REPORT
ON THE
2010 EXPLORATION PROGRAM
JULIENNE LAKE IRON DEPOSIT,
WESTERN LABRADOR,
NEWFOUNDLAND & LABRADOR,

VOLUME I OF IV

FOR

DEPARTMENT OF NATURAL RESOURCES
GOVERNMENT OF NEWFOUNDLAND & LABRADOR

VOLUME I
REPORT & APPENDICES

July 24, 2012
Toronto, Ontario, Canada

Howard Coates, M.Sc., P.Geo.
MPH Reference: C-2334

WITH CONTRIBUTIONS FROM

P&E MINING CONSULTANTS INC. & ROCHE LTD

TABLE OF CONTENTS

VOLUME I

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOGRAPHS

LIST OF APPENDICES

VOLUME II

MAPS & CROSS SECTIONS

PART A

SUMMARY

Introduction

On April 17, 2010, the Department of Natural Resources, Government of Newfoundland and Labrador ("DNR") invited proposals for the further assessment of the Julienne Lake iron deposit in western Labrador. The purpose of the assessment was to define the deposit to the level of NI 43-101 compliant indicated and measured resources and to establish a reliable 3-D geological model that can be used to generate resource models at a range of cut-off grades, to generate preliminary pit design models and to construct a DCF model to preliminary economic evaluation standards. MPH was notified by DNR on June 20th, 2010 that it was the successful bidder on the Julienne Lake exploration program and a formal contract was executed on July 7th, 2010. The field work was completed during the second half of 2010 and a report entitled *"Report on the 2010 Exploration Program, Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador"* was issued on May 19th, 2011 (Coates, *et al*., 2010B).

In July 2012, MPH was approached by DNR to make certain changes to the May 19th, 2011 report to underpin efforts of the Government of Newfoundland and Labrador to advance the Julienne Lake Iron Deposit towards the Prefeasibility Study stage of exploration and if warranted to the Bankable Feasibility Study stage and eventual mine development. In essence the current exercise is simply the removal of the Preliminary Economic Evaluation or Analysis ("PEA') material from the May 19th, 2011 report, thus leaving it to interested parties to draw their own inferences from the underlying basic NI 43-101 compliant exploration data.

Property and Agreements

The Julienne Lake iron deposit is located in western Labrador, near the towns of Labrador City/Wabush, Newfoundland and Labrador approximately 1,200 kilometres northwest of St. John's. Mineral rights to the Julienne Lake iron deposit are currently held by the Government of Newfoundland and Labrador as an Exempt Mineral Land ("EML") enclosing 334 hectares or 3.34 km^2, formerly a Newfoundland and Labrador Corporation Limited ("Nalco") mining lease encompassing the Julienne Peninsula.

Accessibility, Infrastructure and Local Resources

The Julienne Lake Property is situated in south-western Labrador, approximately 27 kilometres by road north of Labrador City/Wabush, NL. Labrador City is located 590 road kilometres north northeast of Baie Comeau, Quebec and 533 road kilometres west of Goose Bay, NL.

The district of Labrador West includes the Town of Labrador City (population ~7,200) and neighbouring Wabush (population ~1,800). Labrador West is the regional centre for the iron ore mining industry in Labrador. Labrador City and Wabush can provide modern housing as well as educational, medical, recreational and shopping facilities. Historically, mining has been a dominant part of the local and regional economy. Labour, industrial supplies and services for mining and exploration activities are readily available in the region. Wabush Airport is the only airport in western Labrador, and is served by two commercial airlines. The Quebec North Shore & Labrador Railway ("QNS&L") connects Labrador West with the port of Sept-Îles, Québec on the north shore of the St. Lawrence River.

General History

Iron ore mining has a long history of continuous production, over 114 years, from 1895 to the present, in Newfoundland and Labrador. Serious interest in the iron ore deposits of Labrador West began in the mid 1940's which saw a monumental increase in the iron market as Europe and Asia rebuilt its cities and industries after World War II, and nations re-armed for the Cold War. However, the strong post-war demand revealed a world iron ore shortage which stimulated the worldwide search for new sources of ore. These exploration efforts eventually uncovered vast quantities of highly competitive ores in Labrador, Brazil and Australia. Development of these and other deposits from the 1950's onward signalled the gradual demise of lower quality or otherwise compromised Fe ores.

The Labrador Mining and Exploration Company Limited ("LM&E") was formed in 1936 to explore and develop a large, >50,000 square kilometre mineral rights concession that covered most of western Labrador section of the Labrador Trough. By 1949, LM&E had developed sufficient reserves of high-grade direct-shipping iron ore at Knob Lake sufficient to justify development. The partners joined forces with a group of US steelmakers and the Iron Ore Company of Canada ("IOC") was formed. After a major construction project including the mine, town-site (Schefferville, QC) and railway, the first shipment of iron ore moved south to the St. Lawrence River in 1954.

In 1951, Joseph R. Smallwood, Premier of the Province of Newfoundland, created the Newfoundland and Labrador Corporation ("Nalco") to stimulate development of the province's natural resources. In 1953, Nalco became a subsidiary of Canadian Javelin Limited. The Nalco/Javelin connection would lead to the Wabush Mines operations and also to the Julienne Lake iron deposit.

Wabush Mines began mining ore from the Scully Mine in Labrador in 1965 and currently operates a mine and concentrating plant at Wabush with a concentrate production capacity of 5.5 million tonnes/year, together with a pellet plant and shipping facilities in Point Noire, Québec. Wabush Mines is currently owned by Cliffs Natural Resources Inc.

By the late 1950's, IOC had a renewed interest in its Wabush Lake area concentrating-type iron deposits. Its Labrador City area mine known as the Carol Project began operation in 1962 and has produced more than one billion tonnes of crude ore with an average iron content of 39 percent. Annual capacity at the Carol Concentrator is 17 million tonnes of iron ore concentrate, of which 13 million tonnes can be pelletized and the balance processed into various grades of concentrate products. Production capacity is currently being expanded to 23 million tonnes/year. Operations at IOC's Schefferville, QC site continued until 1982, when the mine was closed. The current ownership of IOC is Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Fund (15.1%). IOC operates within the Rio Tinto Iron Ore group and maintains its head office in Montreal, Quebec.

Julienne Lake Iron Deposit History

A 1953 reconnaissance geological map of the Julienne Lake iron-bearing units for Nalco provides the earliest known documented work of the Julienne Lake EML. In the summer of 1956 a systematic geological and magnetometer study was completed on the Julienne Peninsula followed by a preliminary estimation of the area's general resource potential. In 1957, the Wabush Iron Company, a subsidiary of Pickands Mather & Company ("Pickands Mather") of Cleveland, Ohio signed an option agreement with Javelin with respect to the Nalco/Javelin western Labrador properties. In 1957, Pickands Mather conducted a preliminary survey for a railway connection to the Julienne Peninsula, built a fly-in campsite, and began a diamond drilling program. In addition the area was flown to obtain detailed aerial photographs for orthophoto mapping purposes, and a cut survey grid was laid out. Pickands Mather resumed the drilling in the summer of 1958, bringing the total drilling for the two programs to 9 holes totalling 3,477 feet. Field work resumed in the summer of 1959 when Javelin geologists conducted detailed geological mapping of the property and a re-examination of remaining drill core sections. In 1960 a bulk sampling program acquired approximately 38.5 tons of "crude ore" which was shipped to Lakefield Research of Lakefield, Ontario for metallurgical testwork.

In 1959-60, Javelin made a preliminary estimate of the grade and tonnage contained in the Julienne Lake iron deposit. Based on surface geological mapping, magnetometer surveying and nine diamond drill holes a "minimum tonnage" of "potential ore reserves" of were reported at 381,220,000 long tons (387,340 tonnes) averaging 34.2% Fe.

Between 1960 and 1963, Javelin evaluated the potential for building an iron and steel plant at Julienne Lake by evaluating various processes. The practicality of mining, concentrating, pelletizing and smelting material from the Julienne Lake deposit was evaluated by in 1962.

A road was built by Javelin to the property from Labrador City/Wabush in the summer of 1962 and an area extending across the hilltop exposure was later stripped for examination and sampling purposes. In 1963, Javelin obtained a 162 ton bulk (164.6 tonne) sample but there is no record of testwork having been completed on this material.

A revised grade and tonnage estimate for the Julienne Lake deposit, including projected strike extensions beneath Wabush and Julienne Lakes was completed in June 1963. The under-lake extensions are based primarily on interpretations of magnetic data. Only one historic diamond drill hole, from a lake ice setup, actually confirmed iron formation.

The land portion of the Julienne Lake deposit that has been explored by surface mapping, trenching and limited diamond drilling was re-estimated by Javelin to contain 500,034,000 long tons (508,058,000 tonnes) averaging 34.2% Fe with only traces of impurities. Geophysically projected extensions of the deposit under Wabush and Julienne Lakes (outside of the EML) were estimated at 165 million and 239 million tons (168 and 243 million tonnes), respectively.

In the spring of 1966, the remaining core from the Julienne Lake iron deposit was lost, when the Wabush commercial warehouse in which it was stored was destroyed by fire. During the latter part of the 1960's and early 1970's, no further exploration/development field activities were conducted.

Javelin's efforts concentrated on finding parties that might be interested in developing the Julienne Lake deposit, either as a stand-alone project or in conjunction with the company's Star-Okeefe iron deposit in neighbouring Quebec. In 1970, Javelin completed a prefeasibility study to determine capital and operating costs for mining and processing plants at Julienne Lake, NL, and Star-Okeefe near Mont Wright, QC, along with a pelletizing plan to serve both operations at Sept-Îles, Québec. The concentrates from both operations were to be delivered by slurry pipelines to the pelletizing plant.

Javelin's efforts to attract potential customers or buyers for the Julienne and Star-Okeefe Projects were unsuccessful. In 1975 the rights to the deposit reverted to the crown under the Julienne Lake Deposit (Reversion Act) 1975, due to failure by Canadian Javelin to meet requirements of the Mining and Mineral Rights Tax Act. The property was made an exempt mineral land (EML) and has remained under that status to this date.

Geology and Mineral Deposits

The Julienne Peninsula Lake Superior-type iron formation ("LSTIF") deposit occurs in the Labrador-Quebec Fold Belt or Labrador Trough, within the Sokoman Formation of the Lower Proterozoic (Aphebian) Knob Lake Group. The Sokoman Formation, one of the most extensive iron formation units in the world, extends along the eastern margin of the Archean Superior-Ungava craton for over 1,000 km.

The oldest rocks in the region are Archean migmatites and gneisses known as the Ashuanapi Metamorphic Complex. Although re-deformed and re-metamorphosed during the subsequent Grenville Orogenic episode and located within the borders of the Grenville Province of the Canadian Shield, the Complex is part of the stratigraphic assemblage that comprises the extensive Superior/Ungava Craton. These units constitute the basement of the predominantly sedimentary lithologies of the Labrador Trough.

The Lower Proterozoic (Aphebian) platformal sedimentary and related rocks of the Labrador Trough are named the Knob Lake Group. Previously known as the Gagnon Group in the Grenville Province portion of the Labrador Trough, the Knob Lake Group was redefined to include the stratigraphic sections on both sides of the Grenville Front.

Deposition of the Knob Lake Group, which records the Aphebian (2.5 to 1.75 Ga) stratigraphy of the Labrador Trough, probably began with deposition of fluvial red sands and gravels (Seward Formation) in a narrow elongate valley that was probably a continental rift valley. This was followed by shallow marine transgression, subsidence and deposition of shales (Attikamagen Formation), carbonates (Denault Formation), sands (Wishart Formation), and iron formation (Sokoman Formation) in a shallow marine environment. Following deposition of the Sokoman Formation the basin subsided resulting in the build-up of deep water turbidites of the Menehek Formation. The final stage of Labrador Trough development saw the extrusion of a great thickness of mafic pillow lavas (Doublet Group) on its eastern margin (Rivers and Wardle, 1978). In the Wabush area all stratigraphic units have been deformed and metamorphosed during the development of the Trough or Labrador-Quebec Fold Belt, then further deformed and metamorphosed during the Grenville Orogenic episode.

The basal section of the Knob Lake Group in the Wabush Lake area comprises widespread quartzofeldspathic schist and gneiss of the Attikamagen Formation which underlies most of the map area. An extensive tract of Denault Formation dolomitic and calcitic marble underlies the eastern shore of Wabush Lake and the southern shore of Julienne Lake, marking the upper limit of the Attikamagen Formation in that area. Quartzite of the Wishart Formation overlies the Attikamagen and Denault Formations along the western side of Wabush Lake, on the Julienne Peninsula, and the north side of Julienne Lake. Where present the top of the Wishart Formation defines the footwall contact of the Sokoman Formation ironstones.

The Sokoman Formation conformably overlies the Wishart Formation on the west side of Wabush Lake and Julienne Peninsula, but elsewhere it sits on the Attikamagen Formation. The dominant lithological units are silicate-carbonate iron formation and oxide iron formation. Outcrops of iron formation around Goethite Bay, Julienne Lake and to a lesser extent on the Julienne Peninsula are excessively leached.

The Menehek Formation, the youngest sequence of the Knob Lake Group in the Wabush Lake region, is composed of dark grey quartz-feldspar-biotite-graphic schist with a well developed schistosity and distinctive graphite porphyroblasts.

Finally the assemblage is intruded by Middle Proterozoic (Helikian, 1.75 to 1.0 Ga) mafic intrusions of the Shabogamo Intrusive Suite. These occur as folded and contorted sill-like bodies in the Attikamagen Formation in the south-eastern part of the region.

Detailed geological mapping of the Julienne Peninsula was initiated by Canadian Javelin in 1956 and continued intermittently between 1959 and 1962. The early work was based primarily upon examinations of surface exposures and nine drill holes most of which did not penetrate the full thickness of the Sokoman Formation. The current exploration program which has added geological information from two surface trenches (combined total length of approximately 1,600 metres) and a drilling program totalling over 9,000 metres of NQ core drilling. The 2010 exploration program has resulted in major revisions to the geological picture.

The presence of white massive Wishart Formation quartzite is exposed and intersected in drill holes on both sides of the Sokoman Formation iron formation led to the historical conclusion that the iron formation of the Julienne Peninsula was an overturned refolded northeast-southwest trending isoclinal synclinal structure. The Sokoman Formation stratigraphic section was divided into three parts, the lower, middle and upper iron formations.

The field work portion of the 2010 exploration program began with examinations of surface bedrock exposures including the historical trench T62-01. It was quickly apparent that most of the exposed lithological units were markedly similar in terms of mineralogy and that no clear marker beds were present. Also there was no clear evidence of the hinge area of the postulated major isoclinal fold in the historical trench. As the new trenches (T10-01 and T10-02) were completed and mapped no more evidence supporting the original folding scenario was obtained.

The 2010 drilling program has now established a clear understanding of the geometric structural distribution of the Sokoman Formation on the Julienne Peninsula, namely:

- The southwestern or lower contact is northeasterly striking gently to moderately southeasterly dipping conformable contact with the underlying Wishart Formation quartzite.

- The southeastern contact is a steep northeasterly trending fault that juxtaposes the Sokoman and Wishart formations.

The Sokoman Formation on the Julienne Peninsula has a complex tectono-metamorphic history that includes the folding and metamorphism of the Labrador Trough (the Hudsonian orogeny, ~1,800 Ma), along with the folding and metamorphism of the Grenville Province (the Grenvillian orogeny, ~1,000 Ma). The overall result is structural complexity or an interference pattern caused by the interaction of deformation effects, and overprinting of metamorphic features.

Mineralogically the sedimentary units of the Sokoman Formation are relatively simple, consisting primarily of quartz and iron-bearing minerals including hematite (Fe_2O_3) or specularite in its coarse-grained form, with lesser magnetite (Fe_3O_4) and goethite ($Fe_2O_3.H_2O$). Small amounts of iron are also present in silicates such as amphiboles (grunerite) and in carbonates such as ankerite ($Ca[Fe,Mg,Mn][CO_3]_2$). Typically the iron formation on the Julienne Peninsula may be described as quartz-specular hematite or quartz-specularite schists that contain approximately 50% silica and 50% iron minerals by volume. The metamorphosed silica is predominantly medium to coarse grained granular in crystalline habit. The main iron oxide minerals are coarse grained platy specular hematite, medium grained dull granular hematite, fine grained earthy hematite-goethite-limonite.

The following post-metamorphic primary iron formation lithological units are present on the Julienne Lake property:

- Banded semi-massive specularite-quartz schist (BS),
- Quartz-specularite schist (QS),
- Quartz-specularite-granular hematite schist (QSH),
- Quartz-granular hematite schist (QH),
- Ferruginous whitish quartzite or lean iron formation (FWQ)
- Very fine grained, chert, blue hematite,
- Quartz-specularite-leached silicates,
- Very coarse quartz-specularite veins, localized, no mapable units,
- Interbanded sections comprising two or more of above units, and
- Manganiferous sections of quartz-iron units, at least in part remobilized,

Secondary leaching or deep weathering products are sporadically common throughout the Julienne Peninsula even at substantial depths. These may be associated with certain stratigraphic horizons, with geological contacts, or with brittle structural features such as faults, shear zones or even jointing/fracturing.

The definition of marker horizons in the iron formation is of particular importance in terms of understanding the distribution of individual geological units that potentially may be either commercially significant or waste material. So far there are no known distinct internal marker horizons, comparable to the Middle Quartzite at the Scully Mine, Wabush, that are traceable throughout the Julienne Peninsula. The Basal Silicates (leached) member of the Sokoman Formation is in evidence throughout the property in the majority of drill holes completed to date.

It is likely that certain iron-bearing geological units will be of limited commercial significance. For example, units with significant primary iron silicates (grunerite) and carbonates such as ankerite ($Ca[Fe,Mg,Mn][CO_3]_2$) are of little interest because those minerals are not recovered as saleable concentrates by the standard beneficiation process. Furthermore, weathering/leaching products such as goethite cannot be tolerated in the concentrate.

Exploration

Exploration which led to the discovery of the Julienne Lake iron deposit was completed intermittently between 1953 and 1966. This work included reconnaissance and detailed geological mapping and prospecting, ground magnetometer traverses, surface trenching, test pitting and diamond drilling.

The 2010 exploration program began with refurbishment of approximately 23.5 kilometres of 1950’s cut lines on the Julienne Lake EML. The grid was re-established using the existing grid fabric with the aid of a transit and level as required. Metal tags and orange fluorescent paint were applied to each 25m picketed station. The historical baseline is oriented at 060 degrees azimuth with cross lines at 150 degrees at 500 foot or 152.4 metre intervals (rounded to 150m for practical purposes). The work was completed during July-August, 2010.

The coordinate system employed for the 2010 Julienne Lake exploration program is UTM Zone 19, NAD83. Registered land surveyors were contracted to accurately locate key control points on the property utilizing Differential Global Positioning System (“DGPS”) surveying. A series of survey stations have been established on the property including the baseline, and tie-in points along the historical trench (T62-01) and recent trenches (T10-01 and T10-02). Several survey points have accurately located the shoreline of Wabush and Julienne Lakes which also marks the EML boundary. All current and some historical drill collars have been accurately located by DGPS surveying.

Geological investigations included examination of surface exposures mapped by previous workers, as well as detailed mapping of trenches and logging of drill core sections.

A ground magnetometer survey was completed over the Julienne Peninsula. A GEM Systems, GSM-19 Overhauser Magnetometer was utilized to conduct a “walking mag’ (time, date and readings stored at coordinates of fiducial) survey over the entire cut grid. The survey data was originally presented as a contour map of total magnetic intensity. MPH has done some modeling of the raw data to elucidate various aspects of structural and lithological setting.

Drilling and Surface Trenching

Historical diamond drilling which led to the partial outlining of the Julienne Lake iron deposit was completed in two stages between September, 1957 and August, 1958. The planned outline drilling program proposal, 11 holes totalling 5,000 feet, was never completed. Only nine holes were with a cumulative length of 3,477 feet were drilled. Test pits were employed to obtain bulk samples of iron formation in 1960 (38.5 tons from 5 pits) and 1963 (162 tons from 12 pits). Processing, pelletizing and smelting tests were conducted on the 1960 samples, but there is no record of work on the latter samples. Drilling and mechanical trenching programs were conducted in 2010 by MPH Consulting for DNR. The diamond drilling program included 42 NQ holes with a cumulative length of 9,238.3 metres. Two surface trenches with a cumulative length of approximately 1,600 metres were excavated.

Topographic Control

In 1957 the Julienne Peninsula and adjacent area was flown to obtain detailed aerial photographs for orthophoto mapping purposes, and a cut survey grid was laid out. The aerial photographs were utilized to construct a detailed uncontrolled orthophoto manuscript topographic map that remains a very high quality base map that has been retrofitted into a GIS format. Since the 500 feet (152.4 metre) nominal line spacing is reasonably close to a 150 metre nominal spacing it was decided to use the old lines as the basis of a new metric grid. The refurbished grid was utilized for ground control for the 2010 drilling and mechanical trenching programs.

All cross-line stations on the 10,000m N baseline, all drill hole collar locations, and a series of tie-in stations on the mechanical trenching lines have been accurately surveyed using DGPS.

Historical Drilling and Trenching

The 1957-58 drilling was done with ‘standard’ as opposed to modern ‘wireline’ drilling equipment. No down-hole inclination or directional surveys were conducted. Due to blocky ground conditions and small diameter drilling tools substantial hole deviations would be expected. No specific gravity or dry bulk density tests are known to have been conducted on drill core specimens. All remaining drill core was destroyed in a warehouse fire in 1966.

In essence the historic drilling program is typified by significant inadequacies of design and execution. Consequently second and third order derivative information such as historical resource estimations, process/pelletizing/smelting testwork, and economic evaluations are built on a shaky foundation.

The 1960 series of Javelin historical test pits (P60-1 to 5) were chosen so as to give a bulk sample from a representative cross section of the deposit. A total of 38.41 long tons of material averaging 36.73% Fe, 46.19% SiO2, and 0.09% Mn was collected. No specific gravity or dry bulk density tests are known to have been conducted on test specimens or the pit excavations.

In the fall of 1962 an area extending across the hilltop exposure (Trench 62-1) was stripped for examination and sampling purposes. A 162 ton (165 tonne) package of bulk samples were taken from the Julienne Lake deposit in the fall of 1963. The sample pits were designed to provide ‘a good first look at metallurgical behaviour and beneficiation problems’. No specific gravity or dry bulk density tests are known to have been conducted on test specimens or the pit excavations. There is no record of any metallurgical studies ever being completed on these samples.

2010 Drilling and Mechanical Trenching Program

The drilling program was completed on November 16, 2010, a total of 42 holes with a cumulative length of 9,238.3 metres. NW casing has been left in all drill holes to allow for possible hole re-entry for varied purposes such as deepening, geotechnical investigations and cementing if and as required.

Mechanical trenching was completed along two grid line sections across the Julienne iron deposit. A total of approximately 1,600 linear metres was excavated utilizing a CAT tracked excavator.

The geological and analytical data obtained from the 2010 program constitutes the primary database for current resource estimations.

Data Verification

It is unknown from current records if the laboratory utilized in the 1950’s to 1960’s by Canadian Javelin employed adequate in-laboratory blanks, standards and duplicate analyses to ensure precision and accuracy of results. No quality control (QC) and quality assurance (QA) protocols or data exist for the historic Javelin exploration programs, and the historic resource estimates. There is a minimal amount of field duplicate sample analytical data available.

The 2010 exploration program included efforts to confirm the existence of historical sites along with a regimen for ensuring that the various data collected during the current program meets industry standards for precision and accuracy.

The historical work sites such as cut grid lines, trenches and test pits, and drill hole collar locations in the Julienne Lake area are still readily identifiable in the field. Many key sites have been relocated, accurately DGPS surveyed, and incorporated into the current general database.

Routine checks of the analytical database were done by various means including:

- Analysis of standards, blanks, and duplicate samples within the primary laboratory Actlabs.
- Submission of field standard rock samples (ROM muck from the Wabush and Carol Mines provided by DNR) and a field blank (quartzite from local quarry) to the primary laboratory inside each sample batch.
- Submission of sawn core field duplicates to the primary laboratory.
- Coarse reject material splits were collected by MPH from all sample batches and submitted to a second or referee laboratory AGAT.

The analyses of standards, blanks and duplicates show no significant irregularities or changes over time. In the opinion of MPH the analytical database has acceptable levels of precision and accuracy.

Adjacent Properties

Canada is currently the world’s ninth largest producer of iron ore. As of 2008, approximately 60% of Canada’s total iron ore production came from Labrador West mines operated by IOC and Wabush Mines. Most of the rest of Canada’s iron-ore production is from nearby regions of north-eastern Quebec. A small amount of iron is produced as a by-product of base-metal smelters in British Columbia. Several advanced exploration or development stage properties are active in the Labrador Trough region.

The Iron Ore Company of Canada ("IOC") is Canada's largest iron ore producer and a leading global supplier of iron ore pellets and concentrates. Owned by Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Fund (15.1%), IOC operates within the Rio Tinto Iron Ore group and maintains its head office in Montreal, Quebec. IOC's current mine and process facility, located near Labrador City, is known as the Carol Project. The facility began operation in 1962 and has produced more than one billion tonnes of crude ore with an average iron content of 39 percent. The Carol Project still has a significant resource base available.

Wabush Mines has conducted iron ore mining operations at Wabush, Labrador since 1965 with the mining and concentrating at Wabush and the subsequent stage of pelletizing being done at a plant at Pointe Noire on the St Lawrence River near Sept-Isles, Québec. Since 1967 annual capacity of the Wabush operation has been approximately six million long tons of pellets. Wabush Mines is currently owned by Cleveland-Cliffs Inc.

ArcelorMittal Mines Canada (formerly Quebec Cartier Mines) operates the Mont Wright open pit mine and concentrator located at Fermont, QC. Nominal capacity of this complex is 18 million tons of iron ore concentrates per year. The Fire Lake open pit mine located 55 km southwest of Fermont is operated on a seasonal basis, as required, with ore shipped by rail to Mont Wright for processing. Concentrates are shipped by rail to Port Cartier, QC, where the company operates a 9 million ton per year pelletizing plant and port facilities.

The Bloom Lake property is located in the southwestern branch of the iron ore-rich Labrador Trough and is located in close proximity to a number of producing mines. Mining operations at the Bloom Lake property started in April 2010. At a production rate of 8.0 million tonnes per year, the projected mine life is approximately 30 years. In Q1, 2011 Cleveland Cliffs Natural Resources Inc. acquired Consolidated Thompson's interest in the Bloom Lake mine.

The Julienne Lake EML is confined to the land area of the Julienne Peninsula. Map staked mineral claims registered to other parties surround the EML area. The projected underwater extensions of the deposit beneath Wabush and Julienne Lakes are currently held by Altius Resources Inc. A claim block owned by Iron Ore Company of Canada borders the EML to the south.

Mineral Processing and Metallurgical Testwork

Mineral processing and metallurgical testing conducted on the Juliennne iron deposit includes extensive historical work conducted by Canadian Javelin in the late 1950's to early 1960's. This has been augmented by ore characterization studies conducted on representative drill core samples and coarse reject material from the 2010 drilling program. Bench-scale processing and Bond work index testwork has been conducted on a representative 2010 drill core section.

<u>Historical Testwork</u>

By the early 1960's Canadian Javelin was considering a fully integrated operation including pig iron production and a steel plant for the Julienne Lake deposit, rather than an iron ore concentrating/pelletizing plant. This led to a search for an iron ore reduction process that did not require huge quantities of coking coal to be brought to western Labrador. Two innovative experimental electric smelting processes, (Strategic Udy and Elkem) were investigated in 1961-62, utilizing iron formation material collected from 5 surface test pits in December, 1960.

Concentrating tests were conducted in 1957 on drill core samples from historical drill holes completed in 1957. Tests designed on methodologies in use for the nearby Wabush deposit included magnetic and gravity ore/waste separation analyses. The average weight recovery and concentrate analyses are reported as follows:

• Weight recovery	43.28%
• Fe	64.54%
• SiO2	6.86%
• Mn	0.29%
• P	0.2%
• S	trace

Grinding and concentration tests were conducted at the Lakefield Research of Canada Limited (“Lakefield”) facility in Lakefield, ON in January, 1961. A total of 34 long tons (34.5 tonnes) of iron formation material was taken from 5 surface test pits (P60-1 to 5) in December, 1960. The testing program involved grinding in a Hardinge ‘Cascade’ mill and concentration by means of Humphreys spirals. In one pair of tests 76.6% of the iron was recovered in a concentrate which assayed 64.5% Fe (acid soluble). Recovery was 79.6% in the other pair of tests but the concentrate assayed only 63.5% Fe. It was believed that these results could be improved in practice, but no marked increase in recovery would be expected.

Pelletizing and electric smelting tests were successfully conducted. It was concluded that the pellets were of good quality and that they may be smelted without difficulty. It was also noted that the Wabush and Julienne pellets were virtually identical.

<u>2010 Ore Characterization and Beneficiation Studies</u>
This work included:

- MLA Preparation (Staged grinding and polished section preparation)
- Sized Ore Characterization MLA Characterization (2 sizes)
- Assays on the fine fractions for Fe, Mn, P, S.

This study included a full mineralogical analysis, with reconciliations to head grade for Fe and selected elements, with the objective of extrapolating and interpreting ore variability from an exploration to metallurgical basis via quantitative mineralogy.

Roche Ltd. Consulting Group were retained to provide a preliminary analysis of energy requirement for grinding, mass and metallurgical recovery as well as expected quality of the concentrate. The report also includes a preliminary process block flow diagram with a preliminary mass balance (proportion in percentage of Run-of-Mine (ROM)). The study was based on results of the Actlabs ore characterization study and was conducted on a representative drill core section through the longest mineralized section so far encountered. The work was done at SGS Lakefield under the supervision of Roche Limited. The results are summarized as follows:

- The testwork has indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5% from material ground to a P_{80} of approximately 212 μm (65 mesh). At this fineness a Fe recovery of approximately 75% and a weight recovery of over 40% is indicated.
- Autogenous or semi-autogenous grinding will likely be the preferred approach to milling the Julienne Lake iron formation material. The grinding circuit would need to minimize the generation of material finer than 45 μm (-325 mesh) as spirals lose efficiency at that point. Bond Work Index results show that the iron ore is soft. This is beneficial with regard to potential equipment size, capital cost and energy requirements.
- Roche recommends pursuing process development at finer grinds than those tested so far.
- If economically viable, a WHIMS circuit could be integrated into the flow diagram as a complementary process to increase Fe recovery. More testing is required.

Mineral Resource and Reserve Estimates

Historical Estimates (Non-NI43-101 compliant)

In 1959-60, Javelin made a preliminary estimate of the grade and tonnage contained in the Julienne Lake iron deposit. This rudimentary 'polygon on section' estimate employed a volume to tonnage conversion factor of 12 cubic feet per long ton (2.9 tonnes/cubic metre) to arrive at 381,220,000 tons (387,340,000 tonnes) averaging 34.2% Fe. In 1963 the deposit was re-estimated by Javelin to contain 500,034,000 long tons (508,058,000 tonnes) averaging 34.2% Fe with only traces of impurities. It is believed that the revised estimate is simply a result of using a more realistic density factor. These historical estimates are presented by MPH for information purposes only. The estimates are believed to have been done to only rudimentary standards, nonetheless they would appear to reasonably indicate the tons and grade outlined at the date of preparation. However the estimate predates the current standards embodied in NI 43-101 and therefore do not conform to the same.

MPH Consulting undertook an independent calculation of grade and tonnage for direct comparison with historic Javelin calculations the following to augment the resource / reserve portion of its systematic due diligence for the January 2010 evaluation report, done prior to the current program.. Utilizing the recaptured historical database MPH produced a 1:1000 scale plan showing drill hole collar locations, pit and trench locations and surface contours. Historic detailed geological, geophysical and topographic maps were used to define the outer limits of the iron formation. MPH used GEMCOM software to construct a rudimentary polygonal block on plan method to estimate the minimum on-shore tonnage and grade for the Julienne Lake iron deposit as follows:

- ~460.0 million tonnes of iron formation material at average grade of ~35% Fe

The above MPH audit estimations are in reasonable agreement with the preliminary estimates made by Javelin in the early 1960's, and are similarly non compliant with NI 43-101 standards.

Current Estimates (NI43-101 compliant)

The mineral resource estimate presented herein was prepared by F. H. Brown, CPG, Pri.Sci.Nat of P&E Mining Consultants Inc. Mineral resource modeling and estimation were carried out using the commercially available GEMS Gemcom and Snowden Supervisor software programs, based on information and data supplied by Howard Coates, P.Geo. and Michele Cote, P.Geo., of MPH Consulting Limited, Toronto.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent mineral resource estimates.

The database contains 42 diamond drillhole records and 104 surface trench records. In addition, seven interpreted cross-sections and two plan maps of the orebody were supplied, as well as a topographic surface of unknown resolution and bathymetric depth soundings. An analysis of bulk densities prepared by Howard Coates, P.Geo. was also provided.

Mineral resources were classified in accordance with guidelines established by the Canadian Institute of Mining, Metallurgy and Petroleum, November 11, 2005:

Grade and tonnage results for the Julienne Lake orebody at various cutoffs are listed in the following table.

Measured Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**
50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
40%	3.43	3	41.08	0.30	0.01	0.01	39.16	0.01
35%	3.31	31	37.37	0.31	0.02	0.01	44.01	0.01
30%	3.24	61	35.14	0.32	0.02	0.01	47.18	0.01
25%	3.23	66	34.70	0.38	0.02	0.01	47.74	0.01
20%	3.23	66	34.69	0.38	0.02	0.01	47.75	0.01
15%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
10%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
5%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
0%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
Indicated Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**
50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	3.59	1	46.46	0.26	0.01	0.02	31.91	0.01
40%	3.44	20	41.48	0.20	0.02	0.02	38.74	0.01
35%	3.30	252	36.99	0.20	0.04	0.02	45.03	0.01
30%	3.21	722	34.26	0.20	0.04	0.02	48.71	0.01
25%	3.19	788	33.79	0.20	0.04	0.02	49.25	0.01
20%	3.19	797	33.66	0.20	0.04	0.02	49.36	0.01
15%	3.19	801	33.60	0.20	0.04	0.02	49.39	0.01
10%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
5%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
0%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
Inferred Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**

50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	3.55	0	45.35	0.15	0.01	0.01	31.64	0.01
40%	3.42	7	40.99	0.26	0.03	0.03	39.98	0.01
35%	3.29	104	36.95	0.12	0.04	0.02	45.56	0.01
30%	3.21	283	34.44	0.12	0.05	0.02	48.85	0.01
25%	3.20	298	34.17	0.12	0.05	0.02	49.14	0.01
20%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
15%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
10%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
5%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
0%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01

Potential Open Pit Mining Operations

The following is a first pass analysis of potential mining scenarios utilizing iron ore (*sensu lato*) resources estimates, other data from the current exploration program, and the general industry knowledge of the various technical groups (MPH, P&E Engineering, Roche Consulting, and Michael Newbury) involved in the project.

The mining scenarios presented herein do not meet all of the general requirements for NI 43-101 compliant Prefeasibility or Feasibility studies. They are meant only for internal use as a justification basis for ongoing more detailed work, or to assist with governmental decision making regarding the Julienne Lake EML.

The total to be potentially mined is approximately 580 million tonnes with an average grade of 33.18% total Fe. Mining operations are anticipated to provide approximately 17 years of ore production at a rate of about 35 million tonnes of mill feed per year.

The cut-off grade for the Julienne Lake deposit utilized in the pit optimization was 8% Fe. This cut-off grade includes material that grades between 8% and 15%, which is a historically more common cut-off grade for Labrador iron deposits. The difference in the tonnage and metal totals between the conceptual resource at 8% and 15% is not significant; therefore a 15% Fe cut-off was utilized to define the potentially mineable resource. The study utilizes mineral resources that that can be extracted without diverting, relocating or otherwise impacting the Julienne or Wabush Lakes. This stage of mining will leave natural rock pillars which will provide a 100 metre wide barrier to water entering the pit from the surrounding lakes.

The open pit operation would use conventional mining equipment available from established suppliers.

Drilling and blasting operations would employ industry standard blast hole drilling and equipment. The waste rock and ore would be loaded and hauled beyond the rim of the pit by shovels and high capacity open pit haul trucks. Mineralized material that meets the cut-off grade requirements will be hauled to the primary crusher that will be located near the mill. Waste rock will be disposed of in designated areas to the south of the open pit.

Open pit equipment, as well as all other support services equipment, will be serviced at a maintenance facility located on the access road to the pit. This facility will also house the change room and offices for the operation.

Additional support services equipment will include pick-up trucks, bulldozers, wheel dozers, graders, water trucks, a road sander, a fuel/lube truck, an electric cable reeler, a ditching excavator, an automated equipment monitoring and dispatch system, a pit slope monitoring system, the pit electrical power distribution system and pit dewatering pumps and pipelines.

Potential Processing Plant

The processing plant that will concentrate the mineralization will be located at an appropriate location to the South of the open pit mine.

The metallurgical flow sheet that was chosen for the process is a standard spiral process. The run of mine mineralized material is crushed, stockpiled and fed to an autogenous grinding mill. The mill discharge feeds into a vibrating screen circuit for removal of oversized material. The undersized material feeds to a three stage spiral concentration circuit, which separates the liberated hematite from the tailings. The concentrate is dewatered by pan filters and loaded into railcars for transport. The tailings are dewatered by cyclones and a thickener. Reclaim water from the tailings dewatering circuit is recycled as process water.

A conventional tailings pond that will form part of the Tailings Management Facility will receive un-thickened tailings for disposal. The supernatant water will be reclaimed by means of barge mounted pumps or other means to provide additional water for the mill.

Process design criteria are based on general industry experience and assumptions. This will need to be confirmed in subsequent feasibility exercises.

Preliminary testwork has indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5%. A Fe recovery of approximately 75% and a weight recovery of over 40% is indicated. Similar results were obtained from historical tests on (mini) bulk sample material conducted by Canadian Javelin in the mid-20th century. More systematic testing is needed.

Iron Ore Markets

The Julienne Lake iron deposit could conceptually produce iron ore concentrates or iron ore pellets as its primary sales products. Smelting and refining operations to produce pig iron and steel products have been considered in the past.

In general, iron ore mines may be either, affiliated/owned by iron/steel companies (e.g. ArcelorMittal, US Steel) and thus have a more or less captive market, or arms-length producers that are dependent on sales contract or spot market product sales (Vale, BHP-Billiton, Rio Tinto). Many mines have complex ownership structure and can be dependent on both types of markets. Current operators in the Labrador Trough region include both types.

The affiliated/owned mines provide a secure source of feed for the parent company’s downstream operations and as such are not necessarily obliged to make an operating profit, provided the combined upstream and downstream operations do so.

For the arms-length miners, iron ore prices have historically been set by a ‘benchmark’ system, between miners and steelmakers. Usually one of the ‘Big Three’ miners (Vale, BHP-Billiton, Rio Tinto) reach a deal with one of the major steelmakers and this sets a the benchmark to be followed by the rest of the industry. Thus, a single price would be negotiated once per year and that has been the norm for the past 40-50 years. A growing short-term pricing market, a mix of quarterly negotiations, spot market pricing and index-based pricing, also exists which was traditionally much smaller than the contract market. In 2009, up to 30 per cent of iron ore shipments had been sold on shorter term pricing. In recent years, the benchmark system has begun to break down, with some miners pushing for market based pricing, and negotiations with the largest iron ore buyer, China, causing friction. As the spot market has grown in size and importance, financial hedging instruments such as iron ore swaps have emerged. Given that most other bulk commodities have evolved to a market based pricing system, it is considered inevitable that iron ore will also in the medium to long term.

Contracts

Because of the nature of potential sales products, iron ore concentrates and/or iron ore pellets, there may be a requirement for negotiated sales contracts. On the other hand it is also a distinct possibility that by the time a potential mining/processing operation is functional that sales prices may be market based and governed by institutional indices such as the LME or other commodity exchanges. There will be a future requirement for design, construction, mining and transportation/handling contractors if and when detailed design and engineering is completed. No sales, hedging or forward sales contracts are currently in place or being negotiated.

Interpretation and Conclusions

The 2010 exploration program has shown that the Julienne Lake iron deposit is significantly larger than historical work had indicated. A major shortcoming of the 1950’s-1960’s program was a lack of diamond drilling to test the deposits limits. This deficiency was not lost on the Canadian Javelin geological staff who recommended 29 holes with a total length of 15,000 feet (~4,570m) in 1968 (Knowles, 1968). Had this work been implemented the course of the deposit’s history might have changed radically.

In retrospect, a good deal of the historical work is still useful. For example the iron and deleterious elements averages indicated by the Canadian Javelin work closely resemble the current values and the process testwork results are likewise.

The main revelation from the 2010 work is the nearly doubling of the resource potential on the EML from about 600-700 million tonnes to approximately 1,166 million tonnes without any appreciable decrease in average grade. This is the result of a major revision of the structural setting from a shallow basinal structure that somehow formed an improbable isoclinal fold to a shallow to moderately dipping sequence truncated by a sub-vertical fault. The 2010 diamond drilling program has now established a clear understanding of the geometric structural distribution of the Sokoman Formation on the Julienne Peninsula, namely:

- The southwestern or lower contact is a northeasterly striking gently to moderately southeasterly dipping conformable contact with the underlying Wishart Formation quartzite.

- The southeastern contact is a steep northeasterly trending fault that juxtaposes the Sokoman and Wishart formations.

The lithological/structural/topographic setting is particularly well suited to open pit mining for the following reasons:

- The mineralized stratgraphic interval is typified by fairly uniform Fe grade over a very substantial thickness (up to 500m maximum true thickness).
- The uniform -30 degree lower contact with the Wishart Formation quartzite forms a natural virtually waste-free pit wall.
- The waste to iron formation ratio on the southeastern faulted contact is minimized by favourable topography as well as the substantial deposit thickness.
- The iron ore deposit is a mostly a prominent hill with minimal overburden

The Sokoman Formation units on the Julienne Peninsula and elsewhere in the Labrador West-Fermont district exhibit significant mineralogical variations. The gradational nature of the iron to silica content is very evident from detailed examination of core and bedrock exposures at the Julienne Lake iron deposit. Current QA/QC work which used ROM muck from the producing mines (Carol and Wabush) as quasi-standards similarly demonstrated the inherent mineralogical variations in the Sokoman Group iron formation units even at the very small scale of 5 gallon buckets of ore. This might result in day to day processing difficulties in a potential production situation.

The deposit is located on a peninsula between Wabush and Julienne Lakes so it would be prudent to thoroughly assess potential water influx problems and implement mitigation procedures at an early stage.

March 2010 tests at SGS Lakefield done under the supervision of Roche Ltd. have indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5% from material ground to a P_{80} of approximately 212 μm (65 mesh). At this fineness a Fe recovery of approximately 75% and a weight recovery of over 40% is indicated.

Autogenous or semi-autogenous grinding will likely be the preferred approach to milling the Julienne Lake iron formation material. The grinding circuit would need to minimize the generation of material finer than 45 μm (-325 mesh) as spirals lose efficiency at that point. Bond Work Index results show that the iron ore is soft. This is beneficial with regard to potential equipment size, capital cost and energy requirements.

Roche recommends pursuing process development at fine grinds than those tested so far.

If economically viable, a WHIMS circuit could be integrated into the flow diagram as a complementary process to increase Fe recovery. More testing is required.

Environmental studies undertaken to date are just a beginning. More systematic and thorough ongoing work in required.

The Julienne Lake project contains a large, high grade iron mineral resource. It can be mined with a very low waste stripping ratio which helps to keep operating costs low. In addition, it is in a very mining-friendly district. Labrador West is a well-established iron mining district and the Project will have access to mining services and suppliers and qualified staff and production personnel.

MPH concludes that the Julienne Lake iron deposit represents a very rare and unusual opportunity to develop a major new mining project in the heart of an established mining camp in a politically stable country.

Recommendations

The 2010 exploration program on the Julienne Lake iron deposit has been markedly successful in that it has confirmed the historical observations that the iron ore units are high quality concentrating material. However the most significant advances made by the program are to do with the deposit's hitherto unknown large size potential, uniform grade distribution and amenability to relatively low cost open pit mining/beneficiation methods. Without question the results to date indicate the Julienne Lake iron deposit to be favourably comparable to the existing operational mines in the region. MPH believes that an advanced exploration program to bring the project to the formal NI-43-101 compliant Prefeasibility Study stage is fully warranted and justified.

The following ongoing work program is recommended:

- Infill and definition drilling to upgrade most of the current resources to NI 43-101 compliant Measured or Indicated Resources. All material within the current or potentially revised conceptual open pit limits will need to be at least Indicated category. Approximately 50 drill holes with a cumulative total length of 10,000 metres will be required. The drilling does not have to be all NQ core drilling, some proportion of reverse circulation ("RC") drilling may be more cost effective. A budget of approximately $3.0 million is anticipated.
- More systematic and thorough ore characterization studies and process testwork. There is a great deal of mineralized material still available from the 2010 drilling and sampling program. This includes coarse reject material from the routine head analysis samples and the remaining un-sampled drill core. Both are stored at the DNR core storage facility in Goose Bay. Approximately 40 tonnes of core and coarse rejects are currently available for reference and ongoing testwork. The ongoing infill and definition drilling will result in another 40-45 tonnes of material for a combined total of over 80 tonnes of iron ore that can be used for detailed systematic bench scale testwork and even as a mini-bulk sample. A budget of approximately $1.0 million should be allocated to this.
- Engineering studies should be initiated with respect to mining and processing options, access routes, infrastructure, tailings/waste rock disposal, etc. to at least Prefeasibility study level by NI 43-101 standards. Budget estimate $2.0 million.
- Environmental impact studies leading towards eventual permitting of a mining and milling operation, tailings impoundment, transportation routes, etc. should be initiated in earnest. Budget estimate $0.5 million.

- On or near site facilities, accommodations, office, warehouse, storage. Budget $0.5 million.
- Prefeasibility Study $0.5 million
- Contingency @ 15%.

A very preliminary budget over an approximately 1 year period is recommended to bring the Julienne Lake Project to Prefeasibility Study status by NI-43-101 standards. A budget of approximately C$ 8.5 million is required to complete the Prefeasibility study work on the Julienne Lake iron deposit. This is a preliminary estimate. Thorough program planning and cost estimations that will require tendered quotations from various contractors will need to be obtained before a final cost estimate can be made. In the opinion of MPH Consulting Limited this work is fully warranted and justified. Additional expenditures may be required to continue work on the Julienne Lake Property after the Prefeasibility Study program is completed. Additional debt and/or equity funding would be required for this.

Preliminary Budget Estimate

		DETAILS	SUMMARY
Staffing			**$ 560,000**
	Supervision & Consulting	$ 150,000	
	Senior Geologist	$ 120,000	
	Field Geologist	$ 100,000	
	Field Technicians x3	$ 150,000	
	Casual Labour	$ 15,000	
	Data Processing/CAD	$ 25,000	
Support Costs			**$ 350,000**
	Food & Accom.	$ 75,000	
	Field Supplies & Equip.	$ 50,000	
	Map/Drawing Charges	$ 30,000	
	Travel	$ 75,000	
	Communications	$ 10,000	
	Freight	$ 15,000	
	Core logging facility	$ 30,000	
	Equipment Rental (Pumps, rock saw, etc.)	$ 20,000	
	Electronic equipment & software	$ 10,000	
	Vehicle Rental (4x4 pick-up, casual car-truck rentals)	$ 25,000	
	Fuel & Maintenance	$ 10,000	
Grids			**$ 35,000**
	Linecutting/re-establish old grids	$ 10,000	
	Surveyor	$ 25,000	
Diamond drilling			**$ 1,750,000**
	Mob/Demob	$ 100,000	
	Diamond Drilling (10,000m @ $165)	$ 1,650,000	
Assays			**$ 195,000**
	3,000 samples @ $55/sample (Head assays)	$ 165,000	
	QA/QC	$ 30,000	
Metallurgical Testwork			**$ 1,000,000**

		$ 1,000,000	
Engineering Study			**$ 2,000,000**
		$ 2,000,000	
On Site Facilities			**$ 500,000**
		$ 500,000	
Environmental Baseline/Geotechnical Studies			**$ 500,000**
		$ 500,000	
Report			**$ 500,000**
	Prefeasibility Study	$ 500,000	
		Sub-Total	**$ 7,390,000**
	Contingency 15%		**$ 1,108,500**
	GRAND TOTAL FOR BUDGET PURPOSES		**$ 8,498,500**

1.0 INTRODUCTION

On April 17, 2010, the Department of Natural Resources, Government of Newfoundland and Labrador ("DNR") invited proposals for the further assessment of the Julienne Lake iron deposit in western Labrador. The purpose of the assessment is to define the deposit to the level of NI 43-101 compliant indicated and measured resources and to establish a reliable 3-D geological model that can be used to generate resource models at a range of cut-off grades, to generate preliminary pit design models and to construct a DCF model to preliminary economic evaluation standards.

On May 6, 2010, MPH Consulting Limited submitted a proposal to design and implement an advanced-stage exploration program on the Julienne Lake iron deposit to define its key parameters to a sufficient extent to allow estimation of NI 43-101 compliant Measured + Indicated Resources. The resulting resource model would subsequently underpin preliminary mining/processing investigations and a preliminary economic evaluation. The proposed work was described under three main headings:

- **Advanced Exploration**: Topographic control, geological mapping, magnetometer survey, surface trenching & channel sampling, definition diamond drilling & core sampling, and mineral processing & metallurgical test-work.
- **Environmental Considerations**: Initiate environmental, archaeological and socio-economic baseline investigations.
- **Preliminary Economic Evaluation**: Provisional pit design, overburden-waste rock-iron ore ratios, provisional mineable reserves, provisional processing/beneficiation parameters, provisional cost/revenue parameters, markets.

MPH was notified by DNR on June 20th, 2010 that it was the successful bidder on the Julienne Lake exploration program and a formal contract was executed on July 7th, 2010.

The DNR previously commissioned MPH to evaluate technical information on the Julienne Lake iron deposit and to assist with developing a strategy with respect to the deposit's further exploration and potential development. The work was an office study only, completed on February 5th, 2010 (Coates, *et al*., 2010A).

A report entitled *"Report on the 2010 Exploration Program, Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador"* was issued on May 19th, 2011 (Coates, *et al*., 2010B).

In July 2012, MPH was approached by DNR to make certain changes to the May 19th, 2011 report to underpin efforts of the Government of Newfoundland and Labrador to advance the Julienne Lake Iron Deposit towards the Prefeasibility Study stage of exploration and ,if warranted, to the Bankable Feasibility Study stage and eventual mine development. In essence the current exercise is simply the removal of the Preliminary Economic Evaluation or Analysis ("PEA') material from the May 19th, 2011 report, thus leaving it to interested parties to draw their own inferences from the underlying basic NI 43-101 compliant exploration data.

1.1. Authorization and Terms of Reference

HER MAJESTY IN RIGHT OF NEWFOUNDLAND AND LABRADOR as represented by the Minister of the Department of Natural Resources retained MPH on July 14, 2010, to design and implement an advanced exploration program on the Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador. A Final Report on the Julienne Lake Iron Deposit dated April 10th, 2011 was commissioned and authorized by the Minister of Natural Resources, Natural Resources Building, 50 Elizabeth Avenue, St. John’s, Newfoundland and Labrador, A1A 1W5. The 2010 Report was prepared in Toronto, Canada, between October 18th, 2010 and May 15th, 2011.

The current report was prepared as an extension of the above contract. The 2012 report was prepared in Holyrood, Newfoundland between July 21st and 24th, 2012.

1.2. Qualifications of MPH and Authors

Established in 1967, MPH Consulting Limited has over 40 years of experience serving the mineral industry. More than 2,500 projects have been completed in over 70 countries, including management and design of large scale exploration programs, geophysical interpretation and modeling, resource and reserve estimation, financial analysis, preparation of technical and valuation reports, and evaluations ranging up to full scale feasibility studies. MPH emphasizes a multi disciplinary approach and can offer state-of-the-art technical expertise in economic geology and related fields, data processing, and geophysical interpretation. MPH also provides solid practical skills in logistics and project management.

MPH also drew on outside expertise for certain aspects of this work, notably P&E Mining Consultants Inc. (resource and preliminary pit modeling), Roche Ltd., Consulting Group (mineral processing), SGS Lakefield (bench-scale process testwork), Activation Laboratories Ltd. (head analyses, and ore characterization studies), and Golder Associates (environmental baseline study).

MPH has considerable experience pertaining to a variety mineral commodities and projects in Newfoundland and Labrador. The following projects highlight the list:

- The Rambler Joint Venture (Teck Corporation, Newfoundland Exploration, Petromet Resources) 1989-1991: MPH initiated and organized a successful bid by the Rambler Joint Venture to acquire the Rambler Properties EML, Nfld. and then managed and implemented a multidisciplinary exploration program that led to the discovery of the Ming West VMS deposit which was mined (by others) in the mid 1990’s.
- The Voisey’s Bay Ni exploration boom, Labrador, mid to late 1990’s: MPH managed and implemented a wide variety of exploration programs for several clients. Projects ranged from early-stage reconnaissance programs, airborne and surface geophysical surveys, through the spectrum to a major deep (1,500 + metre hole depth) drilling program.
- The Government of Newfoundland and Labrador, (Torngat National Park Compensation Issues) 2001: MPH provided the Department of Mines and Energy with an independent

opinion as to the "Fair Market Value" of the Hutton Garnet Project of Freeport Resources Inc. located in the Torngat Mountains District, Northern Labrador. In addition MPH provided the department with an Independent Technical Opinion of a "Prefeasibility Report and Marketing Study" completed by Freeport.
- Wabana Iron Mine (former producer) Technical Evaluation, 2009: This was completed by the principal author and is very similar in scope and approach to the current report.

Mr. Howard Coates, M.Sc., P.Geo. (PEG-NL # 3766, & APGO # 1838), Vice President of MPH Consulting Limited, is the principal author of the study. An economic geologist with 41 years of diversified experience, Mr. Coates has extensive knowledge of mineral deposits gained through many years of post-graduate experience in diverse parts of the world. Currently Vice President of MPH Consulting Limited, Mr. Coates worked for major international mining companies, Falconbridge Limited and Billiton Canada Limited in Canada and Australia during the first fifteen years of his career. Since joining MPH in 1984, he has been involved in the conceptual development and management of base metal, gold and diamond exploration programs in Canada and abroad for a number of clients. He has prepared or assisted with many independent technical and valuation reports, property evaluations, prefeasibility and feasibility studies to Canadian National Instrument NI 43-101 standards on mining properties worldwide (including Argentina, Australia, Botswana, Canada, Chile, China, Columbia, Democratic Republic of Congo, Ecuador, Guyana, Indonesia, Mexico, Mongolia, Peru, Philippines, Russia, Solomon Islands, South Africa, USA, Venezuela). He has also conducted reserve/resource estimations and audits for gold, base metals, coal, industrial mineral and tailings deposits. Additionally he has provided technical input to litigation proceedings as an expert witness in a number of exploration/mining industry cases.

Mr. Coates has extensive knowledge of mineral deposits gained through many years of post-graduate experience in many parts of the world. He has worked on a variety of advanced nickel-copper, gold, polymetallic massive sulphide, granite-related tin-tungsten-molybdenum, coal, porphyry copper-molybdenum-gold, iron ore-copper-gold (IOCG), uranium, diamond, and sediment hosted iron and base metal deposits. He possesses a wide range of technical and managerial skills related to mining exploration and development.

Other MPH personnel contributed to the 2010 work, notably Aung Myint Thein M.Sc., P.Eng. Senior Geological Consultant who managed and conducted the field operations, Michele Cote, M.Sc., P.Geo., Senior Geologist who participated in field operations and is responsible for GEMCOM database functions, and Jeremy Brett, M.Sc., P.Geo., Senior Geophysical Consultant who reviewed and evaluated the property geophysical data. The hard and diligent work of MPH field technicians Jeff Coates, Martin Kratochvil, Woodrow Newbury and Dave Zabudsky is sincerely appreciated.

Other key personnel who contributed directly to the 2010 study include:

- Eugene (Gene) Puritch, P.Eng., President, Kirk Rodgers, P.Eng., Vice President Engineering, and Fred Brown, M.Sc.(Eng), CPG, Pr. Sci.Nat., Senior Associate Geologist of P&E Mining Consultants Inc.

- Guy Saucier, Eng., Vice President, Mining & Mineral Processing, Alain Dorval. Eng., Manager- Process, Mining & Mineral Processing, and Caroline Boudrias, Eng., Metallurgical Engineer of Roche Ltd., Consulting Group.
- Francois-Oliver Verret, Senior Metallurgist, SGS Lakefield..
- Chris Hamilton, M.Sc., MLA Manager of Actlabs. and
- Katherine Hogan-Barker, B.Sc., Wildlife biologist, Project Manager of Golder Associates.

Mr. Bill Brereton, M.Sc., P. Eng., MPH Vice President completed the peer review of this report.

Finally MPH wishes to gratefully acknowledge the contributions of DNR personnel to the 2010 Julienne Lake Program, especially John Clarke, Mineral Development Geologist, Mineral Development Division who monitored the work throughout and provided much valuable input and assistance. Deputy Minister, Dr. Dick Wardle also provided significant input through his unmatched knowledge of the geology and mineral deposits of Labrador. Other helpful assistance was provided by DNR staff and others including:

- Alex Smith, Director, Mineral Development Division, technical advice,
- Leonard Mandville and Darren Pittman, Mineral Development Division, collecting core sample for metallurgical testwork,
- Alvin Harris, Mineral Lands Division, arranging access to Provincial core storage facility, Goose Bay,
- Wayne Tuttle, Geological Survey, logistical support, Goose Bay,
- Karen Dumaresque, Mineral Development Division, logistical support, Labrador City-Wabush,
- Iron Ore Company of Canada and Wabush Mines for providing ROM material for field standards, and
- Shabogamo Mining & Exploration Limited for providing quartzite for analytical blanks

1.3. Scope of Work and Sources of Information

The DNR previously commissioned MPH to evaluate technical information on the Julienne Lake iron deposit and to assist with developing a strategy with respect to the deposit's further exploration and potential development. The work was an office study only. No site visit was authorized or conducted in connection with that report. The current exploration program was initially designed using historical information on the Julienne deposit and surroundings.

In preparing the previous reports dated February 5th, 2010, and May 19th, 2010, MPH reviewed geological reports and maps, miscellaneous technical papers, company letters, memoranda and other public and private information as listed in the "Reference" section of this report. In addition, MPH drew on its own experience in ferrous metal projects and previous work in Canada and elsewhere.

The following historical documents are of particular importance in connection with the previous and current MPH reports:

- Knowles, D M, 1968. Development work proposals Julian deposit, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0114, 1968, 25 pages.
- Knowles, D M, 1967. The structural development of Labrador Trough formations in the Grenville Province, Wabush Lake area, Labrador, PhD, Columbia University, New York, New York, 1967, 234 pages.
- Knowles, D, 1963. Julian Deposit estimate of tonnage open pit mining, Canadian Javelin Limited and Julian Iron Corporation Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0144, 1963, 21 pages.
- Blakeman, W B and Knowles, D M, 1963. Report on the Julian deposit and its extensions, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0117, 1963, 24 pages.
- Canadian Javelin Limited, 1962. Summary report - section 1-geology, section 2-ore reserves, and section 3-metallurgy on the Julian Lake deposit, Labrador, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0110, 1962, 123 pages.
- Lakefield Research of Canada Limited, 1961. Report on grinding and concentration tests on Julian iron ore, Canadian Javelin Limited Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/0150, 1961, 26 pages.
- Knowles, D M, 1960. A report of studies conducted during 1959-1960 on the Julienne Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0124, 1960, 59 pages.
- Roxburgh, W H, 1960. Memorandum regarding the reserve estimates of the Julienne Lake Deposit, Labrador, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0109, 1960, 20 pages.
- Canadian Javelin Limited, 1959. Ore reserve estimates for the Julienne Lake Deposit, Julienne Lake area, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0247, 1959, 15 pages
- Mockler, H, 1958. Julian Iron Corporation diamond drilling – 1957, Canadian Javelin Limited, Julian Iron Corporation, Wabush Iron Company Limited and Pickands Mather and Company, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0115, 1958, 39 pages.
- Gastil, R G, 1956. Report on geological and magnetic surveys of the Julienne Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0154, 1956, 29 pages.
- Pickands Mather and Company, 1959. Report on exploration of the Julian ore deposit, Labrador, Canadian Javelin Limited and Pickands Mather and Company, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0066, 1959, 49 pages.

This report is based on information known to MPH as of July 25th, 2012.

All measurement units used in this report are metric, and currency is expressed in Canadian Dollars. When the historic work was completed the British Imperial system of measurement was still in use throughout much of the world including Canada. Long tons (UK) of 2,240 pounds were the historic norm in the iron ore industry and ore prices were usually stated in US$ per long ton unit. A long ton unit was 22.4 pounds or 1% of a ton.

At the present time a Dry Metric Tonne (Ton) Unit ("dmtu") is the internationally agreed-upon unit of measure for iron ore pricing. It has the same mass value as a metric tonne, but the material has been dried to decrease the moisture level. A dry metric ton unit consists of 1% of iron (Fe) contained in a tonne of ore, excluding moisture. The price per tonne of a certain quantity of iron ore is calculated by multiplying the cents/dmtu price by the percentage of iron content. Iron ore contracts are quoted in US Cents.

For crushed or ground materials the D_{80} size is the point at which 80% passing through a specific sieve or mesh size as a measure of the mean grain size.

Selected Imperial to SI conversions that were utilized in this report are listed as follows:

- 1 long ton (UK) of 2,240 pounds = 1.016 tonnes or 1,016 kilograms
- 1 foot = 0.3048 metres
- 1 inch = 25.4 millimetres
- 1 statute mile = 1.609 kilometres
- 1 square mile = 2.59 square kilometres

2.0 RELIANCE ON OTHER EXPERTS

MPH assumed that all of the information and technical documents reviewed and listed in the "References" are accurate and complete in all material aspects. While MPH carefully reviewed all of this information, MPH has not concluded any extensive independent investigation to verify their accuracy and completeness.

MPH has not searched titles to the land holdings and has not independently verified the legal status of the ownership of the Property or the underlying agreements. Information provided in this report with respect to land holdings and legal status is that provided to MPH by the DNR.

The information, conclusions contained herein are based on the information available to MPH at the time of preparation of this Report, assumptions, conditions and qualifications as set forth in the Report and data listed in the "References".

The DNR has reviewed draft copies of the Report for factual errors. Any changes made as a result of these reviews did not involve any alteration to the conclusions made. Hence, the statement and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this Report.

MPH reserves the right to, but will not be obligated to, revise this Report and conclusions thereto if additional information becomes known to MPH subsequent to the date of this report.

3.0 PROPERTY DESCRIPTION AND LOCATION

The Julienne Lake iron deposit is located in western Labrador, near the towns of Labrador City/Wabush, Newfoundland and Labrador approximately 1,200 kilometres northwest of St. John's the provincial capital (Figure 3-1). The nearest major cities are Halifax, Nova Scotia, which lies 950 kilometres to the south and Montreal, Quebec, some 1,000 kilometres to the southwest.

Figure 3-1: Regional Location Map

Mineral rights to the Julienne Lake iron deposit are currently held by the Government of Newfoundland and Labrador as an Exempt Mineral Land ("EML") enclosing 334 hectares or 3.34 km^2, formerly a Newfoundland and Labrador Corporation Limited ("Nalco") mining lease encompassing the Julienne Peninsula. In 1960, a mining lease was issued to Nalco, who sub-leased the rights to Julco Iron Corporation, a wholly owned subsidiary of Canadian Javelin Limited. In 1975 the rights to the deposit reverted to the crown under the Julienne Lake Deposit (Reversion Act) 1975, due to failure by Canadian Javelin to meet requirements of the Mining and Mineral Rights Tax Act. The area was designated EML under the Mineral Act when it came into effect on June 21, 1977. The boundary of the EML is shown in Figure 3-2.

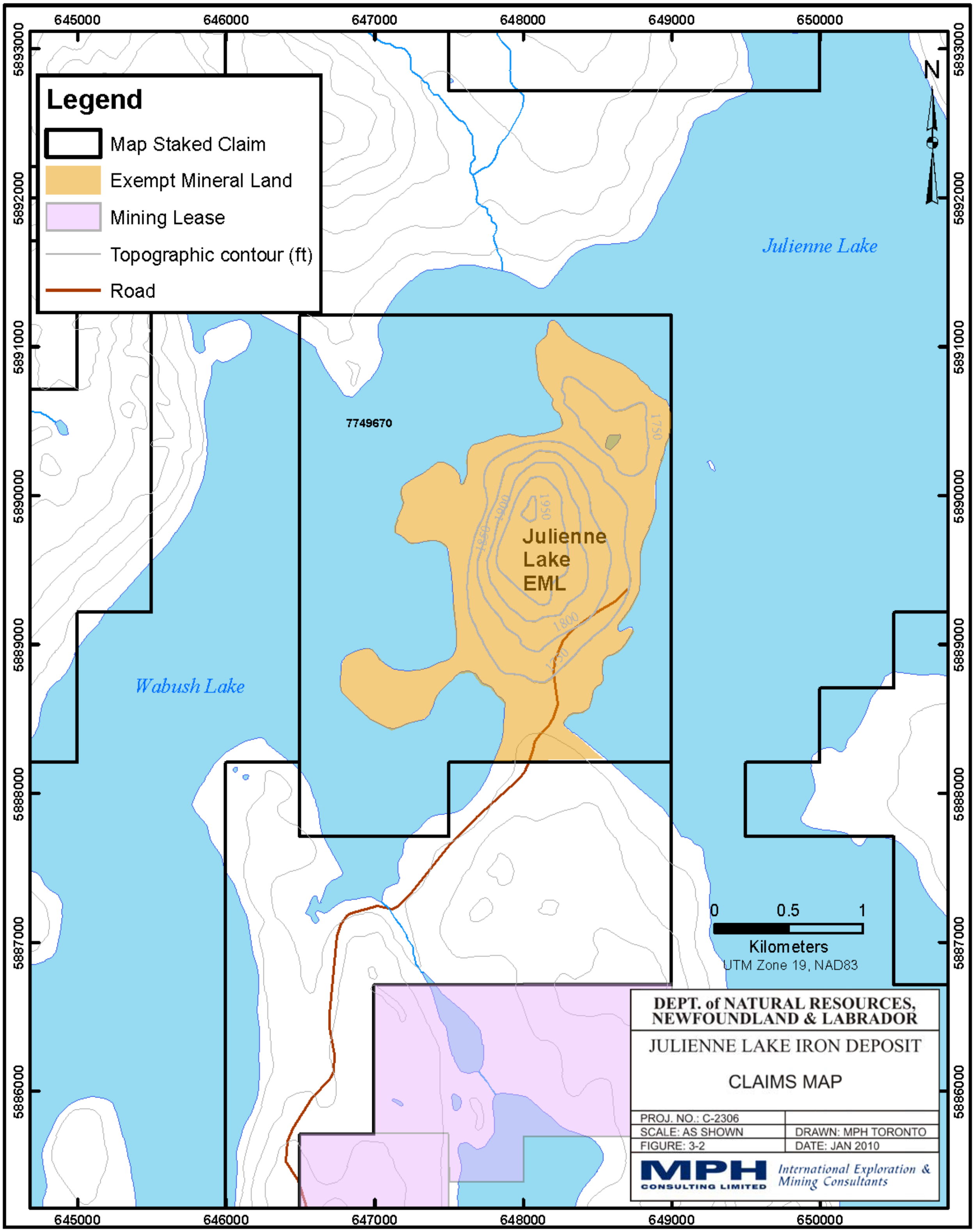


Figure 3-2: Claims map.

While MPH has viewed historic and current documents concerning the properties and agreements it is not qualified to provide a professional opinion as to the legal status of same. The status of the mineral rights, surface rights and details of agreements have not been certified by MPH Consulting Limited.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Accessibility:

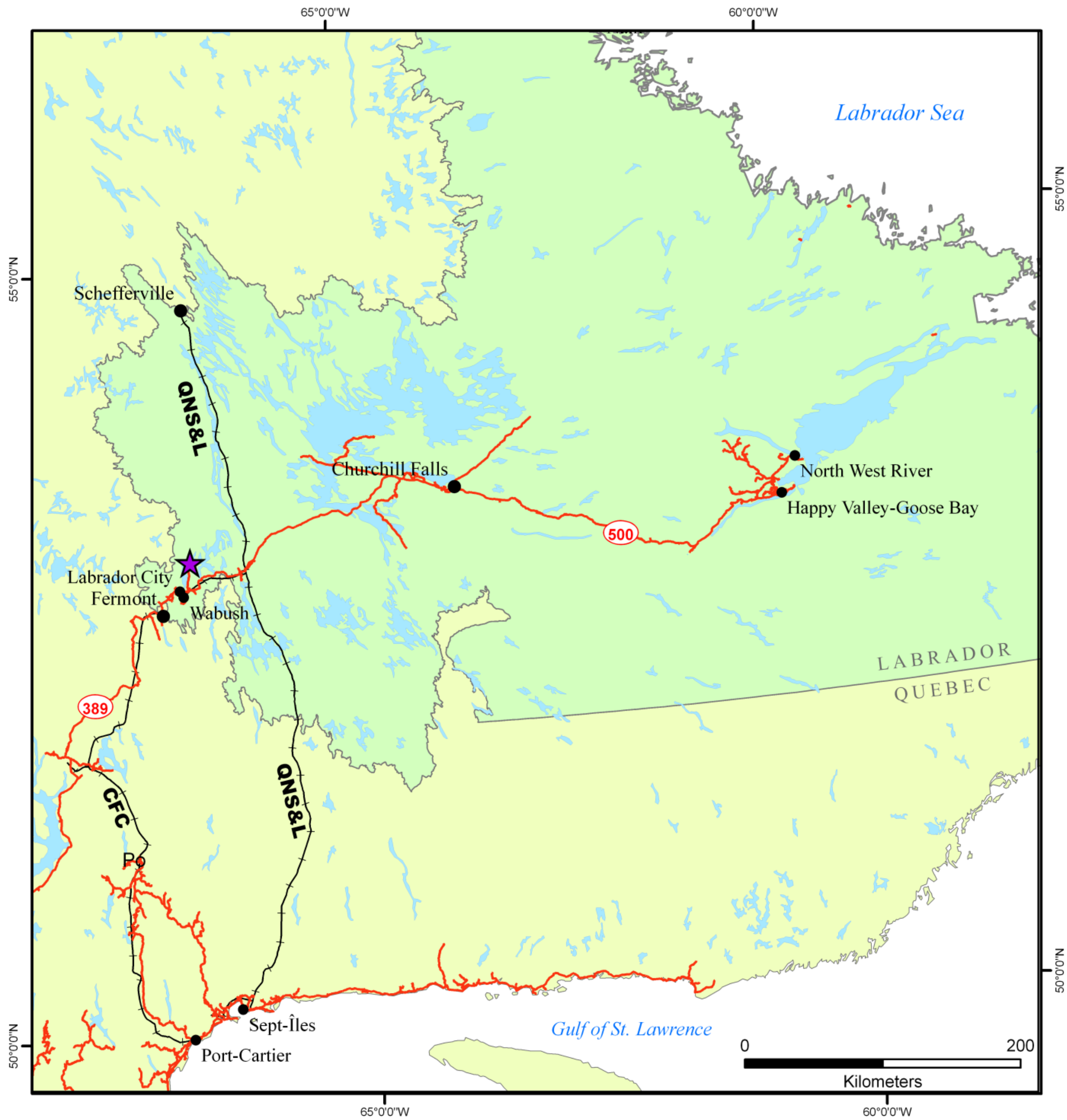
The Julienne Lake Property is situated in south-western Labrador, approximately 27 kilometres by road north of Labrador City/Wabush, Newfoundland and Labrador ("NL"). Labrador City is located 590 road kilometres north northeast of Baie Comeau, Quebec via partly unpaved Quebec Secondary Route 389 and partly unpaved Trans Labrador Highway, NL Provincial Route 500, and 533 road kilometres west of Goose Bay, NL via Provincial Route 500 (Figure 4-1). Access from Wabush airport (mid-way between Labrador City and Wabush) is northerly on Grenfell Drive (Provincial Route 503) for 0.9 kilometres to Provincial Route 500. Then turn right (east) and proceed along Provincial Route 500 for 5 kilometres to the Javelin Road. Then turn left (north) onto unpaved gravel Javelin Road and proceed northward 21.5 kilometres to a small boat launching site at the south end of the Property. Roads and trails roads provide access to the old camp, trenches and prospects on the property. The recently exhausted Leila Wynne Dolomite Quarry owned by Iron Ore Company of Canada ("IOC") is about 4 kilometres south of the Julienne Lake project area.

Climate:

The climate of Labrador is sub-arctic, continental taiga climate, more Arctic than Atlantic. Because it is on the eastern side of the continent, it experiences strong seasonal contrasts in the characteristics and movement of air masses. The predominant flow is off the land. The rugged Torngat Mountains in the north, with peaks above 1,500 m, and the Mealy Mountains in the south, with peaks about 1,200 m, confine the moderating influence of the Atlantic Ocean to the rocky islands and near shore.

The Labrador sea is infested with floating pack ice and icebergs for eight months of the year. The masses of ice keep sea temperatures below 4 C. An east wind off the Labrador Current is a cool wind in summer, often with light rain or drizzle. In winter, when the Atlantic air is relatively mild, the accompanying weather includes cloud and frequent snow flurries. Whenever easterly winds bring very moist air from the Atlantic, widespread fog occurs.

Local climatic conditions are typical of western Labrador. Mean total precipitation for Wabush is 851.6 millimetres including 482.6 mm of rainfall and 445.7 cm of snowfall. Higher levels of rainfall typically occur in July (average 111.5 mm) while the highest level of snowfall accumulation (average 75.3 cm) usually occurs in the month of November. Mean July daily temperature is 13.7 C while mean January daily temperature is –22.7 C. Recorded temperatures have ranged from a low of –47.8 C on February 17,1973 to a maximum temperature of 33.3 C on June 16, 1983. (Source: Meteorological Service of Canada).



★ Julienne Lake Iron Deposit

CFC Chemin de Fer Cartier Railway

QNS&L Quebec North Shore and Labrador Railway

DEPT. of NATURAL RESOURCES, NEWFOUNDLAND & LABRADOR	
JULIENNE LAKE IRON DEPOSIT LOCATION MAP	
PROJ. NO.: C-2306	
SCALE: AS SHOWN	DRAWN: MPH TORONTO
FIGURE: 4-1	DATE: JAN 2010
MPH CONSULTING LIMITED	International Exploration & Mining Consultants

Figure 4-1: Location Map and Regional Access routes

Local Resources, Infrastructure:

The district of Labrador West, located in western Labrador near the Quebec border, includes the Town of Labrador City (population ~7,200) and neighbouring Wabush (population ~1,800). The district was first settled in the mid-1950's to early 1960's to accommodate employees of Wabush Mines and the Iron Ore Company of Canada. Labrador West is the regional centre for the iron ore mining industry in Labrador. Labrador City and Wabush can provide modern housing as well as educational, medical, recreational and shopping facilities. Historically, mining has been a dominant part of the local and regional economy. Labour, industrial supplies and services for mining and exploration activities are readily available in the region.

Wabush Airport is the only airport in western Labrador, and is served by two commercial airlines: Air Canada Jazz, and Provincial Airlines.

Built in the early 1950's by IOC, the Quebec North Shore & Labrador Railway ("QNS&L"), originally connected the port of Sept-Îles, Québec on the north shore of the St. Lawrence River with a northern terminus at IOC's mining community of Schefferville, Quebec, a distance of 573 kilometres. In the late 1950's major iron ore deposits were opened up near Labrador City by IOC and Wabush Mines, and the QNS&L built a 58 kilometre line to serve these mines, running west from the main line at Emeril Junction to Carol Lake, (near Wabush). Service on this branch began in 1960. IOC's Schefferville, Quebec operations closed in the 1980's. However, the company's QNS&L railway maintained subsidized passenger and freight service for communities along the northern portion of its system until 2005, when it transferred ownership of the Emeril Junction to Schefferville section to First Nations interests, Tshiuetin Rail Transportation Inc ("TRT"). IOC maintains proprietorship over the southern section of its QNS&L rail line which runs 414 kilometres between Sept-Îles and Labrador City, hauling up to 21 million tonnes of iron ore yearly for its own operations and those of Wabush Mines. Passenger service on the QNS&L is now operated by TRT as two return trips per week between Sept-Iles and Emeril Junction; situated on the Trans Labrador Highway, 63 km from Labrador West. Also available twice a week is an eight hour trip from Emeril Junction to Schefferville, Quebec.

Physiography:

At its highest point the Julienne Lake Property is 600 m above sea level ("ASL"). The property covers the Julienne Peninsula which borders on Wabush Lake to the west and Julienne Lake to the east. Wabush, Julienne and Shabogamo Lakes are essentially one body of water at 527 m ASL, with an arbitrary boundary between the first two marked by the northern tip of the Julienne Peninsula. Drainage is generally northward then eastward into the Churchill River system to the Labrador Sea.

The center of the Julienne Peninsula is an elliptical hill that rises steeply to 75 metres above lake level. A low swampy isthmus joins the peninsula to the mainland to the south. The hill was an island in a proglacial lake, informally termed glacial lake Wabush, the paleo-shoreline of which is marked by a prominent bench or wave cut platform at about the 550 metre elevation (Knowles, 1967c). Above the bench, overburden is very thin and bedrock outcrops are widespread, while below the bench outcrops are very sparse and the terrain is characteristically covered significant thicknesses of glacial and glacio-lacustrine deposts.

The Julienne Peninsula is predominantly covered by spruce/lichen forest, with minor muskeg bogs and marshes in low-lying areas. The area is characterized by an open to dense tree canopy underlain by an undergrowth of lichens and shrubs. The prominent tree species is black spruce (*Picea mariana*). Shrub species include lambkill (*Kalmia, angustifolia*), Labrador tea (*Ledum groenlandicum*), blueberry (*Vaccinium angustifolium*) and alder (*Alnus spp*.). The dominant lichen species are Reindeer Lichens (*Cladonia alpestis, C. arbuscula, C. mitis*).

5.0 HISTORY

5.1. General Background

Iron ore mining has a long history of continuous production, over 114 years, from 1895 to the present, in what is now the Canadian Province of Newfoundland and Labrador. The presence of iron ore on Bell Island, near St. John's, was first recorded in the late 16th century, but it was not until the 1890's that the Bell Island or Wabana deposits attracted the attention of entrepreneurs and mining interests. Development of the Wabana iron ores began in 1893 and the first cargo of ore was shipped to Nova Scotia in 1895. When the steel industry was established in Sydney, Nova Scotia, in 1900 Wabana became the principal source of iron ore for this enterprise. Underground mining of the Wabana submarine iron deposits spanned a period of 73 years, until closure on June 30, 1966. During its lifetime, Wabana shipped over 80 million tonnes of raw and upgraded iron ore to Canada, Germany, the United States, Belgium and Holland. The development of giant high-grade open-pit iron ore mines in Labrador and elsewhere in the 1950's led to the demise of the Wabana operations.

Serious interest in the iron ore deposits of Labrador West stemmed all the way back to late 1940's which saw a monumental increase in the iron market as Europe and Asia rebuilt its cities and industries after World War II, and nations re-armed for the Cold War. However, the strong post-war demand revealed a world iron ore shortage which stimulated the worldwide search for new sources of ore. These exploration efforts eventually uncovered vast quantities of highly competitive ores in Labrador, Brazil and Australia. Development of these and other deposits from the 1950's onward signalled the gradual demise of lower quality or otherwise compromised Fe ores.

The earliest recorded mention of iron bearing rocks in the north-eastern Quebec/Labrador region are attributed to Albert Peter (A. P.) Low of the Geological Survey of Canada ("GSC"), who organized and surveyed long canoe traverses through the region in the early 1890's. In 1914, famous (for narrowly missing the Hollinger gold discovery in Timmins, ON) Canadian prospector, Reuben "Sourdough" D'Aigle of Chipman, New Brunswick, prospected the Wabush Lake area and obtained samples of the iron bearing rocks. D'Aigle and others promoted a gold rush to the Wabush Lake area in 1932. No gold was discovered. However, extensive areas of iron formation were located and mapped by a GSC party in 1933, while Sourdough D'Aigle's bad luck or poor timing continued.

The Labrador Mining and Exploration Company Limited ("LM&E") was formed in 1936 to explore and develop a large, >50,000 square kilometre mineral rights concession that covered most of western Labrador section of the Labrador Trough. During World War II, LM&E was acquired by Canadian gold miner, Hollinger Mines Ltd., and later joined by the Hanna Mining Company, a US coal, iron ore, blast furnace and lake shipping conglomerate. By 1949, LM&E had developed sufficient reserves of high-grade direct-shipping iron ore at Knob Lake sufficient to justify development. The partners joined forces with a group of US steelmakers and the Iron Ore Company of Canada ("IOC") was formed. After a major construction project including the mine, town-site (Schefferville, QC) and railway, the first shipment of iron ore moved south to the St. Lawrence River in 1954.

Cleveland Cliffs Iron Company undertook an exploration program in the Mont Wright area, QC, west of Wabush Lake in the late 1940’s, but no direct shipping ore was found and the project was terminated. By the late 1950’s concentrating-type iron ore deposits were in demand and the Québec Cartier Mining Company (“Quebec Cartier”) a subsidiary of United States Steel Corporation (“US Steel”) was founded to develop low-grade deposits in an area extending from Lac Jeannine to Mont Wright, Saguenay County, Quebec. Mining operations commenced at Lac Jeannine near Gagnon, QC in 1961, and in 1973 the company started operating at Mont Wright near Fermont, QC. Québec Cartier (now called ArcelorMittal Mining Canada) is one of the leading producers of iron ore products in North America. At their Mont Wright plant, the company operates an open pit mine and a crusher/concentrator facility capable of producing eighteen million metric tonnes of iron ore concentrates annually. The company also operates a pellet plant with an annual production capacity of some nine million metric tonnes of iron ore pellets at Port Cartier, QC. In 2006, ArcelorMittal (the world's largest steel maker) purchased Quebec Cartier Mines.

In 1951, Joseph R. (Joey) Smallwood, Premier of the newly minted Province of Newfoundland, created the Newfoundland and Labrador Corporation (“Nalco”) to stimulate development of the province’s natural resources. Responsibility for overseeing the Nalco crown corporation and its western Labrador mining concessions (areas that had been dropped by LM&E/IOC), was given to Alfred Valdmanis, the province’s Director General of Economic Development. Also in 1951, Chicago-born John C. Doyle reorganized a Joliette, QC, stove-making company as Canadian Javelin Limited (“Javelin”), a holding company for his subsequent ventures. Doyle had apparently learned of iron deposits on Nalco’s property in 1952. By the end of 1953, Doyle had become seriously interested in Nalco’s iron ore properties, and had acquired Nalco as a subsidiary of Javelin. The Nalco/Javelin connection would lead to the Wabush Mines operations and also to the Julienne Lake iron deposit.

In the summer of 1953, Nalco began a geological exploration program to determine the economic potential of its Wabush Lake area concession (Boyko, 1953). Two iron occurrences were examined, namely:

- Burden #1: Located at the south end of Wabush Lake, this would become the Wabush Mines deposit, and
- Boyko #1: Located at the north end of the Julienne Peninsula, this would become the Julienne Lake iron deposit.

A Javelin engineer visited the exploration site in July, 1953, and by September Javelin had a camp and three drills on the Burden #1 prospect. By February 1954, 32 drill holes had demonstrated the presence of a very large iron deposit. Wabush Mines began mining ore from the Scully Mine in Labrador in 1965 and currently operates a mine and concentrating plant at Wabush with a concentrate production capacity of 5.5 million tonnes/year, together with a pellet plant and shipping facilities in Point Noire, Québec. Wabush Mines is currently owned by Cliffs Natural Resources Inc.

By the late 1950's, IOC had a renewed interest in its Wabush Lake area concentrating-type iron deposits. Its Labrador City area mine known as the Carol Project began operation in 1962 and has produced more than one billion tonnes of crude ore with an average iron content of 39 percent. Annual capacity at the Carol Concentrator is 17 million tonnes of iron ore concentrate, of which 13 million tonnes can be pelletized and the balance processed into various grades of concentrate products. Operations at IOC's Schefferville, QC site continued until 1982, when the mine was closed. The current ownership of IOC is Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Fund (15.1%). IOC operates within the Rio Tinto Iron Ore group and maintains its head office in Montreal, Quebec.

In 1960 the Government of the Commonwealth of Australia lifted a long-standing embargo on the export of iron ore and this gave stimulus to exploration which located billions of tons of ore reserves in Western Australia. By 1967 contracts had been approved for the export of 320 million tons (325 million tonnes) of ore and shipments were under way.

Beginning in the mid 1990's, tremendous increases in iron ore consumption by developing nations, particularly China, resulted in a modest resurgence of interest in iron ore by some mining and exploration companies. Dramatic iron ore price increases from 2006 to the latter part of 2008 effectively created much more widespread interest in iron properties, while at the same time the major iron ore producers were reinvesting profits into expansion projects and new mine development. The worldwide mining boom appeared to come to an abrupt halt in the latter part of 2008 as capital markets tightened due to global recession. In 2009 it was expected that increases in capacity might outstrip expected Fe consumption, as growth dominated by China slowed. In reality, as of early 2010, many analysts see a strengthening market as China's growth continues and the developed world economies recover from the recession.

5.2. The Julienne Lake Area

W. P. Boyko's 1953 reconnaissance geological map of the Julienne Lake iron-bearing units for Nalco provides the earliest known documented work of the Julienne Lake EML. However, Gastil (1956) notes that "several old sample trenches, a location post and a blazed trail testify to prospecting predating that of Canadian Javelin", perhaps Sourdough D'Aigle again?

Preoccupied with the Wabush deposit, three years elapsed before Javelin's attention returned to the company's other iron ore occurrence. In the summer of 1956 a systematic geological and magnetometer study was completed on the Julienne Peninsula followed by a preliminary estimation of the area's general resource potential (Gastil, 1956). An early example of systematic multidisciplinary exploration, this geological and geophysical work produced a reasonably accurate map of the iron formation sub crop, while a surface sampling program (38 samples) gave a first indication of deposit grade. See Table 5-1 for the compiled results of the initial sampling program and a comparison with early Wabush data. This early comparison indicates that the Julienne material is significantly better than that of Wabush in terms of the deleterious element Mn. A general resource potential was estimated at 75 million tons of 'ore' above lake level for the outcrop area and 200 million tons above lake level for the onshore extensions.

Table 5-1: Julienne Lake and Wabush, 1956 Surface Sampling Results

Deposit	Fe (soluble)	Mn	P	S
Julienne Lake	~37%	0.177%	0.012%	0.004%
Wabush	~37%	~2.00%	-	-

On June 28, 1957, the Wabush Iron Company, a subsidiary of Pickands Mather & Company ("Pickands Mather") of Cleveland, Ohio signed an option agreement with Javelin with respect to the Nalco/Javelin western Labrador properties. On July 1, 1957, Pickands Mather took over management of the properties, as agents for Javelin. During the rest of 1957, Pickands Mather conducted a preliminary survey for a railway connection to the Julienne Peninsula, built a fly-in campsite, and commenced a diamond drilling program. In addition the area was overflown to obtain detailed aerial photographs for orthophoto mapping purposes, and a cut-line survey grid was laid out. The 1957 drilling program appeared to be poorly planned, starting with the remote location and Javelin's management decision to authorise a proposed 11-hole, 5000 ft (1,525 metre) program on the late-season date of August 15, 1957. Drilling commenced with the first of two drills, on September 11, 1957, and working with inadequate equipment in very difficult ground conditions, through freeze-up, only 1,884 feet (574 m) of advance (3 completed drill holes, and 1 in progress) was achieved when the program was shut down on November 27, 1957.

Technically the key shortcomings of the 1957 drilling program are as follows:

- **Very poor core recovery**: Overall recoveries ranged from 37.6% to 54.2% for the drill holes J-1 to J-4.
- **Failure to reach planned hole depth**: Only one of the four holes reached its planned depth of 700 feet (213 m).
- **Failure to penetrate iron formation units**: Only two of the four holes penetrated the iron formation.

Pickands Mather resumed the drilling in the summer of 1958, beginning on July 6 with the deepening of drill hole J-4. Four more holes (J-5 to J-9) were completed by August 22, 1958 bringing the total drilling for the two programs to 3,477 feet (1,060 m). The basic information on the 1957 and 1958 drilling is shown in Table 5-2. Although the available logs do not state the core recoveries in the same amount of detail as the earlier logs, it is evident from notations in the logs that core recovery problems continued. Only one of holes J-5 to J-9 penetrated the full thickness of iron formation.

In the opinion of MPH Consulting information from this two stage drilling program is mostly inadequate to quantify local or general data concerning the basic parameters of grade, size or shape of the Julienne Lake deposit.

Table 5-2: Julienne Lake Diamond Historical Drill Hole Summary

Hole No	Easting (grid)	Northing (grid)	Elevation (ft)	Length (ft)	Azimuth (degrees)	Dip (degrees)	Core Recovery	Bottom Lithology
J-1	10000	10500	1945	596	0.00	-90	51.60%	IF
J-2	10000	9500	1920	705	0.00	-90	54.20%	IF
J-3	10000	11500	1830	318	0.00	-90	37.60%	FW Qtzite
J-4	10000	8500	1850	328.5	0.00	-90	49.00%	FW Qtzite
J-5	9000	10160	1937	203	332	-50	poor	FW Qtzite
J-6	8000	9500	1813	330.5	0.00	-90	poor	IF
J-7	11500	11000	1757	379	0.00	-90	poor	IF
J-8	11500	10000	1760	356	0.00	-90	poor	IF
J-9	13000	11000	1745	261	0.00	-90	poor	IF
Total				**3477**				

Field work resumed in the summer of 1959 when Javelin geologists conducted detailed geological mapping of the property and a re-examination of remaining drill core sections (Knowles, 1960). Subsequently, between November 17 and December 10, 1960 a bulk sampling program was initiated by Javelin from five pits into surface exposures. A total of approximately 38.5 tons (39.1 tonnes) of “crude ore” was shipped to Lakefield Research of Lakefield, Ontario for metallurgical testwork. The geological map, 1957-58 drill hole and 1960 test pits locations are shown in Figure 5-1.

In 1959-60, Javelin made a preliminary estimate of the grade and tonnage contained in the Julienne Lake iron deposit. Based on surface geological mapping, magnetometer surveying and nine diamond drill holes a “minimum tonnage” of “potential ore reserves” of were reported (Roxborough, 1960). This rudimentary ‘polygon on section’ estimate employed a volume to tonnage conversion factor of 12 cubic feet per long ton (2.9 tonnes/cubic metre) to arrive at 381,220,000 tons (387,240,000 tonnes) averaging 34.2% Fe. The above historical estimate is presented by MPH for information purposes only. The estimate is believed to have been done to only rudimentary standards, nonetheless it would appear to reasonably indicate the tons and grade outlined at the date of preparation. However the estimate predates the current standards embodied in NI 43-101 and therefore do not conform to the same. The historical Javelin estimate will be discussed further in Section 16.0 below.

In January, 1961, 34 tons of Julienne Lake material were processed at Lakefield Research by grinding in a Hardinge ‘Cascade’ mill and then concentrated by means of Humphreys spirals. Recovery was 76.6% in one pair of tests with a concentrate that assayed 64.5% Fe. In a second set of tests recovery improved to 79.6% but the concentrate was only 63.5% Fe. It was surmised that these results could be improved to some extent in practice. Additional concentration tests were made at the Humphreys Engineering facility in Denver, Colorado with similar marginal results. Humphreys attributed the failure to obtain >65% Fe concentrates to incomplete liberation at the grind which was essentially 100% through 20 mesh (Tyler).

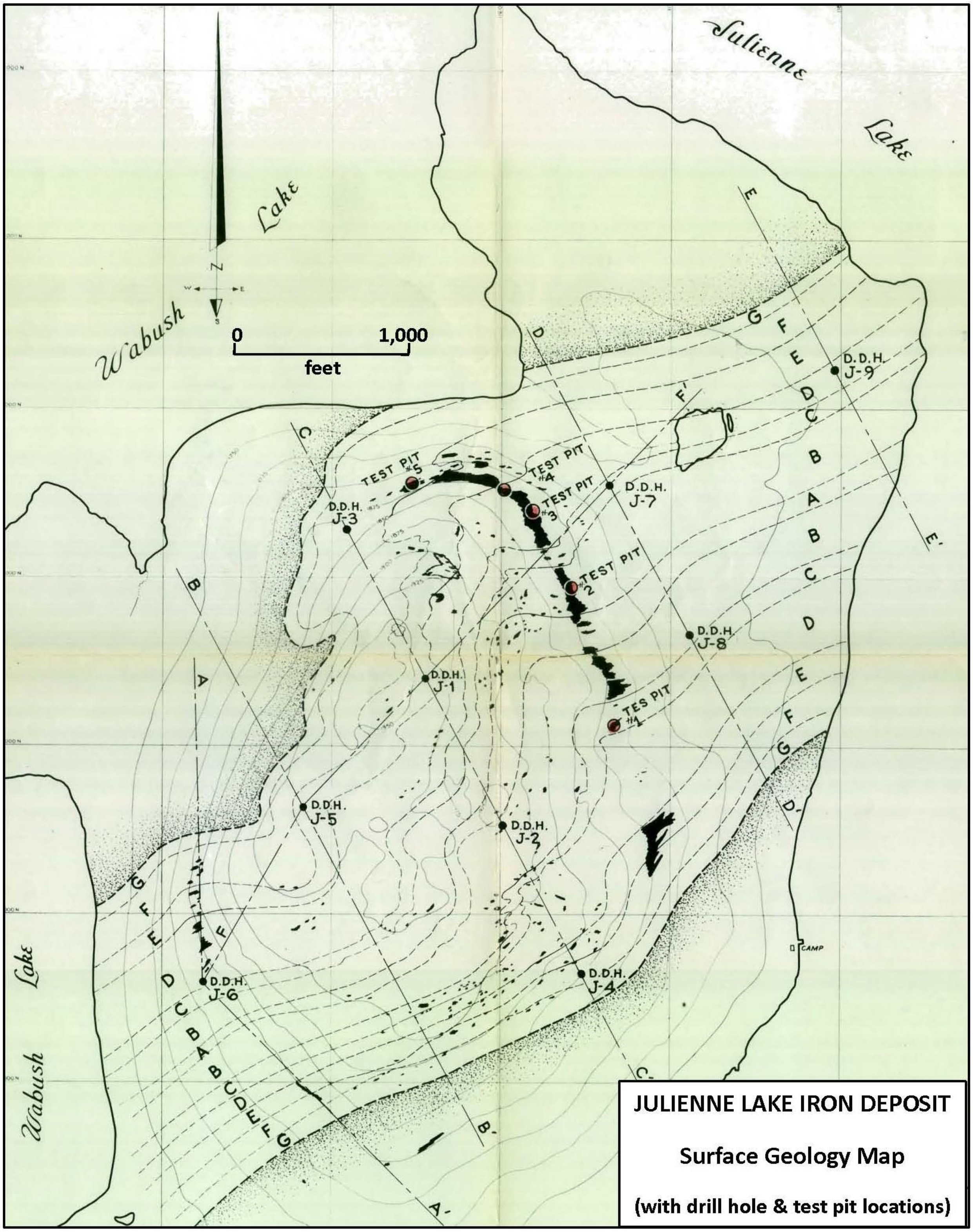


Figure 5-1: Julienne Surface Geology Map (reproduced from original, Knowles, 1960)

Between 1960 and 1963, Javelin evaluated the potential for building an iron and steel plant at Julienne Lake by evaluating various processes. It was quickly concluded that conventional blast furnaces employing coking coal, or direct reduction processes utilizing gas or oil as fuel would be uneconomic in Labrador. Investigations quickly led to electric smelting with pre-reduction options due to the future local availability of power from the giant Churchill Falls, NL, hydroelectric project that was then under development. Two experimental processes were evaluated the Strategic-Udy Process being developed by Strategic-Udy Processes Inc. of Niagara Falls, New York and the Elkem Process being developed by Electrokemisk A/S of Kristiansand, Norway. Tests on the 1960 concentrate from Lakefield indicated that Julienne Lake concentrates are amenable to smelting by both processes.

The practicality of mining, concentrating, pelletizing and smelting material from the Julienne Lake deposit was evaluated by Kilborn Engineering Limited ("Kilborn") of Toronto, ON in 1962. Preliminary capital and operating cost estimates were made concerning a mining and concentrating plant designed to produce 3,000,000 long tons (3,048,000 tonnes) of concentrate per year from 7,500,000 long tons (7,620,000 tonnes) of iron ore, a pelletizing plant to produce 2,160,000 long tons (2,195,000 tonnes) of pellets, and a smelter plant (Elkom Process) to produce 540,000 metric tonnes of pig iron per year (Kilborn, 1962a, b and c). The 1962 'money of day' ("MOD") preliminary capital and operating cost estimates are summarized in Table 5-3. These preliminary costs include estimates for providing infrastructure and services (railway, power line, road, town site, etc.).

In January, 1963, a 1,000 lb (450 kg) sample of concentrate from Lakefield was submitted to the Dravo Laboratory in Pittsburgh, Pennsylvania for pelletizing tests. These tests were successful and reported as "virtually identical" to previous results from the Wabush and Carol projects (Knowles, 1963).

Table 5-3: Preliminary Capital & Operating Cost Estimates, 1962 MOD

Description	Capacity	Units	Capex	Opex	Units
Mining	7,500,000	t/year ore		$ 1.02	per t ore
Mining & Concentrating	3,000,000	t/year conc.	$ 30,225,400	$ 2.55	per t conc.
Pellet Plant	2,160,000	t/year pellets	$ 20,700,000	$ 1.88	per t pellets
Mining, Conc. & Pelletizing	2,160,000	t/year pellets	$ 50,925,400	$ 4.43	per t pellets
Pelletizing & Smelter Plant	540,000	t/year pig iron	$ 23,800,000	$ 35.05	per t pig iron

A road was built by Javelin to the property from Labrador City/Wabush in the summer of 1962 and an area extending across the hilltop exposure (Trench 62-1) was later stripped for examination and sampling purposes.

In the fall of 1963, Javelin obtained an approximately 162 ton (164.6 tonnes) bulk sample primarily from a series of pits (Pits 63-1 to 12) into the hilltop exposure. The bulk sample was shipped by road and QNS&L railway to Sept-Îles, QC, and thence to Lakefield Research, ON (Knowles, 1967b). There is no record of testwork having been completed on this material.

A revised grade and tonnage estimate for the Julienne Lake deposit, including projected strike extensions beneath Wabush and Julienne Lakes was completed in June 1963 (Knowles, 1963c). The under-lake extensions are based primarily on interpretations of magnetic data (Figure 5-2). Only one historic diamond drill hole, from a lake ice setup, actually confirmed iron formation. This hole, DDH 58L-11, drilled by Labrador Mining & Exploration is shown on 1960's plan maps (Knowles, 1967c; Blakeman, 1968) and lies about 150 metres offshore in Contact Bay on the west side of the Julienne Peninsula. The hole penetrated 14 feet (4.3m) of water, then 41 feet (12.5m) of overburden and 45 feet (13.7m) of iron formation before ending at a depth of 100 feet (30.5m). The nature and grade of the iron formation is unknown. Two additional holes, 58L-12 and 58L-13, drilled just offshore on the east side of the peninsula did not penetrate overburden.

The land portion of the Julienne Lake deposit that has been explored by surface mapping, trenching and limited diamond drilling was re-estimated by Javelin to contain 500,034,000 long tons (508,058,000 tonnes) averaging 34.2% Fe with only traces of impurities (Knowles, 1963c). Geophysically projected extensions of the deposit under Wabush and Julienne Lakes (outside of the EML) were estimated at 165 million and 239 million tons (168 and 243 million tonnes), respectively. The above historical estimates are presented by MPH for information purposes only. The estimates are believed to have been done to only rudimentary standards, nonetheless they would appear to reasonably indicate the tons and grade outlined at the date of preparation. However the estimate predates the current standards embodied in NI 43-101 and therefore do not conform to the same. The historical Javelin estimates will be discussed further in Section 16.0 below.

In the spring of 1966, the remaining core from the Julienne Lake iron deposit was lost, when the Wabush commercial warehouse in which it was stored was destroyed by fire (Knowles and Blakeman, 1970).

A general surface sampling program was undertaken in August-September, 1966 to mitigate an earlier sample contamination program or what was known by Javelin personnel as the 'Titania Affair'. Limited early analyses of Julienne deposit material had shown low titania content in the range of 0.01 to 0.08% TiO_2 (Knowles, 1967a). However, there was some consternation when material from the 1960 bulk sampling program returned TiO_2 values an order of magnitude higher, in the 0.15 to 0.30% range. This discrepancy was eventually traced to the use of second-hand sample bags that had been used previously to ship rutile (TiO_2) concentrate, although to be certain a verification sampling program was conducted which confirmed the lower values.

During the latter part of the 1960's and early 1970's, no further exploration/development field activities were conducted. Javelin's efforts concentrated on finding parties that might be interested in developing the Julienne Lake deposit, either as a stand-alone project or in conjunction with the company's Star-Okeefe iron deposit in neighbouring Quebec.

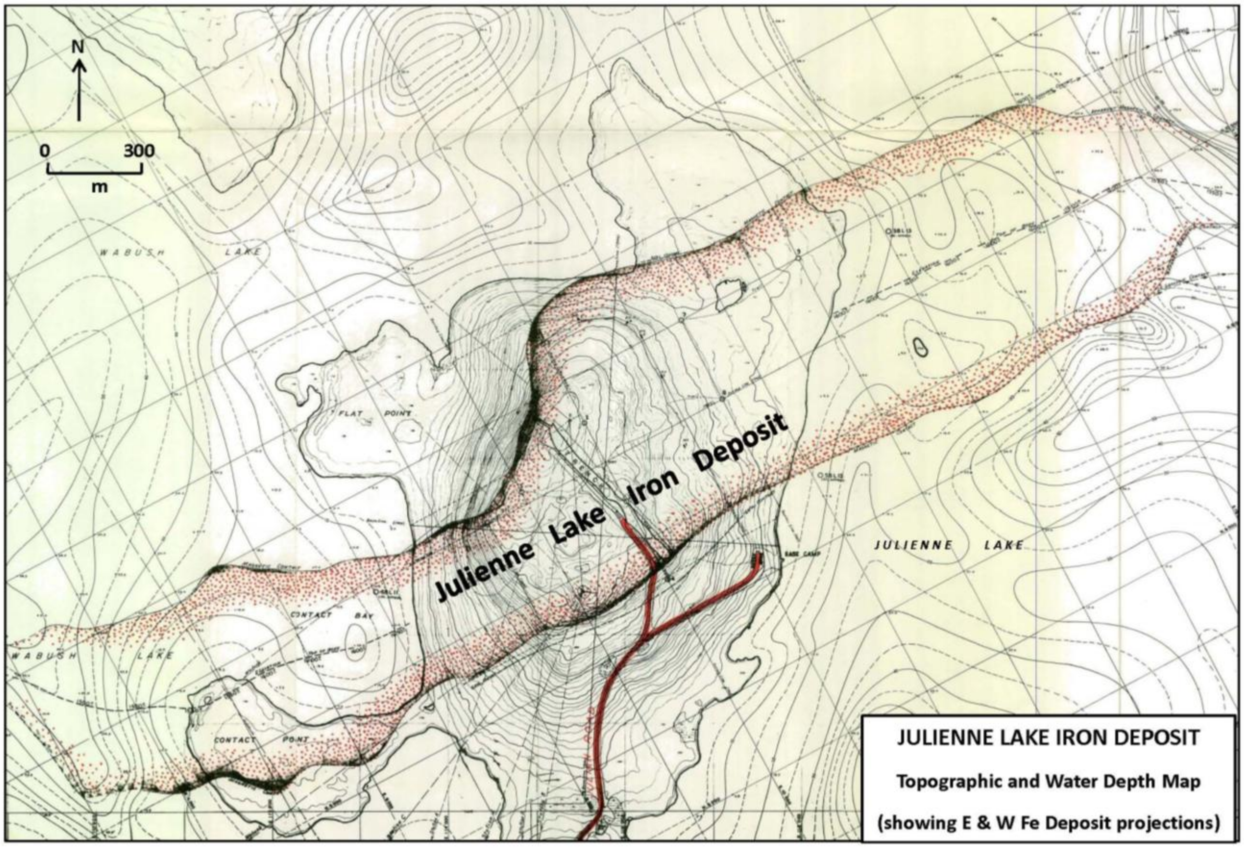


Figure 5-2: Julienne Lake Iron Deposit showing along strike projections.

In 1970, Javelin retained Kilborn to complete a prefeasibility study to determine capital and operating costs for mining and processing plants at Julienne Lake, NL, and Star-Okeefe near Mont Wright, QC, along with a pelletizing plan to serve both operations at Sept-Îles, Québec. The concentrates from both operations were to be delivered by slurry pipelines to the pelletizing plant. Estimated MOD capital and operating costs are summarized in Table 5-4:

Table 5-4: 1970 MOD Capex and Opex Estimates, Julienne/Star-Okeefe Iron Project

Site	Capital Cost	Operating Cost	
	$ (1970 MOD)	$/long ton ore	$/long ton conc.
Julienne Lake Mine	$140,487,000	$1.13	$2.82
Star-Okeefe Mine	$89,479,000	$1.93	$4.83
Sept-Îles Pellet Plant	$104,293,000	$0.78	$1.96
Total	**$334,259,000**	**$2.11**	**$5.28**

Javelin's efforts to attract potential customers or buyers for the Julienne and Star-Okeefe Projects were unsuccessful. In 1975 the rights to the deposit reverted to the crown under the Julienne Lake Deposit (Reversion Act) 1975, due to failure by Canadian Javelin to meet requirements of the Mining and Mineral Rights Tax Act. The property was made an exempt mineral land (EML –

meaning a property for which mineral rights are reserved to the Crown) and has remained under that status to this date.

In 1975-76 the Government of Newfoundland and Labrador, Department of Mines and Energy, prepared a summary report outlining the Nalco/Javelin exploration/development work on the Julienne Lake EML and actively sought a competent mining/exploration group to acquire the property. In spite of the depressed state of the iron and steel industry at the time, several companies reportedly expressed interest in the project. However, no company stepped up with a firm proposal to explore and develop the property.

In 1980, the Government of Newfoundland and Labrador, Department of Mines and Energy retained consulting engineers Hatch and Associates of Toronto, ON to conduct a study into the potential for further development of iron ore deposits in Newfoundland and Labrador (Hatch Engineering, 1980). The study evaluated eight Labrador prospects and the Wabana iron mine (former producer) in Newfoundland, and then identified three areas in western Labrador (Howell's River, Julienne Lake and Labrador Ridge) for initial consideration. The resources of key prospects are shown in Table 5-5). It was noted that market penetration and financial restrictions would influence development potential.

Table 5-5: Western Labrador Undeveloped Iron Ore Prospects 1980

Name	Location	Type	Tons	Grade Fe	Reference
Labrador Ridge	Wabush Lake	Specular hematite	551,185,000	37.7%	Hatch Engineering, 1980
Julienne Lake	Wabush Lake North	Specular hematite	500,034,000	34.2%	Hatch Engineering, 1980
Howell's River Taconite	Schefferville South	Magnetite	1,151,000,000	29.3%	Kociumba *et. al.*, 2007

On November 20, 2009, the Department of Natural Resources, Government of Newfoundland and Labrador ("DNR") invited proposals for the preparation of recommendations for the further assessment of the Julienne Lake iron deposit in western Labrador. MPH Consulting Limited submitted a proposal regarding same to the DNR on December 20, 2009 and was notified that its bid was successful on January 4, 2010.

On February 5, 2010, MPH completed a preliminary evaluation of the Julienne Lake iron deposit to assist with developing policy concerning the possible use or sale of the deposit. Specifically the DNR required technical opinions regarding certain specific aspects of the deposit's historic database, namely:

- Reliability of Historic Resource/Reserve Estimates, and
- Marketability of Potential Sales Products.

A further key element of the assignment was to assist the DNR in assessing the current level of serious interest in iron ore properties in general.

MPH concluded that the Julienne Property represents a good opportunity to develop a mining operation in a world class iron ore producing region. It was also apparent that the existing technical database does not fully conform to adequate standards that would permit wholesale inclusion in any future investigations. A multifaceted exploration program was recommended to advance the project toward the preliminary economic evaluation or prefeasibility study stage, by current standards.

On April 17th, 2010, DNR invited proposals for the further assessment of the Julienne Lake iron deposit in western Labrador. The purpose of the assessment is to define the deposit to the level of NI 43-101 compliant indicated and measured resources and to establish a reliable 3-D geological model that can be used to generate resource models at a range of cut-off grades, to generate preliminary pit design models and to construct a DCF model to preliminary economic evaluation standards.

On May 6th, 2010, MPH Consulting Limited submitted a proposal to design and implement an advanced-stage exploration program on the Julienne Lake iron deposit to define its key parameters to a sufficient extent to allow estimation of NI 43-101 compliant Measured + Indicated Resources. MPH was notified by DNR on June 20th, 2010 that it was the successful bidder on the Julienne Lake exploration program and a formal contract was executed on July 7th, 2010. The field work was completed during the second half of 2010 and a report entitled *"Report on the 2010 Exploration Program, Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador"* was issued on May 19th, 2011 (Coates, *et al*., 2010B).

6.0 GEOLOGICAL SETTING

6.1. Paleotectonic Setting and Temporal Range

The Julienne Peninsula Lake Superior-type iron formation ("LSTIF") deposit occurs in the Labrador-Quebec Fold Belt or Labrador Trough, within the Sokoman Formation of the Lower Proterozoic (Aphebian) Knob Lake Group. The Sokoman Formation, one of the most extensive iron formation units in the world, extends along the eastern margin of the Archean Superior-Ungava craton for over 1,000 km (Figure 6-1) (Gross, 2009).

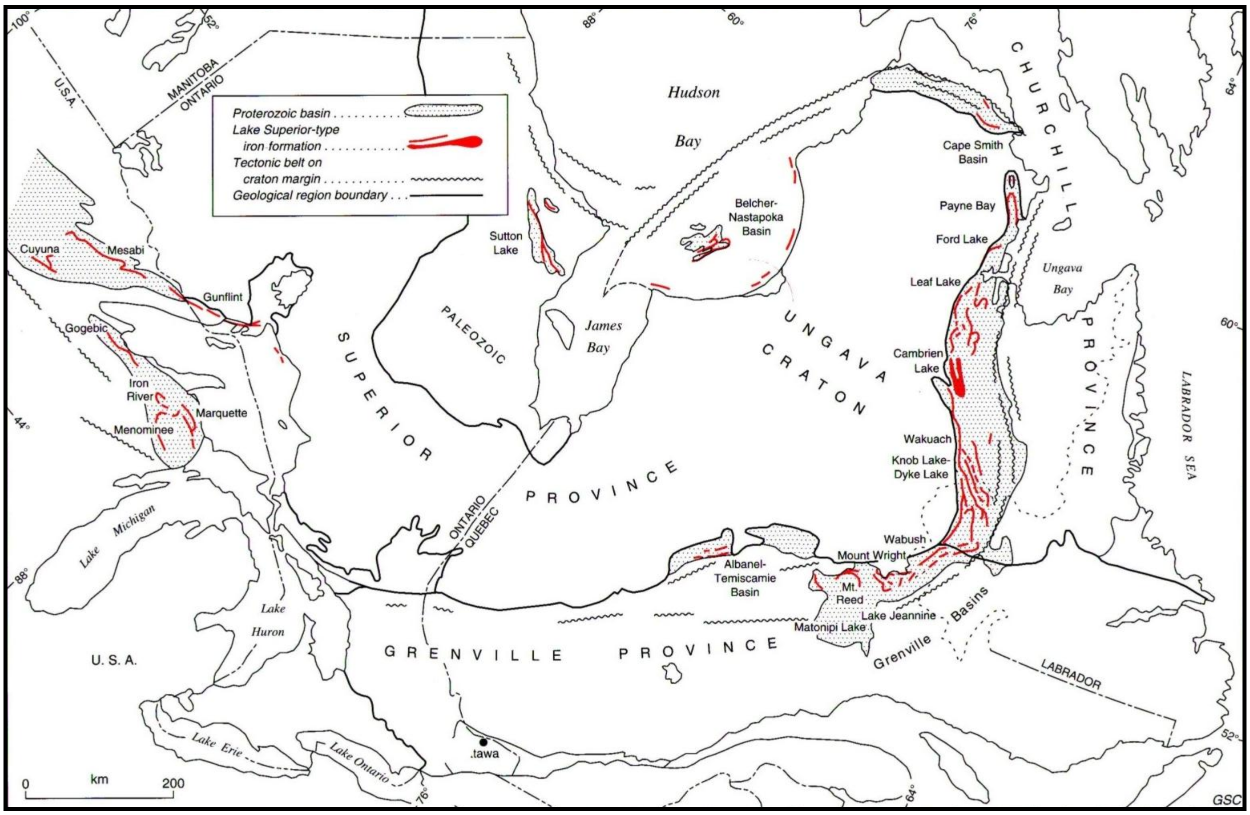


Figure 6-1: LSTIF Distribution Eastern North America (Gross, 1996)

The following paragraphs are quoted or summarized from Geological Survey of Canada ("GSC") Open File 5987, "Iron Formation in Canada, Geology and Geochemistry", by G.A. Gross, 2009.

"The Sokoman [Formation] iron formation along the western boundary of the Northern fold belt extends south from the isolated basin structures north of latitude 60^0N and west of Ungava Bay, through a series of interconnected paleobasins extending from the area west of Ungava Bay, to Lac Cambrien, Knob Lake - Schefferville and southwest across the boundary of the Grenville orogenic belt. The iron formation and associated metamorphosed sedimentary rocks extend southwest into the Grenville orogenic belt where they are exposed in a series of isolated complex highly metamorphosed and deformed fold structures in the Wabush Lake, Mont Wright, Fire

Lake, (Gagnon), Mount Reed, and Lac Jeannine areas, and beyond the Mouchalagane River through the Matonipi Lake area.”

“Principal stratigraphic features of the fold belt are well developed and have been mapped in detail in the Knob Lake basin centred around Schefferville in the north central part of the fold belt. These Lower Proterozoic rocks overlying the granitoid gneisses of the platform or craton include a thick succession of thin-banded grey-green to maroon coloured fine grained clastic sediments, argillite and slate [Attikamagen Formation] which is transitional upward to dolomite and chert breccia in local basins [Denault Formation] that are intercalated in places with argillite and the overlying quartz arenite beds. The Wishart [Formation] quartz-arenaceous sediments are the most consistent stratigraphic units throughout the fold belt and in many areas along its western margin lie unconformably on the basal gneissic rocks. In parts of the Knob Lake basin the quartz arenaceous sediments are overlain by thin irregular sinuous beds of white chert intercalated with black carbonaceous and ferruginous shale that mark the beginning of major deposition of iron and silica in the overlying Sokoman [Formation] iron formation.”

“The iron formation throughout the belt is predominantly magnetite-hematite-chert-quartz oxide lithofacies with well-defined and discrete thin-bedded cherty Fe-carbonate and Fe-silicate lithofacies units at its base and locally in upper parts of stratigraphic sections. The iron formation lithofacies are interbedded with the overlying black carbon-, carbonate-, and sulphide- bearing slate and shale units [Menehek Formation] which extend intermittently throughout the fold belt. The quartz-arenite, iron formation, and upper black slate are the most persistent stratigraphic units throughout the marginal basins and fold belt.”

“This succession of metasedimentary rocks is most extensively developed in the western parts of the marginal basins and fold belts. Eastward in the fold belt the metasedimentary rocks are associated with an increasing amount of intercalated tuff, lava flows, various extrusive volcanic rocks, and mafic and ultramafic dykes and sills.”

“Transitions from predominant shelf and platform environments for Lake Superior type iron formation to volcanic-arc tectonic environments hosting iron formation lithofacies of Algoma type are recognized in the northeastern and central parts of the fold belt.”

“Folded structural segments of Early Proterozoic iron formation and platform sediments extend southwest into the Grenville Province tectonic belt from Wabush Lake to the Matonipi Lake area. The sequence of rocks bearing iron formation in the Grenville Province north of Wabush Lake is offset to the northeast for a distance of about 15 kilometres along a fault zone that marks the northeast margin of the Grenville Province tectonic belt and the Superior - Ungava Craton (Figure 6-2). Stratigraphic continuity of the Early Proterozoic Sokoman Iron formation and associated sediments has been traced southward across this marginal belt and through the Wabush Lake area. The rank of metamorphism in this succession of rocks increases to the southwest to amphibolite facies and to granulite facies in some areas close to the marginal belt. A second order of folding and deformation apparently related to the Grenville orogeny (1 - 0.8 Ga) has been imposed over the isoclinal fold and imbricate structures of the successions of Early Proterozoic iron formtion and associated rocks that are traced southward into the Grenville tectonic belt.”

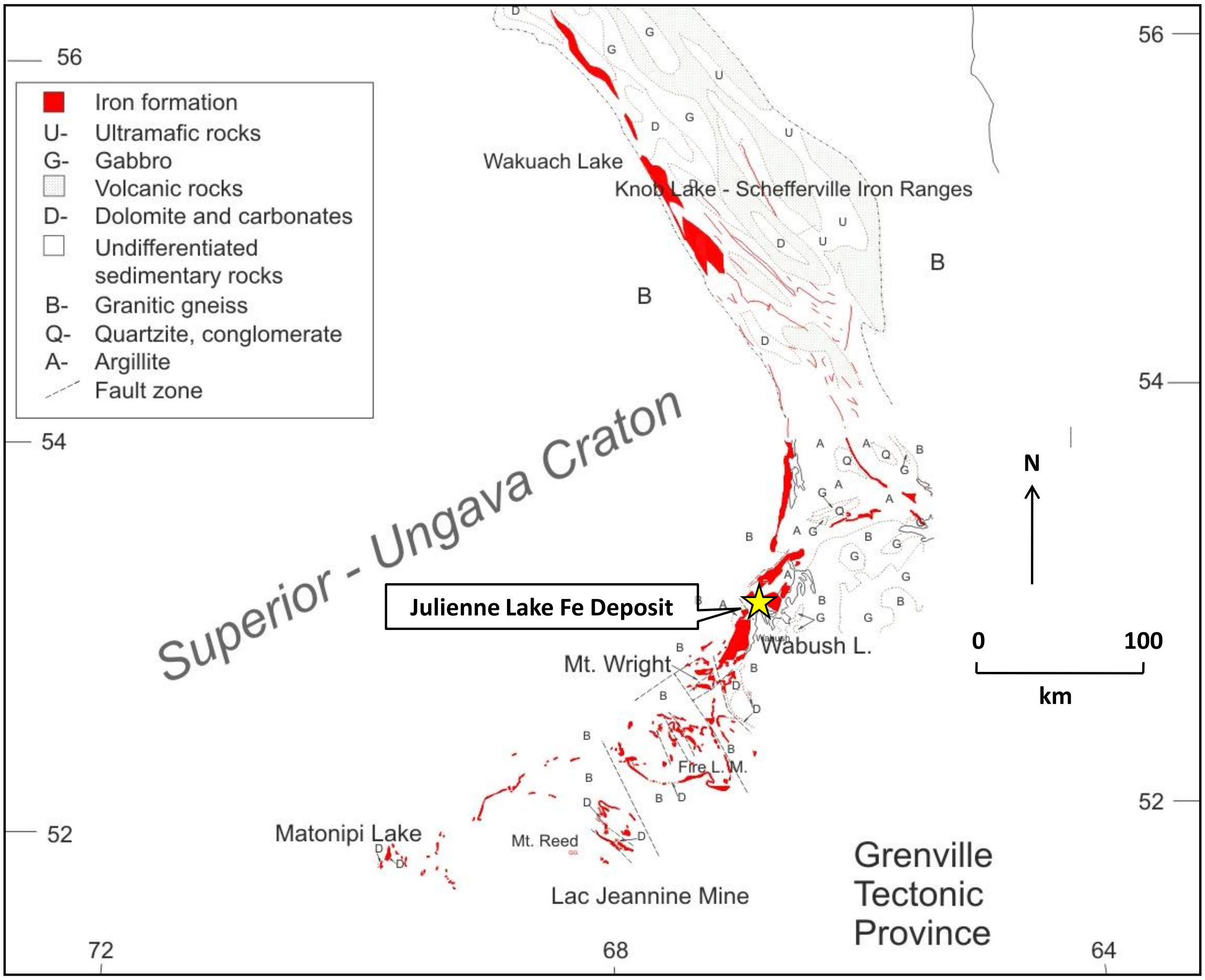


Figure 6-2: Southern Labrador-Quebec Fold Belt (modified after Gross, 1968)

"The isolated structural segments of iron formation and metasediments mapped in the Grenville Province mark the southwestern continuity of iron formation deposition in the major shelf or platform basins along the southern margin of the early Superior-Ungava Craton or landmass. These structural segments occur in major tectonic domains delineated by prominent fault zones that were probably related to subduction along the Grenville boundary."

6.2. Cretaceous and Younger Geological Units of the Labrador Trough

When considering the last 100 million years in the history of the Labrador Trough or even the Canadian Shield in its entirety, few geoscientists would look back beyond the glacial/interglacial periods of the Pleistocene. This is not surprising given the dramatic erosional and depositional effects that the glaciations of the last 1.8 million years have had on most of the North American continent. However, pre-glacial Cretaceous and/or Tertiary features are known to have locally survived the ice ages, including some in the Western Labrador region, and it is postulated here, on the Julienne Peninsula.

In the summer of 1958 a collection of fossil leaves and insects was made by the E. Dorf of Princeton University from a bed of ferruginous, red argillite associated with ‘rubble’ iron ore at the Redmond No. 1 deposit in the Knob Lake district about 15 kilometres south-southeast of Schefferville Labrador. Fossil leaves were first discovered in this bed by Mr. Donald J. McMahon, an IOC geologist during the course of trenching operations (Dorf, 1959).

Insect remains were discovered, along with the remains of 36 species of plants, including 1 alga, 4 ferns, 1 lycopod, 3 conifers and 27 angiosperms (Dorf, *op cit*). The 1.5 metre argillite bed in which the leaves and insects were found lies in the uppermost portion of the Redmond formation, a massive 90 metre unit of rubble iron ore containing lenses of pale reddish to grayish clay. The argillite bed dips 45 degrees toward the east is a very distinctive, massive, heavy rock containing about 60 per cent red hematite (Blais, 1959). The 5-foot bed is very uniform in composition from top to bottom. It is very finely though inconspicuously laminated, but has a tendency to fracture conchoidally. Fossil plants occur sporadically along occasional poorly developed bedding planes. Even less common are the associated insect remains. The lithological assemblage is covered by Pleistocene till.

The depositional setting of the original sediments is believed to have been a shallow lacustrine basin (Dorf, *op cit*). The flora is interpreted as indicating growth in a humid warm-temperate climate. An early Late Cretaceous (Cenomanian) age is indicated by the plant remains. Pollen and spores from underlying clay beds have been interpreted as slightly older Cretaceous (Albian) age. The rubble iron ore itself has also yielded plant remains in the form of fragments and a stump of carbonized wood. These occur in the breccias and gravels at the Redmond No. 1 deposit and elsewhere in the Knob Lake district. They have been identified as coniferous wood of Cupressinean affinity and regarded as at least as young as mid-Mesozoic (Usher, 1953). The insect fossils included a new genus and species of fossil termite from late Early Cretaceous or early Late Cretaceous (Cenomanian) associated with the warm temperate flora (Emerson, 1967).

Although not (yet) confirmed by fossil evidence there are many indications that similar manifestations of sustained Tertiary-Cretaceous warm humid climatic conditions are present on the Julienne Peninsula. The key evidence on the Julienne Peninsula is found in the northwestern part of Trench T10-02 completed in the summer of 2010 during the current work program. In this area the conformable contact section between the Lower Proterozoic Wishart Formation (quartzite) and the Sokoman Formation (iron formation) has been exposed by tracked-excavator mechanical trenching. The unusual and enigmatic aspect of the exposure (for the Canadian Shield) is the presence *in situ* weathering phenomena that are typically associated with tropical to temperate climates, namely deeply weathered regolith or laterite/saprolite development. In Trench T10-02 the contact zone section from bottom to top includes:

- Wishart Formation quartzite: whitish-pale yellow blocky outcrop/subcrop.
- Unconsolidated pale reddish (flesh tone) clay.
- Whitish-pale yellow saprolite(?) grit.
- Sokoman Formation iron formation (lower member): reddish brown oxidized, blocky outcrop/subcrop.
- Green exotic Pleistocene till unconformably overlying iron formation and saprolite grit.

Further evidence supporting the deeply weathered regolith hypothesis is found throughout the Julienne Peninsula in all drill holes completed to date. All drill holes that have penetrated the northwestern (lower) contact between the Sokoman and Wishart Formations have encountered similar lithologies as described above, including unconsolidated clay and grit sections. Furthermore, blocky sections, zones of oxidation, and sections of unconsolidated clay and grit are found throughout the Sokoman Formation in drill holes around the entire property.

The question as to how such pre-Pleistocene deep weathering phenomena might remain undisturbed after the repeated continental-scale ice ages of the Pleistocene epoch is rationalized as follows:

- Sporadic effects of present-day deep weathering commonly persist to depths of 200 metres or more. Lake Superior Type iron formation is primarily silica and iron minerals, which is naturally resistant to physical erosion. The combination might result in widespread preservation of pre-glacial weathering phenomena.
- The Labrador Trough region is located near the center of the Labrador sector of the Wisconsinian Laurentide ice sheet. During deglaciation the Labrador sector retreated to one or more centres or ice divides in northern Quebec and Labrador. This combination of circumstances would indicate the Labrador-Quebec border region would have the thickest and longest standing Wisconsinian ice cap in eastern North America. However, since gravity is the driving force for glaciers it would stand to reason that a glacial centre from whence the ice flows radially outward would theoretically have little lateral movement, mainly vertical. While a natural glacial centre is not an exact location over time, in the regional context it might minimize the effects of glacial erosion.

Other western Labrador areas possibly affected by Tertiary-Cretaceous deep weathering include the “leached iron ores” reported by Rivers (1980) around Goethite Bay, Julienne Lake, and the area south and east of Carol Lake where Neale (1951) reports that secondary goethite and pyrolusite are common.

Pleistocene lithologic units in the region include extensive tills, glaciolacustrine and glaciofluvial deposits.

6.3. Regional Geology Wabush Lake Region

Several geological investigations have been conducted in the Wabush Lake region during the latter half of the 20th century. In the early 1950’s predecessor companies to the current mine operators IOC and Wabush Mines completed widespread reconnaissance geological mapping in the region (Neale, 1951, Boyko, 1953). In addition the GSC completed 1 inch = 4 miles scale regional mapping in the mid-1960’s (Farhig, 1967). In the 1980’s, the Newfoundland and Labrador, Department of Mines and Energy, Geological Survey Branch (“GSNL”) published a preliminary 1:50,000 scale geological map of the area (Rivers, 1980) followed by a coloured 1:100,000 scale map jointly produced by the Government of Newfoundland, Department of Mines and Energy and the Government of Canada in 1985 (Map85-28) (Figure 6-3).

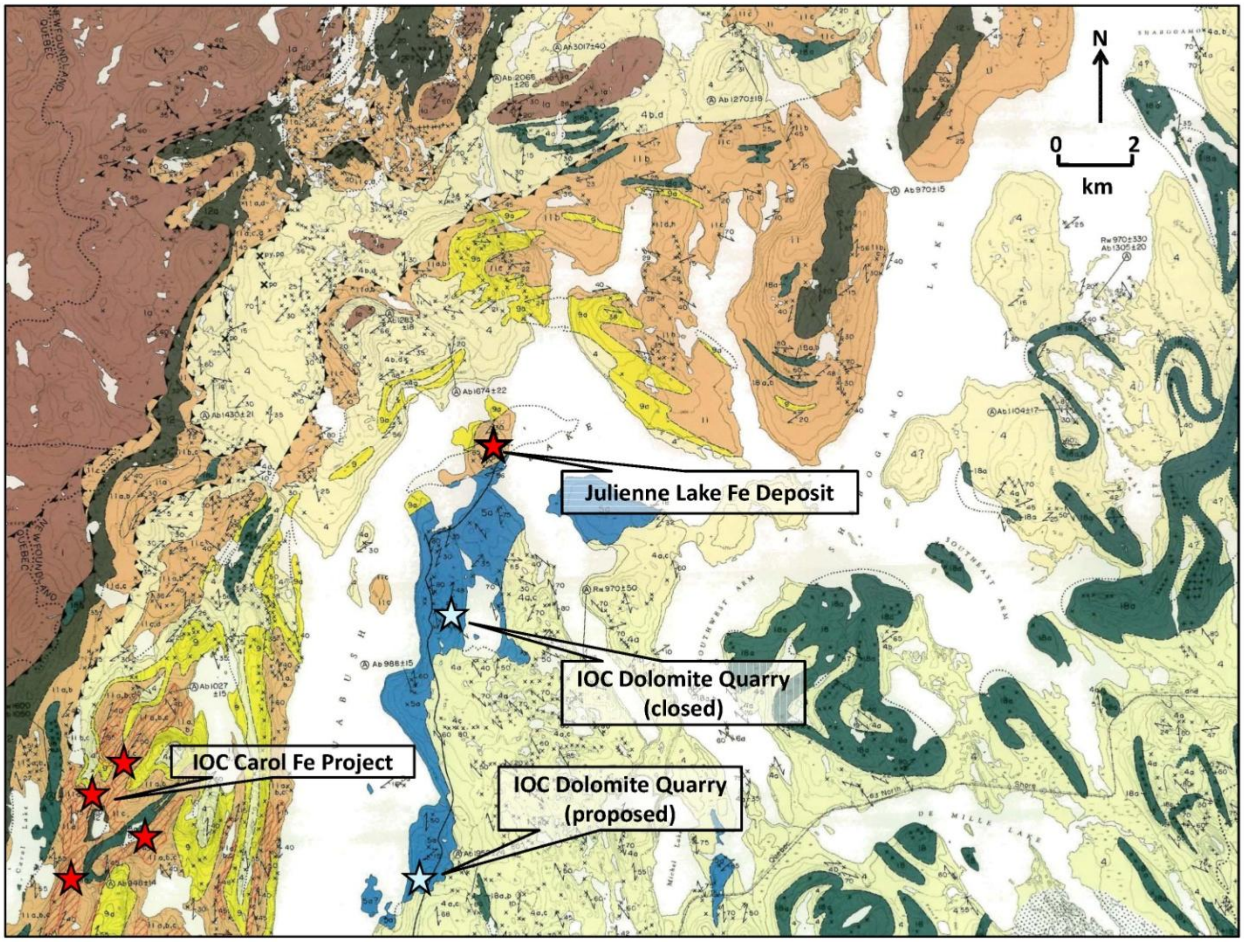


Figure 6-3: Wabush Lake Area Regional Geology (NL/Canada Map 85-28)

The oldest rocks in the region are Archean migmatites and gneisses known as the Ashuanapi Metamorphic Complex (Unit 1). Although re-deformed and re-metamorphosed during the subsequent Grenville Orogenic episode and located within the borders of the Grenville Province of the Canadian Shield, the Complex is part of the stratigraphic assemblage that comprises the extensive Superior/Ungava Craton. These units constitute the basement of the predominantly sedimentary lithologies of the Labrador Trough. Unit 1 outcrops in the northwest corner of the map area and is exposed as a series of elongate domes in the Knob Lake Group.

The Lower Proterozoic (Aphebian) platformal sedimentary and related rocks of the Labrador Trough are named the Knob Lake Group. Previously known as the Gagnon Group in the Grenville Province portion of the Labrador Trough, the Knob Lake Group was redefined to include the stratigraphic sections on both sides of the Grenville Front. Figure 6-4 provides a key to Figure 6-3 above as well as correlation between the previous and current terminology.

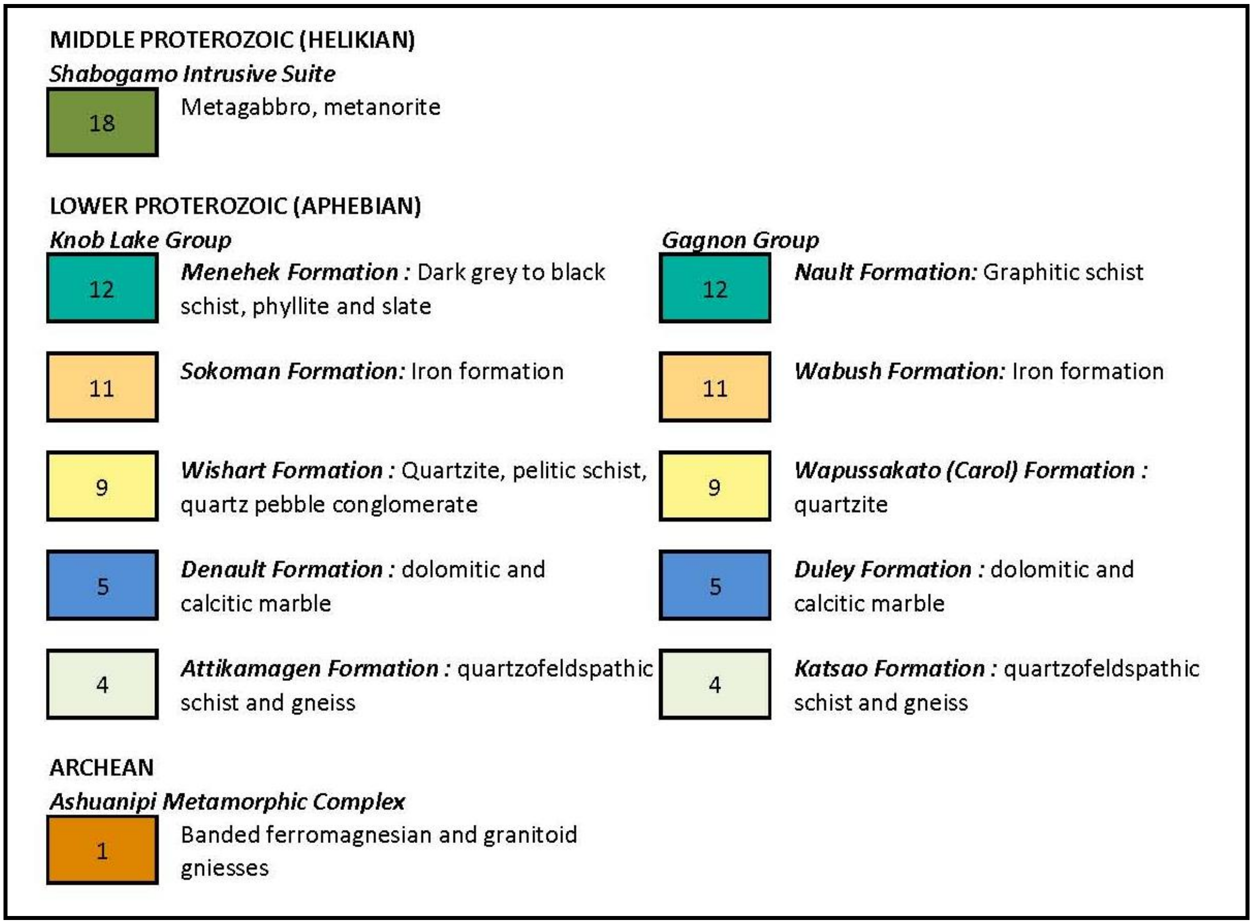


Figure 6-4: Key to Figure 6-3 and Knob Lake Group -Gagnon Group correlations.

Deposition of the Knob Lake Group, which records the Aphebian (2.5 to 1.75 Ga) stratigraphy of the Labrador Trough, probably began with deposition of fluvial red sands and gravels (Seward Formation) in a narrow elongate valley that was probably a continental rift valley. This was followed by shallow marine transgression, subsidence and deposition of shales (Attikamagen Formation), carbonates (Denault Formation), sands (Wishart Formation), and iron formation (Sokoman Formation) in a shallow marine environment. Following deposition of the Sokoman Formation the basin subsided resulting in the build-up of deep water turbidites of the Menehek Formation. The final stage of Labrador Trough development saw the extrusion of a great thickness of mafic pillow lavas (Doublet Group) on its eastern margin (Rivers and Wardle, 1978). In the Wabush area all stratigraphic units have been deformed and metamorphosed during the development of the Trough or Labrador-Quebec Fold Belt, then further deformed and metamorphosed during the Grenville Orogenic episode.

The basal section of the Knob Lake Group in the Wabush Lake area comprises widespread quartzofeldspathic schist and gneiss of the Attikamagen Formation which underlies most of the map area. An extensive tract of Denault Formation dolomitic and calcitic marble underlies the eastern shore of Wabush Lake and the southern shore of Julienne Lake, marking the upper limit of the Attikamagen Formation in that area. Quartzite of the Wishart Formation overlies the Attikamagen and Denault Formations along the western side of Wabush Lake, on the Julienne

Peninsula, and the north side of Julienne Lake. Where present the top of the Wishart Formation defines the footwall contact of the Sokoman Formation ironstones.

The Sokoman Formation conformably overlies the Wishart Formation on the west side of Wabush Lake and Julienne Peninsula, but elsewhere it sits on the Attikamagen Formation. The dominant lithological units are silicate-carbonate iron formation and oxide iron formation. Outcrops of iron formation around Goethite Bay, Julienne Lake and to a lesser extent on the Julienne Peninsula are excessively leached (Rivers, 1981).

The Menehek Formation, the youngest sequence of the Knob Lake Group in the Wabush Lake region, is composed of dark grey quartz-feldspar-biotite-graphitic schist with a well developed schistosity and distinctive graphite porphyroblasts.

Finally the assemblage is intruded by Middle Proterozoic (Helikian, 1.75 to 1.0 Ga) mafic intrusions of the Shabogamo Intrusive Suite. These occur as folded and contorted sill-like bodies in the Attikamagen Formation in the south-eastern part of the region.

6.4. Property Geology, Julienne Lake EML

Detailed geological mapping of the Julienne Peninsula was initiated in 1956 (Gastil, 1956) and continued intermittently between 1959 and 1962 (Knowles, 1960 & 1963a). The geological investigations of the Julienne Peninsula subsequently became the basis of a Ph.D. study by David Knowles (Knowles, 1967c). The early work was based primarily upon examinations of surface exposures and nine drill holes most of which did not penetrate the full thickness of the Sokoman Formation. The current exploration program which has added geological information from two surface trenches (combined total length of approximately 1,600 metres) and a drilling program totalling over 9,000 metres of NQ core drilling. The 2010 exploration program has resulted in major revisions to the geological picture.

The presence of white massive Wishart Formation quartzite is exposed and intersected in drill holes on both sides of the Sokoman Formation iron formation led to the historical conclusion that the iron formation of the Julienne Peninsula was an overturned refolded northeast-southwest trending isoclinal synclinal structure (Figures 6-5 and 6-6). The Sokoman Formation stratigraphic section was divided into three parts, the lower, middle and upper iron formations.

In the historical interpretation, the basal member of the Sokoman Formation, lower iron formation, is described as a limonitic and goethitic rock that is probably an altered silicate-carbonate member (map unit G). The siliceous goethite is non-magnetic and the magnetic contact follows the zone between this unit and the overlying oxide member (map unit F). The upper member of the lower iron formation is a quartz-specular hematite rock containing subordinate amounts of locally distributed granular hematite and orange brown coloured laminations containing the altered remains of a siliceous mineral that is usually found in association with specular hematite.

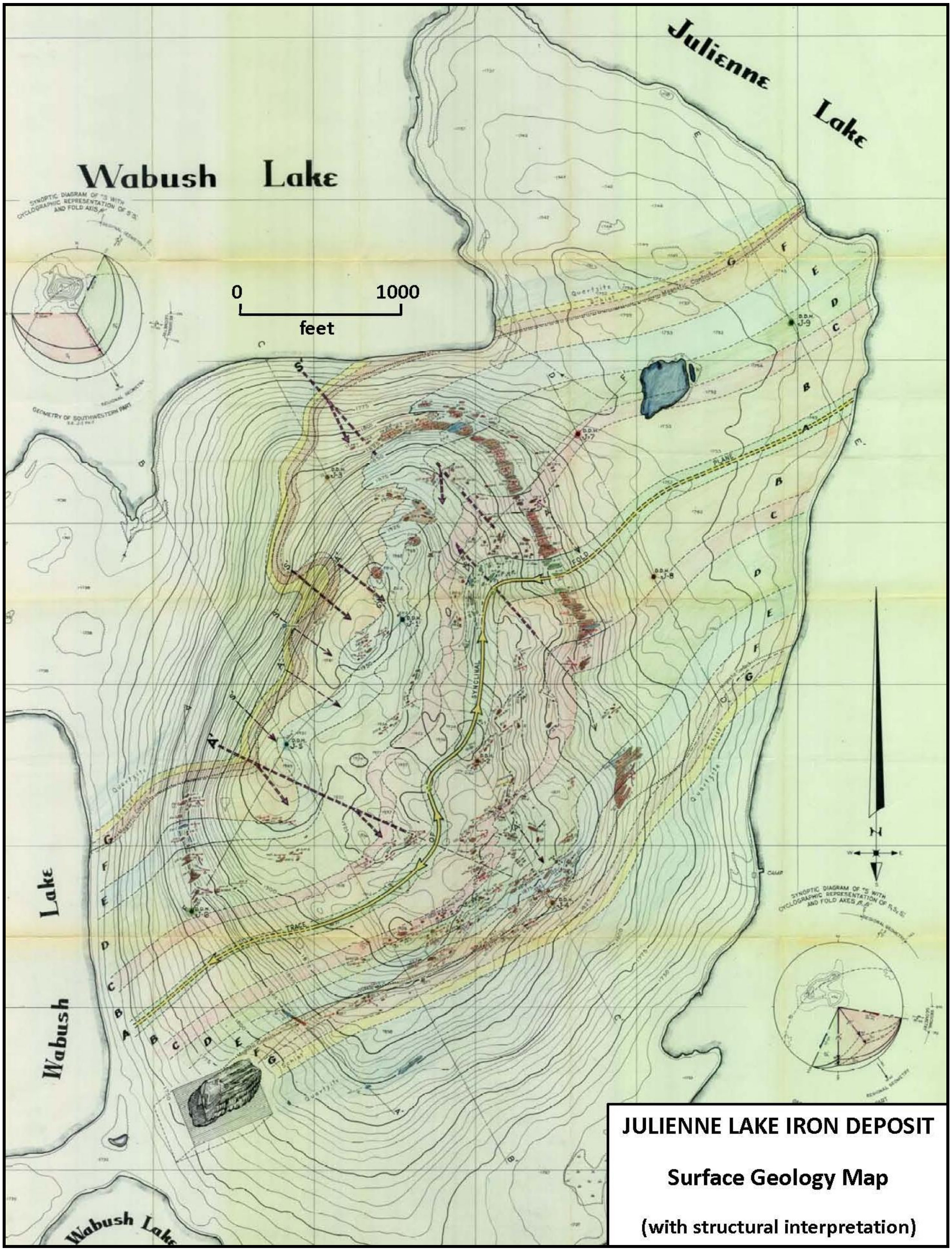


Figure 6-5: Julienne Surface Geology Map (modified original, Knowles, 1960)

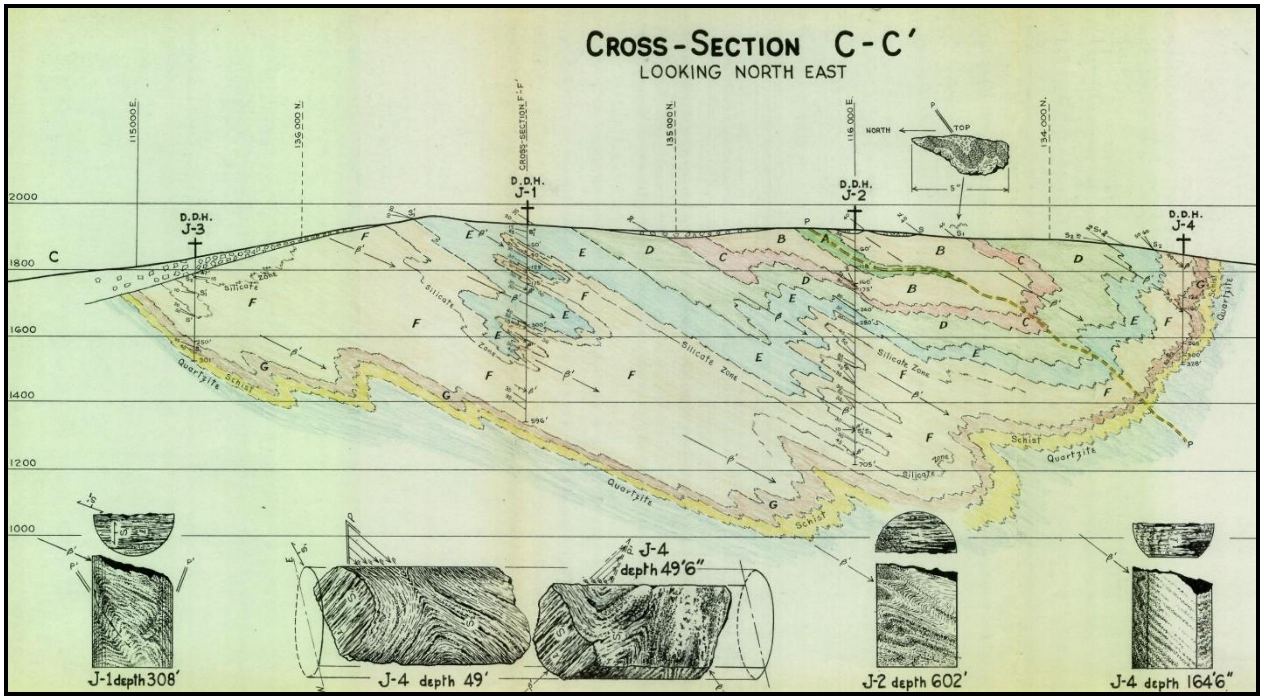


Figure 6-6: Typical Cross Section C-C', (modified original, Knowles, 1960).

The middle iron formation was defined by Knowles as arbitrarily including all members lying above the leached specular-silicate (map units H to B) up to the appearance of several lean bands called ferruginous quartzite (map unit A). The lower band is generally richer in specular hematite than other members of the middle unit. Specular hematite, granular hematite and thin semi-continuous bands of hard very fine grained blue hematite or black manganiferous hematite make up the numerous bands which form the other members in the middle iron formation.

The upper iron formation was described as containing several bands of lean quartzite usually associated with quartz-granular hematite bands (map unit A). Specular hematite is found in the upper member. The stratigraphic top of the iron formation is not known to be present.

The field work portion of the 2010 exploration program began with examinations of surface bedrock exposures including the historical trench T62-01. It was quickly apparent that most of the exposed lithological units were markedly similar in terms of mineralogy and that no clear marker beds were present. Also there was no clear evidence of the hinge area of the postulated major isoclinal fold in the historical trench. As the new trenches (T10-01 and T10-02) were completed and mapped no more evidence supporting the original folding scenario was obtained.

Also regarding the historical structural interpretation, the style of folding shown in the above sections does not conform to the basic geometry of either similar or concentric folds.

The 2010 drilling program has now established a clear understanding of the geometric structural distribution of the Sokoman Formation on the Julienne Peninsula, namely:

- The southwestern or lower contact is northeasterly striking gently to moderately southeasterly dipping conformable contact with the underlying Wishart Formation quartzite.
- The southeastern contact is a steep northeasterly trending fault that juxtaposes the Sokoman and Wishart formations.

The general distribution of the Sokoman Formation on the Julienne Peninsula is shown in plan view in Figure 6-7 and in a series of cross sections (Figures 6-8, 6-9 and 6-10). The plan map and sections are also presented at a scale of 1:2,000 in Volume 2, Maps and Drawings.

The Sokoman Formation on the Julienne Peninsula has a complex tectono-metamorphic history that includes the folding and metamorphism of the Labrador Trough (the Hudsonian orogeny, ~1,800 Ma), along with the folding and metamorphism of the Grenville Province (the Grenvillian orogeny, ~1,000 Ma). The overall result is structural complexity or an interference pattern caused by the interaction of deformation effects, and overprinting of metamorphic features.

Mineralogically the sedimentary units of the Sokoman Formation are relatively simple, consisting primarily of quartz and iron-bearing minerals including hematite (Fe_2O_3) or specularite in its coarse-grained form, with lesser magnetite (Fe_3O_4). Small amounts of iron are also present in silicates such as amphiboles (grunerite) and in carbonates such as ankerite ($Ca[Fe,Mg,Mn][CO_3]_2$). Typically the iron formation on the Julienne Peninsula may be described as quartz-specular hematite or quartz-specularite schists that contain approximately 50% silica and 50% iron minerals by volume. The metamorphosed silica is predominantly medium to coarse grained granular in crystalline habit. The main iron oxide minerals are coarse grained platy specular hematite, medium grained dull granular hematite, fine grained earthy hematite-limonite.

The following post-metamorphic primary iron formation lithological units are present on the Julienne Lake property:

- Banded semi-massive specularite-quartz schist (BS),
- Quartz-specularite schist (QS),
- Quartz-specularite-granular hematite schist (QSH),
- Quartz-granular hematite schist (QH),
- Ferruginous whitish quartzite or lean iron formation (FWQ)
- Very fine grained, chert, blue hematite,
- Quartz-specularite-leached silicates,
- Very coarse quartz-specularite veins, localized, no mapable units,
- Interbanded sections comprising two or more of above units, and
- Manganiferous sections of quartz-iron units, at least in part remobilized,

Secondary leaching or deep weathering products are sporadically common throughout the Julienne Peninsula even at substantial depths. These may be associated with certain stratigraphic horizons, with geological contacts, or with brittle structural features such as faults, shear zones or even jointing/fracturing.

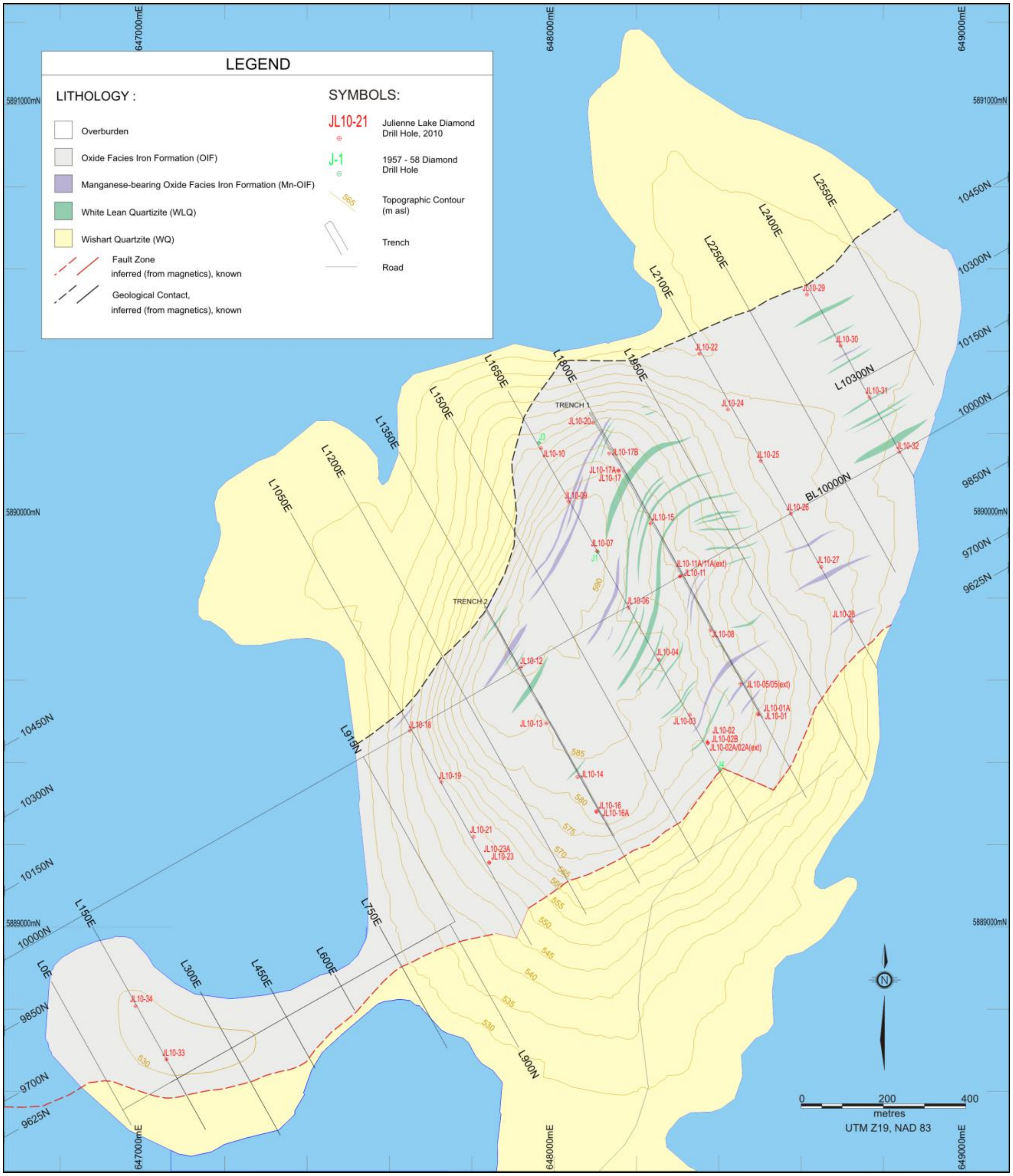


Figure 6-7: Surface Plan Map showing main iron formation contacts.

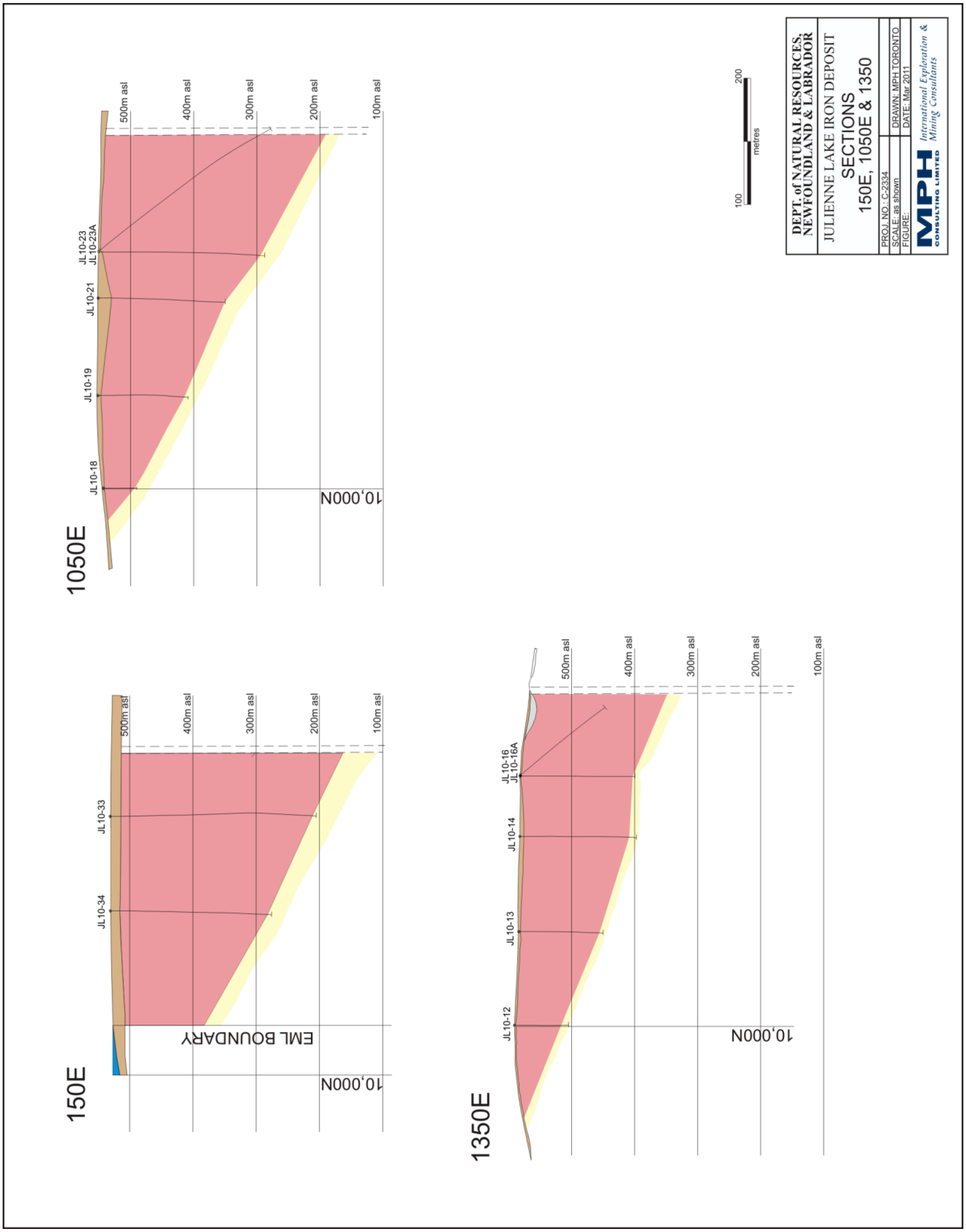


Figure 6-8: Cross Sections, 150E, 1050E and 11350E

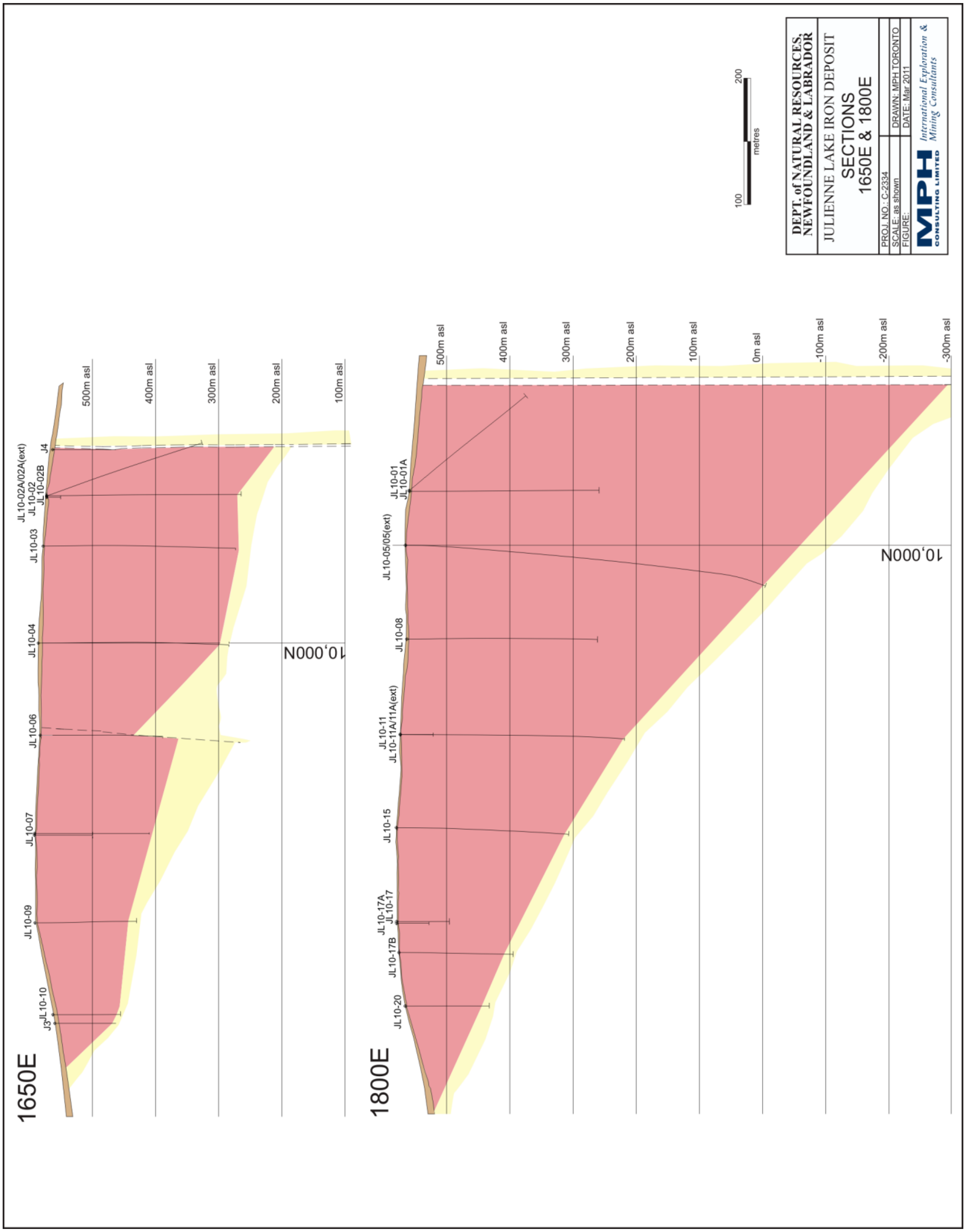


Figure 6-9: Cross Sections, 1650E and 1800E

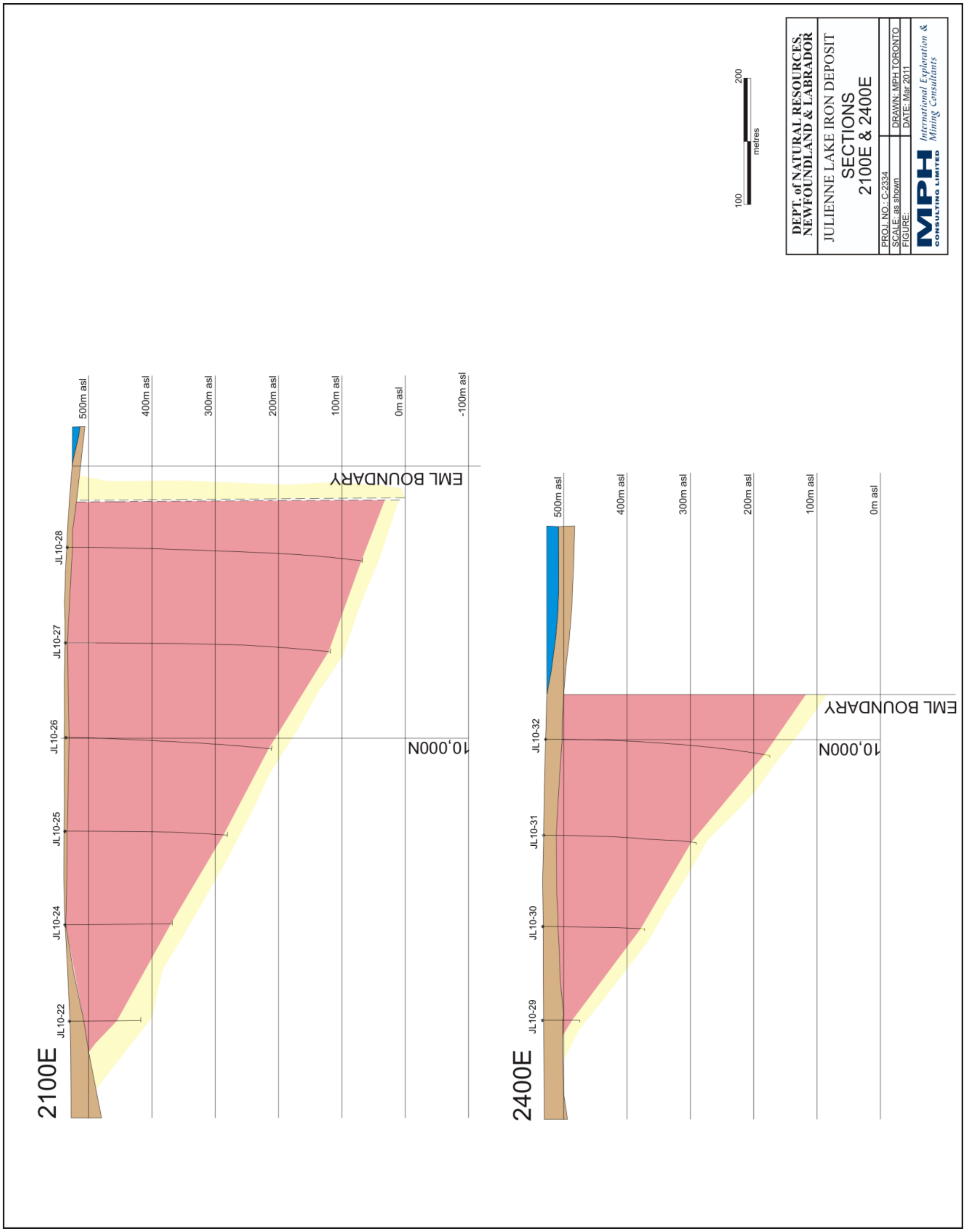


Figure 6-10: Cross Sections 2100E and 2400E

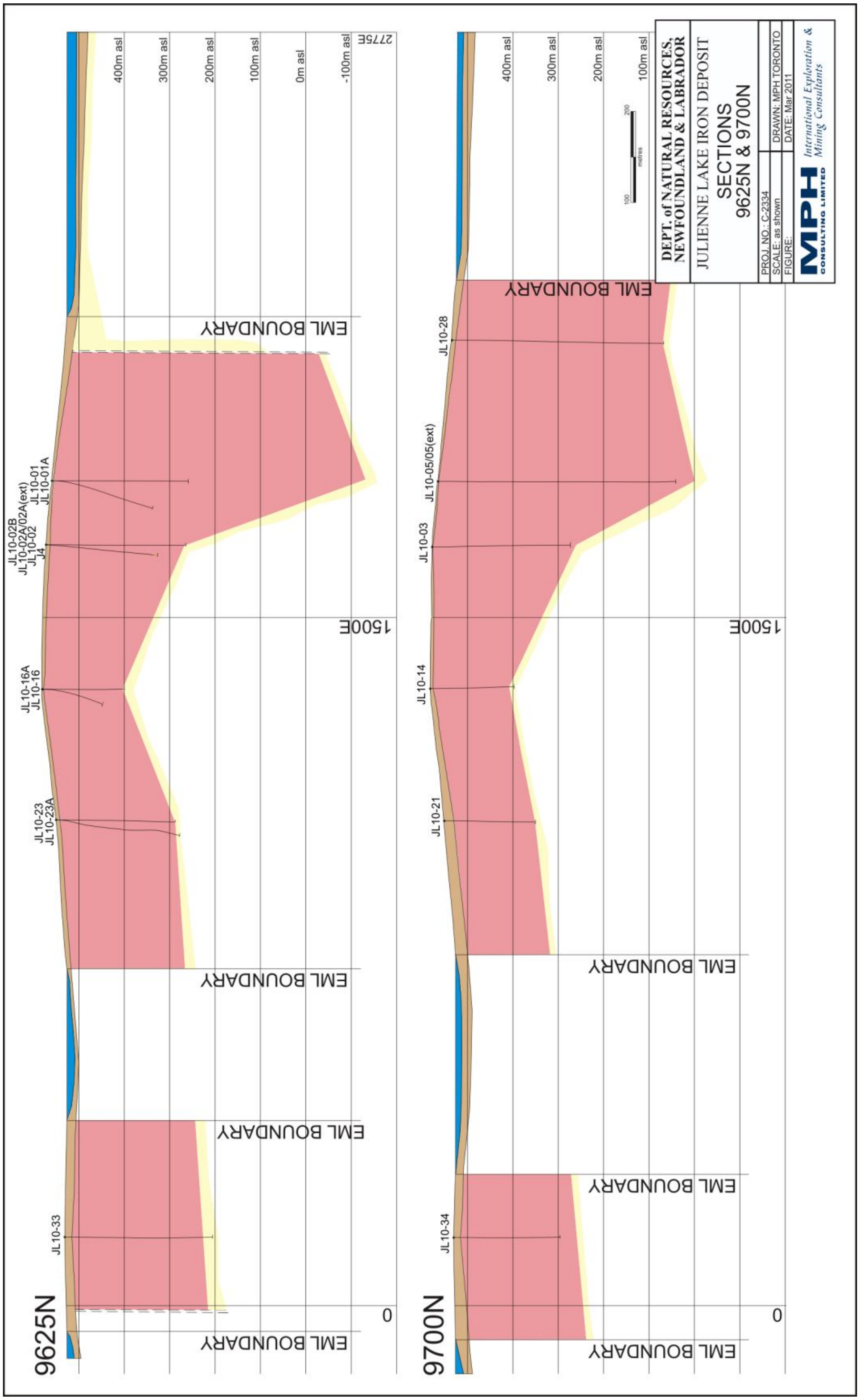


Figure 6-11: Longitudinal Sections 9625N and 9700N

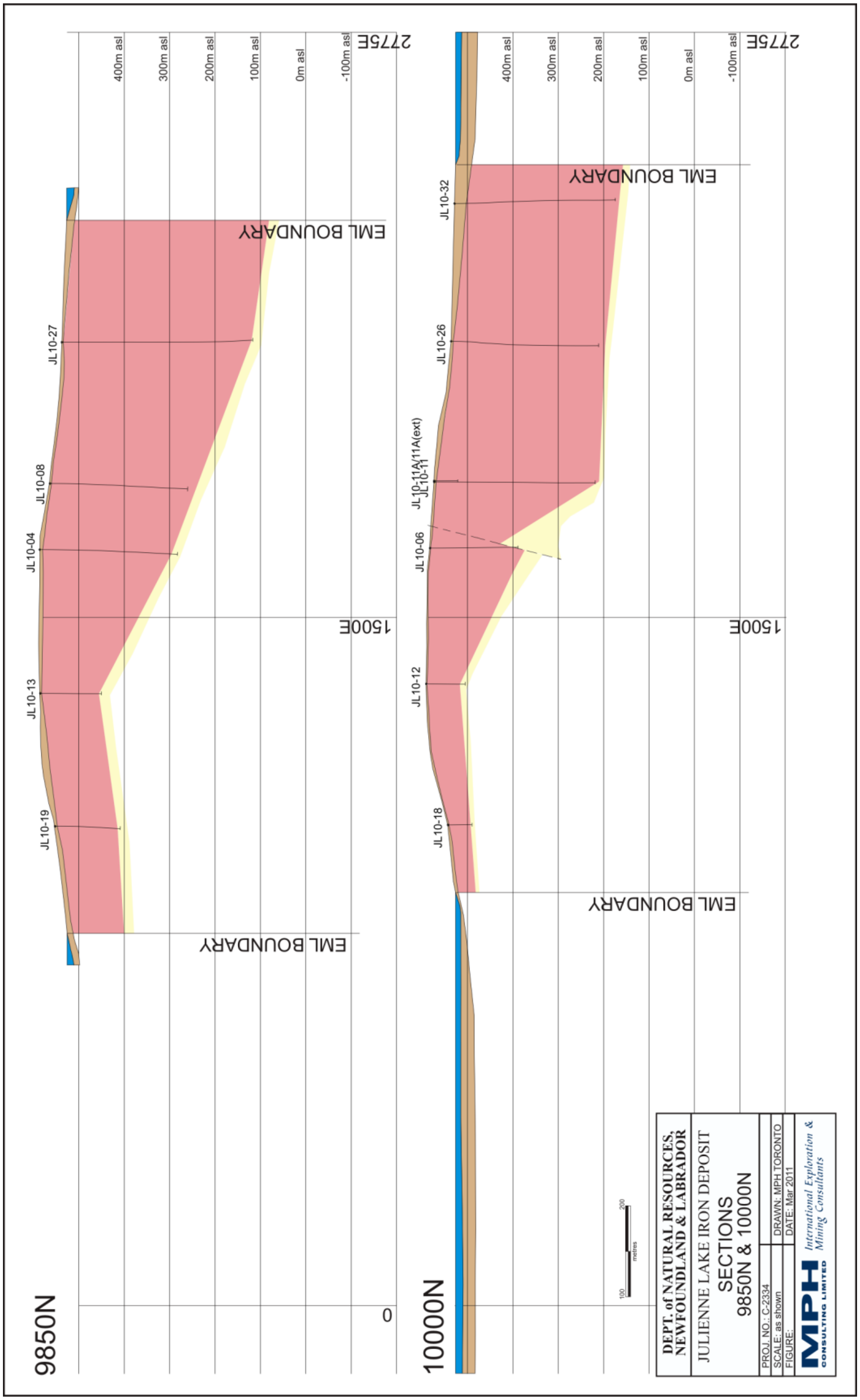


Figure 6-12: Longitudinal Sections 99850N and 10000N

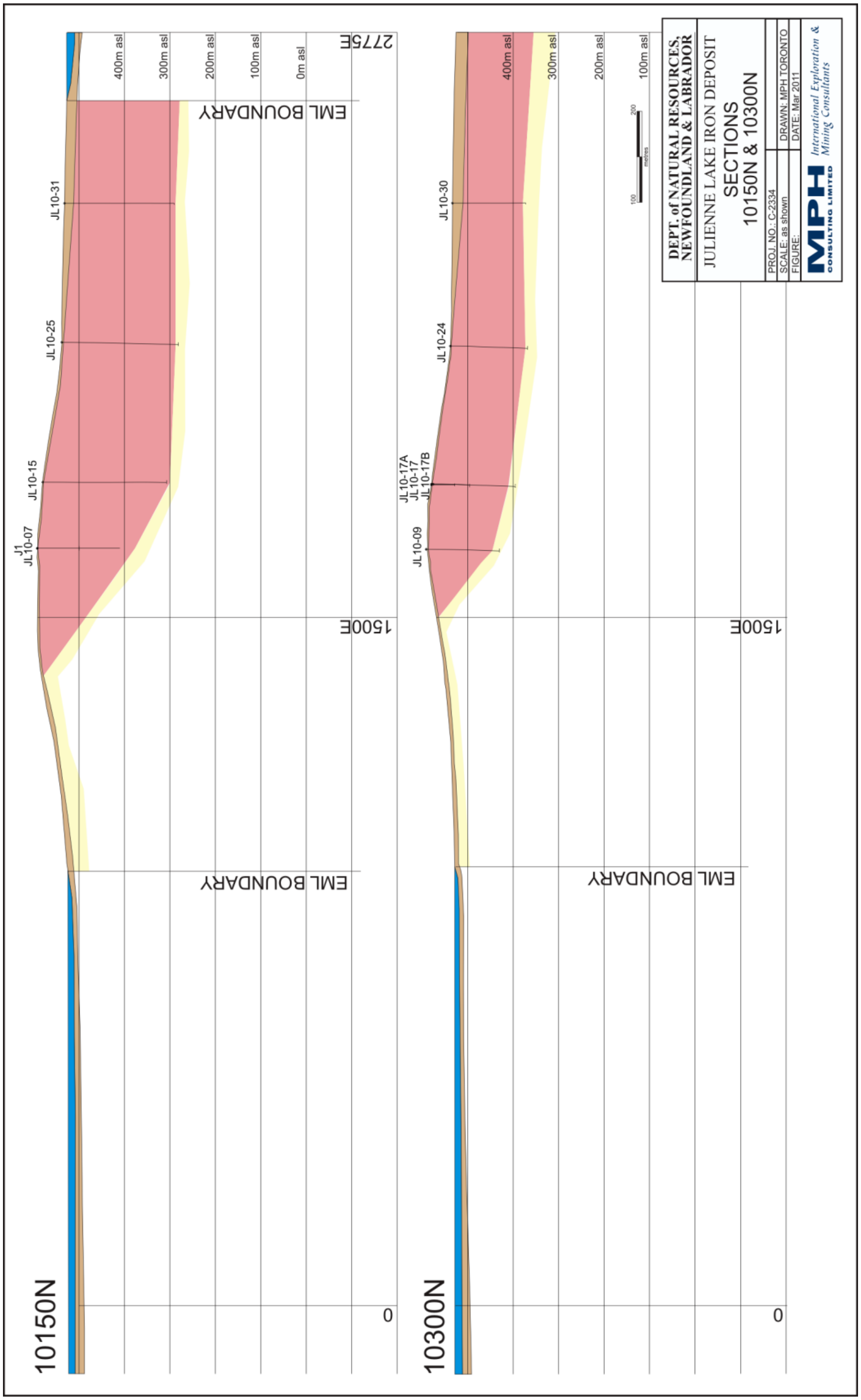


Figure 6-13: Longitudinal Sections 10150N and 10300N

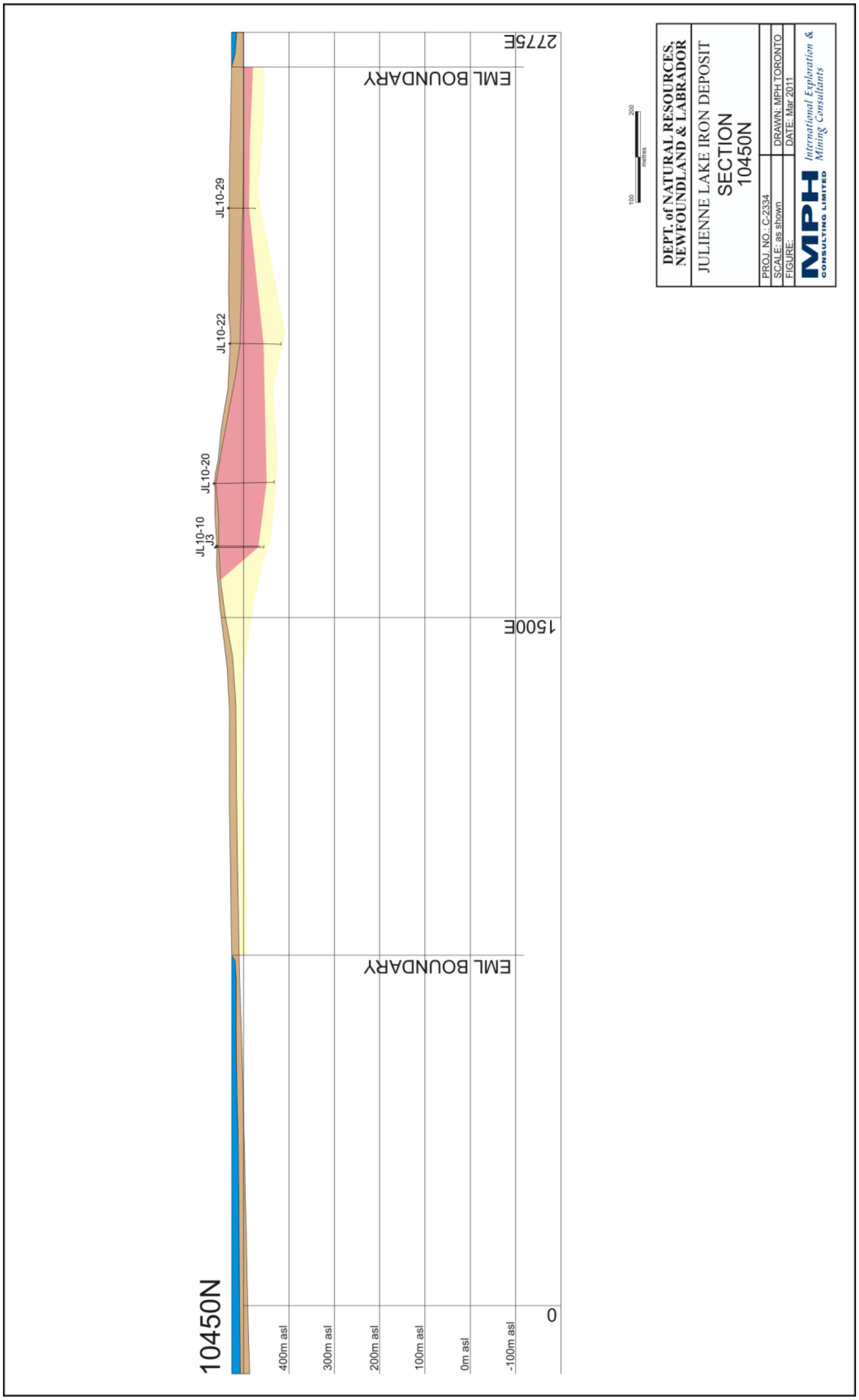


Figure 6-14: Longitudinal Section 10450N

The definition of marker horizons in the iron formation is of particular importance in terms of understanding the distribution of individual geological units that potentially may be either commercially significant or waste material. So far there are no known distinct internal marker horizons, comparable to the Middle Quartzite at the Scully Mine, Wabush, that are traceable throughout the Julienne Peninsula. The Basal Silicates (leached) member of the Sokoman Formation is in evidence throughout the property in the majority of drill holes completed to date.

It is likely that certain iron-bearing geological units will be of limited commercial significance. For example, units with significant primary iron silicates (grunerite) and carbonates such as ankerite ($Ca[Fe,Mg,Mn][CO_3]_2$) are of little interest because those minerals are not recovered as saleable concentrates by the standard beneficiation process. Furthermore, weathering/leaching products such as goethite ($FeO[OH]$), cannot be tolerated in the concentrate.

7.0 DEPOSIT TYPES

The mineral deposits of the Labrador City/Wabush area belong to the broad class of iron deposits known as Lake Superior-type iron formation ("LSTIF"), although in this particular area, post consolidation tectono-metamorphic events would make the term meta-LSTIF more appropriate.

Extensive LSTIF ranges occur on all continents, in parts of relatively stable sedimentary-tectonic systems developed along the margins of cratons or epicontinental platforms between 2.4 Ga and 1.9 Ga (Gross, 2009). Most thicker iron formations were deposited in shallow basins on continental shelves and platforms in neritic environments, interbedded with mature dolostone, quartz arenite, black shale and argillite. Iron formations of the same ages are also associated with volcanic rocks, dykes and sills, in deeper parts of these basins closer to the active rifts and volcanic centres. Transitions from shallow to deeper water sedimentary environments are also preserved in most of the LSTIF ranges. Transitions are marked by the change from predominantly granular and oolitic textures of the near shore and shallow platform to the prevalence of micro- to thin-bedded lithofacies in deeper water environments further offshore.

The principal type area for LSTIF is the Animikie basin or the iron ranges around Lake Superior and Lake Michigan (Gross, *op cit*). The linear basins around the edge of the Superior-Ungava craton represent one of the earth's greatest known accumulations of iron and manganese bearing sediments. Other major examples include the Krivoy Rog and Kursk iron ranges in Ukraine and Russia, and the Orissa and Bihar ranges in India. In the southern hemisphere major iron ranges are known in Australia, southern Africa, Brazil and Antarctica.

7.1. Lake Superior-type Iron Formation Descriptive Model

The following model description is quoted or summarized from USGS Bulletin 1693, entitled "Mineral Deposit Models" (Cox and Singer., Editors, 1992), "Model 34a, Descriptive Model of Superior Fe" by William F. Cannon.

DESCRIPTION
Banded iron-rich sedimentary rock, generally of great lateral extent, typically layered on centimetre scale with siliceous (chert) beds interlayered with iron-rich beds.

GEOLOGICAL ENVIRONMENT
Rock Types: Commonly interlayered with quartzite, shale, dolomite.

Textures: Iron-formations and host rocks commonly contain sedimentary textures typical of shallow water deposition in tectonically stable regions.

Temporal Range: Mostly Early Proterozoic (2.0±0.2 Ga.). Less commonly Middle and Late Proterozoic.

Depositional Environment: Stable, shallow-water marine environment, commonly on stable continental shelf or intracratonic basin.

Tectonic Setting(s): Now commonly preserved in forelands of Proterozoic erogenic belts.

Associated Deposit Types: Sedimentary manganese deposits may occur stratigraphically near or be interbedded with iron-formations..

DEPOSIT DESCRIPTION
Mineralogy: Hematite, magnetite, siderite, fine-grained quartz.

Texture/Structure: Nearly always banded at centimetre scale; very fine grained where not metamorphosed

Alteration: None related to ore deposition. Commonly metamorphosed to varying degrees or weathered and enriched by supergene processes.

Ore Controls: No primary controls of local importance. Supergene ores may be localized by irregularities in present or paleo erosion surface.

Weathering: Alteration of original iron mineral to Fe-hydroxides and hematite. Silica partly to totally leached. End product of weathering is high-grade supergene ore.

Geophysical Signature: Magnetic anomalies.

8.0 MINERALIZATION

The Julienne Lake iron deposit extends across the full width of the Julienne Peninsula which also defines the EML boundary. The land portion of the deposit has an approximate strike length of some 2 kilometres and outcrop widths varying from about 550 metres to 1 kilometre. In cross section the deposit is a fault-truncated basin or synclinal structure, the Julienne basin. The maximum vertical thickness of the deposit is at least 575 metres. The deposit is interpreted, on the basis of magnetometer surveying and one historical drill hole, to continue south-westward under Wabush Lake and north-eastward under Julienne Lake. The estimated total strike length of iron formation in the Julienne basin is approximately 4.7 kilometres.

The principal mineralization is in the middle iron formation of the Sokoman Formation.

Knowles (1966) describes the mineralization as follows. The metamorphosed iron formation in the Julienne deposit is essentially "a mixture of crystalline quartz, specular hematite and magnetite, with subordinate and sometimes localized amounts of carbonate, anthophyllite, grunerite and fine-grained hematite-manganiferous veins. Post metamorphic leaching removed the carbonate and anthophyllite. Oxidation converted magnetite to martite, spread a certain amount of red hematite and limonite within the deposit and converted the grunerite schist to siliceous goethite."

"The iron oxides occur in three forms:

- Coarse grained, platy and bright specular hematite,
- Medium grained, dull granular hematite-martite, and
- Fine grained, earthy hematite-limonite or crystalline goethite-hematite."

The average content of iron and potentially deleterious elements and oxides is tabulated from various historical sources in Table 8-1. In MPH's opinion this cannot be considered as definitive.

Table 8-1: Historical Iron and Deleterious Element Empirical Averages

	*1	*2	*3	*4	*5	*6	*7
Fe	37.97%	36.75%	35.71%	33.39%	34.20%	35.14%	36.33%
Mn	0.177%	0.09%	0.32%	0.12%	0.32%		0.34%
SiO_2		46.16%		49.76%	54.40%		
P	0.012%	0.009%	0.007%	0.020%	<0.05%		0.014%
S	0.004%		0.0035%	0.005%	<0.05%		0.005%
TiO_2		Tr			<0.05%		0.046%
Al_2O_3				0.19%			0.198%
CaO				0.005%			0.026%
MgO				0.015%			0.028%

Sources: *1-Gastil, 1956, *2-1960 Bulk Sample, *3- 1962 Trench, *4-1963 Bulk Sample, *5-1960 Resource Estimate, *6-1957-8 Drilling, *7-Knowles,1967, all sample average.

Analytical results from the 2010 drilling program are summarized in Table 8-2.

Table 8-2: 2010 Diamond Drilling Intersections Analytical Results Summary

Hole	From M	To M	Length m	SiO_2 %	Fe (T) %	Mn %	TiO_2 %	P %	Al_2O_3 %	CaO %	MgO %
JL10-01	3.35	300.00	296.55	51.32	32.16	0.963	0.022	0.011	0.147	0.015	0.010
JL10-01A	3.50	272.20	268.70	51.20	33.46	0.064	0.016	0.010	0.066	0.017	0.011
JL10-02	4.03	23.00	18.97	32.48	45.86	0.139	0.020	0.010	0.167	0.010	0.010
JL10-02A	0.00	268.50	268.50	53.98	30.94	0.046	0.028	0.010	0.290	0.011	0.015
JL10-02B	0.00	230.00	230.00	53.00	30.61	0.040	0.150	0.013	1.273	0.011	0.020
JL10-03	0.00	292.00	292.00	53.21	31.79	0.045	0.024	0.007	0.278	0.012	0.015
JL10-04	6.50	240.50	234.00	54.65	32.94	0.058	0.030	0.010	0.281	0.010	0.010
JL10-05	1.00	299.00	298.00	50.95	33.16	0.191	0.026	0.011	0.217	0.016	0.013
JL10-05 Ext	299.00	569.60	272.60	47.32	35.63	0.095	0.021	0.007	0.209	0.015	0.058
JL10-06	1.25	168.00	166.75	50.85	31.86	1.298	0.039	0.011	0.391	0.012	0.013
JL10-07	1.15	92.30	91.15	44.64	35.31	2.149	0.027	0.019	0.267	0.011	0.045
JL10-08	3.30	302.00	298.70	49.08	33.97	0.445	0.029	0.013	0.261	0.012	0.010
JL10-09	3.70	149.00	145.30	46.61	35.81	0.118	0.036	0.016	0.469	0.011	0.011
JL10-10	7.50	101.00	93.50	52.57	32.05	0.040	0.050	0.013	0.451	0.011	0.010
JL10-11	-	-	-	-	-	-	-	-	-	-	-
JL10-11A	4.70	300.00	295.30	47.33	35.58	0.062	0.025	0.011	0.287	0.011	0.010
J10-11AExt	300.00	351.20	51.20	41.75	39.57	0.094	0.024	0.015	0.188	0.021	0.084
JL10-12	0.50	74.00	73.50	51.53	32.48	0.097	0.026	0.010	0.350	0.010	0.010
JL10-13	2.60	122.00	119.40	44.85	36.48	0.071	0.107	0.015	0.885	0.017	0.031
JL10-14	6.50	159.00	152.50	47.88	35.25	0.074	0.027	0.011	0.315	0.010	0.010
JL10-15	1.70	263.00	261.30	48.71	33.92	0.908	0.028	0.018	0.299	0.014	0.018
JL10-16	0.25	168.50	168.25	49.47	33.91	0.103	0.029	0.038	0.251	0.010	0.010
JL10-16A	1.20	176.00	174.80	49.67	33.37	0.187	0.076	0.015	0.526	0.019	0.032
JL10-17	1.00	83.80	82.80	50.24	33.36	0.010	0.017	0.014	0.126	0.028	0.010
JL10-17B	0.50	163.70	163.20	45.47	35.71	1.234	0.019	0.024	0.142	0.014	0.010
JL10-18	1.60	46.80	45.20	42.63	38.04	0.132	0.040	0.012	0.630	0.011	0.010
Jl10-19	4.60	131.60	127.00	41.55	39.36	0.061	0.054	0.014	0.507	0.023	0.061
JL10-20	2.00	100.80	98.80	51.08	32.73	0.102	0.026	0.022	0.391	0.016	0.030
JL10-21	21.00	200.30	179.30	45.77	36.94	0.094	0.033	0.009	0.286	0.019	0.019
JL10-22	22.70	75.20	52.50	48.25	35.39	0.041	0.043	0.012	0.432	0.032	0.014
JL10-23	5.30	256.20	250.90	47.73	35.35	0.083	0.035	0.010	0.426	0.028	0.028
JL10-23A	3.60	323.00	319.40	48.08	35.31	0.096	0.023	0.008	0.342	0.023	0.022
JL10-24	1.50	161.70	160.20	49.61	33.97	0.064	0.023	0.010	0.267	0.024	0.099
JL10-25	3.80	197.10	193.30	48.49	34.66	0.091	0.020	0.009	0.224	0.018	0.093
JL10-26	5.00	280.33	275.33	50.00	33.58	0.127	0.030	0.015	0.338	0.017	0.074
JL10-27	3.10	409.80	406.70	51.63	31.93	0.224	0.047	0.015	0.509	0.024	0.283
JL10-28	8.20	461.40	453.20	48.76	34.15	0.281	0.042	0.011	0.546	0.017	0.082
JL10-29	32.00	44.50	12.50	51.02	33.42	0.021	0.014	0.005	0.098	0.017	0.068
JL10-30	23.40	151.80	128.40	51.26	32.59	0.078	0.204	0.009	0.216	0.014	0.070
JL10-31	20.00	221.50	201.50	49.72	33.72	0.354	0.025	0.011	0.282	0.022	0.048
JL10-32	26.00	336.00	310.00	51.22	32.33	0.064	0.042	0.014	0.257	0.029	0.088
JL10-33	17.00	308.30	291.30	48.96	34.59	0.073	0.024	0.007	0.259	0.019	0.058
JL10-34	15.00	234.00	219.00	47.71	34.96	0.071	0.044	0.007	0.533	0.016	0.045
Average			**8241.5**	**49.48**	**33.91**	**0.249**	**0.038**	**0.012**	**0.354**	**0.017**	**0.047**

The analytical results are discussed below:

- **Silica**: Average silica content of drilling samples is very much as expected from visual estimates of quartz during core logging. The average of all silica analyses weighted by core length in the middle and/or upper members of the Sokoman Formation is 49.48% SiO_2.
- **Total Iron**: The core length weighted average of all iron analyses in the middle and/or upper members of the Sokoman Formation is 33.91% Fe (T) within the range of 15.42% Fe (lean ferruginous quartzite) and 65.77% Fe (massive specularite).
- **Manganese**: Manganese distribution is generally sporadic with localized strongly elevated values in the range of a few percent to over 20% Mn associated with pyrolusite (MnO_2) occurring as disseminations and veinlets in iron formation. The weighted average of all manganese analyses in the middle and/or upper members of the Sokoman Formation is 0.249% Mn.
- **Titania**: The weighted average of all titania analyses in the middle and/or upper members of the Sokoman Formation is 0.038% TiO_2. A few elevated values in the 0.25% to 3.0% range are primarily associated with faults or shearing.
- **Phosphorous**: The weighted average of all phosphorous analyses in the middle and/or upper members of the Sokoman Formation is 0.012% P. It is noted that about 10-15% of analyses were below the detection limit of 0.005% P. A very conservative value of 0.005% P was assigned to these analyses for averaging purposes.
- **Alumina**: The weighted average of all alumina analyses in the middle and/or upper members of the Sokoman Formation is 0.354% Al_2O_3.
- **Calcium and Magnesium**: The great majority of analyses for CaO and MgO were below the 0.01% detection limit. A very conservative value of 0.01% CaO or MgO was assigned to these analyses for averaging purposes. The weighted averages of 0.017% CaO and 0.047% MgO likely overstate the actual contents.
- **Sulphur**: No sulphide minerals were noted during core logging operations. Sulphur was therefore analysed on a selective rather than routine basis. Sulphur analyses from historical and current core samples and process testwork samples are uniformly low in the range of 0.009 to 0.016%.

9.0 EXPLORATION

Exploration which led to the discovery of the Julienne Lake iron deposit was completed intermittently between 1953 and 1966. This work included reconnaissance and detailed geological mapping and prospecting, ground magnetometer traverses, surface trenching, test pitting and diamond drilling. The various historic exploration work programs have been outlined in Section 5-2 above and are summarized below (Section 9-1). The results of the current exploration work are described in Section 9-2.

9.1. Historical Exploration Work Nalco/Canadian Javelin (1953-1966)

The surface geological mapping of the property appears to be very thorough, with great attention to lithological and structural detail in the field, augmented by office mineralogical, petrographic, structural, etc. studies. The work of Nalco/Javelin geologists (W. Boyko, G. Gastil, D. Knowles, J. Soles, W. McPherson and W. Blakeman) and government geologists (A. Low, G. Gross & L. Farhig, GSC, and T. Rivers & R. Wardle, GSNL), undoubtedly assisted in developing the current understanding of both local and regional geology that is summarized in Sections 6 to 8 above.

The historic magnetic traverses were conducted utilizing a Sharpe D-1-M magnetometer which was state-of-the-art in the 1950's. Although crude by modern standards this survey adequately defines the deposit boundaries. As a quick check of the general exploration potential outside of the EML, MPH compared the deposit extensions projected by Javelin (see Figure 5-2 above) with modern GSC magnetic data (Figures 9-1 and 9-2). The GSC and Javelin data show essentially the same results, but due to the fact that the GSC flight lines are oriented at a low angle to the local Julienne deposit strike, the historic data is actually more definitive.

Magnetic data for the Julienne Iron Deposit area was extracted by MPH from the Geological Survey of Canada (NRCan) country-wide aeromagnetic database. These data consist of 800m (1/2 mile) spaced WSW-ENE oriented lines, with ~100m to ~665m data point spacings along the flight-lines, gridded using 200m cells in Geosoft. The Total Magnetic Intensity and First Vertical Derivative of the Earth's magnetic field was presented as shaded colour images and overlain with topographic contours.

The Julienne Lake Iron Deposit is coincident with an elongated oval NE-SW trending ~600nT magnetic high. This is roughly parallel with the strike of the Grenville Front. Two peaks are observed within the oval, which are coincident with the two hills indicated in the topographic contours. This is interpreted as a topographic effect, with the outcropping rock being closer to the aircraft magnetic sensor. The lower amplitude ENE and WSW arms of the anomaly are more removed from the magnetic sensor, as they lie under the lake and possible lake-bottom sediments. The strike length of the entire oval is ~4.7km, indicating the potential for the deposit to extend to the ENE and WSW, off the property and away from the known deposit, under the lake.

Although the line orientation, line spacing and along-line data-point spacing is inadequate to resolve the local geology in detail, these data are presented as an initial discussion of the geophysics of the deposit. It is recommended that a search be done for more detailed historical geophysical data, or that a modern small (~100 line-km) magnetic survey be flown with a more appropriate line direction and spacing to resolve the iron formation, particularly in the submerged sections.

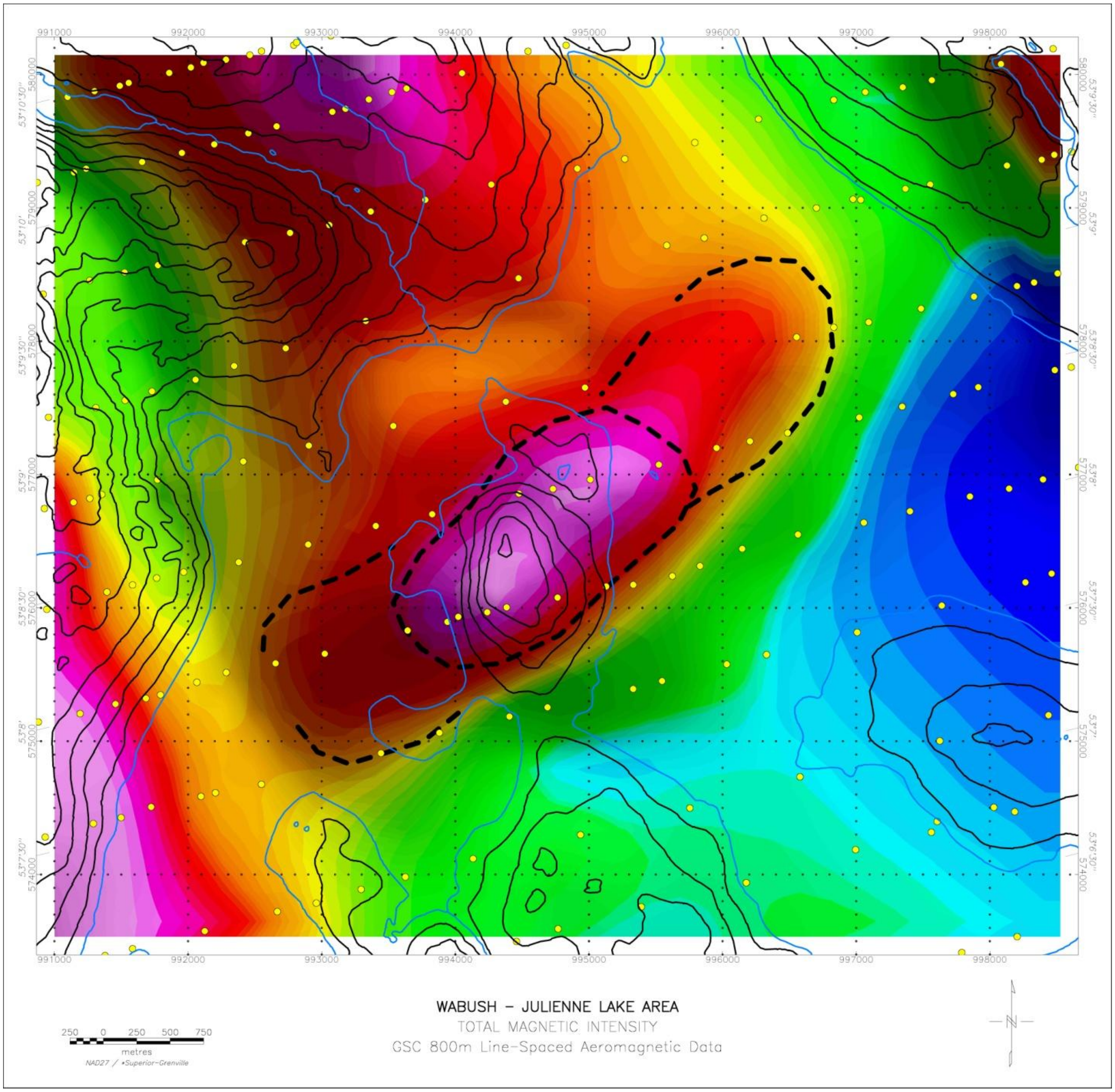


Figure 9-1: GSC Magnetics (Total Magnetic Intensity)

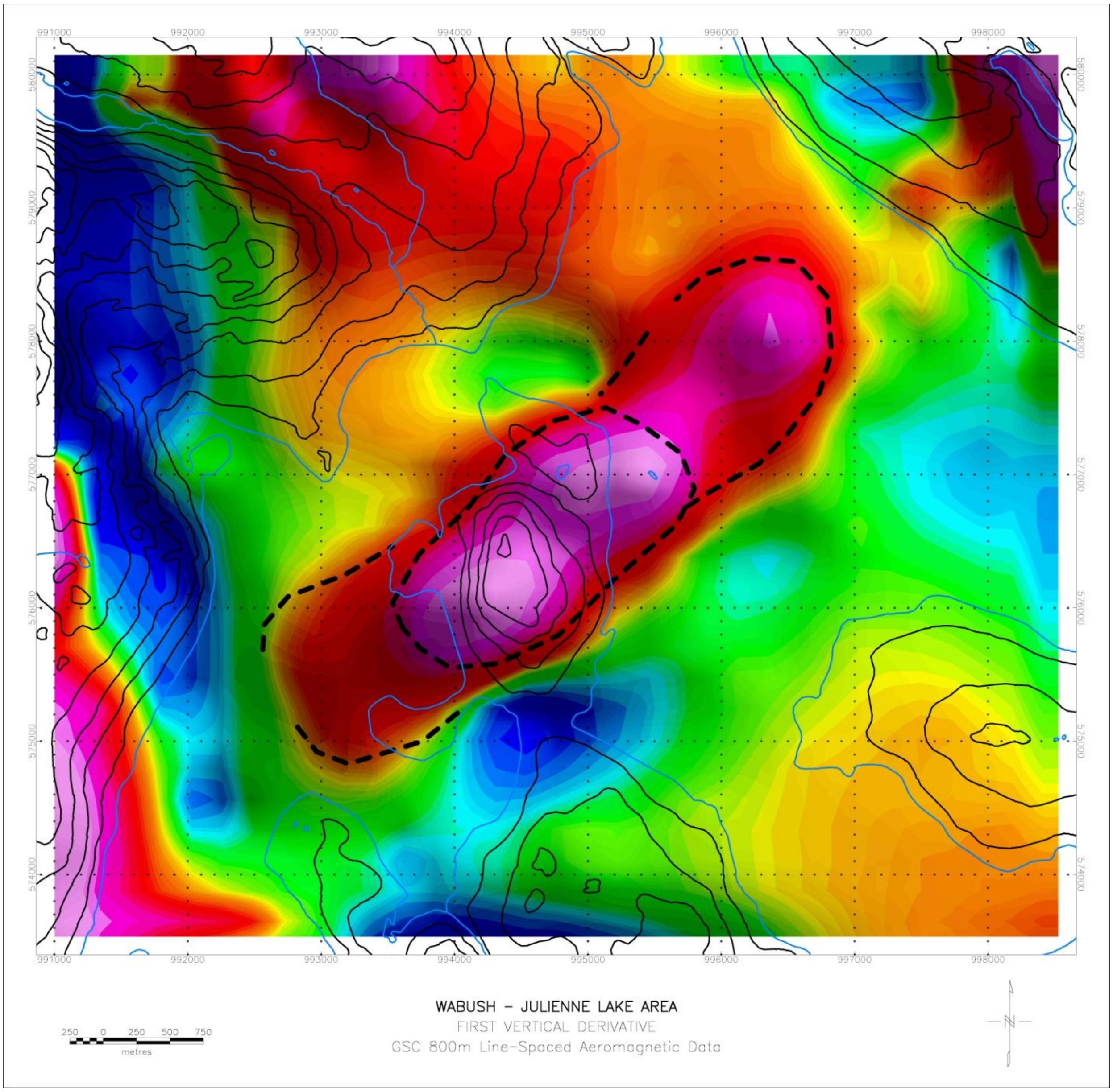


Figure 9-2: GSC Magnetics (First Vertical Derivative)

9.2. 2010 Exploration Program

Line cutting and Surveying

Katrine Exploration and Development Inc. of Larder Lake, Ontario were contracted to refurbish approximately 23.5 kilometres of 1950's vintage cut lines on the Julienne Lake EML. The grid was re-established using the existing grid fabric with the aid of a transit and level as required. Metal tags and orange fluorescent paint were applied to each 25m picketed station. The historical baseline is oriented at 060 degrees azimuth with cross lines at 150 degrees at 500 foot or 152.4 metre intervals (rounded to 150m for practical purposes). The work was completed during July-August, 2010. A grid sketch based on hand held GPS readings is shown in Figure 9-3.

The coordinate system used for the Julienne Lake exploration program is UTM Zone 19, NAD83. Registered land surveyors, N. E. Parrott Surveyors of Happy Valley-Goose Bay, NL, were contracted to accurately locate key control points on the property utilizing Differential Global Positioning System (“DGPS”) surveying. A series of survey stations have been established on the property including the baseline, and tie-in points along the historical trench (T62-01) and recent trenches (T10-01 and T10-02). Several survey points have accurately located the shoreline of Wabush and Julienne Lakes which also marks the EML boundary. All current and some historical drill collars have been accurately located by DGPS surveying, with the top of the casing marking the drill hole starting point. The DGPS surveying data is presented in Table 9-1 and incorporated into all property scale maps and drawings contained in this report.

Table 9-1: Differential GPS Survey Points

Point No.	Description	Northing (m)	Easting (m)	Elevation (m)
10-231-1	DDH J1 (Historical drill hole)	5889912.30	648105.97	591.52
10-231-2	DDH J3 (Historical drill hole)	5890177.39	647963.63	559.52
10-231-3	DDH J4 (Historical drill hole)	5889382.39	648403.64	562.94
10-231-4	L000E/9543N (Cut grid site)	5888555.34	646951.99	528.09
10-231-5	L1050E-10000N (Cut grid site)	5889480.24	647653.45	544.02
10-231-6	L1200E/10000N (Cut grid site)	5889555.23	647786.04	583.19
10-231-7	L1350E/10000N (Cut grid site)	5889629.65	647915.97	591.19
10-231-8	L150E/9543N (Cut grid site)	5888631.13	647084.22	529.66
10-231-9	L1500E/10000N (Cut grid site)	5889704.97	648046.56	588.34
10-231-10	L1650E/10000N (Cut grid site)	5889779.82	648179.31	582.37
10-231-11	L1800E/10000N (Cut grid site)	5889855.51	648310.14	572.62
10-231-12	L1950E/10000N (Cut grid site)	5889930.65	648442.26	552.66
10-231-13	L2100E/10000N (Cut grid site)	5890005.83	648574.84	536.94
10-231-14	L2250E/10000N (Cut grid site)	5890081.05	648707.57	531.93
10-231-15	L2400E/10000N (Cut grid site)	5890155.73	648839.86	529.11
10-231-16	L2400E/10300N (Cut grid site)	5890415.92	648695.06	533.64
10-231-17	L2550E/10300N (Cut grid site)	5890493.96	648824.08	532.18
10-231-18	L300E/9543N (Cut grid site)	5888705.48	647216.68	530.43
10-231-19	L450E/9543N (Cut grid site)	5888781.13	647349.58	529.55
10-231-20	L600E/9543N (Cut grid site)	5888856.26	647482.48	527.98
10-231-21	L750E/9545N (Cut grid site)	5888931.44	647614.43	527.52
10-231-22	L900E/9545N (Cut grid site)	5889006.18	647747.33	537.03
10-231-23	L915E/10000N (Cut grid site)	5889412.30	647533.60	527.61
10-231-24	L915E/9543N (Cut grid site)	5889013.04	647759.45	537.22
10-231-25	P14 (Proposed drill hole site)	5890112.81	648163.52	576.76
10-231-26	P15 (Proposed drill hole site)	5889984.46	648238.36	578.50
10-231-27	SA-1 (Javelin stripped area reference point)	5889887.73	647989.30	596.12
10-231-28	SA-2 (Javelin stripped area reference point)	5889850.15	648023.24	597.65
10-231-29	SA-3 (Javelin stripped area reference point)	5889784.82	648064.37	591.92

10-231-30	SA-4+10000N/1550E (dual reference point)	5889731.06	648091.87	589.17
10-231-31	SA-5 (Javelin stripped area reference point)	5889711.43	648152.97	585.31
10-231-32	SA-6 (Javelin stripped area reference point)	5889653.22	648223.13	586.17
10-231-33	SA-7 (Javelin stripped area reference point)	5889584.61	648293.38	579.11
10-231-34	SA-8 (Javelin stripped area reference point)	5889542.79	648336.49	576.71
10-231-35	SA-9 (Javelin stripped area reference point)	5889497.66	648368.05	574.05
10-231-36	SA-10 (Javelin stripped area reference point)	5889470.48	648400.52	571.13
10-231-37	T1-1 (trench T10-1 reference point)	5890249.12	648085.55	560.31
10-231-38	T1-2 (trench T10-1 reference point)	5890202.93	648111.13	571.50
10-231-39	T1-3 (trench T10-1 reference point)	5890111.76	648160.80	577.69
10-231-40	T1-4 (trench T10-1 reference point)	5890025.33	648209.44	578.22
10-231-41	T1-5 (trench T10-1 reference point)	5889944.67	648257.31	574.44
10-231-42	T1-7 (trench T10-1 reference point)	5889766.52	648357.34	567.33
10-231-43	T1-8 (trench T10-1 reference point)	5889678.71	648408.82	562.91
10-231-44	T1-9 (trench T10-1 reference point)	5889588.52	648460.27	564.62
10-231-45	T1-10 (trench T10-1 reference point)	5889498.84	648512.23	556.10
10-231-46	T2-1 (trench T10-2 reference point)	5889779.25	647830.81	573.95
10-231-47	T2-2 (trench T10-2 reference point)	5889711.56	647872.07	586.99
10-231-48	T2-3/DDH J-5 (dual reference point)	5889675.83	647889.11	588.07
10-231-49	T2-4 (trench T10-2 reference point)	5889543.07	647969.26	584.96
10-231-50	T2-5 (trench T10-2 reference point)	5889457.03	648017.41	584.97
10-231-51	T2-6 (trench T10-2 reference point)	5889369.15	648067.44	582.76
10-231-52	T2-7 (trench T10-2 reference point)	5889281.36	648117.34	581.25
10-231-53	T2-8 (trench T10-2 reference point)	5889199.56	648164.57	565.29
10-231-54	T2-9 (trench T10-2 reference point)	5889133.49	648194.47	561.39
10-320-1	DDH JL-10-01 (2010 drill hole collar)	5889517.70	648495.61	558.82
10-320-2	DDH JL-10-01A (2010 drill hole collar)	5889516.65	648496.40	558.96
10-320-3	DDH JL-10-02 (2010 drill hole collar)	5889450.79	648372.09	572.47
10-320-4	DDH JL-10-2A (2010 drill hole collar)	5889448.70	648372.91	572.43
10-320-5	DDH JL-10-02B (2010 drill hole collar)	5889449.15	648372.62	572.39
10-320-6	DDH JL-10-03 (2010 drill hole collar)	5889515.85	648329.43	577.99
10-320-7	DDH JL-10-04 (2010 drill hole collar)	5889650.01	648254.45	585.66
10-320-8	DDH JL-10-05 (2010 drill hole collar)	5889591.40	648452.36	565.29
10-320-9	DDH JL-10-06 (2010 drill hole collar)	5889776.22	648180.92	582.59
10-320-10	DDH JL-10-07 (2010 drill hole collar)	5889914.30	648103.90	591.82
10-320-11	DDH JL-10-08 (2010 drill hole collar)	5889721.50	648380.42	563.00
10-320-12	DDH JL-10-09 (2010 drill hole collar)	5890034.80	648034.87	590.86
10-320-13	DDH JL-10-10 (2010 drill hole collar)	5890164.03	647968.02	562.48
10-320-14	DDH JL-10-11 (2010 drill hole collar)	5889853.24	648307.30	573.43
10-320-15	DDH JL-10-11A (2010 drill hole collar)	5889852.21	648305.11	573.41
10-320-16	DDH JL-10-12 (2010 drill hole collar)	5889631.23	647919.37	590.96

10-320-17	DDH JL-10-13 (2010 drill hole collar)	5889494.99	647980.59	584.11
10-320-18	DDH JL-10-14 (2010 drill hole collar)	5889364.32	648056.68	582.33
10-320-19	DDH JL-10-15 (2010 drill hole collar)	5889981.26	648234.08	579.66
10-320-20	DDH JL-10-16 (2010 drill hole collar)	5889280.41	648102.73	581.76
10-320-21	DDH JL-10-16A (2010 drill hole collar)	5889279.40	648103.35	581.68
10-320-22	DDH JL-10-17 (2010 drill hole collar)	5890109.00	648157.63	579.28
10-320-23	DDH JL-10-17A (2010 drill hole collar)	5890110.57	648155.11	579.33
10-320-24	DDH JL-10-17B (2010 drill hole collar)	5890151.50	648133.53	575.52
10-320-25	DDH JL-10-19 (2010 drill hole collar)	5889352.44	647726.48	551.54
10-320-26	DDH JL-10-20 (2010 drill hole collar)	5890226.36	648093.90	565.53
10-320-27	DDH JL-10-21 (2010 drill hole collar)	5889219.24	647804.33	551.05
10-320-28	DDH JL-10-23 (2010 drill hole collar)	5889157.15	647842.44	RIG ON
10-320-29	DDH JL-10-23A (2010 drill hole collar)	5889156.03	647842.73	RIG ON
10-320-30	L5-EOFW (Lakeshore reference point)	5890398.38	648001.12	526.20
10-320-31	R1-CL (Access road center line)	5889061.83	648238.52	547.86
10-320-32	R1-STK (Access road/grid point)	5889057.36	648236.09	547.59
10-320-33	RC CL ACCESS RD (Access road center)	5889305.21	648560.99	542.50
10-320-34	SPIKE (Surveyor’s reference point)	5889887.73	647989.30	596.14
10-320-35	C/LAC.RD (Access road center line)	5889429.24	648359.60	572.32
10-320-36	EOFW (Lakeshore reference point)	5889461.67	648792.14	526.16
10-320-37	EOFW (Lakeshore reference point)	5890394.34	647832.14	526.22
10-320-38	EOFW (Lakeshore reference point)	5889218.41	648678.87	526.20
10-320-39	EOFW (Lakeshore reference point)	5888688.62	648455.06	526.18
10-370-1	DDH JL-10-18 (2010 drill hole collar)	5889477.33	647649.37	543.10
10-370-2	DDH JL-10-22 (2010 drill hole collar)	5890394.35	648352.93	530.78
10-370-3	DDH JL-10-23 (2010 drill hole collar)	5889157.03	647842.04	550.28
10-370-4	DDH JL-10-23A (2010 drill hole collar)	5889156.04	647842.61	550.35
10-370-5	DDH JL-10-24 (2010 drill hole collar)	5890258.59	648422.00	537.95
10-370-6	DDH JL-10-25 (2010 drill hole collar)	5890133.65	648501.84	537.86
10-370-7	DDH JL-10-26 (2010 drill hole collar)	5890004.94	648574.96	536.17
10-370-8	DDH JL-10-27 (2010 drill hole collar)	5889874.99	648649.03	536.90
10-370-9	DDH JL-10-28 (2010 drill hole collar)	5889743.88	648723.65	534.00
10-370-10	DDH JL-10-29 (2010 drill hole collar)	5890538.15	648614.42	533.55
10-370-11	DDH JL-10-30 (2010 drill hole collar)	5890413.87	648695.67	533.17
10-370-12	DDH JL-10-31 (2010 drill hole collar)	5890288.29	648766.12	531.73
10-370-13	DDH JL-10-32 (2010 drill hole collar)	5890154.96	648838.34	528.62
10-370-14	DDH JL-10-33 (2010 drill hole collar)	5888677.95	647057.86	530.84
10-370-15	DDH JL-10-34 (2010 drill hole collar)	5888807.06	646983.11	530.47
10-370-16	LAKESHORE (Lakeshore reference point)	5889642.43	648784.41	526.17
10-370-17	2400 EAST LAKESHORE (grid point)	5890100.00	648873.77	526.21
10-370-18	REF SA-2 (Surveyor’s reference point)	5889850.13	648023.24	597.65

10-370-19	REF SA-5 (Surveyor's reference point)	5889711.42	648152.96	585.32

Geological Mapping

Geological investigations included examination of surface exposures mapped by previous workers. Of particular importance is a 1 inch = 100 feet scale detailed surface geological map by Canadian Javelin produced around 1963. This map has been checked by MPH and found to be accurate in terms of geological descriptions and location detail relative to known grid points. Historical trench T62-01 has also been mapped in detail by Javelin workers. Finally MPH has completed mechanical trenching along two lines, 1350E and 1800E (see Section 10-2 below).

The combined information has been compiled to produce a surface geological plan map (Map 1).

Ground Magnetometer Survey:

Larder Geophysics Limited of Larder Lake, Ontario was contracted to conduct a ground magnetometer survey over the Julienne Peninsula. A GEM Systems, GSM-19 Overhauser Magnetometer was utilized to conduct a "walking mag' (time, date and readings stored at coordinates of fiducial) survey over the entire cut grid.

Survey parameters are listed as follows:

- Resolution: 0.01 nT
- Relative Sensitivity: 0.02 nT
- Absolute Accuracy: 0.2nT
- Range: 20,000 to 120,000 nT
- Gradient Tolerance: Over 10,000nT/m
- Operating Temperature: -40°C to +60°C

The survey is presented as a contour map of total magnetic intensity (Figure 9-3). A logistical report on the magnetometer survey is appended to this report (Volume 1, Appendix 1)

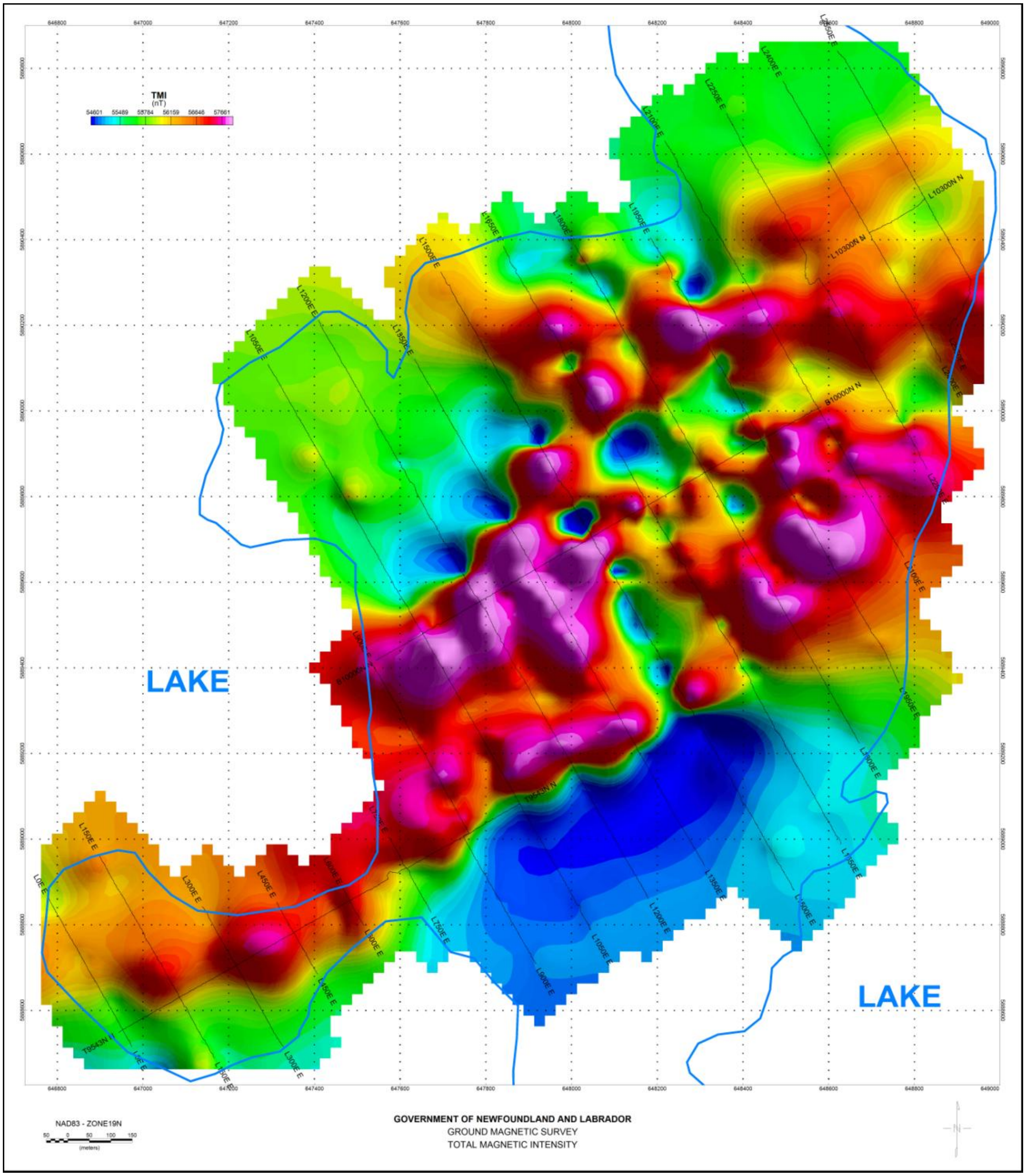


Figure 9-3: Julienne Peninsula, Magnetometer Survey, Total Magnetic Intensity

MPH has done some modeling of the raw data to elucidate various aspects of structural and lithological setting. The results of this work are presented in Figures 9-4, 9-5 and 9-6.

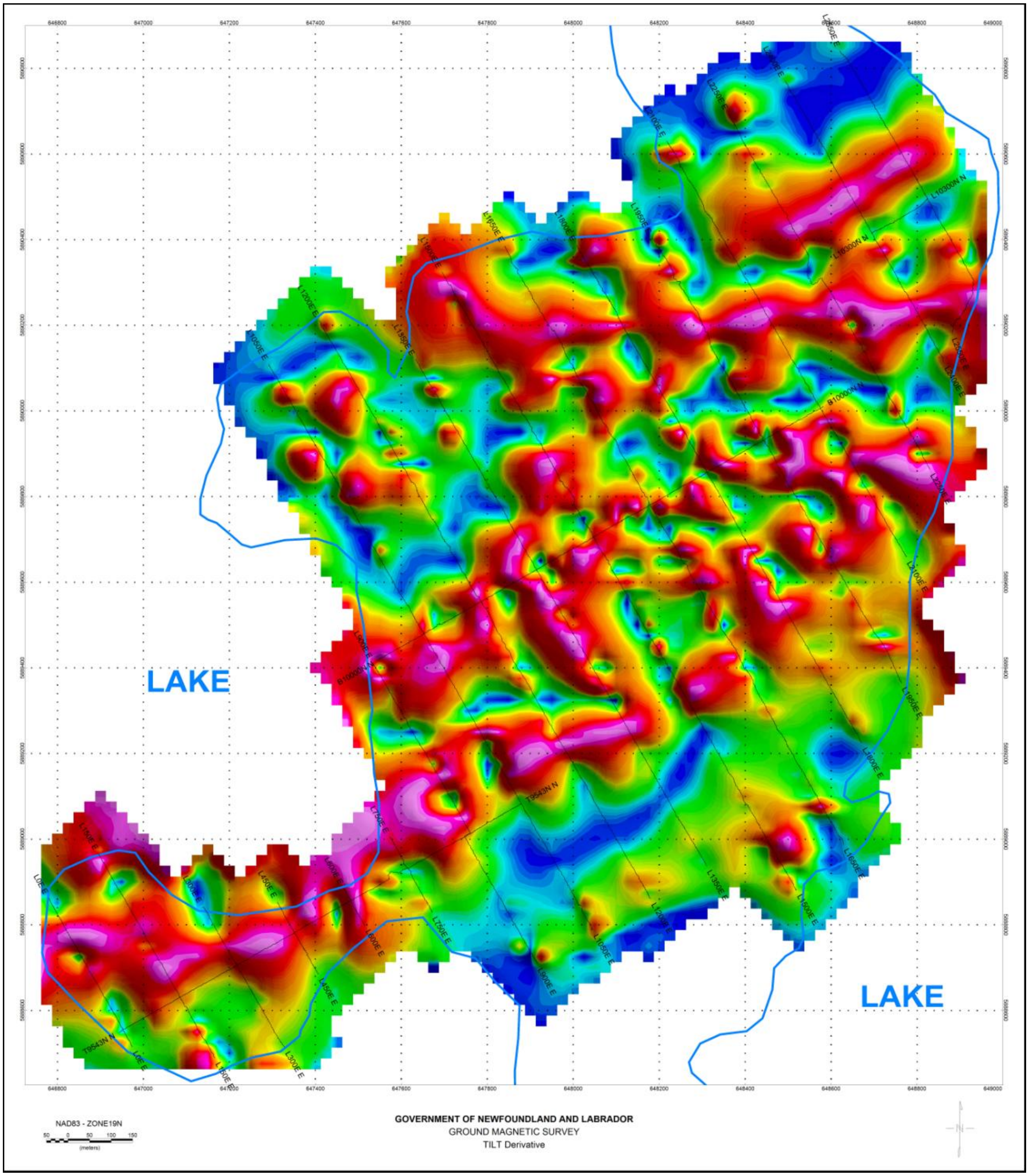


Figure 9-4: Julienne Peninsula, Magnetometer Survey, TILT Derivative

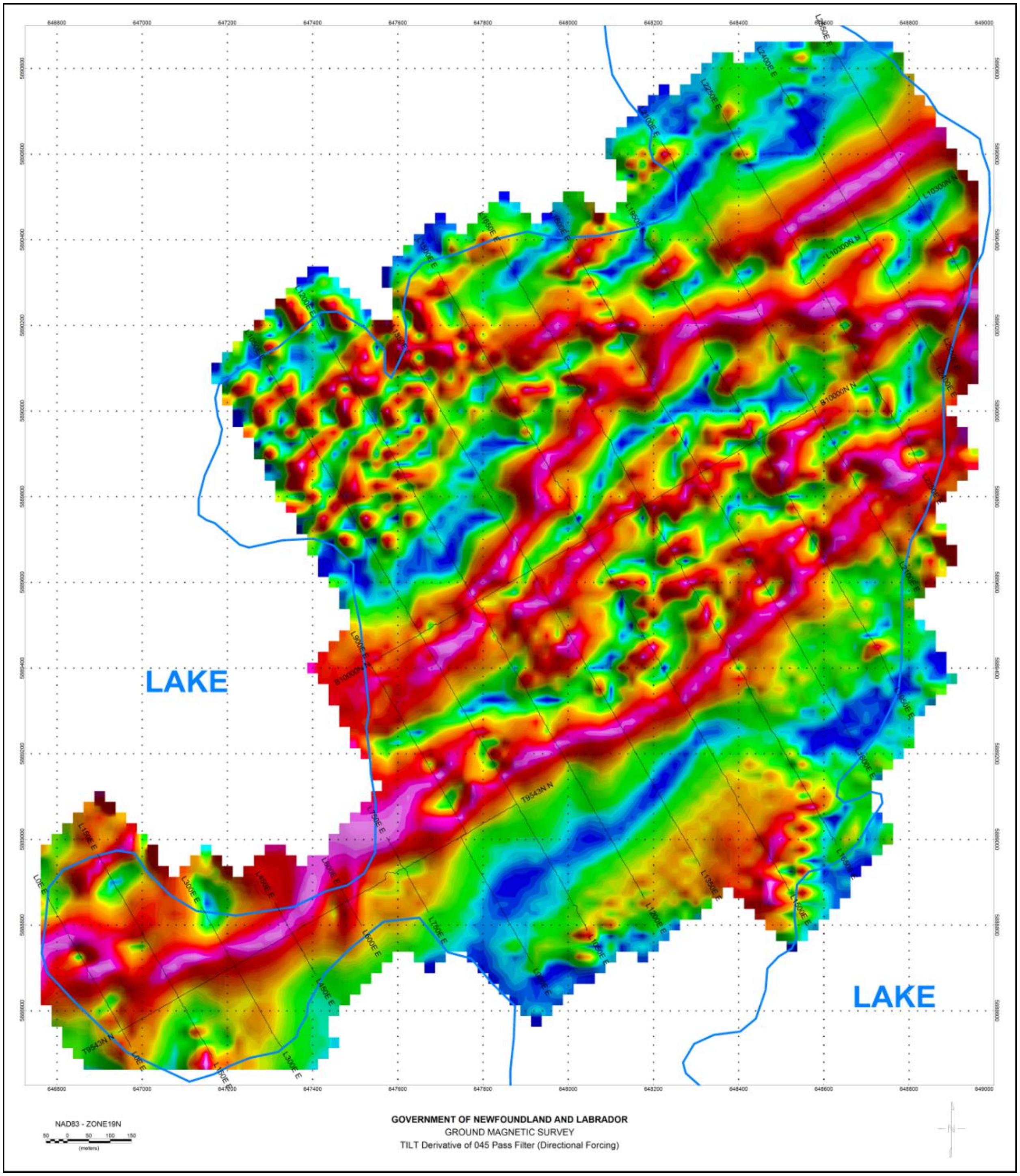


Figure 9-5: Julienne Peninsula, Magnetometer Survey, TMI 045 Pass TILT Derivative

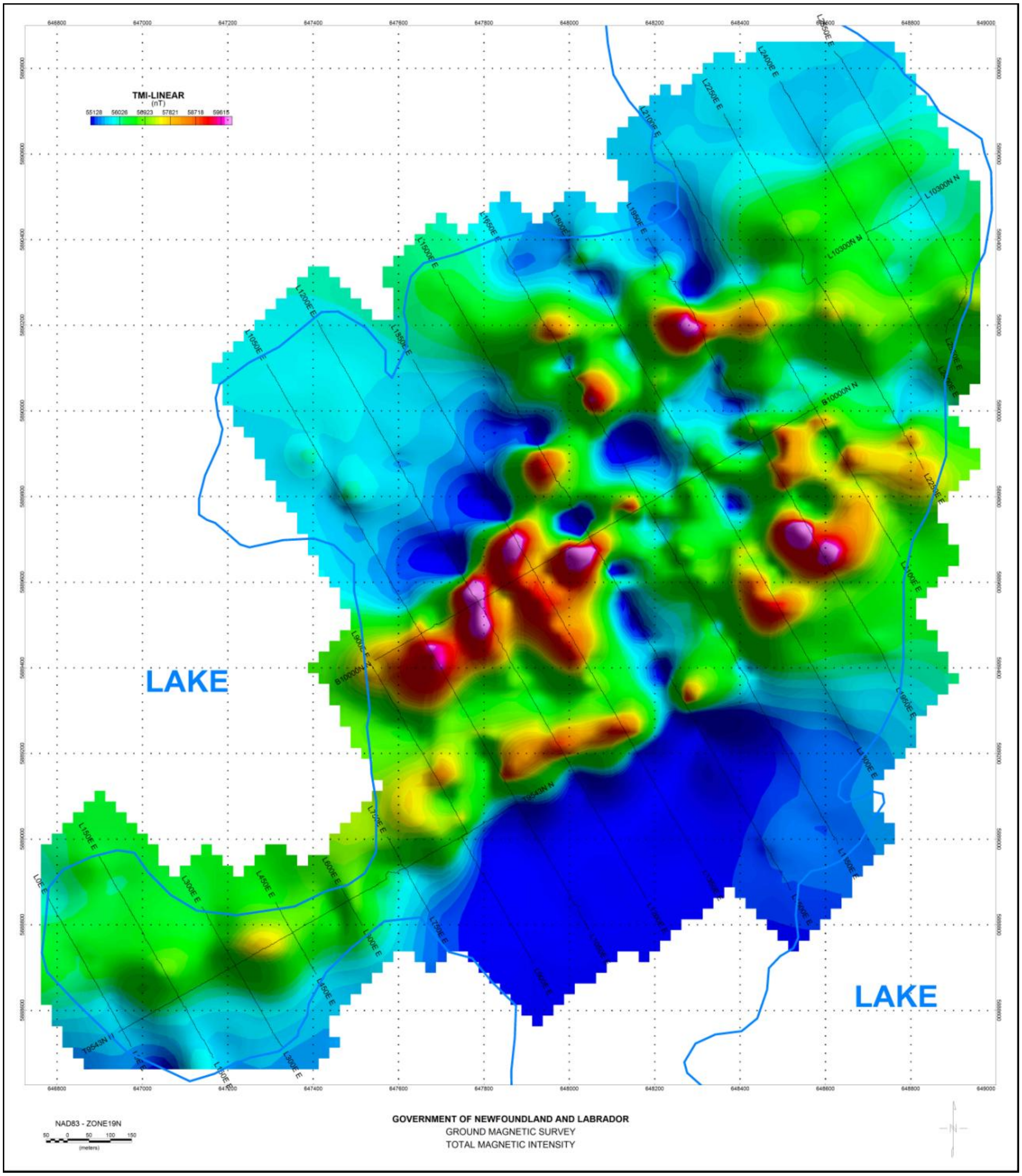


Figure 9-6: Julienne Peninsula, Magnetometer Survey, TMI-Linear.

10.0 DRILLING AND SURFACE TRENCHING

10.1. Nature and Extent of Work

Historical diamond drilling which led to the partial outlining of the Julienne Lake iron deposit was completed in two stages between September, 1957 and August, 1958. The planned outline drilling program proposal, 11 holes totalling 5000 feet (~1,500m), was never completed. Only nine holes were with a cumulative length of 3,477 feet (~1,060m) were drilled. Test pits were employed to obtain bulk samples of iron formation in 1960 (38.5 tons from 5 pits) and 1963 (162 tons from 12 pits). Processing, pelletizing and smelting tests were conducted on the 1960 samples, but there is no record of work on the latter samples. The various historic drilling and test pitting programs have been outlined in Section 5-2 above.

Drilling and mechanical trenching programs were conducted in 2010 by MPH Consulting for DNR. The diamond drilling program included 42 NQ (47.6 mm diameter) drill holes with a cumulative length of 9,238.3 metres. Two surface trenches with a cumulative length of approximately 1,600 metres were excavated.

10.2. Historical Drilling and Test Pits, Canadian Javelin, 1957-1963

Topographic Control

In 1957 the Julienne Peninsula and adjacent area was flown to obtain detailed aerial photographs for orthophoto mapping purposes, and a cut survey grid was laid out. The aerial photographs were utilized to construct a detailed uncontrolled orthophoto manuscript topographic map that remains a very high quality base map that has been retrofitted into a GIS format. The cut survey lines and other important features (e.g. Trench 62-1) are still clearly visible on Google Earth satellite images (Figure 10-1).

Figure 10-1: Google Earth image showing historical Javelin survey grids.

Historical Javelin Drilling and Test Pits.
The locations of the historical drill hole collars, trenches and test pits are shown in Figure 10-2.

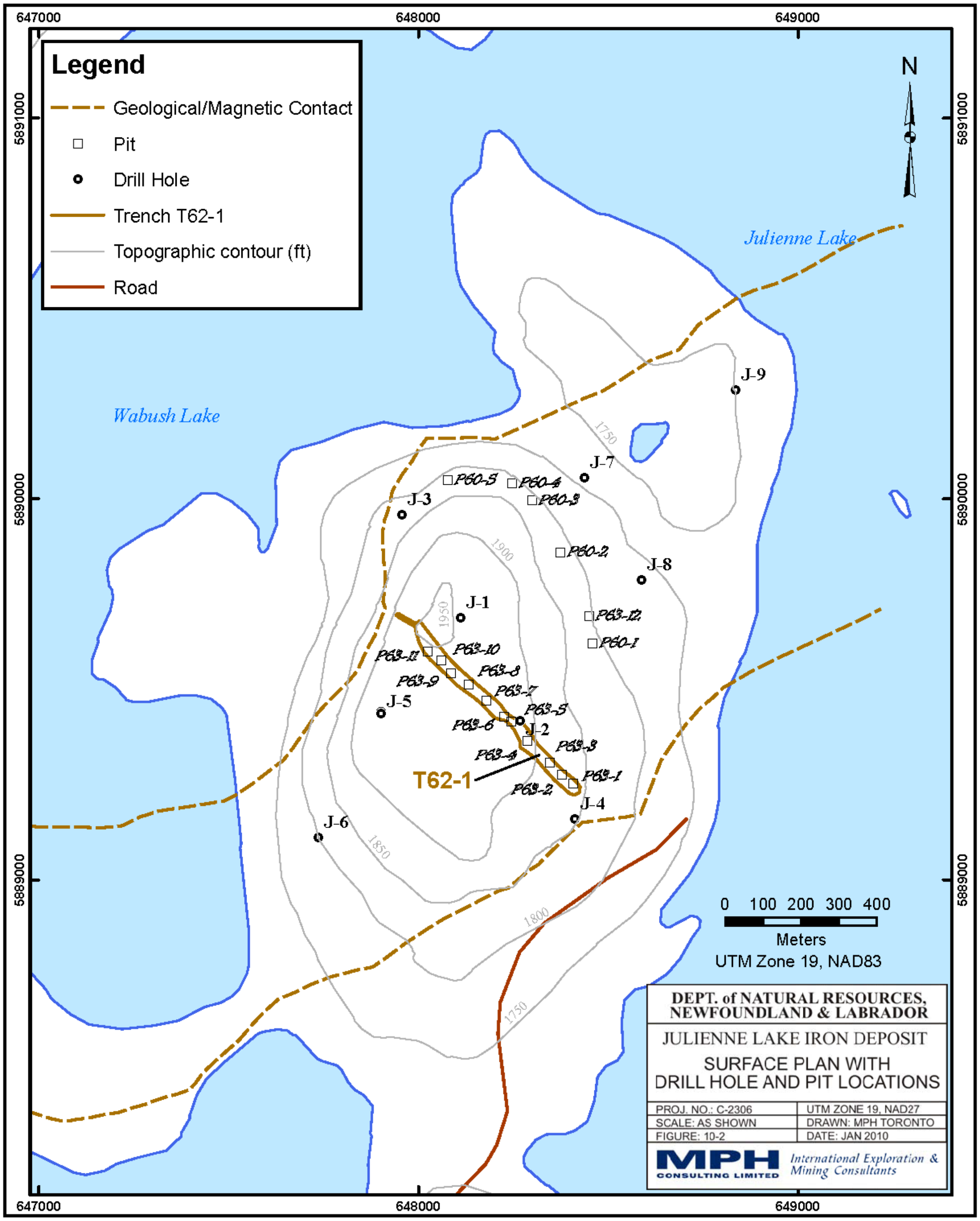


Figure 10-2: Surface Plan with Historical Drill Hole and Pit Locations.

As noted in Section 5-2 the 1957-58 drilling was only marginally effective with key shortcomings as follows:

- Very poor core recovery,
- Failure to reach planned hole depth,
- Failure to penetrate iron formation units.

The 1957-58 drilling was done with ‘standard’ as opposed to modern ‘wireline’ drilling equipment which meant that the whole drill rod string had to be removed from the hole after each 5 to 10 ft (1.5 to 3 m) ‘run’ to recover the core. In difficult ‘blocky’ ground conditions such as are apparent at Julienne Lake this is a recipe for frustrations and problems. The initial drilling contract called for the use of BX (42.0 mm), AX (30.1 mm) and EX (21.5 mm) core sizes, with NX (54.7 mm) being added by the second hole. The holes were essentially started with the largest diameter tools, and then systematically reduced until conditions became too difficult to continue. In most instances this meant that the hole was terminated before its planned depth. The drilling tool details of holes J-1 to J-4 are shown in Table 10-1.

Table 10-1: 1957 Drilling Program Core Sizes

Core Type	Hole J-1	Hole J-2	Hole J-3	Hole J-4
NX (54.7 mm)		0-20 ft	0-42 ft	0-3 ft
BX (42.0 mm)	0-150 ft	0-185 ft	0-101 ft	0-138 ft
AX (30.1 mm)	0-368 ft	0-489 ft	0-228 ft	0-265 ft
EX (21.5 mm)	0-498 ft	0-566 ft	0-310 ft	

MPH believes that the use of wireline drilling equipment (universally employed today) and larger core sizes (HQ-63.5 mm, NQ-47.6 mm, BQ-36.5 mm) along with specialized drilling muds/fluids would result in adequate hole penetration and core recoveries.

No down-hole inclination or directional surveys were conducted for the historic drilling. Due to blocky ground conditions and small diameter drilling tools substantial hole deviations would be expected. No specific gravity or dry bulk density tests are known to have been conducted on drill core specimens. As noted previously all remaining drill core was destroyed in a warehouse fire in 1966.

In essence the historic drilling program is typified by significant inadequacies of design and execution. Consequently second and third order derivative information such as historical resource estimations, process/pelletizing/smelting testwork, and economic evaluations are built on a shaky foundation.

The 1960 series of Javelin historical test pits (P60-1 to 5) were chosen so as to give a bulk sample from a representative cross section of the deposit along the ‘east bench’ or wave cut platform on Glacial Lake Wabush. The work was done between November 17 and December 10, 1960. The test pits were oriented so that length was across strike. The samples were taken by drilling with a Copco Cobra light-weight gasoline-powered drill and blasting. Due to wintry conditions, the sample material was immediately bagged into used 100 lb (45 kg) bags (see 'titania affair' Section 5.2) which were tagged in duplicate. The samples were flown from the site to Wabush airport using a sling-equipped Sikorski S-55 helicopter, then loaded onto a boxcar at Wabush siding for rail transport to Sept Isles, QC, and finally on to Lakefield, ON by truck. The makeup of the approximately 38.5 ton bulk sample is given in Table 10-2. Pit locations were previously shown in Figure 5-1 above.

Table 10-2: 1960 Javelin Test Pits, Bulk Sample Makeup

Pit	Length (ft)	Width (ft)	Depth (ft)	Long Tons	Litho Unit	Fe	Mn	SiO_2
P60-1	15	3	2	7.5	C	34.56%	0.02%	50.07%
P60-2	23	4	2	8.02	B	27.54%	0.08%	58.97%
P60-3	12	4	3	8.5	D	45.02%	0.16%	35.09%
P60-4	23	3	3	8.3	D	42.86%	0.14%	36.47%
P60-5	12	3	2.5	6.09	F	31.61%	0.02%	53.33%
Total				**38.41**	**Average**	**36.73%**	**0.09%**	**46.19%**

No specific gravity or dry bulk density tests are known to have been conducted on test specimens or the pit excavations.

In the fall of 1962 an area extending across the hilltop exposure (Trench 62-1) was stripped for examination and sampling purposes. An approximately 162 ton (165 tonne) package of bulk samples were taken from the Julienne Lake deposit in the fall of 1963. The sample pits were designed to provide 'a good first look at metallurgical behaviour and beneficiation problems'. A variety of mineralogical sub-types were acquired from 12 carefully chosen pit locations (P63-1 to 12 inclusive) mostly along Trench 62-1. Samples ranging from 6 to 20.5 tons (6.1 to 20.8 tonnes) were taken from different styles of good grade mineralization, along with a 7.5 ton (7.6 tonne) sample of Fe-bearing quartzite, a 4.5 ton (4.6 tonne) sample of manganiferous material and a 12 ton (12.2 tonne) composite sample. The purpose was to investigate the recovery characteristics of each sub-type.

The 1963 samples were acquired by drilling with a Cobra drill and blasting with 40% Forcite. Control samples of 25 to 35 lbs (11 to 16 kg) were collected after blasting and sent to Lerch Brothers, Sept Isle, QC for assay. The bulk samples were sized and collected only after control sample assay results were received. The sample material was placed in new burlap bags, weighed, tied and tagged with coloured cloth for identification. The bagged samples were trucked to Wabush and loaded onto 3 railway cars, then shipped by rail to Sept Isle, QC, and onward by truck to Lakefield, ON. The makeup of the bulk samples based on field records and control sample results is given in Table 10-3.

No specific gravity or dry bulk density tests are known to have been conducted on test specimens or the pit excavations. There is no record of any metallurgical studies ever being done on these samples.

Table 10-3: 1963 Javelin Test Pits, Bulk Sample Makeup

Pit	Length (ft)	Width (ft)	Depth (ft)	Long Tons	Litho Unit	Fe	Mn	SiO_2
P63-1	12	9	4	14.0	E	31.68%	0.07%	51.93%
P63-2	12	9	4	20.5	E	31.60%	0.09%	51.98%
P63-3	12	9	4	14.0	D	30.95%	0.11%	53.25%
P63-4	12	9	4	12.0	C	30.47%	0.05%	54.23%
P63-5	12	9	4	13.5	A	42.59%	0.14%	36.74%
P63-7	12	9	4	16.0	B	40.09%	0.11%	40.28%
P63-9	12	9	4	15.0	C	34.11%	0.07%	49.40%
P63-10	12	9	4	13.0	C	36.77%	0.35%	44.54%
P63-11	12	9	4	14.0	D	32.00%	0.09%	52.28%
P63-12	12	9	4	6.0	B	29.50%	0.16%	54.18%
Sub Total				**138.0**	**Average**	**34.21%**	**0.12%**	**48.60%**
P63-6	12	9	4	7.5	A	18.35%	0.09%	71.19%
P63-8	12	9	4	4.5	Mn rich	29.66%	15.74%	27.94%
Composite				12.0		32.31%		
Total				**162.0**				

Drilling Database Used For Historic Resource Estimates

The database for the historic Javelin resource estimates consisted of all of the available drill records and logs from the 1957-58 program. Drill holes included in this data base are listed in Table 10-4 and collar locations were shown previously in Figures 5-1 and 10-2 above.

Table 10-4: Julienne Lake Historical Drilling Database Summary

Hole No	Easting (grid)	Northing (grid)	Elevation (ft)	Length (ft)	Azimuth (degrees)	Dip (degrees)
J-1	10000	10500	1935	596	0.00	-90
J-2	10000	9500	1920	705	0.00	-90
J-3	10000	11500	1830	318	0.00	-90
J-4	10000	8500	1830	328.5	0.00	-90
J-5	9000	10160	1937	203	332	-50
J-6	8000	9500	1813	330.5	0.00	-90
J-7	11500	11000	1757	379	0.00	-90
J-8	11500	10000	1760	356	0.00	-90
J-9	13000	11000	1745	261	0.00	-90
Total				**3477**		

10.3. 2010 Drilling and Mechanical Trenching Program

Topographic Control:

As stated earlier in Section 10-2 above, the 1950's vintage grid lines are still clearly evident and traceable. Since the 500 feet (152.4 metre) nominal line spacing is reasonably close to a 150 metre nominal spacing it was decided to use the old lines as the basis of a new metric grid. The

10,000 ft N original baseline was designated 10,000 m N and the 500 ft spaced cross lines were rounded off to 150m spacings. The cross lines are designated as 00E at the southwestern edge of the property, then 150E, 300E, 450E etc., until line 2400E at the northeastern edge of the property. The refurbished grid was utilized for ground control for the 2010 drilling and mechanical trenching programs.

The l coordinate system used for the 2010 work are UTM Zone 19, NAD 83. All cross-line stations on the 10,000m N baseline, all drill hole collar locations, and a series of tie-in stations on the mechanical trenching lines have been accurately surveyed using DGPS.

2010 Diamond Drilling Program

Cabo Drilling (Atlantic) Corp. of Springdale, NL were contracted to complete a minimum of 7,000 metres of NQ core drilling beginning about August 1, 2010. Two skid-mounted unitized Longyear Hydro 38 drills, ancillary equipment and supplies and Cat D6 tractor were utilized for the work. The drilling was conducted on a 2 x 12 hour shift daily basis with a four week on and two week off crew rotation.

Due to a substantial increase in tonnage potential the planned drilling meterage was increased from 7,000 to approximately 9,300 metres. The drilling program was completed on November 16, 2010, a total of 42 holes with a cumulative length of 9,238.3 metres. The drill holes are listed in Table 10-5 and collar locations are shown in Figure 10-3.

Table 10-5: List of 2010 Drill holes

Drill Hole	Collar Coordinates UTM Zone 19, NAD 83			Collar		Length
ID	**Northing (m)**	**Easting (m)**	**Elevation (m)**	**Azimuth**	**Inclination**	**M**
JL-10-01	5889517.70	648495.61	558.82	0	-90	300.0
JL-10-01A	5889516.65	648496.40	558.96	150	-50	293.0
JL-10-02	5889450.79	648372.09	572.47	0	-90	23.0
JL-10-02A/02A(ext)	5889448.70	648372.91	572.43	0	-90	308.0
JL-10-02B	5889449.15	648372.62	572.39	160	-70	261.0
JL-10-03	5889515.85	648329.43	577.99	0	-90	305.0
JL-10-04	5889650.01	648254.45	585.66	0	-90	302.0
JL-10-05/05(ext)	5889591.40	648452.36	565.29	0	-90	574.0
JL-10-06	5889776.22	648180.92	582.59	0	-90	194.0
JL-10-07	5889914.30	648103.90	591.82	0	-90	92.3
JL-10-08	5889721.50	648380.42	563.00	0	-90	302.0
JL-10-09	5890034.80	648034.87	590.86	0	-90	161.0
JL-10-10	5890164.03	647968.02	562.48	0	-90	107.0
JL-10-11	5889853.24	648307.30	573.43	0	-90	52.0
JL-10-11A/11A(ext)	5889852.21	648305.11	573.41	0	-90	355.0
JL-10-12	5889631.23	647919.37	590.96	0	-90	86.0
JL-10-13	5889494.99	647980.59	584.11	0	-90	137.0
JL-10-14	5889364.32	648056.68	582.33	0	-90	173.0
JL-10-15	5889981.26	648234.08	579.66	0	-90	273.0

JL-10-16	5889280.41	648102.73	581.76	0	-90	181.0
JL-10-16A	5889279.40	648103.35	581.68	150	-50	178.0
JL-10-17	5890109.00	648157.63	579.28	0	-90	83.0
JL-10-17A	5890110.57	648155.11	579.33	0	-90	52.0
JL-10-17B	5890151.50	648133.53	575.52	0	-90	179.0
JL-10-18	5889477.33	647649.37	543.10	0	-90	53.0
JL-10-19	5889352.44	647726.48	551.54	0	-90	143.0
JL-10-20	5890226.36	648093.90	565.53	0	-90	130.0
JL-10-21	5889219.24	647804.33	551.05	0	-90	201.0
JL-10-22	5890394.35	648352.93	530.78	0	-90	113.0
JL-10-23	5889157.03	647842.04	550.28	0	-90	261.0
JL-10-23A	5889156.04	647842.61	550.35	150	-50	338.0
JL-10-24	5890258.59	648422.00	537.95	0	-90	170.0
JL-10-25	5890133.65	648501.84	537.86	0	-90	257.0
JL-10-26	5890004.94	648574.96	536.17	0	-90	326.0
JL-10-27	5889874.99	648649.03	536.90	0	-90	419.0
JL-10-28	5889743.88	648723.65	534.00	0	-90	457.0
JL-10-29	5890538.15	648614.42	533.55	0	-90	59.0
JL-10-30	5890413.87	648695.67	533.17	0	-90	161.0
JL-10-31	5890288.29	648766.12	531.73	0	-90	242.0
JL-10-32	5890154.96	648838.34	528.62	0	-90	356.0
JL-10-33	5888677.95	647057.86	530.84	0	-90	326.0
JL-10-34	5888807.06	646983.11	530.47	0	-90	255.0
Cumulative Length (m)						**9238.3**

Drilling difficulties were anticipated based on historical reports. However, the degree of drilling difficulty inherent in the Julienne Lake area and the Labrador City-Wabush region in general was beyond original estimations. Drilling is hampered by widespread adverse rock conditions such as blocky, sandy or clay sections as well as many open cavities. All holes required use of drilling compounds (Matex, X-pand, sawdust, etc.), extra casing and reaming, while some holes had to be abandoned due to stuck rods and other tools. The net result was an increase in the contract drilling cost from an estimated \$120/m to over \$150/m. The drilling contractor has done an admirable job of completing most of the holes under these conditions.

NW casing has been left in all drill holes to allow for possible hole re-entry for varied purposes such as deepening, geotechnical investigations and cementing if and as required. All casing pipes are:

- tightly secured by screw-on caps,
- elevated a minimal distance above surface level (between 0 and ~20 cm), and
- clearly marked by 2x2 inch wooden stakes.

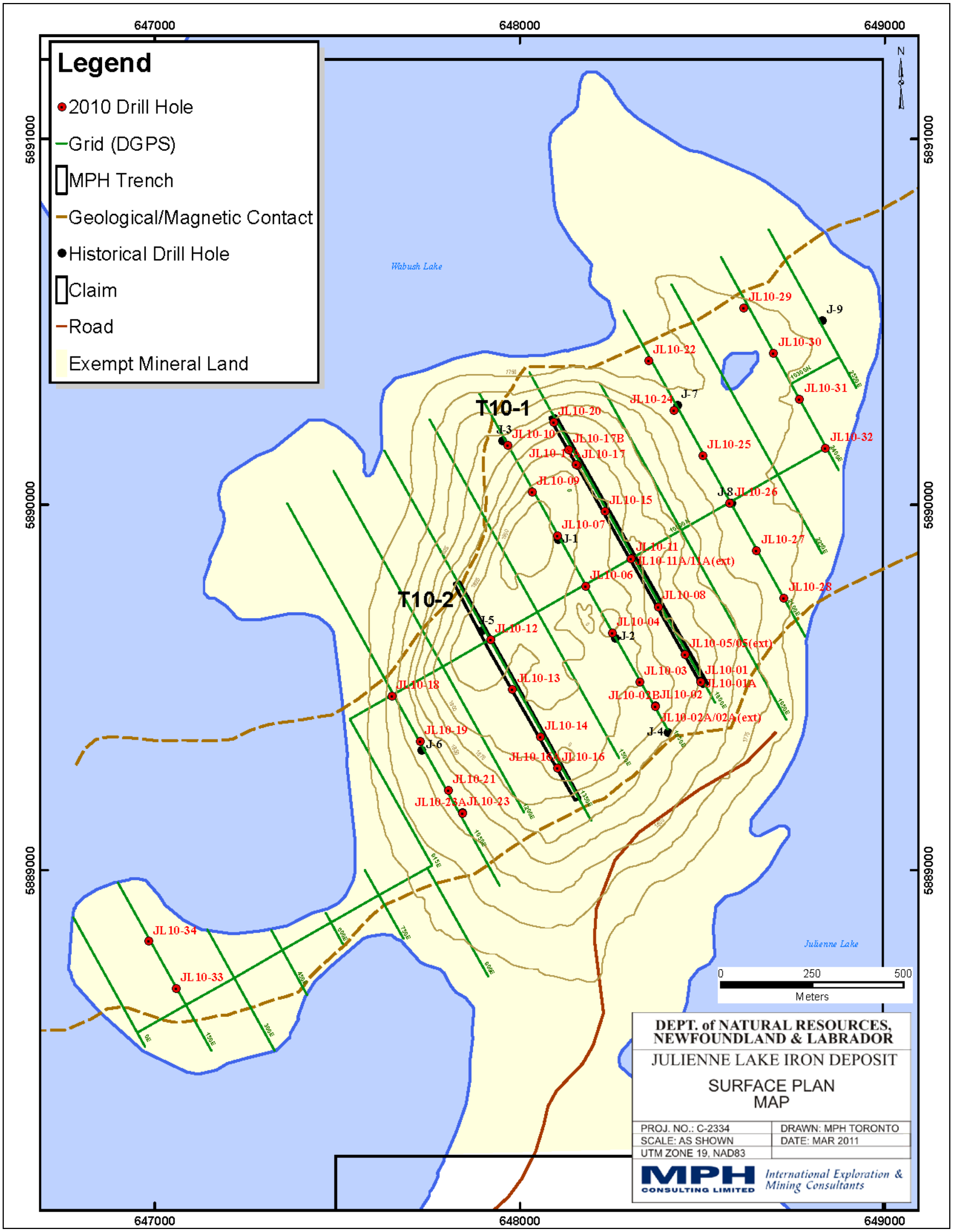


Figure 10-3: 2010 Drill Hole Collar and Surface Trench Locations

Photo 1: Drill holes JL10-2, 2A and 2B, November, 2010.

The geological information and analytical results from the drilling program are integrated into various sections of this report. Drill logs with lithological and structural information together with selected analytical results are contained in Volume 3. Magnetic susceptabilities, RQD determinations and bulk density data are presented in Volume 4. Part A, while full analytical results and certificates are contained in Volume 4, Part B. Digital photographs of all drill core sections are included in the digital database.

Mechanical Trenching Program

H & H Enterprises of Labrador City, NL was contracted to conduct tracked excavator trenching along two grid line sections across the Julienne iron deposit. A total of approximately 1,600 linear metres was excavated utilizing a CAT tracked excavator.

The trenches were geologically mapped while the excavation work was in progress and again after washing and sampling operations were completed. The trenching/washing/sampling operations had mixed results due to the fact that the historical reports concerning thin overburden cover ("above the old shoreline at about 1800 feet there is only a thin skin of overburden measurable in inches to a few feet" [Knowles, 1966]) were less than accurate. The end result was that continuous exposure of *in situ* bedrock was the exception rather than the norm.

The above notwithstanding, it is our opinion that the trenching program did produce useful lithological and structural information that will be integrated with that obtained from drilling and outcrops. For example excavations at the north end of trench T10-02 were instrumental in illustrating the interrelationships between the Proterozoic iron formation, the Tertiary-Cretaceous ? leaching/weathering phenomena, and the Pleistocene glacial deposits of the Julienne Peninsula. Also the trenching showed no structural or lithological information that in any way supports the hypothesis of an isoclinal syncline passing through the peninsula.

The trenches were sampled by a combination of discontinuous sawn channel cuts and more or less representative composite grab samples. Since there are significant gaps in the bedrock exposure even in the best exposed areas and recent surface weathering of some outcrops, it is not considered prudent to utilize the trench samples analyses over the nominal lengths for grade/tonnage estimates. However, the two recent trenches, the historical stripped area (T62-1) and the natural near continuous bedrock exposures along the glacial lake shoreline, combine to provide a high degree of confidence to the deposit geological interpretations.

Detailed geological maps of the two trenches are shown in Figures 10-4a, b, c and 10-5a, b, c. Selected analytical results are presented in Table 10-6. Full analyses and analytical certificates are appended to this report (Volume 4, Part C)

Table 10-6: 2010 Trench Sampling Partial Results

Trench (Grid Easting)	Grid Northing			Sample		Analyses			
	From (m)	To (m)	Length (m)	Number	Type	SiO2 %	Fe (tot) %	Mn %	P %
T10-01 (1800E)	10458	10437	21	414501	channel composite	52.89	31.748	0.0821	0.009
	10430	10420	10	414502	channel composite	43.63	37.706	0.0751	0.022
	10420	10418	2	414503	Mn bed grab	1.01	46.573	21.747	0.026
	10418	10406	12	414504	channel composite	29.12	47.916	0.1286	0.061
	10411	10400	11	414505	Mn bed composite	22.94	35.566	16.521	0.017
	10400	10393	7	414506	channel composite	49.6	33.713	0.2812	0.022
	10393	10391	2	414507	channel composite	92.63	5.042	0.0837	-0.005
	10391	10380	11	414508	channel composite	48.74	35.434	0.0775	0.013
	10380	10379	1	414509	channel composite	81.07	13.734	0.0248	0.009
	10379	10370	9	414510	channel composite	53.46	32.091	0.0449	0.009
	10370	10360	10	414511	channel composite	53.01	31.587	0.0511	0.035
	10360	10359	1	414512	Mn bed grab	18.51	38.65	16.829	0.035
	10359	10356	3	414513	channel composite	49.37	33.986	0.237	0.017
	10350	10349	1	414514	Grab	15.41	58.455	0.1084	0.009
	10349	10330	19	414515	channel composite	60.71	26.259	0.0573	0.009
	10330	10308	22	414516	channel composite	56.15	29.51	0.0465	0.013
	10302	10288	14	414517	channel composite	63.44	24.783	0.0612	0.009
	10284	10275	9	414518	channel composite	56.97	28.462	0.0612	0.013
	10275	10263	12	414519	channel composite	50.89	33.175	0.0501	0.009
	10263	10248	15	414520	channel composite	50.72	33.277	0.028	0.009
	10248	10233	15	414521	channel composite	39.49	41.17	0.0553	0.009
	10227	10226	1	414522	channel composite	25.28	51.469	0.0225	-0.005
	10201	10199	2	414523	channel composite	41	39.65	0.1131	0.017
	10185	10175	10	414524	channel composite	54.8	30.48	0.0265	0.013
	10175	10165	10	414525	channel composite	62.05	25.497	0.0201	0.009
	10165	10162	3	414526	grab lean qtzite	93.69	3.779	0.0164	-0.005
	10162	10157	5	414527	channel composite	16.88	56.909	0.1557	0.013
	10157	10150	7	414528	channel composite	43.4	38.373	0.0171	0.013
	10150	10135	15	414529	channel composite	38.61	41.783	0.024	0.013

	10135	10124	11	414530	channel composite	34.29	44.748	0.1844	0.022
	10122	10112	10	414531	channel composite	40.49	40.231	0.0581	0.009
	10100	10096	4	414532	channel composite	53.92	31.098	0.0147	0.009
	10063	10062	1	414533	channel composite	50.28	33.754	0.1659	0.009
	10051	10049	2	414534	channel composite	52.9	31.699	0.0434	0.013
	10043	10041	2	414535	channel composite	61.23	26.156	0.0134	0.009
	10037	10035	2	414536	channel composite	57.42	27.715	0.0555	0.022
	10035	10018	17	414537	channel composite	47.87	34.999	0.0304	0.013
	10014	10003	11	414538	channel composite	45.17	35.601	0.0488	0.026
	10003	10000	3	414539	Grab	45.13	35.308	0.062	0.026
	10000	9990	10	414540	channel composite	38.19	41.748	0.017	0.017
	9990	9979	11	414541	channel composite	40.64	40.231	0.0209	0.013
	9979	9971	8	414542	channel composite	56.57	29.251	0.0659	0.009
	9967	9955	12	414543	channel composite	44.62	35.629	0.079	0.044
	9952	9948	4	414544	channel composite	72.09	18.201	0.0892	0.013
	9940	9937	3	414545	channel composite	51.78	32.793	0.0125	-0.005
	9933	9916	17	414546	channel composite	31.87	46.778	0.0514	0.009
	9912	9901	11	414547	channel composite	49.41	34.336	0.0403	0.009
	9895	9890	5	414548	channel composite	44.43	37.657	0.0124	0.009
	9886	9880	6	414549	channel composite	43.1	38.183	0.0241	0.009
	9870	9866	4	414550	channel composite	44.51	37.538	0.031	0.009
	9774	9773	1	414551	Grab	47.58	35.59	0.0444	0.009
	9763	9750	13	414552	channel composite	42.52	31.776	7.8133	0.013
	9750	9743	7	414553	channel composite	57.19	24.559	4.2982	0.013
	9740	9731	9	414554	channel composite	64.28	20.678	3.4469	0.009
	9731	9712	17	414555	channel composite	42.88	26.224	13.061	0.013
	9712	9703	9	414556	channel composite	50.71	33.056	0.3625	-0.005
	9703	9691	12	414557	channel composite	41.03	38.294	1.8203	0.009
	9684	9668	16	414558	channel composite	56.16	29.441	0.0341	-0.005
	9655	9646	9	414559	channel composite	52.7	31.9	0.1277	-0.005
	9639	9628	11	414560	channel composite	47.17	35.709	0.035	-0.005
	9628	9609	19	414561	channel composite	53.04	31.811	0.0209	-0.005
T10-02 (1350E)	10116	10098	18	414276	Composite chip	53.27	31.189	0.062	0.009
	10098	10090	8	414277	channel composite	48.55	34.825	0.0271	-0.005
	10090	10080	10	414278	channel composite	57.42	29.042	0.0147	-0.005
	10080	10065	15	414279	channel composite	23.14	51.322	0.7204	0.044
	10060	10047.5	12.5	414280	Composite chip	8.66	61.091	1.1084	0.031
	10045	10043	2	414281	channel composite	57.98	28.154	0.0341	0.009
	10040.5	10037.5	3	414282	channel composite	54.98	30.455	0.0147	-0.005
	10035	10032	3	414283	channel composite	50.55	33.378	0.0093	-0.005
	10030	10020	10	414284	channel composite	44.19	27.196	0.0155	-0.005
	10020	10010	10	414285	channel composite	51.62	32.958	0.0263	-0.005
	10010	10000	10	414286	channel composite	49.52	35.063	0.0155	-0.005
	10000	9990	10	414287	channel composite	51.02	33.462	0.0302	0.009
	9990	9980	10	414288	channel composite	46.28	36.559	0.0755	0.009
	9980	9970	10	414289	channel composite	33.01	46.245	0.22	0.009
	9970	9960	10	414290	channel composite	54.26	30.455	0.0999	0.009
	9960	9950	10	414291	channel composite	39.53	40.86	0.0573	0.009
	9950	9940	10	414292	channel composite	43.22	38.42	0.0511	0.009
	9940	9930	10	414293	channel composite	44.23	37.545	0.0349	0.009
	9930	9920	10	414294	channel composite	30.66	47.175	0.0325	-0.005
	9920	9911	9	414295	channel composite	27.55	49.483	0.0372	0.009
	9907	9899	8	414296	channel composite	41.63	39.252	0.0473	0.009

	9895	9889	6	414297	channel composite	48.01	35.196	0.0163	0.009
	9895	9889	6	414298	field duplicate	54.72	30.427	0.0333	0.009
	9889	9883	6	414299	channel composite	61.39	25.993	0.0163	0.017
	9881	9874	7	414300	Grab	56.49	29.503	0.0232	0.009
	9871	9863	8	414251	channel composite	43.98	28.916	0.0294	0.017
	9859	9850	9	414252	channel composite	53.01	30.937	0.048	0.026
	9842	9841	1	414253	channel composite	32.3	46.021	0.0341	0.017
	9833	9829	4	414254	channel composite	43.17	38.874	0.0163	0.013
	9820	9810	10	414255	channel composite	36.24	43.217	0.0248	0.013
	9810	9800	10	414256	channel composite	59.1	27.35	0.0256	0.013
	9800	9790	10	414257	channel composite	45.53	37.091	0.038	0.017
	9790	9777	13	414258	channel composite	45.88	36.462	0.0287	0.009
	9777	9771	6	414259	channel composite	55.27	30.713	0.0325	-0.005
	9771	9750	21	414260	Composite grab	48.45	34.657	0.0178	-0.005
	9684	9670	14	414261	channel composite	37.81	42.315	0.0449	-0.005
	9670	9660	10	414262	channel composite	45.32	36.881	0.0643	0.009
	9660	9648	12	414263	channel composite	39.41	41.448	0.0527	-0.005
	9638	9625	13	414264	channel composite	44.5	37.818	0.0403	0.009
	9625	9610	15	414265	channel composite	57.09	29.014	0.0279	0.009
	9610	9599	11	414266	channel composite	49.87	33.483	0.0163	0.009
	9592	9579	13	414267	channel composite	36.95	41.573	0.6824	0.039
	9579	9569	10	414268	channel composite	41.71	39.371	0.0411	0.009
	9569	9557	12	414269	channel composite	53.02	31.65	0.0736	0.013

Photo 2: Trench T10-01.

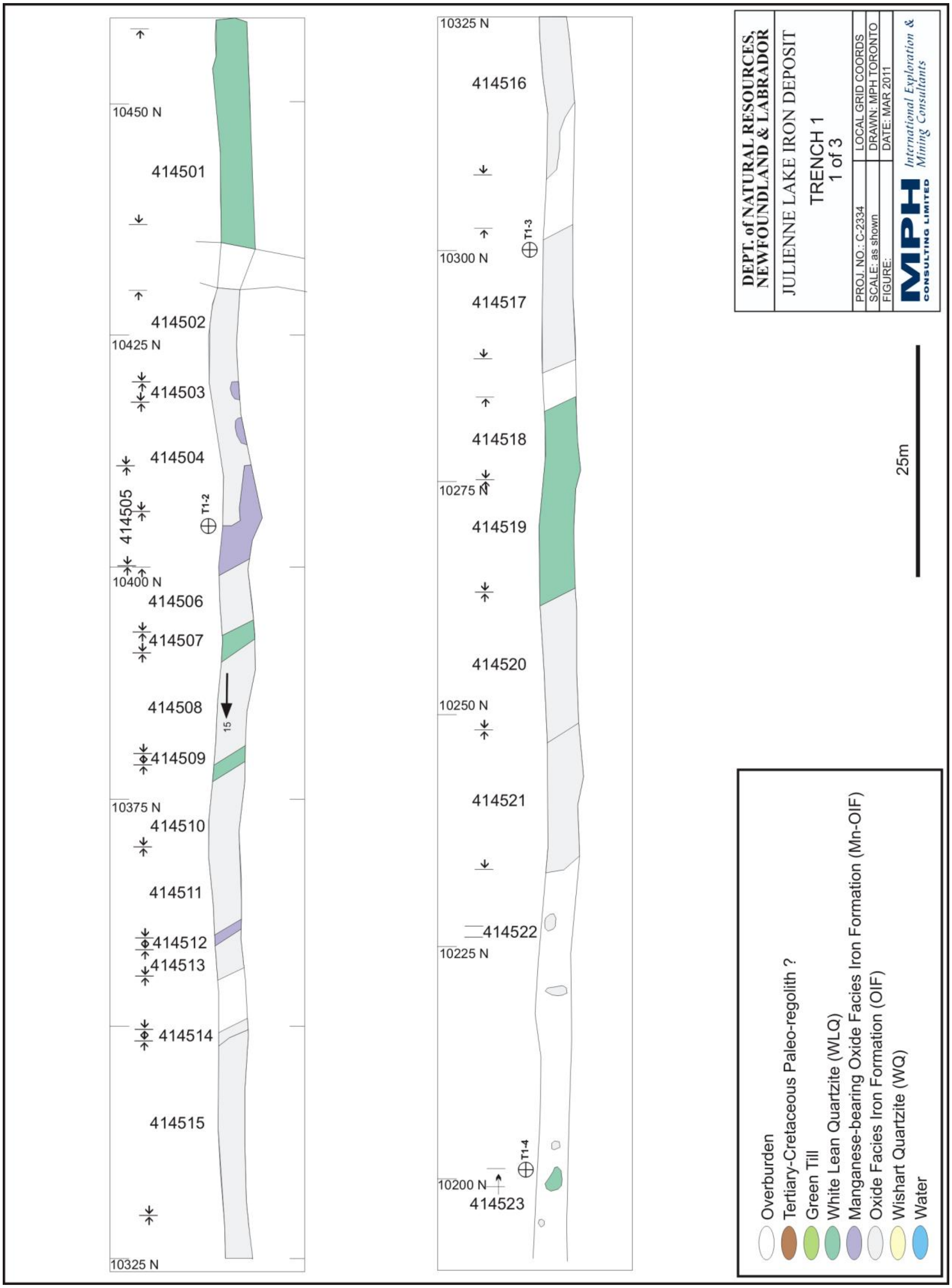


Figure 10-4a: Geological Map, Trench T10-01 (part A).

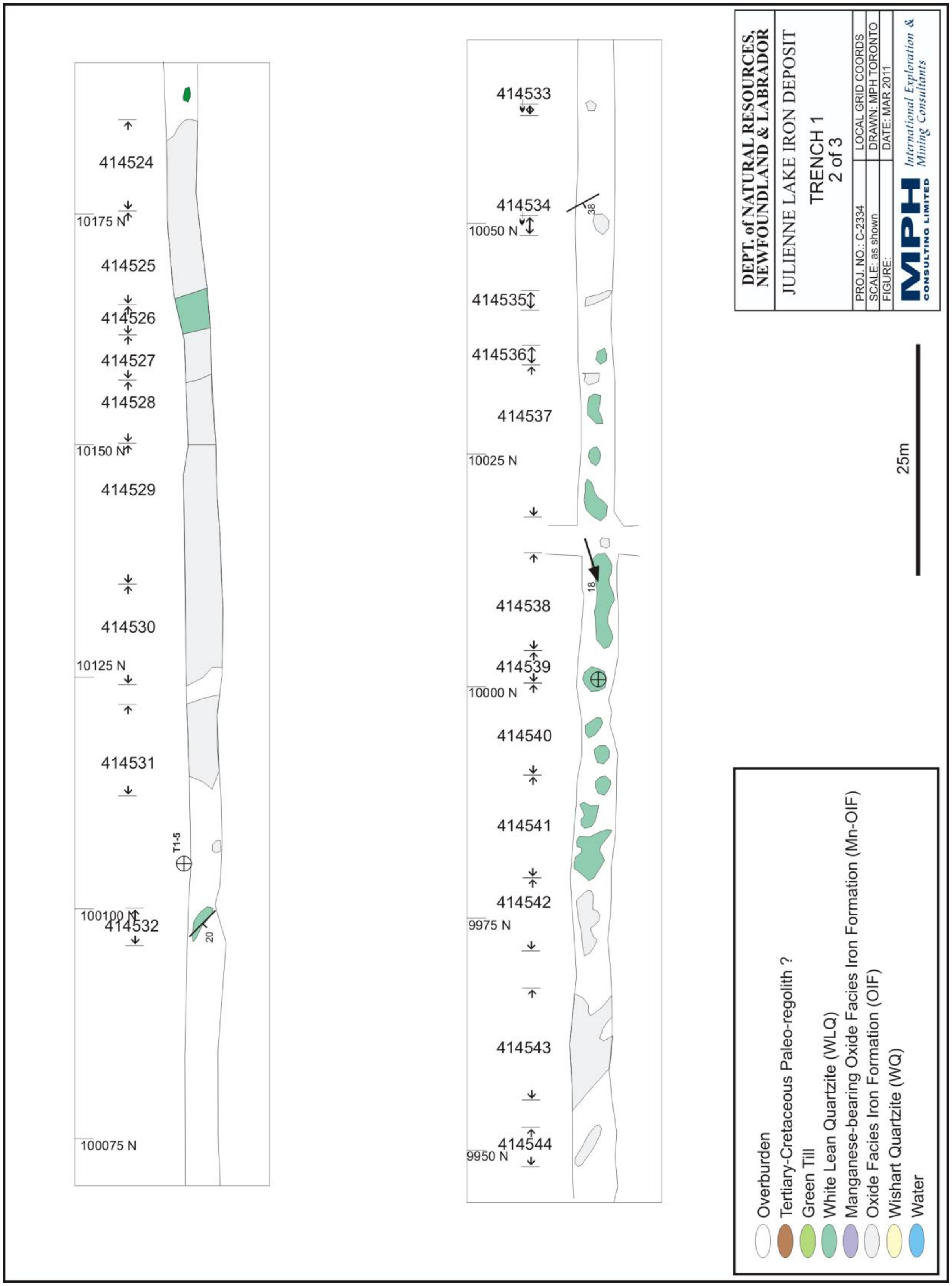


Figure 10-4b: Geological Map, Trench T10-01 (part B).

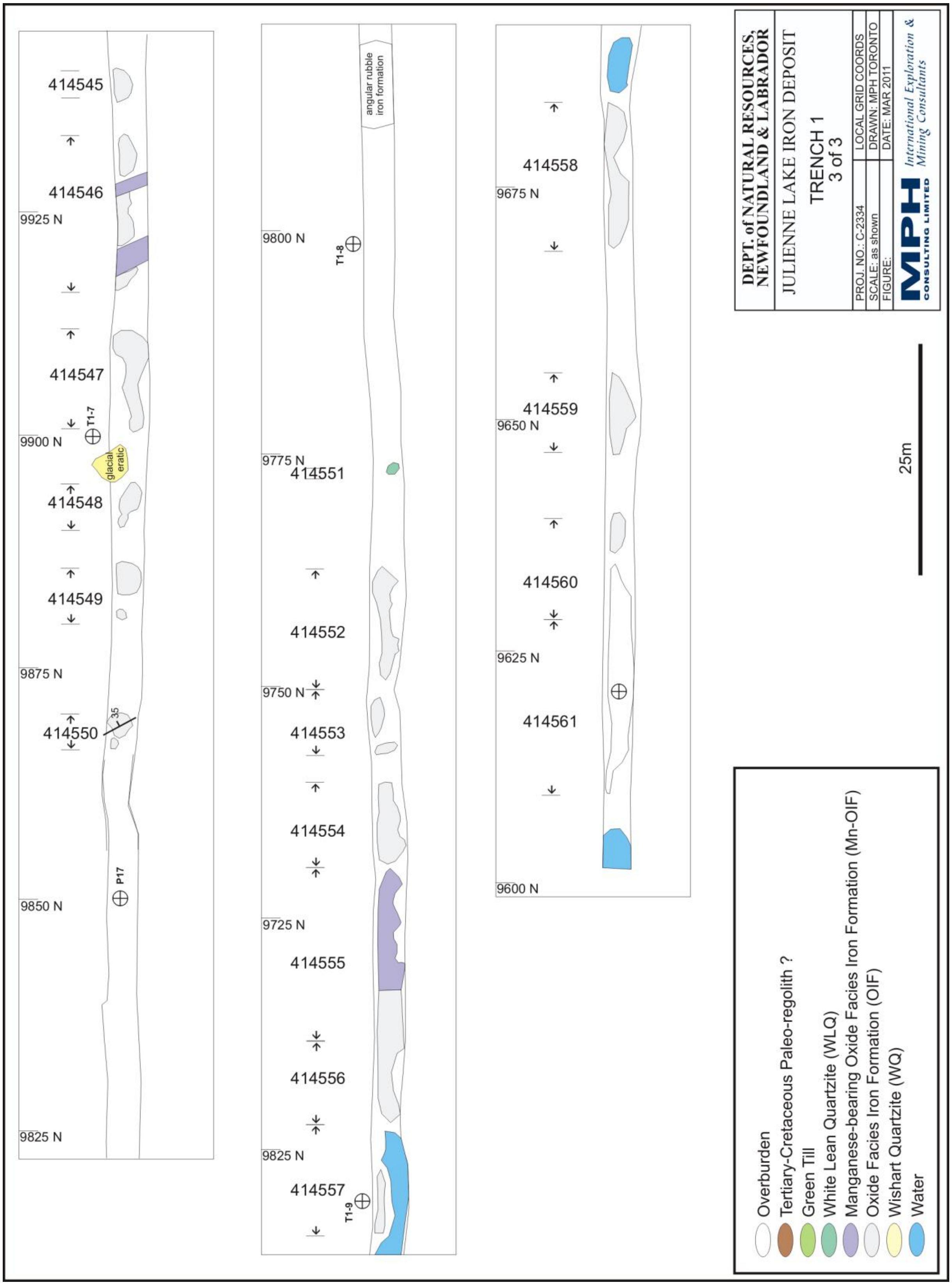


Figure 10-4c: Geological Map, Trench T10-01 (part C).

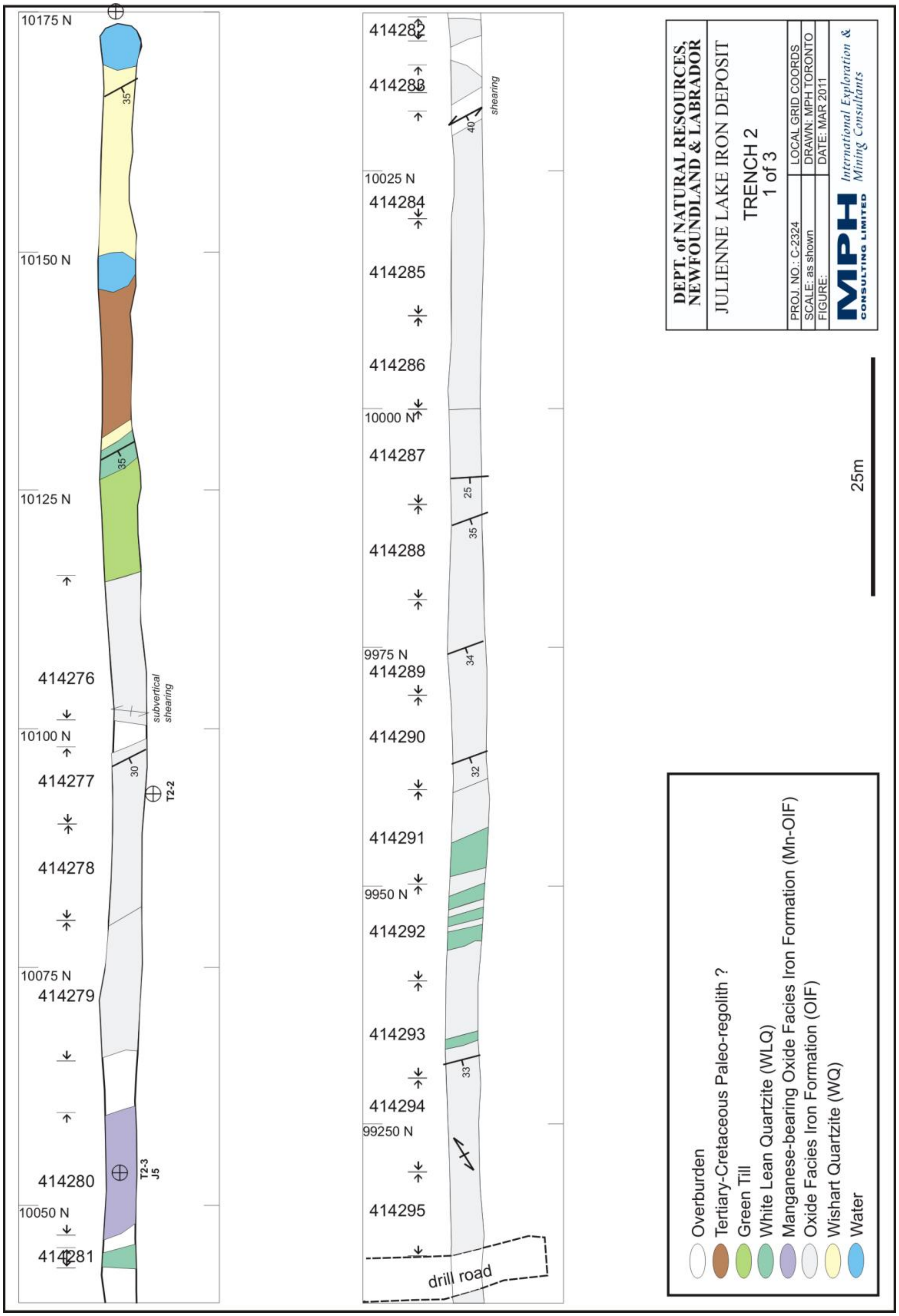


Figure 10-5a: Geological Map, Trench T10-02 (part A).

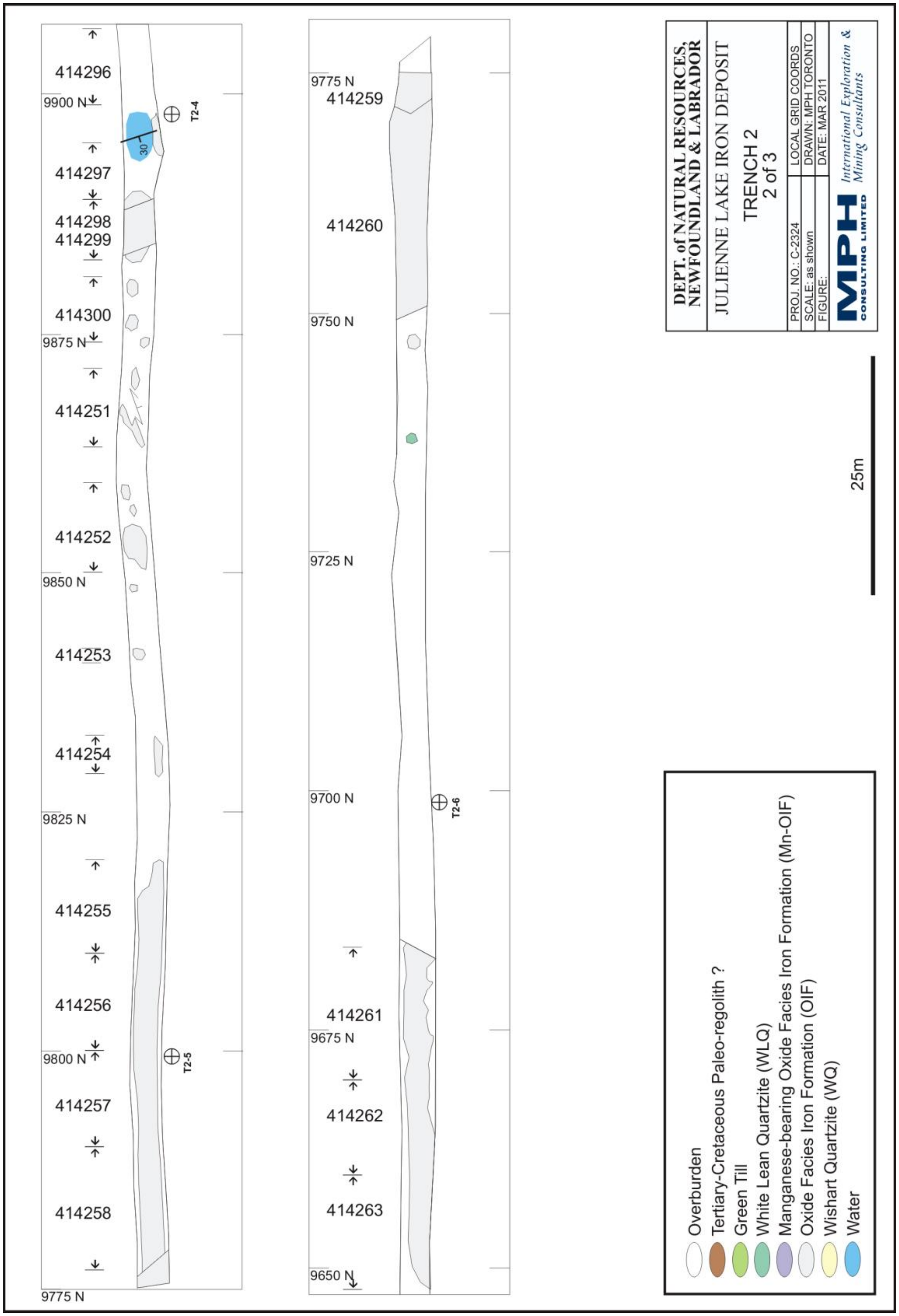


Figure 10-5b: Geological Map, Trench T10-02 (part B).

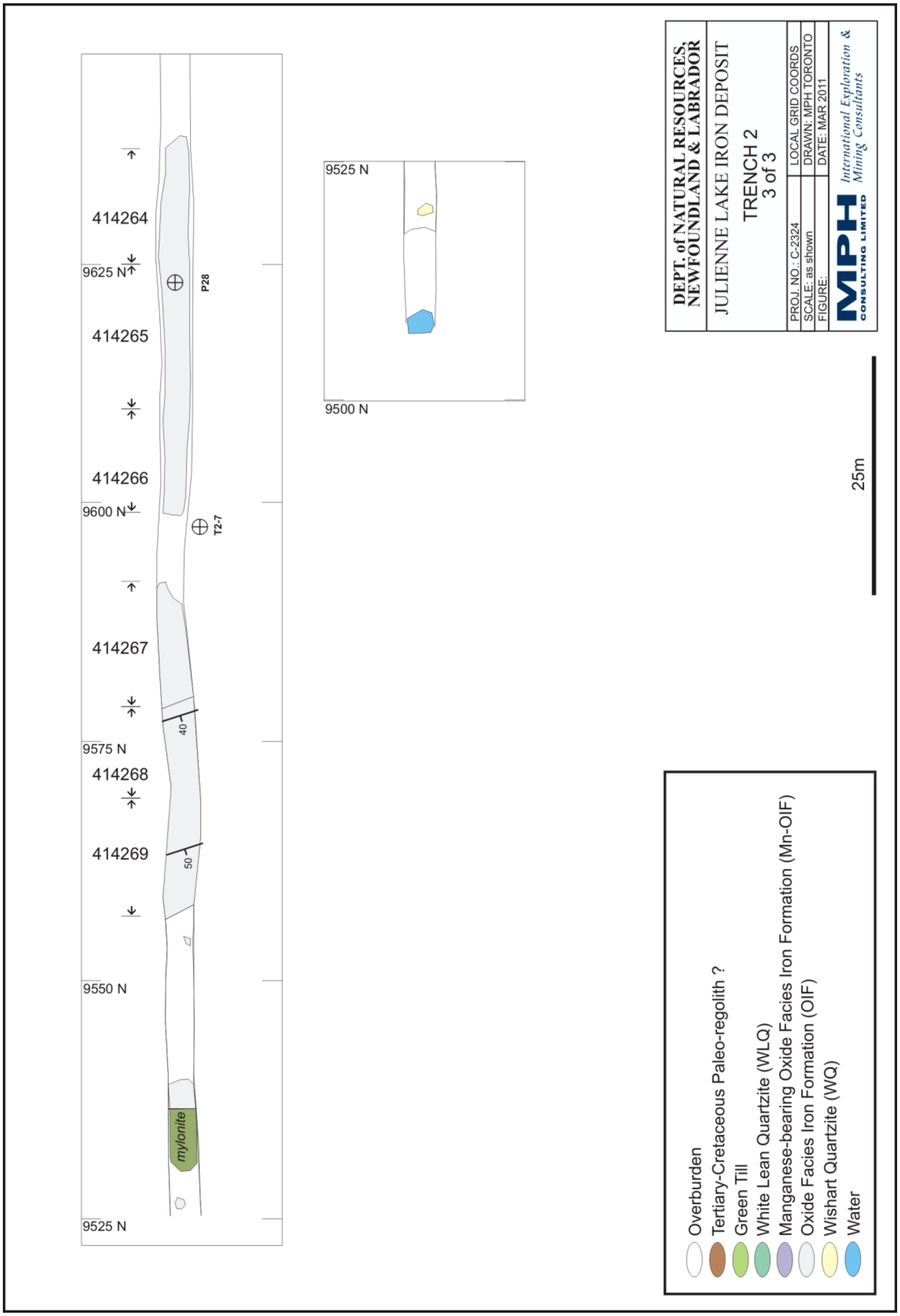


Figure 10-5c: Geological Map, Trench T10-02 (part C).

11.0 SAMPLING METHOD AND APPROACH

Sampling programs pertaining to the Julienne Lake iron deposit include historical work by Canadian Javelin and associated companies during the late 1950's to early 1960's and the current work for the Government of Newfoundland and Labrador. Both sampling eras concentrated exclusively on bedrock samples from either drill core or surface outcrops and trenches. No indirect-approach exploration geochemical programs such as soil, humus, till or stream sediment sampling have been conducted on the property.

The historical reports provide some details regarding early sampling protocols. These summarised in sections 11.1 and 11.2. The current assay database comprises diamond drill core samples and rock samples taken from two surface trenches, T10-1 and T10-2. See sections 11.3 and 11.4.

11.1. Historical Canadian Javelin Drill Core Samples

Caving, jamming and poor core recovery problems were reported for the early Canadian Javelin diamond drill holes drilled in 1957 and 1958. None of these holes have assays used in the resource estimate.

The 1957 and 1958 Canadian Javelin drilling was under the direct supervision of Pickands Mather & Co. Geologists (Pickands Mather & Co. 1957 & 1958). The drill core was logged on site and marked for sampling. The core was then shipped to the Pickands Mather Wabush base camp where the core was measured, weighed and split. One half of the core was crushed to ¼ inch prior to shipment. Drilling sludge samples were also taken at 5 foot intervals. These were also shipped to the Wabush camp where they were dried, weighed and riffled to make up samples in the range of 5 to 10 pounds. The samples for analysis were forwarded to another Pickands Mather camp at Ross Bay on the Quebec North Shore & Labrador Railway, from whence they were shipped to the Pickands Mather Research Labratory at Hibbing, Minesota.

The remaining split core at Wabush was lost in a warehouse fire in 1966.

11.2. Historical Canadian Javelin Surface Bulk Samples

Two bulk sampling programs were undertaken for the Julienne Lake deposit in the early 1960's, including:

- Approximately 38.5 tons of iron formation material shipped to Lakefield Research at Lakefield, Ontario in December, 1960, and
- Approximately 162 tons of iron formation also shipped to Lakefield in November, 1963.

December 1960, Bulk Sample

The 1960 bulk sample was acquired by Canadian Javelin personnel based at the Wabush Iron Company camp at Wabush, utilizing helicopter access to the site. The samples were taken by a six man crew from 5 pits located along the well exposed outcrop area running approximately along current grid line 1950E.

During the sample collection process, a light weight Copco Cobra gasoline powered drill was used for drilling blast holes and electric detonators were used for setting off Forcite charges. Blasted rock samples ranging from approximately 6 to 8.5 tons were collected at each pit and placed in bags each holding approximately 100 pounds of material. Each bag was marked and double-tagged with the designated pit number. In addition one bag of representative ‘composite’ material was taken from each pit for analysis.

The samples were transported from the collection sites to the Wabush airstrip by a Sikorsky S-55 helicopter using an external sling net. From there the shipment went by rail to Sept Isles, QC and onward by truck to Lakefield, ON.

November 1963 Bulk Sample

The November 1963 bulk sample comprised an approximate total of 162 tons of material, including 150 tons taken from 12 test pits, plus a 12 tonne composite sample.

The general sample collection methodology was identical to the 1960 program. However, in the second program the representative composite sample analyses and detailed geological mapping results were in hand before the bulk sample material was collected. Using geological observations and pit analytical results, the weights of material from the individual pits were predicated on empirical average contents of various iron formation units in the deposit as a whole. In short the bulk sample was meant to be truly representative of the deposit.

The samples were transported from the collection sites to the Wabush railway siding along the newly constructed access road. From there the shipment went by rail to Sept Isles, QC and truck to Lakefield, ON.

11.3. 2010 Drill Core Samples

In the 2010 Government of Newfoundland and Labrador program, all drill core was delivered by the contractor to MPH personnel at a temporary core logging facility set up on the property. Due to an increase in drilling meterage and the onset of winter conditions logging/sampling operations were moved to a rented warehouse at the Wabush industrial park for the latter part of the program. Core was logged, marked for analytical sampling and dry bulk density measurements. As well, all core sections were subjected to RQD analysis, magnetic susceptibility measurements and digital photography. Those boxes containing sections to be sampled were transported to the on-site sampling shack or area of warehouse where analytical samples were cut in one sixth proportion with a diamond saw. Sample records were kept as numbered sample books, as tags placed in the core boxes and on sample sheets incorporated into the drill logs. A numbered sample tag was placed inside each sample bag sent for analysis and the appropriate sample number was also marked on the outside of each bag. Core boxes, were labelled with aluminum Dymo tape and the remaining core was stored and stacked on site or at the warehouse during the duration of the program. At the end of the program all of the core was double boxed, tightly wired closed, placed on pallets, secured with steel straping and was shipped by truck to Goose Bay where it is stored permanently at the Department of Natural Resources core library. Remaining coarse reject and pulp material from the Actlabs preparation facility is also stored at the core library.

All samples were placed in 19 litre (5 gallon) plastic buckets with lids, stacked and shrink-wrapped on pallets, then shipped by commercial road transport to the Actlabs preparation facility in Goose Bay, NL. From there analytical pulps were couriered to the Actlabs laboratory in Ancaster, ON for analysis.

11.4. 2010 Trench Samples

Trenches T10-1 and T10-2 were geologically mapped in two stages. The first step was a preliminary phase of mapping of unwashed exposures as the trenches were being dug, while the second more detailed phase was implemented after the trenches were washed to some degree. Washing using portable water pumps was hampered somewhat by the general lack of a nearby source of clean water on the hill top.

The trenches were sampled by a combination of discontinuous sawn channel cuts and more or less representative composite grab samples. Where possible the samples were chiselled from parallel rock saw cuts approximately 2-3 cm apart. In some instances, grab samples or combinations of grabs and channel cuts were taken. Sample records were kept as numbered sample books and on sample sheets. A numbered sample tag was placed inside each sample bag sent for analysis and the appropriate sample number was also marked on the outside of each bag.

All samples were placed in 19 litre (5 gallon) plastic buckets with lids, stacked and shrink-wrapped on pallets, then shipped by commercial road transport to the Actlabs preparation facility in Goose Bay, NL. From there analytical pulps were couriered to the Actlabs laboratory in Ancaster, ON for analysis.

11.5. 2010 Drill Core Coarse Reject Duplicate Samples

A suite of coarse reject duplicate samples were collected from all batches of samples processed at the Actlabs Goose Bay sample preparation facility. MPH Consulting collected a total of 45 samples representing a wide range of iron contents including a minimum of three samples per shipment over the whole length of the work program.

The samples, each weighing approximately 500 grams, were collected at the Actlabs Goose Bay facility by H. Coates during two visits, the first roughly half-way through and the second after completion of the program. Sample records were kept as a second set of numbered sample books and on sample sheets. A numbered sample tag was placed inside each sample bag sent for analysis and the appropriate sample number was also marked on the outside of each bag.

All samples were in the continuous possession of H. Coates from collection in the preparation facility until delivery to the Agat Laboratories laboratory in Mississauga, ON for analysis.

12.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

There is no available detailed information on the historical Canadian Javelin sample preparation and analytical protocols. All of the current program routine drill core and trench rock samples were submitted to the Actlabs preparation facility in Goose Bay, NL for sample preparation and then to the Actlabs laboratory in Ancaster, ON for analysis. A suite of coarse reject samples was submitted to AGAT Laboratories in Mississauga, ON for referee (duplicate) analyses.

12.1. Historical Canadian Javelin Core and Rock Samples

All of the early core samples were sent to the Pickands Mather and Co. Research Laboratory in Hibbing, Minnesota for mineralogical examination and process testwork (Pickands Mather, 1957). As part of these investigations 'head' samples were cut out of core and sludge samples and sent to the Lerch Brothers Inc. laboratory in Hibbing, Minnesota to be assayed for iron, silica, manganese and phosphorous. While the analytical results are contained in the historical drill logs, no information is available regarding the samples' preparation and analysis techniques.

The historical rock samples' analyses are primarily associated with the Canadian Javelin bulk samples of 1960 and 1963, both of which were submitted to Lakefield Research of Lakefield, ON. As part of these investigations, representative composite samples were obtained from the various pits to determine 'head' grades. Splits of these composites were assayed for iron, silica, manganese, phosphorous, sulphur and titania. The analytical results are contained in the historical Canadian Javelin reports, but no information is available regarding the sample preparation and analysis techniques

No information concerning security of samples is contained in the available historical reports.

12.2. 2010 Routine Core and Rock Samples, Actlabs

Actlabs is accredited to both ISO 17025 and CAN-P- 1579 for specific registered tests.

ISO 17025 is the main standard used by testing and calibration laboratories. There are many commonalities with the ISO 9000 (9001,9002) standard, but ISO 17025 adds in the concept of competence to the equation and it applies directly to those organizations that produce testing and calibration results. Updates to ISO 17025 have introduced greater emphasis on the responsibilities of senior management, and explicit requirements for continual improvement of the management system itself, and particularly, communication with the customer. Laboratories use ISO 17025 to implement a quality system aimed at improving their ability to consistently produce valid results. Since the standard is about competence, accreditation is simply formal recognition of a demonstration of that competence. A prerequisite for a laboratory to become accredited is to have a documented quality management system. Regular internal audits are expected to indicate opportunities to make the test or calibration better than it was. The laboratory is also expected to keep abreast of scientific and technological advances in relevant areas.

There are two main sections in ISO/IEC 17025 - Management Requirements and Technical Requirements. Management requirements are primarily related to the operation and effectiveness of the quality management system within the laboratory. Technical requirements address the competence of staff, methodology, test/calibration equipment and the test methods. Full validation of test methods and proof of proficiency set this standard apart from ISO 9001 or 9002.

Actlabs was one of the first labs in North America to attain this accreditation becoming accredited in 1998. Actlabs also has the largest scope of accreditation in the minerals industry.

CAN-P-1579 is the Standard Council of Canada's ("SCC") requirements for the accreditation of mineral analysis testing laboratories. The CAN-P-1579 document provides an elaboration, interpretation and additional requirements to those requirements in ISO 17025 that are required for laboratories involved in performing mineral analysis testing for mining, exploration and processing. The program is designed to ensure mineral analysis testing laboratories meet minimum quality and reliability standards and to ensure a demonstrated uniform level of proficiency among these mineral analysis testing laboratories. This document identifies the minimum requirements for accreditation of laboratories supplying mineral analysis testing services for the following sample types: sediments, rocks, ores, metal products, tailings, other mineral samples, water and vegetation. To obtain initial accreditation by SCC, a laboratory must successfully complete both a proficiency testing regimen and an on-site assessment. Actlabs is one of the few commercial laboratories which have achieved this distinction.

Actlabs Sample Preparation RX1-GB

All core and rock sample were prepared for analysis at the Actlabs preparation laboratory located in Goose Bay, NL. RX1-GB sample preparation protocols are as follows:

- Upon delivery to the Goose Bay laboratory, samples are unpacked, sorted and entered into a Laboratory Information Management System (LIMS). Clients can track samples from sample reception and logging through to preparation, analysis and reporting.
- As a routine practice with rock and core, the entire sample is crushed to a nominal minus 10 mesh (1.7 mm), mechanically split (riffle) to obtain a representative sample and then pulverized to at least 95% minus 150 mesh (105 microns).
- As a routine practice, Actlabs will automatically use cleaner sand between each sample at no cost to the customer.
- Quality of crushing and pulverization is routinely checked as part of Actlabs 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.

Actlabs Analysis 4C-XRF Fusion-MPH Package

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_2O+, CO_2, 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 automated crucible fluxer and automatically poured into Pt molds for casting. Samples are analyzed on a Panalytical Axios Advanced wavelength dispersive 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.

Table 12-1: Actlabs Code 4C Fusion-XRF, Detection Limits

Oxide	Detection Limit
SiO_2	0.01
TiO_2	0.01
Al_2O_3	0.01
Fe_2O_3	0.01
MnO	0.001
MgO	0.01
CaO	0.01
Na_2O	0.01
K_2O	0.01
P_2O_5	0.01
Cr_2O_3	0.01
LOI	0.01

MPH requested that the iron, manganese and phosphorous analytical results be reported as total Fe, Mn and P instead of the oxides Fe_2O_3, MnO, and P_2O_5.

Table 12-2: Actlabs Code 4C Fusion-XRF, MPH Package Detection Limits

Oxide	Detection Limit
SiO_2	0.01
TiO_2	0.01
Al_2O_3	0.01
Fe	0.007
Mn	0.0008
MgO	0.01
CaO	0.01
Na_2O	0.01
K_2O	0.01
P	0.0005
Cr_2O_3	0.01
V_2O_5	0.003
LOI	0.01

Photo 2: Actlabs Panalytical Axios Advanced wavelength dispersive XRF

12.3. Referee Core Samples, AGAT Laboratories

AGAT Laboratories' Mining Division is accredited to ISO/IEC 17025 (CAN-P-1579) by the Standard's Council of Canada (SCC) for specific tests. As such the laboratory adheres to a QA/QC regimen that is comparable in all respects to that described above for the principal laboratory.

The sample preparation and analytical procedures utilized for the Julienne Lake samples are briefly summarized below.

AGAT Code # 200009, 200014 – Riffle Split, Pulverize 85% passing 75µm

Samples are passed through a riffle split pan until the desired representative amount of sample (100-250g) is obtained. The reject fraction is collected and the remainder is pulverized to 85% passing 75µm.

AGAT Code # 201043 – LECO – Carbon, Sulfur

The majority of metals and their alloys will burn in oxygen when heated to a high enough temperature. The carbon in the pulverized sample is oxidized to carbon dioxide (CO_2) while the sulfur is converted to sulfur dioxide (SO_2). CO_2 and SO_2 are then measured by infrared (IR) detectors. The use of an induction furnace is the preferred method of heating and combusting metals for carbon and sulfur analysis. In an induction furnace, induced electrical currents heat the sample and accelerator to transform the metals to oxides. A reference blank is analyzed every 40 samples (or once per batch), a standard reference material is analyzed at least every 20 samples or once per batch and replicates are weighed 12 samples or once per set. This sample is chosen at random and weighed and analyzed in replicate (replicate meaning a second subsample taken from the pulp envelope).

AGAT Code # 201076 – Borate Fusion – ICP-OES Finish

This strong fusion technique consists of adding a mixture of lithium metaborate and lithium tetraborate to the sample. After the sample is heated to extreme temperatures, the molten bead is then digested in a weak nitric acid solution. This solution is then analyzed using a PerkineElmer 7300DV – ICP-OES (Inductively Coupled Plasma-Optical Emission Spectroscopy). A reference blank is fused every 40 samples (or once per digestion batch), a standard reference material is weighed and fused at least every 20 samples or once per digestion batch and replicates are weighed and fused every 12 samples or once per digestion set. This sample is chosen at random and weighed and digested in replicate (replicate meaning a second subsample taken from the pulp envelope).

12.4. Dry Bulk Density Determinations

A very common problem encountered in the mineral industry relates to the direct use of specific gravity measurements taken by the water displacement method and being directly converted to tonnes/cubic metre as a volume to tonnage conversion factor. In reality specific gravity measurements, if not corrected for natural void space such as fractures, joints, cavities and other openings, can result in significant overstatement of deposit tonnage in certain instances. It was evident from historical information, in particular the low drill core recovery, that void space might be a significant issue in the Julienne Lake deposit. To counteract part of this potential problem it was decided at the outset to take dry bulk density measurements by accurately weighing known volumes of dry drill core.

The method is basically simple. It involves the use of a jig to carefully saw a section of whole NQ core (diameter 47.6 mm) at right angles to the core axis. The sawn core section is the carefully measured for length and checked for diameter to within about ½ millimetre. Volume is then determined utilizing the standard formula for volume of a cylinder. The air dried core is weighed to the nearest gram using an electronic scale. The scale is checked for accuracy before and after each use using a set of calibration weights ranging from 1 gram to 5 kilograms. The dry bulk density is determined by dividing the dry weight (grams) by the volume (cc).

An issue with this method is the fact that core sections need to be intact, so it not useable for core sections that are severely broken and fractured. To offset this problem MPH has utilized a general and somewhat arbitrary 0.95 reduction from the measured bulk densities to arrive at the tonnage conversion factor for the deposit. See Section 16-3 below.

Regression analyses have been undertaken to correlate tonnage factors with silica and total Fe + Mn contents to arrive at a range to tonnage factors related to overall Fe + Mn contents. Thus iron formation material with a high average iron content has higher tonnage factor than silica-rich lower grade material. Also waste rock or Wishart Quartzite has an even lower tonnage factor due to its mineralogy.

A total of 461 dry bulk density measurements were taken by MPH over the course of the drilling program. The results are presented in a subsequent section of this report, Table 16-10.

Photo 3: Dry bulk density measuring apparatus.

12.5. Security

The nature of the commodity of interest precludes the notion that tampering with samples might result in significantly higher than actual iron grades. In reality the opposite is true because the properly trained geologist effectively knows Fe and SiO_2 contents within a few percentage points by visual examination. This enables detection of irregularities caused either by mundane logistical matters such as miss-numbering of samples or potentially more sinister matters such as so called ‘salting’.

The main security concern in this instance, due to the proximity to civilization, was vandalism. When logging/sampling operations were conducted at the site, MPH personnel were present during daytime working hours. The drilling operations were conducted 24 hours/day and drillers personnel were paid to security check the logging/sampling area on a nightly basis. When logging/sampling were moved to Wabush the warehouse work area was locked when MPH workers were not present.

No special security measures were taken other than routine careful marking, handling, transportation and storage of samples. Extreme measures such as might be invoked to minimize precious metals, and diamond sample tampering are not considered warranted in this case.

13.0 DATA VERIFICATION

The data verification aspects of a property evaluation exercise normally include the confirmation of existence of work sites such as survey grids, property boundaries, drill holes and underground workings as well as procedures to test the reliability of the historic database, in particular the analytical results. With respect to analytical data, the in-laboratory and intra-laboratory QA/QC procedures, or lack thereof, of the previous property operators are reviewed along with the results of duplicate sampling if available. Finally, a check sampling program conducted by the author(s) of an evaluation or technical report is normally an integral part of the overall exercise.

It is unknown from current records if the laboratory utilized by Javelin employed adequate in-laboratory blanks, standards and duplicate analyses to ensure precision and accuracy of results. No quality control (QC) and quality assurance (QA) protocols or data exist for the historic Javelin exploration programs, and the historic resource estimates. There is a minimal amount of field duplicate sample analytical data available that is discussed below.

The 2010 exploration program included data verification including the confirmation of existence of historical sites along with a regimen for ensuring that the various data collected during the current program meets industry standards for precision and accuracy.

13.1. Historical Field Duplicate Sample Data Analysis

A search of the historical records has identified a few actual samples sites or groups of samples that have been sampled on more than one occasion and can therefore be utilized as *de facto* field duplicates. The inadvertent use of rutile-contaminated second-hand bags for the 1960 test pit samples (Titania Affair) resulted in a later (1966) sampling program to confirm that the deposit did not contain elevated TiO_2 levels. Perhaps fortuitously, the 1966 samples included a total of 9 sites that can be used as an empirical check of two earlier sample sets, namely the 1960 test pits' control samples and the T62-1 trench composite chip samples.

Even though the same laboratory was presumably used for all the samples MPH considered this to be important information that might provide a degree of corroborative verification of analytical data between historic exploration programs. The analytical results for original samples submitted to the Lerch Brothers Sept Isles laboratory and the *de facto* field duplicate samples sent later to the same laboratory, as compiled by MPH, are shown in Table 13-1 and 13-2. Scatter plots were prepared by MPH as a check of the data and are presented in Figure 13-1.

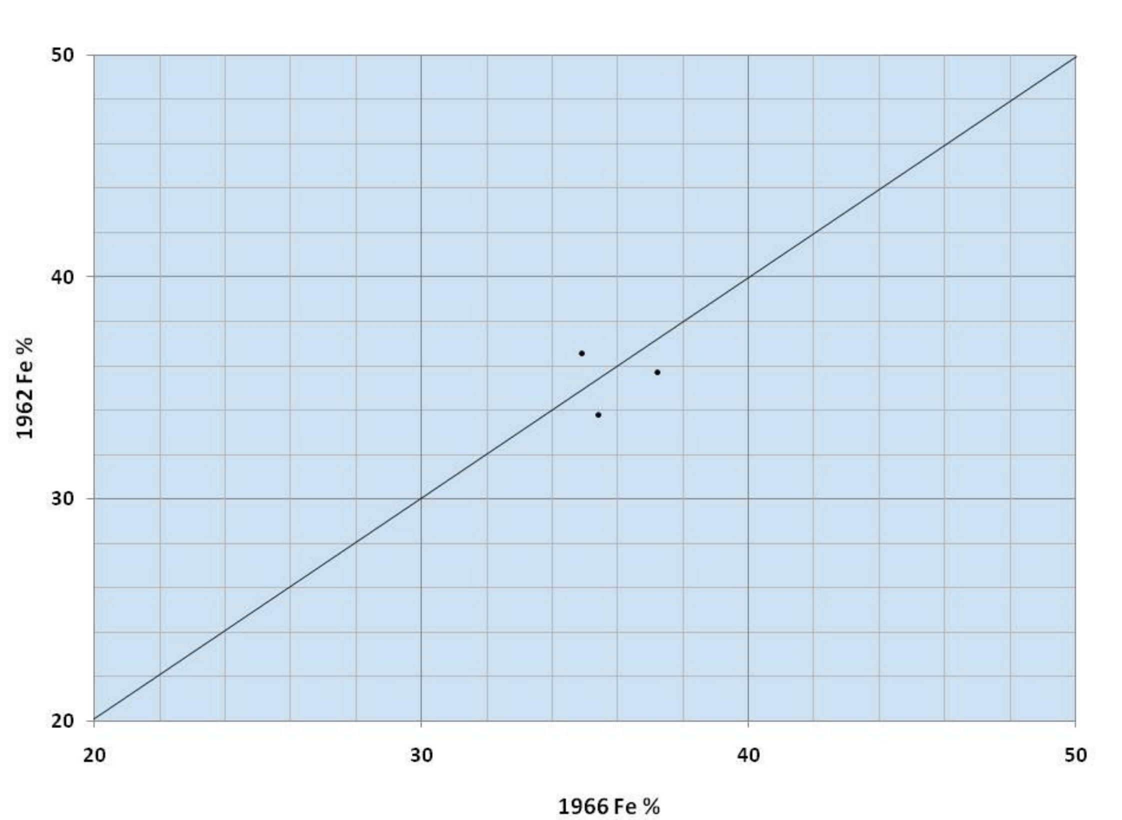
At the outset it is noted that the few available duplicate sites are insufficient to allow definitive conclusions. However, the patterns that did emerge were surprising and do indicate a definite need for proper QA/QC protocols for all aspects of ongoing work. In essence the 1966 duplicate sample values are consistently higher than the 1960 values and consistently lower than the 1962 values. This clearly indicates a problem, the solution(s) of which might lie anywhere from program design, to sample collection, to sample tagging, bagging and handling, to transportation, to sample preparation, to analysis and finally to data management.

Table 13-1: Historic Calculated Field Duplicates, Trench T62-1

Trench	1962 surface composite grab				1966 surface composite Grab				Calculated Duplicates			
	From (ft)	To (ft)	ID	Fe%	From (ft)	To (ft)	ID	Fe%	From (ft)	To 9ft)	1962	1966
T60-1	200	300	2231	34.34	200	380	none	33.37	200	1000	35.41	33.79
T60-1	300	400	2232	36.71	380	625	none	33.18	1000	1800	37.20	35.72
T60-1	400	500	2233	35.51	625	775	none	32.86	1800	2425	34.91	36.58
T60-1	500	600	2234	30.54	775	1000	none	35.43				
T60-1	600	700	2235	39.51	1000	1290	none	37.51				
T60-1	700	800	2236	33.18	1290	1475	none	35.27				
T60-1	800	900	2237	33.68	1475	1625	none	33.18				
T60-1	900	1000	2238	39.84	1625	1800	none	35.43				
T60-1	1000	1100	2239	44.56	1800	1970	none	32.70				
T60-1	1100	1200	2240	35.11	1970	2150	none	34.14				
T60-1	1200	1300	2241	38.31	2150	2285	none	43.76				
T60-1	1300	1400	2242	37.35	2285	2425	none	37.51				
T60-1	1400	1500	2243	33.18								
T60-1	1500	1600	2245	43.20								
T60-1	1600	1700	2246	29.82								
T60-1	1700	1800	2247	36.07								
T60-1	1800	1900	2248	33.50								
T60-1	1900	2000	2249	30.30								
T60-1	2000	2100	2250	31.26								
T60-1	2100	2200	2251	35.51								
T60-1	2200	2450	2252	38.55								

Table 13-2: Historic Field Duplicates, Test Pits P60-1 to 5

Pit #	1960 composites				1966 resample composites			
	From	To	Sample No	Fe%	From	To	Sample No	Fe%
P60-1	0.0	5.00	107621	34.56	0.0	5.00	3554	45.23
P60-2	0.0	5.00	107622	27.54	0.0	5.00	3567	34.80
P60-3	0.0	5.00	107623	45.02	0.0	5.00	3562	44.35
P60-4	0.0	5.00	107624	42.86	0.0	5.00	3561	45.85
P60-5	0.0	5.00	107625	31.61	0.0	5.00	3557	33.50



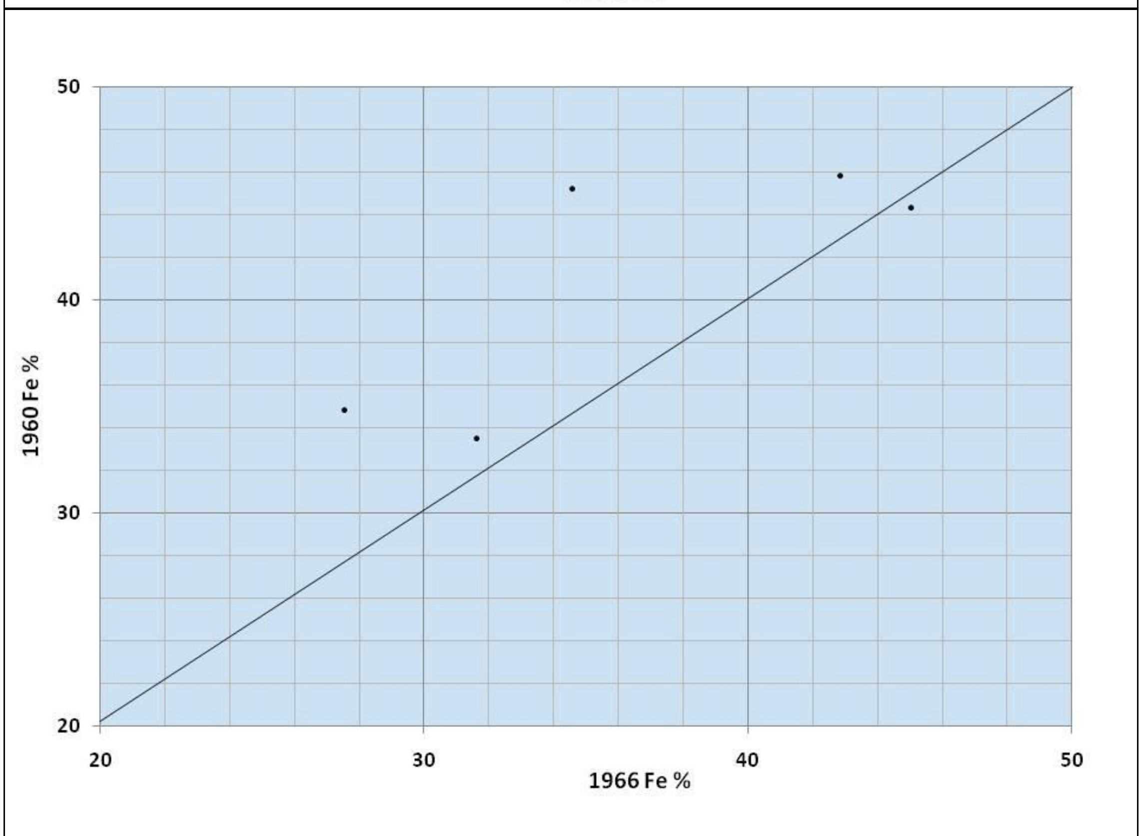


Figure 13-1: Historical Field Duplicate Scatter Plots.

13.2. Verification of Historical Work Sites

The historical work sites such as cut grid lines, trenches and test pits, and drill hole collar locations in the Julienne Lake area are still readily identifiable in the field. Many key sites have been relocated, accurately DGPS surveyed, and incorporated into the current general database.

13.3. 2010 Drilling and Trench Sampling Program

The field to laboratory procedures for the drilling and trenching program have been described previously in Sections 10, 11 and 12 of this report. The following is a description of the data verification aspect of the program as it applies to the analytical database utilized for resource estimation.

At the outset it is noted that Julienne Lake iron deposit is largely medium to very coarse grained and mineralogically simple, comprising quartz and iron bearing minerals (primarily hematite with minor goethite and magnetite, and localized limonite, Fe silicate and pyrolusite [MnO_2]). It is therefore relatively easy for the experienced core logging geologist to estimate the total Fe and SiO_2 percentages of a given sample interval within a few percentage points. Thus in reality significant discrepancies between rock descriptions and main element analyses are readily apparent as soon as analytical results are received and compiled.

The above notwithstanding, it is still prudent to conduct routine checks of the analytical database by various additional means including:

- Analysis of standards, blanks, and duplicate samples within the primary laboratory Actlabs.
- Submission of field standard rock samples (ROM muck from the Wabush and Carol Mines provided by DNR) and a field blank (quartzite from local quarry) to the primary laboratory inside each sample batch.
- Submission of sawn core field duplicates to the primary laboratory.
- Coarse reject material splits were collected by MPH from all sample batches and submitted to a second or referee laboratory AGAT.

Actlabs Standards, Blanks and Duplicates

Actlabs routinely conducts and reports quality control analyses on all sample batches. A total of 1,280 core and channel samples were submitted to Actalabs and 103 duplicate samples were retested or an average of approximately one in every 13 samples. A laboratory blank and a variety of standards were tested in each batch of samples. Laboratory pulp duplicates for key elements Fe, SiO_2 and Mn are compared with the original values in Figures 13-2, 13-3 and 13-4 and selected analyses (Fe, SiO_2, Mn, P & TiO_2) are presented in Table 13-3. Complete analyses are appended to this report (Volume 4, Parts B and C).

There is very close comparison between the original and the duplicate analyses of pulp material. Note that the apparent scatter in the mid-range Mn values is due to the logarithmic scale used for presentation purposes.

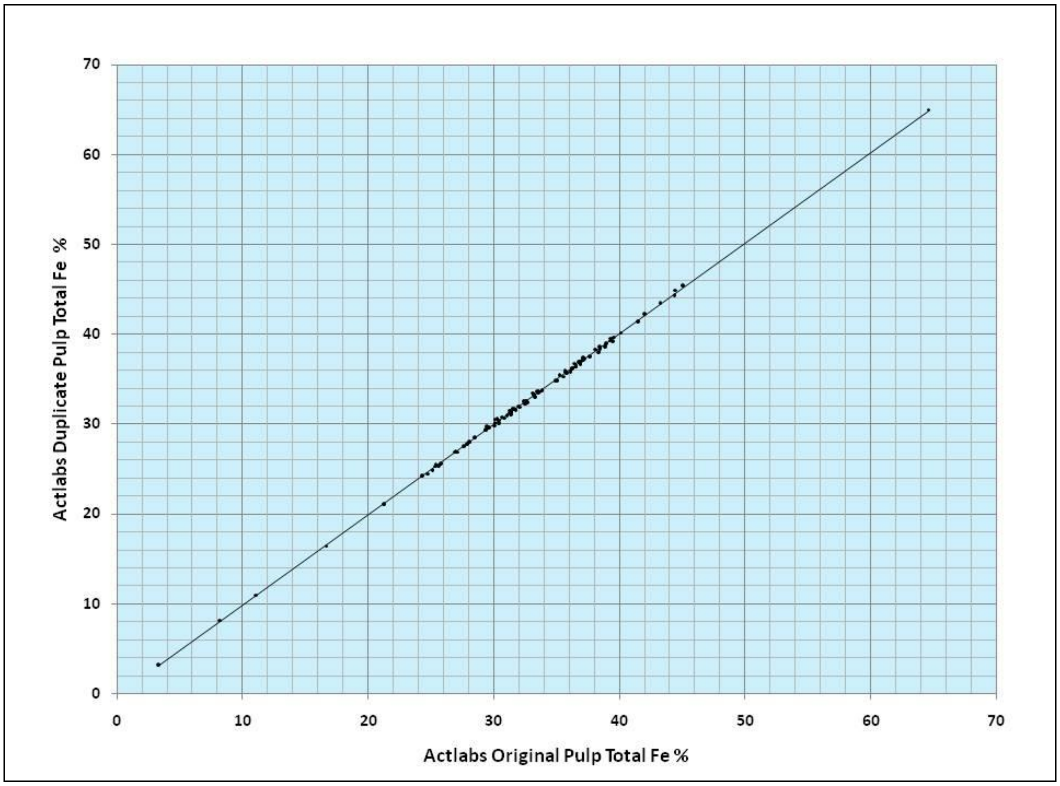


Figure 13-2: Actlabs Pulp Duplicate Analyses, Total Fe %

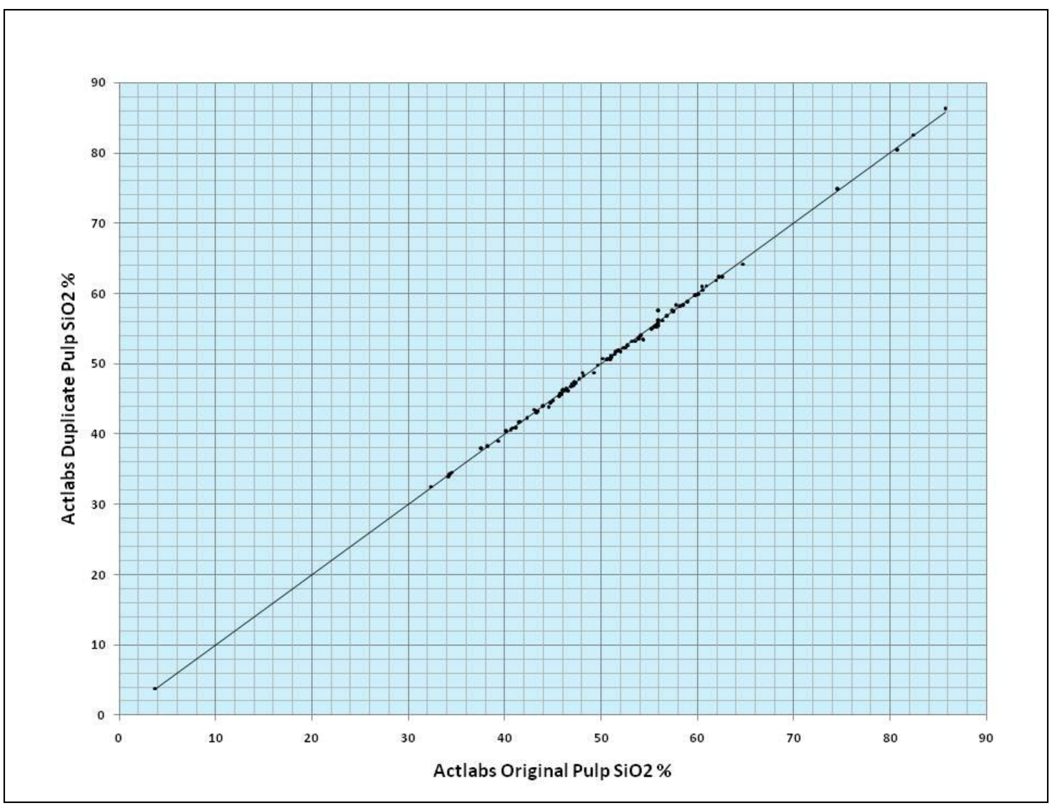


Figure 13-3: Actlabs Pulp Duplicate Analyses, SiO_2 %

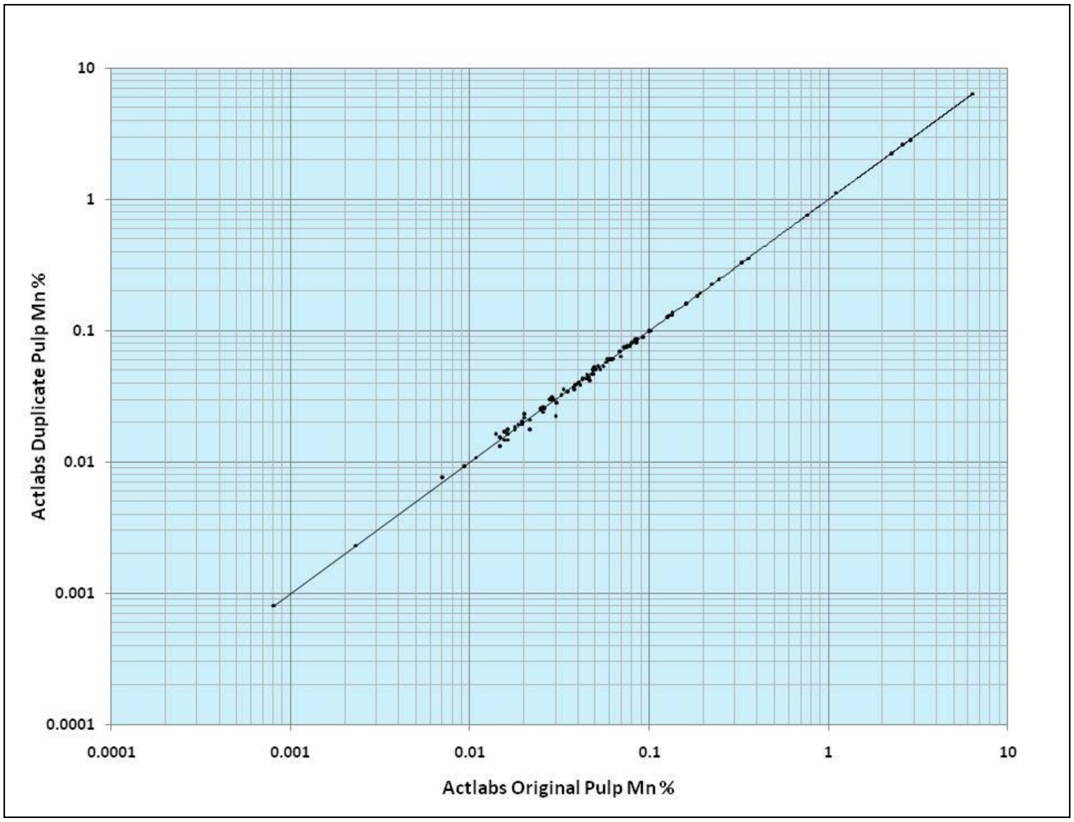


Figure 13-4: Actlabs Pulp Duplicate Analyses, Mn %

Table 13-3: Actlabs Pulp Duplicate Selected Analyses

Sample	SiO_2		Fe		Mn		P		TiO_2	
	Orig	Dup	Orig	Dup	Orig	Dup	Orig	Dup	Orig	Dup
411053A	51.89	51.98	32.469	32.594	0.0294	0.0302	0.009	0.009	0.02	0.02
411053B	52.04	51.73	32.594	32.345	0.0287	0.0302	0.009	0.009	0.02	0.02
411125	60.5	60.46	26.866	26.88	0.0534	0.0511	0.017	0.017	0.02	0.02
411126	51.76	51.89	32.622	32.572	0.0488	0.0473	0.013	0.013	0.01	0.01
411134	53.18	53.23	32.047	31.862	0.0217	0.0209	< 0.005	< 0.005	0.02	0.02
411016	58.49	58.43	28.054	28.082	0.0403	0.0403	< 0.005	< 0.005	0.01	0.02
411030	56.81	56.84	29.361	29.389	0.038	0.0372	0.009	0.009	0.01	0.01
411162A	51.06	50.96	33.549	33.521	0.0325	0.0325	< 0.005	< 0.005	0.01	0.01
411162B	51.01	51.11	33.464	33.634	0.0325	0.0325	< 0.005	< 0.005	0.01	0.02
411075	43.94	44.04	32.369	32.574	6.39	6.39	0.009	0.013	0.01	0.01
411104A	55.88	55.42	30.097	30.559	0.0848	0.0813	< 0.005	< 0.005	0.01	0.01
411104B	55.9	55.85	30.094	30.101	0.0848	0.0848	< 0.005	0.009	0.01	0.01
411187	52.68	52.67	32.483	32.315	0.0248	0.0252	< 0.005	< 0.005	0.01	0.01
411382	53.89	53.55	31.294	31.517	0.0201	0.0217	< 0.005	< 0.005	0.02	0.01
411218	60.1	59.94	27.611	27.533	0.0629	0.0613	0.013	0.013	0.02	0.02

411238	47.26	47.42	35.797	35.671	0.062	0.0604	0.009	0.009	0.03	0.03
411243	61.93	61.85	25.363	25.314	0.0579	0.0579	0.009	0.009	0.05	0.05
411256	43.06	43.45	38.851	38.629	0.0381	0.0356	0.009	0.009	0.02	0.02
411260	57.76	58.34	24.727	24.47	0.1025	0.0996	0.071	0.066	0.26	0.25
411269	48.19	48.34	34.997	34.884	0.1854	0.1839	0.018	0.022	0.01	0.01
411274	60.92	61.1	25.61	25.336	0.0413	0.0387	0.013	0.013	0.02	0.02
411280	50.64	50.64	33.594	33.615	0.0607	0.0607	0.009	0.009	0.02	0.02
411300	46.09	46.25	36.524	36.385	0.0685	0.0697	0.013	0.013	0.03	0.03
411316	46.15	46.27	33.627	33.584	0.1001	0.1001	0.062	0.062	0.14	0.14
411319	49.67	49.8	33.86	33.79	0.0501	0.0511	0.009	0.009	0.02	0.02
411330	55.24	55.01	30.858	30.674	0.0305	0.0282	0.009	0.009	0.02	0.02
411357	41.57	41.75	39.315	39.538	0.0751	0.0767	0.009	0.009	0.04	0.03
411363	45.84	45.72	36.784	36.96	0.0864	0.0872	< 0.005	< 0.005	0.01	0.01
411337	54.11	54.08	30.677	30.783	0.0195	0.0195	0.009	0.009	0.02	0.02
411342	55.9	56.2	29.342	29.342	0.0195	0.0202	0.013	0.013	0.03	0.03
411344	80.69	80.52	3.275	3.27	0.014	0.0164	0.013	0.013	0.29	0.29
411407	50.93	50.64	32.49	32.271	0.0352	0.0344	0.013	0.013	0.03	0.03
411577A	57.49	57.49	28.514	28.555	0.0259	0.0256	< 0.005	< 0.005	0.02	0.02
411577B	57.36	57.61	28.51	28.517	0.0256	0.0263	0.009	< 0.005	0.02	0.02
411438A	59.79	59.77	26.973	26.931	0.0451	0.0467	0.009	0.009	0.03	0.03
411438B	59.76	59.82	27.072	26.875	0.0459	0.0444	0.009	0.009	0.03	0.03
411443	45.93	46.23	36.552	36.455	0.0744	0.0744	0.009	< 0.005	0.01	0.02
411460	34.49	34.51	43.252	43.455	0.3284	0.3308	0.039	0.039	0.04	0.05
411476	45.86	45.75	36.825	36.916	0.0519	0.0542	0.013	0.013	0.02	0.01
411489	3.71	3.79	64.622	64.944	1.1077	1.1232	0.044	0.039	0.02	0.02
411485	45.75	45.78	37.091	37.098	0.0287	0.031	0.009	0.009	0.02	0.01
411505	54.38	53.34	31.252	31.259	0.0147	0.0155	0.013	0.013	0.01	0.01
411506	51.38	51.36	32.594	32.49	0.0163	0.0163	0.017	0.017	0.02	0.02
411519	50.13	50.74	33.126	33.462	0.0302	0.0225	0.017	0.013	0.02	0.02
411535	48.09	48.7	34.93	34.776	0.0728	0.0751	0.009	0.009	0.01	0.01
411657	55.71	55.47	30.273	30.615	0.0186	0.0194	0.009	0.009	0.02	0.02
411692	41.11	40.94	37.664	37.552	2.2595	2.2432	0.009	0.009	0.01	0.01
411611	53.84	53.57	31.762	31.601	0.0488	0.0503	0.009	0.009	0.01	0.01
411599	52.27	52.28	32.678	32.392	0.0147	0.0132	0.009	0.009	0.02	0.02
411702	55.76	55.41	30.07	29.804	0.0155	0.017	0.009	0.009	0.02	0.02
411695	44.58	43.83	38.441	38.629	0.0155	0.0147	< 0.005	< 0.005	0.01	0.01
411722	58.93	58.83	28.035	28	0.0108	0.0108	0.009	< 0.005	0.01	0.01
411543	32.36	32.49	45.063	45.448	0.1611	0.1627	0.044	0.044	0.02	0.02
411559	53.84	53.69	31.07	30.993	0.0426	0.0426	0.013	0.013	0.05	0.05
411603	47.33	47.22	35.231	35.441	0.1929	0.1936	0.013	0.013	0.07	0.07
411604	45.62	45.42	36.979	37.014	0.0922	0.0891	0.009	0.013	0.03	0.03

411616	46.86	46.79	36.119	35.846	0.2455	0.2486	0.009	0.009	0.01	0.03
411629	40.63	40.63	38.93	38.979	0.3563	0.3548	0.079	0.079	0.02	0.02
411690	45.72	45.75	36.902	36.699	0.0596	0.0604	0.009	0.009	0.03	0.01
411650	40.16	40.5	21.231	21.112	0.0837	0.086	0.013	0.013	2.17	2.15
411750A	55.54	55.21	30.402	30.105	*0.0008*	*0.0008*	< 0.005	< 0.005	0.02	0.02
411750B	55.81	55.27	30.385	30.42	*0.0008*	*0.0008*	0.009	< 0.005	0.02	0.02
411769	38.21	38.27	42.007	42.287	0.1619	0.1611	0.013	0.013	0.03	0.01
411779	64.67	64.18	24.301	24.28	0.007	0.0077	0.009	0.009	0.03	0.02
411780	62.55	62.4	25.406	25.51	0.0023	0.0023	0.009	0.009	0.01	0.01
411851	45.05	44.8	37.105	37.371	0.0496	0.0527	0.009	< 0.005	0.03	0.03
411845	34.15	33.94	44.399	44.343	0.7653	0.7599	< 0.005	< 0.005	0.02	0.02
411866	85.74	86.29	8.203	8.14	0.0163	0.0178	0.017	0.013	0.22	0.2
411862	46.04	46.33	36.441	36.734	0.0333	0.0356	< 0.005	< 0.005	0.01	0.01
411816A	47.03	47.17	35.71	35.846	0.0778	0.0767	0.026	0.026	0.02	0.02
411816B	47.09	46.96	35.755	35.664	0.0782	0.0775	0.026	0.026	0.02	0.02
411823	55.9	57.57	29.587	29.657	*0.0008*	*0.0008*	< 0.005	< 0.005	0.02	0.02
411872	58.19	58.18	27.895	27.797	0.0798	0.0813	0.009	0.009	0.02	0.02
414581	37.51	37.99	39.538	39.65	2.598	2.6119	0.009	0.009	0.02	0.02
411903	43.25	43	35.671	35.937	2.8776	2.8528	0.009	0.013	0.02	0.02
411928A	53.92	53.74	31.343	31.105	0.0178	0.0186	< 0.005	0.009	0.02	0.02
411928B	54.33	53.51	31.336	31.35	0.0178	0.0178	< 0.005	< 0.005	0.02	0.03
412076	49.25	48.75	34.909	34.832	0.0465	0.0418	0.009	< 0.005	0.01	0.01
412085	46.23	46.24	37.231	37.28	0.0279	0.0302	< 0.005	< 0.005	0.01	0.02
412086	44.75	44.49	38.364	37.993	0.0217	0.0178	0.009	0.009	0.02	0.02
412110	42.32	42.31	39.294	39.308	0.0829	0.0844	0.009	0.009	0.03	0.02
412112	62.26	62.41	25.126	24.902	0.0558	0.0534	0.009	0.009	0.02	0.03
412121	40.77	40.85	40.112	40.154	0.2239	0.227	< 0.005	0.009	0.02	0.02
412128	46.15	46.16	36.189	36.119	0.127	0.1263	0.009	0.013	0.02	0.02
412133	43.36	43.19	38.476	38.413	0.0387	0.0387	0.009	0.009	0.01	0.01
411950	74.48	74.94	16.671	16.441	0.0163	0.0147	< 0.005	< 0.005	0.01	0.01
411954	52.81	52.61	31.601	31.685	0.0256	0.024	< 0.005	< 0.005	0.01	0.01
412004	60.48	60.97	25.811	25.601	0.1263	0.1286	0.017	0.017	0.01	0.02
412013	82.42	82.55	11.042	10.972	0.0488	0.0465	0.017	0.017	0.02	0.02
412017	52.51	52.28	31.497	31.762	0.0248	0.0256	0.013	0.013	0.02	0.02
412038	51	51.08	33.196	33.28	0.0426	0.0434	< 0.005	< 0.005	0.02	0.02
412041	41.45	41.68	39.441	39.266	0.0999	0.0984	< 0.005	0.009	0.02	0.01
412048	51.5	51.73	33.252	33.021	0.0093	0.0093	< 0.005	< 0.005	0.01	0.01
412151	55.51	55.35	29.594	29.65	0.0449	0.043	< 0.005	< 0.005	0.02	0.02
412181A	46.38	46.56	36.252	36.231	0.0499	0.0507	0.009	0.009	0.01	0.01
412181B	46.56	46.2	36.238	36.266	0.0488	0.0511	0.009	0.009	0.01	0.02
411970	39.33	39.01	41.455	41.392	0.0697	0.0635	0.009	0.013	0.01	0.01

411979	43.24	43.17	38.084	38.322	0.1348	0.1379	0.035	0.035	0.02	0.02
411981	53.52	53.21	31.343	31.42	0.1301	0.1309	0.009	0.009	0.01	0.02
412198	34.23	34.25	44.427	44.888	0.0581	0.0612	0.009	< 0.005	0.02	0.02
412200	47.75	47.88	35.538	35.287	0.0201	0.0232	< 0.005	< 0.005	0.01	0.02
412210	56.37	56.13	29.469	29.741	0.048	0.0465	< 0.005	< 0.005	0.02	0.02
414597	50.83	50.73	31.965	32.007	0.1348	0.1325	0.009	0.009	0.06	0.05

Actlabs routinely analysed and reported certified standard and blank material results with all sample batches. Several different certified standards were utilized for all sample batches. The two key standards utilized throughout the program are designated IF-G and MICA-Fe. Selected analytical results of IF-G are presented in Table 13-4 and Fe, SiO2 and Mn analyses over time are graphically shown in Figure 13-5. The results of MICA-Fe are similarly shown in Table 13-5 and Figure 13-6. All standard and blank analyses' certificates are appended to this report.

The analyses of standards and blanks at Actlabs show no significant irregularities or changes over time. The batch to batch deviations are for practical purposes insignificant, although visually enhanced due to the narrow scale ranges utilized in the figures. Only one Mn value for standard IF-G is noteworthy (Batch A10-8834, value 0.0232 % Mn, highlighted) as being relatively significantly lower than the certified Mn value of 0.033%, or a difference of 0.0098%. However, standard MICA-Fe, which was also analysed in Batch A10-8834 returned 0.2696 % Mn versus the certified 0.271%, or a difference of only 0.0014%. Whatever the cause of the slight discrepancy in the one IF-G analyses may be, it is not considered worrisome. In the opinion of MPH Actlabs has demonstrated acceptable levels of precision and accuracy.

Table 13-4: Actlabs Certified Standard IF-G, Selected Analytical Results

Batch	SiO2	Fe	Mn	P	TiO2
A10-5790	40.95	39.074	0.0333	0.026	0.01
A10-5903	41.12	39.035	0.0333	0.026	0.01
A10-6254	40.74	39.021	0.0349	0.031	0.01
A10-6304	40.74	39.021	0.0349	0.031	0.01
A10-6555	41.15	39.007	0.0325	0.035	0.02
A10-6562	41.15	39.007	0.0325	0.035	0.02
A10-6873	41.09	39.119	0.0349	0.035	0.02
A10-7271	41.2	39.119	0.0356	0.03	0.014
A10-7672	41.26	39.028	0.0356	0.035	0.01
A10-7881	41.12	39.133	0.0302	0.031	0.01
A10-7941	41.16	39.147	0.0349	0.031	0.01
A10-8547	41.28	38.979	0.0294	0.039	0.01
A10-8834	41.36	38.958	0.0232	0.039	0.01
A10-9147	41.17	38.951	0.0356	0.039	0.01
A10-9267	41.17	38.951	0.0356	0.039	0.01
A10-9592	41.17	38.958	0.0356	0.039	0.01
Certificate	**41.2**	**39.06**	**0.033**	**0.03**	**0.014**

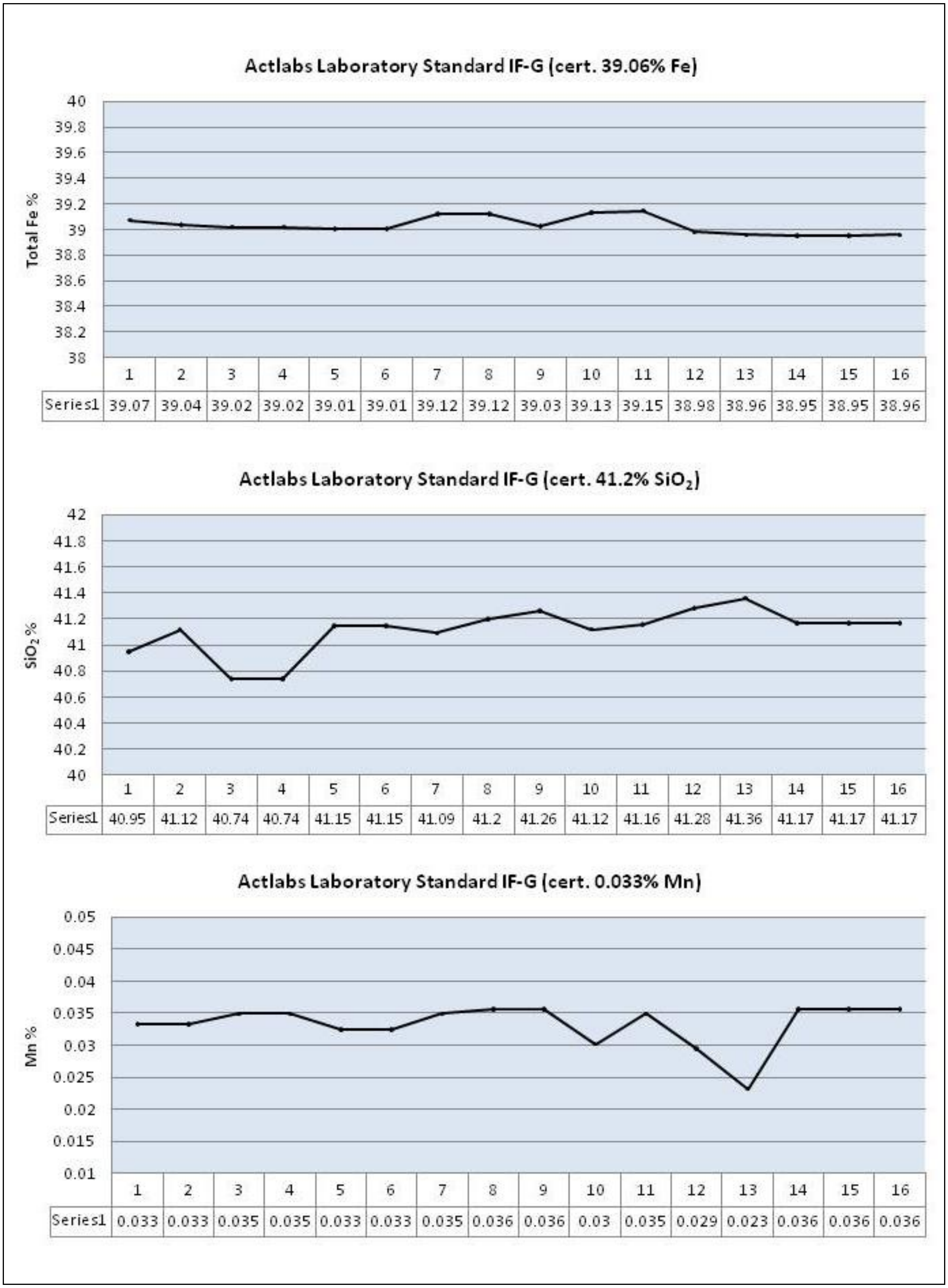


Figure 13-5: Actlabs Laboratory Standard IF-G

Table 13-5: Actlabs Certified Standard MICA-Fe, Selected Analytical Results

Batch	SiO2	Fe	Mn	P	TiO2
A10-5790	34.22	18.114	0.264	0.166	2.52
A10-5884	34.54	17.916	0.267	0.175	2.5
A10-5903	34.54	17.916	0.267	0.175	2.5
A10-6254	34.52	17.979	0.268	0.179	2.53
A10-6304	34.52	17.979	0.268	0.179	2.53
A10-6555	34.7	18.007	0.2672	0.179	2.51
A10-6562	34.7	18.007	0.2672	0.179	2.51
A10-6873	34.32	17.979	0.2703	0.179	2.55
A10-7271	34.48	18.091	0.2727	0.179	2.53
A10-7672	34.19	18.168	0.2734	0.179	2.52
A10-7881	34.57	18.126	0.2696	0.179	2.53
A10-7941	34.76	18.091	0.2727	0.179	2.54
A10-8547	34.31	18.049	0.2742	0.188	2.52
A10-8834	34.32	18.077	0.2696	0.183	2.52
A10-9147	34.24	18.035	0.2734	0.183	2.53
A10-9267	34.24	18.035	0.2734	0.183	2.53
A10-9592	34.24	17.776	0.2696	0.188	2.53
Certificate	**34.4**	**17.937**	**0.271**	**0.2**	**2.5**

Actlabs analysed method blanks on a routine basis for all sample batches. All reported certified samples' analyses were below the laboratory detection limit for all elements and oxides.

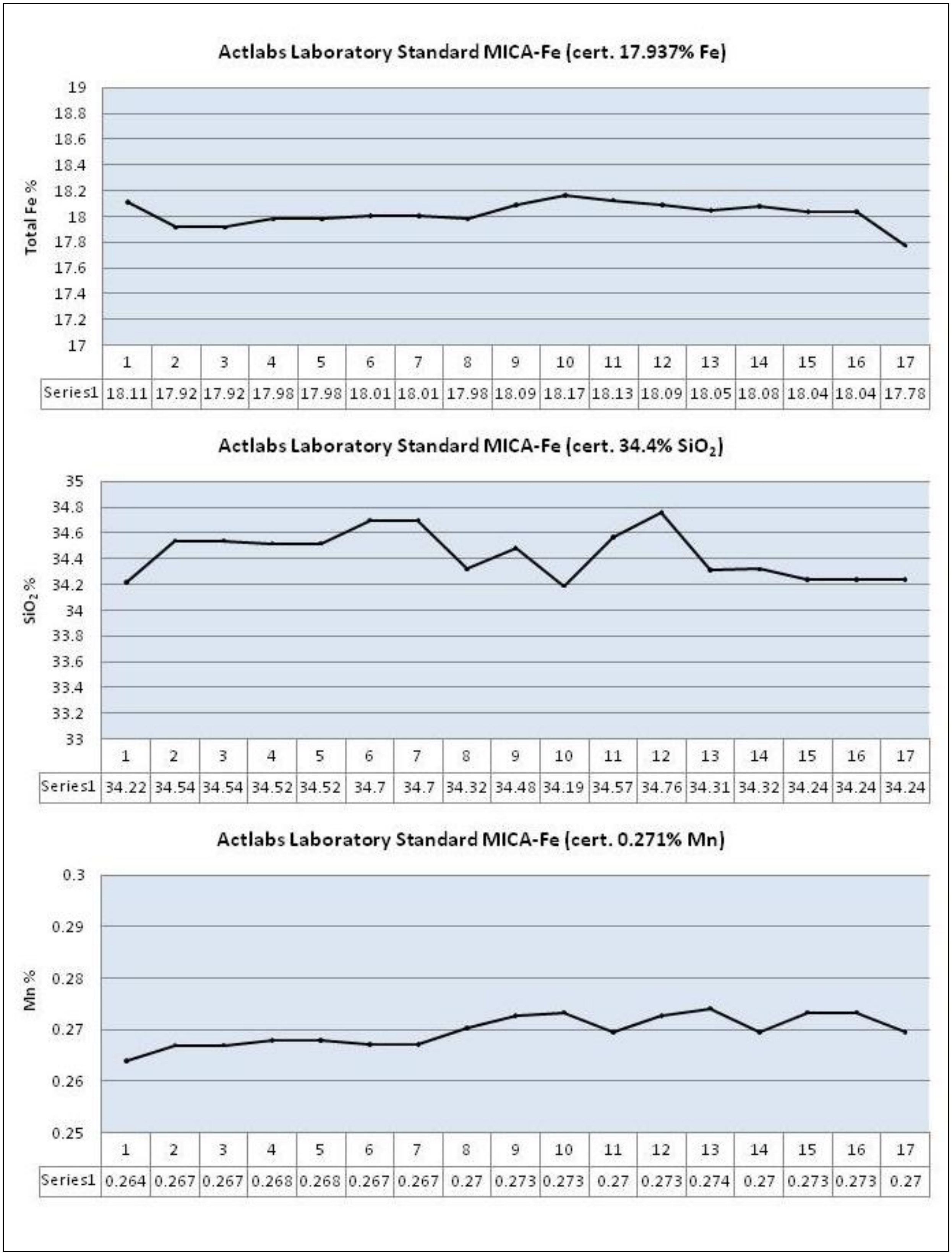


Figure 13-6: Actlabs Laboratory Standard MICA-Fe

Field Standards and Blanks Submitted to Actlabs by MPH:

The submission of 'blind' samples to any laboratory is always a trade off between the high precision and accuracy of homogeneous prepared certified material which is easily recognized at the laboratory *vis a vis* the submission coarser un-pulverized material with lower precision and accuracy that is less visually apparent to the laboratory personnel. In this instance MPH and DNR have chosen the latter approach, with field standards being blasted 'run of mine' iron ore muck samples from the Carol and Wabush Mines and the field blank being Wishart quartzite crushed stone material from a quarry near Labrador City.

The use of the ROM muck from the producing mines (in retrospect) has served the dual purposes of acting as quasi-standards while demonstrating the inherent mineralogical variations in the Sokoman Group iron formation units even at the very small scale of 5 gallon buckets of ore. The gradational nature of the iron to silica content is also very evident from detailed examination of core and bedrock exposures at the Julienne Lake iron deposit. The variations in key element content over time are illustrated in Figures 13-7 and 13-8.

Field Standard A (Wabush ROM ore) shows a range of total Fe values from a low of 36.9% to a high of 45.3%, silica values in the range of 31.05 to 44.54%, and Mn values from 1.304 to 2.625%. This is a very significant variation given the localized nature and relatively small size of the sample. However, based on the experience of MPH at Julienne Lake the range of values is not unexpected.

Field Standard B (IOC Carol ROM ore) shows a range of total Fe values from a low of 36.71% to a high of 44.38%, silica values in the range of 38.52 to 44.38%, and Mn values from 0.146 to 0.40%. This is also a very significant variation for a small sample.

The so-called field blank is in reality another quasi-standard because the quarry material contains measureable levels of Fe and other elements and oxides. The variations in key element content over time are illustrated in Figure 13-9.

Photo 4: John Clarke at quartzite quarry near Labrador City, Field Blank material.

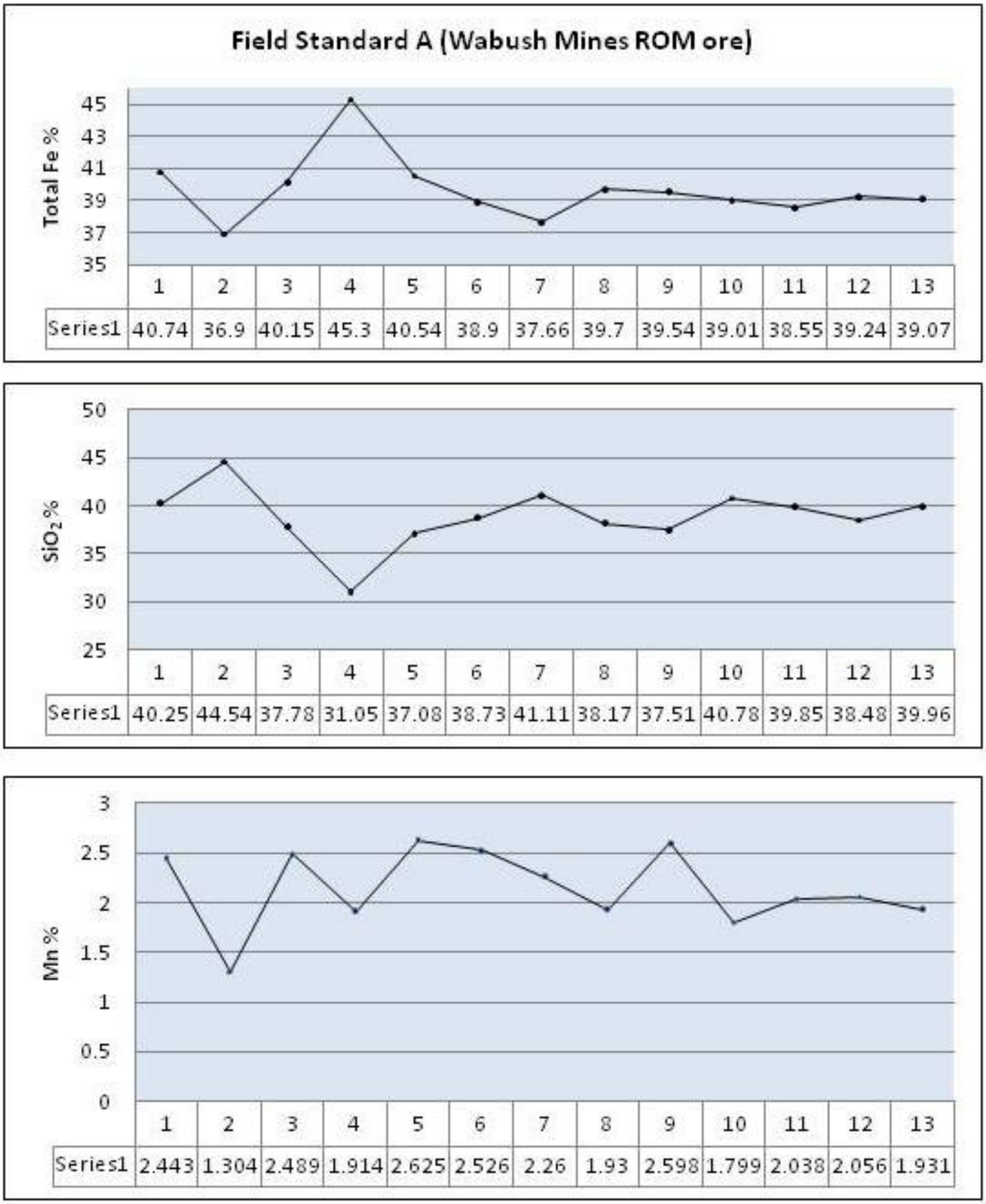


Figure 13-7: Field Standard A (Wabush Mines ROM muck)

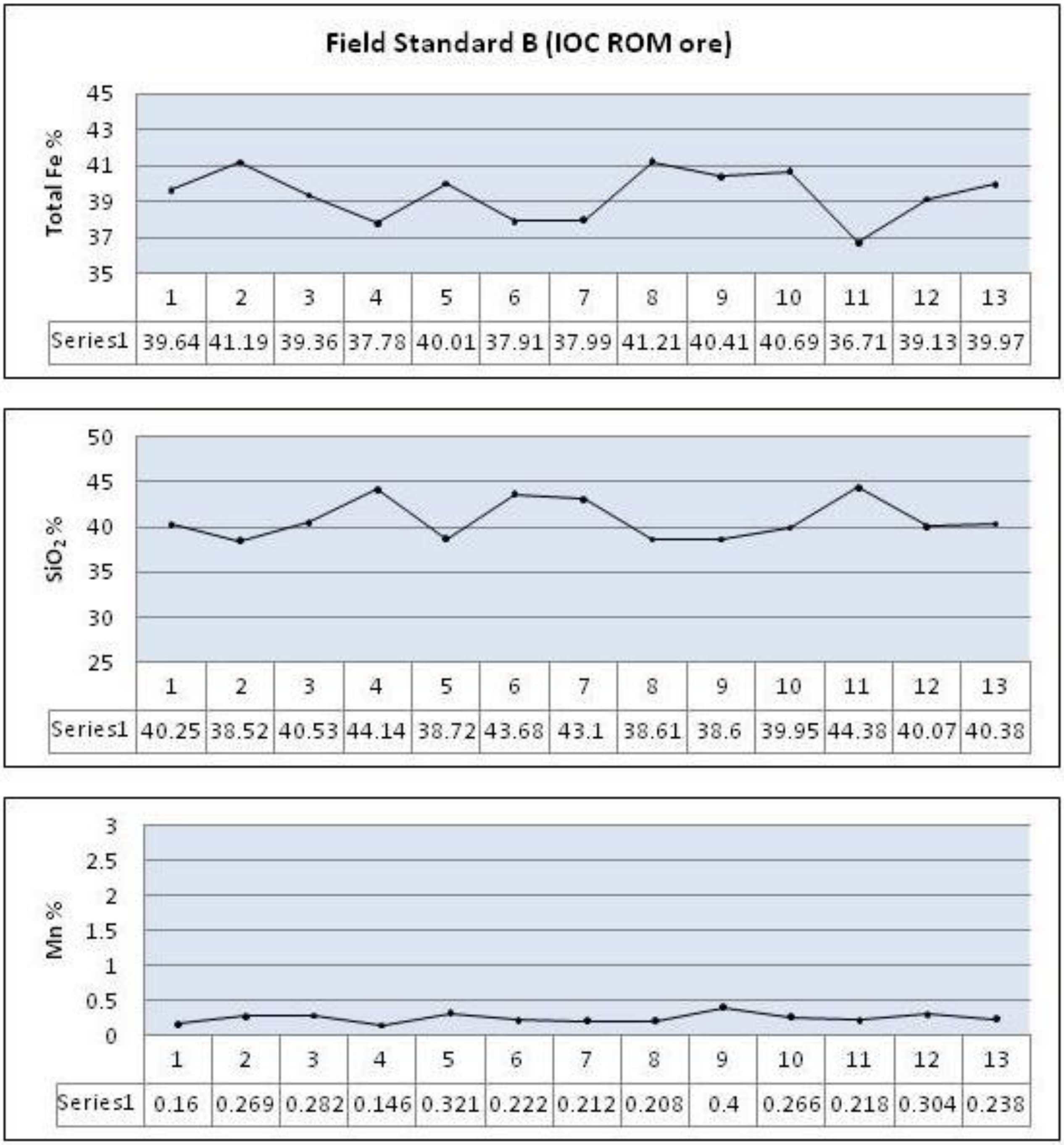


Figure 13-8: Field Standard B (IOC Carol Mine ROM muck)

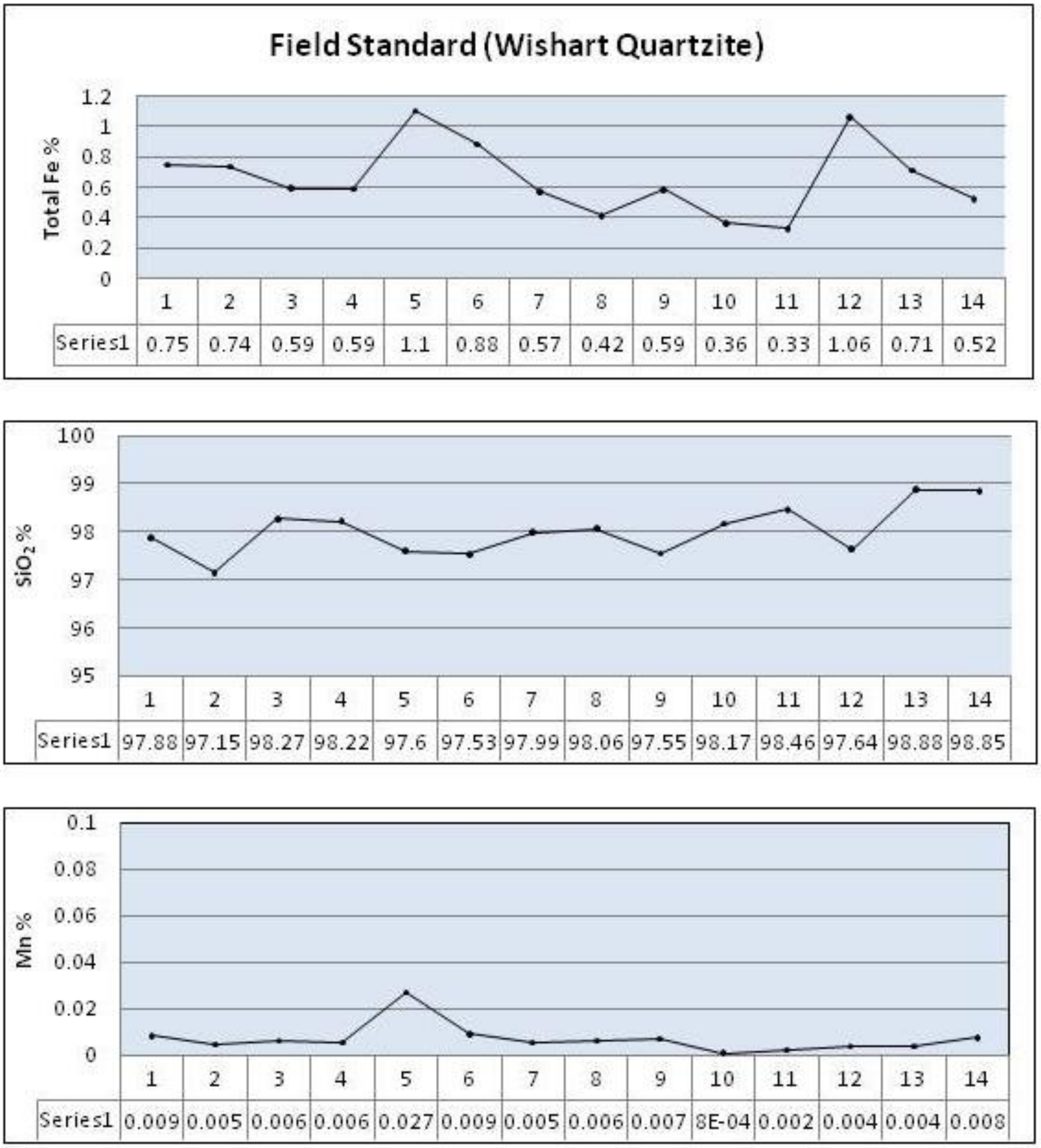


Figure 13-9: Field Standard/Blank (Wishart Quartzite)

Drill Core Field Duplicates Submitted to Actlabs by MPH

A total of 32 field duplicate core samples were taken over the course of the drilling program by sawing a second 1/6th slice from the core section. The key element analytical results are presented in Table 13-6 and illustrated as scatter plots in Figures 13-10, 13-11 and 13-12.

Table 13-6: Actlabs Certified Standard MICA-Fe, Selected Analytical Results

Duplicate	Original	FeA	FeB	SiO_2A	SiO_2B	MnA	MnB
411070	411026	27.729	31.465	58.36	52.99	0.0806	0.0511
411272	411111	36.987	37.477	45.96	44.92	0.0364	0.0403
411345	411154	31.112	31.988	54.18	53.11	0.0488	0.0511
411381	411090	32.01	27.96	24.38	23.39	17.93	21.95
411382	411193	31.294	28.73	53.89	57.05	0.0201	0.0202
411387	411236	33.175	32.846	51.49	51.54	0.0256	0.0279
411388	411277	32.968	33.727	48.63	49.76	0.0265	0.0288
411473	411329	30.907	37.66	54.98	45.32	0.0336	0.0329
411496	411378	33.126	37.276	50.78	44.94	0.038	0.0459
411576	411403	38.65	39.51	42.69	41.86	0.0225	0.0263
411577	411428	28.541	29.112	57.49	57.45	0.259	0.256
411578	411442	41.126	38.837	39.68	43.1	0.0751	0.0755
411678	411482	29.545	35.007	55.25	47.97	0.0829	0.1077
411682	411513	50.042	47.371	25.82	28.91	0.8141	0.7583
411683	411534	37.531	36.818	44.21	45.53	0.0736	0.0658
411684	411539	40.804	43.636	40.91	34.81	0.1115	0.1503
411685	411570	40.133	42.455	41.09	37.14	0.0496	0.0571
411689	411623	32.296	32.6	52.12	51.61	0.1348	0.127
411690	411646	36.902	40.947	45.72	41.5	0.0596	0.0558
411694	411675	30.692	36.147	54.61	47.1	0.0775	0.0372
411695	411711	38.535	35.762	44.21	47.89	0.0151	0.0194
411696	411727	40.175	39.517	40.87	41.59	0.0108	0.0132
411698	411746	31.407	33.573	53.32	50.15	0.0519	0.055
411699	411768	33.301	33.839	50.02	49.37	0.151	0.1557
411700	411848	41.699	43.301	38.58	36.79	0.1038	0.0922
414579	411818	36.182	31.189	46.17	53.7	0.0503	0.0411
414586	412092	42.895	42.784	37.63	38.18	0.1673	0.0883
414587	411946	36.895	36.888	44.73	45.35	0.1201	0.1146
414588	412009	36.329	37.811	46.07	42.45	0.0201	0.038
414592	412153	33.979	34.685	50.17	49.16	0.0991	0.1216
414593	411972	34.273	34.86	46.75	46.18	2.1836	1.8823
414597	412212	31.965	34.741	50.83	48.75	0.1348	0.096
Average		**35.413**	**36.266**	**46.612**	**45.299**	**0.7221**	**0.8338**

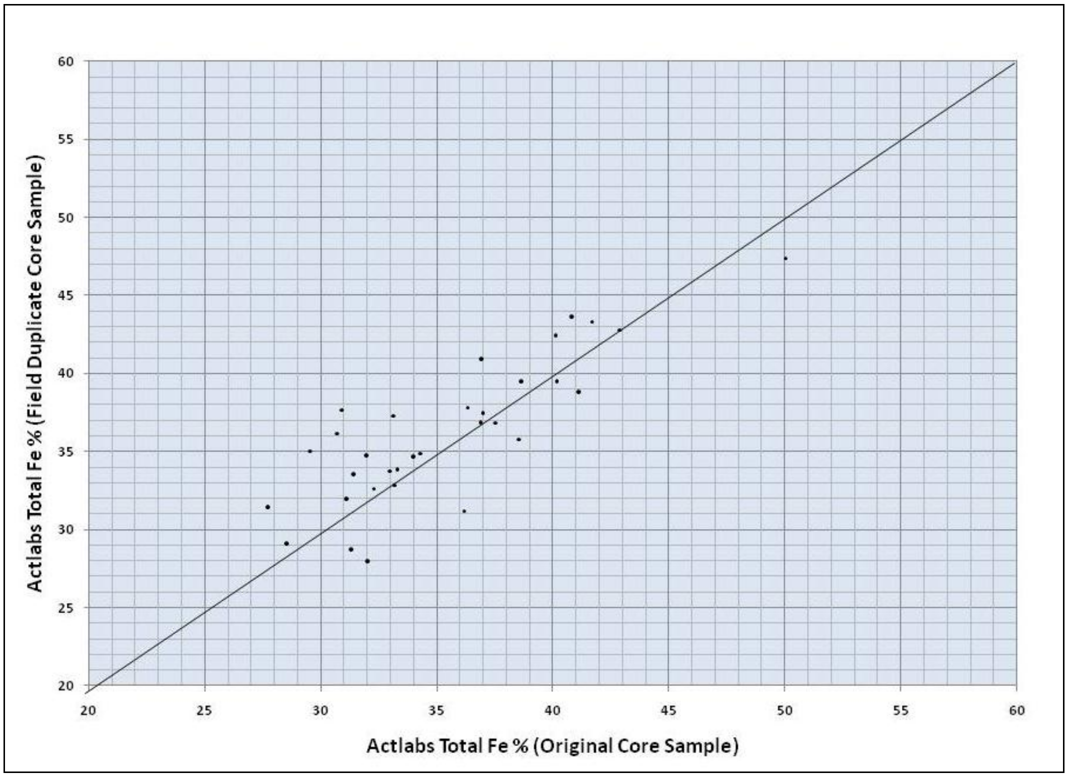


Figure 13-10: Actlabs, Field Duplicate Core Samples, Total Fe %

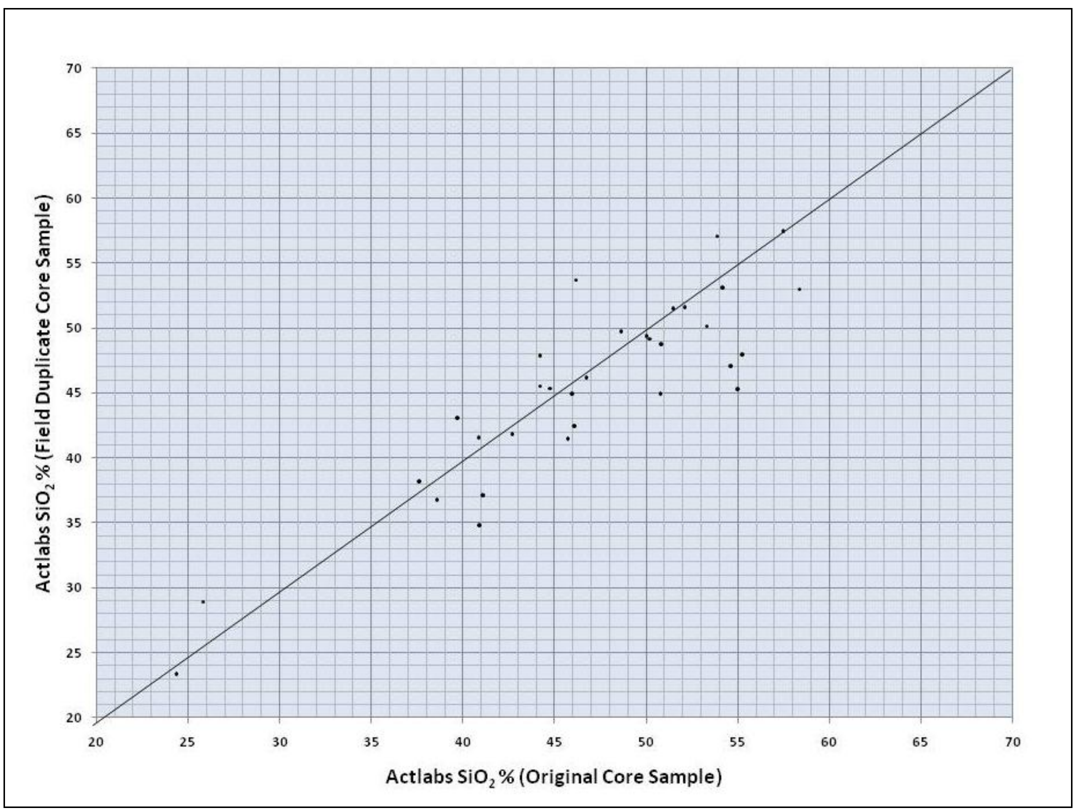


Figure 13-11: Actlabs, Field Duplicate Core Samples, SiO_2 %

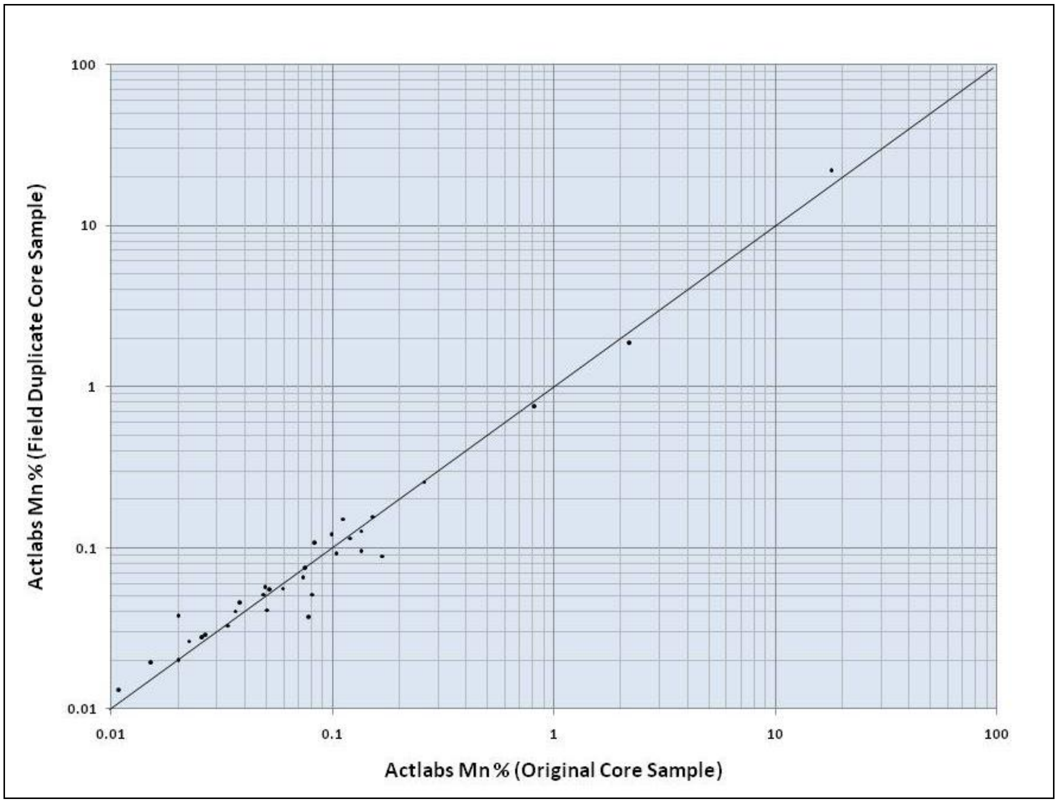


Figure 13-12: Actlabs, Field Duplicate Core Samples, Mn %

The above field duplicate sawn core samples' comparison with original sawn core sample results continue to demonstrate the local variations in total Fe and silica contents inherent in the Julienne Lake iron deposit (and the Wabush and Carol muck samples). However, overall neither group of samples is consistently higher or lower than the other as shown by the arithmetic averages in Table 13-5 and by the symmetric distribution of points in the scatter plots.

Actlabs Coarse Reject Splits Re-analysed by AGAT Laboratories

MPH visited the Actlabs Goose Bay laboratory on two occasions during the work program and collected splits of coarse reject material for submission to a second certified laboratory, AGAT Laboratories. A total of 45 samples were taken with representation from all sample batches over the duration of the work program. The key element analytical results are presented in Table 13-7 and illustrated as scatter plots in Figures 13-13, 13-14 and 13-15.

Table 13-7: AGAT Laboratories, Selected Referee Analyses

Sample #		Total Fe %		SiO_2 %		Mn %		S%	
Duplicate	Original	Duplicate	Original	Duplicate	Original	Duplicate	Original	Duplicate	Original
413501	411114	31.4	32.224	50.7	51.48	0.101	0.104	0.016	n/a
413502	411131	27.8	27.646	57.6	59.33	0.015	0.0232	0.013	n/a
413503	411157	35.9	37.864	42.8	42.7	0.123	0.139	0.009	n/a
413504	411153	28.9	29.495	54.9	55.72	0.051	0.0589	0.013	n/a
413505	411156	40.6	40.37	35.4	38.938	0.072	0.0767	0.01	n/a

413506	411183	35.4	35.552	47.7	48.13	0.105	0.1162	0.009	n/a
413507	411201	50.1	50.552	28.2	26.22	0.181	0.1774	0.009	n/a
413508	411274	26.1	25.473	61.3	61.01	0.011	0.04	0.01	n/a
413509	411271	33.7	34.845	51	48.59	0.077	0.0872	0.011	n/a
413510	411199	30.6	29.925	53.8	57.05	0.007	0.0195	0.011	n/a
413511	411198	34.2	35.746	50.2	48.65	0.007	0.0188	0.01	n/a
413512	411329	36.5	37.66	43.2	45.32	0.015	0.0329	0.011	n/a
413513	411315	31.2	28.958	54.4	57.25	0.121	0.1119	0.01	n/a
413514	411314	36	34.043	48.2	49.3	0.149	0.1316	0.01	n/a
413515	411323	36	36.974	40.8	40.38	0.026	0.0374	0.009	n/a
413516	411361	34.6	34.18	46.5	45.063	0.056	0.0669	0.012	n/a
413517	411360	27.3	31.717	59.7	52.74	0.019	0.0311	0.015	n/a
413518	411416	45.6	46.063	31.2	33.35	*0.005*	0.0232	0.009	n/a
413519	411417	25	24.584	60.8	63.08	0.022	0.0327	0.009	n/a
413520	411577	31	28.514	54.2	57.49	0.01	0.0259	0.009	n/a
413521	411593	22.3	20.259	62.1	63.47	0.075	0.0651	0.009	n/a
413522	411716	40.8	42.161	40.9	38.23	0.479	0.4593	0.009	n/a
413523	411592	39.3	39.133	37.6	40.47	0.047	0.0511	0.012	n/a
413524	411636	53.5	57.643	19.8	16.59	0.151	0.1549	0.011	n/a
413525	411569	41.9	43.671	36.5	35.8	0.012	0.0325	0.015	n/a
475001	411643	37.4	36.099	44.5	46.42	0.04	0.0532	0.01	n/a
475002	411645	47.5	48.93	27.5	28.14	0.077	0.0922	0.009	n/a
475003	411555	35.5	35.706	50.3	47.9	0.057	0.079	0.012	n/a
475004	411740	34.5	34.783	48.5	49.15	0.123	0.1224	0.011	n/a
475005	411734	49.6	51.035	25.9	25.73	0.242	0.2215	0.005	n/a
475006	411696	39.5	40.175	42.3	40.87	0.011	0.0108	0.01	n/a
475007	411873	36.1	32.517	47.4	51.44	0.109	0.1503	0.013	n/a
475008	411822	28.7	28.839	47.5	57.74	*0.005*	0.0023	0.011	n/a
475009	411823	30.9	29.587	54.2	55.9	*0.005*	*0.005*	0.015	n/a
475010	412107	40.3	40.322	42.3	40.65	0.153	0.1479	0.014	n/a
475011	412103	20.5	22.126	43.8	42.75	0.062	0.0627	0.005	n/a
475012	412106	36.4	36.077	49.8	47.04	0.12	0.11	0.007	n/a
475013	412007	16	15.825	37.2	41.12	1.09	0.4648	0.007	n/a
475014	412005	35.8	37.636	43.3	42.55	0.039	0.0473	0.009	n/a
475015	412000	27.5	30.273	45.7	53.51	0.04	0.0496	0.009	n/a
475016	412189	2.86	3.76	93	91.52	0.012	0.007	0.009	n/a
475017	412222	27	30.944	48.9	54.34	0.028	0.038	0.011	n/a
475018	414597	30	31.965	60.7	50.83	0.133	0.1348	0.009	n/a
475019	412198	44.4	44.657	33.2	34.24	0.066	0.0597	0.011	n/a
475020	412204	37.4	37.839	42.9	44.18	0.099	0.0883	0.012	n/a
Average		**34.08**	**34.54**	**46.63**	**47.16**	**0.099**	**0.090**	**0.010**	

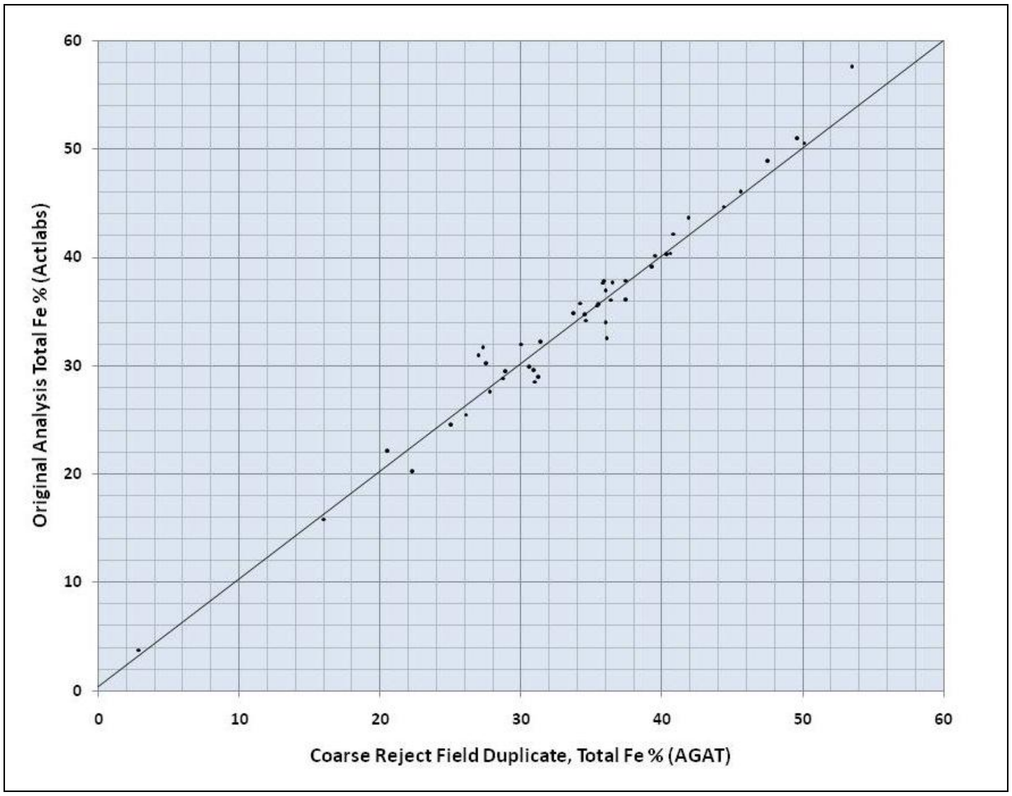


Figure 13-13: AGAT Referee Coarse Reject Field Duplicate Samples, Total Fe %

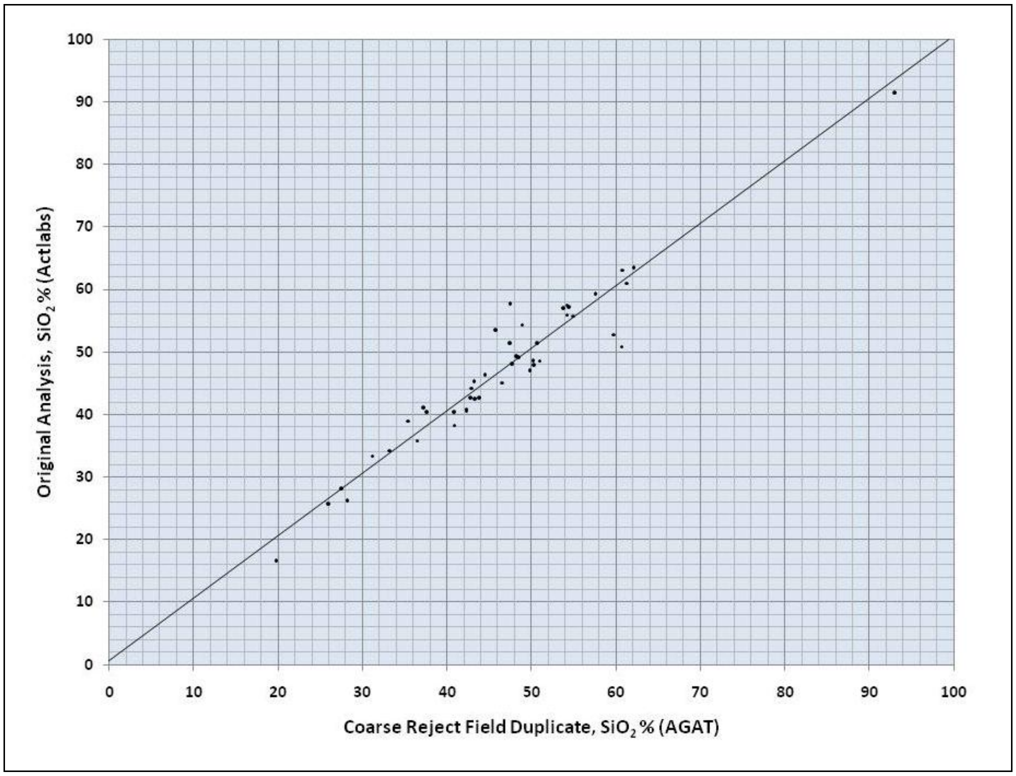


Figure 13-14: AGAT Referee Coarse Reject Field Duplicate Samples, SiO_2 %

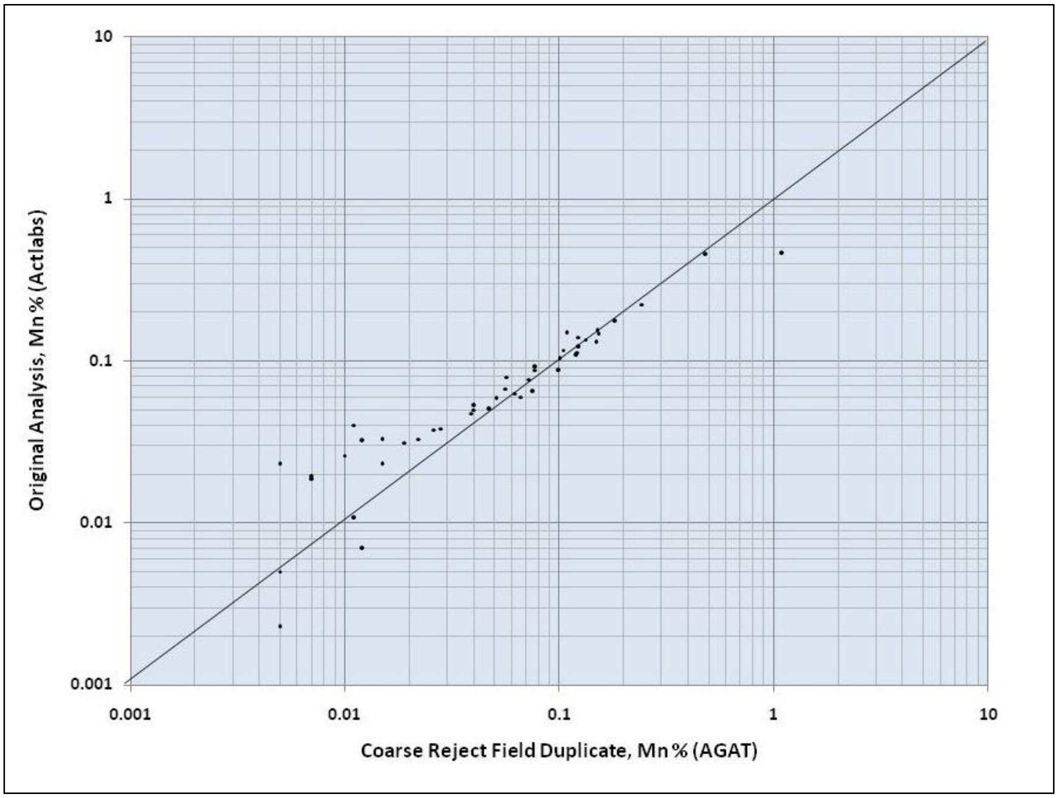


Figure 13-15: AGAT Referee Coarse Reject Field Duplicate Samples, Mn %

The above coarse reject samples' reanalysed at AGAT Laboratories when compared with the original sample results from Actlabs continue to demonstrate the local variations in total Fe and silica contents inherent in the Julienne Lake iron deposit. These individual samples are somewhat (although not fully) homogenised and mixed from the laboratory crushing/riffling process. The expectation would be that there should still be some inherent variation between samples' analyses, although at a lesser degree than the drill core and muck samples. This expectation is essentially confirmed by the actual results. As before, overall neither group of samples is consistently higher or lower than the other as shown by the arithmetic averages in Table 13-6 and by the symmetric distribution of points in the scatter plots.

Sufficient material was collected by MPH and pulverized by AGAT to allow for reanalysis of the referee sample pulp material by Actlabs. However, the original and referee analyses already match closely so reanalysis is not considered necessary.

Complete analyses are appended to this report (Volume 4, Part D).

Sulphur Content

Historical drilling and bulk sampling analyses show that the sulphur content of the iron formation in the Julienne Lake area is very low. At the outset it was decided to wait for the second stage of deposit evaluation (routine process testwork on representative composites) to test systematically for sulphur, unless sulphide minerals were identified. Therefore, at the time of writing the only new sulphur analyses are from the 45 samples submitted to AGAT (see Table 13-6 above) and the preliminary testwork samples from SGS Lakefield. Both sets of samples show very low levels of sulphur.

14.0 ADJACENT PROPERTIES

Canada is currently the world's ninth largest producer of iron ore. As of 2008, approximately 60% of Canada's total iron ore production came from Labrador West mines operated by IOC and Wabush Mines. Most of the rest of Canada's iron-ore production is from nearby regions of north-eastern Quebec. A small amount of iron is produced as a by-product of base-metal smelters in British Columbia. Several advanced exploration or development stage properties are active in the Labrador Trough region.

14.1. Iron Ore Company of Canada, Carol Project

The Iron Ore Company of Canada ("IOC") is Canada's largest iron ore producer and a leading global supplier of iron ore pellets and concentrates. Owned by Rio Tinto (58.7%), Mitsubishi Corporation (26.2%), and the Labrador Iron Ore Royalty Income Fund (15.1%), IOC operates within the Rio Tinto Iron Ore group and maintains its head office in Montreal, Quebec. IOC's current mine and process facility, located near Labrador City, is known as the Carol Project. The facility began operation in 1962 and has produced more than one billion tonnes of crude ore with an average iron content of 39 percent. The Carol Project still has a significant resource base available. At the end of 2006, IOC had a reported 962 million tonnes of iron ore reserves, 3,155 million tonnes of iron ore resources, and significant exploration potential. Annual capacity at the Carol Concentrator is 17 million tonnes of iron ore concentrate, of which 13 million tonnes can be pelletized and the balance processed into various grades of concentrate products.

Photo 5: IOC Carol Project open pit mine.

In March 2008, Rio Tinto and IOC announced a $500 million plan to expand iron ore mining and processing facilities in Labrador West, including a funding allocation to buy rail rolling stock for the QNS&L railway. The expansion plan, designed to increase annual concentrate production to 22 million tonnes, has been temporarily suspended due to the current global recession.

14.2. Wabush Mines, Scully Mine

Wabush Mines has conducted iron ore mining operations at Wabush, Labrador since 1965 with the mining and concentrating at Wabush and the subsequent stage of pelletizing being done at a plant at Pointe Noire on the St Lawrence River near Sept-Isles, Québec. Since 1967 annual capacity of the Wabush operation has been approximately six million long tons of pellets. Wabush Mines is 100% owned by Cliffs Natural Resources Inc.

Photo 6: Wabush Mines, Scully Mine.

The Scully Mine iron ore deposits have mineralogical challenges that present obstacles to the production of quality pellets. A major problem is the high manganese content of the ore in certain sections. Specifications by the steel industry on the maximum permissible manganese content in pellets have restricted mining to ore units that have less than 2% manganese, which after concentrating results in similar manganese content in the pellet product. In recent years much of the high-manganese product has been sold to China as the traditional North American markets are no longer as receptive to this quality of product. The ongoing viability of the Scully Mine is largely dependent on, either a solution to the manganese problem, or continuing access to Chinese markets for the sub-standard product.

14.3. ArcelorMittal Mines Canada, Mont Wright and Fire Lake Mines, Quebec

ArcelorMittal Mines Canada (formerly Quebec Cartier Mines) operates the Mont Wright open pit mine and concentrator located at Fermont, QC. Nominal capacity of this complex is 18 million tons of iron ore concentrates per year. The Fire Lake open pit mine located 55 km southwest of Fermont is operated on a seasonal basis, as required, with ore shipped by rail to Mont Wright for processing. Concentrates are shipped by rail to Port Cartier, QC, where the company operates a 9 million ton per year pelletizing plant and port facilities.

14.4. Consolidated Thompson Iron Mines Limited, Bloom Lake Mine, Quebec

The Bloom Lake property is located in the southwestern branch of the iron ore-rich Labrador Trough and is located in close proximity to a number of producing mines. Mining operations at the Bloom Lake property started in April 2010. At a production rate of 8.0 million tonnes per year, the projected mine life is approximately 30 years. Consolidated Thompson holds a majority interest in the Bloom Lake property mining claims. On March 1 2011, final court approval was granted to Consolidated Thompson to sell its majority interest in the Bloom Lake mine to Cliffs Natural Resources Inc. for CAN $4.9 billion.

14.5. Other Labrador Trough Advanced Iron Ore Projects

As noted earlier in this report, tremendous increases in iron ore consumption by developing nations in the 1990's resulted in a modest resurgence of interest in iron ore by some mining and exploration companies. Dramatic iron ore price increases from 2006 to the latter part of 2008 effectively created much more widespread interest in iron properties. Many previously explored iron ore deposits and occurrences throughout the Labrador Trough were revaluated from the mid-1990's onward.

The Shefferville region projects are expected to be considerably more difficult to explore and develop than the Labrador West-Fermont area projects due to substantially higher milling and transportation costs.

14.6. Adjoining Mineral Claims

The Julienne Lake EML is confined to the land area of the Julienne Peninsula. Map staked mineral claims registered to other parties surround the EML area. The projected underwater extensions of the deposit beneath Wabush and Julienne Lakes are currently held by Altius Resources Inc. A claim block owned by Iron Ore Company of Canada borders the EML to the south.

The status of the mineral rights, surface rights and details of agreements have not been certified by MPH.

15.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Mineral processing and metallurgical testing conducted on the Juliennne iron deposit includes extensive historical work conducted by Canadian Javelin in the late 1950's to early 1960's. This has been augmented by ore characterization studies conducted on representative drill core samples and coarse reject material from the 2010 drilling program. Bench-scale processing and Bond work index testwork has been conducted on a representative 2010 drill core section. The historical work and current studies are described in the following sections.

15.1. Historical Canadian Javelin Studies

By the early 1960's Canadian Javelin was apparently thinking of a fully integrated operation including pig iron production and a steel plant for the Julienne Lake deposit, rather than an iron ore concentrating/pelletizing plant. This led to a search for an iron ore reduction process that did not require huge quantities of coking coal to be brought to western Labrador. Two innovative experimental electric smelting processes, (Strategic Udy and Elkem) were investigated in 1961-62, utilizing iron formation material collected from 5 surface test pits in December, 1960.

The following summarises the operating conditions and subsequent results obtained during various stages of test work performed in the late 1950's to early 1960's by affiliates and contractors for Canadian Javelin with the aim of developing a suitable economically viable development strategy. Grinding and concentrating tests followed by smelting and pelletizing tests were undertaken over an approximately 2 year period.

Grinding and Concentration Testwork on Drill Core, Pickands Mather and Co., 1958:
Concentrating tests were conducted on drill core samples from historical drill holes J-1 to J-4 completed in 1957. Tests designed on Pickands Mather methodologies in use for the nearby Wabush deposit included magnetic and gravity ore/waste separation analyses. The average weight recovery and concentrate analyses are reported as follows (Pickands Mather, January 1958):

- Weight recovery 43.28%
- Fe 64.54%
- SiO2 6.86%
- Mn 0.29%
- P 0.2%
- S trace

Pickands Mather (*op cit*) concluded; "The results of these tests were comparable to similar tests performed on Wabush ore and clearly indicate that this orebody is suitable for the production of high grade iron ore concentrates."

Bulk Sample Grinding and Concentration Testwork, Lakefield Research, 1961:
Grinding and concentration tests were conducted at the Lakefield Research of Canada Limited ("Lakefield") facility in Lakefield, ON in January, 1961. A total of 34 long tons (34.5 tonnes) of iron formation material was taken from 5 surface test pits (P60-1 to 5) in December, 1960. See section 10.3 above for details. The testing program involved grinding in a Hardinge 'Cascade'

mill and concentration by means of Humphreys spirals. The objectives of the Lakefield test were as follows:

- To produce about 11 tons (11.2 tonnes) of high-grade concentrate utilizing Humphrey's spirals,
- To produce about 4 tons (4.1 tonnes) of ground 'ore' for possible testing,
- To produce 1 or 2 tons (1 or 2 tonnes) of spiral tailings for possible testing, and
- To obtain data for preliminary concentrator plant layout and cost estimates.

Lakefield reported that 5 pilot plant runs (one preliminary & four production runs) were made according to the flow-sheet shown in Figure 15-1. A final run was made in the Cascade mill to produce the ground 'ore' increment.

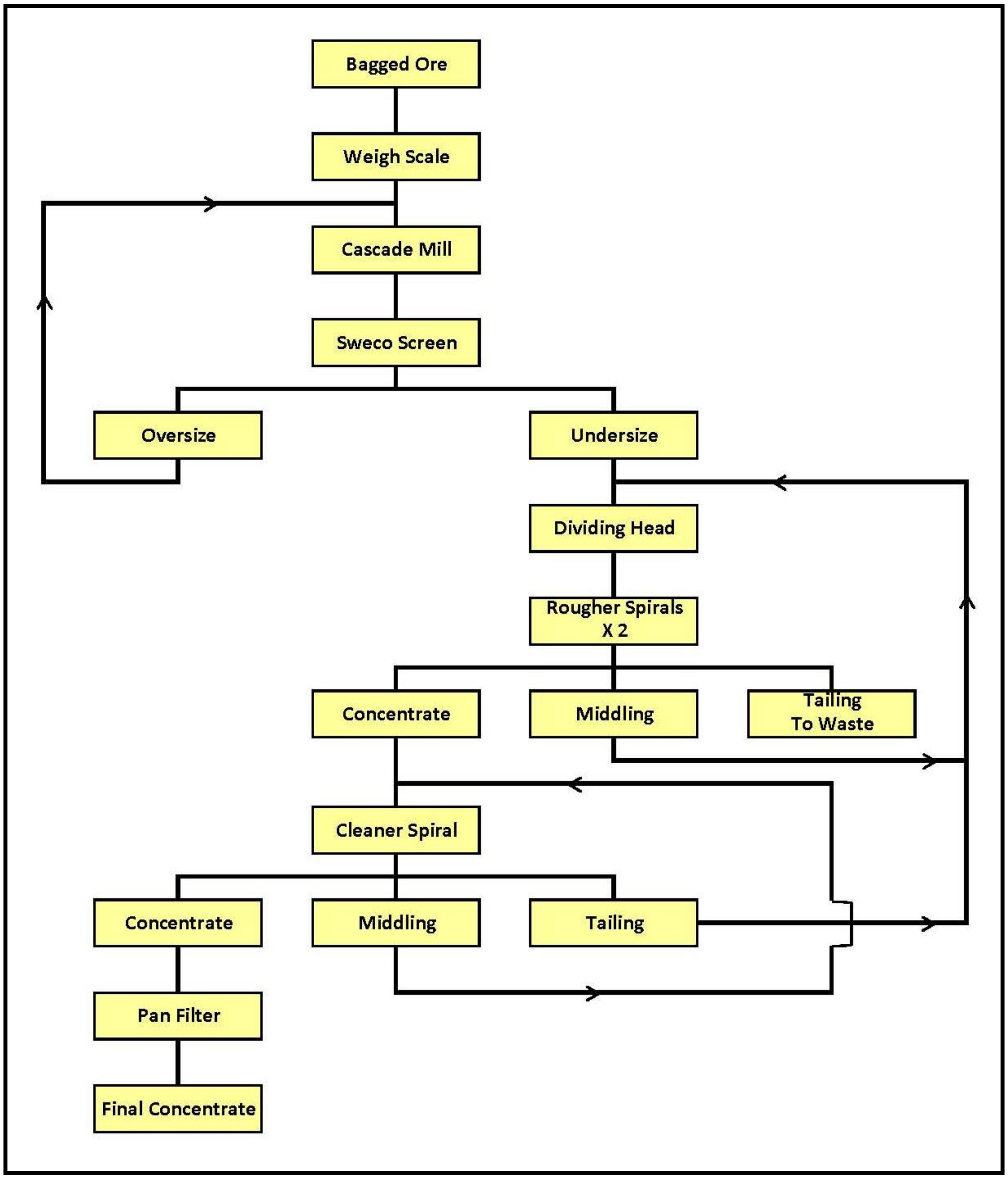


Figure 15-1: 1961 Lakefield Grinding and Concentrating Pilot Plant Flowsheet

Lakefield (Britton, 1961) stated that "the 'ore' grinds readily in the Cascade mill yielding a product which is 80% plus 200 mesh. Calculated net power requirement is 2.2 kilowatt hours ("kW.h") per long ton of ore. Capacity of each rougher spiral is about 1.4 long tons (1.4 tonnes) of new feed per hour and that one cleaner spiral is required for every two rougher spirals."

"In one pair of tests 76.6% of the iron was recovered in a concentrate which assayed 64.5% Fe (acid soluble). Recovery was 79.6% in the other pair of tests but the concentrate assayed only 63.5% Fe. These results could undoubtedly be improved in practice, but no marked increase in recovery can be expected."

1961 Electric Smelting Testwork, Strategic-Udy Process

The Strategic-Udy tests were completed in late January, 1961, on 5 tons (5.1 tonnes) of concentrate shipped to the Strategic-Udy Processes Inc. facility in Niagara Falls, New York. The Strategic-Udy process takes iron ore or concentrate, reductant (soft coal) and fluxes (lime, silica and fluorspar) and pre-treats this material in a fired rotary kiln. The pre-treatment removes moisture and gasifies the volatile fraction of the coal. It also results in calcination of carbonates and the partial reduction of the iron ore by converting Fe_2O_3 to FeO. The pre-treated material is collected and charged hot into an electric melting furnace. Slag and metal is tapped and handled in liquid form.

The 5 tons (5.1 tonnes) of concentrate were smelted to produce the following materials:

- Low-carbon low-silicon iron with three different carbon levels; 2%, 0.8% and 0.4%,
- Basic open-hearth pig iron complying with the accepted specification for this product, and
- Foundry pig iron complying with the accepted specification for this product.

The metals produced were refined to SAE specification 1010 and 1040 grade steels and rolled into flats in a merchant mill. The results of refining, rolling and mechanical testing indicate that pig iron and low carbon iron can be easily refined into normal carbon steel.

1961 Electric Smelting Testwork, Elekom Process

The Elektrokemisk ("Elkom") Process of Elektrokemisk A/S of Kristiansand, Norway was tested at bench scale in November, 1961. The sample material submitted by Javelin for evaluation as raw materials for electric pig iron smelting, consisted of 22 kilograms of Julienne deposit concentrate (from Lakefield), 20 kg of Wabush concentrate and 40 kg of Nova Scotia coal.

The Elkom method involves agglomeration of the concentrate by pelletizing a mixture of ore , coal and a binder. The 'green' pellets are hardened by storage or drying. The hardened pellets, with some coke and fluxes added, are preheated in shafts followed by electric smelting. By preheating and partially pre-reducing the charge, a considerable decrease in electric power consumption is obtained.

The actual test procedures were as follows:

- The iron content of the concentrates was determined by chemical analysis. The particle size distribution was determined by sieve analysis. To get a suitable size for pelletizing the concentrates were ground in a laboratory ball mill.
- The composition of the coal was determined by proximate analysis to the ASTM standard methods and subjected to a variety of additional tests. To make it suitable for pelletizing the coal was ground in a laboratory ball mill.
- Pellets were produced batch-wise in a laboratory drum pelletizer. Charge compositions are given in Table 15-1.

Table 15-1: 1961 Elkom Pellitizer Charge Compositions

Charge	Julienne #1	Julienne #2	Julienne #3
Fe concentrate	2,470 g	2,435 g	2,385 g
N. S. Coal	485 g	475 g	465 g
Norway Portland cement		90 g	150 g
Evaporated sulphite liquor	45g		

- Cement bonded pellets were stored for 3 or 5 days and subsequently heat treated. Pellets with sulphite lye as binder were dried in an air stream at 70 C for about one hour.
- The pellets were heat treated at temperatures from 700 to 1000 C.

It was concluded that the pellets were of good quality and that they may be smelted without difficulty. It was also noted that the Wabush and Julienne Lake pellets were virtually identical.

1963 Pelletizing Test, Dravo Laboratory

In January, 1963, approximately 1000 lbs (450 kg) of Julienne Lake concentrate was shipped from Lakefield to the Dravo Laboratory in Pittsburgh, PA, for pelletizing tests. The concentrates were ground in a small ball mill to obtain a product of approximately 82% passing -325mesh. This was mixed with ½% bentonite and balled in a Dravo-Luigi disc. About 600 lbs (270 kg) of green pellets were made and standard strength tests were carried out.

Two batches of pellets were fired in the pellet firing furnace, and standard strength tests were conducted.

The test results were deemed to be excellent and comparable to earlier results obtain from the nearby Carol and Wabush deposits.

15.2. 2010 Ore Characterization and Beneficiation Studies

Ore characterization Study

Ore characterization studies were conducted by Actlabs on 20 coarse reject samples.

The study utilized Mineral Liberation Analyser (“MLA”) a quantitative mineralogy system that integrates Scanning Electron Microscopy (“SEM”) and Energy Dispersive X-Ray Spectrometry

("EDS") analysis technologies. Samples are presented to the SEM in a range of forms from polished blocks, to polished thin sections and polished sections of solid and particulate materials.

Under the SEM, different minerals or phases are discriminated from one another on the basis of combined differences in backscatter electron ("BSE") signal intensity captured by image analysis and the acqusition of characteristic X-Ray spectra (by EDS) of component grains and particles. The X-ray spectra are stored during measurement and later compared with a library of standard mineral spectra to identify and quantify component minerals.

Preliminary Ore Characterization Study (20 Samples)
This work included:

- MLA Preparation (Staged grinding and polished section preparation)
- Sized Ore Characterization MLA Characterization (2 sizes)
- Assays on the fine fractions for Fe, Mn, P, S.

This study included a full mineralogical analysis, with reconciliations to head grade for Fe and selected elements, with the objective of extrapolating and interpreting ore variability from an exploration to metallurgical basis via quantitative mineralogy.

The mass splits of the ore characterization samples are shown in Table 15-2.

Table 15-2: Ore Characterization Mass Splits

Client Code	Samples	+106 μm (C)	-106 μm (F)	Total
411073	1	79.42	20.58	100.00
411192	2	66.85	33.15	100.00
411045	3	88.52	11.48	100.00
411072	4	80.28	19.72	100.00
411160	5	84.64	15.36	100.00
411071	6	83.40	16.60	100.00
411179	7	83.28	16.72	100.00
411094	8	86.18	13.82	100.00
411084	9	77.42	22.58	100.00
411156	10	78.25	21.75	100.00
411176	11	77.93	22.07	100.00
411184	12	85.00	15.00	100.00
411196	13	73.42	26.58	100.00
411200	14	89.47	10.53	100.00
411002	15	90.80	9.20	100.00
411093	16	87.70	12.30	100.00
411354	17	90.59	9.41	100.00
411074	18	83.28	16.72	100.00
411090	19	68.93	31.07	100.00
411408	20	78.69	21.31	100.00

Calculated assays for the characterization samples are shown in Table 15-3. Note that the C (coarse) and F (fine) designations refer to + and – 106 μm fractions in the tables below.

Table 15-3: Ore Characterization Calculated Assays

Sample	411073			411192			411045			411072		
Element	1C	1F	Head	2C	2F	Head	3C	3F	Head	4C	4F	Head
Al	0.15	0.63	0.25	0.26	0.66	0.39	2.04	3.79	2.24	0.33	0.49	0.36
Fe	30.06	31.70	30.40	36.86	34.79	36.17	31.89	28.04	31.44	41.91	31.10	39.78
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Si	26.20	24.17	25.78	21.53	22.04	21.70	22.45	22.50	22.46	18.04	24.85	19.38
Ti	0.01	0.01	0.01	0.00	0.00	0.00	0.30	0.36	0.30	0.00	0.00	0.00
Mass Dist.	79.42	20.58	100.00	66.85	33.15	100.00	88.52	11.48	100.00	80.28	19.72	100.00
Sample	411160			411071			411179			411094		
Element	5C	5F	Head	6_C	6_F	Head	7C	7F	Head	8C	8F	Head
Al	0.34	0.65	0.39	0.16	1.07	0.31	0.29	0.81	0.38	0.31	0.81	0.38
Fe	42.19	38.12	41.56	32.85	32.84	32.85	30.36	29.83	30.27	36.63	26.00	35.16
P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Si	17.82	19.83	18.13	24.06	22.33	23.77	25.76	25.16	25.66	21.55	27.89	22.43
Ti	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Mass Dist.	84.64	15.36	100.00	83.40	16.60	100.00	83.28	16.72	100.00	86.18	13.82	100.00
Sample	411084			411156			411176			411184		
Element	9_C	9_F	Head	10_C	10_F	Head	11C	11F	Head	12C	12F	Head
Al	0.23	1.14	0.38	1.30	4.72	4.90	0.41	0.72	0.48	0.35	0.70	0.41
Fe	26.67	29.14	27.08	35.26	30.25	35.12	24.30	26.67	24.82	28.82	28.63	28.79
P	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Si	28.34	25.15	27.81	20.83	19.61	22.49	28.97	27.02	28.54	26.75	26.19	26.67
Ti	0.00	0.01	0.01	0.01	0.29	0.29	0.01	0.01	0.01	0.01	0.01	0.01
Mass Dist.	77.42	22.58	100.00	78.25	21.75	100.00	77.93	22.07	100.00	85.00	15.00	100.00
Sample	411196			411200								
Element	13C	13F	Head	14C	14F	Head						
Al	0.22	0.73	0.35	0.50	1.43	0.60						
Fe	28.12	33.77	29.62	54.37	47.73	53.67						
P	0.00	0.00	0.00	0.00	0.00	0.00						
Si	27.42	22.72	26.17	8.67	11.64	8.98						
Ti	0.00	0.01	0.01	0.09	0.11	0.09						
Mass Dist.	73.42	26.58	100.00	89.47	10.53	100.00						

Modal analyses of the ore characterization samples are presented in Table 15-4.

Table 15-4: Ore Characterization Modal Analyses

Sample	411073			411192		
Mineral	1C	1F	Head	2C	2F	Head
Hematite	37.94	33.52	37.03	47.53	37.55	44.22
Titanomagnetite	0.00	0.00	0.00	0.00	0.00	0.00

Goethite	4.70	10.68	5.93	4.71	11.21	6.86
Goeth_Kaolinite	1.04	4.93	1.84	2.04	5.25	3.10
Kaolinite	0.00	0.00	0.00	0.00	0.00	0.00
Ilmenite	0.00	0.00	0.00	0.00	0.00	0.00
Rutile	0.00	0.00	0.00	0.00	0.00	0.00
Mn-Oxide/Carbonate	0.01	0.00	0.01	0.00	0.04	0.01
Illite	0.00	0.02	0.00	0.00	0.00	0.00
Quartz	55.95	50.18	54.76	45.49	45.63	45.53
Other_Silicates*	0.34	0.67	0.41	0.24	0.29	0.26
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.02	0.01	0.02	0.00	0.02	0.01
Total	100.00	100.01	100.00	100.00	100.00	100.00
Mass Distribution	79.42	20.58	100.00	66.85	33.15	100.00
Sample	**411045**			**411072**		
Mineral	**3C**	**3F**	**Head**	**4C**	**4F**	**Head**
Hematite	38.61	24.52	24.49	54.37	35.10	50.57
Titanomagnetite	0.00	3.07	0.35	0.00	0.00	0.00
Goethite	4.48	9.68	5.08	4.95	8.72	5.70
Goeth_Kaolinite	2.01	10.62	2.99	2.58	3.69	2.80
Kaolinite	0.00	10.79	1.24	0.00	0.01	0.00
Ilmenite	0.00	0.05	0.01	0.00	0.00	0.00
Rutile	0.00	0.10	0.01	0.00	0.00	0.00
Mn-Oxide/Carbonate	0.03	0.01	0.02	0.02	0.04	0.02
Illite	0.00	0.09	0.01	0.00	0.06	0.01
Quartz	54.67	39.74	52.96	37.75	51.81	40.52
Other_Silicates*	0.21	1.26	0.33	0.26	0.46	0.30
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.00	0.01	0.00	0.00	0.00	0.00
Other		0.06	0.01	0.07	0.10	0.08
Total	100.00	100.00	87.50	100.00	100.00	100.00
Mass Distribution	88.52	11.48	100.00	80.28	19.72	100.00
Sample	**411160**			**411071**		
Mineral	**5C**	**5F**	**Head**	**6_C**	**6_F**	**Head**
Hematite	54.37	43.32	52.67	40.07	33.04	38.90
Titanomagnetite	0.00	0.00	0.00	0.00	0.00	0.00
Goethite	5.34	10.08	6.07	7.14	11.97	7.94
Goeth_Kaolinite	2.72	5.00	3.07	1.25	8.36	2.43
Kaolinite	0.00	0.02	0.00	0.00	0.01	0.00
Ilmenite	0.00	0.00	0.00	0.00	0.00	0.00
Rutile	0.00	0.00	0.00	0.00	0.00	0.00

Mn-Oxide/Carbonate	0.00	0.14	0.02	0.01	0.01	0.01
Illite	0.00	0.03	0.00	0.00	0.11	0.02
Quartz	37.22	40.81	37.77	51.13	45.41	50.18
Other_Silicates*	0.29	0.55	0.33	0.04	0.13	0.06
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.00	0.02	0.00	0.00	0.00	0.00
Other	0.05	0.04	0.05	0.37	0.95	0.47
Total	100.00	100.00	100.00	100.00	100.00	100.00
Mass Distribution	84.64	15.36	100.00	83.40	16.60	100.00
Sample	**411179**			**411094**		
Mineral	**7C**	**7F**	**Head**	**8C**	**8F**	**Head**
Hematite	36.83	29.82	35.66	46.13	27.67	43.58
Titanomagnetite	0.00	0.00	0.00	0.00	0.00	0.00
Goethite	6.25	11.47	7.12	5.55	7.60	5.84
Goeth_Kaolinite	2.30	6.56	3.01	2.42	6.47	2.98
Kaolinite	0.00	0.00	0.00	0.00	0.01	0.00
Ilmenite	0.00	0.00	0.00	0.00	0.00	0.00
Rutile	0.00	0.00	0.00	0.00	0.00	0.00
Mn-Oxide/Carbonate	0.00	0.00	0.00	0.00	0.00	0.00
Illite	0.00	0.00	0.00	0.00	0.00	0.00
Quartz	54.44	52.02	54.03	45.33	57.83	47.06
Other_Silicates*	0.17	0.12	0.16	0.52	0.42	0.51
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.02	0.00	0.02	0.00	0.00	0.00
Other	0.00	0.01	0.00	0.04	0.00	0.03
Total	100.00	100.00	100.00	100.00	100.00	100.00
Mass Distribution	83.28	16.72	100.00	86.18	13.82	100.00
Sample	**411084**			**411156**		
Mineral	**9_C**	**9_F**	**Head**	**10_C**	**10_F**	**Head**
Hematite	32.42	27.81	31.38	34.75	24.54	32.53
Titanomagnetite	0.03	0.10	0.05	0.42	1.88	0.74
Goethite	5.61	12.11	7.07	11.99	11.33	11.85
Goeth_Kaolinite	1.71	7.44	3.00	9.04	16.22	10.60
Kaolinite	0.00	0.30	0.07	0.38	9.15	2.29
Ilmenite	0.00	0.00	0.00	0.01	0.11	0.03
Rutile	0.00	0.00	0.00	0.00	0.11	0.02
Mn-Oxide/Carbonate	0.00	0.00	0.00	0.04	0.00	0.03
Illite	0.03	0.48	0.13	0.15	2.09	0.57
Quartz	60.13	51.28	58.13	42.93	31.30	40.40
Other_Silicates*	0.06	0.46	0.15	0.30	3.15	0.92
Apatite	0.00	0.00	0.00	0.01	0.00	0.00

Gorceixite	0.00	0.01	0.00	0.00	0.11	0.02
Other	0.01	0.00	0.01	0.00	0.01	0.00
Total	100.00	100.00	100.00	100.00	100.00	100.00
Mass Distribution	77.42	22.58	100.00	78.25	21.75	100.00
Sample	**411176**			**411184**		
Mineral	**11C**	**11F**	**Head**	**12C**	**12F**	**Head**
Hematite	29.57	26.16	28.82	35.43	31.25	34.80
Titanomagnetite	0.00	0.00	0.00	0.00	0.00	0.00
Goethite	5.01	11.30	6.40	4.83	8.20	5.34
Goeth_Kaolinite	1.14	4.39	1.85	2.74	5.48	3.15
Kaolinite	0.17	0.09	0.15	0.00	0.00	0.00
Ilmenite	0.00	0.00	0.00	0.00	0.00	0.00
Rutile	0.00	0.00	0.00	0.00	0.00	0.00
Mn-Oxide/Carbonate	1.56	0.80	1.39	0.00	0.13	0.02
Illite	0.39	0.21	0.35	0.00	0.02	0.00
Quartz	59.67	54.99	58.64	56.42	54.17	56.08
Other_Silicates*	2.16	1.50	2.01	0.55	0.60	0.56
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.34	0.57	0.39	0.03	0.14	0.05
Total	100.00	100.00	100.00	100.00	100.00	100.00
Mass Distribution	77.93	22.07	100.00	85.00	15.00	100.00
Sample	**411196**			**411200**		
Mineral	**13C**	**13F**	**Head**	**14C**	**14F**	**Head**
Hematite	35.10	37.75	35.80	57.54	41.25	55.82
Titanomagnetite	0.00	0.01	0.00	0.02	0.00	0.02
Goethite	4.82	9.32	6.01	15.15	19.15	15.57
Goeth_Kaolinite	1.70	5.18	2.63	2.78	9.94	3.53
Kaolinite	0.00	0.00	0.00	0.00	0.00	0.00
Ilmenite	0.00	0.00	0.00	0.00	0.00	0.00
Rutile	0.00	0.00	0.00	0.00	0.00	0.00
Mn-Oxide/Carbonate	0.00	0.00	0.00	0.10	0.06	0.09
Illite	0.00	0.24	0.06	0.00	0.07	0.01
Quartz	58.07	46.01	54.86	18.36	21.97	18.74
Other_Silicates*	0.23	0.98	0.43	6.03	7.05	6.14
Apatite	0.00	0.00	0.00	0.00	0.00	0.00
Gorceixite	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.09	0.52	0.20	0.02	0.52	0.07
Total	100.00	100.00	100.00	100.00	100.00	100.00
Mass Distribution	73.42	26.58	100.00	89.47	10.53	100.00

Iron deportment data is presented in Table 15-5.

Table 15-5: Ore Characterization Iron Deportment Data

Sample	411073			411192			411045			411072		
Mineral	**1C**	**1F**	**Head**	**2C**	**2F**	**Head**	**3C**	**3F**	**Head**	**4C**	**4F**	**Head**
Fe-Oxides*	88.27	73.96	85.33	90.19	75.49	85.32	88.27	73.96	86.63	88.27	73.96	85.45
Goethite	10.71	25.16	13.68	9.45	24.12	14.31	10.71	25.16	12.37	10.71	25.16	13.56
Kaolinite_Goethite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quartz/f.g. Hem.**	0.79	0.65	0.76	0.29	0.30	0.29	0.79	0.65	0.77	0.79	0.65	0.76
Others	0.23	0.23	0.23	0.07	0.09	0.08	0.23	0.23	0.23	0.23	0.23	0.23
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Dist.	79.42	20.58	100.00	66.85	33.15	100.00	88.52	11.48	100.00	80.28	19.72	100.00
Sample	**411160**			**411071**			**411179**			**411094**		
Mineral	**5C**	**5F**	**Head**	**6_C**	**6_F**	**Head**	**7C**	**7F**	**Head**	**8C**	**8F**	**Head**
Fe-Oxides*	90.14	79.48	88.50	85.31	70.37	82.83	84.84	69.92	82.35	88.10	74.43	86.21
Goethite	9.61	19.98	11.21	14.63	29.43	17.09	14.88	29.80	17.37	11.22	24.76	13.09
Kaolinite_Goethite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quartz/f.g. Hem.**	0.18	0.36	0.21	0.03	0.12	0.04	0.22	0.24	0.23	0.53	0.65	0.55
Others	0.07	0.17	0.09	0.03	0.07	0.04	0.06	0.04	0.06	0.15	0.17	0.15
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Dist.	84.64	15.36	100.00	83.40	16.60	100.00	83.28	16.72	100.00	86.18	13.82	100.00
Sample	**411084**			**411156**			**411176**			**411184**		
Mineral	**9_C**	**9_F**	**Head**	**10_C**	**10_F**	**Head**	**11C**	**11F**	**Head**	**12C**	**12F**	**Head**
Fe-Oxides*	85.09	66.95	81.00	80.80	63.41	77.02	85.12	68.60	81.47	85.99	76.34	84.54
Goethite	14.85	32.66	18.87	18.84	35.25	22.41	14.16	30.84	17.84	12.99	22.90	14.47
Kaolinite_Goethite	0.00	0.02	0.00	0.00	0.07	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Quartz/f.g. Hem.**	0.02	0.16	0.05	0.16	0.24	0.18	0.36	0.32	0.35	0.83	0.54	0.79
Others	0.03	0.22	0.07	0.20	1.02	0.38	0.36	0.22	0.33	0.19	0.21	0.20
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mass Dist.	77.42	22.58	100.00	78.25	21.75	100.00	77.93	22.07	100.00	85.00	15.00	100.00
Sample	**411196**			**411200**								
Mineral	**13C**	**13F**	**Head**	**14C**	**14F**	**Head**						
Fe-Oxides*	87.30	78.20	84.88	76.62	63.37	75.23						
Goethite	12.32	21.27	14.70	18.82	30.55	20.06						
Kaolinite_Goethite	0.00	0.00	0.00	0.00	0.00	0.00						
Quartz/f.g. Hem.**	0.30	0.25	0.29	3.37	4.52	3.49						
Others	0.08	0.27	0.13	1.19	1.55	1.22						
Total	100.00	100.00	100.00	100.00	100.00	100.00						
Mass Dist.	73.42	26.58	100.00	89.47	10.53	100.00						

The iron oxide grain size data is presented in Table 15-6 and is illustrated in Figure 15-2. The data shows a wide range of natural grain size dispersion with D_{80} values ranging from 200 to 330 micron. The D_{80} size is the point at which 80% passing as a measure of the mean grain size.

Table 15-6: Iron Oxide Grain Size Data

Sample	**411073**	**411192**	**411045**	**411072**	**411160**	**411071**	**411179**	**411094**	**411084**	**411156**
Micron	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
710	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
600	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	97.38	94.35
500	100.00	100.00	97.31	100.00	100.00	92.58	100.00	100.00	97.38	92.24
425	100.00	100.00	96.34	100.00	100.00	89.46	98.83	99.28	94.00	89.13
355	98.80	98.06	93.49	99.10	100.00	82.44	96.43	96.53	89.48	83.25
300	91.33	94.98	89.87	96.34	98.32	76.23	87.63	89.91	84.94	75.47
250	78.20	84.42	79.06	92.13	94.61	64.93	75.25	80.99	78.40	64.72
212	64.66	71.80	69.78	82.93	84.99	53.75	58.49	65.09	67.46	53.96
180	49.36	53.13	58.97	70.92	72.90	43.76	47.90	51.26	53.89	43.77
150	35.50	37.98	47.03	51.35	54.33	31.83	35.07	35.28	39.52	30.41
125	22.64	26.92	31.73	36.96	39.53	20.33	25.62	26.32	25.53	19.75
106	15.05	18.79	22.21	24.09	27.74	12.14	15.65	13.81	14.96	12.10
90	9.00	11.12	16.47	17.85	18.46	6.66	10.76	9.05	9.19	7.49
75	5.83	6.81	12.41	10.85	11.37	4.01	5.64	4.04	5.27	4.42
63	2.91	3.24	9.32	7.05	7.49	2.71	5.64	4.04	3.65	3.21
53	1.80	0.80	7.25	3.11	3.82	1.86	3.22	4.04	2.45	2.42

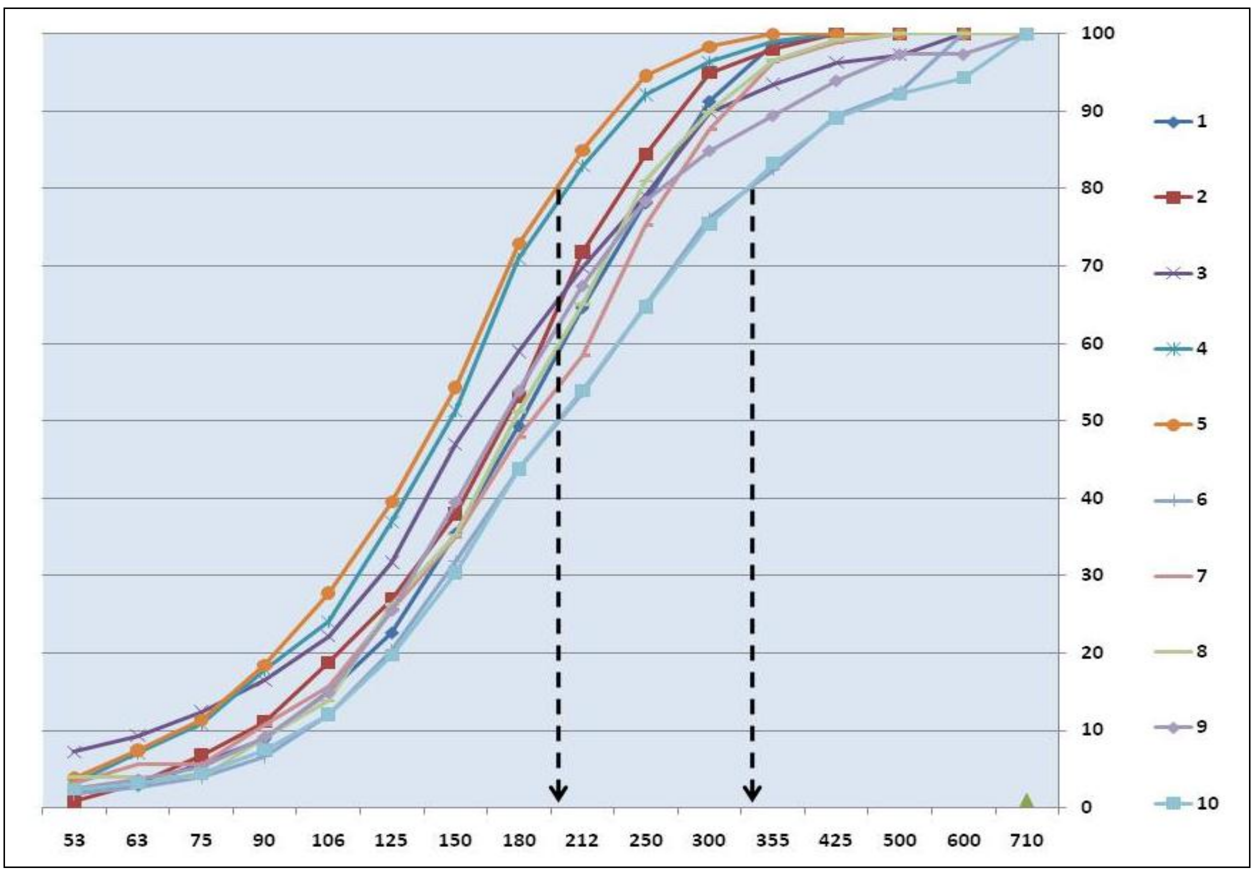


Figure 15-2: Iron Oxide Grain Size Data

The quartz grain size data is presented in Table 15-7 and is illustrated in Figure 15-3. The data shows a wide range of natural grain size dispersion with D_{80} values ranging from 212 to 250 microns. Quartz in sample 10 is coarser grained than the other samples (D_{80} of ~355 microns).

Table 15-7: Quartz Grain Size Data

Sample	411073	411192	411045	411072	411160	411071	411179	411094	411084	411156
Micron	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
850	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
710	100.00	100.00	98.57	100.00	100.00	100.00	100.00	100.00	100.00	100.00
600	100.00	100.00	98.57	100.00	100.00	100.00	100.00	100.00	99.37	98.66
500	100.00	100.00	96.15	100.00	100.00	99.21	100.00	100.00	98.57	94.75
425	100.00	100.00	93.46	100.00	100.00	98.34	100.00	100.00	97.25	89.52
355	100.00	98.88	89.78	100.00	100.00	94.85	100.00	99.06	92.97	79.62
300	96.64	97.19	85.21	99.06	100.00	87.87	96.92	96.06	85.44	70.85
250	80.66	91.82	74.53	93.31	94.94	77.37	90.67	89.99	73.24	59.29
212	63.05	70.88	61.64	76.75	74.25	64.19	78.00	78.02	61.48	46.61
180	39.67	49.85	49.10	54.36	52.28	49.51	56.96	61.70	48.94	34.90
150	22.42	25.57	34.50	29.84	31.10	33.73	30.40	39.73	33.50	22.85
125	11.91	15.30	20.68	19.03	18.97	20.35	17.17	25.24	19.84	14.09
106	6.63	8.84	10.91	10.07	10.57	11.90	9.60	13.60	11.35	8.13
90	4.30	5.08	6.17	4.80	6.17	6.54	5.10	7.61	6.43	4.93
75	2.69	3.07	3.60	2.56	3.62	3.80	2.66	3.80	3.70	2.96
63	1.68	2.03	2.27	1.72	2.12	2.16	1.49	2.22	2.31	1.84
53	0.91	1.04	1.36	0.89	0.88	1.40	0.52	1.00	1.38	1.20
45	0.56	0.46	0.88	0.49	0.53	0.88	0.25	0.59	0.96	0.84
38	0.25	0.16	0.58	0.21	0.20	0.55	0.08	0.23	0.61	0.57
32	0.25	0.16	0.40	0.21	0.20	0.35	0.08	0.23	0.36	0.40

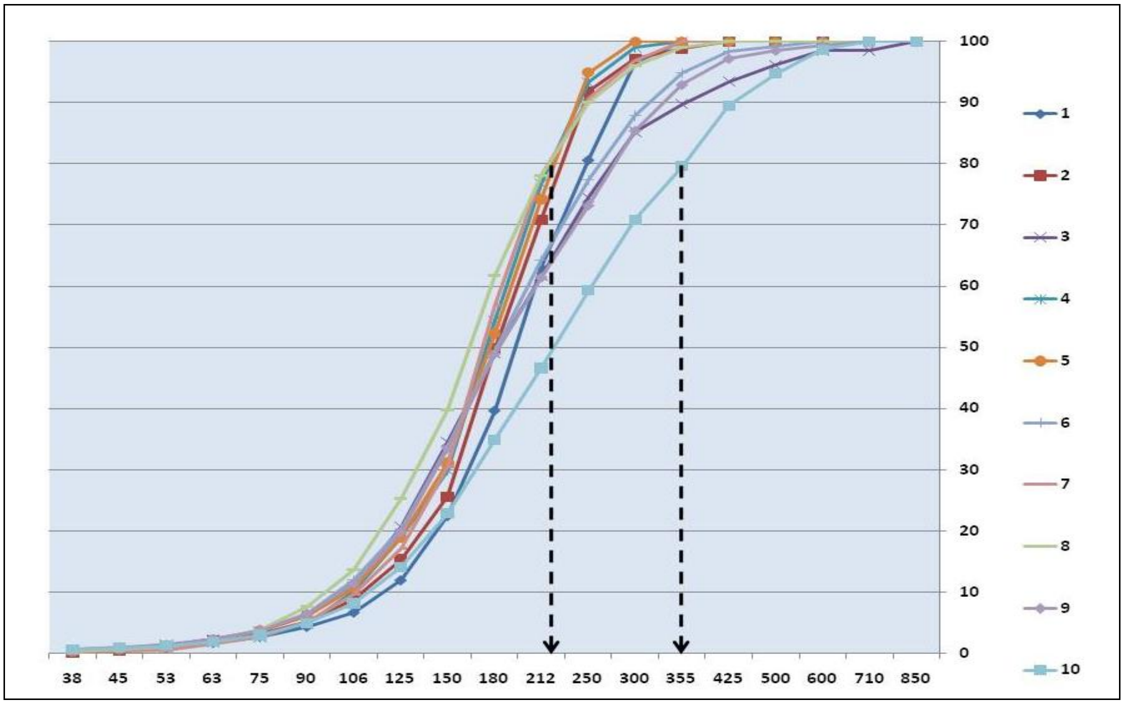


Figure 15-3: Quartz Grain Size Data

Preliminary Beneficiation Studies

Roche Ltd. Consulting Group was retained to provide a preliminary analysis of energy requirement for grinding, mass and metallurgical recovery as well as expected quality of the concentrate. The report also includes a preliminary process block flow diagram with a preliminary mass balance (proportion in percentage of Run-of-Mine (ROM)). The study was based on preliminary results of the Actlabs ore characterization study and was conducted on a representative drill core section through the longest mineralized section so far encountered. The work was done at SGS Lakefield under the supervision of Roche Limited. As part of the investigation Roche evaluated historical information from 1960's testwork conducted for Canadian Javelin.

<u>Sample Makeup</u>

The material tested at SGS Lakefield represents the longest continuous section so far drilled through the Julienne Lake iron deposit. The sample was taken by two DNR geologists, Leonard Mandville and Darren Pittman who happened to be in Goose Bay and graciously agreed to collect the sample. A total of 190kg of core/rubble was collected by sampling without bias the entire length of JL-10-05 and 05 ext to a depth of approximately 565m (about 5-6 metres above the Wishart Formation). Every approx. 1.5m they systematically collected 10cm of core or rubble. The material was contained within six 5 gallon (19 litre) plastic pails, secured and forwarded by courier to SGS Lakefield.

Approximately 100 kg of this material remains at Lakefield for possible additional testwork.

<u>Sample Preparation</u>

A single 190-kg sample of drill core was sent to SGS Lakefield site for the program. The sample was crushed to nominal ½" and a 35-kg sub-sample was set aside for grindability testing (Bond rod mill and Bond ball mill grindability tests). A 46 kg sub-sample was crushed to 6 mesh. The rest (>100kg) is available for possible additional analysis. The sample preparation protocol is illustrated in Figure 15-4.

<u>Head Characterisation</u>

- Direct Head Assays

  The sample was submitted to the whole-rock analysis suite (WRA), which includes the following elements: SiO_2, Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, K_2O, TiO_2, P_2O_5, MnO, Cr_2O_3, V_2O_5 and loss on ignition (LOI), as well as sulphur and Satmagan determination to establish magnetite content.

- Size-by-size Assays

  The sample was also submitted for size-by-size analyses. Three 15-kg charges were prepared from the 'as received' material. The three charges were stage-crushed to 10, 20 and 35 mesh, respectively. For each of the charge, 250g was sub-sampled and submitted for size-by-size WRA.

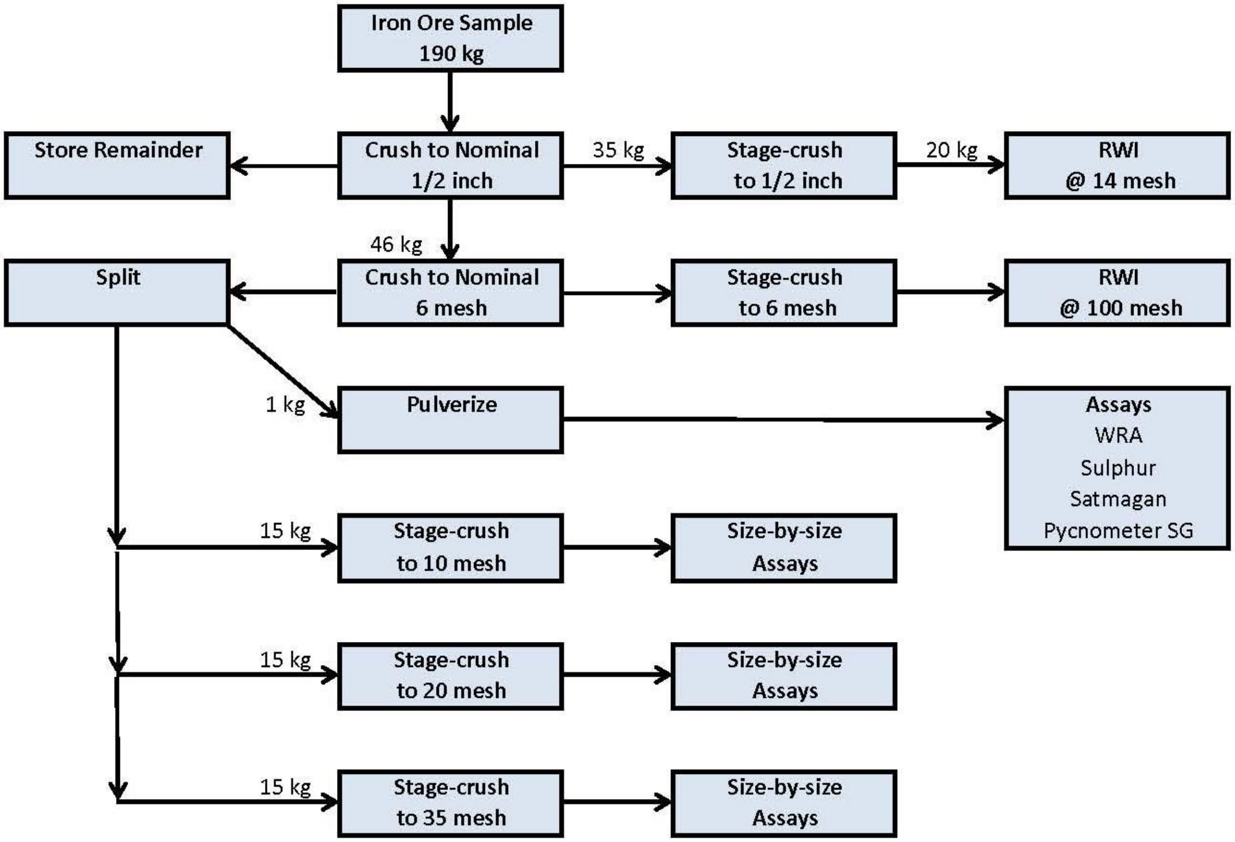


Figure 15-4: 2010 Beneficiation Testwork Sample Preparation Diagram.

Grindability Testing

The hardness of the ore is measured through grindability testing. The proper selection of sample(s) for grindability testing is very important as it might affect the mining plan. Several grindability tests have been developed over the years for different applications and each test has its own strengths and weaknesses.

- Bond Rod Mill Grindability Test

The Bond rod mill grindability test was performed according to the original Bond procedure. In the current study 20 kg of minus ½" material was prepared at the SGS Lakefield testing facility. The sample was submitted for the Bond rod mill grindability test at 14 mesh of grind (1,180 microns). The Bond rod mill work index (RWI) is widely used for rod mill or primary ball mill sizing.

- Bond Ball Mill Grindability Test

The Bond ball mill grindability test was also performed according the original Bond procedure. Bond ball mill grindability test was performed on the Julienne Lake sample at 100 mesh of grind (150 microns). It requires 15 kg of minus 6-mesh material that was prepared at the testing facility. The Bond ball mill work index (BWI) has been widely used for mill sizing, but is also utilised in computer simulation.

<u>Bench-scale Beneficiation Testing</u>

Based on the size-by-size assays, the material was split into 3 size fractions for gravity testing. The mass and iron recovery by gravity was investigated for three grinds with top sizes of 10, 20 and 35 mesh (1,700, 850 and 425 microns, respectively). Magnetic separation was also investigated on selected gravity tails.

The three gravity size fractions were processed through the Wilfley table.

- Rougher Gravity Test

  The rougher gravity separation was performed with a continuous Wilfley table. The table produced concentrate and tailings streams. At the end of the test, the tailings were submitted to size-by-size WRA determination.

- Cleaner Gravity Test

  A 100-g sub-sample of the rougher gravity concentrate was cleaned using a Mozley table. Four products, i.e. one concentrate, one tailings and two middlings streams were produced. The tailings and middlings were submitted to WRA. The concentrate was submitted to size-by-size WRA determination. A gravity grade recovery curve was produced using the gravity test results

<u>WHIMS Testing</u>

A sub-sample (309.4 g) of the -35M Wilfley Tails product was processed through an Eriez Wet High Intensity Magnetic Separator (WHIMS) carousel-type separator which uses a matrix to recover the magnetic material. For the first pass, the unit was set at 30 amps (maximum strength), corresponding to ~21.5 kG. The Wilfley tails were processed as is at high intensity (Rougher WHIMS). The tails (30 Amps tails) were assayed. The magnetic fraction was stage-crushed to 75 microns and processed repeatedly through the WHIMS at different intensities: 30, 20, 15 and 10 amps, respectively, with the WHIMS concentrate being cleaned at lower intensity after each step. The products were assayed for WRA.

<u>Summary of Test Results</u>

The results of the March 2010 tests at SGS Lakefield done under the supervision of Roche Ltd. are summarized as follows:

- The testwork has indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5% from material ground to a P_{80} of approximately 212 μm (65 mesh). At this fineness a Fe recovery of approximately 75% and a weight recovery of over 40% is indicated. The current results compare favourably with historical data acquired by Canadian Javelin in the 1960's. Both sets of results are encouraging but further more systematic process/beneficiation studies are required.
- Autogenous or semi-autogenous grinding ("SAG") will likely be the preferred approach to milling the Julienne Lake iron formation material. The grinding circuit would need to minimize the generation of material finer than 45 μm (-325 mesh) as spirals lose efficiency at that point. Bond Work Index results show that the iron ore is soft. This will have a positive impact on operating costs and the difference between the Bond rod mill

work index and the Bond ball mill work index shows that a pebble crusher would not be required in a SAG and Ball mill circuit. This is beneficial with regard to potential equipment size, capital cost and energy requirements.

- Roche recommends pursuing process development at fine grinds than those tested so far.
- If economically viable, a WHIMS circuit could be integrated into the flow diagram as a complementary process to increase Fe recovery. More testing is required.

The complete Roche Ltd. report describing the testwork and incorporating all of the SGS Lakefield results is appended to this report (Volume 1, Appendix 2).

16.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

16.1. Historical Javelin Resource Estimates

In 1959-60, Javelin made a preliminary estimate of the grade and tonnage contained in the Julienne Lake iron deposit. This rudimentary 'polygon on section' estimate employed a volume to tonnage conversion factor of 12 cubic feet per long ton (2.9 tonnes/cubic metre) to arrive at 381,220,000 tons (387,340,000 tonnes) averaging 34.2% Fe.

A revised grade and tonnage estimate for the Julienne Lake deposit, including projected strike extensions beneath Wabush and Julienne Lakes was completed in June 1963 (Knowles, 1963). The under-lake extensions are based primarily on interpretations of magnetic data (Figure 5-2). Only one historic diamond drill hole, from a lake ice setup, actually confirmed iron formation.
The land portion of the Julienne Lake deposit that has been explored by surface mapping, trenching and limited diamond drilling was re-estimated by Javelin to contain 500,034,000 long tons (508,058,000 tonnes) averaging 34.2% Fe with only traces of impurities (Knowles, 1963). Geophysically projected extensions of the deposit under Wabush and Julienne Lakes (outside of the EML) were estimated at 165 million and 239 million tons (168 and 243 million tonnes), respectively. Combining the tonnage estimate on the Julienne Peninsula with the projected under-lake extensions tonnages brings the total deposit blue-sky mineral potential to approximately 900 million tons (915 million tonnes).

The above historical estimates are presented by MPH for information purposes only. The estimates are believed to have been done to only rudimentary standards, nonetheless they would appear to reasonably indicate the tons and grade outlined at the date of preparation. However the estimate predates the current standards embodied in NI 43-101 and therefore do not conform to the same.

While there is little doubt that the Julienne Lake iron deposit is sizeable and of good grade based on the historic data, there is considerable uncertainty regarding the details. As noted in earlier sections of this report there are serious shortcomings in the diamond drilling database used for the estimations, namely:

- Inadequate hole spacings,
- Very poor core recoveries,
- Failure to reach planned depth and penetrate full thickness of iron formation,
- No QA/QC protocols,
- No down-hole directional/inclination surveys,
- No S. G./bulk density determinations, and
- No core remaining

The only known document pertaining to the actual grade/tonnage estimates is a 1960 report entitled "Julian Iron Corporation, Preliminary Ore Estimate" (Roxburgh, 1960). The author leaves little doubt that this study is considered inadequate with comments such as; "Working under the policy laid down by Management exploration has been carried out only to the point where the presence of a major orebody has been clearly indicated." and "As it was necessary to obtain the most information from a strictly limited expenditure, drill holes were spaced to give the most necessary information while still using locations which fitted into the overall pattern of drilling laid out for the full development drill program."

The tonnage estimate was produced using a conventional 'polygon on cross section' approach. Some of the original cross sections are shown in Figure 16-1.

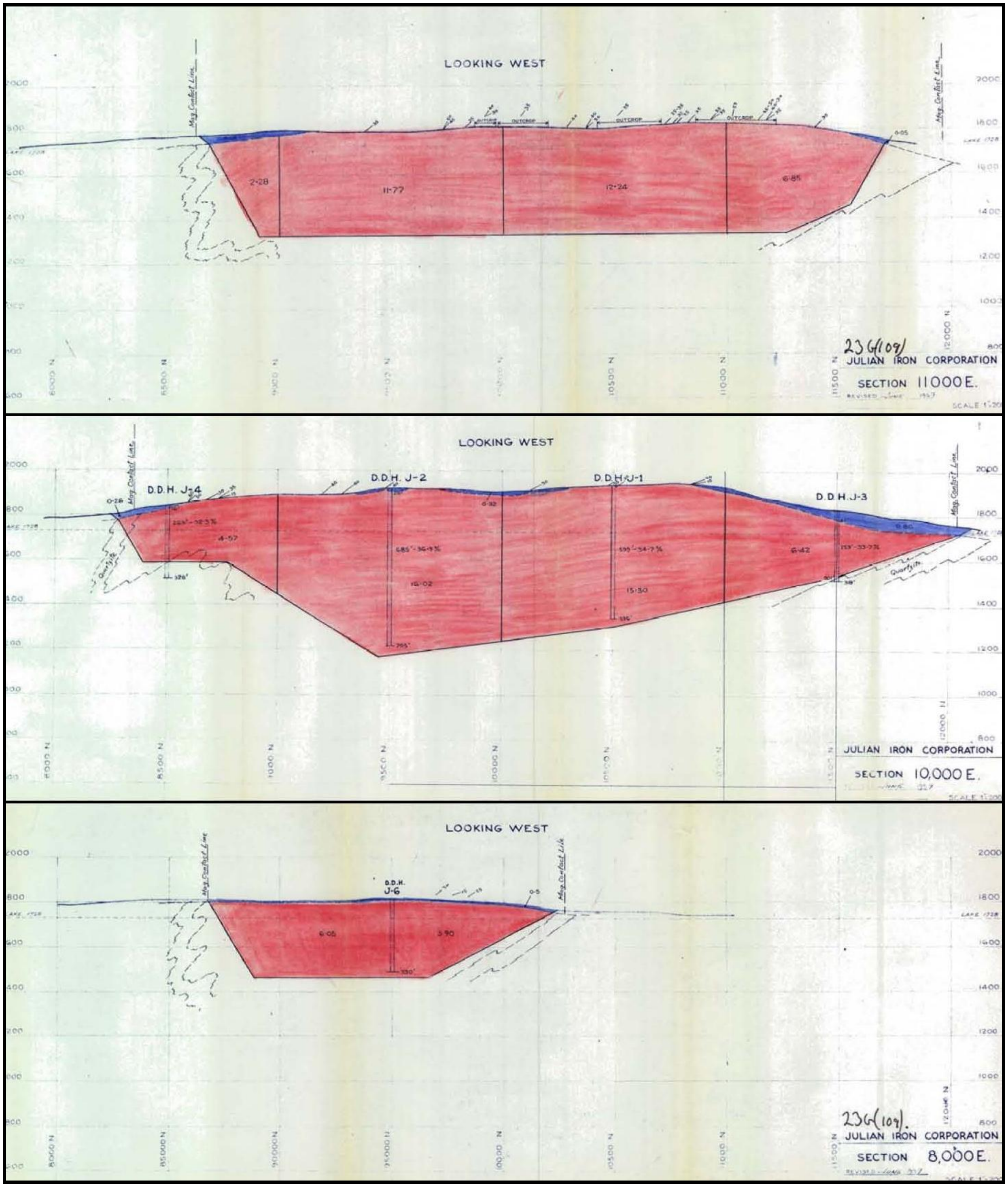


Figure 16-1: 1960 Javelin Historical Resource Estimation Typical Sections

The above cross sections illustrate the level of detailed understanding of the deposit, with the best section having 4 drill holes (2 into the footwall) and the worst having none. Simply put, an experienced economic geologist or mining engineer, with a pencil, sheet of paper and a ruler, could probably do a tonnage estimation to a similar level of confidence in well under an hour.

Although there is no record of a new resource estimation having been done in 1963, the minimum tonnage for the deposit somehow increased from 381,220,000 tons (387,340,000 tonnes) averaging 34.2% Fe to 500,034,000 long tons (508,058,000 tonnes) averaging 34.2% Fe. MPH has determined that the volume to tonnage conversion factor of 12 cubic feet per long ton (~2.9 tonnes/m^3) used by Javelin for the 1960 estimate is inordinately low for the style of deposit in question. Theoretically a consolidated rock containing 35% Fe, composed principally of quartz (SG 2.6) and hematite (SG 4.9-5.3) would have a SG in the range of 3.75 to 3.95. Allowing for 10 to 15% open space as pores, fractures, etc., this would translate into a tonnage factor or dry bulk density somewhere between 3.2 and 3.35 tonnes/m^3. Logic similar to this might explain the sudden increase in tons without additional drilling.

16.2. MPH Julienne Lake Iron Deposit Historical Resource Audit, January 2010.

MPH Consulting undertook the following to augment the resource / reserve portion of its systematic due diligence for the January 2010 evaluation report, done prior to the current program.

- An office review of technical information, supporting back-up data and drawings.
- No field visit to the Julienne Lake Property was made to examine the outcrop area and collect samples for analysis.
- Examination of technical information including original drill logs, analytical data, and geological and resource estimate techniques, etc.
- A critical review and analysis of all resource / reserve information, parameters, and calculation methodology used in the historical Javelin estimations.
- The historical drilling, trenching and test pit information was recaptured from original drawings, documents, etc., and placed into a standard GIS digital database.
- An independent calculation of grade and tonnage was made for the deposit for direct comparison with historic Javelin calculations.

Utilizing the recaptured database MPH produced a 1:1,000 scale plan showing drill hole collar locations, pit and trench locations and surface contours. Historic detailed geological, geophysical and topographic maps were used to define the outer limits of the iron formation. A simple polygon on plan approach was taken by MPH as a general check of the Javelin resource estimates.

The following parameters were used by MPH in its Julienne Lake iron deposit estimations of grade and tonnage:

- For the purpose of determining iron formation vertical thickness MPH used measured length of the 8 vertical diamond drill holes and the vertical projection distance for the remaining angle hole.

- Analytical data for Fe is presented as a weighted average of analyses for each drill hole. No cutting procedures or cut-off grades were utilized.
- External boundaries of the iron formation were defined by mapped boundaries of the iron formation contact and by the EML boundary, while internal borehole based polygonal estimation blocks were constructed and measured for area utilizing GemCom software.
- Resource block volume was determined by multiplying vertical thickness (borehole intercept) by horizontal surface area for individual blocks.
- Dry bulk density for the area is assumed to be 3.2 tonnes/m^3.
- Resource tonnage for individual blocks was determined by multiplying resource block volume by its equivalent relative density calculation.
- Overall tonnage by resource category was computed by combining the individual resource blocks in the respective areas.

The MPH grade/tonnage estimations based on the recaptured GIS database are summarized in Table 16-1. It is noted that the table shows tonnage estimate figures to the nearest tonne and iron grades to two decimal places. This is simply a function of the arithmetic calculation and is definitely not meant to imply a high level of confidence in the estimates.

Table 16-1: MPH Historical Resource Audit, Julienne Lake Fe Deposit, No cut-off.

HOLE ID	FROM (m)	TO (m)	LENGTH (m)	VERT. T (m)	FE %	AREA (m^2)	VOLUME (m^3)	TF t/m^3	TONNES t
J-1	0.9	181.7	180.8	180.8	34.18	121453	21958748	3.2	70,267,992
J-2	6.1	214.9	208.8	208.8	36.48	147123	30719352	3.2	98,301,926
J-3	14.3	96.9	82.6	82.6	31.91	86616	7154496	3.2	22,894,386
J-4	4.9	92.2	87.3	87.3	31.65	117101	10222938	3.2	32,713,401
J-5	3.7	46.9	43.2	33.09	39.33	94075	3112955	3.2	9,961,457
J-6	3.0	98.5	89.2	89.2	40.22	247068	22038505	3.2	70,523,215
J-7	3.7	115.5	111.2	111.2	35.58	171049	19020685	3.2	60,866,192
J-8	7.9	108.5	97.3	97.3	30.65	235877	22950830	3.2	73,442,655
J-9	42.1	79.6	37.5	37.5	36.67	157385	5901951	3.2	18,886,244
Average					**35.14**	**Total**			**457,857,468**

MPH used GEMCOM to construct a rudimentary polygonal block on plan method to estimate the minimum on-shore tonnage and grade for the Julienne Lake iron deposit as follows:

- ~460.0 million tonnes of iron formation material at average grade of ~35% Fe

The above MPH audit estimations are in reasonable agreement with the preliminary estimates made by Javelin in the early 1960's. Due to the use of an inappropriate tonnage factor, the 1960 Javelin estimations are believed to significantly understate the resource tonnage.

The polygon outlines utilized in the January 2010 MPH audit are shown in Figure 16-2.

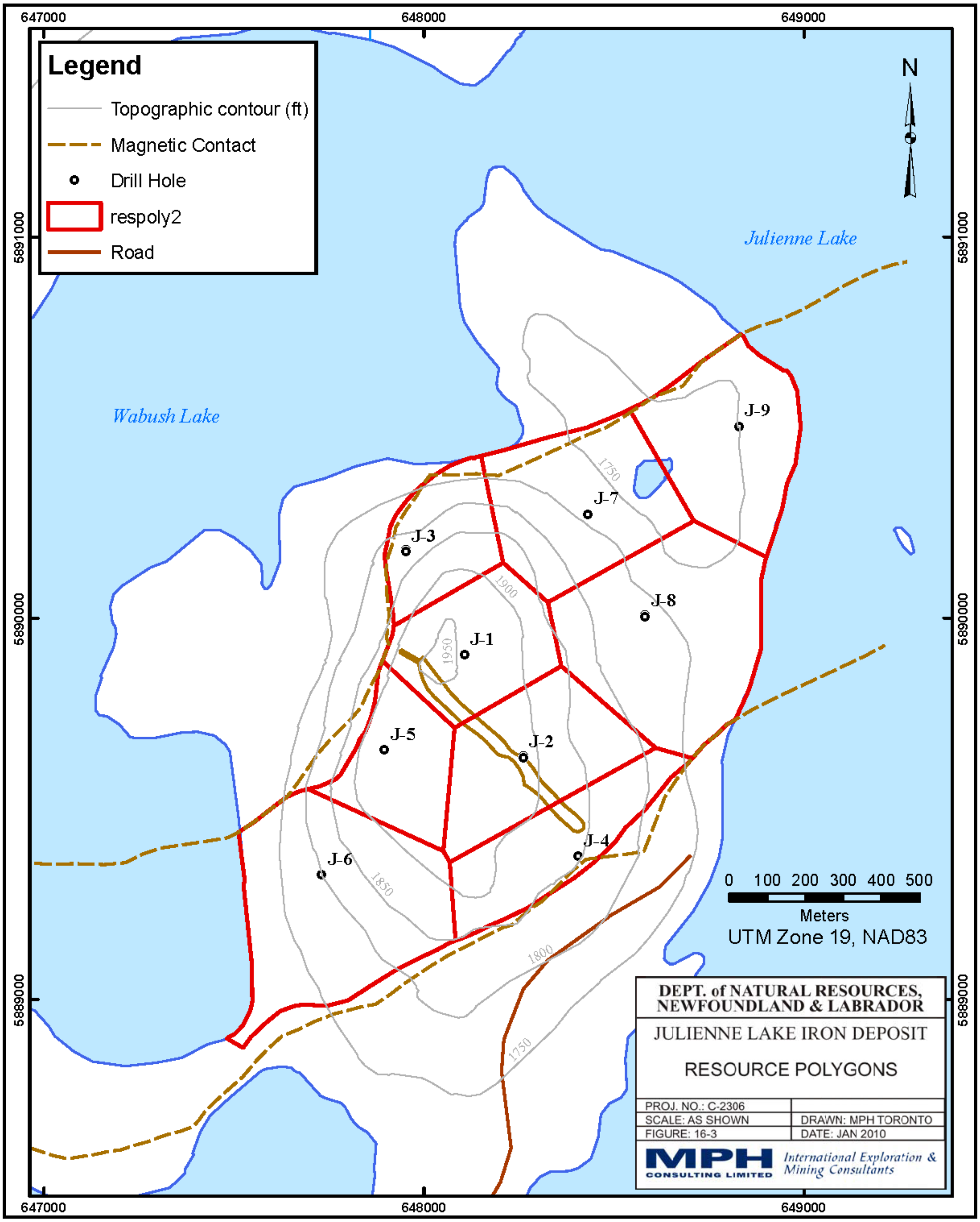


Figure 16-2: MPH Historical Resource Audit, Estimation Polygons.

MPH has reviewed and evaluated all available information concerning the historic grade/tonnage estimates and after conducting independent estimations has determined that in its opinion none of the estimates meet all of the criteria for NI 43-101 compliant Measured + Indicated Resources.

16.3. Current Resource Estimation, March 2011.

Introduction

The mineral resource estimate presented herein was prepared by F. H. Brown, CPG, Pri.Sci.Nat of P&E Mining Consultants Inc. Mineral resource modeling and estimation were carried out using the commercially available GEMS Gemcom and Snowden Supervisor software programs, based on information and data supplied by Howard Coates, P.Geo. and Michele Cote, P.Geo., of MPH Consulting Limited, Toronto.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. Confidence in the estimate of Inferred mineral resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent mineral resource estimates.

Data and Information Supplied

The supplied database contains 42 diamond drillhole records and 104 surface trench records. In addition, seven interpreted cross-sections and two plan maps of the orebody were supplied, as well as a topographic surface of unknown resolution and bathymetric depth soundings. An analysis of bulk densities prepared by Howard Coates, P.Geo. was also provided.

Drillhole records contain information on collar locations, downhole surveys, and assay grades for Fe%, SiO_2%, Al_2O_3%, Mn%, MgO% CaO%, Na_2O%, K_2O%, P% and Cr_2O_3%. Trench records were supplied as point assay results for Fe%, SiO_2%, Al_2O_3, Mn%, CaO%, Na_2O%, K_2O%, P%, Cr_2O_3%. TiO_2% and V_2O_5%. Six elements were modeled for this mineral resource estimate, viz. Fe%, Mn%, MgO%, CaO%, SiO_2% and P%.

Database Validation

All supplied data were imported into a GEMS Access database and validated. P&E typically validates a mineral resource database by checking for inconsistencies in naming conventions or analytical units, duplicate entries, interval, length or distance values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, and missing interval and coordinate fields. One trivial out of sequence assay interval was noted (JL10-16, 178.50m – 182.00m) and corrected; no other significant discrepancies with the supplied data were noted.

Geological Modeling

Based on the data and interpreted geology provided by MPH Consulting Limited, a number of surfaces were developed, including:

- Benthic Surface: bedrock along the benthic surface as defined by bathymetric readings;

- Overburden Surface: modeled overburden as defined by drilling;
- Boundary Fault: interpreted southerly boundary fault;
- Basal WQ contact: top of the WQ formation as defined by drilling.
- The lakeshore or EML property boundary

Surfaces were constructed by Laplace gridding of drillhole intersections. Topography, the benthic surface and the overburden surface were used to define the top of the orebody, which is truncated to the south by the boundary fault. The lower limit of mineralization is defined by the top of the WQ formation. The orebody limits were extended along strike an additional 100m beyond the first and last drillhole fences (Figure 16-3).

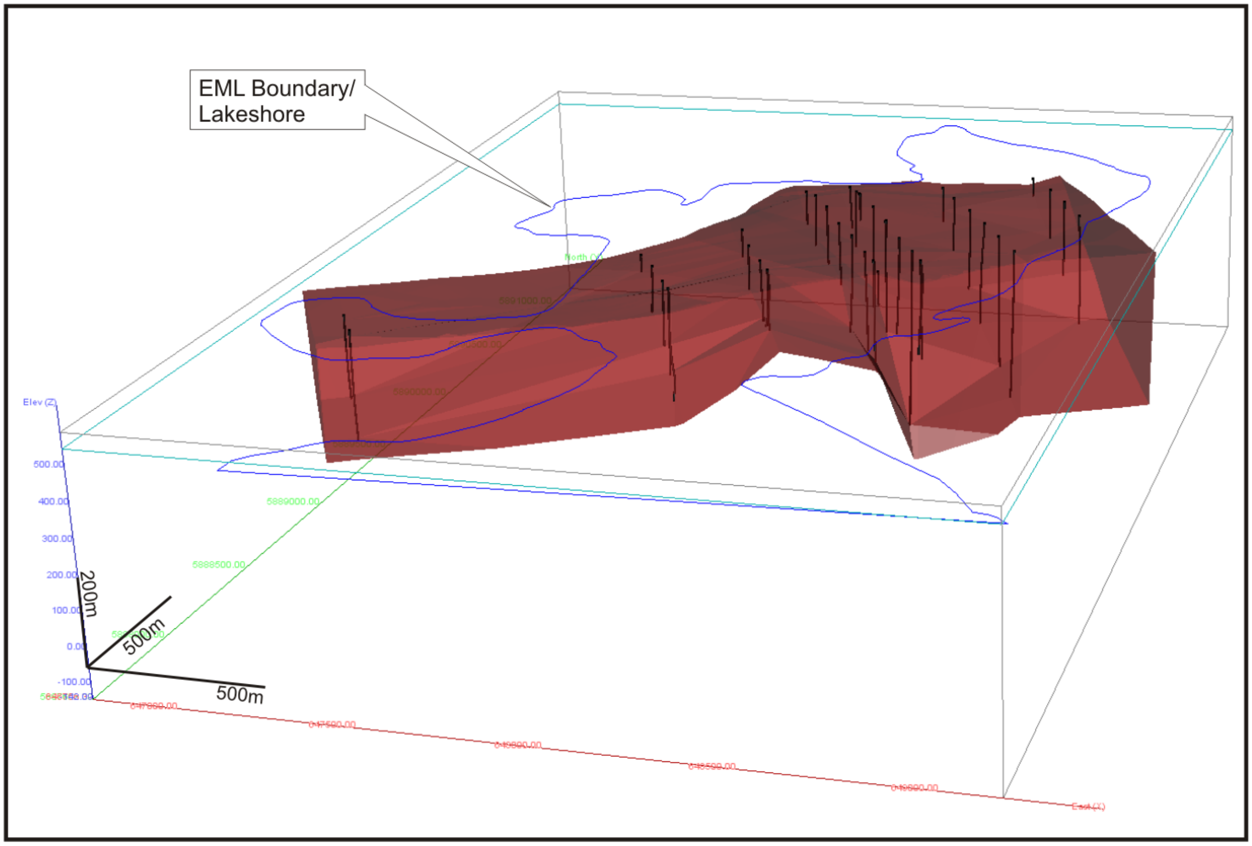


Figure 16-3: Isometric drawing of modeled orebody limits.

Compositing

The average sample width of the assays is 7.54m; however, the mode of the sample width is 10.0m (Figure 16-4), with 84% of the samples having a width of 12m or less. In order to ensure a consistent sample width for mineral resource estimation without creating a large number of sub-samples, 12m length-weighted composites were calculated for each commodity within the defined orebody, generating 716 composites. The compositing process started at the first point of intersection between the drillhole and the orebody, and halted upon exit from the orebody. The composite data were then exported to extraction files for analysis and grade estimation.

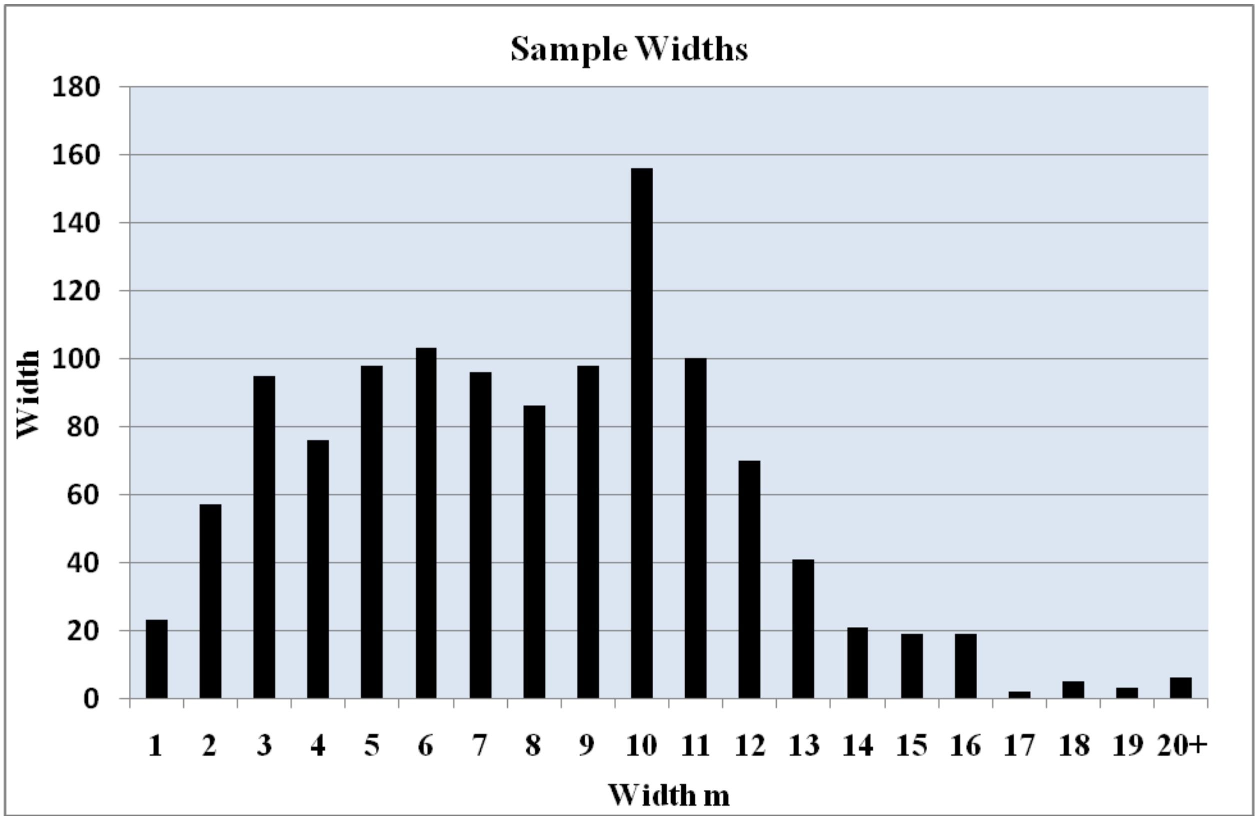


Figure 16-4: Drilling assay sample widths.

Exploratory Data Analysis

Summary statistics were generated for the assay data (Table 16-2), the uncapped composite data (Table 16-3), and the trench data (Table 16-4). Only the Mn data show a significant difference between the trench and assay grades.

Examination of the composite histograms indicates a normal distribution for Fe and SiO_2, and a strong log-normal distribution for Mn, MgO, CaO and P. In addition, a very strong correlation was noted between the Fe and SiO_2 composite data (Figure 16-5), and weaker correlations were noted for Mn and P, as well as for MgO and CaO (Table 16-5).

Table 16-2: Summary Assay Statistics.

	Fe%	SiO_2%	Mn%	MgO%	CaO%	P%	Width
Mean	32.79	50.03	0.37	0.07	0.02	0.01	7.54
CV	0.27	0.23	5.06	6.53	2.85	1.24	0.52
St Dev	8.74	11.72	1.87	0.44	0.06	0.02	3.90
Variance	76.34	137.40	3.49	0.19	0.00	0.00	15.24
Skewness	-0.80	0.00	8.31	29.70	27.33	6.63	0.69
Range	65.02	94.17	26.29	14.36	1.80	0.29	37.45
Minimum	0.75	3.71	0.00	<0.01	0.01	0.01	0.35
Maximum	65.77	97.88	26.29	14.37	1.81	0.29	37.80
Count	1,174	1,174	1,174	1,174	1,174	1,174	1,174

Table 16-3: Summary Composite Statistics.

	Fe%	SiO_2%	Mn%	MgO%	CaO%	P%
Mean	33.52	49.80	0.24	0.05	0.02	0.01
CV	0.15	0.15	3.69	4.40	1.20	0.72
St Dev	5.14	7.23	0.89	0.21	0.02	0.01
Variance	26.39	52.29	0.80	0.04	0.00	0.00
Skewness	-0.29	-0.11	7.11	21.21	16.38	3.26
Range	53.28	63.85	10.23	5.13	0.47	0.07
Minimum	3.04	18.73	0.00	<0.01	0.01	0.00
Maximum	56.32	82.58	10.24	5.14	0.48	0.08
Count	716	716	716	716	716	716

Table 16-4: Summary Trench Statistics.

	Fe%	SiO_2%	Mn%	MgO%	CaO%	P%
Mean	34.92	46.85	0.90	<0.01	0.01	0.01
CV	0.25	0.30	3.82	n/a	1.43	0.89
St Dev	8.90	13.96	3.43	n/a	0.01	0.01
Variance	79.20	194.75	11.78	n/a	0.00	0.00
Skewness	-0.22	-0.04	4.66	n/a	2.66	1.88
Range	57.31	92.68	21.74	0	0.06	0.06
Minimum	3.78	1.01	0.01	<0.01	0.00	0.00
Maximum	61.09	93.69	21.75	<0.01	0.06	0.06
Sum	3632.08	4872.41	93.36	n/a	0.81	1.23
Count	104	104	104	104	104	104

Table 16-5: Composite Correlation Matrix.

	Fe%	Mn%	MgO%	CaO%	SiO_2%	P%
Fe%	1.00	0.07	-0.08	-0.05	-0.84	-0.04
Mn%	0.07	1.00	-0.01	0.08	-0.24	0.28
MgO%	-0.08	-0.01	1.00	0.26	0.01	0.17
CaO%	-0.05	0.08	0.26	1.00	-0.01	0.20
SiO_2%	-0.84	-0.24	0.01	-0.01	1.00	-0.10
P%	-0.04	0.28	0.17	0.20	-0.10	1.00

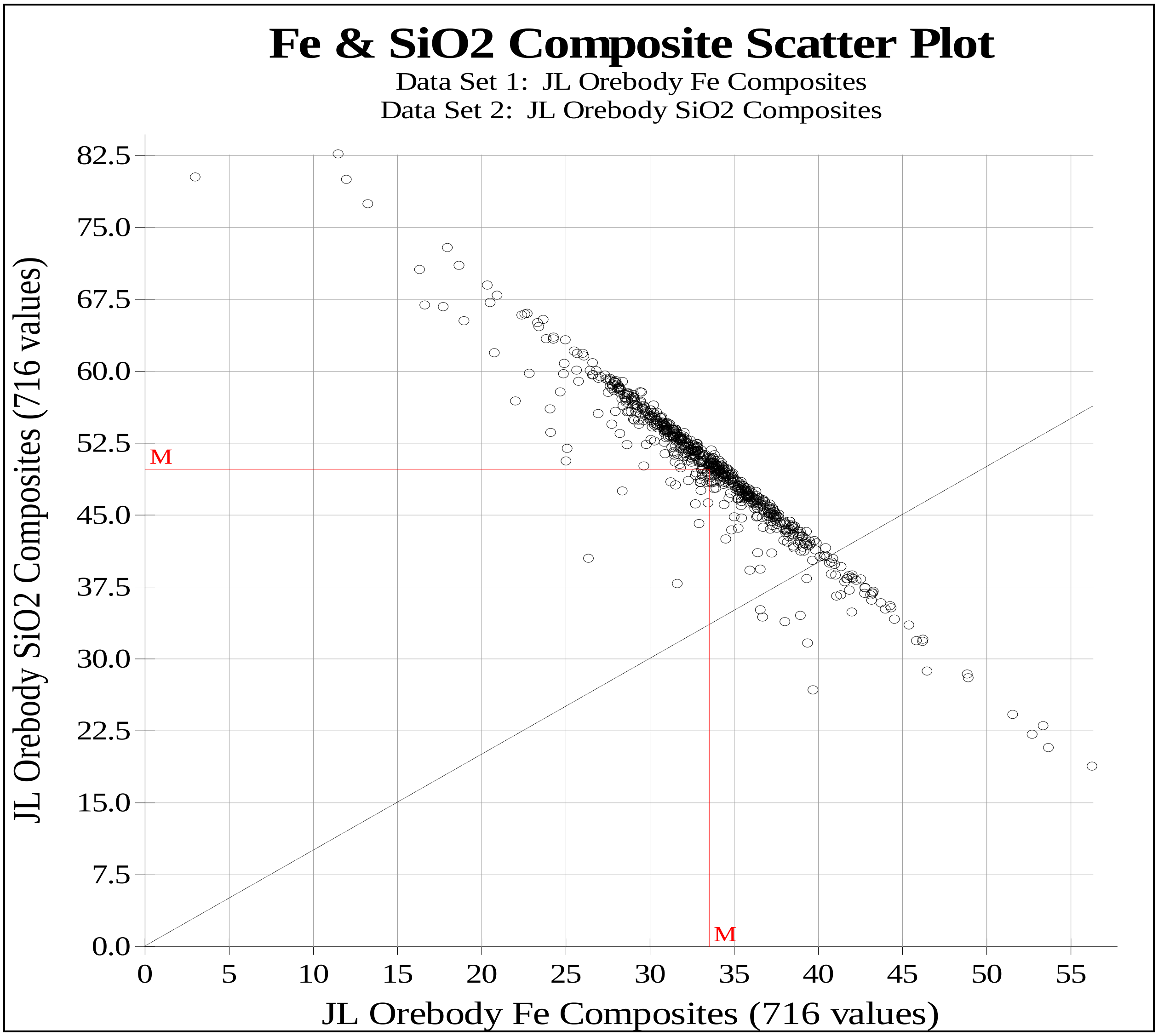


Figure 16-5: Fe and SiO_2 composite correlation graph.

Treatment of Extreme Values

A combination of decile analysis and review of probability plots for the drilling data was used to evaluate the risk associated with high-grade outliers during linear estimation. Results indicate that grade capping is not warranted for the Fe, SiO_2 and P composites (Figures 16-6a and b). For CaO, Mn and MgO, capping of composite values was implemented prior to estimation by restricting the influence of grades that exceed the selected threshold to 70m (Table 16-6).

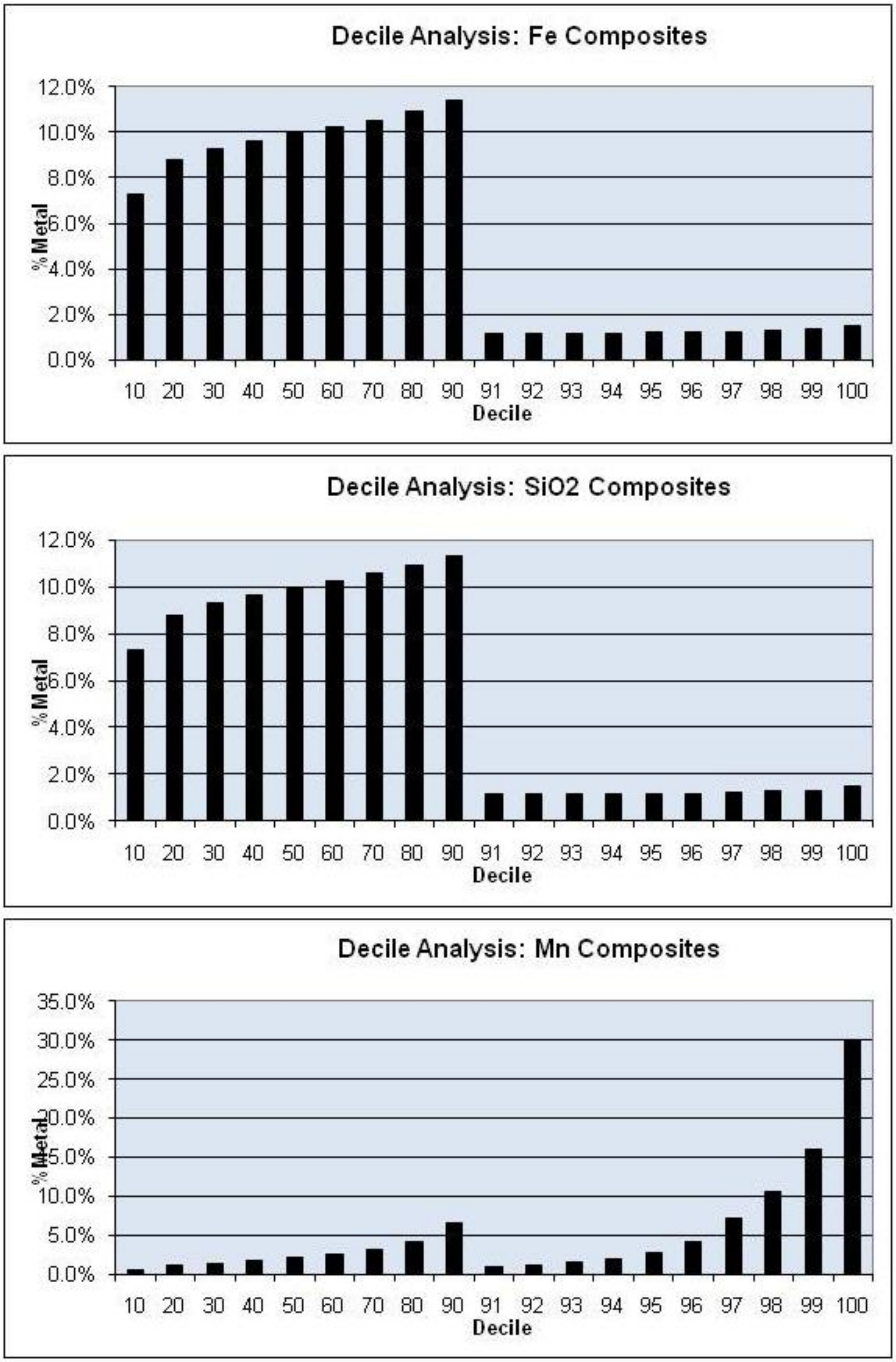


Figure 16-6a: Composite decile analysis, Fe, SiO_2 and Mn.

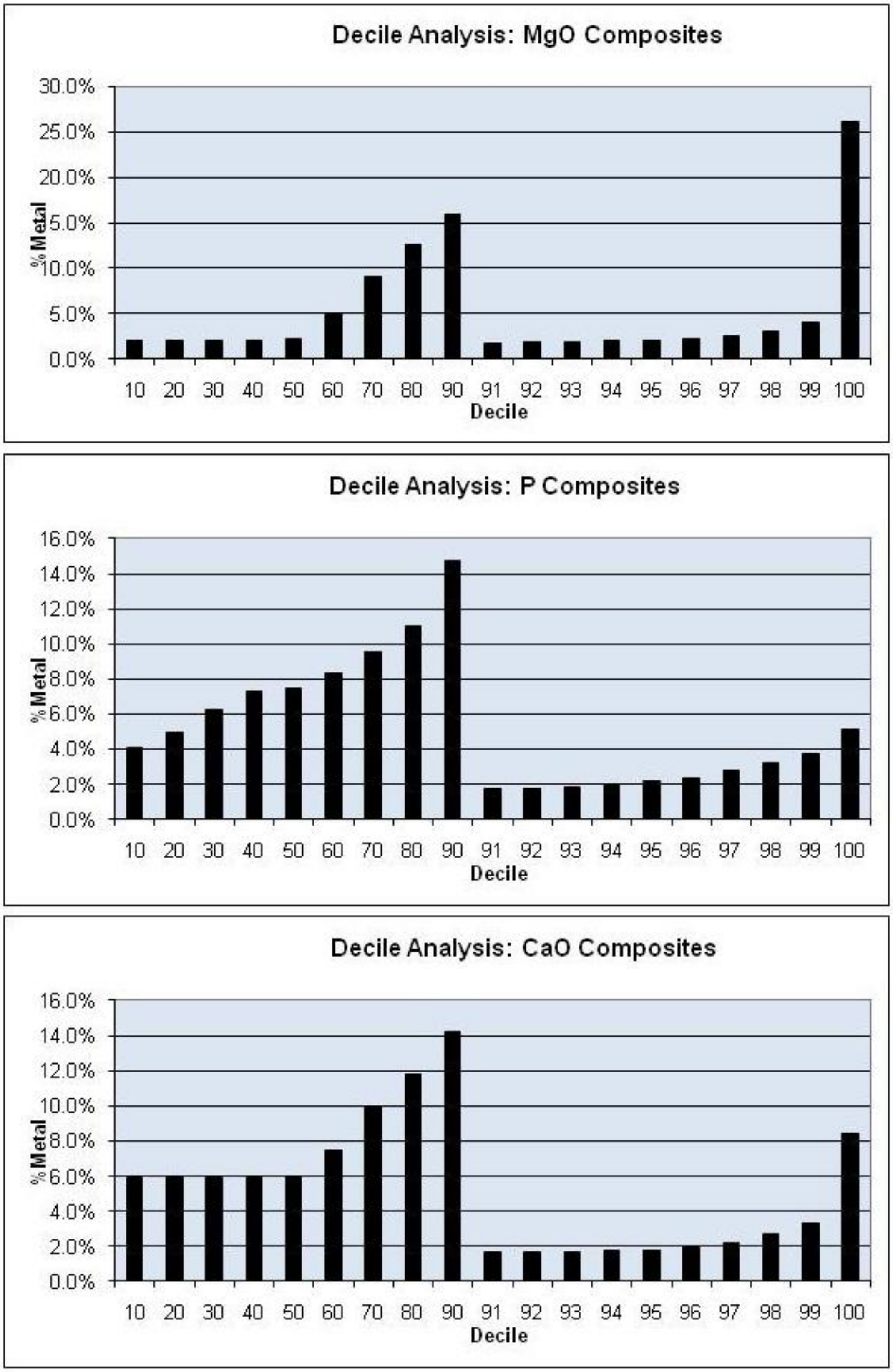


Figure 16-6b: Composite decile analysis, MgO, P and CaO.

Table 16-6. Composite capping thresholds.

Element	Capping Value	Number Capped	Mean	Capped Mean
CaO	0.1	3	0.02	0.02
MgO	0.2	11	0.05	0.04
Mn	5.2	8	0.24	0.16

Continuity Analysis

Three-dimensional continuity analysis was carried out on uncapped composite data. Nugget effects were evaluated using downhole experimental semi-variograms viewed at 12m lag intervals, while isotropic experimental semi-variograms were modeled over a variety of lag spacings in order to assess the robustness of the models.

Reasonable representations of continuity were derived for the Fe and SiO_2 composite data (Figures 16-7a and b), and a continuity ellipsoid based on the modeled Fe experimental semi-variogram was therefore used to define the search and classification criteria used for the mineral resource estimate (Table 16-7).

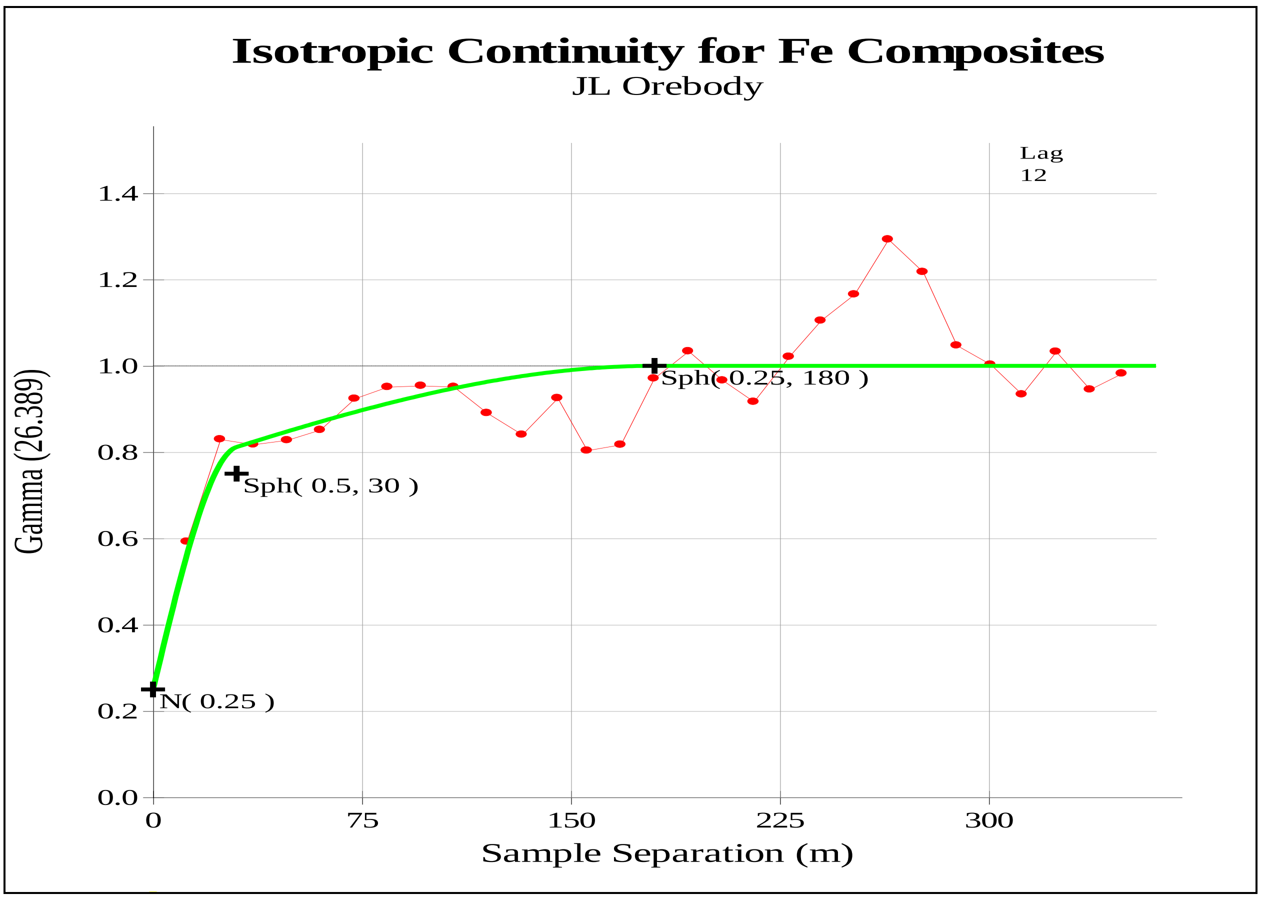


Figure 16-7a: Isotropic experimental semi-variogram for Fe composites.

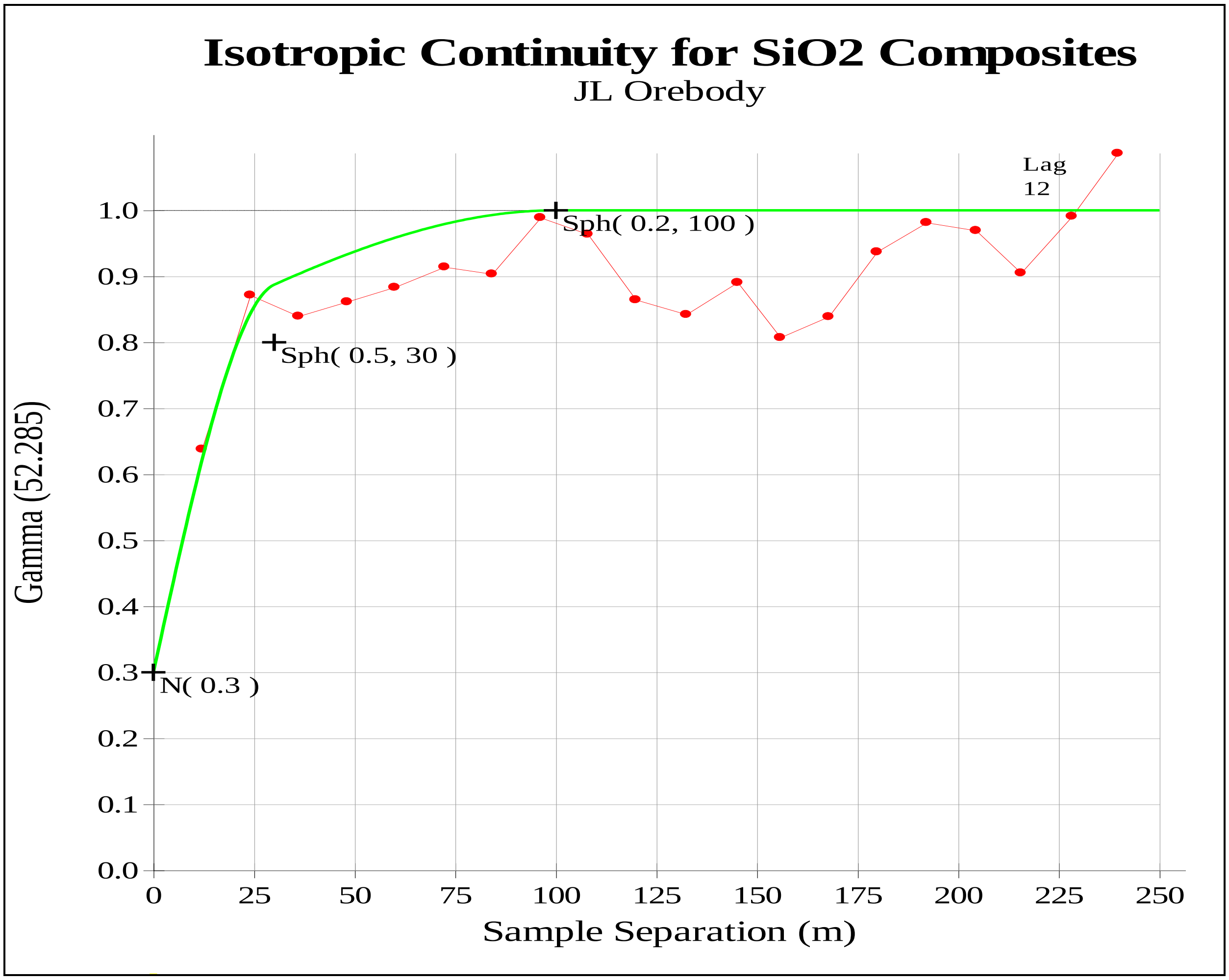


Figure 16-7b: Isotropic experimental semi-variogram for SiO_2 composites.

Table 16-7: Experimental semi-variogram definitions for Fe and SiO_2.

Fe	0.25 + sph(0.5, 30) + sph(0.25, 180)
SiO_2	0.30 + sph(0.5, 30) + sph(0.20, 100)

Block Model

A rotated block model was established across the orebody limits, consisting of separate models for estimated grades, rock code, percent, density and classification criteria (Table 16-8). The block model limits were expanded sufficiently to permit the development of an open pit. A percent block model was used to accurately represent the volume and tonnage that was contained within the constraining orebody limits. As a result, the mineral resource boundaries were properly represented by the percent model's capacity to measure infinitely variable inclusion percentages.

Table 16-8: Project block model limits.

	Origin	Blocks	Size
X	647,000	180	24 m
Y	5,887,000	150	24 m
Z	648	70	12 m
Rotation		30° anti-clockwise	

Estimation & Classification

For Fe and SiO_2, linear estimation by Ordinary Kriging ("OK") of capped composite values was used for the estimation of block grades. Block discretization was set at 4 x 4 x 2 to reflect the selected block size.

For CaO, MgO, Mn and P, linear Inverse Distance Cubed ("ID3") estimation of capped composite values was used for the estimation of block grades.

Prior to estimation all trench point samples were combined with the drillhole composites.

For bulk densities a linear regression equation based on 461 samples was provided by Howard Coates, P.Geo., with a regression coefficient of 0.40, where:

$$\text{Bulk Density} = 0.0311 \times (Fe + Mn) + 2.1397$$

Block bulk density values were calculated directly from the block grade estimates.

A three-pass series of expanding search spheres with varying minimum sample requirements was used for sample selection, estimation and classification:

- During the first pass, five to six composites from three or more drillholes within a search sphere 90m in diameter were required for estimation. All blocks estimated during the first pass were classified as Measured.

- During the second pass, three to six composites from two or more drillholes within a search sphere 180m in diameter were required for estimation. All blocks estimated during the second pass were classified as Indicated.

- During the third pass, three to six composites from two or more drillholes within a search sphere 720m in diameter were required for estimation. All blocks estimated during the third pass were classified as Inferred.

Mineral Resource Estimate

Mineral resources were classified in accordance with guidelines established by the Canadian Institute of Mining, Metallurgy and Petroleum, November 11, 2005:

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

- Indicated Mineral Resource: "An 'Indicated Mineral Resource' is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed."

- Measured Mineral Resource: "A 'Measured Mineral Resource' is that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough to confirm both geological and grade continuity."

Grade and tonnage results for the Julienne Lake orebody are listed in Table 16-9.

Table 16-9: In-situ Julienne Lake Mineral Resource Estimate as of 18 April 2011[(1)].

Measured Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**
50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
40%	3.43	3	41.08	0.30	0.01	0.01	39.16	0.01
35%	3.31	31	37.37	0.31	0.02	0.01	44.01	0.01
30%	3.24	61	35.14	0.32	0.02	0.01	47.18	0.01
25%	3.23	66	34.70	0.38	0.02	0.01	47.74	0.01
20%	3.23	66	34.69	0.38	0.02	0.01	47.75	0.01
15%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
10%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
5%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
0%	3.23	66	34.68	0.38	0.02	0.01	47.75	0.01
Indicated Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**
50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	3.59	1	46.46	0.26	0.01	0.02	31.91	0.01
40%	3.44	20	41.48	0.20	0.02	0.02	38.74	0.01

35%	3.30	252	36.99	0.20	0.04	0.02	45.03	0.01
30%	3.21	722	34.26	0.20	0.04	0.02	48.71	0.01
25%	3.19	788	33.79	0.20	0.04	0.02	49.25	0.01
20%	3.19	797	33.66	0.20	0.04	0.02	49.36	0.01
15%	3.19	801	33.60	0.20	0.04	0.02	49.39	0.01
10%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
5%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
0%	3.19	801	33.58	0.20	0.04	0.02	49.40	0.01
Inferred Resources								
Cutoff: Fe %	**SG t/m^3**	**Mt**	**Fe %**	**Mn %**	**MgO %**	**CaO %**	**SiO2 %**	**P %**
50%	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
45%	3.55	0	45.35	0.15	0.01	0.01	31.64	0.01
40%	3.42	7	40.99	0.26	0.03	0.03	39.98	0.01
35%	3.29	104	36.95	0.12	0.04	0.02	45.56	0.01
30%	3.21	283	34.44	0.12	0.05	0.02	48.85	0.01
25%	3.20	298	34.17	0.12	0.05	0.02	49.14	0.01
20%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
15%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
10%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
5%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01
0%	3.20	299	34.14	0.12	0.05	0.02	49.14	0.01

(1) The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues. The mineral resources in this report were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council.

The resource block model is illustrated by a typical level plan of the 500m elevation (Figure 16-8), two vertical sections oriented in a northwest-southeast direction across the strike (Figures 16-9 and 10), and by two vertical sections oriented in a northeast-southwest direction along the strike (Figure 16-11).

Validation

The block model was validated visually by the inspection of drillhole section lines in order to confirm that the block model correctly reflects the distribution of high-grade and low-grade samples. In addition, jackknife estimation of the composite and trench data using the same parameters as for block estimation indicates a reasonable correspondence between estimated jackknife grades and the composite and trench sample grades (Figure 16-12).

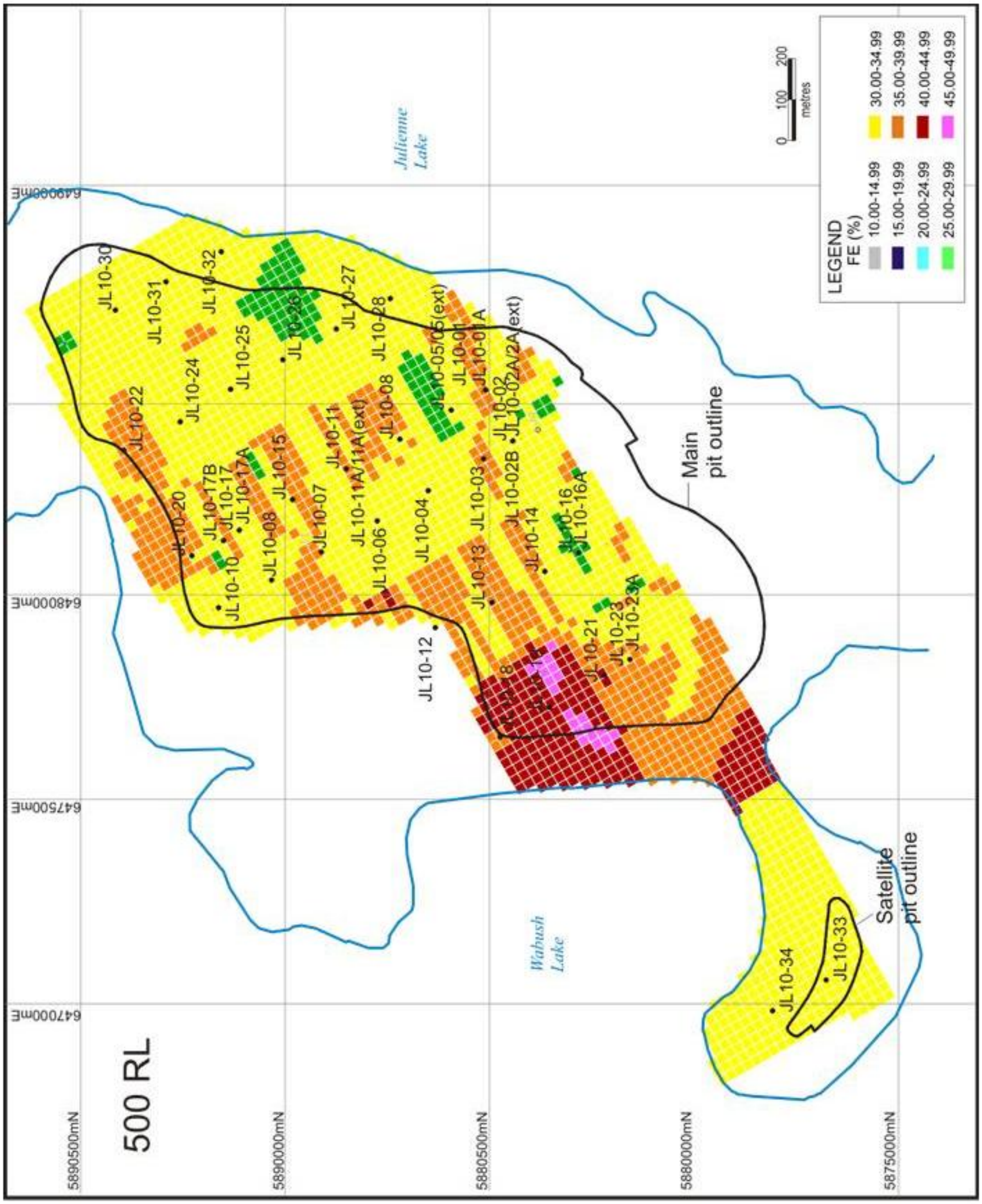


Figure 16-8: Resource Block Model, 500m elevation level plan

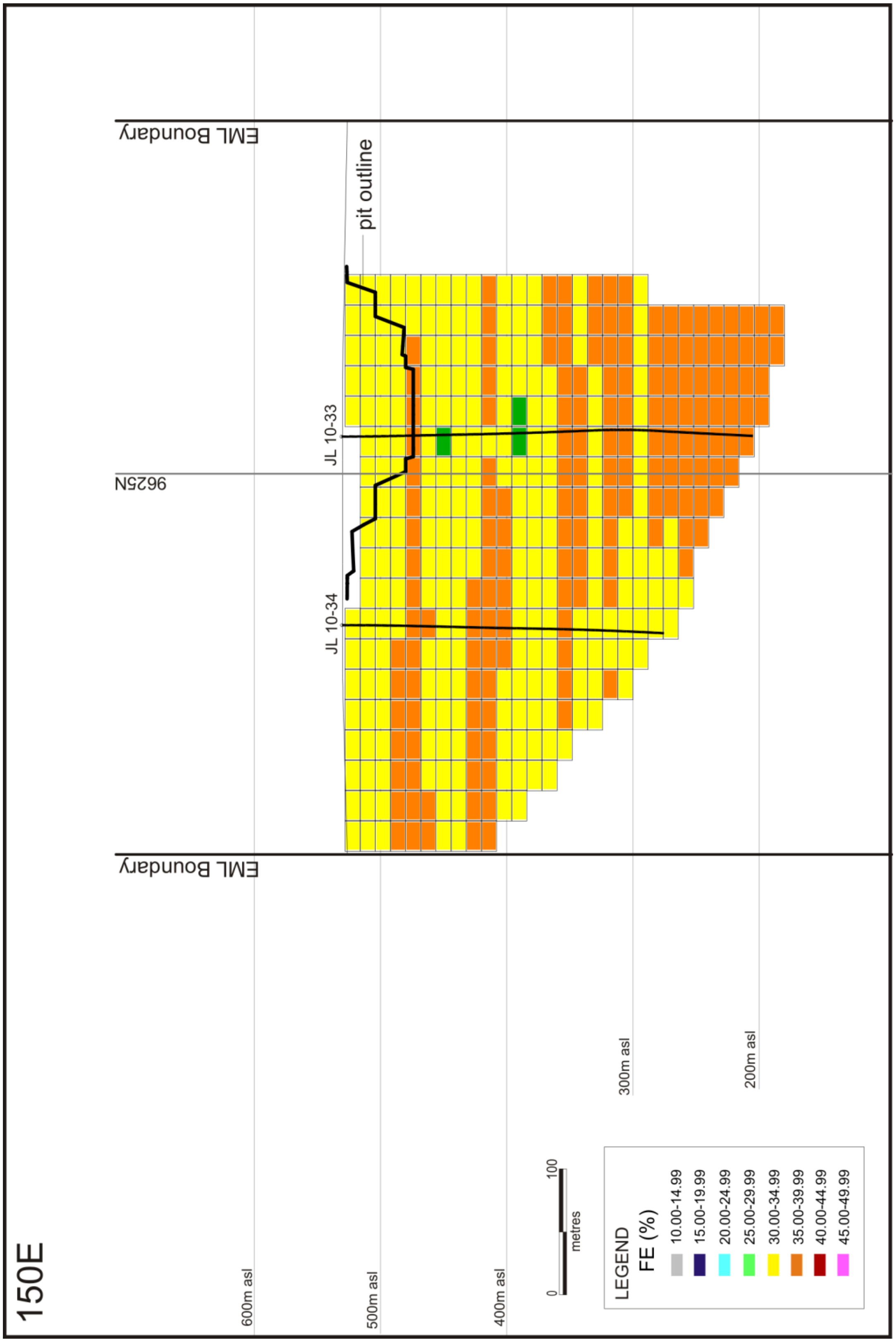


Figure 16-9: Resource Block Model, Cross Section 150E

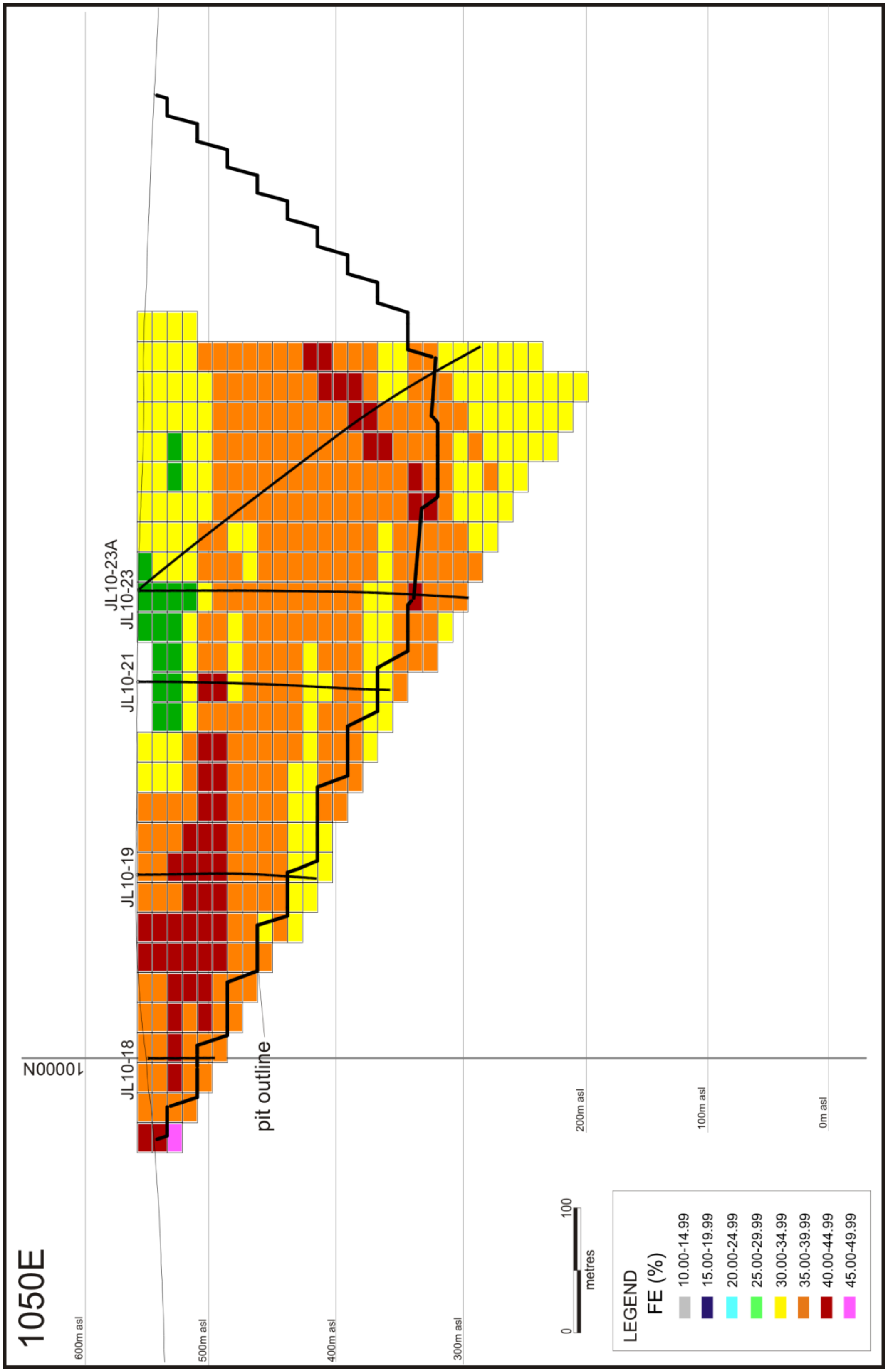


Figure 16-10: Resource Block Model, Cross Section 1050E

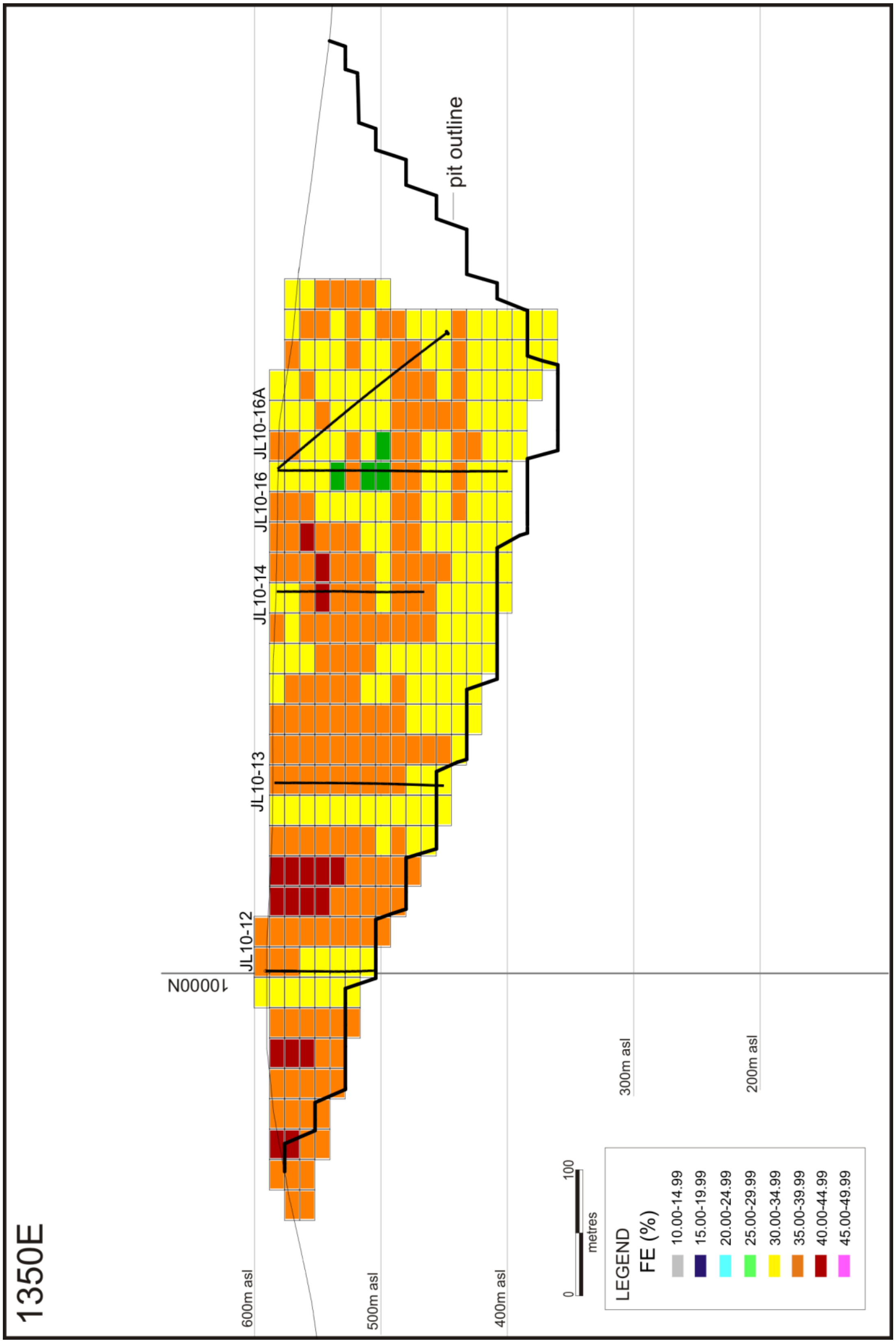


Figure 16-11: Resource Block Model, Cross Section 1350E

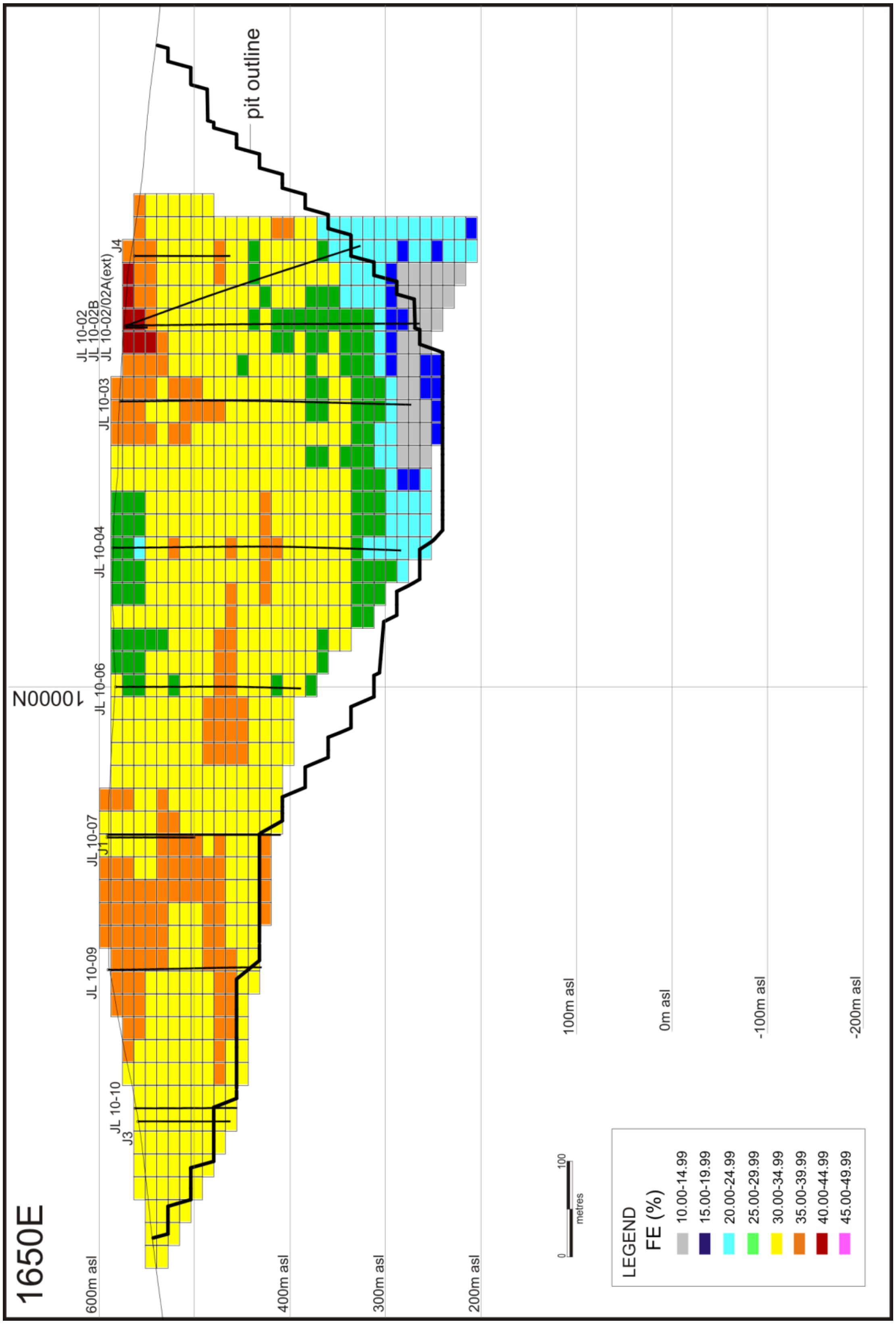


Figure 16-12: Resource Block Model, Cross Section 1650E

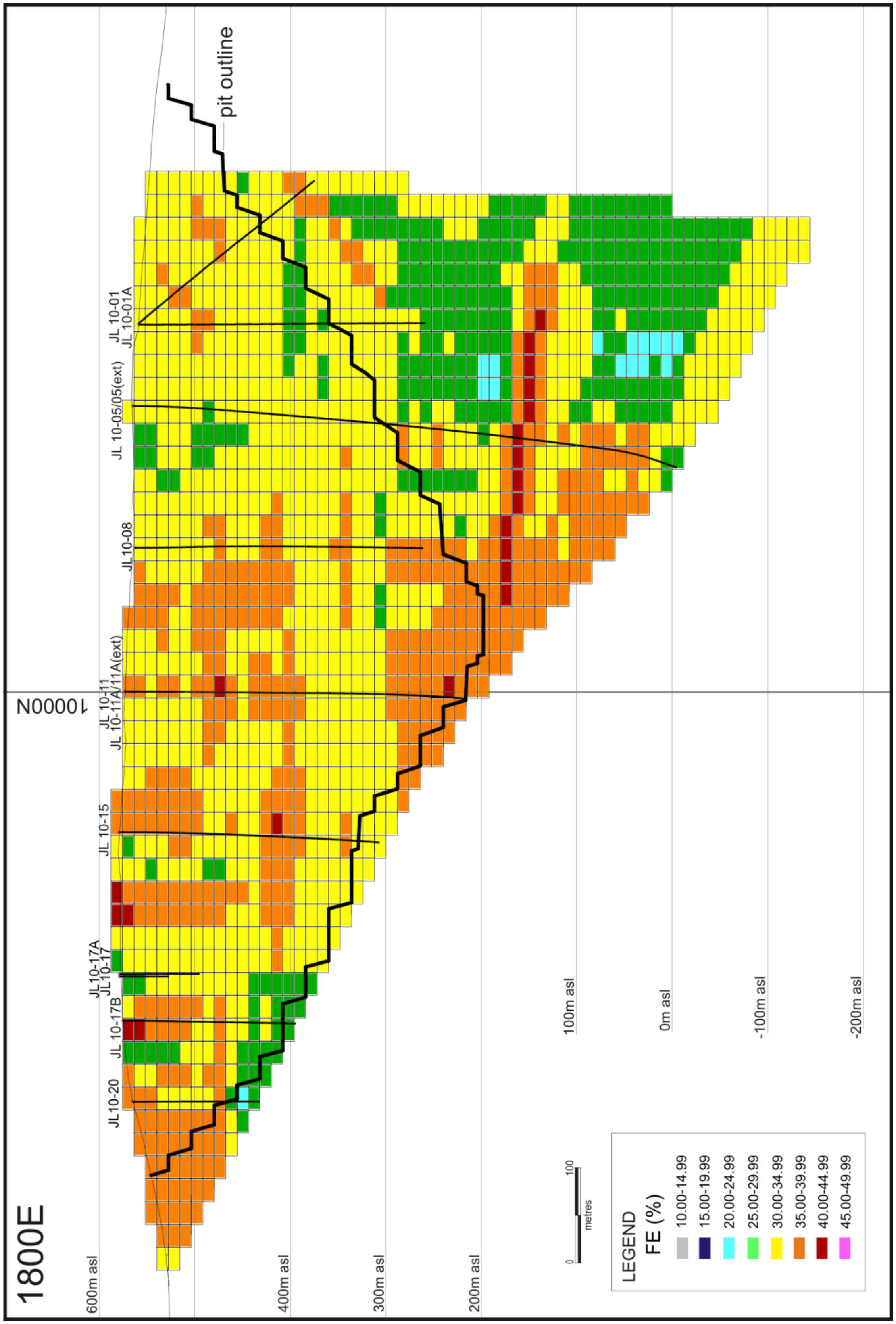


Figure 16-13: Resource Block Model, Cross Section 1800E

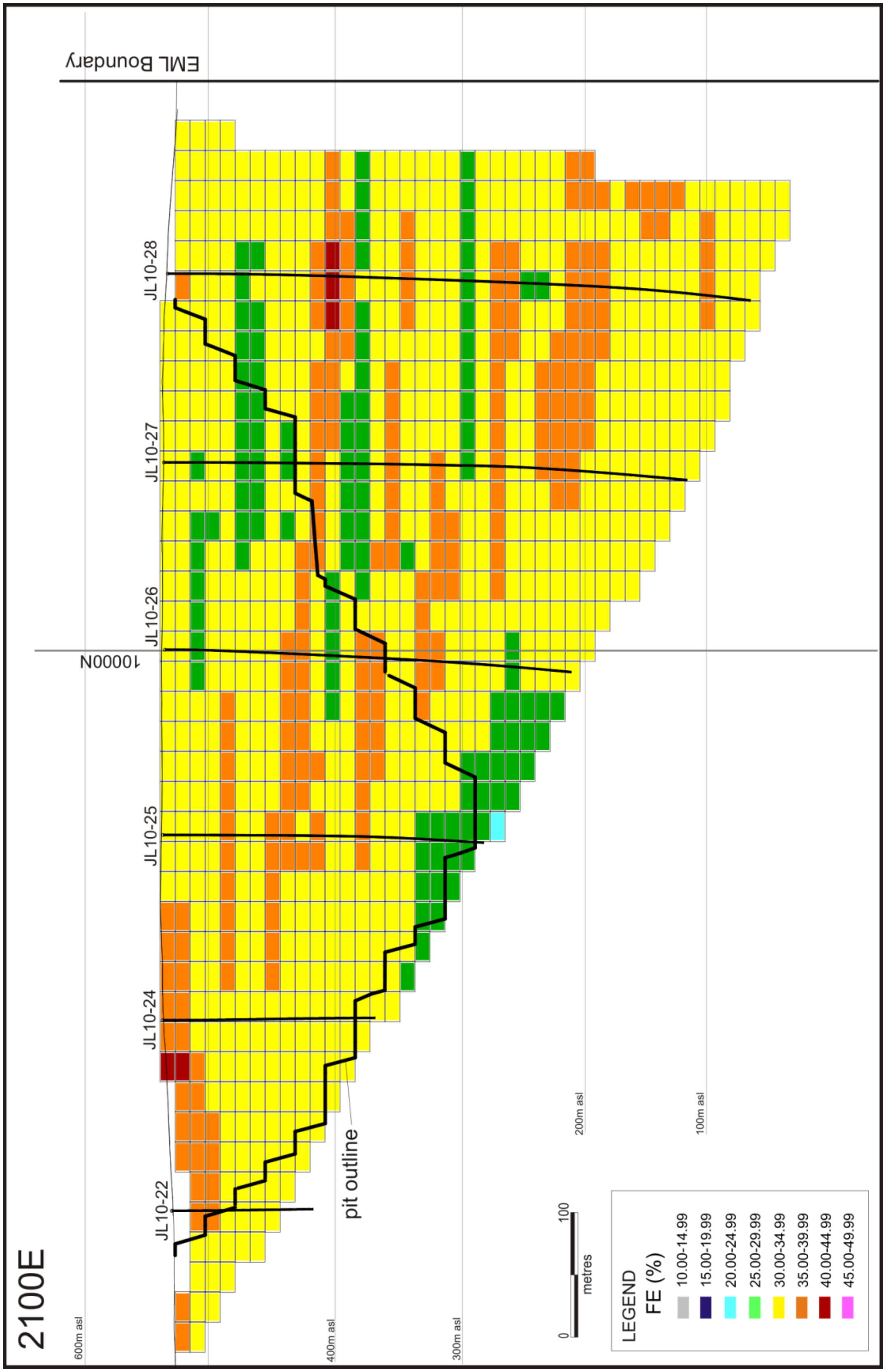


Figure 16-14: Resource Block Model, Cross Section 2100E

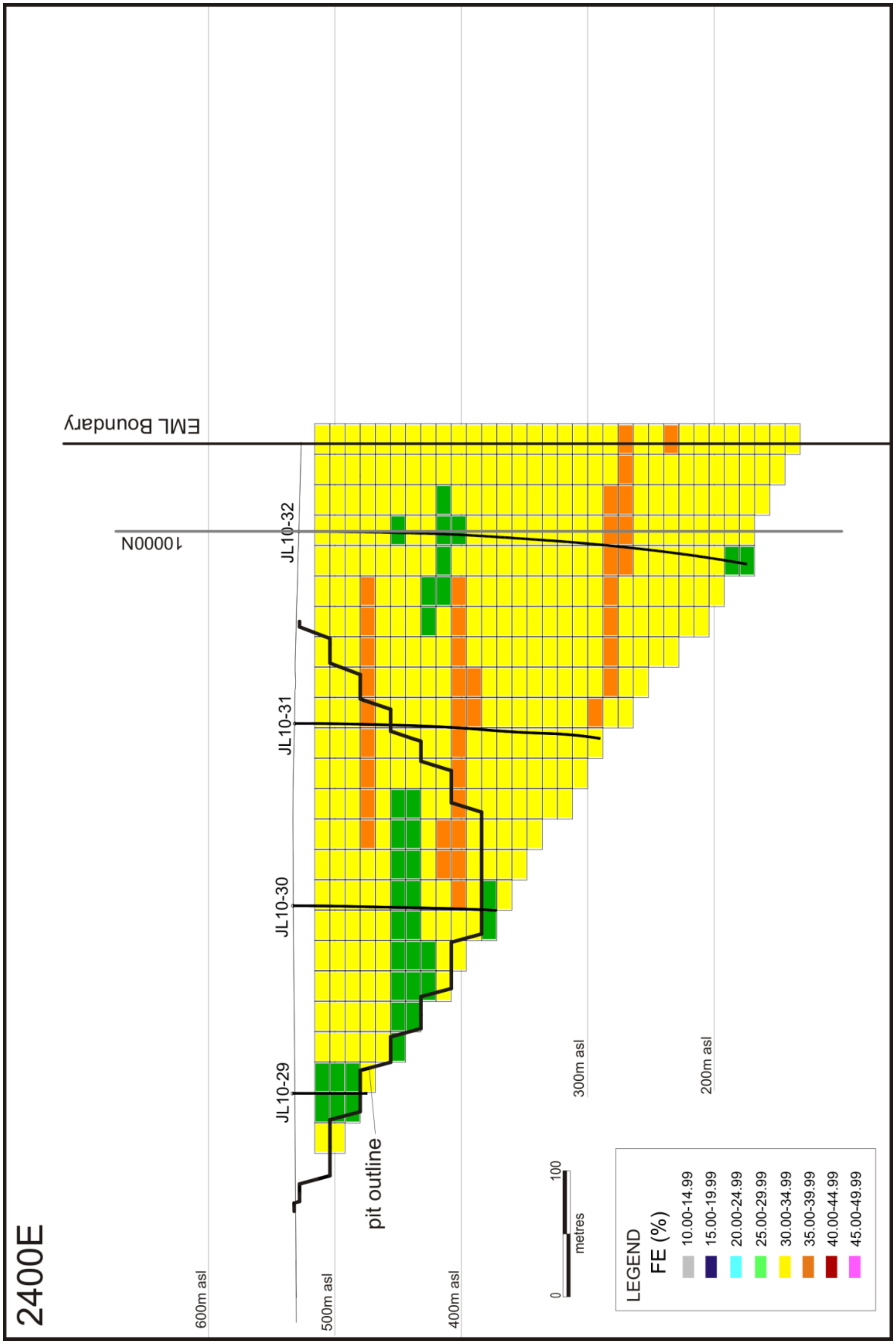


Figure 16-15: Resource Block Model, Cross Section 2100E

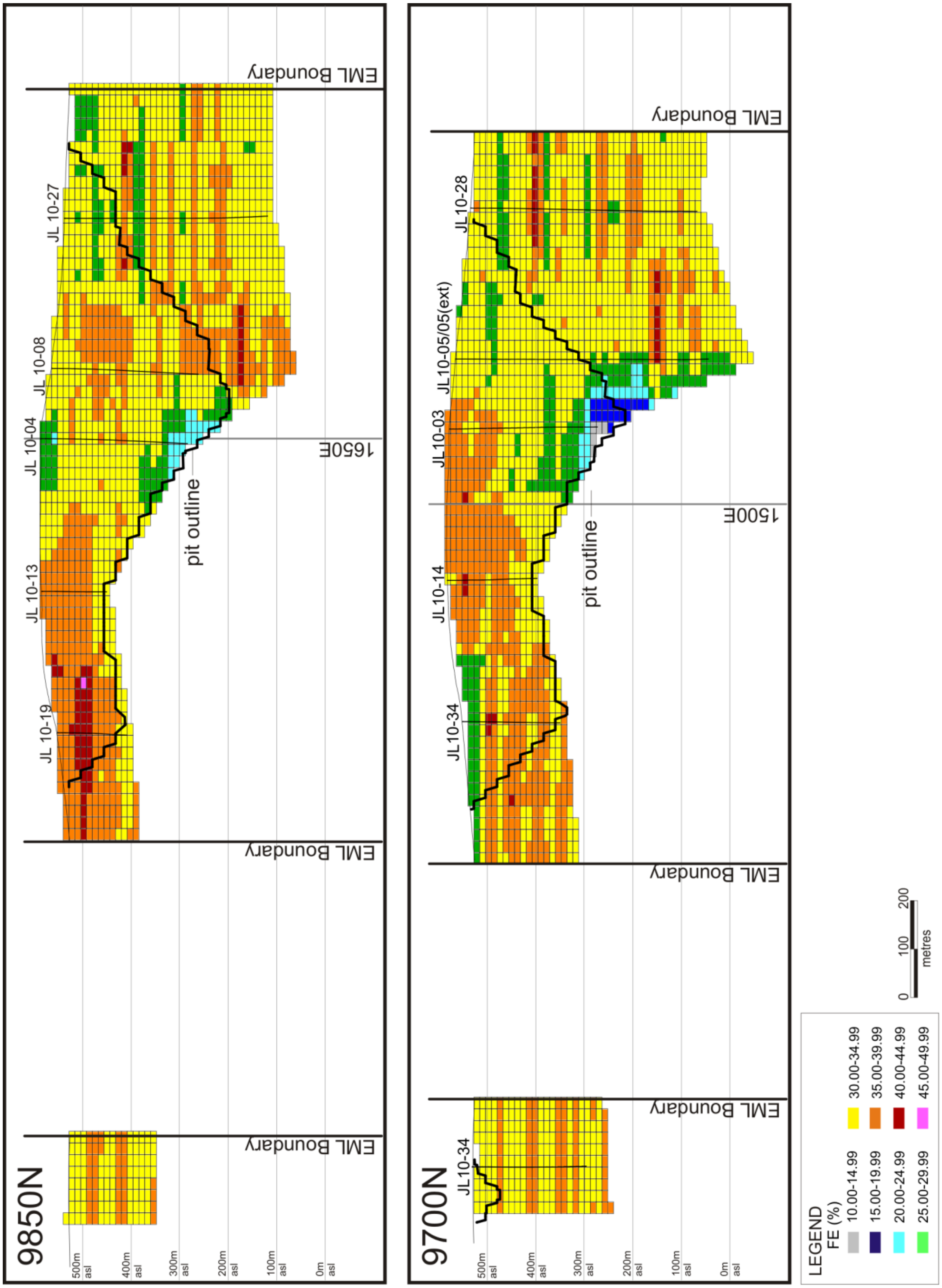


Figure 16-16: Resource Block Model, Along Strike Sections 9700N and 9850N

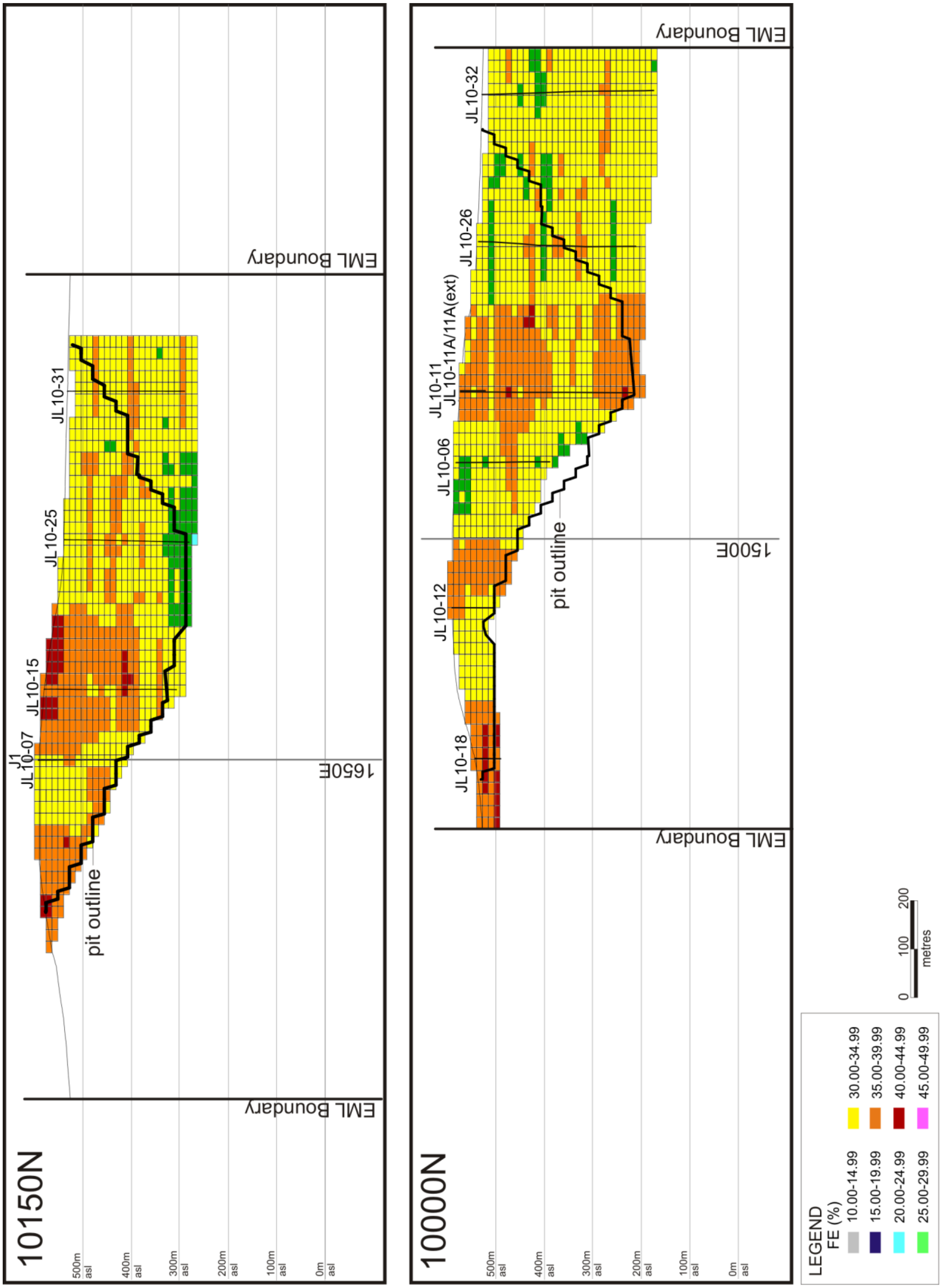


Figure 16-17: Resource Block Model, Along Strike Sections 10000N and 10150N

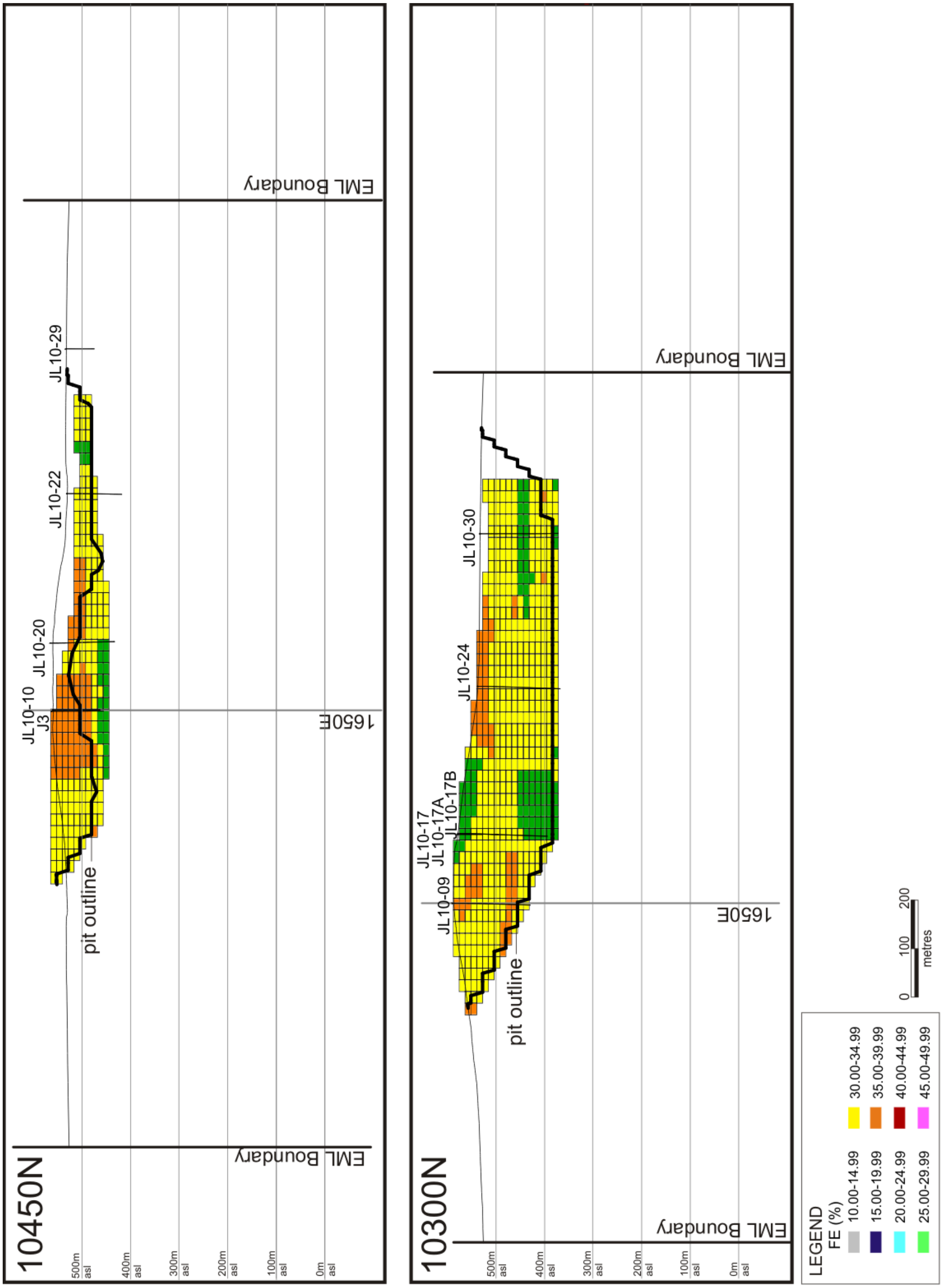


Figure 16-18: Resource Block Model, Along Strike Sections 10000N and 10150N

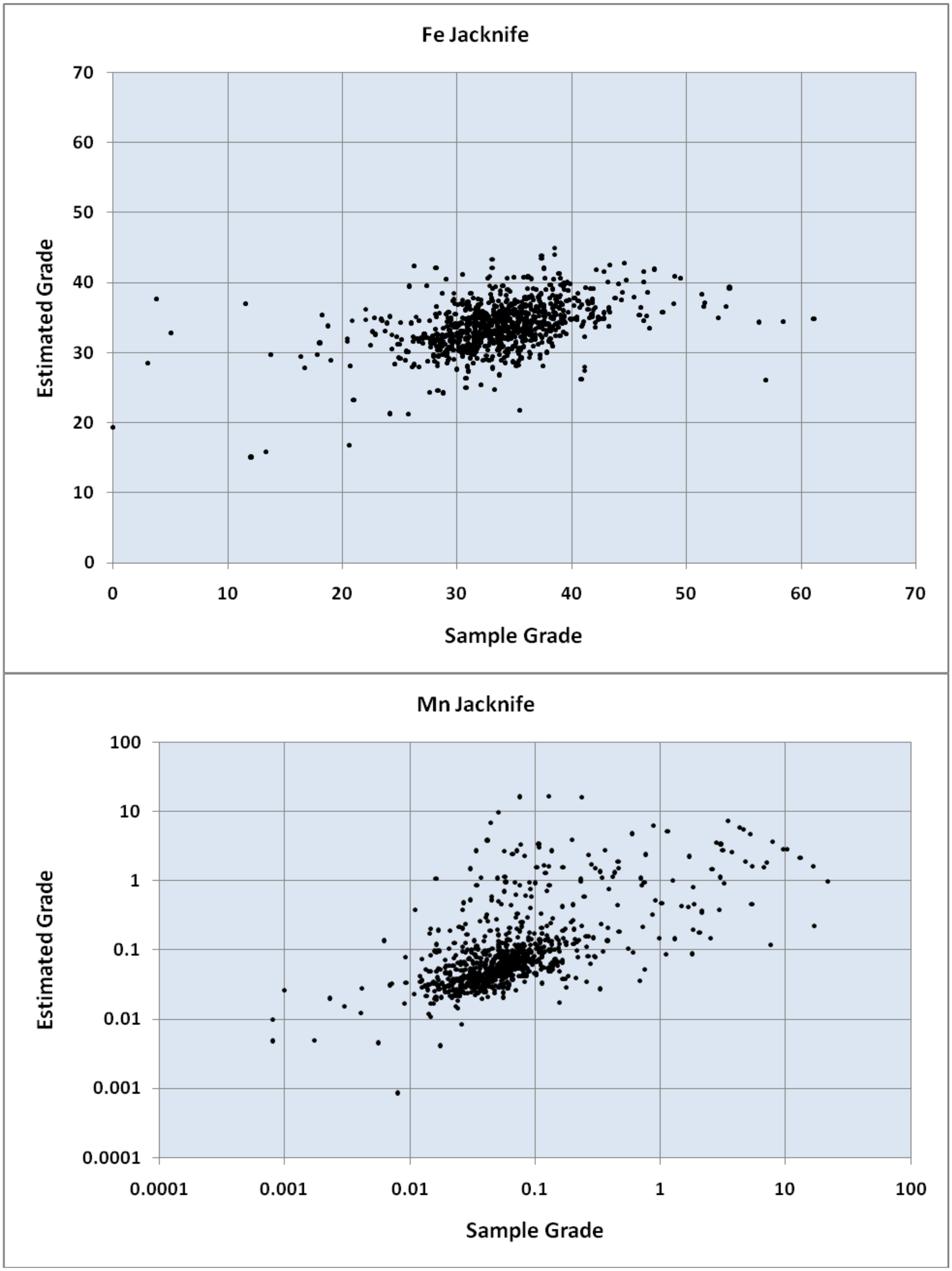


Figure 16-19. Jackknife comparison of Fe and Mn grades.

Volume/Tonnage Conversion Factors

As noted in Section 12.4 above, a problem encountered in the mineral industry relates to specific gravity measurements being directly converted to tonnes/cubic metre as a volume to tonnage conversion factor. To counteract part of this potential problem it was decided at the outset to take dry bulk density measurements by accurately weighing known volumes of dry drill core.

A total of 461 dry bulk density measurements were taken by MPH over the course of the drilling program. Regression analyses have been undertaken to correlate tonnage factors with silica and total Fe + Mn contents to arrive at a range to tonnage factors related to overall Fe + Mn contents. The database of iron formation bulk density samples (x 0.95) and the corresponding total Fe, SiO_2 and Mn analyses are presented in Table 16-10 and the grade-bulk density correlations are illustrated in Figures 16-13 and 16-14.

It was noted previously in Section 13 above that inherent mineralogical variations are present in the Sokoman Group iron formation units even at a very small scale. The gradational nature of the iron to silica content is also very evident in the details of the bulk density data ***vis a vis*** the corresponding Fe and SiO_2 analyses. However, like before they form a consistent and logical pattern.

Table 16-10: Dry Bulk Density Measurements and Selected Analyses

Hole Number	From (m)	To (m)	Bulk Density	Total Fe %	SiO_2 %	Mn %
JL10-01	3.35	8.41	3.1929	34.552	49.09	0.317
JL10-01	14	30.1	3.2736	32.857	52.16	0.0333
JL10-01	33.5	38.25	3.722	32.369	43.94	6.39
JL10-01	44.56	50.33	3.224	29.881	49.31	5.26
JL10-01	50.33	78.65	3.4172	35.811	47.57	0.1356
JL10-01	83.55	91	3.3025	36.769	46.46	0.0441
JL10-01	91	97.7	3.4429	33.404	51.38	0.0187
JL10-01	108.8	112.82	3.4791	31.035	54.33	0.0294
JL10-01	126.65	131	3.34	34.657	48.87	0.0465
JL10-01	150.5	154.5	2.7174	29.51	53.46	2.4299
JL10-01	162.93	176	2.813	19.425	71.04	0.0576
JL10-01	203	219.4	3.891	35.448	47.73	0.0798
JL10-01	233	243.2	3.3387	34.311	49.41	0.0381
JL10-01	243.2	257.25	3.1723	30.097	55.88	0.0848
JL10-01A	3.5	25	3.0875	27.245	59.7	0.0349
JL10-01A	25	38.1	3.7564	32.049	53.33	0.0217
JL10-01A	25	38.1	3.7564	30.601	55.41	0.0163
JL10-01A	38.1	51.5	4.183	37.965	44.48	0.0511
JL10-01A	38.1	51.5	4.183	40.168	41.45	0.079
JL10-01A	51.5	98	3.2148	32.483	52.68	0.0248
JL10-01A	102.1	107.5	3.3555	34.308	49.55	0.0271
JL10-01A	107.5	146.5	2.8146	28.73	57.05	0.0202
JL10-01A	146.5	205.6	2.9126	28.739	59.11	0.011

JL10-01A	205.6	224	4.2778	53.084	21.46	0.2773
JL10-01A	224	241	3.5223	32.659	53.37	0.0516
JL10-01A	241	272.2	3.3259	33.563	51.06	0.0485
JL10-02	4.03	7.12	3.6113	40.753	40.09	0.844
JL10-02	11.58	18.25	3.5315	49.617	26.66	0.203
JL10-02	18.25	23	3.4754	48.664	28.54	0.133
JL10-02A/02A(ext)	0	7.6	2.978	33.118	50.35	0.079
JL10-02A/02A(ext)	11.5	18.1	3.2616	45.04	33.38	0.143
JL10-02A/02A(ext)	18.1	30.05	3.8084	46.538	31.67	0.0837
JL10-02A/02A(ext)	30.05	74.02	3.4428	31.465	52.99	0.0511
JL10-02A/02A(ext)	99.5	101.3	3.9313	34.623	48.1	0.0643
JL10-02A/02A(ext)	106.93	108.5	2.9735	35.866	47.17	0.0937
JL10-02A/02A(ext)	108.5	124	3.2669	31.444	53.84	0.0728
JL10-02A/02A(ext)	124	127.5	3.2559	28.068	58.46	0.0403
JL10-02A/02A(ext)	212.8	228.33	3.0225	29.094	55.34	0.0263
JL10-02A/02A(ext)	235.4	253.8	3.3971	31.217	53.7	0.0256
JL10-02B	0	7.6	3.172	30.216	55.05	0.038
JL10-02B	10.8	14.75	3.8643	35.34	48.13	0.0736
JL10-02B	26.1	31.95	3.2105	35.291	49.14	0.0449
JL10-02B	54.25	63.25	2.9699	29.392	51.04	0.0279
JL10-02B	74.55	81.55	3.1643	30.18	55.28	0.0248
JL10-02B	101	108	3.1497	29.3	55.99	0.024
JL10-02B	127.9	138.6	3.5813	32.338	52.05	0.0395
JL10-02B	155	165.1	3.3906	28.008	58.36	0.038
JL10-02B	181.7	189	3.0227	27.873	58.95	0.0279
JL10-03	9.74	15.5	3.4569	37.477	44.92	0.0403
JL10-03	27.5	28.64	2.8542	30.769	54.38	0.0589
JL10-03	32.6	64.02	3.2853	29.385	56.85	0.0565
JL10-03	129.45	140	3.2062	34.439	49.38	0.055
JL10-03	147.75	151.24	3.3993	32.622	51.76	0.0488
JL10-03	157.15	166.5	3.0632	27.242	58.35	0.0349
JL10-03	166.5	178.3	4.0394	34.176	50.21	0.0364
JL10-03	178.3	195.5	3.3327	36.327	46.84	0.0434
JL10-03	195.5	234.75	3.1112	28.93	57.51	0.0194
JL10-03	234.75	279.1	3.497	29.497	56.17	0.024
JL10-04	17.35	20.85	2.8347	19.035	71.56	0.0318
JL10-04	70.28	74.73	3.8536	37.144	45.4	0.0852
JL10-04	74.73	84.4	3.7832	32.984	51.18	0.105
JL10-04	95.1	105.9	3.5411	29.495	55.72	0.0589
JL10-04	131.7	134	3.0454	27.856	58.16	0.0496
JL10-04	151.1	173.15	3.8501	37.801	44.49	0.0294

JL10-04	185.1	221.25	3.1817	32.475	52.41	0.0589
JL10-05/05(ext)	1	34.8	3.254	33.502	50.89	0.4953
JL10-05/05(ext)	34.8	61.7	3.719	37.517	45.11	0.0364
JL10-05/05(ext)	61.7	63.2	3.596	40.085	20.32	13.9189
JL10-05/05(ext)	63.2	75.35	3.409	31.799	53.65	0.0951
JL10-05/05(ext)	86.4	90	3.745	43.427	36.72	0.1069
JL10-05/05(ext)	90	94.2	2.203	22.426	66.88	0.0553
JL10-05/05(ext)	168.5	176.1	3.317	38.545	43.41	0.0837
JL10-05/05(ext)	189.3	213.9	3.188	31.127	52.55	0.1051
JL10-05/05(ext)	213.9	224	3.416	36.944	45.47	0.0713
JL10-05/05(ext)	278.9	299	3.546	37.916	42.77	0.2231
JL10-05/05(ext)	288.8	302	3.1023	30.79	54.21	0.1022
JL10-05/05(ext)	325.55	329	3.7329	36.727	46.35	0.0287
JL10-05/05(ext)	400.9	404.4	4.0123	44.399	34.15	0.7653
JL10-05/05(ext)	404.4	408.3	4.0752	58.175	15.04	0.9148
JL10-05/05(ext)	478.35	488.9	3.3103	41.65	36.8	0.031
JL10-06	1.25	21.6	2.715	25.363	61.93	0.0579
JL10-06	21.6	31.5	3.218	30.685	40.82	10.1859
JL10-06	31.5	37.3	3.523	35.469	47.51	0.2456
JL10-06	37.3	42	3.463	31.301	53.69	0.1108
JL10-06	42	95	3.13	30.993	53.85	0.0296
JL10-06	95	102.6	3.278	39.279	39.16	2.3229
JL10-06	102.6	105.7	2.954	28.843	56.75	0.3215
JL10-06	105.7	115.5	3.991	38.863	30	8.8833
JL10-06	122.65	168	3.112	31.647	53.31	0.0763
JL10-07	1.15	13.5	3.473	35.393	47.43	0.0703
JL10-07	13.5	30	3.294	35.414	48.18	0.0405
JL10-07	30	38.9	3.877	38.888	30.78	8.3129
JL10-07	38.9	53.9	3.367	30.272	55.26	0.0509
JL10-07	38.9	53.9	3.367	29.099	54.91	0.0923
JL10-07	53.9	64.7	4.204	44.294	18.95	10.7474
JL10-07	64.7	92.3	4.215	36.053	46.99	0.0887
JL10-08	3.3	14.1	3.0945	25.473	61.01	0.04
JL10-08	3.3	14.1	3.0945	32.468	52.09	0.0383
JL10-08	14.1	47.2	3.0761	27.14	59.61	0.0279
JL10-08	47.2	77.7	3.3748	33.594	50.64	0.0607
JL10-08	77.7	94.7	4.1576	35.717	45.47	0.0673
JL10-08	94.7	112	3.0728	33.119	50.96	0.0465
JL10-08	113.6	131.8	3.8953	37.161	45.64	0.0658
JL10-08	131.8	135.2	2.9458	19.211	70.12	0.054
JL10-08	245	267.2	3.4675	33.252	50.85	0.0852

JL10-08	267.2	302	3.3255	34.086	49.75	0.0747
JL10-09	6	23	3.0753	32.455	52.17	0.0257
JL10-09	23	28.4	3.3782	50.972	21.62	0.4702
JL10-09	28.4	75.8	3.2247	34.185	49.56	0.0861
JL10-09	94.8	119.4	3.715	43.364	36.56	0.0844
JL10-09	119.4	132	2.7861	37.93	44.85	0.05
JL10-10	7.5	26.9	3.1052	27.971	57.04	0.0303
JL10-10	26.9	38.25	2.945	27.856	59.27	0.018
JL10-10	38.25	44.5	3.4754	35.202	48.5	0.0501
JL10-11A/11A(ext)	4.7	53.5	3.5869	41.497	38.8	0.1115
JL10-11A/11A(ext)	53.5	57.1	2.8969	38.916	42.6	0.055
JL10-11A/11A(ext)	57.1	60.6	3.6061	21.407	68.01	0.0101
JL10-11A/11A(ext)	88.4	128	3.6927	39.427	41.66	0.0759
JL10-11A/11A(ext)	136.7	185.1	3.157	32.867	51.64	0.0767
JL10-11A/11A(ext)	185.1	188.5	2.763	9.104	85.79	0.0469
JL10-11A/11A(ext)	188.5	191.5	3.8718	41.608	39	0.0372
JL10-11A/11A(ext)	191.5	209	3.4486	34.472	49.31	0.0677
JL10-11A/11A(ext)	209	232.5	3.4557	36.762	46.36	0.0403
JL10-11A/11A(ext)	232.5	237.2	2.9954	33.671	50.44	0.0358
JL10-11A/11A(ext)	263.3	265	4.0818	32.793	50.81	0.3028
JL10-11A/11A(ext)	315.2	317.8	3.1788	37.867	43.66	0.0263
JL10-11A/11A(ext)	339.5	344	3.9185	37.14	44.89	0.0488
JL10-12	0.5	21.1	3.13749	30.73	54.1	0.0195
JL10-12	21.1	25.9	4.24019	54.259	18.55	0.8172
JL10-12	46	58	3.3417	34.915	48.14	0.0965
JL10-12	58	74	2.7561	29.339	55.29	0.072
JL10-13	2.6	26.9	3.2095	36.762	45.54	0.031
JL10-13	26.9	29.7	4.008	39.986	41.22	0.0534
JL10-13	44	49	3.3153	36.769	43.93	0.0256
JL10-13	59.7	61.7	3.4142	33.944	48.62	0.0186
JL10-13	67.45	70.3	4.7069	57.503	13.32	0.6816
JL10-13	74.95	82.6	3.102	27.522	59.1	0.0389
JL10-13	87.7	101	3.4664	38.471	42.97	0.0592
JL10-13	101	107.2	3.2842	34.944	48.14	0.1177
JL10-13	107.2	122	2.9811	32.38	50.78	0.0348
JL10-14	27.5	31.8	4.38244	41.923	38.27	0.0279
JL10-14	46.52	51.89	3.43267	24.584	63.08	0.0327
JL10-14	51.89	59	3.90944	39.154	42.71	0.0503
JL10-14	151.1	153.5	3.26869	31.085	54.07	0.0187
JL10-14	153.5	159	3.59282	28.615	57.57	0.0256
JL10-15	1.7	30.7	3.4945	34.388	47.85	0.0156

JL10-15	30.7	39.7	3.8807	37.552	44.11	0.1053
JL10-15	57.63	58.77	2.8513	36.552	45.93	0.0744
JL10-15	104.66	111.6	3.7259	34.07	26.18	15.779
JL10-15	174	176	3.6643	38.895	32.79	7.38
JL10-15	176	186.25	3.3316	36.678	45.37	0.347
JL10-15	186.25	190.65	3.9956	43.252	34.49	0.3284
JL10-16	18.5	36.29	3.2566	38.028	43.71	0.1255
JL10-16	41.65	51.05	2.7751	14.587	77.74	0.0333
JL10-16	132.6	133.95	3.9819	38.881	42.75	0.2711
JL10-16A	1.2	5	2.9178	27.671	58.47	0.0147
JL10-16A	40.4	56.8	4.0592	37.112	45.11	0.0124
JL10-16A	56.8	62.46	3.1751	31.657	54.79	0.0155
JL10-16A	118.9	123.17	3.4577	33.769	50.21	0.0287
JL10-16A	123.17	126.35	4.2055	50.098	26.06	0.5422
JL10-16A	126.35	128.8	3.8138	50.601	14.23	7.97
JL10-16A	142.2	145.88	3.2935	33.035	51.37	0.0449
JL10-16A	157.05	162.11	3.1689	33.867	49.51	0.0294
JL10-17	14.8	16.72	3.2817	25.105	62.22	0.0333
JL10-17	23.23	25.67	2.7436	26.762	59.78	0.0503
JL10-17	35	39.75	3.3587	33.091	50.39	0.1572
JL10-17	39.75	41.82	3.5603	33.077	50.87	0.1634
JL10-17	53	56.65	4.0146	36.182	45.93	0.0751
JL10-17	58	66.65	3.255	36.818	45.53	0.0658
JL10-17B	7.15	14.15	3.9241	43.636	34.81	0.1503
JL10-17B	22.35	30.5	3.2722	35.154	48.06	0.0899
JL10-17B	53.65	55.5	3.0816	37.021	23.87	14.82
JL10-17B	68.08	70.1	4.5131	36.252	45.21	0.1689
JL10-17B	96.5	100.2	3.4112	37.713	44.44	0.1193
JL10-17B	135.27	143.95	3.5073	32.741	51.73	0.0906
JL10-17B	156.4	163.7	3.2234	31.07	53.84	0.0426
JL10-19	4.6	32.08	3.6045	41.895	38.6	0.0403
JL10-19	32.08	60.84	3.8642	47.021	30.52	0.0759
JL10-19	104.75	113	3.7319	35.336	47.28	0.1933
JL10-19	122.2	131.6	3.3237	31.804	51.14	0.0232
JL10-20	2	8.35	3.306	30.804	54.09	0.0356
JL10-20	8.35	12.72	3.1907	30.133	55.74	0.0325
JL10-20	12.72	15.04	3.0706	36.119	46.86	0.2455
JL10-20	28.9	33.2	3.2048	31.881	51.86	0.0558
JL10-20	79.3	100.8	3.4474	35.734	47.54	0.0922
JL10-21	35.9	51.45	2.8536	32.434	52	0.038
JL10-21	57.25	63.6	4.4787	65.469	6.11	0.2316

JL10-21	84.06	95.9	3.3097	36.099	46.42	0.0532
JL10-21	100.65	103.45	3.6118	48.93	28.14	0.0922
JL10-21	184.4	192	3.2903	30.444	55.59	0.019
JL10-22	22.7	41	4.4391	38.608	43.55	0.0534
JL10-22	53.47	65	2.9747	31.682	53.71	0.0495
JL10-23	10.4	17.35	3.2091	31.224	52.6	0.0325
JL10-23	28.25	35.15	2.8948	29.762	55.67	0.024
JL10-23	35.15	41.4	3.0555	25.238	62.4	0.0201
JL10-23	51.5	56.1	3.4287	35.308	47.88	0.0364
JL10-23	106.4	126.5	3.1435	30.552	55.11	0.0372
JL10-23	157.3	167.3	3.0414	34.678	49.15	0.1139
JL10-23	167.3	204.2	3.1738	31.979	53.15	0.0155
JL10-23A	3.6	18.35	3.0505	25.552	62.02	0.0139
JL10-23A	28.6	50.55	3.3344	33.741	50.97	0.1061
JL10-23A	50.55	64.65	3.0354	35.538	47.31	0.1433
JL10-23A	64.65	67.6	3.7249	32.678	52.27	0.0147
JL10-23A	129.95	141.3	3.3556	35.888	47.06	0.1077
JL10-23A	196.7	216.85	3.4985	35.881	47.89	0.0868
JL10-23A	243.55	251.12	3.0782	32.371	52.34	0.0271
JL10-24	6.25	14.5	3.4003	44.077	33.72	0.1286
JL10-24	32	35.4	3.7614	32.014	52.4	0.0263
JL10-24	60.15	68.95	3.5209	34.783	49.15	0.1224
JL10-24	99.15	106.15	3.1512	39.385	42.08	0.158
JL10-24	125.53	131.3	3.4418	23.322	65.14	0
JL10-25	3.8	18.9	3.2915	29.308	56.38	0.0023
JL10-25	26.35	34.1	2.9251	31.629	47.3	0.0534
JL10-25	34.1	46.75	3.8768	34.587	49.45	0.1146
JL10-25	61.45	68.1	4.0346	39.972	40.49	0.1952
JL10-25	99.2	107.2	3.8838	29.944	55.21	0.1882
JL10-25	168.4	197.1	3.098	33.566	50.09	0.0612
JL10-26	20.85	36.8	2.9976	29.252	54.71	0.0372
JL10-26	43.05	49.55	3.1948	32.853	50.19	0.0744
JL10-26	68	74	3.3469	32.224	51.96	0.0302
JL10-26	97.2	114.1	3.2153	43.329	36.97	0.0829
JL10-26	122	123.2	3.9653	34.07	49.51	0.0852
JL10-26	181.7	185	3.7804	25.147	63.45	0.0604
JL10-26	197.2	263.8	3.2384	33.308	50.71	0.1185
JL10-27	21.8	24.95	2.9422	33.112	50.71	0.0635
JL10-27	55	56.2	2.6952	22.084	66.71	0.1867
JL10-27	179.75	184.15	3.4143	43.972	35.72	0.0364
JL10-27	193.75	203	2.6928	23.147	65.8	0.079

JL10-27	212.3	218.45	3.7602	36.678	46.13	0.0085
JL10-27	222.75	236	3.1199	37.734	44.49	0.0093
JL10-27	236	239.25	2.92	24.811	62.74	0.038
JL10-27	248.75	251	3.8224	35.671	43.25	2.8776
JL10-27	252.85	254.35	2.6701	10.168	84.02	0.0411
JL10-27	254.35	256	4.0255	40.266	38.04	2.5778
JL10-27	389	402.5	3.0227	30.664	55.37	0.0155
JL10-28	8.2	10.9	3.6077	42.364	34.54	2.1836
JL10-28	10.9	11.85	3.867	42.035	19.46	11.902
JL10-28	21.5	22.3	2.9774	44.077	36.45	0.0364
JL10-28	27.76	33.8	3.4727	36.385	46.64	0.6569
JL10-28	33.8	34.55	3.0065	23.021	49.78	9.7661
JL10-28	41.66	52.8	3.5934	37.49	44.77	0.2742
JL10-28	71.5	73.45	3.5996	39.944	41.13	0.2068
JL10-28	73.45	84.4	2.8125	24.993	61.42	0.0565
JL10-28	97	99.1	3.5043	32.259	52.87	0.0163
JL10-28	132.6	140	4.8551	65.769	5.09	0.2417
JL10-28	201.5	206.45	3.2032	30.51	55.15	0.0287
JL10-28	211.3	215.53	3.4632	30.517	54.63	0.093
JL10-28	261.55	264.4	4.5803	40.322	40.65	0.1479
JL10-28	288.2	292	2.7668	25.126	62.26	0.0558
JL10-28	292	294.2	2.9864	13.203	79.5	0.0318
JL10-28	313.85	319.25	3.4526	31.378	53.26	0.017
JL10-28	443	455.4	3.1788	30.161	54.43	0.017
JL10-29	38	44.5	2.9785	34.203	50.06	0.0256
JL10-30	23.4	32	3.2873	30.832	54.03	0.0496
JL10-30	32	36.3	3.1834	39.371	42.15	0.2363
JL10-30	92.6	99.06	2.7802	30.287	54.63	0.0263
JL10-30	104.5	109.2	3.1896	34.154	49.55	0.0147
JL10-30	116.45	122.6	3.3654	31.643	52.71	0.0248
JL10-30	132.4	136.7	3.7137	50.65	24.35	0.5066
JL10-31	20	25.7	3.4197	36.818	47.02	0.1007
JL10-31	47	52.3	3.0831	33.531	50.94	0.048
JL10-31	78.5	83	3.8782	41.455	39.33	0.0697
JL10-31	93.5	95.65	3.1161	34.86	46.18	1.8823
JL10-31	118.4	122.45	3.167	35.294	48.07	0.0953
JL10-31	167	172.5	3.4622	31.72	53.15	0.0457
JL10-31	194	211	3.412	35.105	48.34	0.0287
JL10-32	26	49.6	3.1603	30.273	53.51	0.0496
JL10-32	49.6	56	3.2951	34.685	46.96	0.1046
JL10-32	70.5	76.3	3.3884	37.636	42.55	0.0473

JL10-32	88	97	4.0109	41.406	38.96	0.0217
JL10-32	115	117.2	2.7236	9.545	84.81	0.0217
JL10-32	136.8	151.5	3.4138	35.713	47.07	0.024
JL10-32	151.5	166	3.2818	34.615	48.61	0.0449
JL10-32	169	172	2.768	14.937	76.6	0.0999
JL10-32	172	176.2	3.713	37.643	44.1	0.055
JL10-32	203.4	213.2	3.2325	31.734	52.28	0.0534
JL10-32	255.6	258.95	3.5694	40.133	40.84	0.0891
JL10-32	270.5	288.5	3.3827	34.713	48.21	0.0302
JL10-32	288.5	300	3.2575	33.252	51.5	0.0093
JL10-32	310.05	319	3.2765	30.042	55.66	0.0217
JL10-33	74.7	84.1	2.6835	25.203	61.72	0.0349
JL10-33	84.1	86	3.507	29.594	55.51	0.0449
JL10-33	129.5	130.5	3.7398	32.448	52.27	0.1185
JL10-33	194.4	195.8	2.8131	33.958	49.98	0.0201
JL10-33	221.45	319.8	3.6769	39.007	42.3	0.0891
JL10-34	15	16.5	3.1849	42.552	37.61	0.1007
JL10-34	29	31.5	4.2273	37.217	44.79	0.1704
JL10-34	31.5	35.9	3.28387	27.748	58.54	0.0496
JL10-34	58	63	3.71885	44.657	34.24	0.0597
JL10-34	63	66.1	3.0498	35.434	47.5	0.048
JL10-34	138	144	3.61538	30.797	54.67	0.0589
JL10-34	155.25	176.75	2.6643	32.063	50.51	0.0232
JL10-34	178.5	182.4	3.16761	38.615	37.81	0.0705
JL10-34	190.2	195.1	3.07794	29.524	55.85	0.0341

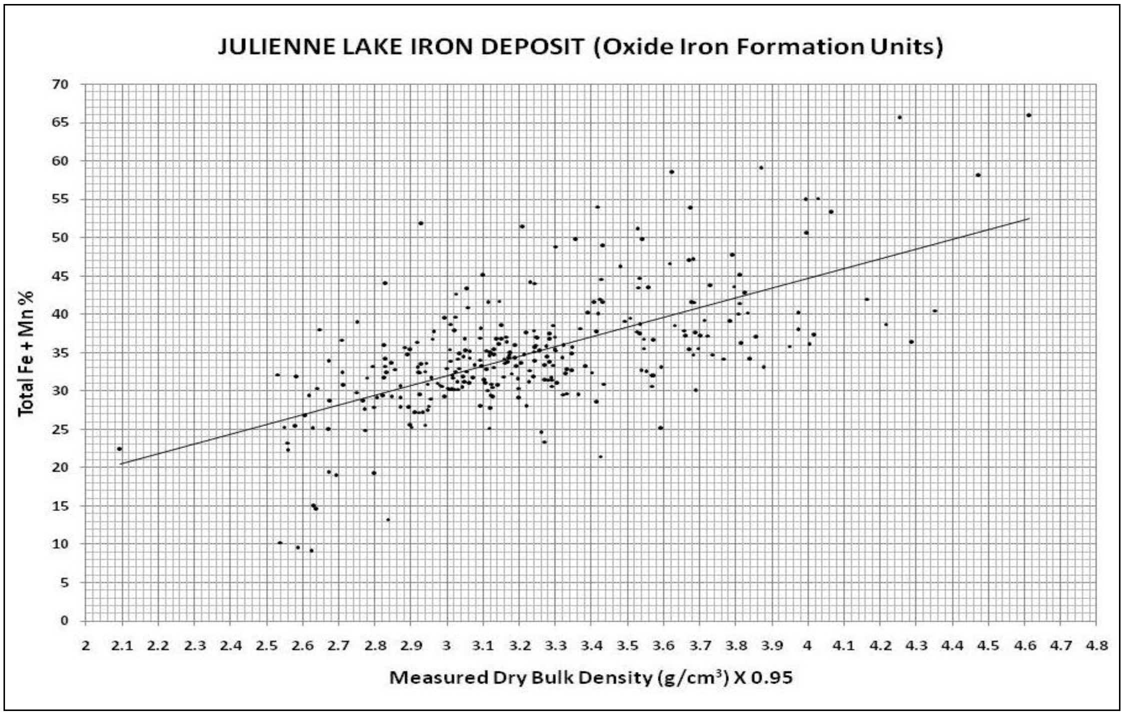


Figure 16-20: Bulk Density/Total Fe + Mn Correlation Chart

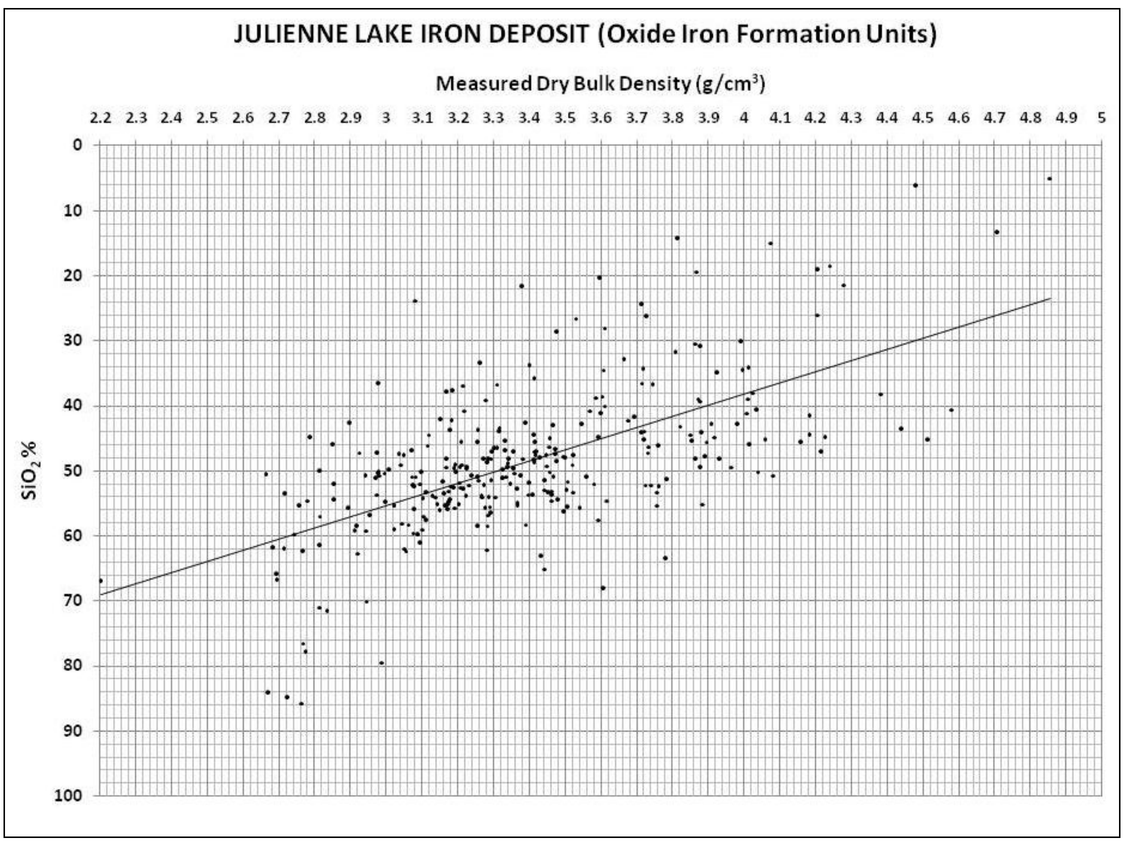


Figure 16-21: Bulk Density/Silica Correlation Chart

17.0 POTENTIAL OPEN PIT MINING & PROCESSING OPERATIONS

The following is a first pass analysis of potential mining scenarios utilizing iron ore (*sensu lato*) resources estimates, other data from the current exploration program, and the general industry knowledge of the various technical groups (MPH, P&E Engineering, Roche Consulting, and Michael Newbury) involved in the project.

The mining scenarios presented herein do not meet all of the general requirements for NI 43-101 compliant Prefeasibility or Feasibility studies. They are meant only for internal use as a justification basis for ongoing more detailed work, or to assist with governmental decision making regarding the Julienne Lake EML.

The total to be potentially mined is approximately 580 million tonnes with an average grade of 33.18% total Fe.

Labrador West is the regional centre for the iron ore mining industry in Labrador. Labrador City and Wabush can provide accommodation for the project workforce, local community services and some equipment and material supplies for the construction and operation of the Project. Historically, mining has been a dominant part of the local and regional economy. Labour, industrial supplies and services for mining and exploration activities are readily available in the region. Wabush Airport is the only airport in western Labrador and is served by two commercial airlines. The Quebec North Shore & Labrador Railway (“QNS&L”) connects Labrador West with the port of Sept-Îles, Québec on the north shore of the St. Lawrence River.

A permanent access road connecting the Project to the Trans Labrador highway will be upgraded from the existing access road, for easier use by highway transport trucks. This road covers a distance of approximately 20 km. A service building will be constructed on the access road and will house: office space, a laboratory, change and wash rooms, first aid room, warehouse, fuel service station, and shops. Fresh and fire water will be supplied to the buildings and site. The water will be drawn from Wabush or Julienne Lake.

Tank farms will be provided for the storage of diesel fuel and gasoline.

It has been assumed that the iron ore concentrate will be shipped off-site by train. The connection from the project to the QNS&L rail line will require approximately 15 km of new track. The trains carrying iron concentrate will then connect to Pointe-Noire, or some other load out point, where the concentrate can be stockpiled. The concentrate would then be conveyed to the ship loading area for transportation to clients.

17.1. Potential Open Pit Mine

A preliminary mine design has been conceptualized based on the mineral resources currently defined in the deposit as summarized in Section 16. Geotechnical considerations in the mine design have been based on experience in other similar mining operations in the area. These will need to be confirmed as appropriate in subsequent detailed mine design exercises.

The mineral resource block model was interrogated using the Whittle 4X pit optimizing software. This process produces a series of pit shells containing mineralized material that is economically mineable according to a set of physical and economic design parameters. The pit shell which produces the highest undiscounted cash flow is selected as the optimum shell for mine design purposes. The ultimate pit for the on land portion of the Julienne Lake iron deposit is shown in Figure 17-1. Typical cross sections were shown previously in Figures 16-9 to 11.

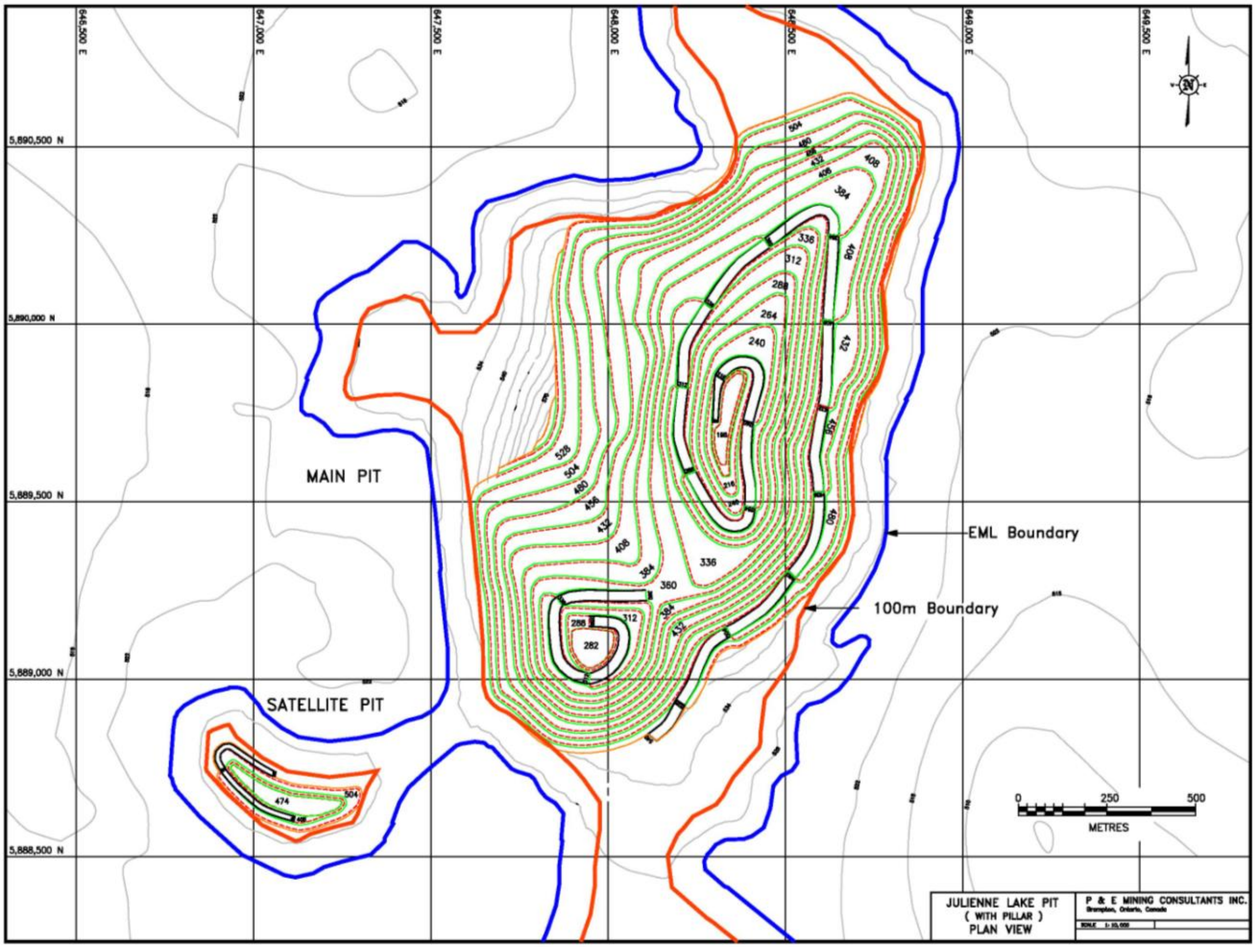


Figure 17-1: Julienne Ultimate Pit Design Plan View

A three dimensional view of the preliminary pit model is shown in Figure 17-2.

The cut-off grade for the Julienne Lake deposit utilized in the pit optimization was 8% Fe. This cut-off grade includes material that grades between 8% and 15%, which is a historically more common cut-off grade for Labrador iron deposits. P&E notes that the difference in the tonnage and metal totals between the conceptual resource at 8% and 15% is not significant; therefore a 15% Fe cut-off was utilized to define the potentially mineable resource.

In order to develop a conceptual mining plan, a number of assumptions were made with regards to the conditions that can be expected in actual operation (Table 17.1).

Bench geometry was set to give a 50° inter-ramp slope angle with a 75 ° degree batter angle. This provided a 14 m wide berm every 24 vertical metres.

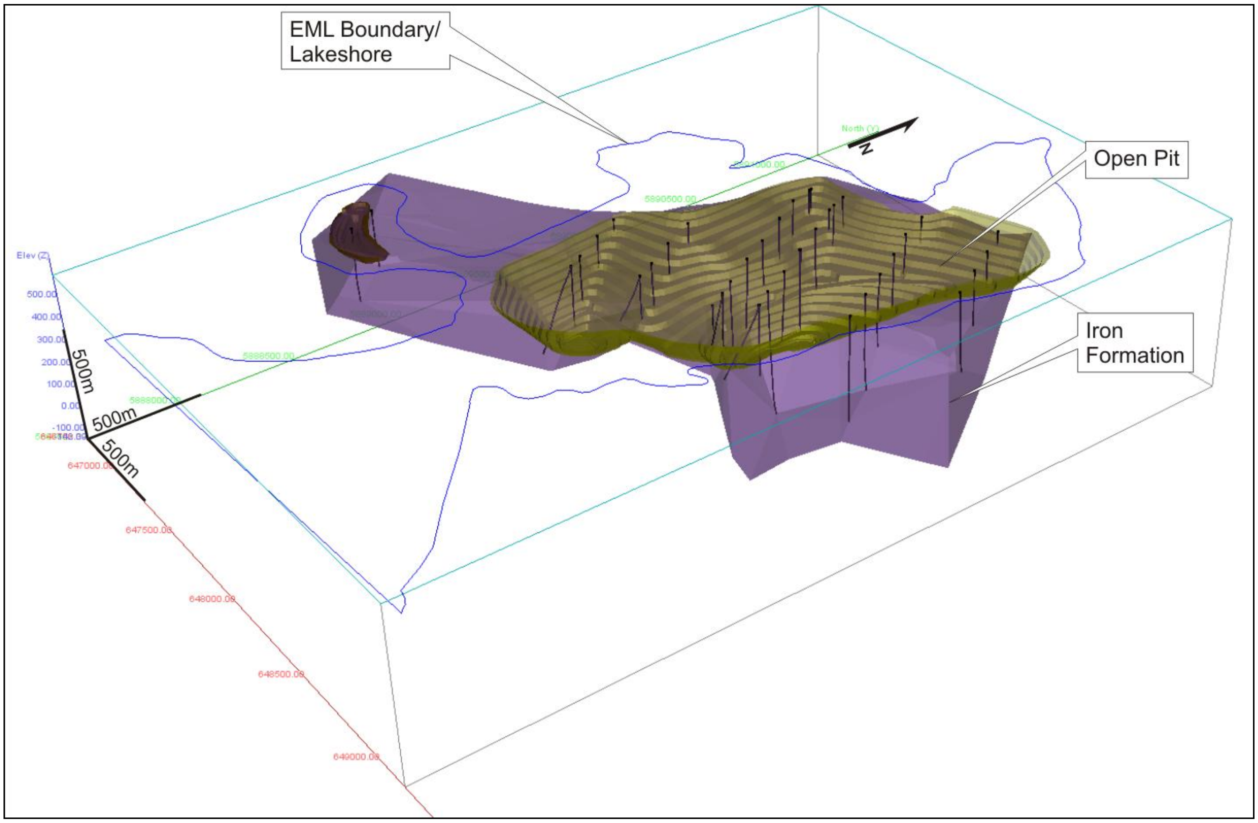


Figure 17-2: Julienne Ultimate Pit Design 3D Oblique View

Table 17.1: Initial Pit Design Parameters

Physical Parameters		
Block Dimensions		24 m x 24 m x 12 m
Tonnage Factors	Mineralized Rock	3.2 t/m^3
	Waste Rock	2.7 t/m^3
Haulage Ramps	Width	30 m roadway, incl. safety berm and ditch
	Gradient	10%
Wall Slopes	All rock	50° inter-ramp angle
Economic Parameters (LOM Average)		
Mining Costs	Ore & Waste	n/a
Processing Cost		n/a
G&A Cost		n/a
Fe Process Recovery		n/a
Mining Dilution		n/a
Mining Recovery		n/a
$US/$CDN Exchange Rate		n/a
Fe Price		n/a
Cut-Off Grade		n/a

17.2. Potentially Mineable Portion of the Mineral resources

Table 17.2 describes the mineral resources that that can be extracted without diverting, relocating or otherwise impacting the Julienne or Wabush Lakes. This stage of mining will leave natural rock pillars which will provide a 100 metre wide barrier to water entering the pit from the surrounding lakes.

Table 17.2: Potentially Mineable Mineral Resource

Potentially Mineable Resource (millions of tonnes)	Fe (%)	Waste Rock Mined (millions of tonnes)	Total Ore and Waste (millions of tonnes)	Stripping Ratio
580.01	33.18	116.09	696.1	0.20

The open pit operation would use conventional mining equipment available from established suppliers.

Drilling and blasting operations would employ industry standard blast hole drilling and equipment. The waste rock and ore would be loaded and hauled beyond the rim of the pit by shovels and high capacity open pit haul trucks. Mineralized material that meets the cut-off grade requirements will be hauled to the primary crusher that will be located near the mill. Waste rock will be disposed of in designated areas to the south of the open pit.

Open pit equipment, as well as all other support services equipment, will be serviced at a maintenance facility located on the access road to the pit. This facility will also house the change room and offices for the operation.

Additional support services equipment will include pick-up trucks, bulldozers, wheel dozers, graders, water trucks, a road sander, a fuel/lube truck, an electric cable reeler, a ditching excavator, an automated equipment monitoring and dispatch system, a pit slope monitoring system, the pit electrical power distribution system and pit dewatering pumps and pipelines.

17.3. Development and Production Schedule

Preproduction
A preproduction period of two years will provide adequate time for the construction of the site infrastructure, processing plant, rail, power and road connections, etc.

Production
The mineral resource will be mined with a natural 100 metre wide pillar left in place which will provide a barrier to prevent water entering the pit from the surrounding lakes.

Mining operations are anticipated to provide approximately 17 years of ore production at a rate of about 35 million tonnes of mill feed per year. The yearly schedule for this stage of operations is provided in Table 17.3.

Table 17.3: Production Schedule

Year	Ore	Fe	Waste	Total	Strip Ratio
	tonnes	%	tonnes	tonnes	
1	35,000,000	34.5	8,750,000	43,750,000	0.25
2	35,000,000	34.1	12,250,000	47,250,000	0.35
3	35,000,000	33.7	14,000,000	49,000,000	0.40
4	35,000,000	33.7	12,250,000	47,250,000	0.35
5	35,000,000	33.1	7,000,000	42,000,000	0.20
6	35,000,000	33.5	5,250,000	40,250,000	0.15
7	35,000,000	34.0	5,250,000	40,250,000	0.15
8	35,000,000	33.8	5,250,000	40,250,000	0.15
9	35,000,000	33.3	5,250,000	40,250,000	0.15
10	35,000,000	32.9	5,250,000	40,250,000	0.15
11	35,000,000	32.9	5,250,000	40,250,000	0.15
12	35,000,000	33.5	5,250,000	40,250,000	0.15
13	35,000,000	33.2	5,250,000	40,250,000	0.15
14	35,000,000	32.6	5,250,000	40,250,000	0.15
15	35,000,000	31.9	5,250,000	40,250,000	0.15
16	35,000,000	31.4	5,250,000	40,250,000	0.15
17	20,013,000	31.1	4,094,000	24,107,000	0.20
Total	**580,013,000**	**33.18**	**116,094,000**	**696,107,000**	**0.20**

17.4. Conceptual Processing Plant

The processing plant that will concentrate the mineralization will be located at an appropriate location to the south of the open pit mine.

The metallurgical flow sheet that was chosen for the process is a standard spiral process (Figure 17-3). The run of mine mineralized material is crushed, stockpiled and fed to an autogenous grinding mill. The mill discharge feeds into a vibrating screen circuit for removal of oversized material. The undersized material feeds to a three stage spiral concentration circuit, which separates the liberated hematite from the tailings. The concentrate is dewatered by pan filters and loaded into railcars for transport. The tailings are dewatered by cyclones and a thickener. Reclaim water from the tailings dewatering circuit is recycled as process water.

A conventional tailings pond that will form part of the Tailings Management Facility will receive un-thickened tailings for disposal. The supernatant water will be reclaimed by means of barge mounted pumps or other means to provide additional water for the mill.

Process design criteria are based on general industry experience and assumptions. This will need to be confirmed in subsequent feasibility exercises.

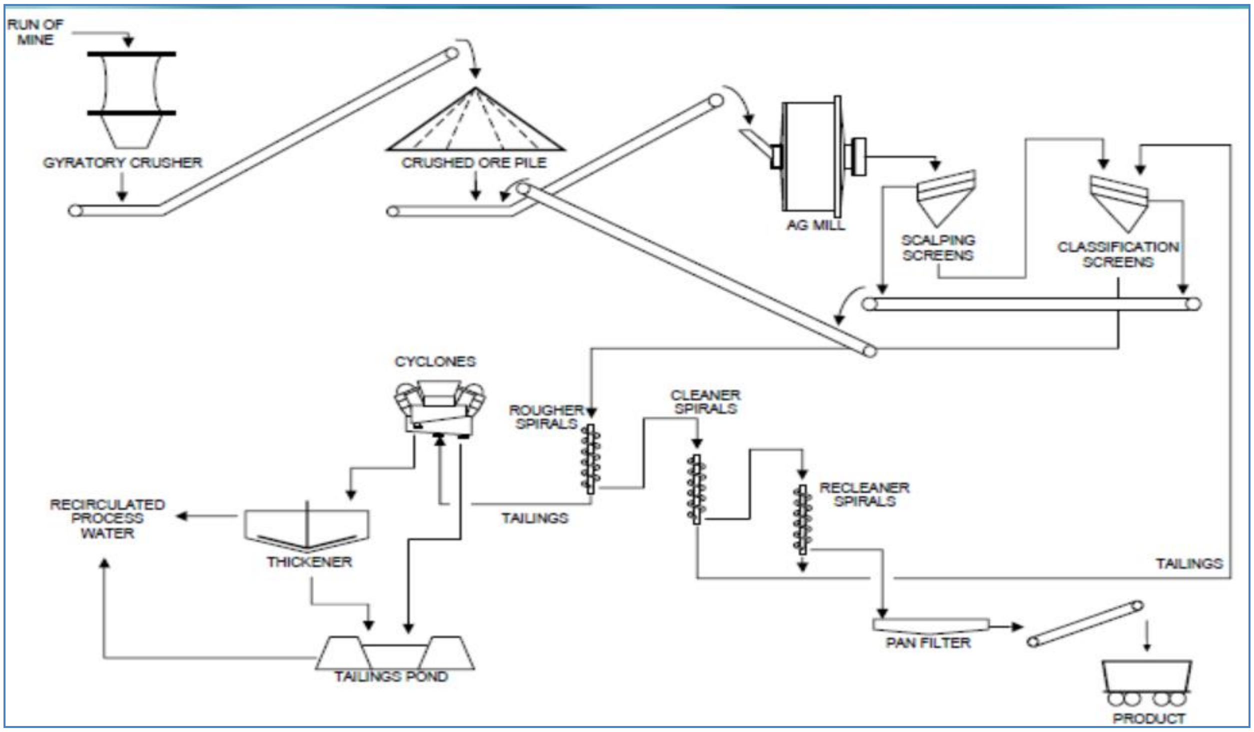


Figure 17-3: Conceptual Process Plant Flowsheet

Annual production of concentrate was estimated to be in the order of 13 million tonnes per year, representing a mine production rate of 35 million tonnes per year. The final concentrate should contain >66% Fe. The overall plant recovery is estimated to be 75%.

17.5. Other Possible Mining Scenarios

The Julienne Lake Iron deposit has been traced along strike in both directions on the basis of surface and airborne magnetic geophysical surveys as well as a few historical drill holes. In the long term any mining operation that is implemented for the Julienne Lake EML should seriously consider and evaluate the possibilities of mining the iron ore material inside the 100 metre pillar adjacent to the lakeshore and also from the neighbouring mineral rights currently owned by an unrelated party.

An example of such a possible scenario has been evaluated in a very preliminary manner. This scenario envisions a possible open pit mining operation that is wholly inside the EML but virtually abutting against the shores of Julienne and Wabush Lakes. Realistically there are serious practical engineering and environmental obstacles to such a scenario. However, it is presented as a possible initial step in achieving consolidated operations involving the EML and the neighbouring mineral rights holdings.

A preliminary mine design has been conceptualized based on an ultimate pit for the on land portion of the Julienne Lake iron deposit (Figures 17-4).

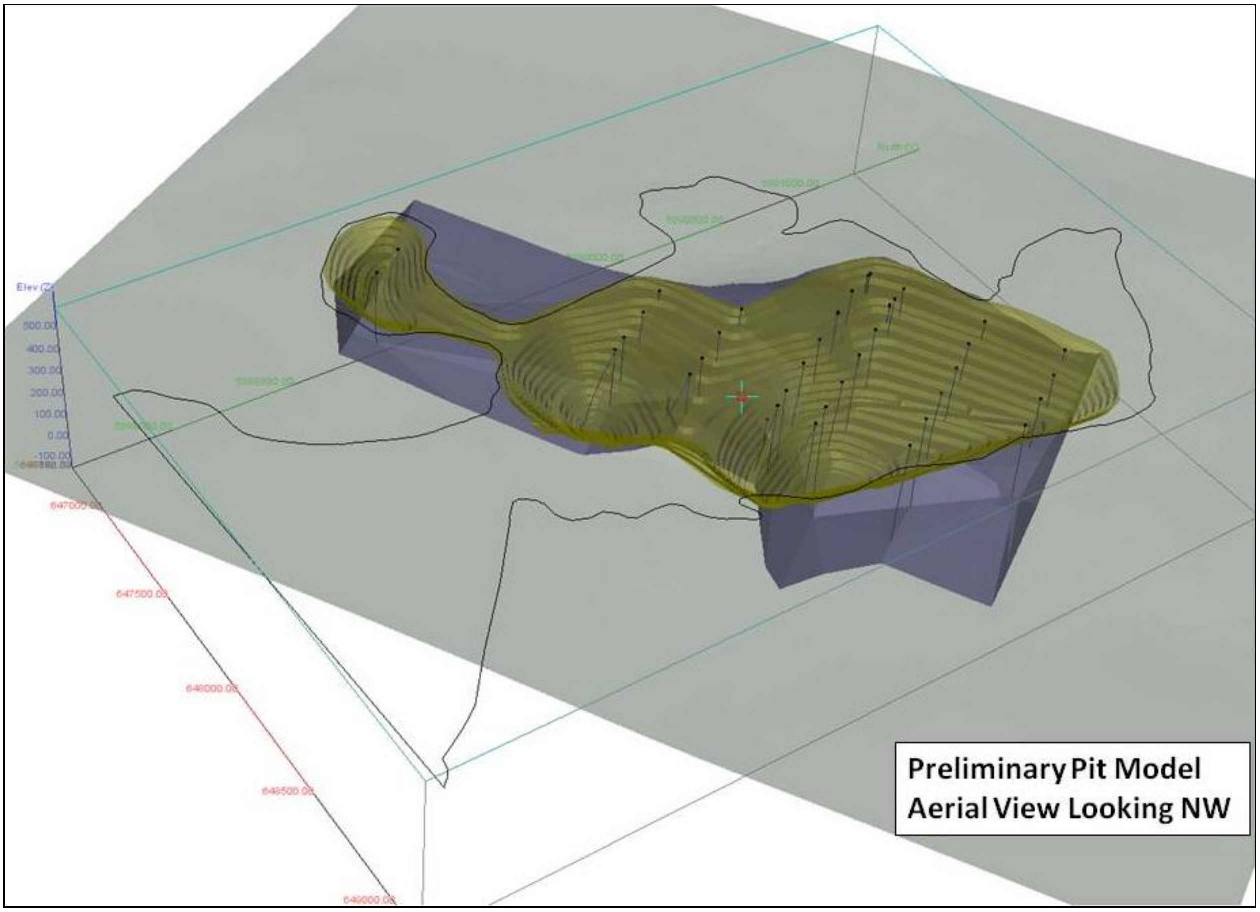


Figure 17-2: Ultimate Pit Design Constrained by EML Boundary, 3D Oblique View

Table 17.4 describes the mineral resources that that can be extracted without diverting, relocating or otherwise impacting the Julienne or Wabush Lakes, but mining practically up to the edge of the lakes. The potentially mineable resource in this instance increases from about 580 to over 814 million tonnes, while the projected mine life is extended from approximately 17 to 24 years.

Table 17.4: Potentially Mineable Mineral Resource Constrained by EML Boundary

Potentially Mineable Resource (millions of tonnes)	Fe (%)	Waste Rock Mined (millions of tonnes)	Total Ore and Waste (millions of tonnes)	Stripping Ratio
814.6	33.1	175.1	989.7	0.21

The inclusion iron ore reserves from either or both sectors would have a major positive impact on the project economics for all parties.

18.0 RECOVERABILITY

Preliminary testwork conducted in March 2011 has indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5% from material ground to a P_{80} of approximately 212 μm (65 mesh). At this fineness a Fe recovery of approximately 75% and a weight recovery of over 40% is indicated. Similar results were obtained from historical tests on (mini) bulk sample material conducted by Canadian Javelin in the mid-20th century. More systematic testing is needed.

19.0 MARKETS

The Julienne Lake iron deposit could conceptually produce iron ore concentrates or iron ore pellets as its primary sales products. Smelting and refining operations to produce pig iron and steel products have been considered in the past.

The following sub-sections will describe the following:

- The general nature of competition and markets in the iron ore and steel business in general, and
- An opinion as to the potential marketability of iron ore products from the Julienne Lake iron deposit and an opinion as to whether there might be market interest in the part of the deposit that is presently Crown (exempt mineral land) property if it were put up for sale and whether the value could be increased through further exploration work.

19.1. The Iron Ore market

In general iron ore mines may be either, affiliated/owned by iron/steel companies (e.g. ArcelorMittal, US Steel) and thus have a more or less captive market, or arms-length producers that are dependent on sales contract or spot market product sales (Vale, BHP-Billiton, Rio Tinto). Many mines have complex ownership structure and can be dependent on both types of markets. Current operators in the Labrador Trough region include both types.

The affiliated/owned mines provide a secure source of feed for the parent company's downstream operations and as such are not necessarily obliged to make an operating profit, provided the combined upstream and downstream operations do so.

For the arms-length miners, iron ore prices have historically been set by a 'benchmark' system, between miners and steelmakers. Usually one of the 'Big Three' miners (Vale, BHP-Billiton, Rio Tinto) reach a deal with one of the major steelmakers and this sets a the benchmark to be followed by the rest of the industry. Thus, a single price would be negotiated once per year and that has been the norm for the past 40-50 years. A growing short-term pricing market, a mix of quarterly negotiations, spot market pricing and index-based pricing, also exists which was traditionally much smaller than the contract market. In 2009 up to 30 per cent of iron ore shipments had been sold on shorter term pricing. In recent years, the benchmark system has begun to break down, with some miners pushing for market based pricing, and negotiations with the largest iron ore buyer, China, causing friction. As the spot market has grown in size and importance, financial hedging instruments such as iron ore swaps have emerged. Given that most other bulk commodities have evolved to a market based pricing system, it is considered inevitable that iron ore will also in the medium to long term.

The mid-1990's emergence of China as a major growing consumer of iron and steel has had an unprecedented major impact on the global iron ore and steel industry, which makes the post-World II boom period (1945-1970) look modest in comparison (Figure 19-1). The fundamental difference between the 'baby boom' and the 'China boom' years with respect to the iron ore industry is that the former had an initial resource deficit, while the latter initially had a production capacity imbalance. It took about 20 years of exploration and development for the markets to be saturated in first instance, but a much shorter time frame is unfolding as existing mines are being expanded in the latter.

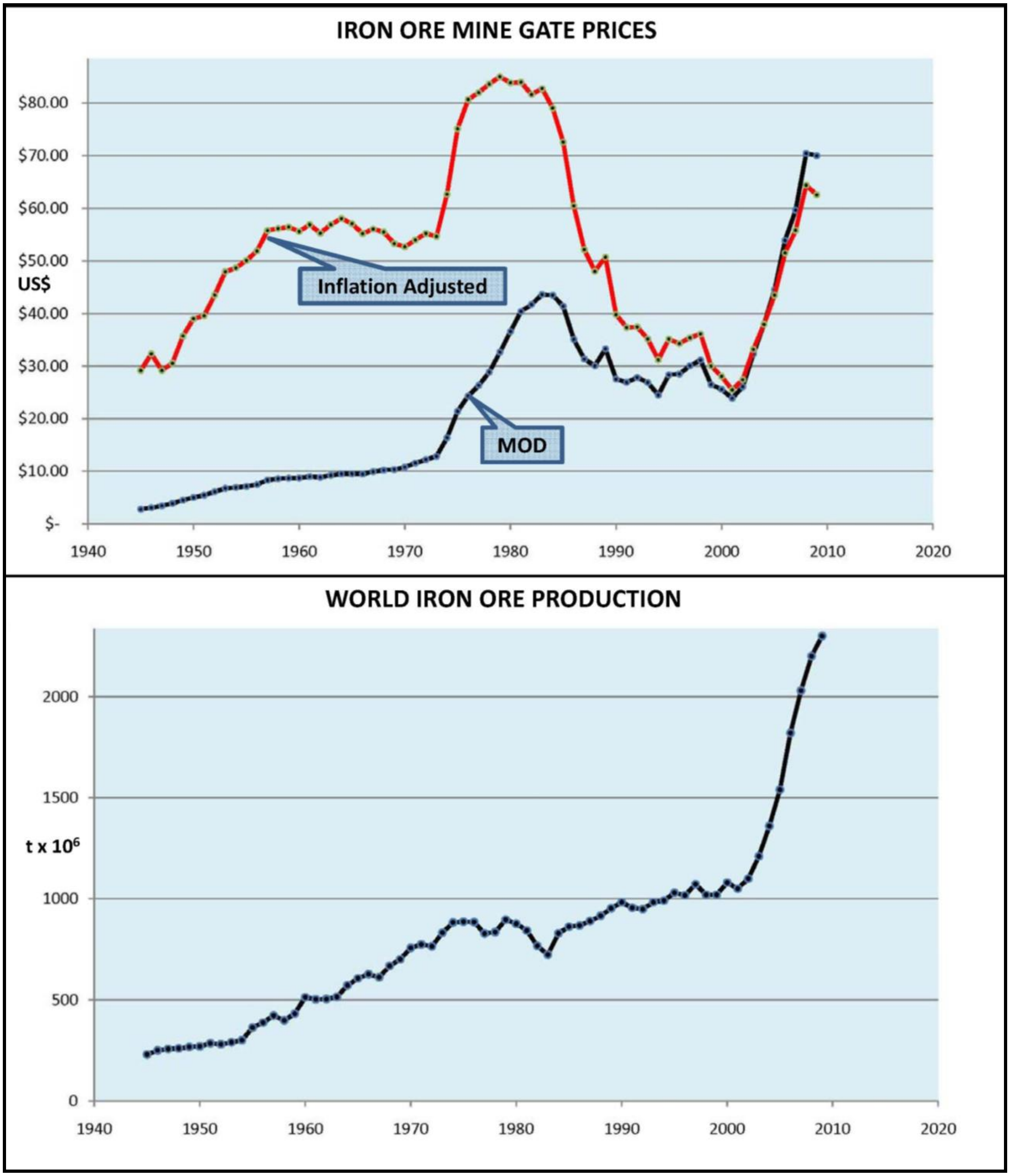


Figure 19-1: Historic Iron Ore Production and Pricing Charts.

Recent iron ore pricing trends are illustrated in Figure 19-2 by monthly figures for Brazilian iron ore over the last five years. Basic parameters of iron ore in the chart are; 67.55% iron content, fine, contract price to Europe, FOB Ponta da Madeira, US cents per dry metric tonne unit. It is noted the chart below is not directly comparable the historical data in Figure 19-1 because the former is priced at 'mine gate' and the latter is delivered FOB to ocean port. It is noteworthy that the historical 'benchmark' system had broken down by the end of 2008 and has subsequently effectively been replaced by a market based system.

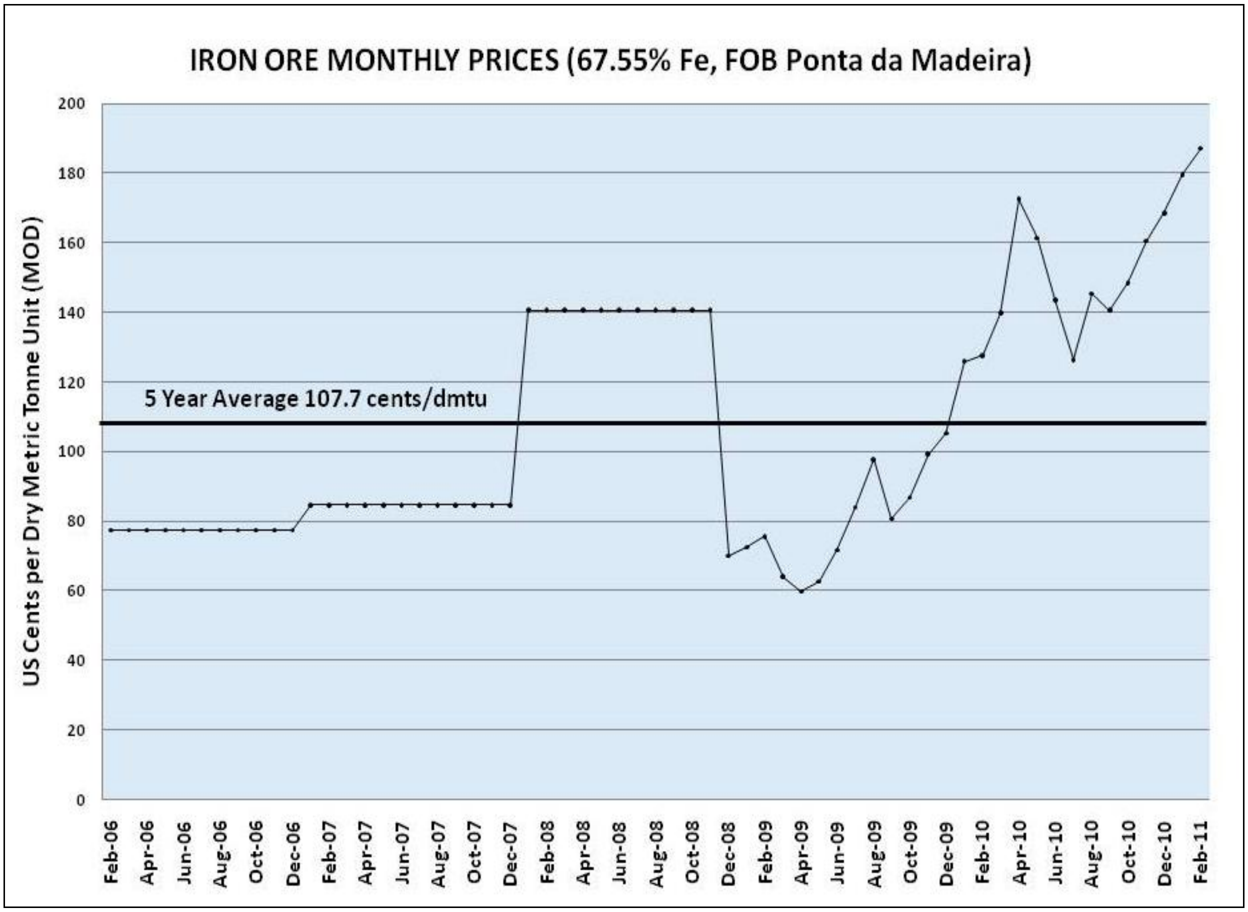


Figure 19-2: Five Year Iron Ore Monthly Prices, 2006-2011

Another consideration when viewing marketability of iron ore and other metal commodities is the downside potential or survivability of a mining project when economic times are bad. It is commonplace in the mining business for mining operations to start or re-start when price predictions are bullish followed by closures when serious downturns occur. The historical iron ore price (adjusted for monetary inflation) averages US$0.60/ dmtu over the last 30 years and for an extended period, from 1993 to 2003, prices were at or below US$0.40/dmtu (Figure 19-3). The 30 year average (US$0.60/dmtu) and "floor" (US$0.40/dmtu) prices are useful indicators of a project's long term economic viability. In other words, the most competitive iron ore mines can do reasonably well at sixty cents and survive a few years at forty cents/dmtu.

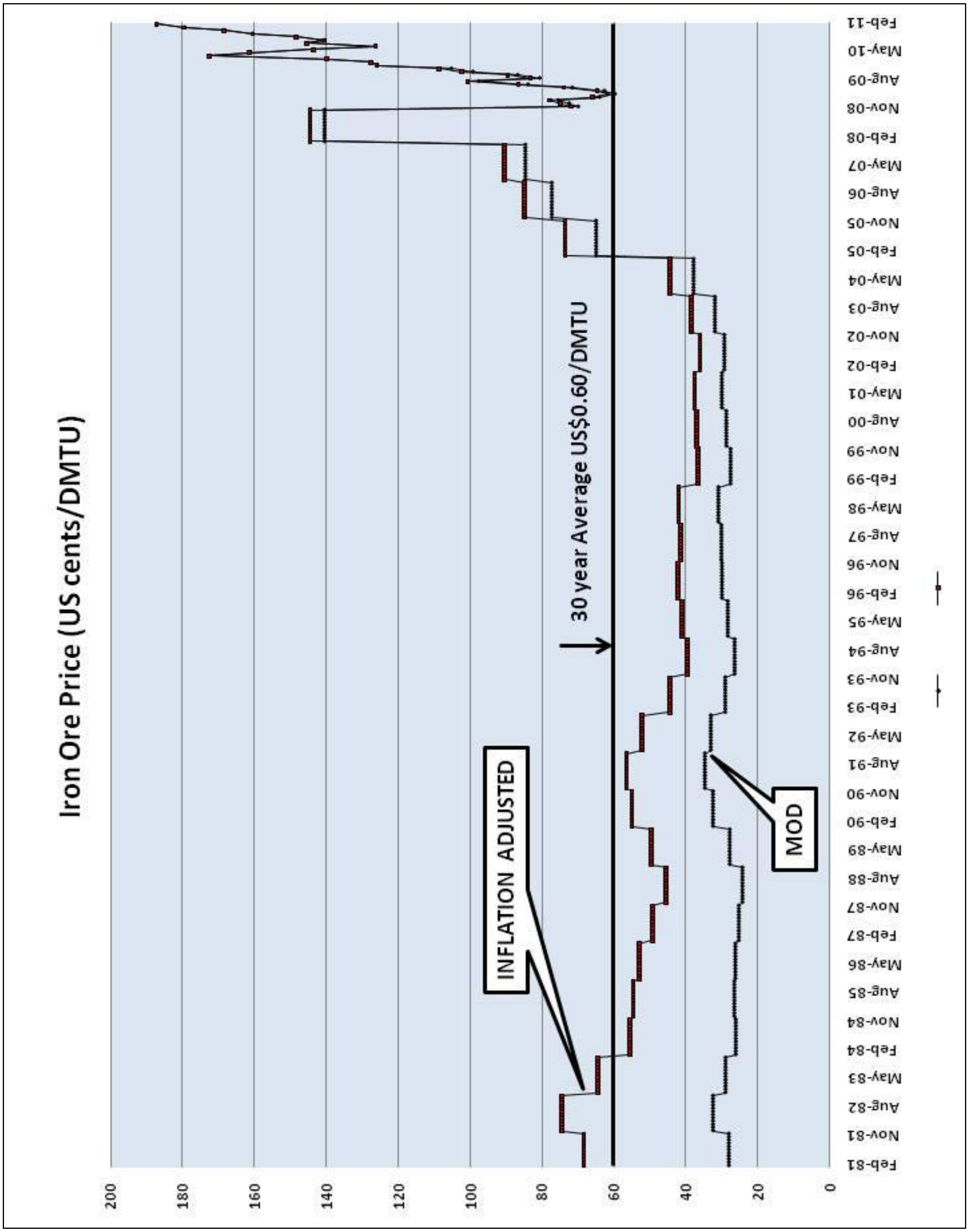


Figure 19-3: Thirty Year Iron Ore Monthly Prices, 1981-2011

Photo 7: New highway and bridge in remote Guizhou Province, typifies China boom.

The iron ore production shortfall that followed the beginning of the China boom took off around the year 2000, leading to rapid price increases throughout the first decade of the 21st century. What is surprising is that the iron ore pricing structure has only seen a small correction as a consequence of the global recession. However, the profits generated from the recent and continuing high prices are being rapidly converted to additional production capacity by the "Big Three" and others. New iron ore mining capacity taken into operation in 2008 was reported to be about 88 million tonnes globally, a lower figure than in 2007. The total project pipeline contains more than 430 million tonnes of new production capacity that may come on stream between 2009 and 2011.

Recent statements by the "Big Three" iron ore miners are optimistic. BHP-Billiton reports; "During the December quarter we saw a strong recovery across the commodity suite driven by demand in China and restocking in the developed world. Government stimulus measures appear to have supported a gradual return to normalised global trade, albeit from a low base, and most key indicators across the developed economies showed improvement." Vale S. A. reports that; " Demand in the global iron ore market has returned-or even surpassed-pre-crisis levels, with demand surging in key Asian markets." Rio Tinto's Canadian subsidiary reports as of February 8, 2011; "Today, the Iron Ore Company of Canada (IOC) announced the resumption of Phase two of its Concentrate Expansion Program (CEP2). The second of three stages in the expansion program, which was suspended in 2008 due to the global financial crisis, CEP2 will bring IOC's annual concentrate capacity from 22 million tonnes to 23.3 million tonnes." IOC has further reported, “The first stage of IOC’s Concentrate Expansion Program (CEP1) comprised an overland conveyor to remove bottlenecks in the current ore delivery system, a fourth autogenous grinding mill to increase primary grinding capacity, and associated mine and rail equipment and is scheduled to be completed by end-year 2011”. Phase 1 of IOC’s expansion saw an increase from 17 million tpa of concentrate to 22 million tpa.

Photo 8: Logistically challenging small scale (~150 TPD) iron ore mine, Yunnan Province, China.

Chinese iron ore production capacity is rising fast although Chinese iron ore is generally low quality, at around 30% contained iron and typically high cost. The Chinese mining industry is typified by large numbers of small scale relatively low-tech operations that have difficulty competing with international suppliers.

It is inevitable that the current supply demand imbalance will tip the other way at some point in the future. When this happens, as always, the operations showing the best profit margins will continue, while the others falter.

19.2. Potential Marketability of Julienne Lake Iron Deposit Products

Although the historic resource information is sketchy and the historic concentrating, pelletizing, smelting and steel making tests are incomplete and dated, in the opinion of MPH, there is little doubt that saleable iron ore products can be obtained from the Julienne Lake deposit. The key question is; can this be done economically? To answer this properly, a great deal of more specific technical and market information is needed, than is currently available. It is therefore only practical for MPH to present a considered opinion on whether or not staged investigations should be initiated to achieve this end.

The first aspect of this exercise is to create a deposit scenario to compare with the local, regional and international competition. The basic features of this scenario are as follows:

- Grade/tonnage scenario for EML: A reasonable resource tonnage for the EML is 1,375 million tonnes of iron formation with an average grade in the range of approximately 34% Fe. Potential iron ore and concentrates are expected to contain low levels of Mn, P, S and TiO_2. The iron formation continues beyond the EML in both directions, beneath Wabush and Julienne Lakes.
- Hypothetical mining operation: Open pit operation with minimal overburden cover and a very low waste to ore ratio.
- Excellent mining related infrastructure: Road access. Less than 30 km from Labrador City/Wabush, railway, cheap hydroelectric power, airport, etc.
- Potential Environmental Problems: Adjacent to major lake system, however Wabush Lake is already used to store IOC tailings.

The potential local competition is for Julienne Lake is empirically ranked in Table 19-1. Due to remoteness the Schefferville area deposits are considered significantly more difficult and expensive to develop than those in the Labrador West-Fermont area. The DSO group of deposits are a smaller size class than the rest and relatively remote. The Labrador West-Fermont cluster are considered to have similar general infrastructural capacity, although Carol Project Expansion program is clearly ranked No 1, due to substantial sunk costs and the highest grade of the large tonnage group. The Lac Bloom deposit has been brought into commercial production and expansion is being seriously considered. MPH would rank the Julienne Lake deposit at No 3 overall and the best of the non-IOC group.

Information is available on the projects owned or operated by Canadian publically listed companies. Several major companies are also active in the area but little timely important information concerning their exploration activities reaches the public domain. There are three advanced iron ore properties in the Labrador West-Fermont area that may be compared to the Julienne Lake iron deposit in terms of general economic potential. All of these properties are located in close proximity to the existing mines and excellent infrastructure.

Table 19-1: Potential Labrador Trough Iron Ore Projects

Rank	Deposit	Company	Resources		Open Pit		Stripping ratio
			Tonnes $x10^6$	Grade Fe	Tonnes $x10^6$	Grade Fe	
1	Carol Project Expansion	IOCC	n/a	n/a	n/a	39%	n/a
2	Labrador Ridge	IOCC	n/a	n/a	551.2	37.7%	n/a
3	Julienne Lake	NL Govt.	1,166.0	33.84%	580.0	33.18%	0.20
4	Bloom Lake	C. Thompson[2]	637.7	29.76%	579.6	30.00%	0.97
5	Lamelee-Peplar, QC	C. Thompson[2]	935.0	29.72%	n/a	n/a	n/a
6	Fire Lake North	Champion	n/a	n/a	387.7	29.00%	3.00
7	Kami, NL	Alderon	608	30.06%	n/a	n/a	n/a
8	Kemag, QC	NMCC[1]	2,448.0	31.27%			
9	Labmag, NL	NMCC[1]	3,665.0	29.6%			
10	DSO Project, NL (8 deposits)	NMCC[1]	56.0	58.97%			

[1] New Millenium Capital Corp, [2] Consolidated Thompson Iron Mines Limited

Another avenue to be explored might include Chinese or other Asian investment in the EML as a source of iron ore concentrates and/or pellets for their steelmakers. A modest portion of Canada's iron ore production is already sold to Asia buyers. While conventional sea routes certainly favour other producing regions such as Australia, India, South Africa and even Brazil, it is not a major stretch of the imagination to see the Northwest Passage route to the Orient opening up new opportunities for eastern Canada.

20.0 CONTRACTS

Because of the nature of potential sales products, iron ore concentrates and/or iron ore pellets, there may be a requirement for negotiated sales contracts. On the other hand it is also a distinct possibility that by the time a potential mining/processing operation is functional that sales prices may be market based and governed by institutional indices such as the LME or other commodity exchanges. There will be a future requirement for design, construction, mining and transportation/handling contractors if and when detailed design and engineering is completed. No sales, hedging or forward sales contracts are currently in place or being negotiated.

21.0 ENVIRONMENTAL CONSIDERATIONS

It is always prudent to consider environmental and water resources aspects of a potential mining property at an early stage of its exploration. In this instance the property is not entirely a greenfields situation because it was previously explored by drilling and trenching in the late 1950's to early 1960's. The type of work that was done on the Julienne Peninsula typically results in some land disturbance (for example the access road and surface trench), but usually does not generally create significant pollution problems such as acid drainage and metal leachate. The basic task at this time is to define baseline parameters so that the environmental situation can be documented in its semi-natural state prior to potential major mining/processing activities.

2010 Field Operations:
The Mineral Development Division obtained permits for the current work including:

- Exploration Approval by Mineral Lands Division, DNR for general exploration, drilling and trenching. The Mineral Development Division also issued specific instructions regarding the securing of drill collars (capping and marking casing) and back-filling deeper sections of trenches.
- Water use permit for drilling purposes.
- Commercial Cutting Permit from Department of Forestry governing clearing timber for drill sites and access trails. The drilling and trenching activities were for the most part carried out utilizing access trails and relatively wide survey lines from the 1950's and 1960's work by Canadian Javelin, keeping cutting of commercial sized trees to an absolute minimum.

The drilling contractor, Cabo Drilling (Atlantic) Corp., agreed at its own expense to comply with all Federal and Provincial Acts and Regulations applicable to its operations (fuel transportation & storage, fire regulations, health & safety, etc.).

MPH and the drilling contractor set up temporary field operations facilities in an abandoned road material pit on the property. This was not a camp that provided meals and accommodation for personnel. All temporary structures, core samples, equipment and materials were removed at the end of the work program, leaving it significantly cleaner and tidier than before.

For off-road access and survey grid control, MPH utilized pre-existing drilling roads from the 1950's and 1960's, more recent ATV/Skidoo trails to unpermitted recreational cabins/vehicles, and historical baselines, cross lines and tie lines. Since the Labrador West area is home to many outdoor recreational enthusiasts, the safety of off-road vehicle operators is a concern it this area. As a result all drill casings were keep close to the ground (~10-20 cm), secured by tightly screwed-on metal caps, and marked by ~60 cm long 2x2 inch wooden posts that are painted fluorescent orange. During the program MPH and DNR determined that the bedrock exposures in the 2010 trenches should be preserved for possible future studies and were left open. Potentially hazardous sections of trenches have been backfilled, where depths of ~2 or more metres were excavated.


Photo 9: Fixed/mobile recreational asset at historical trench site.


Photo 10: Backfilled section of Trench T10-01.

Photo 9: Core logging and sampling operations, September 2010.

Photo 10: Core logging site after drilling program, November 2010.

Photo 11: Typical drill collar location, November 2010.

Archaeological Investigation

An archaeological assessment of the property was completed by Gerald Penney & Associates Ltd. for DNR in mid-July 2010 prior to the commencement of drilling and trenching operations. No sites of archaeological significance were found. The report prepared for DNR is appended to this report (Volume 1, Appendix 3)

Environmental Baseline Study:

As noted earlier the Julienne Peninsula, although largely unspoiled, is not a pristine wilderness area. The area was made easily accessible with the construction of the Javelin Road in 1962, and the shores and hinterland regions of Julienne and (to a lesser extent) Wabush Lakes are dotted with fixed, mobile and fixed/mobile recreational assets. The Julienne Lake EML has three such recreational facilities including a cabin on the north end of the peninsula, a travel trailer at the old Javelin campsite and the derelict minivan (pictured above) in the Javelin trench area. The south end of Wabush Lake is also the tailings disposal site for the IOC concentrating/pelletizing plant at Labrador City. Furthermore, the former Leila Wynne dolomite quarry and the active Plateau Dolomite quarry, both owned by IOC, are located 4 km and 12 km to the south, respectively. IOC's Carol Lake open pit mine is located 12 km to the southwest.

MPH retained Golder Associates of Labrador City to conduct a preliminary environmental baseline examination of the Julienne Lake EML as a precursor to more detailed work as the potential mining project moves forward. The results of this work are summarized below and the full letter report is appended to this report (Volume 1, Appendix 4).

At the request of MPH, Golder Associates have conducted a general baseline study with the objection of identifying flora and fauna species with a designated *at risk* status. A literature review revealed that no flora species have been designated as *at risk*. Several species of fauna however have been designated in the area and an on-site investigation was conducted in order to verify the presence/absence of these species. No species at risk were detected during the on-site investigation.

A variety of signs of human disturbance were observed throughout the site including evidence of hunting, camping and other recreational uses.

Groundwater Surface Depth Soundings, December 1, 2010

Part of the 2010 investigations included preparations for possible future geotechnical investigations. For this and other reasons, NW casing through overburden and into solid bedrock was left in all drill holes. The current work requested by DNR was an initial survey profile along the Julienne Peninsula to determine the depth to the groundwater surface. The soundings were taken by MPH on December 1, 2010 along a more or less longitudinal section along the iron deposit. The site details are presented in Table 21-1 and the profile is graphically represented in Figure 21-1.

Table 21-1: Julienne Iron Deposit, Water table depth soundings, December 1, 2010

Drill	Collar Coordinates (UTM Zone 19 NAD 83)			Groundwater Surface	
Hole	Northing	Easting	Elevation	Depth	Elevation
JL 10-26	5890004.94	648574.96	536.17	8.0	528.2
JL 10-11A	5889852.21	648305.11	573.41	44.6	528.8
JL 10-06	5889776.22	648180.92	582.59	54.4	528.2
JL 10-14	5889364.32	648056.68	582.33	53.7	528.6
JL 10-21	5889219.24	647804.33	551.05	22.5	528.5
Julienne Lake 1	5889642.43	648784.41	526.17	0.0	526.2
Julienne Lake 2	5890100.00	648873.77	526.21	0.0	526.2

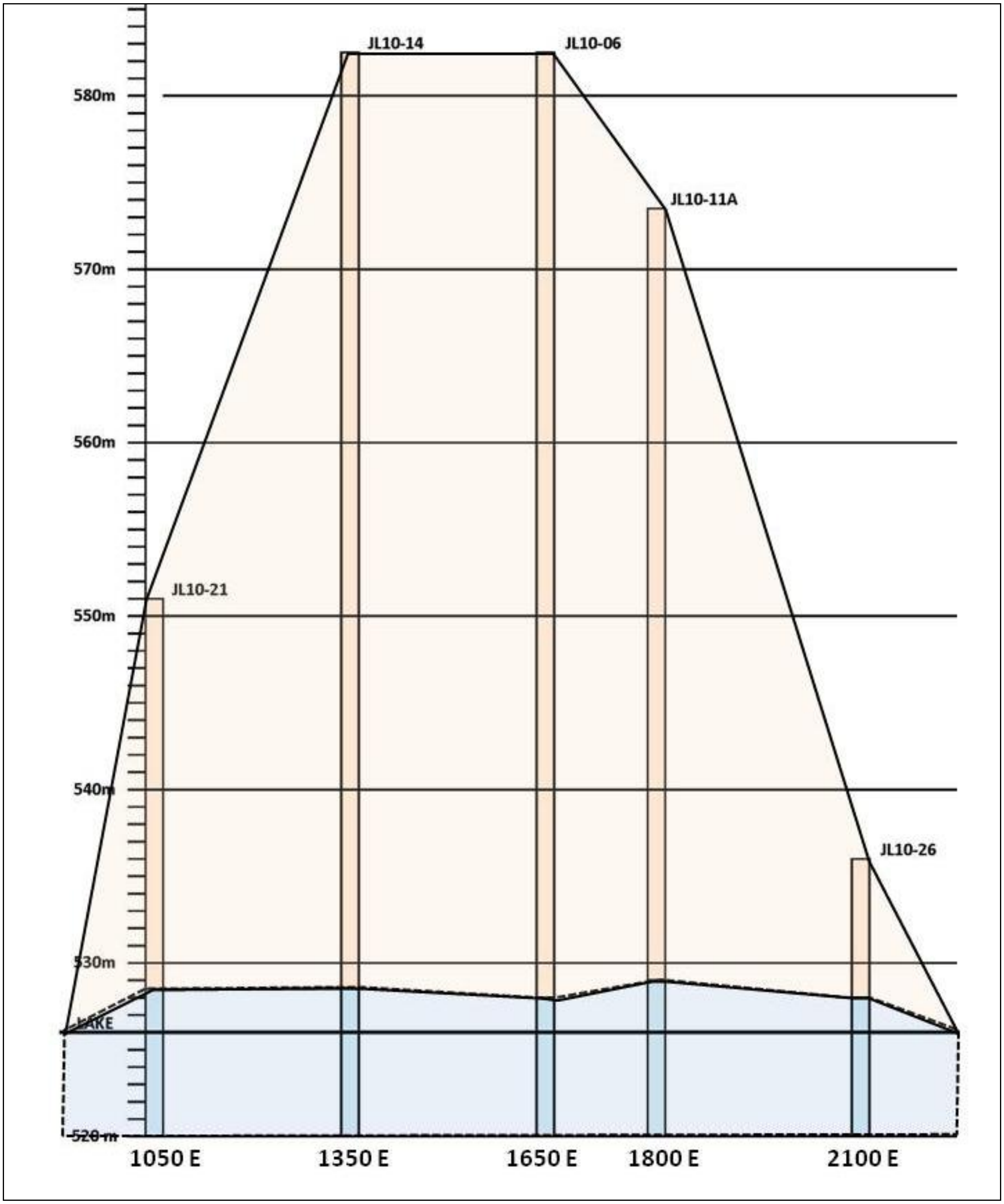


Figure 21-1: Julienne Peninsula, Groundwater Levels, December 1, 2010

Photo 12: Water depth sounding apparatus.

22.0 INTERPRETATION AND CONCLUSIONS

The 2010 exploration program has shown that the Julienne Lake iron deposit is significantly larger than historical work had indicated. A major shortcoming of the 1950's-1960's program was a lack of drilling to test the deposits limits. This deficiency was not lost on the Canadian Javelin geological staff who recommended 29 holes with a total length of 15,000 feet (~4,570m) in 1968 (Knowles, 1968). Had this work been implemented the course of the deposit's history might have changed radically.

In retrospect, a good deal of the historical work is still useful. For example the iron and deleterious elements averages indicated by the Canadian Javelin work closely resemble the current values and the process testwork results are likewise.

The main revelation from the 2010 work is the nearly doubling of the resource potential on the EML from about 600-700 million tonnes to approximately 1,166 million tonnes without any appreciable decrease in average grade. This is the result of a major revision of the structural setting from a shallow basinal structure that somehow formed an improbable isoclinal fold to a shallow to moderately dipping sequence truncated by a sub-vertical fault. The 2010 drilling program has now established a clear understanding of the geometric structural distribution of the Sokoman Formation on the Julienne Peninsula, namely:

- The southwestern or lower contact is a northeasterly striking gently to moderately southeasterly dipping conformable contact with the underlying Wishart Formation quartzite.
- The southeastern contact is a steep northeasterly trending fault that juxtaposes the Sokoman and Wishart formations.

The lithological/structural/topographic setting is particularly well suited to open pit mining for the following reasons:

- The mineralized stratgraphic interval is typified by fairly uniform Fe grade over a very substantial thickness (up to 500m maximum true thickness).
- The uniform -30 degree lower contact with the Wishart Formation quartzite forms a natural virtually waste-free pit wall.
- The waste to iron formation ratio on the southeastern faulted contact is minimized by favourable topography as well as the substantial deposit thickness.
- The iron ore deposit is a mostly a prominent hill with minimal overburden

The Sokoman Formation units on the Julienne Peninsula and elsewhere in the Labrador West-Fermont district exhibit significant mineralogical variations. The gradational nature of the iron to silica content is very evident from detailed examination of core and bedrock exposures at the Julienne Lake iron deposit. Current QA/QC work which used ROM muck from the producing mines (Carol and Wabush) as quasi-standards similarly demonstrated the inherent mineralogical variations in the Sokoman Group iron formation units even at the very small scale of 19 litre (5 gallon) buckets of ore. This might result in day to day processing difficulties in a potential production situation.

The deposit is located on a peninsula between Wabush and Julienne Lakes so it would be prudent to thoroughly assess potential water influx problems and implement mitigation procedures at an early stage.

March 2010 tests at SGS Lakefield done under the supervision of Roche Ltd. have indicated that it is possible to produce an iron ore concentrate with an iron content of >66% Fe and a silica content of <5% from material ground to a P_{80} of approximately 212 μm (65 mesh). At this fineness a Fe recovery of approximately 75% and a weight recovery of over 40% is indicated.

Autogenous or semi-autogenous grinding will likely be the preferred approach to milling the Julienne Lake iron formation material. The grinding circuit would need to minimize the generation of material finer than 45 μm (-325 mesh) as spirals lose efficiency at that point. Bond Work Index results show that the iron ore is soft. This is beneficial with regard to potential equipment size, capital cost and energy requirements.

Roche recommends pursuing process development at fine grinds than those tested so far.

If economically viable, a WHIMS circuit could be integrated into the flow diagram as a complementary process to increase Fe recovery. More testing is required.

Environmental studies undertaken to date are just a beginning. More systematic and thorough ongoing work in required.

The Julienne Lake project contains a large, high grade iron mineral resource. It can be mined with a very low waste stripping ratio which helps to keep operating costs low. In addition, it is in a very mining-friendly district. Labrador West is a well-established iron mining district and the Project will have access to mining services and suppliers and qualified staff and production personnel.

MPH concludes that the Julienne Lake iron deposit represents a very rare and unusual opportunity to develop a major new mining project in the heart of an established mining camp in a politically stable country.

23.0 RECOMMENDATIONS

The 2010 exploration program on the Julienne Lake iron deposit has been markedly successful in that it has confirmed the historical observations that the iron ore units are high quality concentrating material. However the most significant advances made by the program are to do with the deposit's hitherto unknown large size potential, uniform grade distribution and amenability to relatively low cost open pit mining/beneficiation methods. Without question the results to date indicate the Julienne Lake iron deposit to be favourably comparable to the existing operational mines in the region. MPH believes that an advanced exploration program to bring the project to the formal NI-43-101 compliant Prefeasibility Study stage is fully warranted and justified.

The following ongoing work program is recommended:

- Infill and definition drilling to upgrade most of the current resources to NI 43-101 compliant Measured or Indicated Resources. All material within the current or potentially revised conceptual open pit limits will need to be at least Indicated category. Approximately 50 drill holes with a cumulative total length of 10,000 metres will be required. The drilling does not have to be all NQ core drilling, some proportion of reverse circulation ("RC") drilling may be more cost effective. A budget of approximately $3.0 million is anticipated.
- More systematic and thorough ore characterization studies and process testwork. There is a great deal of mineralized material still available from the 2010 drilling and sampling program. This includes coarse reject material from the routine head analysis samples and the remaining un-sampled drill core. Both are stored at the DNR core storage facility in Goose Bay. Approximately 40 tonnes of core and coarse rejects are currently available for reference and ongoing testwork. The ongoing infill and definition drilling will result in another 40-45 tonnes of material for a combined total of over 80 tonnes of iron ore that can be used for detailed systematic bench scale testwork and even as a mini-bulk sample. A budget of approximately $1.0 million should be allocated to this.
- Engineering studies should be initiated with respect to mining and processing options, access routes, infrastructure, tailings/waste rock disposal, etc. to at least Prefeasibility study level by NI 43-101 standards. Budget estimate $2.0 million.
- Environmental impact studies leading towards eventual permitting of a mining and milling operation, tailings impoundment, transportation routes, etc. should be initiated in earnest. Budget estimate $0.5 million.
- On or near site facilities, accommodations, office, warehouse, storage. Budget $0.5 million.
- Prefeasibility Study $0.5 million
- Contingency @ 15%.

The proposed drill hole pattern is roughly outlined in Table 23-1 along with a preliminary layout shown in Figure 23-1.

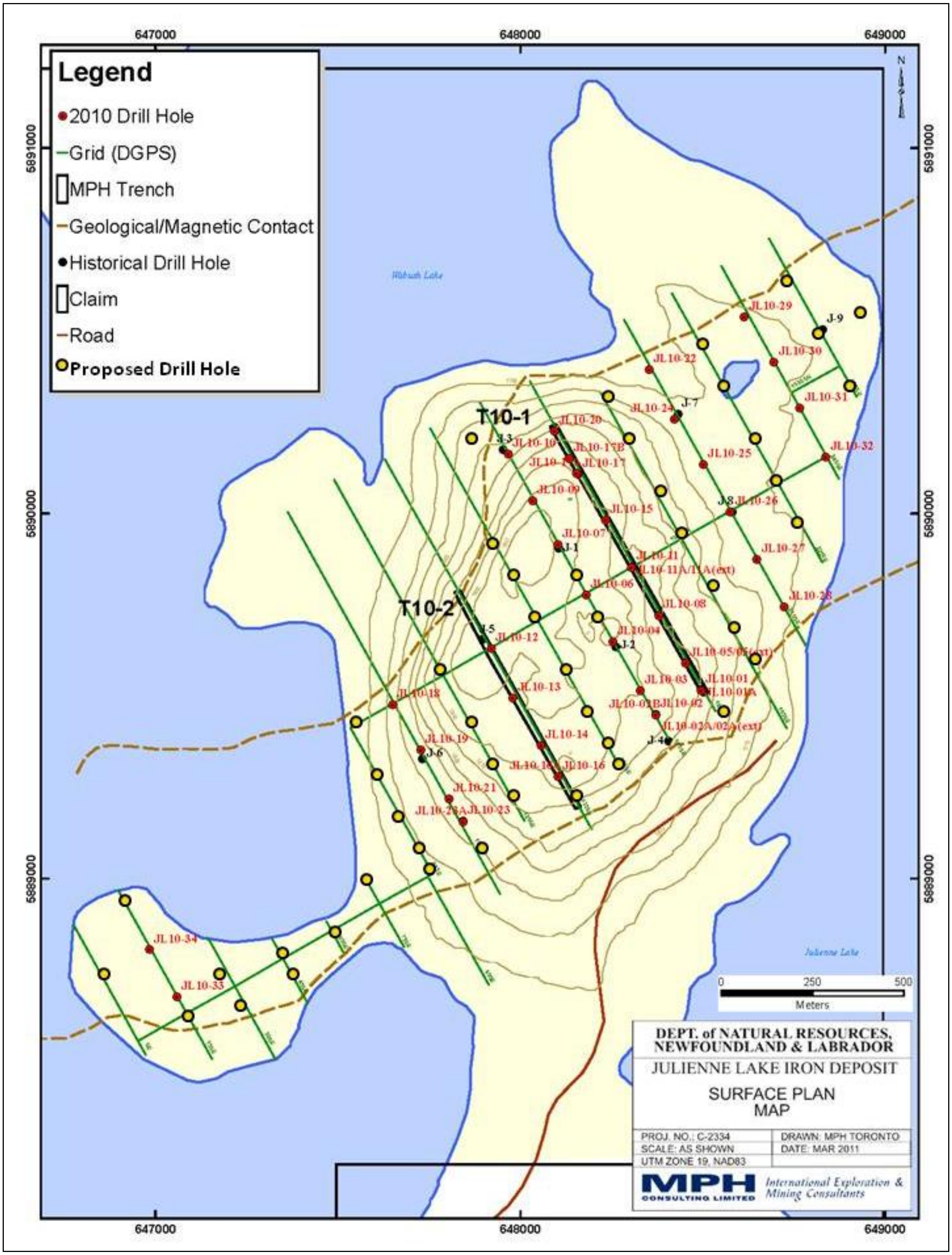


Figure 23-1: Surface Plan Map showing proposed drill hole locations.

Table 23-1: Preliminary Definition Drill Hole Specifications

Proposed Site	Cut Grid		Azimuth	Inclination	Length
	Easting	Northing	degrees	degrees	m
P-1	L-0E	9750N	0	-90	300
P-2	L-150E	9543N	150	-50	250
P-3	L-150E	9900N	0	-90	250
P-4	L-300E	9500N	150	-50	250
P-5	L-300E	9600N	0	-90	300
P-6	L-450E	9543N	0	-90	300
P-7	L-450E	9500N	150	-50	250
P-8	L-600E	9543N	150	-50	250
P-9	L-750E	9600N	0	-90	300
P-10	L-915E	10000N	0	-90	50
P-11	L-915E	9850N	0	-90	150
P-12	L-915E	9700N	0	-90	200
P-13	L-915E	9550N	0	-90	250
P-14	L-915E	9475N	150	-50	250
P-15	L-1050E	9500N	150	-50	200
P-16	L-1200E	10000N	0	-90	100
P-17	L-1200E	9850N	0	-90	150
P-18	L-1200E	9700N	0	-90	200
P-19	L-1200E	9550N	150	-50	200
P-20	L-1350E	9550N	150	-50	100
P-21	L-1500E	10225N	0	-90	150
P-22	L-1500E	10150N	0	-90	200
P-23	L-1500E	10000N	0	-90	200
P-24	L-1500E	9850N	0	-90	300
P-25	L-1500E	9700N	0	-90	300
P-26	L-1500E	9550N	0	-90	300
P-27	L-1500E	9475N	150	-50	300
P-28	L-1575E	10550N	0	-90	100
P-29	L-1650E	9025N	0	-90	300
P-30	L-1650E	10075N	0	-90	200
P-31	L-1950E	10450N	0	-90	100
P-32	L-1950E	10300N	0	-90	150
P-33	L-1950E	10150N	0	-90	200
P-34	L-1950E	10000N	0	-90	300
P-35	L-1950E	9850N	0	-90	350
P-36	L-1950E	9700N	0	-90	400
P-37	L-1950E	9625	150	-50	300

P-38	L-2250E	10450N	0	-90	100
P-39	L-2250E	10300N	0	-90	150
P-40	L-2250E	10150N	0	-90	200
P-41	L-2250E	10000N	0	-90	250
P-42	L-2250E	9850N	0	-90	300
P-43	L-2550E	10450N	0	-90	100
P-44	L-2550E	10300N	0	-90	200
P-45	L-2550E	10150N	0	-90	250
P-46	L-2700E	10300N	0	-90	200
Total					**10,200 m**

A very preliminary budget over an approximately 1 year period is recommended to bring the Julienne Lake Project to Prefeasibility Study status by NI-43-101 standards (Table 23-2). A budget of approximately C$ 8.5 million is required to complete the Prefeasibility study work on the Julienne Lake iron deposit. This is a preliminary estimate. Thorough program planning and cost estimations that will require tendered quotations from various contractors will need to be obtained before a final cost estimate can be made. In the opinion of MPH Consulting Limited this work is fully warranted and justified.

Additional expenditures may be required to continue work on the Julienne Lake Property after the Prefeasibility Study program is completed. Additional debt and/or equity funding would be required for this.

Table 23-2: Preliminary Budget Prefeasibility Study

		DETAILS	SUMMARY
Staffing			**$ 560,000**
	Supervision & Consulting	$ 150,000	
	Senior Geologist	$ 120,000	
	Field Geologist	$ 100,000	
	Field Technicians x3	$ 150,000	
	Casual Labour	$ 15,000	
	Data Processing/CAD	$ 25,000	
Support Costs			**$ 350,000**
	Food & Accom.	$ 75,000	
	Field Supplies & Equip.	$ 50,000	
	Map/Drawing Charges	$ 30,000	
	Travel	$ 75,000	
	Communications	$ 10,000	
	Freight	$ 15,000	
	Core logging facility	$ 30,000	
	Equipment Rental (Pumps, rock saw, etc.)	$ 20,000	
	Electronic equipment & software	$ 10,000	
	Vehicle Rental (4x4 pick-up, casual car-truck rentals)	$ 25,000	
	Fuel & Maintenance	$ 10,000	
Grids			**$ 35,000**
	Linecutting/re-establish old grids	$ 10,000	
	Surveyor	$ 25,000	
Diamond drilling			**$ 1,750,000**
	Mob/Demob	$ 100,000	
	Diamond Drilling (10,000m @ $165)	$ 1,650,000	
Assays			**$ 195,000**
	3,000 samples @ $55/sample (Head assays)	$ 165,000	
	QA/QC	$ 30,000	
Metallurgical Testwork			**$ 1,000,000**
		$ 1,000,000	
Engineering Study			**$ 2,000,000**
		$ 2,000,000	
On Site Facilities			**$ 500,000**
		$ 500,000	
Environmental Baseline/Geotechnical Studies			**$ 500,000**
		$ 500,000	
Report			**$ 500,000**
	Prefeasibility Study	$ 500,000	
		Sub-Total	**$ 7,390,000**
	Contingency 15%		**$ 1,108,500**
	GRAND TOTAL FOR BUDGET PURPOSES		**$ 8,498,500**

Respectfully Submitted,

Howard J. Coates, M.Sc., P.Geo.
MPH Consulting Limited

24.0 REFERENCES

Alderon Resource Corp. Various public documents regarding company's Labrador Trough activities. www.sedar.com

Bartnik, J A, 1973a. Preliminary testwork report on a sample of iron ore from Julian Deposit using the Jones high intensity wet magnetic separator, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0136, 1973, 15 pages.

Bartnik, J A, 1973b. Report on full scale test program for Canadian Javelin Limited using the Jones wet high intensity magnetic separator on Julian deposit, Labrador, Canadian Javelin Limited Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/0143, 1973, 87 pages.

Bergmann, H J, 1973. Report on Julian Iron Property of Canadian Javelin Ltd, Canadian Javelin Limited, Julco Iron Corporation and Newfoundland and Labrador, Newfoundland and Labrador Geological Survey, Assessment File 23G/0153, 1973, 23 pages.

Blais, R., 1959. L'origine des minerais cretaces du gisement de fer de Redmond, Labrador. Le Naturaliste Canadien, 86(12), p 265-299.

Blakeman, W, 1963. Preliminary ground examinations proposed Julian town site area, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0151, 1963, 9 pages.

Blakeman, W B, 1968. A study of the mineralogic and magnetic characteristics of metamorphosed iron formation from the Julian deposit Wabush Lake area, Labrador MSc, Vermont University, Burlington, Vermont, 1968, 172 pages. NTS: 23G/02.

Blakeman, W B, 1973. Computer mapped ore grade distribution Julian Iron Deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0108, 1973, 55 pages.

Blakeman, W B, 1974. Geotechnical considerations in respect to the muskeg portions of a proposed iron or slurry pipeline route, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0122, 1974, 33 pages.

Blakeman, W B and Knowles, D M, 1963. Report on the Julian deposit and its extensions, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0117, 1963, 24 pages.

Britton, J W, 1961. Report on grinding and concentration tests on Julian iron ore, Lakefield Research of Canada Limited, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0150, 1961, 26 pages.

Boyko, W P, 1953, Geological report on the Wabush Lake area, Labrador, Newfoundland and Labrador Corporation Limited, Newfoundland and Labrador Geological Survey, Assessment File LAB/0668, 1953, 11 pages.

Canadian Javelin Limited, 1959. Ore reserve estimates for the Julienne Lake Deposit, Julienne Lake area, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0247, 1959, 15 pages

Canadian Javelin Limited, 1962a. Julienne Lake bulk sampling project, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0116, 1962, 10 pages.

Canadian Javelin Limited, 1962b. Summary report - section 1-geology, section 2-ore reserves, and section 3-metallurgy on the Julian Lake deposit, Labrador, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0110, 1962, 123 pages.

Canadian Javelin Limited, 1969. Julien Iron Pellet Project sales and participation proposal to selected European steel companies, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File LAB/0416, 1969, 44 pages.

Canadian Javelin Limited, 1970. Julian Iron Deposit Summary, Canadian Javelin Limited Source: Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous, 1970, 3 pages, [023G/02/0111].

Canadian Javelin Limited, 1977. Labrador’s Julienne Lake deposit, half-billion tons of iron ore on the block, Engineering and Mining Journal, vol. 178, no. 1, 2 pages.

Cannon, W F, 1996. Descriptive Model of Superior Fe, Model 34a, In Mineral Deposit Models, Edited by D. P. Cox and D. A. Singer, USGS Bulletin 1693.

Chen, C, 2006. The Iron Ore Company of Canada, CIM Magazine, Volume 1, No 2, March-April 2006.

Coates, H., Cote, M., and Brett, J., 2010A. Preliminary Evaluation of the Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador for Department of Natural Resources, Government of Newfoundland and Labrador by MPH Consulting Limited. Unpublished report.

Coates, H., Thein, A. M., and Cote, M., 2010B. Report on the 2010 Exploration Program, Julienne Lake Iron Deposit, Western Labrador, Newfoundland and Labrador for Department of Natural Resources, Government of Newfoundland and Labrador by MPH Consulting Limited. Unpublished report.

Corriveau, L, Perreault, S and Davidson, A, 2007. Prospective Metallogenic Settings of the Grenville Province, in Goodfellow,W.D., ed., Mineral Deposits of Canada: A Synthesis of Major Deposit-Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration

Methods: Geological Association of Canada, Mineral Deposits Division, Special Publication No. 5, p. 819-847.

Consolidated Thompson Iron Mines Ltd. Various public documents regarding company's Quebec/Labrador Trough activities. www.sedar.com

Donaldson, J W, Jurden, D H, Olds, L E and Udy, M C, 1961. The smelting of Julian concentrates by the Strategic-Udy process, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File LAB/0236, 1961, 49 pages.

Dorf, E., 1967. Cretaceous Insects from Labrador, Geological Occurrence. Psyche, Volume 7, No. 4, December 1967.

Elektrokemisk A/S, 1961. Report on metallurgical testing of raw materials from the Julian Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0147, 1961, 15

Elektrokemisk A/S, 1962. Report on pig iron smelting tests for the Julian iron project, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0132, 1962, 87 pages.

Elliott, R A, McVeigh, H G, Neal, H E and Rolling, F J, 1980. Potential for further iron ore development in Newfoundland and Labrador for Department of Mines and Energy, Government of Newfoundland and Labrador, Geological Survey, Internal Collection, Company Report, 175 pages

Farhig, W F, 1967. Shabogamo Lake Map-Area, Newfoundland-Labrador and Quebec, 23GE ½, Geological Survey of Canada, Memoir 354.

Farquharson, G and Thalenhorst, H, 2006. Wabush Mines, Review of Scully Mine Reserves, by Strathcona Mineral Services Limited, for Department of Natural Resources, Government of Newfoundland and Labrador, Company Report, 27 pages.

Gastil, R G, 1956. Report on geological and magnetic surveys of the Julienne Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0154, 1956, 29 pages.

Gastil, R G and Knowles, D M, 1957. Regional geology of the Wabush Lake area, western Labrador, Geological Society of America Bulletin, vol. 68 no. 12, 1957, pages 17-33.

Gross, G A, 1968. Iron Ranges of the Labrador Geosyncline; in Geology of iron deposits in Canada; Economic Geology Report 22, Vol. I, Geological Survey of Canada, 179p.

Gross, G A, 1996. Stratiform iron; in Geology of Canadian Mineral Deposit Types, (ed) O. R. Eckstrand, W. D. Sinclair and R. I. Thorpe; The Geology of North America, Geological Society of America, v. P-1 (also Geological Survey of Canada, Geology of Canada, no.8), p. 41- 80.

Gross, G A, 2009. Iron Formation in Canada, Genesis and Geochemistry, Geological Survey of Canada, Open file 5987.

Hains, D J and Sibakin, J G, 1964. Proposal to the Japanese Steel Industry re Iron Ore Pellets & Soft Iron Piglets, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/0148, 1964, 124 pages.

Humphreys Engineering Company, 1961. Spiral Test # 7972, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0123

Julco Iron Corporation Limited, 1970. The Julian Deposit Guide 1970, Julco Iron Corporation Limited and Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Internal Collection, Guidebook, 1970, 23 pages, [023G/0130].

Kilborn Engineering [1954] Limited, 1959. Preliminary estimate for 600 ton per day pilot plant for Julian Iron Mines Quebec - Labrador area, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous 23G/0155, 1959, 17 pages.

Kilborn Engineering Limited, 1962a. Estimate of capital & operating cost for pelletizing & electric reduction smelter to produce 540.000 metric tons of pig iron per year Julian Lake, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0137, 1962, 34 pages.

Kilborn Engineering Limited, 1962b. Preliminary estimate of capital & operating cost for a mining & concentrating plant to produce 3,000,000 long tons of concentrate per year at Julian Lake, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous 23G/02/0141, 1962, 43 pages.

Kilborn Engineering Limited, 1962c. Preliminary estimate of capital & operating cost for a pelletizing plant to produce 2,160,000 long tons of pellets per year (pelletizing only) at Julian Lake, Labrador, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/0145, 1962, 27 pages.

Kilborn Engineering Limited, 1967. Capital and operating cost estimates for Julian iron ore pellet project, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0120, 1967, 128 pages.

Kilborn Engineering Limited, 1970. Julian and Star-O'Keefe Iron Ores, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous, 309 pages, [23G/0128]

Knowles, D M, 1960. A report of studies conducted during 1959-1960 on the Julienne Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0124, 1960, 59 pages.

Knowles, D M, 1963a. Review of the geology and mineralogy of the Julian Lake Deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0126, 1963, 14 pages.

Knowles, D, M, 1963b. Julienne Railway - Reconnaissance Survey, Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0146, 1963, 7 pages.

Knowles, D, M, 1963c. Julian Deposit estimate of tonnage open pit mining, Canadian Javelin Limited and Julian Iron Corporation Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0144, 1963, 21 pages.

Knowles, D M, 1963d, Pelletizing tests on Julian ore, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0139, 1963, 5 pages.

Knowles, D M, 1966. Geological summary of the Julian deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0113, 1966, 41 pages.

Knowles, D M, 1967a. Report concerning the 1966 sample project Julienne Lake deposit, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0125, 1967, 24 pages.

Knowles, D M, 1967b. Report concerning the 1963 bulk sample analysis project on the Julienne Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0112, 1967, 6 pages.

Knowles, D M, 1967c. The structural development of Labrador Trough formations in the Grenville Province, Wabush Lake area, Labrador, PhD, Columbia University, New York, New York, 1967, 234 pages.

Knowles, D M, 1968. Development work proposals Julian deposit, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0114, 1968, 25 pages.

Knowles, D M and Blakeman, W B, 1963. The Julian Deposit and its Extensions, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 023G/0117, 1963, 25 pages.

Knowles, D M and Blakeman, W B, 1970. Julian and Star-O'Keefe Iron Ores - Iron Ore Pellet Project, Canadian Javelin Limited and Julco Iron Corporation Limited, Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous, 1970, 66 pages, [023G/0149].

Knowles, D M and Gastil, R G, 1959. Metamorphosed iron formation in south-western Labrador, Canadian Mining and Metallurgical Bulletin, 1959, pages 1-8.

Knowles, D M, MacPherson, W, Blakeman, W and LaRush, P, 1962. Report on the geology and trench stripping project of the Julian Lake deposit, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0152, 1962, 17 pages.

Knowles, D M and Roxburgh, W H, 1963. Metallurgical study of the Julian Deposit, Labrador, Canadian Javelin Limited Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/0131, 1963, 7 pages.

Koppers Company Incorporated, 1962. Preliminary estimate of the cost of production of ingots or continuous cast billets from Julian concentrates, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Internal Report, Miscellaneous 23G/0133, 1962, 6 pages.

Magyar, W B, 1970. The Julian-Star-O'Keefe project feasibility assessment, Julco Iron Corporation Limited, Dominion Jubilee Corporation Limited and Newfoundland & Labrador Corporation, Newfoundland and Labrador Geological Survey, Assessment File LAB/0414, 1970, 40 pages.

Mockler, H, 1958. Julian Iron Corporation diamond drilling – 1957, Canadian Javelin Limited, Julian Iron Corporation, Wabush Iron Company Limited and Pickands Mather and Company, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0115, 1958, 39 pages.

Neale, H E, 1951. Wabush Lake-Shabogamo Area, Labrador, Maps and Report, Labrador Mining and Exploration Company.

Newfoundland and Labrador Geological Survey, 1975. Julienne Lake iron deposit, Labrador, summary report, Mineral Development Division, Department of Mines and Energy, Province of Newfoundland Government Report, 1975, 20 pages, [023G/02/0071].

New Millennium Capital Corp. Various public documents regarding company's Quebec/Labrador Trough activities. www.sedar.com

Pickands Mather and Company, 1959. Report on exploration of the Julian Lake area and North Concession areas, Labrador, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0067, 1959, 25 pages.

Pickands Mather and Company, 1959. Report on exploration of the Julian ore deposit, Labrador, Canadian Javelin Limited and Pickands Mather and Company, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0066, 1959, 49 pages.

Ramseyer and Miller Incorporated, 1962. Report on the possibilities of manufacturing iron and steel from Julian concentrates by various processes, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0140, 1962, 108 pages.

Rivers, T and Massey, N, 1979. Wabush Lake-Sawbill Lake Map Area, Western Labrador, In Report of Activities for 1979, Edited by R. V. Gibbons, Newfoundland and Labrador, Department of Mines and Energy, Mineral Development Division, Report 79-1.

Rivers, T., Massey, N. and Clarke, M., 1980. Wabush Lake, Newfoundland-Quebec, Government of Newfoundland and Labrador, Department of Mines and Energy, Mineral Development Division, Map 80-001, NTS: 23G/02,

Rivers, T and Wardle, R, 1978. Labrador Trough: 2.3 Billion Years of History, Government of Newfoundland and Labrador, Department of Mines and Energy, Mineral Development Division, excerpt [NFLD 0745].

Rogers, R R, 1963. Experimental smelting of iron ore concentrates from Canadian Javelin Ltd, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador, Geological Survey, Internal Collection, Non-Geological Survey Government Reports, 1963, 11 pages, [023G/0135].

Roxburgh, W H, 1960. Memorandum regarding the reserve estimates of the Julienne Lake Deposit, Labrador, Canadian Javelin Limited and Julian Iron Corporation, Newfoundland and Labrador Geological Survey, Assessment File 23G/02/0109, 1960, 20 pages.

Roxburgh, W H, 1961. Memorandum re: Electrokemisk electric smelting investigation bench tests, Canadian Javelin Limited Source: Newfoundland and Labrador Geological Survey, Assessment File 23G/0134, 1961, 9 pages.

Roxburgh, W H, 1962. Power requirements - Julian ore body, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File 23G/0142, 1962, 3 pages.

Shelpac Research and Development Limited, 1971. Preliminary feasibility study, iron concentrates slurry pipeline, Canadian Javelin Limited, Newfoundland and Labrador Geological Survey, Assessment File LAB/0410, 1971, 57 pages.

USGS Mineral Commodity Summaries, Iron Ore, Various historic and current documents, ,http://minerals.usgs.gov/minerals/pubs/commodity

Usher, J., 1954. Brown coal in the Labrador Trough. Geological Association of Canada Proceedings 6(2), p 99-101.

Wardle, R.J., Gower, C.F., Ryan, B., Nunn, G.A.G., James D.T., and Kerr, A., 1997, Geological map of Labrador: Geological Survey, Department of Mines and Energy, Government of Newfoundland and Labrador, Map 97-07, scale 1 : 1 000 000.

APPENDIX I

MAGNETOMETER SURVEY JULIENNE LAKE FE DEPOSIT, LARDER GEOPHYSICS LTD.

APPENDIX II

TECHNICAL REPORT FOR JULIENNE LAKE PROJECT, ROCHE LTD.

APPENDIX III

JULIENNE LAKE IRON DEPOSIT,
HISTORIC RESOURCES OVERVIEW ASSESSMENT,
ARCHAEOLOGICAL INVESTIGATION PERMIT #10.33,
GERALD PENNEY ASSOCIATES LIMITED

APPENDIX IV

GENERAL BASELINE INVESTIGATION FOR A POTENTIAL MINING PROPERTY IN THE JULIENNE LAKE AREA, LABRADOR, GOLDER ASSOCIATES

APPENDIX V

DIGITAL DATA DVD

REPORT
ON THE
2010 EXPLORATION PROGRAM
JULIENNE LAKE IRON DEPOSIT,
WESTERN LABRADOR,
NEWFOUNDLAND & LABRADOR,

VOLUME II OF IV

FOR

DEPARTMENT OF NATURAL RESOURCES
GOVERNMENT OF NEWFOUNDLAND & LABRADOR

VOLUME II
MAPS & CROSS SECTIONS

July 24, 2012 — Howard Coates, M.Sc., P.Geo.
Toronto, Ontario, Canada — MPH Reference: C-2334

WITH CONTRIBUTIONS FROM

P&E MINING CONSULTANTS INC. & ROCHE LTD

REPORT
ON THE
2010 EXPLORATION PROGRAM
JULIENNE LAKE IRON DEPOSIT,
WESTERN LABRADOR,
NEWFOUNDLAND & LABRADOR,

VOLUME III OF IV

FOR

DEPARTMENT OF NATURAL RESOURCES
GOVERNMENT OF NEWFOUNDLAND & LABRADOR

VOLUME III
DIAMOND DRILL LOGS

July 24,2012 Howard Coates, M.Sc., P.Geo.
Toronto, Ontario, Canada MPH Reference: C-2334

WITH CONTRIBUTIONS FROM

P&E MINING CONSULTANTS INC. & ROCHE LTD

REPORT
ON THE
2010 EXPLORATION PROGRAM
JULIENNE LAKE IRON DEPOSIT,
WESTERN LABRADOR,
NEWFOUNDLAND & LABRADOR,

VOLUME IV OF IV

FOR

DEPARTMENT OF NATURAL RESOURCES
GOVERNMENT OF NEWFOUNDLAND & LABRADOR

VOLUME IV
PART A MAGNETIC SUSCEPTIBILITIES, RQD DETERMINATIONS, BULK DENSITY DATA
PART B ANALYTICAL RESULTS AND CERTIFICATES

July 24, 2012 Howard Coates, M.Sc., P.Geo.
Toronto, Ontario, Canada MPH Reference: C-2334

WITH CONTRIBUTIONS FROM

P&E MINING CONSULTANTS INC. & ROCHE LTD