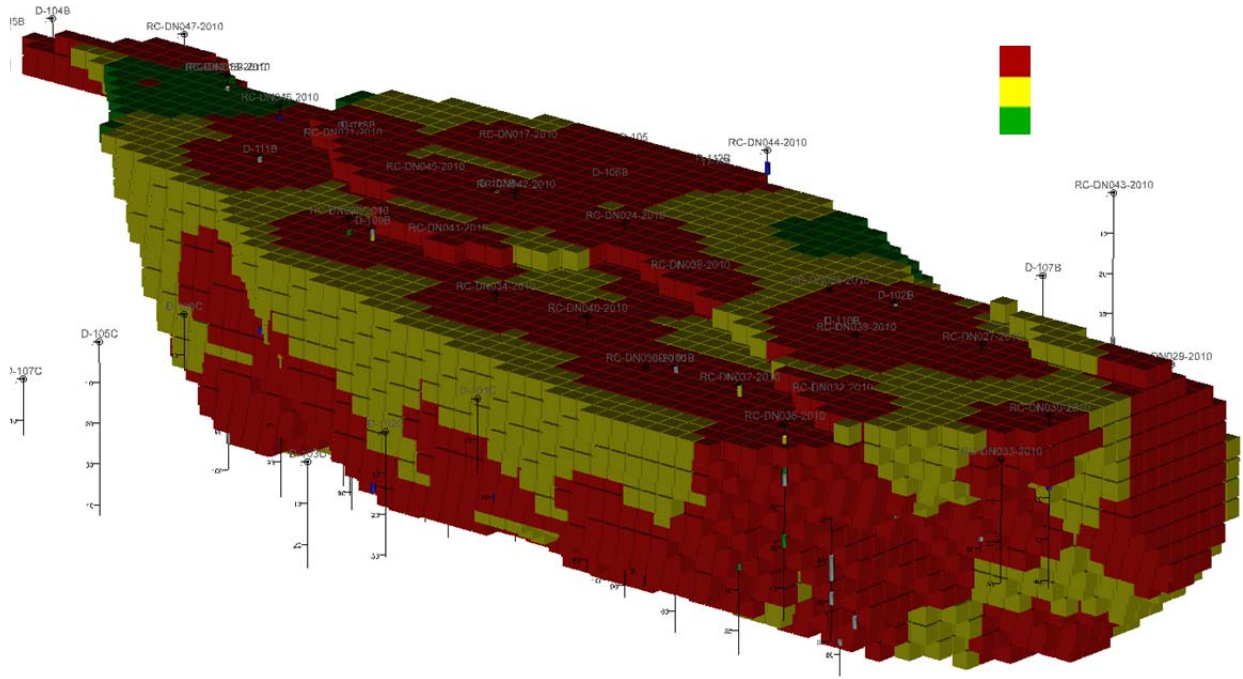


Figure 18 – Denault 1 resource classification



## **16.8 RESOURCES VALIDATION**

Visual inspection on sections of interpolated block grades agreed well with the composite grades and it is considered acceptable.

A second validation was done using 20 trace blocks. Interpolated grades assigned to these blocks agreed with the grades of samples in them.

A third validation was done comparing the results obtained using Ordinary Kriging ("OK") versus Inverse Distance ("ID") interpolation methods. The results obtained using the ID method were approximately 3% higher than the results obtained using the OK method confirming that the use of the OK method did not over estimate resources and it is considered an adequate method to use.

## 17. CONCLUSIONS (ITEM 21)

The author has reviewed all of the data in the possession of SMI relating to the Denault 1 deposit and has detailed personal knowledge of LIM's and SMI's projects from initial conception and property acquisition dating back to 2008. All of SMI's exploration work programs and technical evaluation programs carried out in 2010 were conducted under the supervision of the author.

The geological interpretation of the Denault deposits is restricted to the zones considered of economic quality. The historical IOC parameters of the Non-Bessemer and Bessemer ore types were considered together for the geological interpretations and modeling. The High Silica ore (HiSiO<sub>2</sub>) type containing  $\geq 50\%$  Fe and between 18% and 30% SiO<sub>2</sub> were also considered for the geological interpretation and modeling of the selected mineral deposits.

SMI used Gemcom GEMS 6.2.4.1 software for the resource estimation. The ordinary kriging interpolation method was used to estimate the resources by block modeling with block sizes of 5x5x5 metres and block rotation of 47° which corresponds to the general strike of the deposit. SMI used a composite length of 3.0 metre, considered suitable in comparison to the dimension of the blocks used for the model. The search ellipses were obtained from 3D semi-variogram analyses for the classification of the resources. The block model estimation used the topography and the overburden contact in the parameters settings.

All data used in the resource calculations of this report was generated either by SMI's 2010 Denault drilling program and available historical IOC data. Data generated by claim holders subsequent to IOC and prior to SMI's field work program has not been used.

SMI's current resource estimates for the Denault 1 deposit is 6.4 million tonnes of combined resources at an average grade of 54.8% Fe in the Measured and Indicated categories and represents an increase of approximately 75% over the historical resources of 3.7 million tonnes (IOC, 1982).

Including in the estimated resources, there is a total of 1.72 million tonnes of manganiferous iron ore resources at an average grade 52.1% Fe, 6.89% Mn and 5.3% SiO<sub>2</sub>.

The Denault 1 deposit remains open to the northwest and southeast and to depth

The results of SMI's work to date on the Denault 1 deposit has shown that there is more than sufficient merit to continue with the development of the deposit and to carry out further exploration work to confirm and expand the resource potential of Denault 1. The author also considers that there is sufficient merit to progress detailed technical evaluation of the mining and processing of the Denault deposit.

## **18. RECOMMENDATIONS (ITEM 22)**

A 2011 drill program consisting of 25 drill holes (2500m) is recommended. In addition, an airborne gravity/magnetic survey is suggested on the central area of LIMH's properties including the Denault properties. with the objective to evaluate possible extensions of DSO mineralization and presence of possible taconite type mineralization of economic interest.

Denault 1; It is recommended that SMI conduct further drilling on the Denault 1 deposit to delineate any extensions of the ore body to the NW and SE. Ten drill holes (100m each) are planned for the 2011 drill season.

Denault 2; This area is indicated on historic maps but there are no associated resource calculations available at this time. As the 2010 drill program only indicated the location of this Fe enrichment a 2011 drill program of 5 drill holes (100m each) is recommended. This program would determine the potential of the area to produce a resource.

Denault 3: This southern most area of Fe enrichment is located on historic IOC maps but no associated resources are available. The 2010 drill program did localize the Fe enrichment but it appears that the potential resource is farther to the south than expected. Ten drill holes (100m each) are recommended for the 2011 season. This drilling should be sufficient to determine the extent of any ore body in the area.

Environmental baseline studies initiated in 2008 should be continued in support of any development plans and associated permitting for the Denault area.

Once the 2011 drill program is complete a new resource study should be completed. Should the results prove positive a formal feasibility study could be initiated.

## 19. REFERENCES (ITEM 23)

The following documents are in LIM's files and have been reviewed by the authors:

- "Geology of Iron Deposits in Canada". Volume I. General Geology and Evaluation on Iron Deposits. G.A. Gross. Department of Mines and Technical Surveys Canada. 1965;
- "Reserve and Stripping Estimate". Iron Ore Company of Canada, January 1<sup>st</sup>, 1983.
- "Overview Report on Hollinger Knob Lake Iron Deposits". Fenton Scott. November 2000.
- "Assessment of an Investment Proposal for the Hollinger Iron Ore Development Project. Final Report". SOQUEM Inc. February 2002;
- "Preliminary Scoping Study for the Labrador Iron Ore Project. Province of Newfoundland & Labrador, Canada. Volume I. Labrador Iron Mines Ltd. September 28, 2006.
- "Technical Report of an Iron Project in Northwest Labrador, Province of Newfoundland and Labrador". D. Dufort, P.Eng and A.S. Kroon, P.Eng SNC-Lavalin, Original Date September 10<sup>th</sup>, 2007, Amended October 10<sup>th</sup>, 2007.
- "Work Assessment Report, The Ruth Lake Property, Western Labrador Province of Newfoundland & Labrador". MRB & Associates, John Langton M.Sc, P.Geo. October 30<sup>th</sup>, 2009.
- "Technical Report Resource Estimation of the James, Redmond 2B and Redmond 5 Mineral Deposits Located in Labrador, Canada for Labrador Iron Mines Ltd". SGS Geostat Ltd. December 18<sup>th</sup>, 2009.
- "Report on 2009 Exploration Program". Prepared by Labrador Iron Mines Limited. December 2009.
- "Report on 2010 Exploration Program". Prepared by Labrador Iron Mines Limited. January 18<sup>th</sup>, 2011.
- "Technical Report on an Iron Project in Northern Quebec. Province of Quebec". A.S. Kroon. March 10<sup>th</sup>, 2010.
- "Revised Technical Report on an Iron Ore Project in Western Labrador. Province of Newfoundland and Labrador". A. Kroon, SGS Canada Inc. March 18<sup>th</sup>, 2010.
- "Technical Report and Resource Estimate on the Houston Iron Ore Deposit Western Labrador", Labrador Iron Mines Limited, T.N. McKillen, May 18, 2010.
- "Technical Report on the Houston Iron Ore Deposit Western Labrador", Labrador Iron Mines Holdings Limited, T.N. McKillen *et al.*, May 18, 2010.
- "Technical Report on the Houston Iron Ore Deposit Western Labrador". Labrador Iron Mines Limited. T.N. McKillen, D.W. Hooley, D. Dufort. February 21, 2011;
- NMI FILE NUMBER 23J/14/Fe028, Newfoundland and Labrador Department of Natural Resources;

## **20. DATE AND SIGNATURE PAGE (ITEM 24)**

This Technical Report is dated March 11, 2011 and reports on all exploration work done up to December 31<sup>st</sup> of 2010.

Signed and dated

Dated at Toronto, ON

March 11, 2011

(signed) *“Terence N. McKillen”*

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**Terence N. McKillen, P.Geol.**

## Qualifications Certificate

I, Terence N. McKillen, Professional Geologist, do hereby certify that:

1. I am a consulting geologist residing at 965 Davecath Road, Mississauga, Ontario, L5J 2R7.
2. I am the author of the report entitled "Technical Report and Resource Estimate on the Denault Iron Ore Deposit Province of Quebec Canada" dated March 11, 2011.
3. I graduated from the University of Dublin, Trinity College in 1968 and hold a Bachelors and a Masters Degree in Natural Sciences (Geology). I obtained a Masters Degree in Mineral Exploration and Mining Geology from the University of Leicester in 1971.
4. I am a member in good standing of the Association of Professional Geoscientists of Ontario (#0216); the Professional Engineers and Geoscientists of Newfoundland and Labrador (#04525) and the Order of Professional Geologists of Québec (#1392) and am designated as a specialist in Geology and Mineral Exploration and Development.
5. I have worked as a geologist and mining executive in the minerals industry for over 40 years since my graduation from university.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and by reason of my education, membership of professional associations and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I have visited the project site on many occasions from 2005 to 2010, including most recently on 28 Oct. 2010.
8. I was instrumental in the original acquisition of iron ore properties held by Labrador Iron Mines Limited, have been involved in the corporate development thereof and have prepared earlier technical and business reports and evaluations pertaining to properties held by LIMH in Labrador and Quebec or directly supervised the preparation of such technical reports.
9. I am not independent of either Schefferville Mines Inc. or Labrador Iron Mines Holdings Limited as described in section 1.4 of NI 43-101, being a director and officer of both companies.
10. I have read National Instrument 43-101 – Standards of Disclosure for Mineral Projects and Form 43-101F1 and Companion Policy 43-101CP and certify that this Technical Report has been prepared in compliance with such instrument(s).
11. As of the date of the report and to the best of my knowledge, I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the report, the omission of which disclosure would make the Technical Report misleading.
12. I consent to the filing of the Technical Report with any stock exchange or other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Report.

DATED

March 11, 2011

(signed) "Terence N. McKillen"

Terence N. McKillen, P. Geo.

## **Appendix I**

(List of drill holes completed in the Denault property)

	Hole_ID	Easting	Northing	Elevation	Length	Azimuth	Dip	Comment
1	RC-DN001-2010	636551	6077747	535.04	33.00	0.00	-90.00	RC tricone 2010
2	RC-DN002-2010	636521	6077766	533.71	48.00	0.00	-90.00	RC tricone 2010
3	RC-DN003-2010	636572	6077772	529.56	42.00	0.00	-90.00	RC tricone 2010
4	RC-DN004-2010	636559	6077822	525.80	48.00	0.00	-90.00	RC tricone 2010
5	RC-DN005-2010	636537	6077803	527.51	48.00	0.00	-90.00	RC tricone 2010
6	RC-DN006-2010	636511	6077872	522.75	30.00	0.00	-90.00	RC tricone 2010
7	RC-DN007-2010	636494	6077849	527.57	33.00	0.00	-90.00	RC tricone 2010
8	RC-DN008-2010	636466	6077867	525.69	24.00	0.00	-90.00	RC tricone 2010
9	RC-DN009-2010	636427	6077826	521.65	18.00	0.00	-90.00	RC tricone 2010
10	RC-DN010-2010	636484	6077894	523.38	48.00	0.00	-90.00	RC tricone 2010
11	RC-DN011-2010	636431	6077914	523.50	28.00	0.00	-90.00	RC tricone 2010
12	RC-DN012-2010	636397	6077972	519.97	27.00	0.00	-90.00	RC tricone 2010
13	RC-DN013-2010	636378	6077948	521.48	27.00	0.00	-90.00	RC tricone 2010
14	RC-DN014-2010	636363	6077995	520.74	33.00	0.00	-90.00	RC tricone 2010
15	RC-DN015-2010	636417	6077890	520.78	16.00	0.00	-90.00	RC tricone 2010
16	RC-DN016-2010	636021	6078418	523.94	95.00	0.00	-90.00	RC tricone 2010
17	RC-DN017-2010	635476	6079158	514.00	91.00	0.00	-90.00	RC tricone 2010
18	RC-DN018-2010	635408	6079214	513.56	6.00	0.00	-90.00	RC tricone 2010
19	RC-DN018B-2010	635408	6079214	513.56	100.00	0.00	-90.00	RC tricone 2010
20	RC-DN019-2010	636040	6078445	525.61	105.00	0.00	-90.00	RC tricone 2010
21	RC-DN020-2010	636027	6078512	524.86	13.00	0.00	-90.00	RC tricone 2010
22	RC-DN020B-2010	636027	6078512	524.86	6.00	0.00	-90.00	RC tricone 2010
23	RC-DN020C-2010	636027	6078512	524.86	72.00	0.00	-90.00	RC tricone 2010
24	RC-DN021-2010	635435	6079163	513.29	87.00	0.00	-90.00	RC tricone 2010
25	RC-DN022-2010	636003	6078578	523.71	54.00	0.00	-90.00	RC tricone 2010
26	RC-DN023-2010	635434	6079103	513.79	69.00	0.00	-90.00	RC tricone 2010
27	RC-DN024-2010	635499	6079089	516.41	93.00	0.00	-90.00	RC tricone 2010
28	RC-DN025-2010	635545	6079041	515.67	84.00	0.00	-90.00	RC tricone 2010
29	RC-DN026-2010	635947	6078502	517.25	61.00	0.00	-90.00	RC tricone 2010
30	RC-DN027-2010	635578	6078997	516.37	51.00	0.00	-90.00	RC tricone 2010
31	RC-DN028-2010	635966	6078445	517.16	63.00	0.00	-90.00	RC tricone 2010
32	RC-DN029-2010	635621	6078979	517.19	54.00	0.00	-90.00	RC tricone 2010
33	RC-DN030-2010	635591	6078943	517.00	42.00	0.00	-90.00	RC tricone 2010
34	RC-DN031-2010	635987	6078391	518.05	66.00	0.00	-90.00	RC tricone 2010
35	RC-DN032-2010	635542	6078969	513.68	60.00	0.00	-90.00	RC tricone 2010
36	RC-DN033-2010	635579	6078921	514.22	30.00	0.00	-90.00	RC tricone 2010
37	RC-DN034-2010	635467	6079050	512.08	51.00	0.00	-90.00	RC tricone 2010
38	RC-DN035-2010	635530	6078947	514.42	48.00	0.00	-90.00	RC tricone 2010
39	RC-DN036-2010	635500	6079000	510.89	54.00	0.00	-90.00	RC tricone 2010
40	RC-DN037-2010	635521	6078981	512.40	66.00	0.00	-90.00	RC tricone 2010
41	RC-DN038-2010	635513	6079059	514.14	72.00	0.00	-90.00	RC tricone 2010
42	RC-DN039-2010	635549	6079006	516.00	72.00	0.00	-90.00	RC tricone 2010
43	RC-DN040-2010	635488	6079033	512.17	63.00	0.00	-90.00	RC tricone 2010



	Hole_ID	Easting	Northing	Elevation	Length	Azimuth	Dip	Comment
44	RC-DN041-2010	635457	6079089	513.65	75.00	0.00	-90.00	RC tricone 2010
45	RC-DN042-2010	635474	6079112	516.92	87.00	0.00	-90.00	RC tricone 2010
46	RC-DN043-2010	635616	6079117	513.26	66.00	0.00	-90.00	RC tricone 2010
47	RC-DN044-2010	635535	6079148	514.63	50.00	0.00	-90.00	RC tricone 2010
48	RC-DN045-2010	635453	6079134	514.39	87.00	0.00	-90.00	RC tricone 2010
49	RC-DN046-2010	635420	6079191	513.38	99.00	0.00	-90.00	RC tricone 2010
50	RC-DN047-2010	635399	6079250	512.20	31.00	0.00	-90.00	RC tricone 2010
51	D-101	635522	6079137	513.70	91.50	0.00	-90.00	Historical IOC
52	D-101B	635507	6078999	511.20	65.60	0.00	-90.00	Historical IOC
53	D-101C	635461	6078981	510.00	18.60	0.00	-90.00	Historical IOC
54	D-102	635437	6079168	513.30	94.50	0.00	-90.00	Historical IOC
55	D-102B	635560	6079030	515.50	63.80	0.00	-90.00	Historical IOC
56	D-102C	635439	6078958	510.00	30.48	0.00	-90.00	Historical IOC
57	D-103B	635470	6079118	515.00	51.90	0.00	-90.00	Historical IOC
58	D-103C	635420	6078937	510.00	25.90	0.00	-90.00	Historical IOC
59	D-104B	635367	6079270	510.00	15.30	0.00	-90.00	Historical IOC
60	D-105	635504	6079159	512.80	94.50	0.00	-90.00	Historical IOC
61	D-105B	635356	6079262	510.00	12.20	0.00	-90.00	Historical IOC
62	D-105C	635374	6079025	510.00	42.70	0.00	-90.00	Historical IOC
63	D-106B	635497	6079129	514.00	100.00	0.00	-90.00	Historical IOC
64	D-106C	635394	6079044	510.00	13.80	0.00	-90.00	Historical IOC
65	D-107B	635594	6079036	520.00	91.50	0.00	-90.00	Historical IOC
66	D-107C	635356	6078998	510.00	13.80	0.00	-90.00	Historical IOC
67	D-109B	635440	6079098	512.70	65.60	0.00	-90.00	Historical IOC
68	D-109C	635325	6079105	510.00	24.40	0.00	-90.00	Historical IOC
69	D-110B	635547	6079017	514.00	85.50	0.00	-90.00	Historical IOC
70	D-110C	635308	6079086	510.00	24.40	0.00	-90.00	Historical IOC
71	D-111B	635415	6079158	511.00	44.50	0.00	-90.00	Historical IOC
72	D-111C	635282	6079057	510.00	40.00	0.00	-90.00	Historical IOC
73	D-112B	635522	6079140	513.50	10.40	0.00	-90.00	Historical IOC
74	D-112C	635267	6079178	510.00	40.00	0.00	-90.00	Historical IOC
75	D-113B	635438	6079169	513.30	4.90	0.00	-90.00	Historical IOC
76	D-113C	635243	6079150	510.00	22.90	0.00	-90.00	Historical IOC
77	D-114C	635222	6079123	510.00	15.30	0.00	-90.00	Historical IOC
78	D-115C	635198	6079242	510.00	29.00	0.00	-90.00	Historical IOC
79	D-116C	635203	6079094	510.00	5.50	0.00	-90.00	Historical IOC
80	D-117C	635173	6079209	510.00	26.00	0.00	-90.00	Historical IOC
81	D-118C	635154	6079188	510.00	38.20	0.00	-90.00	Historical IOC
82	D-125C	634986	6079007	510.00	23.00	0.00	-90.00	Historical IOC
83	D-126C	635009	6079031	510.00	26.00	0.00	-90.00	Historical IOC