

**NI 43-101 Technical
Report on the
Woodstock Manganese
Occurrence Exploration Licenses
5816 and 5745
Near Jacksonville and Irish Settlement
Carlton County New Brunswick**

Effective Date: June 30th, 2020

NTS: 21 J04

Prepared For

Manganese X Energy Corp.

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Appendix I: License 5816 Claim Map

Appendix II: Moody Hill Sections

Glossary

centimeter.....	cm
meter.....	m
percent.....	%
Buchans Minerals Corporation	BMC
Canadian Manganese Company Inc.	CMC
Geological Survey of Canada	GSC
Global Positioning System	GPS
Globex Mining Enterprises Ltd.	Globex
Iron	Fe
Manganese Carbonate (rhodochrosite)	MgCO ₃
Manganese.....	Mn
Manganese X Energy Claim Unit 5816	the Property
Mercator Geological Services Limited.....	Mercator
Mineral Resource Research Limited.....	MRR
National Instrument NI 43-101	NI 43-101
North American Datum	NAD
North American Topographic System	NTS
Preliminary Economic Assessment.....	PEA
Qualified Person.....	QP
Quality Assurance	QA
Quality Control.....	QC
Stratmat Limited	Stratmat
Thibault and Associates	Thibault
Universal Transverse Mercator	UTM

Conversions

1 foot = 0.3048 meters

1 meter = 3.2808 feet

MnO = 77.446% Mn (mass percent)

MnCO₃ = 47.794% Mn (mass percent)

Fe₂O₃ = 69.9% Fe (mass percent)

1.0 SUMMARY

Perry MacKinnon, P.Geo, of Perry MacKinnon Consulting, Skir Dhu, Nova Scotia was commissioned by Manganese X Energy Corp. (MXE) to complete an updated National Instrument 43-101 Technical Report on its 100% owned manganese-iron (Mn-Fe) occurrence properties near Woodstock, New Brunswick.

On April 26th, 2016 Sunset Cove, now Manganese X Energy Corp. (MXE, see Press Release Dec. 1, 2016) entered into an agreement with Globex Mining Enterprises Inc. to option the claims of license 5816 near Woodstock, and license 5745 near Irish Settlement, New Brunswick, in order to acquire 100% ownership of those properties (see Figures 1 and 2). According to the agreement, Sunset Cove could exercise the option and earn 100% interest in the properties by making aggregate cash payments of \$200,000 to Globex, issuing an aggregate of 4 million common shares to Globex, incurring aggregate exploration expenditures of one million dollars on the Property and delivering a preliminary Economic Assessment (PEA) on or before the fourth anniversary of the Effective Date of April 26, 2016. The agreement also included a 3% Gross Metal Royalty to be paid to Globex on all metals produced from the Property. This transaction was completed on December 4th, 2018 with the PEA clause being dropped (see MXE Press Release December 4th, 2018). An advance Royalty payment of \$20,000 per year, payable to Globex by Manganese X Energy starting on the 6th anniversary of the agreement, remains in place. Globex has recently entered an agreement to sell 2% of its royalty to Electric Royalties Ltd., which is expected to close in Q3, 2020. Both Claim Units (5816 and 5745) are now in the name of MXE.

License 5816 property (henceforth referred to as the Property, or Battery Hill, as it is the main focus of this report) occurs entirely on privately owned surface lots, on predominantly open, hilly, agricultural lands with some wooded sections. It is an “Early Stage” exploration property according to NI 43-101 definitions, as it has no current mineral resources or mineral reserves.

Permission to access the lands, for the four exploration programs the author has been involved with since 2009, has not been an issue. Surface rights owner’s permission is a requirement before exploration programs are to be implemented. Access is quite good on various dirt roads via the paved Iron Ore Hill Road, located in the south-central area of the claim block. The northern portion of the claims can be accessed along Route 560.

1.1 Geology

The regional geology is dominated by the Smyrna Hills Formation of the Perham Group, which consists of shales, silty shales and associated ferro-manganiferous siltstone, calcareous shale and sandstone, limestone and conglomerate. Underlying this unit is the Late Ordovician to Early Silurian White Head Formation in the Jacksonville to Plymouth area (Figure 1.3), just west of Woodstock. The mineralization occurs as banded iron formation (Way, 2012) consisting of an interlayered sequence of manganese oxide and manganese-carbonate-silicate oxide shales and silty shales. They alternate as red to maroon and green in color. From 2011 Globex drilling, sampling from wide intervals of this mineralization returns assays greater than 11% MnO and 16% Fe₂O₃. Manganese is understood to be contained in a variety of silicate and carbonate minerals.

The mineralized horizons occurs in tightly folded, northeast striking, steeply northwest dipping and plunging lenses that are occasionally overturned. Evidence of the structure is visible at the historic workings at Iron Ore Hill, where some of the rare outcrops occur.

The Mn-Fe mineralization of the area was originally thought to have been deposited in a shallow marine,

precipitating environment, possibly proximal to some volcanism however Sidwell (1957), and more recent work from investigations resulting from a Master's thesis titled "Geology and Geochemistry of Sedimentary Ferromanganese Ore Deposits, Woodstock, New Brunswick, Canada", by Bryan Way, 2007, purports the mineral bearing strata were "initially derived from hydrogenous-detrital sources without any indication of a hydrothermal input as a source of Fe-Mn". Way makes the conclusion that "Na/Mg ratios, chondrite normalized REE patterns, and mineralogical evidence of rapid changes in ocean redox conditions suggest the Mn-Fe mineralized lithofacies were formed in the offshore zone of a continental shelf on a stable cratonic margin".

Initial exploration in the License 5816 area beginning in the 1950's when the area was covered by a gravity survey conducted by Stratmat Limited (Stratmat). Most survey lines were at 1000 foot (305 meter) separation with stations at 200 foot (61 meter) intervals (Sidwell, 1957). Stations and lines were increased in more anomalous areas but it appears that there was no surveying north of the Iron Ore Hill occurrence, which includes more than 50% of the MXE claims. An early version of a magnetometer survey referred to as a "dip meter" survey was tried for approximately 18 kilometers at that time but results were found to be flat and further efforts using this method were abandoned.

Gravity proved to be an effective method of detecting the mineralized zones as follow-up drilling found significant Fe-Mn intercepts in all cases. Total tonnage calculated by Sidwell for Moody Hill, Sharpe Farm and Iron Ore Hill, all located on present MXE claims, was 43,000,000 tons (39,009,000 tonnes) with an average Mn content of 9%. This calculation was based on just a few diamond drill holes per showing. For additional detail see Section 6.2.

Please note that the above information has been taken from historic sources that were not prepared or reviewed by a Qualified Person for Manganese X Energy under NI 43-101 and are considered historic and should not be relied upon. They were obtained from Sidwell, 1957, who used a sparsely spaced gravity survey and limited drilling to obtain these results. No qualified person has done sufficient work to classify the historical estimate(s) as current mineral resources or reserves and Manganese X Energy is not treating the historical estimate as current resources or reserves.

The main focus of Sidwell's work was approximately four kilometers southeast of MXE claims on the Plymouth occurrence, the largest of the known mineralized areas, and presently owned by Canadian Manganese Company Inc., a wholly owned subsidiary of Buchans Mining Limited, which is in turn a wholly owned subsidiary Minco PLC of Ireland. Canadian Manganese Company has published on SEDAR a Preliminary Economic Assessment on the property that quotes an Inferred Resource, utilizing a 3.5% Mn cut-off, of 44,770,000 tonnes grading 9.35% Mn and 14.15% Fe, with an effective date of July 10, 2014. See more detail in Section 23, Adjacent Properties.

The author has been unable to verify this information and this information may not necessarily be indicative of the mineralization on the Property that is the subject of this report.

1.2 2010 Exploration

Shortly after staking both properties for Globex in 2010, the author, as a consultant for that company, collected seven samples from the old workings at the Iron Ore Hill site and 59 chip samples were taken from outcrop in a ditch running along the road which cuts across the south side of the occurrence. The rock types ranged from a massive, dense, black, semi-metallic rock to a brick red, highly fractured, lighter, slaty material. Manganese values in the chip samples ranged from 0.72% to 25.97% MnO and iron ranged from 7.74% to 33.37% Fe₂O₃.

1.3 2011 Exploration

A single diamond drill hole was put down on License 5745 in 2011. The target was a large airborne magnetic anomaly but no significant widths of manganese were intersected. This was the only work completed on this license since staking, and no further comment will be made regarding those claims. Also in 2011, two diamond drill holes were collared in the area of Iron Ore Hill to test beneath the historic workings. Considerable widths of iron and manganese bearing material were encountered which prompted a magnetometer survey of the claims later in 2011, the results of which prompted the additional staking of 27 claims for a total of 55 claims (Figure 1.4). The magnetometer survey was completed by Eastern Geophysics of West Pubnico, NS, at 100 meter line separation and 12.5 meter reading intervals, covering approximately 64 line kilometers of grid.

The results of the magnetometer surveys on License 5816 determined there is a large, magnetically anomalous region centered roughly around the Iron Ore Hill area, and a region of slightly more scattered magnetic anomalies trending to the south-southwest from Iron Ore Hill toward the North Hartford area as well as smaller, weaker and more scattered anomalies trending to the north-northeast of Iron Ore Hill to the Jacksontown area (see Figure 9.1).

1.4 2016 Exploration

During 2016, Manganese X Energy performed 4 kms of gravity and an additional 124 kms of ground magnetic surveys over the property, as well as diamond drilling. The drill program, planned and implemented by the author, consisted of 16 holes totaling 3589 meters and was designed as an initial evaluation of the three historic manganese occurrences on the property (Iron Ore Hill, Sharpe Farm and Moody Hill occurrences). Five holes totaling 1051 meters were completed in the Iron Ore Hill sector of the property and eleven holes for 2538 meters in the Sharpe Farm – Moody Hill sector. Drilling was completed over a 1.8 kilometer strike length of the prospective manganese occurrence trend. Most holes intercepted significant grades and widths of manganese mineralization such as 10.75% Mn over 52.6 meters (core length) in SF-16-05 and 12.96% Mn over 32.85 meters (core length) in SF-16-08. Tables 10.3 and 10.5 summarize significant assay results from the 2016 drill program.

1.5 2017 Diamond Drilling

In 2017, work performed on the Woodstock Property (claim group 5816) included a drill program consisting of 9 holes totaling 1599 meters on the Sharpe Farm and Moody Hill areas of the Battery Hill deposit. In addition to the drilling, preliminary mineralogical and metallurgical studies were undertaken and preliminary geological modeling work was done. All three drill programs undertaken since 2010 were implemented, and/or supervised by the author on a consultant basis. The 2017 drilling campaign was planned and implemented by the author and VP Exploration for MXE, Roger Dahn. The collection of the material used in the mineralogical/ metallurgical studies was by the author and Mr. Dahn, assisted by consulting metallurgist Mr. Peter Godbehere.

The drilling program was shared under contract by Maritime Diamond Drilling Ltd of Hilden, Nova Scotia, and Lantech Drilling Services Inc. of Dieppe, NB. Core size was NQ. A summary of the 2017 drill program is shown in Table 10.6. Drill assay highlights are shown in Table 10.7. All drill holes were down hole surveyed for dip and azimuth orientation at ~30m intervals with a Fordia Reflex survey instrument.

The drill program was designed to further delineate, expand and to improve the structural understanding of the significant manganese mineralization identified by the 2016 drill program in the Sharpe Farm and

Moody Hill sectors of the Battery Hill deposit. The main focus was Moody Hill where 7 of the 9 diamond drill holes were completed. Previous exploration work and the 2016 drill program indicate significant folding of the stratigraphy. In order to answer key structural questions and to improve the overall structural understanding of the deposit, three holes (SF-17-17, SF-17-19 and SF-17-20) were completed to “scissor” cut specific 2016 intersections. In the Sharpe Farm sector, SF-17-19 and SF-17-20 were drilled in a westerly direction to “scissor” SF-16-2 and SF-16-1, respectively. Hole SF-17-17 at Moody Hill was also drilled to the west to “scissor” SF-16-8 (from R. Dahn, 2018). More detailed information on the 2017 drill program are contained in Section 10.30.

1.6 2017-2020: Preliminary Mineralogical and Metallurgical Studies (modified from R. Dahn, 2016)

During 2017, Manganese X Energy initiated a number of preliminary mineralogical and metallurgical related studies. They were completed on composite samples of Red and Grey mineralization and Mixed material in some cases. Studied material for the Red Sample was selected from assay rejects chosen by the author and R. Dahn based on assay results and colour. The Grey Sample was comprised of assay rejects and half core from the 2016 diamond drilling. The material was also divided by location, some from the Iron Ore Hill material, and some from the Sharpe Farm and Moody Hill area, to determine if there were significant differences between these areas.

The mineralogical studies indicated that the manganese mineralization is fine grained and occurs in the form of silicates and carbonates that display wide and varied compositions. Some preliminary metallurgical related studies were completed. Diagnostic leach testing showed Mn extractions up to 96% indicating the manganese occurs in readily extractable minerals. Mn extraction was very fast (less than 2 hrs) and Fe extraction was low in the “Red” mineralization. This is a favourable result as it would be easier to extract Mn while minimizing the Fe and Mg dissolution when treating the Red ore. Of the three mineralization types, the Red ore gave the most promising results followed by Mixed and lastly Grey ore. See Section 13 for additional details.

In 2019, MXE enlisted Kemetco Research Inc. to follow up on their preliminary purification testing on the Battery Hill mineralization which resulted in achieving the target of 99.95% purity for manganese sulphate, a minimum requirement to enter the electric vehicle and storage battery markets. The recommendation from Kemetco as to the next step in process development would be to focus on flowsheet development to combine the steps identified thus far into a complete process that is efficient, effective and cost effective. See Section 13 for additional details.

1.7 2017 Ore Sorting Testing

Ore upgrading studies, using Ore Sorting technology by Steinert US, were encouraging with product grades of 14.72% Mn being achieved, though with recovery rates somewhat lower than anticipated. Further ore sorting test work has been recommended by Steinert US. See Section 13.3.1 for more details.

1.8 2017 Tribo-Electrostatic Separation Testing

Tribo-electrostatic separation potential was evaluated through an initial test study on a small 3kg sample of Grey Mineralization. The electrostatic separation test was performed by ST Equipment & Technology LLC located in Needham, Massachusetts. Unfortunately the preliminary test did not lead to a significant separation or upgrading of the manganese under normal test conditions; possibly due to the intimate association of manganese in a variety of carbonate and silicate species together with numerous significant gangue silicate minerals. Further test work was not recommended, and a report was not completed.

1.9 Exploration Target

In 2017 MXE contracted Mercator Geological Services (Mercator) of Dartmouth, Nova Scotia to develop a target for further exploration expressed in potential quantities and grades (an "Exploration Target" for the Battery Hill manganese deposit. This included Iron Ore Hill, Sharpe Farm and Moody Hill areas and included an examination of historic drilling data combined with the results of MXE's confirmation drilling programs consisting of 25 holes totaling 5,188 meters completed between November 2016 and June of 2017. This work resulted in definition of an Exploration Target of 14 to 31 million tonnes grading between 8% and 10% Mn and 12% and 14% Fe for the Battery Hill Deposit.

The potential quantity and grade of this Exploration Target is conceptual in nature, there has been insufficient exploration to define it as a Mineral Resource and it is uncertain if further exploration will result in this Exploration Target being delineated as a Mineral Resource. The potential quantity and grade ranges for this Exploration Target were derived from a preliminary geological model developed for the project by Mercator using inverse distance squared (ID2) grade interpolation supported by 3 meter downhole assay composites, with interpolations constrained within wire-framed solid models developed by Mercator (Figure 9.2). Minimum metal thresholds of 5% and 8% Mn were applied. Additional infill core drilling and interpretation of results is required to increase confidence in the geological model and thereby support definition of, at minimum, an Inferred Mineral Resource. No Qualified Person from Manganese X Energy has verified this information.

1.10 2018 Ore Upgrading: NRC Testing

This organization studied the potential for ore upgrading and purification techniques using beneficiation on supplied materials to:

1. identify potential upgrading to 15% (1.5 X raw material) with 85% plus recovery
2. test for the feasibility of removing alkali metals using fluoride precipitation
3. generate high purity manganese sulphate final product meeting specifications for cathode material in lithium-ion batteries.

An 80 Kg sample was sent to the NRC lab, which was separated into six 10 kg and one 6 kg samples that were tested by the NRC, and two 2 kg samples were sent to SGS Lakeside Laboratory for testing. Samples contained 12% Mn and 16.2% Fe plus minor constituents. Test results showed:

- gravity separation using a shaker table showed limited separation
- magnetic separation demonstrated some selectivity, grading 15% Mn while recovering 77.9% of the Mn, an upgrading factor of 1.26.
- 2 flotation reagent schemes were tried, the best result being a grade of 17.3% Mn, but only recovering 64.1% of the Mn.

Additional work was recommended.

All of the above testing procedures are discussed further in Sections 9 and 13.

1.11 Proposed Exploration Program Budget Estimate (contingency and HST not included)

Substantial evidence exists that significant amounts of manganese mineralization occurs on the Battery Hill claims owned by Manganese X Energy. The author is recommending a 2 phase exploration program to further the property toward the possibility of economic viability as follows:

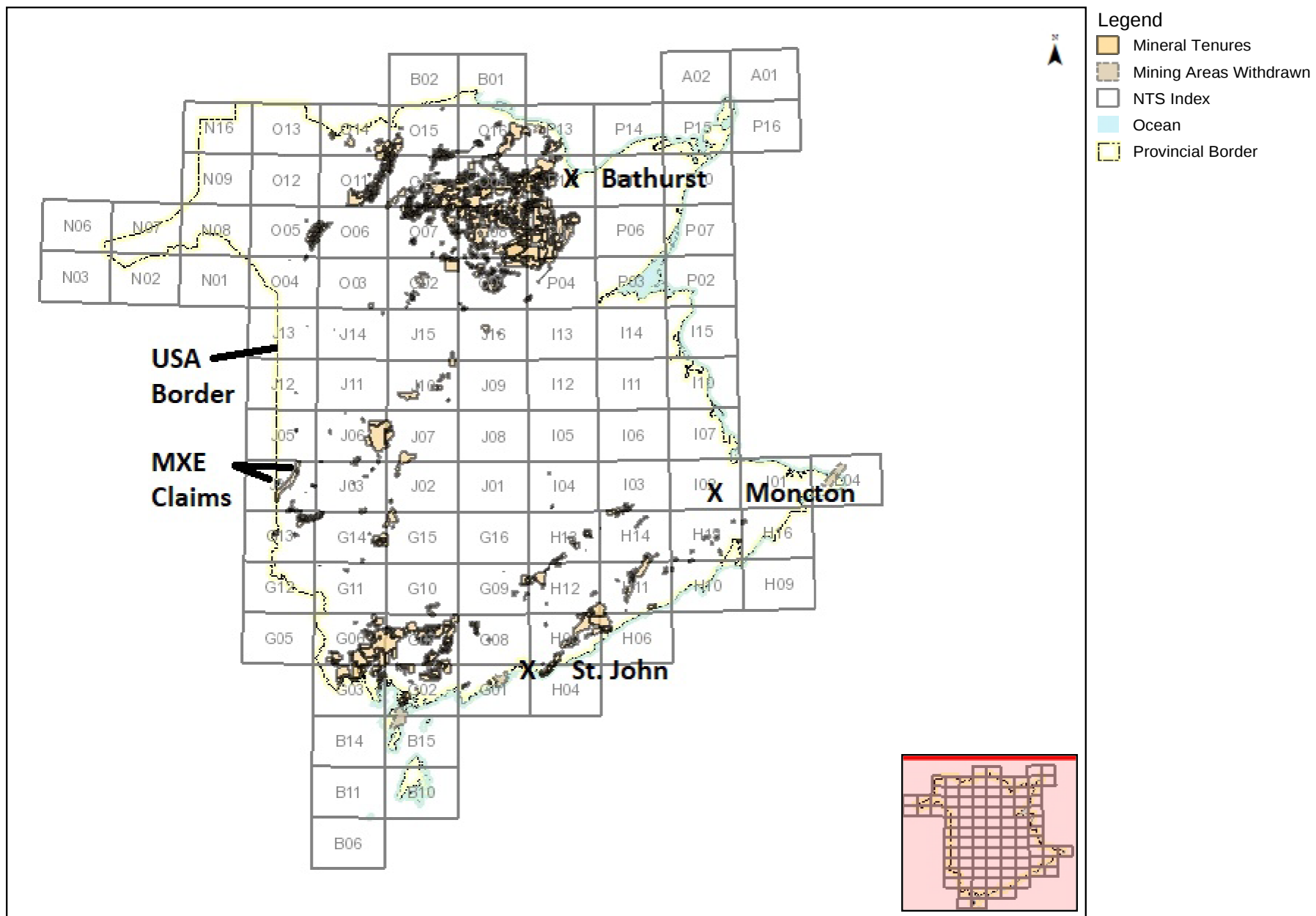
Phase I (\$705,000)

- 3500 meters of NQ diamond drilling designed to attempt to bring the Moody Hill mineralization to Inferred Resource status.
- continued metallurgical testing aimed at obtaining suitable sample volumes of high purity manganese sulphate and investigating multiple purification steps and developing an overall flow sheet to obtain a high grade product from the Battery Hill mineralization.
- continued Ore Sorting testing
- begin an Environmental Baseline Study

Phase II (\$35,000)

- Contingent on successful results from the Phase I program, a NI-43-101 compliant mineral resource estimate and technical report is recommended.

Manganese X Energy Property New Brunswick Claims: FIGURE 1.1

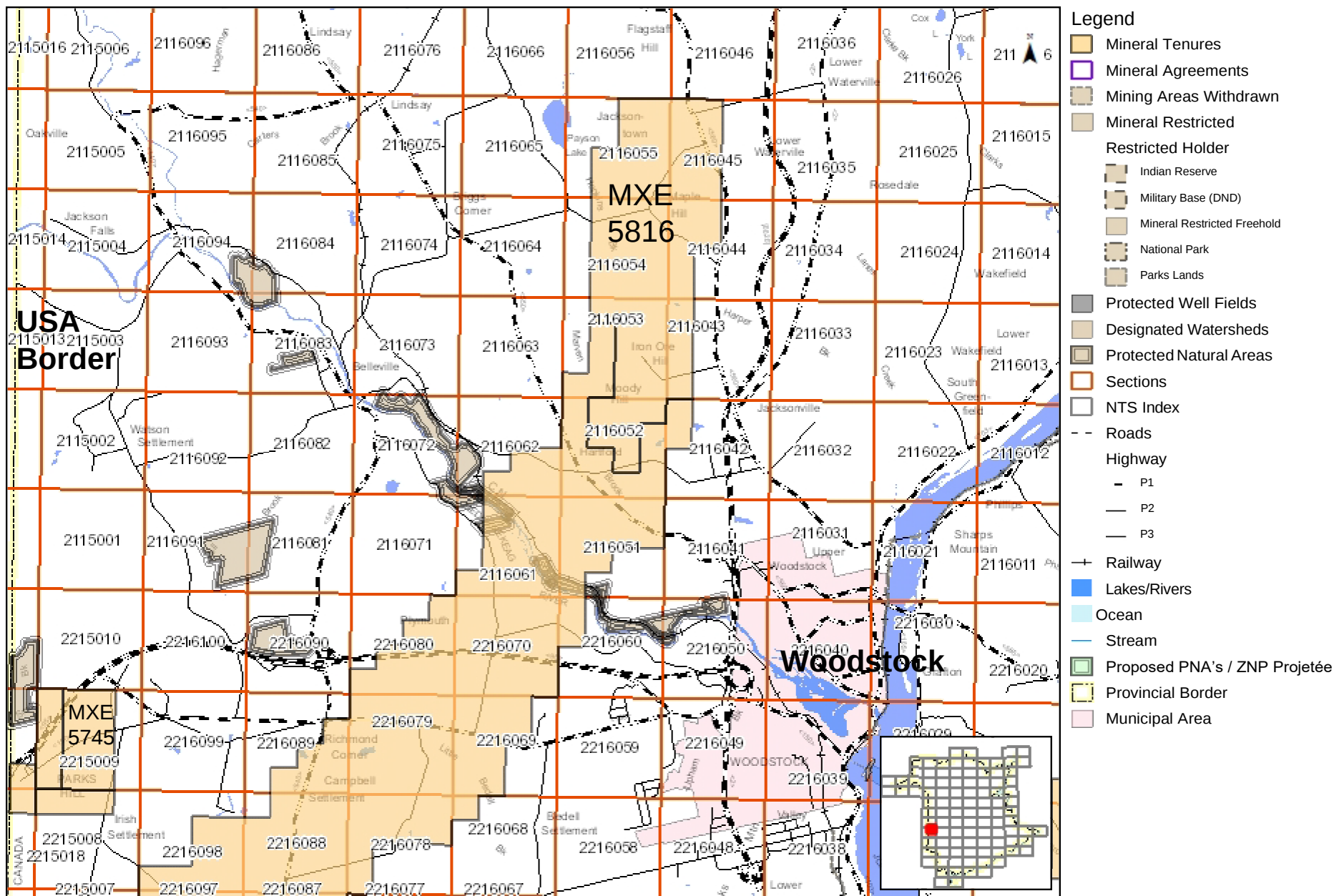


This map is created from the NB e-Claims for illustrative purposes only. New Brunswick Department of Energy and Mines cannot warrant or guarantee that the information is accurate, complete or current at all times; it accepts no liability or responsibility for any errors, inaccuracies and/or omissions.

0 37.74 150.95 301.90
Kilometers
Projection: NAD_1983_CSRS_New_Brunswick_Stereographic

MXE Claims

Figure 1.2



This map is created from the NB e-Claims for illustrative purposes only. New Brunswick Department of Energy and Mines cannot warrant or guarantee that the information is accurate, complete or current at all times; it accepts no liability or responsibility for any errors, inaccuracies and/or omissions.

0 1.25 5.00 10.00
Kilometers

Projection: NAD_1983_CSRS_New_Brunswick_Stereographic

Note:

P. MacKinnon June 2, 2020

2.0 INTRODUCTION

2.1 Terms of Reference

Manganese X Exploration has engaged Perry MacKinnon, P. Geo, of Perry MacKinnon Consulting, of Skir Dhu, NS, Canada, to complete an updated Technical Report, for MXE's Woodstock, New Brunswick area manganese properties incorporating historic and more recent data. MXE is a publicly traded Junior Exploration corporation (TSX-V:MN; FSE:9SC2; TradeGate:9SC2; OTC Pink:SNCGF) listed mineral exploration company with a head office located at 145 Rue Graveline, Saint-Laurent, QC H4T 1R3.

2.2 Purpose of the Report

The purpose of this report is to provide to MXE an updated, comprehensive, and independent assessment of the mineral potential at the Woodstock properties. The report will detail historic work as well as more recent work that was completed, or supervised by, the author, as well as other consultants and consulting companies, for Manganese X Energy.

2.3 Sources of Information

Sources for historic information used in this report can be found in Section 21, References. The main source is a six page report by K.O.J. Sidwell in 1957, when he was a regional manager for Stratmat Limited. Additionally, an article on the regional manganese mineralization by New Brunswick Department of Natural Resources official R.R. Potter, and an article printed in the Northern Miner in 1957 were utilized. Geological and mineralogical information was also obtained from published reports by Bryan Way, Canadian Manganese Company and others. Some of the maps included in this document were provided by Globex staff member Denis Jolin with assistance from the author. Several maps were provided by MXE.

The author has been involved in all aspects of the 2010-11, 2016 and 2017 exploration programs on MXE's Woodstock (Battery Hill) Property and has filed reports for assessment purposes for the 2010 and 2016 work. In addition the author completed a NI 43-101 Technical Report on the properties with an Effective Date of November 1st, 2016 that is available on SEDAR. That report did not include the 2016 exploration program which was just beginning at that time. The subsequent report on those ground based gravity, magnetometer survey and diamond drilling was written by the author and filed for assessment on June 30, 2017. Also in 2017, Roger Dahn, VP Exploration with MXE, filed a report for assessment purposes that included the 2017 drilling, mineralogical and metallurgical studies, as well as Preliminary Geological Modeling. The author was involved in magnetometer survey interpretation, spotting and logging of the subsequent 2017 drilling, but the report for assessment purposes was written and filed by R. Dahn. The results of that report are used widely in the present report.

The mineralogical investigations were undertaken by SGS Canada Inc. and detailed in a report titled "The Mineralogical Characteristics of two Manganese Composite Samples from the Battery Hill Property– Report 16134-002 Final Report" dated May 10, 2017. The metallurgical investigations were Diagnostic Leach Studies by Kemetco Research Inc., June 22, 2017, and Sulfuric Acid Leach of Battery Hill Ore, by Parisa Ebrahimi, Kingston Process Metallurgy Inc., June 22, 2017, as well as a Memo to MXE from Kemetco on February 24th, 2020 regarding the results of further purification testing.

MXE also enlisted Steinert US to explore various ore sorting techniques. A report titled "XRT Test Work Report- Manganese X Energy Corp- Waste Rock Sorting Test Work" document TRE-9044-XRT-507 dated November 2, 2017 was utilized in this report.

2.4 Extent of Field Involvement of the Qualified Person

The author, Mr. Perry MacKinnon, a professional geoscientist (P.Ge.) is an independent consultant and Qualified Person as defined by Section 1.1 of NI 43-101 guidelines. I have been a Member in Good Standing with the Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB, member # L4749) since 2011 and in Nova Scotia (APGNS member # 143) since 2009. I have visited the Manganese X Energy Property near Woodstock, NB (License 5816) on a number of occasions as listed below.

- March 22-25, 2010: Reconnaissance and collection of 6 samples for assay
- July 23-26, 2010: Collection of 59 samples for assay
- July 7-8, 2011: Spotting drill holes
- July 18-20, 2011: Checking drill program
- August 16-18, 2012: Limited sampling survey
- October 27-Dec 22, 2016: Planning and implementing a drill program
- May 12, 2017-June 15, 2017: Planning and implementing a drill program.

2.5 Units of Measure

All units of measure in this technical report are metric except where otherwise stated.

2.6 Site Grid and Coordinate System Parameters

Locating of diamond drill holes and magnetometer survey planning and implementation were done using the UTM NAD 83 grid system. Control for the 2016 magnetometer survey utilized a virtual grid using coordinates established by GPS. Collars were subsequently surveyed in by MacFarlane Surveys of Woodstock. Elevations are in meters above mean average sea level.

3.0 RELIANCE ON OTHER EXPERTS

This report is an update of a NI 43-101 Technical Report filed by the author for Manganese X Energy Corp. with Effective Date of November 1st, 2016, and some data, maps and other content have been extracted from that report, including information from a six page historical report by Sidwell, 1957. The author has relied on new information provided by the following consultants, or consulting companies, engaged by MXE, that is included in the present report. The author has no reason to doubt the accuracy of these sources. They are as follows:

1. Roger Dahn, "Assessment Report on Woodstock Property (Jacksonville Claim Group 5816- totaling 55 units)", July 26, 2018.

As indicated in the above report, the author assisted in the selection of the material used in the following testing processes:

2. Kingston Process Metallurgy Inc., of Kingston ON, report on: "Sulphuric Leach of Battery Hill Ore" by Parisa Ebrahimi and Jessica Pickett, June 22nd, 2017.
3. Kemetco Research Inc. (Kemetco) of Richmond, B.C.: "Manganese Diagnostic Leach Project – Project ID: K1005", by Kemetco Research Inc., June 22, 2017
4. Kemetco Research Inc. Memo to MXE dated February 24, 2020 describing the latest testing results, and the resulting News Release from MXE dated February 27, 2020 reporting those results.
5. Steinert US Sensor Sorting Solutions, Walton, Kentucky: "XRT Test Work Report- Manganese X Energy Corp- Waste Rock Sorting Test Work", document TRE-9044-XRT-507, November 2, 2017
6. ST Equipment & Technology LLC, located in Needham, Massachusetts: "Preliminary Testing of the Battery Hill Ore", July 2017.
7. Mercator Geological Services (Mercator) of Dartmouth, N.S; Memo to MXE regarding Geological Modeling and Recommendations for Future Exploration.
8. National Research Council of Canada: "Potential to Ore Upgrading and Purification Techniques Study to Produce Battery Grade Material, Manganese-X-Battery Hill Deposit", Ben Yu, February 28, 2019.

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Area of Property

The 100% owned claims of Manganese X Energy, License 5816 are located at Jacksonville, New Brunswick, comprising 55 claims, totaling 1,228 hectares (Figure 1.1, 1.2). The license is approximately 6 kilometers long, in a north-south arrangement, and averaging approximately 1.7 kilometers wide east-west. The 100% owned License 5745 area is 179 hectares on 8 claims, and is located near Irish Settlement, located approximately 10 kilometers southwest of License 5816, 1.5 kilometers from the Maine border.

4.2 Location of the Property

The southern-most portion of License 5816 claims is located approximately 6 kilometers west-northwest of the center of the Town of Woodstock, in southwestern New Brunswick. The approximate center of the claims is at 46°12'01"N, 67°37'58"W and can be found on NTS Map Sheet NTS: 21J 04. In the UTM grid system, the area is in Zone 19. This property is referred to as Battery Hill.

The claims of License 5745 are located near Richmond Corner-Irish Settlement approximately 1.5 kilometers east of the Maine border, just west of Houlton, and 12 kilometers west of the Town of Woodstock. They are also on NTS Map Sheet 21J 04.

The USA-Canada border is approximately 12 kilometers west of license 5816. Route 95, a twinned highway running from Woodstock to connect to the US interstate I-95 highway, is located approximately 3 kilometers south of the claims. I-95 passes through the northeastern corner of License 5745.

4.3 Type of Mineral Tenure

The MXE properties, subject of this report, consists of 55 claims contained in New Brunswick exploration license 5816, and 8 claims contained in license 5745.

4.4 Mineral Rights

In New Brunswick, the Province makes Crown-owned minerals available for exploration and development. Prospectors (persons or companies who hold prospecting licenses), holders of claims and holders of mining leases have the right to prospect, explore, mine and produce those minerals, whether they are on Crown- owned or privately-owned lands. They also have the right of access to the minerals; however, they are liable for any damage they cause (Ref.: NB government website).

As soon as possible after staking, claim holders are obligated to notify landowners and any exploration activity of a disturbance nature must be preceded by a notification and surface access permission obtained.

4.5 Surface Rights

Figure 4.1 shows the surface rights landowner lots in the area of MXE claims of License 5816, the main focus of this report. Surface rights ownership exists as predominantly large agricultural lots used mainly for crops and Christmas tree farming. The historic Iron Ore Hill workings occur beneath two homes and several others are located 200 or more meters away to the east. On the far southern end of the claims, near Hartford, it appears several homes may be within the bounds of the claims. Obtaining landholders permission has not been an issue to date in the exploration programs implemented on the Property since 2010.

Surface rights in the area of License 5745 are large parcels owned by several farming families (Figure 4.1). The area is mixed agricultural and woodlands. The Moody Hill- Sharpe farm area mineralization is almost entirely on one lot.

4.6 Property Tenure

Staking in the Province of New Brunswick is done online using an internet based electronic claim acquisition and maintenance system. Prospectors, partnerships and companies can register on the system for a one-time fee of \$100, \$200 or \$500 respectively. The fee for registering a claim is \$10 but if more than 30 claims are registered per year, there is an additional \$50 per claim registration fee, which is refundable if the work requirements are met in that year. Regular annual renewal fees are \$10 per claim. Exploration work is required to maintain title to mineral claims in New Brunswick. Work requirements per claim per year are as follows:

Year 1: \$100

Year 2: \$150

Year 3: \$200

Year 4: \$250

Years 5-10: \$300

Years 11-15: \$500

Years 16-25: \$600

Years 26 and beyond: \$800

It is possible to receive a deferral for the work (referred to as 56(10)), for the second year only, for a fee of \$20 per claim.

Leases are \$50 to register with a \$6 per hectare per year fee and an annual work requirement of \$60 per year per hectare. MXE claim boundaries may be viewed on the NB eClaims system. It is not necessary to be registered to view the system.

The Province is divided into numbered grid blocks (1.5 minutes of longitude X 1.0 minutes of latitude) which each contain 100 Sections. Each Section is further divided into 16 Units which are designated “A” through “P”. Claims are identified by this system, for example Grid 2215, Section 74, Unit(s) A,B,C etc. and chosen in this manner on the interactive map when staking claims or managing existing claims. Claims sides are approximately 400m in length. Areas not open to staking are indicated on the claims map by differing colored areas and described in the legend.

Initially 28 claims were staked on the Battery Hill Property on July 21, 2010 with additional staking and re-grouping done February 15, 2013. All staking was done in the name of Perry MacKinnon for Globex Mining Enterprises Inc. and transferred to the latter on September 14, 2015. No remuneration was involved in this transaction (aside from government staking and transfer fees) from, or to, either party.

The claims of License 5816 were transferred to MXE from Globex in 2018, and 5745 in 2020.

In New Brunswick an exploration “license” is referred to as a “right number”. The claim name that is the subject of this report is Jacksonville and the right number is 5816, comprised of 55 claims as identified in Table 4.1.

Table 4.1 List of License 5816 Claims

2116055A	2116054A	2116053A	2116052G	2116045C	2116044D	2116043D
2116055B	2116054B	2116053B	2116052J	2116045D	2116044E	2116043E
2116055C	2116054C	2116053G	2116052K	2116045E	2116044K	2116043L
2116055F	2116054F	2116053H	2116052N	2116045F	2116044L	2116043M
2116055G	2116054G	2116053I	2116052O	2116045K	2116044M	
2116055H	2116054H	2116053J	2116052P	2116045L	2116044N	
2116055I	2116054I	2116053N		2116045M		
2116055J	2116054J	2116053O		2116045N		
2116055O	2116054K	2116053P				
2116055P	2116054N					
	2116054O					
	2116054P					

The anniversary date of License 5816 is July 21, 2021. The requirement in terms of work credits, for a full renewal in July 2021, is \$16,500. The claims have not been legally surveyed. For a claim map for License 5816 see Appendix I.

License 5745 consists of 8 claims, 2215009B, 2215009C, 2215009F, 2215009G, 2215009J, 2215009K, 2215009N, 2215009O, all located on private farmland and forested lands. There are several homes along the eastern periphery of the claims. The anniversary date of these claims is March 25, 2022.

All affected surface rights holders were contacted by letter prior to the implementation of the exploration programs between 2011 and 2017 and there were no issues.

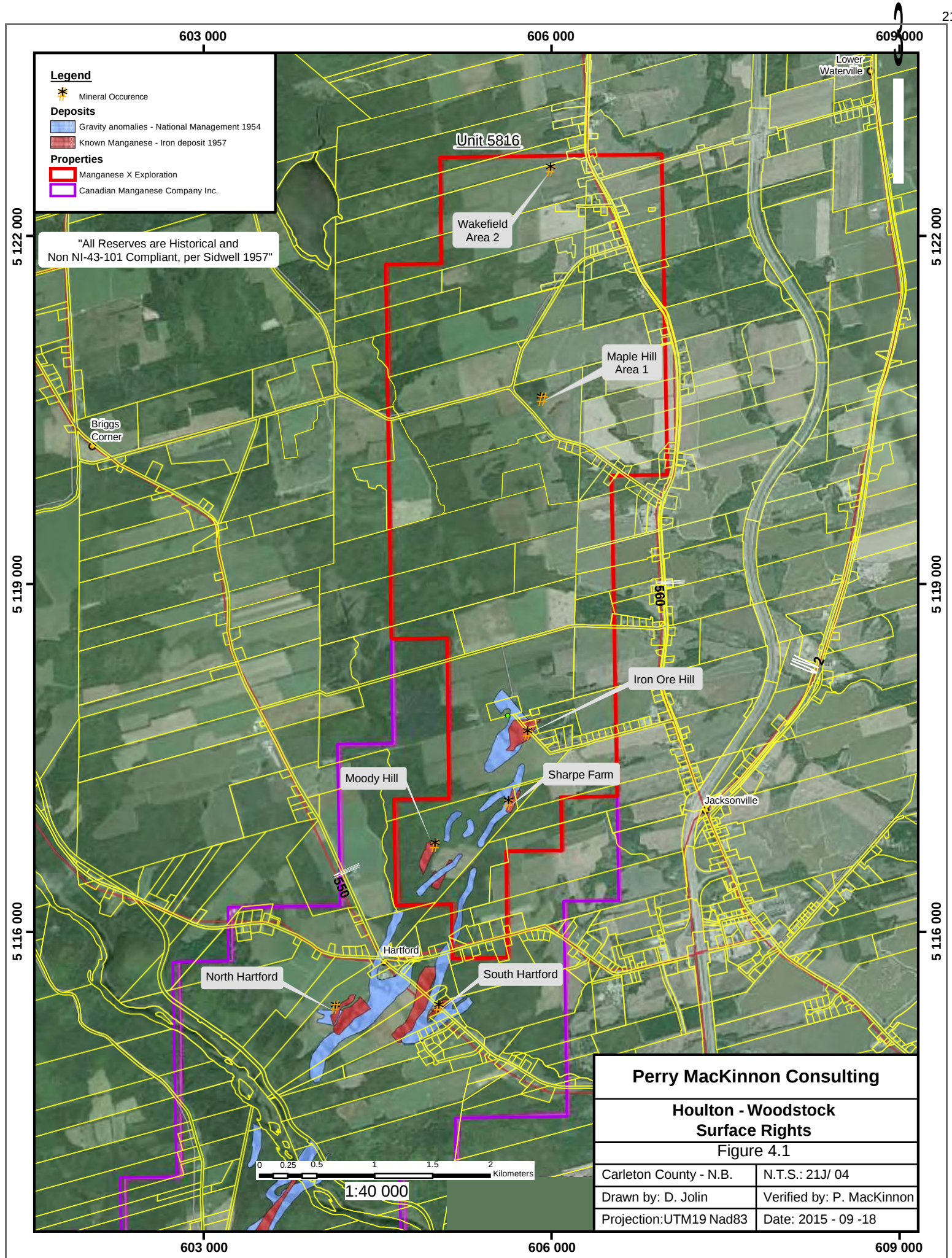
4.7 Infrastructure

No mining infrastructure occurs on the property. The property is serviced by one paved road and a number of good quality gravel roads. Power lines are near the periphery of the claims. The nearest rail line is at Houlton, Maine, approximately 18 kilometers by road.

The town of Woodstock has a population of approximately 5,200 that has more services than usual for its size, due to proximity to the Trans-Canada Highway and it is a central service area for large farming and forestry industries.

4.8 Agreements and Encumbrances

Manganese X Energy has exercised its option with Globex and has earned 100% interest in the properties by making aggregate cash payments of \$200,000 to Globex (prior to the first anniversary of the effective date of the agreement), issuing an aggregate of \$4,000,000 common shares to Globex and incurring aggregate exploration expenditures of \$1,000,000 on the property (on or prior to the fourth anniversary of the effective date of the agreement). A required Preliminary Economic Assessment (PEA), that was part of the initial Option Agreement, was waived by Globex (see MXE Press release December 4th, 2018). The agreement is subject to a continuing Gross Metal Royalty of 3% on all metals produced payable to Globex. Globex has announced that 2% of that Royalty is in the process of being sold to Electric Royalties Ltd (see Globex Mining Enterprises Inc. Press Release of April 17th, 2020), which is expected to be finalized in Q3, 2020. Additionally, if the Property is not in commercial production by the 6th anniversary of the effective date of the agreement, MXE will pay Globex an advance royalty payment of \$20,000 annually. The agreement includes the claims of licenses 5816 and 5745.



4.9 Environmental Liabilities

The author has not actively investigated environmental or social issues that could potentially affect development of the Woodstock manganese mineralization located on MXE's Woodstock area claims, however having worked on the property several times now there appear to be no such liabilities. There are no Protected Areas, parks or recreation properties on or near the claims. Private landowners would have to be contacted prior to any work causing physical disturbance to the land and appropriate government exploration permits are required for trenching or drilling.

The Moody Hill, Maple Hill and Iron Ore Hill historic workings contain open trenches, pits and possibly one inclined shaft at the latter. It is the authors' opinion any liabilities for these workings currently lies with the landowner. If the respective properties were to be acquired, a few days work with an excavator would be sufficient to fill and level any workings.

Two small streams have their origins on the Property approximately 1 kilometer northeast of Iron Ore Hill, and run in opposite directions, one east and one west. Otherwise the claims appear to be devoid of water courses or wetlands.

4.10 Permits

All permits required for the past exploration programs on the Battery Hill occurrences were obtained, including access permissions from private landowners. Since the 2011 drill program, New Brunswick has changed the procedure for obtaining permission from the New Brunswick Department of Mines and Energy to do work of a disturbance nature on private or crown properties. Prior to granting permission, a Form 18 (for private land) is now to be completed and copies are received by Provincial Archaeological Services as well as Aboriginal Services. If there are no unexpected issues, this process is generally completed within 3-4 weeks (in the author's experience) for drilling or trenching. Landowner permission is an essential part of the application.

5.0 ACCESSIBILITY, CLIMATE and PHYSIOGRAPHY

5.1 Topography, Elevation and Vegetation

The area features gently rolling hills and is primarily agricultural land (approximately 60%) with forested sections (40%). In general, private residences may be directly affected in a small portion of the property if development of the occurrence were to occur, depending on the exact location of any such development.

The elevation ranges from a low of 120 meters in the south of the property, to a high of 180 meters just north of Iron Ore Hill, then remains between 150 and 180 meters to the north end of the license. Drill hole collars were surveyed to get precise coordinates and elevations in 2017.

The majority of the forested areas consist predominantly of mature hardwoods mixed with patchy spruce and fir trees. There is little underbrush in most forested areas. A Christmas tree farm is located in the area west of Iron Ore Hill. The remaining agricultural lands were planted with corn or hay during the author's visits. During past exploration programs an agreement was reached whereby MXE rented required lands, or worked outside of the growing season, so as not to affect farming efforts.

5.2 Property Access

The region can be reached via the Trans Canada road system (approximately 1 kilometer east of the claims) or Route 95, approximately 3 kilometers south, which joins the I-95 Interstate highway at the USA border some 12 kilometers west. Access to the claims is best accomplished via Route 560 from which the claims are transected in an east-west direction by Lockhart Mill Road, Iron Ore Hill Road, Burt Road, Hopkins Road and Kirk Road, all just west of the village of Jacksonville.

For license 5745, access is from I-95, approximately 10 kilometers west of Woodstock.

5.3 Proximity to a Major Centre

The Town of Woodstock (Figure 6.1) is located approximately 6 kilometers southeast of the central area of license 5816. It has a population of over 5,200 people and has most amenities including restaurants, hotels, tool rental and industrial equipment sales outlets. Houlton, Maine is of similar size at 6,100 in population and is approximately a 15 kilometer drive from the claims. The village of Jacksonville is located on the eastern boundary of the claims. The nearest major population is at Fredericton, a 95 kilometer drive to the south along the Trans-Canada highway. It has a population of over 56,000.

5.4 Climate

The Woodstock- Fredericton area is classified as "humid continental". Average January low temperature is -16°C while the average July high is 26°C. It is common to have snow on the ground from late November to early April, with an average snowfall of approximately one meter, with an average total precipitation of 1,100 cm. Iron Ore Hill Road is a publicly maintained road, however the gravel roads are not generally cleared of snow in the winter as they are mainly on private lands. It is possible to work on this Property year-round.

5.5 Suitability as a Mining Property

With respect to the Iron Ore Hill to Moody Hill area, Claim Unit 5816 occurs near a topographic high, with a gently rolling slope to the south and west. The historic Iron Ore Hill workings are elevated just 10 meters above the surrounding farmland. Sharpe Farm and Moody Hill occurrences are on relatively level ground. The latter two areas are covered with a fairly mature mixed hardwood and coniferous forest, and to some degree, cultivated farmland. The majority of the Iron Ore Hill occurrence is on a Christmas tree plantation.

There are single landowners for the bulk of both the Moody Hill-Sharp farm and Iron Ore Hill mineralization. The former occurrences are found mainly on a 73 hectare lot and the latter on a 206 hectare lot, and both surface rights holders have agreed to allow diamond drill programs with the knowledge that an open pit mine is the goal. There appears to be ample area potentially available for all aspects of a mining operation.

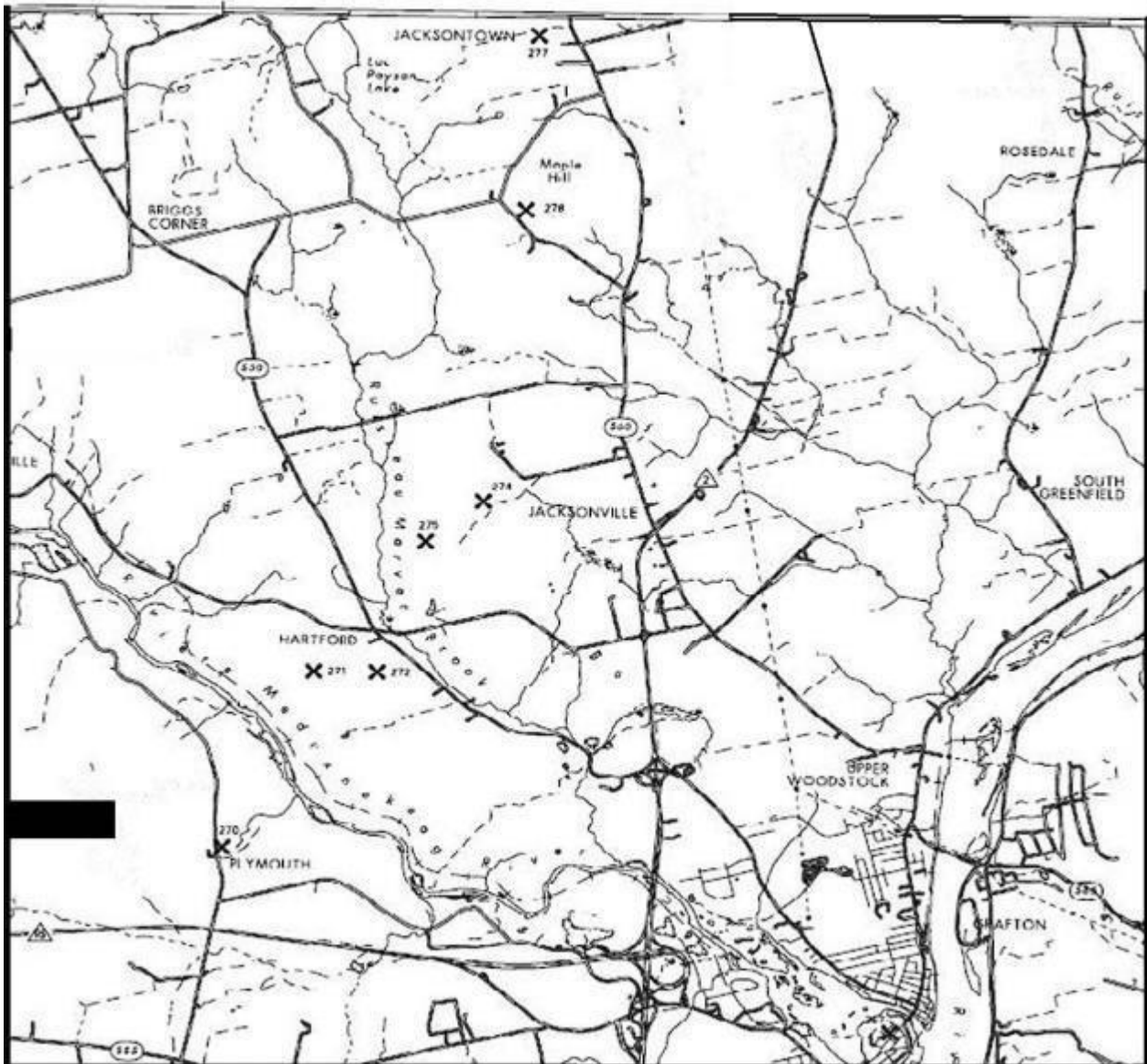
Homeowners near the Iron Ore Hill historic workings have ample supply of well water for domestic purposes. Approximately one kilometer to the west the Marven Brook roughly parallels the mineralized properties and is a potential water supply.

Power is supplied to the Iron Ore Hill area for domestic purposes. There is no power supply to the Sharpe Farm and Moody Hill areas, but power lines are less than one kilometer away. With regard to Claim Unit 5745 near Irish Settlement, the area is principally rural farmland with some wooded areas. The claims are bisected by Houlton Road.

The author knows of no reason that the Moody Hill-Sharpe farm mineralization could not be available for mining. At Iron Ore Hill, a number of small private landowners, several with residences on them, would have to be dealt with.

The Irish Settlement claims occur on large farming lots and there appear to be no significant impediments to a potential mine in that area.

FIGURE 6.1 Mineral Occurrence Database



The above is an excerpt from NBDNR Mineral Occurrence Database Map for 21J04, Plate 2004-58

6.0 HISTORY

6.1 Previous Exploration

The iron-manganese occurrences in the Woodstock area were first brought to light by Dr. C.T. Jackson in 1836. Two small blast furnaces operated between then and the early 1860's when most activity ceased until the Stratmat efforts in the early 1950's. To that point, the mining activity was primarily in the Iron Ore Hill area, whereas afterward, the main focus has been around the Plymouth deposit. This is largely due to the larger gravity anomalies obtained at the latter site as compared to the rest of the surveyed area. It should be pointed out that the 1950's gravity survey did not extend north beyond the Iron Ore Hill occurrence and there is still no gravity coverage in that area.

A number of documents give some detail on these efforts of past exploration on the wider manganese mineralization. Between 1953 and 1957 Stratmat Limited is reported by Sidwell, 1957, to have completed 34,021 feet (10,370m) of drilling, 17,388 feet (5,300m) of which was on the Plymouth occurrence, located several kilometers southwest of MXE's claims. Unfortunately most of the logs of the drilling were not saved but Sidwell's 1957 report is based on the results of that drilling.

The Sidwell report is just 6 pages long but is concise regarding the work done and results obtained. It provided details on most of the known occurrences, including several of those on license 5816. These include, from south to north, the Moody Hill, Sharpe Farm and Iron Ore Hill occurrences (referred to as "orebodies" in the Sidwell report). In addition, the North and South Hartford occurrences, which appear to occur largely on claims owned by Canadian Manganese Company Limited, at the south end of license 5816, may well continue to the Moody Hill occurrence, however there is little exploration in this area.

A somewhat vague location map with little detail, included in the Sidwell report, appears to show most of the drilling south of the Moody Hill area but several drill holes are indicated at Moody Hill and at least two each on the Sharpe Farm and Iron Ore Hill occurrences. The text of the document confirms this. From the results of the sparsely laid out gravity grid and the limited drilling, Mr. Sidwell, an area manager of Stratmat Limited at the time, calculated approximate tonnage and grades of all of the occurrences referred to, and included a number of paragraphs on each.

A limited 'dip meter' survey was completed about the same time as the gravity survey, but returned just "flat" results. No further magnetometer surveys were attempted until the efforts of Mineral Resource Research Limited, starting in 1986. MRR did limited drilling, some bulk sampling and a magnetometer survey on the Plymouth Deposit, the results of which Buchans Minerals, and subsidiary Canadian Manganese Corporation, have utilized in their analysis of that property. The survey can be found as Open File Report OFR-90-4 through the New Brunswick Department of Natural Resources, Mines and Energy Department. The Plymouth Deposit is a few kilometers to the south of MXE's claims, and Globex's magnetometer survey on license 5816.

The New Brunswick DNR Mineral Occurrence Data Base maps (Figure 6.1) identify the Moody Hill occurrence as number 275, the Iron Ore Hill and Sharpe Farm occurrences as Number 274, the Maple Hill occurrence as number 278, and the Wakefield area (at Jacksontown) occurrence as number 277. The map shows occurrences from Plymouth (#270) in the southwest, to Jacksontown (#277) in the northeast. More information on the data regarding these occurrence numbers is available the New Brunswick Department of Mines and Energy web pages.

6.2 Historical Resource Estimates

A summary of the historical resource estimates of the occurrences contained in the bounds of license 5816 is as follows (from Sidwell, 1957):

For the Moody Hill occurrence, a strike length of 1,700 ft (518m) and a width (from drilling) of 825 feet (251m), though some of the width is described as low grade, giving an estimate of 10,000,000 tons (9,072,000 tonnes) of approximately 9.5% manganese “ore”.

For the Sharpe Farm occurrence, the gravity anomaly extended for 2600 feet (792m). From 2 drill holes it was postulated that the width was 150 feet (46m) and a tonnage estimate of 8,000,000 tons (7,257,000 tonnes) to a depth of 500 feet (152m) was determined.

At Iron Ore Hill the strike length was found to be 2,500 feet (762m). Two diamond drill holes put down on the property had intercepts with widths of 738 feet (225m) and 175 feet (53m) grading 10.33% Mn and 7.6% Mn respectively. The tonnage estimate for this occurrence is reported at approximately 25,000,000 tons (22,680,000 tonnes).

The Sidwell report also mentions that the manganese bearing horizons, although changing strike from northeast to due north, north of the Iron Ore Hill area, appear to continue, as evidenced by float, outcrops and trenches, for a distance of 5 miles (8 kilometers) in this direction. Two of the trenched areas were said to have manganese bearing widths of 200 feet (61m) and 120 feet (37m). Sidwell commented that it is not known if these occurrences were the same horizons as the material to the south, and that it wasn't expected that they would be continuous over that distance.

In defending his tonnage estimates, Sidwell indicated that his preliminary estimate of the Plymouth “orebody”, utilizing just four diamond drill holes, varied just 4% from the final calculation using 43 holes, and that the gravity survey was quite a reliable predictor of grades and widths. All calculations were to a depth of 500 feet (152m).

Total tonnage calculated by Sidwell for Moody Hill, Sharpe Farm and Iron Ore Hill, all located on present MXE claims, was 43,000,000 tons (39,009,000 tonnes) with an average Mn content of 9%.

Please note that the above information has been taken from historic sources that were not prepared or reviewed by a qualified person for Manganese X Energy under NI 43-101 and are considered historic. They were obtained from Sidwell, 1957, who used a sparsely spaced gravity survey and limited drilling to obtain these results. No qualified person has done sufficient work to classify the historical estimate(s) as current mineral resources or reserves and Manganese X Energy is not treating the historical estimate as current resources or reserves.

6.3 Production

The only production from the Woodstock area iron-manganese occurrences occurred shortly after their discovery in 1848. Between this time and 1884 a reported 70,000 tons (63,502 tonnes) were mined for iron, predominantly from the Iron Ore Hill occurrence with a lesser amount from the Moody Hill occurrence (Sidwell, 1957). Gross (1967), in an article for the GSC, reports that “the iron produced was found to have exceptionally good physical qualities and was shipped to England for use by the Royal Navy for armor plating gun-boats.”

Charcoal for the smelting process was obtained by utilizing the forests of the area for fuel, and limestone for fluxing from the Coldstream area, approximately 18 kilometers from the iron and manganese source (Ralston, 1946).

There appears to have been little interest in the manganese at that time but it came to be known that the reason for the positive results in the testing of the iron on the gun-boats was due to a percentage of carbon and manganese in the iron, rendering it more pliable and resistant to fracturing when impacted by cannon fire.

7.0 GEOLOGY

7.1 Regional Geology

The sedimentary package that hosts the iron-manganese mineralization in the Woodstock area is referred to as the Smyrna Mills Formation of the Perham Group, and is of Silurian age (Figure 1.3). These rocks are in contact with the Carboniferous Mabou Group several kilometers to the east, and the argillaceous limestone and calcareous shales of the Late Ordovician to Silurian White Head Formation immediately to the east (Smith and Fyffe, 2006).

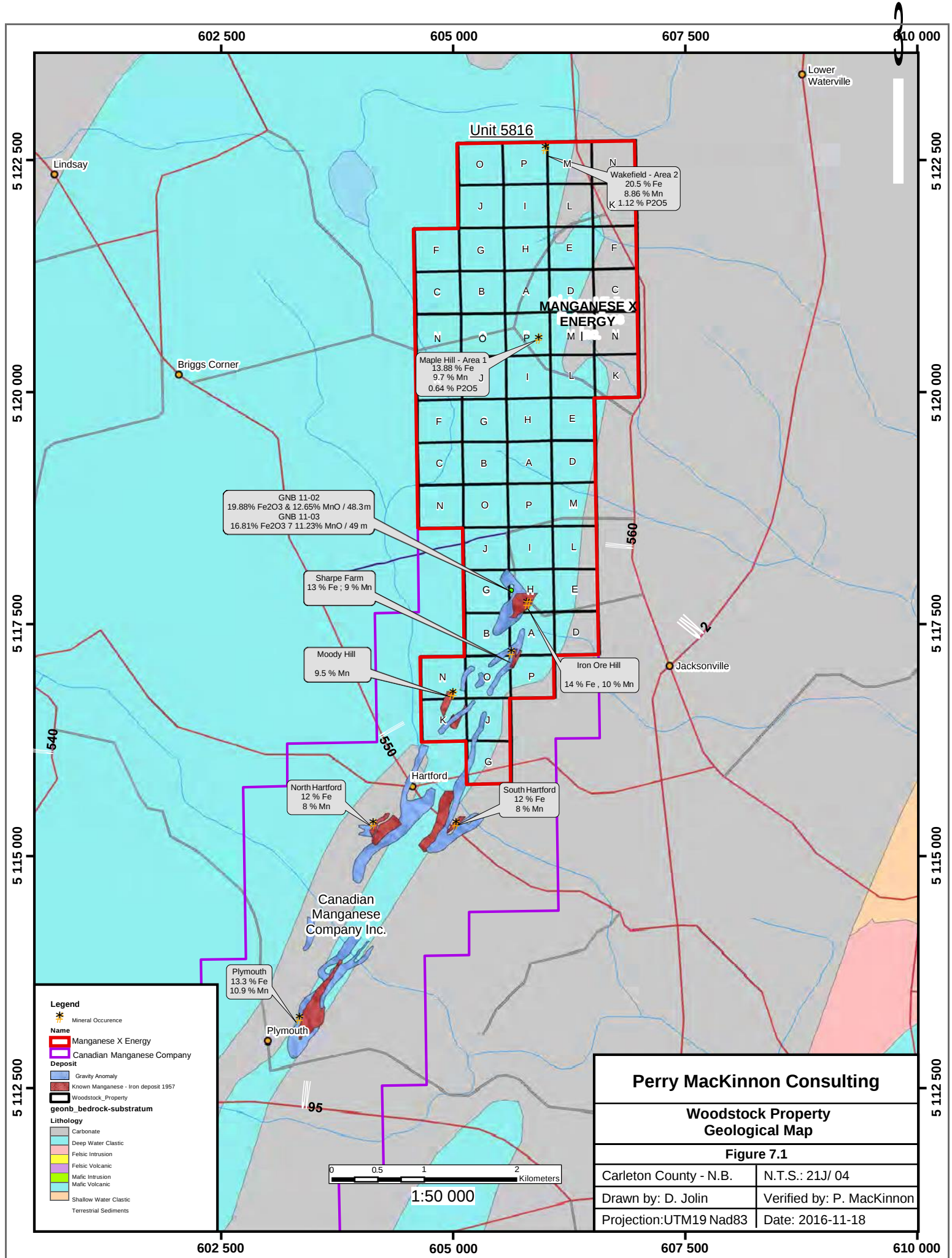
Hamilton-Smith, in a 1972 report on the stratigraphy and structure of the area, shows a large syncline passing through the area of the property but Potter (after Carroll, 1973) describes an anticline through the same area. From drill sections it appears the latter would be accurate. In any case, the major folding event was accompanied by tight folding and both are attributed to the Acadian Orogeny. A weaker, later system of cross folds occurring in the southeastern area of the mineralized strata may be attributed to the later stages of the same orogeny or to the Taconic Orogeny, but do not appear to have significantly affected the structure on the Property. Large and small scale faulting has also been described in geological studies of the area (Hamilton-Smith, Potter), most oriented northeast-southwest, like the main axis of folding. The main fault shown on area mapping (Hamilton-Smith, 1972) is shown to closely parallel the main anticline(?) that hosts much of the manganese mineralization. In his document an east- west fault is shown offsetting the mineralized horizons approximately 650 meters to the west (sinistral movement) just north of the area hosting the North and South Hartford occurrences, near the southern end of MXE license 5816.

Caley, in 1936, proposed the Woodstock iron-manganese mineralization deposition environment as one of offshore hydrothermal conditions resulting in a chemical precipitate accompanied by volcanic activity. Miller, in 1946, suggested similar deposits in Maine were “derived from subaerial weathering and erosion of volcanic rocks”. Sidwell (1957) concurred with the latter explanation. Hamilton-Smith, 1972, comments “The originally sedimentary characteristics of the rock were obliterated. The second stage of re-mobilization and mineralization is probably hydrothermal and is restricted to those occurrences of the iron-manganese assemblage in zones of intense structural deformation”.

More recent work from investigations resulting from a Master’s thesis titled “Geology and Geochemistry of Sedimentary Ferromanganese Ore Deposits, Woodstock, New Brunswick, Canada”, by Bryan Way, 2007, purports the mineral bearing strata were “initially derived from hydrogenous-detrital sources without any indication of an hydrothermal input as a source of Fe-Mn”. This conclusion was made from the observation that : “Na/Mg ratios, chondrite normalized REE patterns, and mineralogical evidence of rapid changes in ocean redox conditions suggest the Fe-Mn mineralized lithofacies were formed in the offshore zone of a continental shelf on a stable cratonic margin”.

7.20 Property Geology

The Woodstock region consists of a sedimentary package of rocks thought to have been deposited in a shallow marine environment, possibly with some contribution from volcanic sources. Some dissention among several authors of studies on the area occurs concerning the possible degree (if any) of reworking of the Mn-Fe rich material and how much this may have affected the volume and grades of the mineralization. The host for most of the mineralization, based on mapping by Smith and Fyffe, 2006, is shown to be near the base of the Smyrna Mills Formation, though the map produced does depict the



Mineral Occurrence Database locations of the various occurrences. This may be a reflection of the lack of definition in the scale of mapping as well as the paucity of outcrop throughout the area.

Smith and Fyffe describe the Smyrna Mills rocks as “dark grey, non-calcareous silty shale and associated ferromanganiferous siltstone. Dark grey calcareous shale interbedded with medium grey calcareous quartzose sandstone. Green calcareous sandstone, light grey, crystalline limestone, green nodular limestone, grey polymictic conglomerate, and minor red shale and dark grey laminated, graptolitic siltstone”. It is part of the Silurian age Perham Group.

The Whitehead Formation is Silurian to Ordovician in age, forms part of the Matapedia Group, and consists of “Dark grey to bluish grey, massive to abundantly laminated, very fine grained, argillaceous limestone interbedded with calcareous shale” (Smith and Fyffe, 2006).

The strata of the Smyrna Mills Formation, as observed at the Iron Ore Hill historic workings, and as determined from sections drawn from the older drilling on the property, have been tightly folded in a northeast direction with dips generally steeply to the west. Some evidence of overturned beds is reported in the drilling. The plunge is steep to the northwest. Structural deformation has had a strong effect on the possibility of economic feasibility of the Woodstock iron-manganese mineralization in that the tight folding has apparently caused substantial thickening of the mineralized horizon. Faulting has also contributed to structural thickening of the mineralized beds with folding and faulting together creating widths in excess of 200 meters from an estimated original thickness of mineralized strata probably less than 15 meters (Hamilton-Smith, 1972).

Very few outcrops occur on the property, though several poor exposures can be viewed in the cultivated fields prior to planting or after harvest season. Indications are the average depth of overburden ranges from two to four meters.

7.30 Mineralization

Sidwell (1957), from drilling and trenching predominantly on the Plymouth occurrence, describes the mineralogy of the iron-manganese bearing strata as being contained by five distinct units within the main mineralized strata of alternating grey-green, grey, green and red slates. The five are: silicified slates, manganiferous hematite, red to purplish ferruginous slates, green chlorite slates, and brown cherty slates, with the first two containing the bulk of the iron and manganese.

He describes the manganiferous hematite as being the highest grade unit and is coloured dark red to black, having a blocky fracture and frequently replaced with quartz and contains veinlets of pink rhodochrosite. Other manganese bearing minerals are reported as piedmont (manganese silicate), and occasional pale yellow to brown manganese bearing axinite. These are minor constituents of the mineralized horizons.

Detailed mineralogical investigation of two samples taken from the Plymouth deposit by Mr. Tim Webb, of the New Brunswick Department of Forestry, Mines and Energy in 1986, provides an insight into the composition of the mineralized horizons. The samples were taken from both the oxide (hematite, magnetite and ilmenite) and carbonate (siderite) facies of the occurrence. Results were obtained using a scanning electron microscope with an energy dispersive system. Webb reports that the oxide bearing material consisted predominantly of hematite, magnetite and rhodochrosite plus lesser iron and manganese silicates and phosphates. The results describe “fine layering defined concentrations of hematite and magnetite in rhodochrosite, and concentrations of phosphates and silicates elsewhere. Veinlets are much less numerous than in the carbonate facies and are composed of chlorite and quartz.

Traces of arsenopyrite, silver and pyrite are present”.

The carbonate facies were found to be mainly rhodochrosite and lesser amounts of calcium and iron, plus chlorite containing minor amounts of manganese and magnetite. Significant amounts of rhodonite, microcline, braunite and tephroite were detected. Megascopically, Webb reports the existence of four recognizable bands:

1. chlorite plus rhodochrosite with or without narrow magnetite bands.
2. predominantly rhodochrosite pods or lenses in bands of rhodochrosite plus chlorite or tephroite.
3. braunite(?) plus rhodochrosite in dark layers.
4. tephroite(?)- rhodochrosite.

Narrow quartz, rhodochrosite or calcite veining also cut across the bands. Trace amounts of arsenopyrite, hematite and pyrite are also in evidence.

Results of mineralogical investigations by Canadian Manganese Company Inc., in that company's Preliminary Economic Assessment on their Plymouth property of July 2014, describe similar results as provided by Sidwell (1957) and Webb (1986), in that the two main facies, oxide and carbonate are identified, and the detailed mineralogy is much the same. The simplified result shows that both facies contain significant manganese but the red slates contain hematite, magnetite and ilmenite, whereas the grey-green facies contains little of these minerals with the main iron containing mineral being the iron carbonate siderite.

Detailed mineralogical studies were conducted for Canadian Manganese Company Inc. (CMC) by Thibault and Associates Inc., as reported in that company's 2013 Plymouth Deposit Fe-Mn Resource Estimate (prepared by Mercator Geological Services Limited as found on SEDAR), of mineralization from a bulk sample taken from CMC's 2011 drilling. Results from the X-ray Diffraction (XRD) analysis performed at SGS Lakefield showed quartz, rhodochrosite, plagioclase and hematite as the most common minerals. Rhodochrosite (MnCO_3) was found to be the only Mn mineral present using the XRD method at a grade (weight percent) of 20.5% MnCO_3 , 9.8% (weight percent) Mn. Iron was found to be present in both carbonate (siderite) and oxide (hematite, magnetite and ilmenite) form. The red slates were found to contain 16.4 weight percent hematite, with the more grey coloured rock testing just 3.6 weight percent hematite. Grey material from the sample returned values of 9.5 weight percent siderite while just 2.3 weight percent siderite was determined in the red material. Overall the bulk sample was found to contain 10.4 weight percent hematite and 6 weight percent siderite.

It should be noted that, although rhodochrosite was found to be the only manganese mineral identified in the above study, the report acknowledges that, as identified by ICP-OES (Inductively Coupled Plasma-Optical Emissions Spectroscopy) testing of the same material, only 90% of the manganese was found by the XRD method.

Note: The information in the above paragraphs concerns the adjacent property hosting the Plymouth Manganese Deposit which is several kilometers distant from the Property, the subject of this report, and the results of the testing on the Plymouth Deposit may not necessarily be indicative of the mineralization hosted on the claims of License 5816.

7.31 MXE QEMSCAN (modified from R. Dahn, 2018)

Four composite samples from the property were submitted to the Minerals Services group of SGS Canada for chemical analysis and mineralogical characterization by X-ray diffraction analysis and QEMSCAN.

Two of the manganese composite samples (A-Red and B-Grey) were from Globex Mining drill holes GNB-

11-2 and GNB-11-3 located on the Iron Ore Hill Occurrence and two manganese composites J2035 Red Ore and J2035 Grey Ore were portions of the “master” composite Red and Grey samples from holes in the Sharpe Farm and Moody Hill sectors of the Battery Hill deposit. One of the objectives of this study was to compare the Red and Grey ores from both areas of property to determine if they are the same or similar with regards to the overall mineral contents, deportment of manganese, and liberation of the manganese minerals. The following summary has been taken from the SGS Canada Inc report titled “The Mineralogical Characteristics of two Manganese Composite Samples from the Battery Hill Property – Report 16134-002 Final Report” dated May 10, 2017.

The X-ray diffraction and QEMSCAN analyses detected several manganese-bearing minerals. The analysis showed that the manganese phases have highly variable manganese concentrations. Sample A (Red) from the Houston Woodstock property is mainly comprised of the Mn-Fe silicate (+/- Al, Ca & Mg) at nearly 30% with moderate amounts of Fe-oxides (9.1%), Mn-Ca carbonate (7.3%), sericite/muscovite (6.6%), Ca-phosphate (low impurities) (6.2%), quartz (5%), and plagioclase (5.7%). Other minerals detected in minor and trace levels include the rhodonite minerals (Mn-silicate - 1.7%, Mn-Ca-silicate - 2.8% and Mn-Ca-Al silicate - 2.5%), Mn-mica/clays (4.8%), other Mn-carbonates (kutnohorite) phases (Ca-Mn-Fe carbonate - 2.0%, Mn-Fe carbonate - 0.3%), K-feldspar (1.1%), biotite (3.2%), chlorite (2.5%), clays (4.3%), Fe-Al silicate (1.7%), siderite (1.5%), barite (0.1%), and sulphides (1.2%).

J2035 Red Ore from the Battery Hill property is mainly comprised of the moderate amounts of quartz (12.0%), Mn-Fe silicate (+/- Al, Ca & Mg) (10.1%), Fe-oxides (6.2%), Mn-Ca carbonate (7.5%), sericite/muscovite (9.5%), chlorite (11.1%), and biotite (8.65%). Other mineral detected in minor and trace levels include the rhodonite minerals (Mn-silicate - 2.0%, Mn-Ca-silicate - 4.5% and Mn-Ca-Al silicate - 1.6%), Mn-mica/clays (3.3%), the other Mn-carbonates (kutnohorite) phases (Ca-Mn-Fe carbonate - 1.1%, Mn-Fe carbonate - 0.32%), Mn-carbonate (rhodochrosite – 4.4%) Ca-phosphate (low impurities) (2.8%), and plagioclase (3.8%), K-feldspar (2.3%), biotite (3.2%), plagioclase (3.8%), clays (1.9%), Fe-Al silicate (4.4%) and siderite (0.74%).

Sample B (Grey) from the Houston Woodstock property is mainly comprised of Mn-Fe silicate (+/- Al, Ca and Mg) at nearly 25%, with moderate amounts of quartz (12.6%) and chlorite (11.2%), and moderate to minor amounts of the kutnohorite phases (Mn-Ca carbonate – 7.8%, Mn-Ca carbonate - 6.5% and Mn-Fe carbonate - 2.5%). Other phases in minor and traces levels include rhodonite (Mn-silicate - 0.86%, Mn-Ca-silicate - 0.75% and Mn-Ca-Al silicate - 1.6%), Mn- mica/clays (1.2%), rhodochrosite (Mn-carbonate - 2.8%), plagioclase, (0.4%), K-feldspar (1.1%), sericite/muscovite (4.0%), biotite (2%), clays (1.8%), Fe-Al silicate (5.0%), rutile (0.63%), siderite (4.1%), Fe-oxides (0.64%), Ca-phosphate (low impurities) (6.15%), and sulphides (0.89%).

J2035 Grey Ore from the Battery Hill property is mainly comprised of Mn-Fe silicate (+/- Al, Ca and Mg) at nearly 21%, with moderate amounts of quartz (8.1%) and chlorite (14.9%), and moderate to minor amounts of the kutnohorite phases (Mn-Ca-Fe carbonate – 4.8%, Mn-Ca carbonate - 8.1% and Mn-Fe carbonate - 4.2%). Other phases in minor and traces levels include rhodonite (Mn-silicate - 0.61%, Mn-Ca-

silicate - 0.88% and Mn-Ca-Al silicate - 0.83%), Mn- mica/clays (1.52%), rhodochrosite (Mn-carbonate – 2.8%), plagioclase, (2.2%), K-feldspar (1.2%), sericite/muscovite (5.8%), biotite (2.3%), clays (1.4%), Fe-Al silicate (7.5%), rutile (0.61%), siderite (0.65%), Fe-oxides (1.10%), Ca-phosphate (low impurities) (5.1%), and sulphides (1.58%).

There is a significant difference between the two Red ores where Sample A (Red) from the Houston Woodstock property has a higher abundance of Mn-Fe silicate (+/- aluminum, calcium, and magnesium) (by 19.7%), plagioclase (2%), clays (2.4%), Fe-oxides (2.3%), and Ca-phosphates (3.4%). The J2035 Red Ore from the battery Hill property has higher concentrations of chlorite (8.1%), K- feldspar (1.2%), quartz (7%),

biotite (5.3%), Fe-Al silicate (2.1%) and notably, the Mn-carbonate (rhodochrosite at 4.4%). Table 10 shows that the difference between the two Grey ores is subtle where Sample B (Grey) has slightly higher concentrations of the Mn-Fe silicate (+/-aluminum, calcium, and magnesium) (3.17%), Ca- Mn-Fe carbonate (2.88%), quartz (4.3%), and siderite (3.4%). The J2035 Grey Ore has higher concentrations of the Mn-Ca carbonate (1.7%), Mn-Fe carbonate (1.8%), and chlorite (4%).

For more complete QEMSCAN results see Section 13.1. MnO contains 0.774% Mn.

7.40 Mineralized Areas at Battery Hill

7.41 Wakefield

The Wakefield area is located on the far northern extent of MXE license 5816 on claims that were not staked when the 2011 magnetometer survey was completed so no magnetometer data is available. The author did not attempt to locate this occurrence as it is in a cultivated area, near housing. The New Brunswick Department of Lands and Mines sampled a 4.6m section of the occurrence, as reported in GSC Memoir 353 (1968) that returned values of 20.5% iron and 8.86% manganese.

7.42 Maple Hill

Two kilometers south-southwest of the Wakefield occurrence, the Maple Hill occurrence is located in a wooded patch approximately 175-200 meters square. Trenching, observed by the author in a 2011 site visit, exhibited less iron and manganiferous rocks than the Moody Hill or Iron Ore Hill occurrences, though some higher grade material was apparent.

In comparing the known location of the occurrence to the geophysical response of the 2011 Globex magnetometer survey, the deposit is located on the extreme western edge of the large anomalous response in that area, where response is weak to moderate compared to much of the rest of the anomaly. The large area of strongest response located on the eastern edge of the survey in the Maple Hill area has not yet been ground checked.

Sampling in 1968 by the New Brunswick Department of Lands and Mines, as reported in GSC Memoir 353, returned values of 13.88% iron and 6.97% manganese over 2.13m.

7.43 Iron Ore Hill

The Iron Ore Hill historic workings are located approximately 3 kilometers south of the Maple Hill occurrence. In the early 1950's, Stratmat identified a strong gravity anomaly 2,500 feet (762m) in length. Globex's 2011 magnetometer survey confirms a similar 750 meter anomaly centered on the Iron Ore Hill area. The historic workings are still quite visible at the site and which provided the majority of the feed for the historic 70,000 tons (63,502 tonnes) of iron reported to have been produced, in ovens located to the east of the site, on the bank of the St. John River.

From the results of the Stratmat gravity survey, combined with information derived from drilling two holes on the property, Sidwell (1957) reports an estimated 25,000,000 tons (22,680,000 tonnes) of 10% Mn, to a depth of 152 meters.

Sampling on and near the historic workings by the author, for Globex, in 2010, confirmed the presence of higher grades of manganese than had been reported in the historic testing, as well as abundant quantities of lower grade material. As a result of this initial sampling, a second round consisting of 59 samples, mainly along intermittent outcroppings in a ditch adjacent to the historic workings,

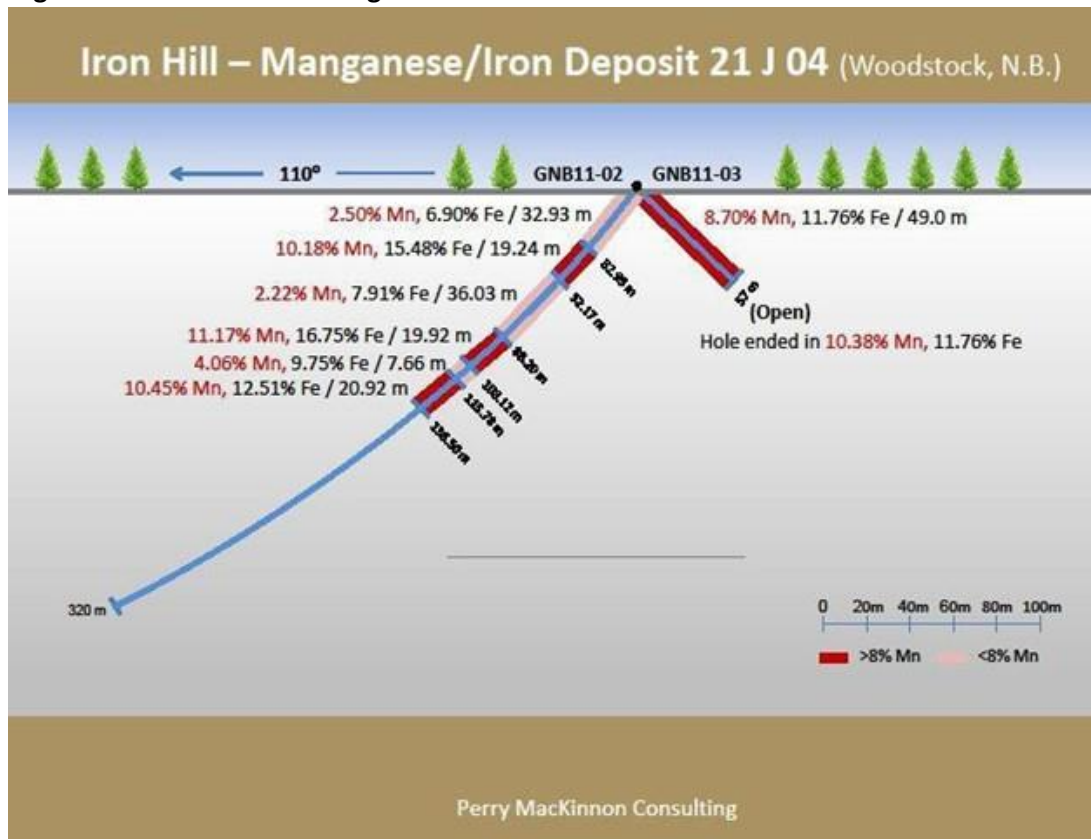
returned manganese results from 1% to 26.15% MnO (20.25 weight percent elemental Mn).

Higher grade results were obtained from black, semi-metallic layers in the mixed, predominantly brick red and maroon alternating bands within the mineralized horizon. Maroon layers provided the next highest grades. Diamond drilling in 2011 by Globex was planned to intersect the Iron Ore Hill occurrence at depth. Hole GNB-11-02 intersected several wide bands of well mineralized iron and manganese (Figures 7.2 and 7.4). Hole GNB-11-03 was drilled from the same set-up, in the opposite direction, and returned good values for the bottom 49 meters of a total 53 meters of core length. The hole was shut down before exiting manganiferous mineralization (Figure 7.4). Based on the widths intersected, indications are that the Sidwell estimate of manganiferous material at this site is conceivable.

Figure 7.2 Mixed Siltstones (Iron Ore Hill)



Figure 7.3 Iron Ore Hill Drilling Schematic



Drawn by D. Jolin, 2016 Modified by P. MacKinnon

7.44 Sharpe Farm

Some more recent government publications have located the Sharpe Farm occurrence northeast of Iron Ore Hill, however all of the older documents have it located immediately southwest of that occurrence. The author's work for Globex indicates that the occurrence is located to the southwest of Iron Ore Hill, as indicated on the older reports on the area.

Sidwell, in his 1957 report on the iron-manganese occurrences, described briefly the Sharpe Farm occurrence. A 2,600 foot (792 meter) long gravity anomaly was reported, slightly longer than the Iron Ore Hill anomaly, though substantially weaker. Two holes drilled at that time were reported to have intersected "silicified slates showing an average width of 150 feet (45.7 meters) with an average of 9% Mn". From this work he estimated the occurrence at 8,000,000 tons (7,257,478 tonnes).

The 2011 Globex magnetometer survey identified a moderate to strong circular anomaly with two smaller responses extending in a semi-continuous manner, northeastward, toward the Iron Ore Hill occurrence. The anomaly is the second strongest in the survey, after the Iron Ore Hill occurrence, and is over 400 meters in diameter. Including the lobes in between this area and Iron Ore Hill the length is 700 meters long, in a northeast-southwest direction. Ground checking by the author resulted in the discovery of a few insubstantial trenches as the only evidence of historic workings.

7.45 Moody Hill

From the 1957 gravity survey, Stratmat (Sidwell) describes a 1,700 foot (518 meter) weak to moderate anomaly (as compared to his results obtained at Iron Ore Hill). From three drill holes a width of 825 feet (251 meters) was determined. Despite indicating generally lower grade red, green and grey slates, the average grade of the occurrence was estimated to be 9.5% Mn in an estimated 10,000,000 tons (9,071,847 tonnes). Sidwell reports that the drill results were better than anticipated based on the strength of the gravity anomaly.

Please note that the above information has been taken from historic sources that were not prepared or reviewed by a qualified person for Manganese X Energy under NI 43-101 guidelines and are considered historic and should not be relied upon. They were obtained from Sidwell, 1957, who used a sparsely spaced gravity survey and limited drilling to obtain these results. No qualified person has done sufficient work to classify the historical estimate(s) as current mineral resources or reserves and MXE is not treating the historical estimate as current resources or reserves.

The 2011 Globex and 2016 MXE magnetometer surveys indicate a large, moderate to strongly anomalous area, separated from the Moody Hill anomaly by only 50 meters, in the general area of the Sharpe Farm occurrence. The anomaly is approximately 650 meters in diameter with a number of spotty, highly anomalous results in the wider anomalous response. Upon ground checking the occurrence, a number of one to five meters deep, and up to 30 meters long, trenches were located. No samples were assayed but much of the rock viewed appears to be quite similar to the mineralized material tested quite well at the Iron Ore Hill occurrence.

7.46 North Hartford-South Hartford

The known North and South Hartford occurrences occur just off the south end of MXE's claims. The South Hartford Deposit appears to diminish (from old interpretations and Globex's 2011 magnetometer survey) at its north end, just a few meters from the south end of the MXE claims, but may continue on them at depth. From the survey it appears the Moody Hill occurrence crosses from MXE claims on to the CMC claims. It may be quite possible that the North Hartford and Moody Hill occurrences are actually continuous in this area.

7.47 License 5745

In 2011 Globex drilled a single diamond drill hole on an airborne magnetometer anomaly on License 5745 near Irish Settlement. No significant results were obtained. Some manganese bearing rock was observed in a roadside ditch just west of the drill site which should be sampled.

7.48 Geology Discussion

From the magnetometer surveys on the property (Figure 9.1), several lines of faulting may be recognized. A northwest-southeast trend occurs as a magnetic low between the Moody Hill and Sharpe Farm occurrences. A very strong magnetic low envelopes the northern extent of the strong magnetic high at Iron Ore Hill. This could be a folded fault but more likely a reflection of a folded unit bearing little or no magnetic component. Near the Maple Hill area, another narrow, northwest-southeast trending magnetic low cuts across the claims and is most likely due to faulting.

Several authors have indicated faulting along the regional northeast geological trend in the Plymouth Deposit. There is no striking evidence of this in the magnetometer results from the Globex survey, however there is a noticeable northeast alignment of the magnetic contours of the Globex survey, particularly in the area from Iron Ore Hill to the south end of the claims.

Mercator, in their 2013 Mineral Resource Estimate for Buchans Minerals on the Plymouth Deposit, describe evidence of remobilization of Mn-Fe resulting in re-deposition of the Mn oxides in fracture zones, in that deposit. One would expect similar development along strike on the MXE property.

The higher Mn results, based on the drilling at Iron Ore Hill, come from the brick red to maroon, hematite bearing units containing MnO and the Fe-oxides hematite, magnetite and ilmenite, and the equally Mn bearing, slightly magnetic, altered, green siltstones predominantly carrying the Fe-carbonate siderite. Surface sampling at the Iron Ore Hill site provided the highest MnO results where several samples returned greater than 20% MnO (15.5% Mn). This material was quite black, very dense and occurs in narrow bands up to 20 cm wide.

From detailed mineralogical investigations by a number of authors, rhodochrosite is the main carbonaceous Mn bearing mineral, including more recent work undertaken for MXE by SGS Laboratories (see Section 13.1 below).

Figure 7.4 Red and Maroon Siltstone GNB-11-02; 19-40m (Iron Ore Hill)

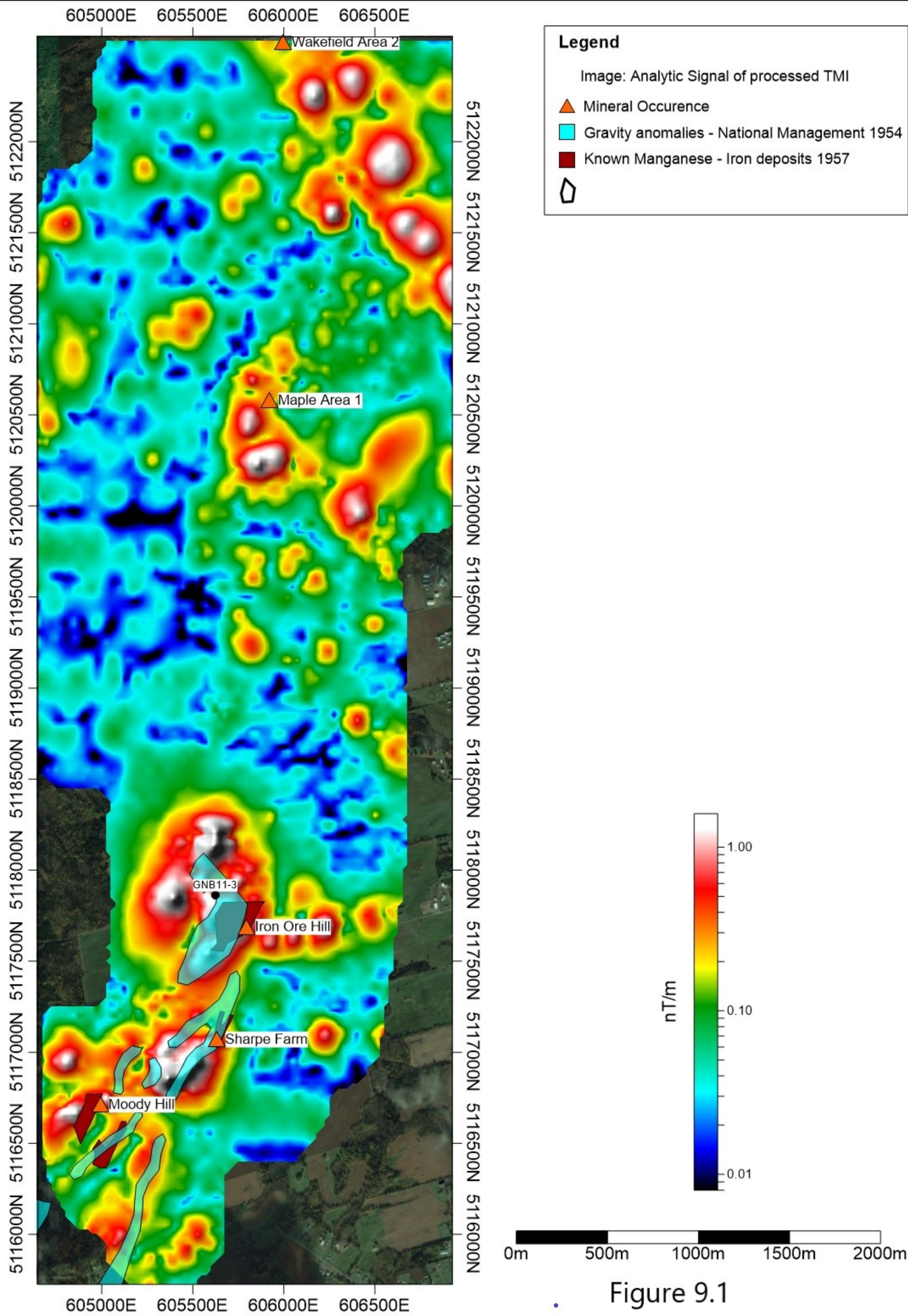


8.0 DEPOSIT TYPES (see Figure 7.1)

The Mn-Fe deposits of the area are found to be lenticular, stratiform and generally steeply dipping, having been variously shaped and somewhat thickened by tight folding and possibly faulting. As with the aforementioned disparity among authors regarding whether the main mineralization is contained in a synclinal or anticlinal structure, so too is the question of the direction of plunge of the mineralized bodies. In the Iron Ore Hill area, the author has identified a steeply northwest plunge in the tight folding of that occurrence, concurring with the findings of Sidwell in that area. In the Moody Hill historic workings, several instances of a shallow southerly plunge are observable. This would suggest the possibility of a large domal structure but more likely this is a reflection of the cross folding interference pattern suggested by some authors.

The model adopted by most authors is that of a shallow to moderate depth marine environment of deposition. The source of the manganese is suggested in the available literature to be either locally from a hydrothermal source or from terrestrial erosion with Mn laden sediments deposited in a fairly shallow marine setting. In either case there will be infilling of low areas giving potential for thicker primary deposition. The following two periods of folding has caused substantial thickening of the amount of Fe-Mn near interpreted fold noses. Faulting may have also contributed to thickening.

Initially gravity, then magnetometer surveys have become the tool of choice in attempting to outline drill targets. The latter method, being much less expensive than the former, has proven to effectively identify the better targets based on the magnetic response to the iron contained in these banded iron formations. The exact relationship between the iron and the manganese has yet to be well defined and it appears from some of the work by the author on the Property, that in some units, particularly the green and black slates, grades of manganese can be fairly good when iron content is rather low. The best target in this folded, faulted and altered deposit is most likely fold nose areas and it appears these can be determined readily with interpretation of the ground magnetometer surveys.



9.0 EXPLORATION

9.1 Known Exploration Programs (excerpts from MacKinnon, 2010, 2011, 2016 and 2017, and Dahn, 2017-2018)

Initial exploration by the author in 2010, for Globex, consisted of sampling around the Iron Ore Hill historic workings. Seven samples were taken from the midst of the historic workings. Results of this work were provided to the New Brunswick Department of Mines and Energy in the form of an assessment report (report number 477479) on the property and included in the 2017 Technical Report on the Property. The sampling on and near the historic workings by the author later in 2010 confirmed the presence of higher grades of manganese than had been reported in the historic testing, as well as abundant quantities of lower grade material. As a result of this initial sampling, a second round consisting of 59 samples, mainly along intermittent outcroppings in a ditch adjacent to the historic workings, returned manganese results from 1% to 26.15% MnO (20.25 weight percent elemental Mn). Higher grade results were obtained from black, semi-metallic layers in the mixed, predominantly brick red and maroon alternating bands within the mineralized horizon. Maroon layers provided the next highest grades.

In 2011, based on historic reports and the above described exploration results, Globex implemented a 64 kilometer magnetometer survey over the Property. The survey was completed by Eastern Geophysics of Pubnico, Nova Scotia. A report on the results of this survey, as well as the 2011 drill program (see Figure 7.1) was also filed by the author for Globex for assessment purposes as part of the assessment report (477479) mentioned above and was also included in the 2016 Technical Report.

The magnetometer survey covered all of the claims of exploration license unit 5816 as it existed at that time (it was later expanded). Readings were taken at 12.5 meter intervals and lines were at 100 meter separation, run in and east-west direction using a GPS for control. A 1:10000 contoured map of the survey was produced, showing better defined, sharper results in the south part of the survey as compared to the north. The results are similar to those obtained by Buchans Minerals (published on that company's website) in that company's magnetometer survey over the Plymouth Deposit to the southwest of the present survey. As it is expected that the main response providing the magnetometer readings are due to the iron component of the mineralization, and there appears to be an intimate relationship between the manganese and iron in many of the area deposits, it does however remain to be seen if there has to be a strong iron component to allow manganese grades of economic interest in these rocks.

As the 2016 magnetic (and gravity) survey covered the same area, at a 50 meter offset, as the 2011 survey, plus additional coverage due to having increased the staking in the area, the 2016 survey will be dealt with in more detail.

Late in the fall of 2016, MXE began a program of ground gravity and magnetometer surveys to enhance the data obtained in the 2011 magnetometer survey. The gravity survey consisted of four one kilometer long lines, at 100 meter line separation, in the Iron Ore Hill area. Since the gravity results closely resembled the magnetometer results, no additional gravity surveying was done. The gravity survey was followed by a 124 line kilometer ground magnetometer survey of the expanded (now 58 claims) License 5816, offset 50 meters north-south from the 2011 survey. While both the 2011 and 2016 surveys used GEM GSM-19W (Overhauser Effect) magnetometers, the 2011 survey recorded readings at 12.5 meters stations, whereas the 2016 survey employed a continuous acquisition mode at a rate of one reading per second. This would give better definition than the previous survey, especially in the areas already covered in 2011 (but offset 50 meters).

Neil Hughes, of AusieCan Geoscience Inc. provided a report on the 2016 Eastern Geophysics

magnetometer survey combined with the data from the previous survey. Several differently filtered modelling methods were employed as well as a 3D magnetics susceptibility model. Hughes observed that the 3D model is in “reasonable agreement with the understood geological model of the area” in that it appears to depict steeply dipping and tightly folded structure. In overlaying the 1950’s vintage gravity results with the 2016 gravity and magnetometer results, Hughes commented that he “finds a reasonable correlation, however there were some exceptions”.

The 2016 magnetometer survey (Figure 9.1) expanded on the area mainly in the northern regions of the grid, and doubled the coverage of the older survey by surveying between the lines. In addition, permission was received to survey a small but important area near Iron Ore Hill that was not covered in the 2011 survey. The earlier survey identified fairly well-defined anomalies from Iron Ore Hill, southwest to Moody Hill and off the claims of License 5816, and scattered, smaller anomalous areas in the northern 2/3 of the grid. The strongest anomaly in the north suspiciously coincides with a line of houses along Route 560 in the north of Jacksonville. A number of smaller anomalies west of that area appear to be away from any cultural effects but are quite small compared to the Moody Hill to Iron Ore Hill anomalies.

The Hughes interpretation of the 2016 survey identified Iron Ore Hill as having five of the six best targets on the grid, though a number of somewhat more weakly anomalous areas occur throughout the Sharpe farm and Moody Hill areas. To some degree, the Sharpe Farm and Iron Ore Hill anomalies are connected, as the magnetometer results show some separation between the individual occurrences, interpreted to be due to faulting or possibly a result of an interference folding pattern. The Hughes report provides additional insight into the interpretation of the magnetometer survey.

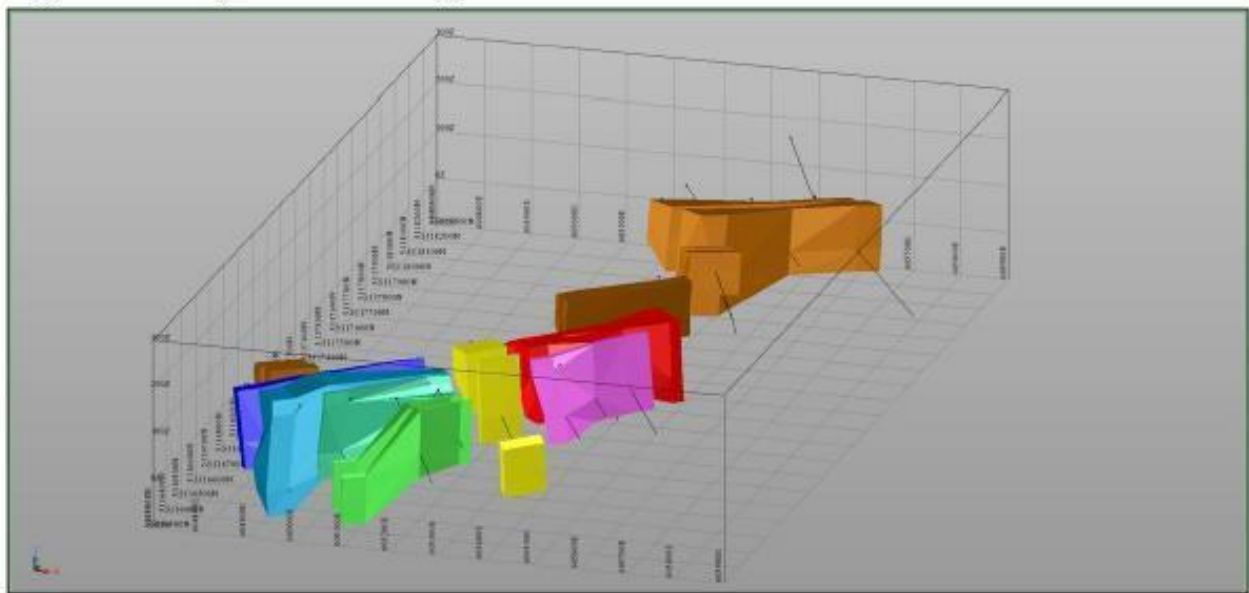
Hughes cautions that, in areas of tight folding, for which this area definitely qualifies, results and therefore interpretation may be misleading, as there can be cancelling magnetic effects due to close repeating of magnetic horizons leading to apparent magnetic lows where in fact strongly magnetic material may be present.

9.2 Exploration Target

During the fall of 2017, the Company contracted Mercator Geological Services Limited (Mercator) of Dartmouth, Nova Scotia to develop a target for further exploration expressed in potential quantities and grades (an “Exploration Target”) for the Battery Hill manganese deposit. This work was completed for the three main mineralized zones present on the property (Moody Hill, Sharpe Farm and Iron Ore Hill) and included examination of historical drilling data, combined with the results of MXE’s confirmation drilling programs consisting of 25 holes totaling 5,188 meters completed between November of 2016 and June of 2017. This work resulted in definition of an Exploration Target of 14 to 31 million tonnes grading between 8% and 10% Mn and 12% and 14% Fe for the Battery Hill Deposit.

The potential quantity and grade of this Exploration Target is conceptual in nature, there has been insufficient exploration to define it as a Mineral Resource and it is uncertain if further exploration will result in this Exploration Target being delineated as a Mineral Resource. The potential quantity and grade ranges for this Exploration Target were derived from a preliminary geological model developed for the project by Mercator using inverse distance squared (ID2) grade interpolation supported by 3 meter downhole assay composites, with interpolations constrained within wire-framed solid models developed by Mercator (Figure 9.2). Minimum metal thresholds of 5% and 8% Mn were applied. Additional infill core drilling and interpretation of results is required to increase confidence in the geological model and thereby support definition of, at minimum, an Inferred Mineral Resource.

Figure 9.2: Oblique view looking northwest of the Mn % solid models



9.3 Interpretation of Exploration

In 2010 the results from chip and channel sampling and two diamond drill holes totaling 377 meters confirmed significant quantities of manganese bearing material of economic interest occur at the Iron Ore Hill site.

The 2011 magnetometer survey was completed using an Overhauser GSM-19 instrument and covered all of the claims of exploration license unit 5816 that existed at that time. It was performed by Eastern Geophysics of West Pubnico, Nova Scotia. Readings were taken at 12.5 meter intervals and lines were at 100 meter separation, run in and east-west direction on a virtual grid using a GPS for control. The results have shown that the method "found" the known occurrences and have identified areas in which there is no record of previous work done. This is particularly evident in the area north and south of the Maple Hill area, though data along the far northwest boundary of the survey may have been affected by cultural response as there are some buildings and roads in that area.

A 1:25,000 contoured map of the 2016 survey is shown in Figure 9.1. Contour intervals are at 20 nano-Tesla's (nT). The range of readings in the survey is approximately 120 nT with better defined, sharper contrast from the results in the south part of the survey as compared to the north. The results are similar to those obtained by Buchans Minerals (published on that company's website at the time) in that company's magnetometer survey over the Plymouth Deposit to the southwest of MXE claims. Sidwell commented that, based on the low response of the gravity anomaly in the Moody Hill area, "drilling results were much more favourable than had been anticipated on the strength of the gravity anomaly" indicating a potential independence of manganese and iron mineralization may exist.

In the larger, southern portion of the grid there are two large anomalies separated by an area of spotty anomalies. In the area surrounding the Iron Ore Hill historic workings there is an irregularly shaped anomaly weakly oriented along the regional trend of approximately 20 degrees azimuth that is approximately 800 meters long and 400 to 550 meters wide. The most widespread and elevated magnetometer results of the 2011 survey occur in this area.

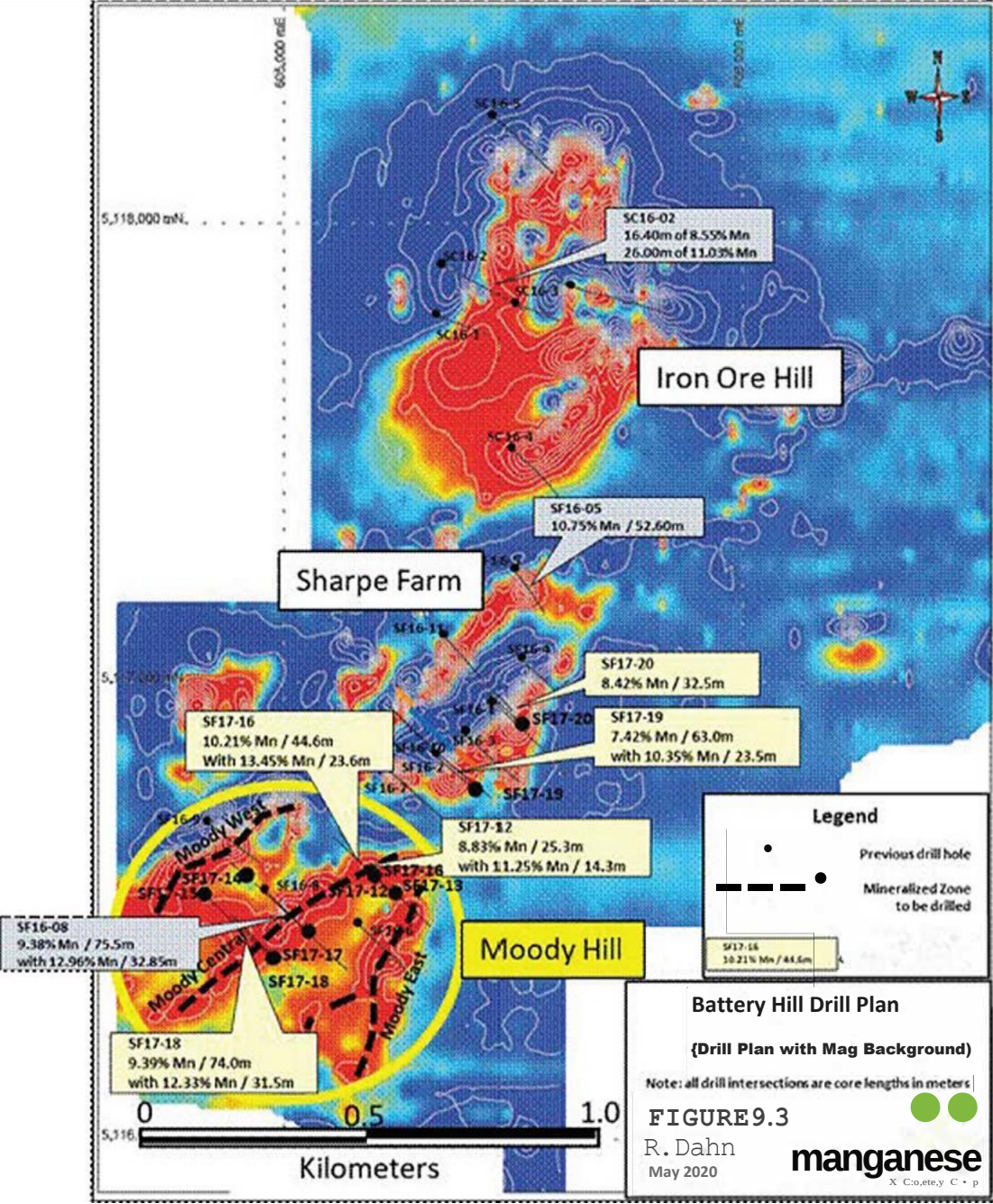
South-southwest of this, along the regional trend, there are a number of smaller anomalies forming a “noisy” area that lead to a larger 700 meter wide by 500-650 meter long (N-S) anomalous area in the far southwest corner of the grid. This latter anomaly is over the Moody Hill occurrence area and the spotty anomalies between Moody Hill and the Iron Ore Hill responses correspond with the Sharpe Farm occurrence area. Approximately 30% of this region, from the south end of the Moody Hill occurrence to the northern extent of the Iron Ore Hill occurrence, a distance of 2.3 kilometers, reports as moderately to strongly anomalous.

In the long, narrow, northern area of the claims, 85-90% of the ground covered is somewhat anomalous. Local magnetic highs number more than a dozen and, although they are generally less than 100 meters in diameter, most form part of a wider anomalous trend. Midway along this trend, on the eastern side of the grid in the Maple Hill area, an anomaly of significant size that would appear to continue past the eastern edge of the current coverage.

The site of the Maple Hill showing occurs at one of the smaller magnetic highs in the northern portion of the survey, and is at the extreme western edge of the larger anomalous area, indicating that significant potential for manganese values of economic interest may occur to the east over a wider area in this region. After receiving the results of the 2011 magnetometer survey, additional staking was done to cover possible extensions of the anomalous results obtained.

After having the benefit of the magnetometer survey, it was apparent that the location of Hole GNB-11- 02 was less than optimal, as it is drilling away from the high magnetometer response in that area. GNB- 11- 03 was drilled toward the wider anomalous magnetometer results in that area (Figure 9.3) and its results support further investigation.

The 2017 work by Mercator better defined the exploration targets on the Battery Hill Property. This information can be utilized to guide further drilling aimed at establishing a compliant resource.



10.0 DRILLING

10.1 Globex Drilling 2011 (see Figure 9.3 for Plan Map Details)

Historic drilling by Stratmat was addressed in Section 6.2 above. 2011 drilling by Globex consisted of a single diamond drill hole on License 5745, while 2 holes were drilled to intersect the historic workings at Iron Ore Hill on License 5816 (see Drill Hole Details Table 10.1). The core is stored at Globex's core storage facility in Rouyn-Noranda, Quebec.

Diamond drill hole GNB-11-2 was drilled to a depth of 320 meters. It intercepted 48.3 meters of 13.9% Fe and 9.79% Mn with higher grades of manganese occurring in both the maroon and green siltstones (see Figure 7.1). The highest iron result was 27.32% Fe and the highest manganese value was 19.53% Mn. The lowest values were 6.57% and 1.69% respectively.

Hole GNB-11-3 was drilled from the same setup as GNB-11-2 but in the opposite direction. It ran 11.75% Fe and 8.69% Mn in the 49 meters of rock encountered in the hole, consisting mainly of green and minor bluish siltstones. The highest values encountered were 22.04% and 16.5% respectively. The last 2.5 meters averaged 11.52% Mn. The lowest values in the hole were 4.61% Fe and 0.46% Mn.

Table 10.1 2011 Iron Ore Hill Drill Hole Data

Hole #	Northing	Easting	Elevation	Depth	Dip	Azimuth
GNB-11-2	5117861.699	605623.053	191.308	320	-45	110
GNB-11-3	5117861.699	605623.053	191.308	57	-45	290

10.2 Manganese X Energy Drilling 2016

The 2016 drill program consisted of 3,589 meters of NQ core in 16 holes. All the drilling was on the southern anomalous areas of the grid. Five holes were drilled on the Iron Ore Hill portion of the claims, totaling 1051 meters, the remaining 2538 meters were drilled on the Moody Hill-Sharpe Farm anomalies. 1041 samples were selected for assay using XRF whole rock analysis. Significant intercept results for manganese are reported in Table 10.3 as percentage Mn.

From the literature and personal inspection of the Iron Ore Hill historic workings, the apparent average strike of the rocks in the Iron Ore Hill area is 20 degrees and the tight folding plunges steeply to the northwest. As a result of this, drilling on the site was positioned to core at an azimuth of 110 degrees. All holes in the 2016 program were at -45 degrees. Down hole measurements were taken at an average of 50 meter intervals with a Reflex instrument, which includes a 'strength of magnetic field' reading to help determine if the results are valid, or possibly affected by in-hole magnetism.

Hole locations (see Table 10.2) were, in almost every case, positioned to test the strongest magnetometer results, but also to minimize the disturbance of the property on which drilling occurred. The IOH holes were all located on the property of Snokist Farms, owned by Mac Fox, who graciously gave permission for the drilling but with the caveat that efforts be made to drill in areas that would minimize disturbance of any sort, but particularly when drill sites were in the midst of his Christmas tree plantation. As the first three holes were easily within sight of several homes, drilling was done on day shift only.

Many of the holes had trouble securing the casing, which often vibrated loose, with the hole partially complete, and additional casing had to be added. The cause of this was very soft and fractured rock near

the surface, which resulted in poor core recoveries for the first few meters. Below this point the core recovery was essentially 100% except for the couple of areas where cavities were intersected. These are identified in the logs.

Specific gravities were taken based on unit changes in all of the holes except SC16-1 and 2. Unmineralized material generally returned an SG value of 2.78 whereas the densest, presumably Mn-Fe rich material had a maximum value measured at 3.75. RQD (rock quality designation) was also measured during the logging process. Core angles from the individual holes were recorded, taken where possible, as many as reasonably possible, in an effort to help unravel the apparently complex structure of the occurrences. This task was made difficult in the massive siltstone sections, where no bedding was available over long sections, and in the Whitehead Formation where the highly calcareous rock has a strong fabric overprinting the bedding, generally with a high angle between the two, and the former often obliterating the latter, leaving just the fabric to measure, which may or may not have any relationship with the original bedding.

The majority of the units encountered were described according to variation in colour, as most were a fine grained siltstone. Some mudstone, sandstone, minor tuffaceous beds and possible conglomerates were described as well as a very small number of possible felsic intrusive rocks.

Core angles were consistently good in the Whitehead Formation, whereas in the siltstones they tend to range from 0-60 degrees, rarely more than this. Most holes have multiple sections from as little as 10 cm to several meters (averaging 20 cm?) of bedding in the core that parallels the core, that is to say a zero degree core angle. These sections, which in some holes are many in relatively short lengths of core, are obvious fold closures in some cases as the folding appears to be quite tight, however some of the longer sections may simply be a slight waviness in fairly narrow (5-15 cm?) beds that have the appearance of multiple folds. Core angles are presented as averages in the following hole descriptions, which is meant to be a general impression of the structure in the hole. Though it is not necessarily an accurate scientific exercise due to the rather arbitrary and random measuring process, it does serve a purpose in general terms.

Drill hole details from the 2016 drilling for the Iron Ore Hill area are presented in Table 10.2 and significant intercepts are presented in Table 10.3. Sample lengths ranged from 0.4 to 4 meters and averaged 2 meters.

The 2016 core is stored at the DNR core storage facility in Sussex, NB.

10.2.1 Iron Ore Hill

Hole SC16-1 was drilled off to the side of a Snokist (Christmas tree farm) road that runs southwest from the end of IOH road. It was shut down at 173 meters with a bottom angle of -43 degrees. There were 45 core angles measured, the average of which was 46.5 degrees, indicating that, on average, the dip of the strata were vertical. Core angles ranged from a low of 26 degrees (with the exception of 3 short sections that ran parallel to core, indicating probable fold noses) and a high of 80, with no noticeable trend. The hole azimuth ended at 114.3 degrees azimuth, a swing of only 4.3 degrees.

The best intercept was 22 meters from 52-74 meters consisting of an average of 8.15% Mn, in a section of medium green siltstone. Areas of deep red siltstone that were expected to have significant results tested quite low in Mn, though occasional narrow bands of deep red material did return some good values. The hole is located approximately 300 meters west-southwest of GNB-11-2, set back from, and

further south along, the geological trend (Figure 9.3).

Hole SC16-2 was drilled 100 meters north of hole SC16-1, near the edge of a Christmas tree staging area, about 280 meters behind (west) of GNB-11-2 and approximately 80 meters south. There were 75 core angles measured with an average of 47.9 degrees, again indicating a steeply dipping body. There was a general lessening of core angles toward the bottom, averaging under 40 degrees in the last 12 measured, indicating a shallowing of the structure toward the west (but still fairly steep). There was also a 6 meter section starting at 242.8 where the bedding paralleled the core. The last azimuth reading was 125.3 at 179 meters, indicating a clockwise swing of 15.3 degrees.

Table 10.2 2016 Iron Ore Hill Area Drill Data

Hole #	Northing	Easting	Elevation	Depth	Dip	Azimuth
SC16-1	5117825.887	605500.308	185.44	173	45	135
SC16-2	5117799.574	605325.135	177.554	284	45	135
SC16-3	5117903.276	605343.733	175.764	149	45	135
SC16-4	5117505.747	605498.412	187.686	242	45	135
SC16-5	5118237.181	605459.941	179.533	242	45	135

Like SC16-1, there are mixed units of grey, green and various shades of red siltstone. The best intercept was 26 meters of 11.02% Mn, including 12 meters of 16.66% Mn, from 203-229 meters depth in the hole. Several other, somewhat widely spaced, intercepts occur as well.

Hole SC16-3 was drilled to test down dip of 2011 hole GNB-11-3, which was drilled to the northwest from the same set-up as GNG-11-2 which ended in a green siltstone that ran 10.37% Mn in the last meter. SC16-3 was in calcareous sediments until 86 meters then in grey and minor green siltstone with minor tuffaceous beds until 136 meters, and finishing off in green, black, grey and red sediments to the bottom at 149 meters. The best intersection was 7.54% Mn over 8 meters, starting at 135 meters. The hole was shut down as it encountered the red hematitic horizon as it is assumed this is the horizon already tested in GNB11-2. SC16-3 was to test for the horizon encountered in GNB11-3, which it doesn't appear to have intersected. At 128 meters SC16-3 was still at 45.3 degrees dip and 113.1 degrees azimuth. Core angles ranged from 0 to 68 in 65 measurements, with an average of 38.6 degrees.

Hole SC16-4 is located almost 400 meters south along strike from GNB-11-2, near the south end of the IOH main magnetic anomaly, in the center of the Christmas tree farm. The final dip was 43.8 degrees, just a 1.2 change upward through the 179 meters to that point. The final azimuth was 142.4. Out of 53 core angles the average was 61.9. This hole contained less red, hematitic siltstone than the previous holes. The best intercept was 12 meters of 9.38% Mn starting at 47 meters depth, in green, grey and black siltstone. Core angles were generally 50-90 degrees with minor poor angles. From 92 to 203 meters the rock type is calcareous siltstone which is considered to be the basal rock of the area, the late Ordovician Whitehead Formation.

Hole SC16-5 was spotted to test the northern area of the IOH anomaly, in an area that was interpreted to be a fold nose, presumably plunging to the northwest as is the accepted model. It was spotted at 135 degrees azimuth and was shut down at 242 meters after intersecting little of interest. The lower 48 meters were in a light grey, very calcareous siltstone, the Whitehead Formation, also occurring in the bottom of the 2011 hole GNB11-2 which encountered calcareous siltstone from 269 meters until shut down at 320 meters. 32 core angle measurements averaged 39.1 degrees, however the strong fabric

masks bedding throughout much of the hole, rendering some measurements questionable.

Significant intercepts from the 2016 drilling in the Iron Ore Hill area in holes SC16-1 through SC16-5 are summarized in Table 10.3. Intercepts are core length and assays are from Actlabs using Code 4C, XRF Fusion.

Table 10.3 Summary of Significant Intercepts (Iron Ore Hill area)

Hole #	From	To	Interval(m)	Mn(%)	Fe(%)
SC16-1	52	74	22	8.16	11.38
incl	64	74	10	9.11	11.87
	142.6	149.7	7.1	4.12	9.92
SC16-2	41.6	66	24.4	7.31	10.29
incl	41.6	58	16.4	8.55	11.79
and	50.7	58	7.3	11.19	13.9
	80	95.4	15.4	4.22	8.33
	101	109	8	9.52	13.15
	157	163	6	9.92	14.18
	187	195	8	6.83	11.56
	203	229	26	11.03	17
incl	215	227	12	16.66	23.32
SC16-3	135	143	8	9.74	16.99
SC16-4	11	17	6	7.81	14.99
	47	59	12	9.39	13.07
SC16-5	47.6	49.6	2	11.72	14.35

The 2016 drilling at IOH increased the known extent of the manganiferous siltstone on that site, however questions remained as to the structure. In particular the disappointing results in SC16-5, as this interpreted fold nose was viewed as being a prime target area. Also, SC16-3, which was to test for the horizon in which GNB11-3 was encountering when it was shut down after intercepting 49 meters of 8.67% Mn, largely in dark green and black manganiferous siltstone beds, returned just 8 meters of 7.51% Mn. These developments remain hard to explain with present information but are indicative of a complex structure.

It should be pointed out that the 2016 Iron Ore Hill holes were spotted utilizing a preliminary version of the 2016 magnetometer survey, and the gravity was only available after the drilling was complete. The final version as per the Hughes report was significantly different than the preliminary version. In addition, further re-working of the magnetometer data by R. Richard has shown to be more accurate when comparing the drill results to the original interpretation, at least in some cases, the final version of which is shown in Figure 9.3, which was only available for the last couple of holes at each of the Moody Hill and Sharpe Farm areas in the 2016 program.

The 2016 core is stored at the DNR core storage facility in Sussex, NB.

10.2.2 Sharpe Farm-Moody Hill

Eight of the nine holes drilled in 2016 at Sharpe Farm and Moody Hill were drilled at 135 degrees azimuth, with SF16-10 drilled in the opposite direction, at 315 degrees. A number of surface measurements in

these areas indicated the strike of the strata to be approximately 40-50 degrees, which agrees with the alignment of the rather linear magnetic anomalies. The dip observed at surface ranged from quite shallow in the southeast (at Moody Hill) to essentially vertical along the eastern side of Sharpe Farm. Figure 10.5 lists the more significant intercepts in the 2016 drilling of the Moody Hill-Sharpe Farm sector.

Table 10.4 2016 Moody Hill-Sharpe Farm Areas Drill Details

Hole #	Northing	Easting	Elevation	Depth	Dip	Azimuth
SF16-1	5116954.59	605459.483	191.308	276	45	135
SF16-2	5116849.145	605331.853	184.858	246	45	135
SF16-3	5116899.633	605392.091	189.186	211	45	135
SF16-4	5117049.46	605511.562	199.953	170	45	135
SF16-5	5117254.576	605479.2	203.18	152	45	135
SF16-6	5116468.521	605162.901	167.985	207	45	135
SF16-7	5116817.312	605215.983	179.911	304	45	135
SF16-8	5116536.725	604963.58	158.31	303	45	135
SF16-9	5116695.649	604832.737	139.507	198	45	135
SF16-10	5116840.58	605334.696	183.83	170	45	315
SF16-11	5117092.313	605353.195	211.291	302	45	135

Hole SF16-1 was spotted on the northern portion of a 500 meter long magnetic anomaly along the eastern side of the magnetic anomalies at Sharpe Farm, just off the woods road in an area of manganiferous rubble. The best intercept in this hole was 87.7 meters of 7.28% Mn, including 8.87% Mn over 14.2 meters starting at surface. The best Mn mineralization occurs in black to dark grey siltstone with some green and buff bands. The hole was shut down at 276 meters after passing through largely calcareous siltstone from 147.5 meters. At the bottom the hole shallowed to 27 degrees and stayed quite straight with respect to azimuth. 38 core angles for bedding measured to 147.5 meters averaged just 27.5 degrees with consistently poor values throughout, with slightly better (35-50 degrees) near the middle of the hole. For 33 core angles measured after 147.5, in the calcareous sediments where bedding is often questionable due to a strongly overprinting fabric in some sections, the average is 47.4 degrees, varying from 0-90 degrees.

Hole SF16-2 was drilled approximately 150 meters southwest along strike and 30 meters back from SF16-1, in a wider part of the same magnetic anomaly. It encountered 78.9 meters of 8.89% Mn, starting at 33 meters, including 40 meters of 10.76% Mn. Fifty two core angles were measured with an average of 47.4, indicating the dip of the target horizon was quite steep, but with the last dip measurement (at 228 meters) being 33.4 degrees, consideration might be given to testing this horizon from the opposite direction in the future. The azimuth wandered 6 degrees counter-clockwise over the length of the hole, which was shut down at 245 meters. The last 17 meters in the calcareous siltstones of the White Head Formation.

SF16-3 was spotted approximately 75 meters east of SF16-2, in between that hole and SF16-1. It was shut down at 214 meters. The hole came up 11.6 degrees to the bottom test at 188 meters and wandered just a few degrees counter-clockwise over its length. In 71 core angles measured, the average was 36.9 degrees. Measurements in some of the carbonate rich sections may actually be from the overprinting fabric, however this would only serve to increase the average, which is low and indicated that the target

is best drilled from the opposite direction. The best intersection was 40.3 meters of 8.24% Mn, starting at 11.7 meters down hole, with the highest values occurring in black, (near) schistose green and grey siltstones. Further down hole, another mineralized band had 24 meters of 5.63% Mn, including 10.65 meters of 7.06% Mn. Further still down hole, there is 13.5 meters of 10.53% Mn. This hole began in blue-grey calcareous siltstones, probably of the Whitehead Formation, and ended in red and green siltstones.

SF16-4, 170 meters in length, was located approximately 120 meters northeast, along strike, from SF16-1. From the Drill Hole Location Map, Figure 9.3, it appears this location is a weak spot in the magnetic anomaly, however the 85.5 meters of 6.87% Mn starting at 74.5 meters, which includes an 8 meter section that was not sampled and calculated at zero % Mn. This may be a case of the cancellation effect in the magnetic response due to tight folding. The Hughes interpretation of the magnetometer survey depicts stronger results in this case. The last 4 meters was in calcareous siltstones of the Whitehead Formation. The hole shallowed 4.7 degrees and wandered just a few degrees clockwise to 170 meters. Core angles were quite varied, from 0 to 70 degrees but averaged only 33 degrees, indicating this hole should have been drilled from the opposite direction. This is perplexing as the author recorded vertical dips in outcrop a short distance away.

SF16-5 was spotted at the south extremity of the Snokist Christmas tree farm, at the apparent northern end of the Sharpe Farm anomaly where it bends sharply approximately 90 degrees, suggesting a fold nose. The hole began and ended in the calcareous White Head Formation but in between, starting at 38.4 meters, had 52.6 meters of 10.74% Mn in green, grey and black siltstone. Core angles were good, averaging 57 degrees in only 25 readings due to the largely massive nature of the units. The hole was 152 meters in length and came up less than one degree over that distance, and drifted just nine degrees clockwise, though with the first reading (at 26 meters depth) having an azimuth of 143.4, (8.4 degrees from the intended azimuth of 135) the hole may have been off line somewhat at the surface due to the magnetism.

Hole SF16-6 was positioned to test the western side of the large magnetic anomaly in the Moody Hill area, as well as to test at depth Mn-Fe rich sediments exposed in a large, historic trench, from which it was 100 meters removed. The best intersection was 41 meters of 10.39% Mn starting at 46 meters followed by 12 meters of 8.58% Mn starting at 116 meters. 40 core angles were recorded with an average reading of 48.6 degrees, ranging from 15-74 degrees, with a general increase in angle toward the bottom. Most of the hole intersected shades of red siltstone with some green. The calcareous White Head Formation was encountered at 193 meters and continued to the end of the hole at 206 meters.

SF16-7, 304 meters in length, was drilled at the south end of the Sharpe Farm anomalies, in an area interpreted to be on or near a possible fold closure. This hole shallowed 5.1 degrees in 281 meters and stayed quite straight throughout its length. The best intersection was 33 meters of 6.89% Mn beginning at 14 meters depth. A 90 meter section including the above interval, which includes 4 gaps in the sampling totaling 20.2 meters that are calculated as zeros, ran 5.82% Mn. The gaps were to be sampled at a later date. The higher values (>11.6% Mn) occur in black, green and occasional buff coloured siltstones. This is among the better intercepts from the 2016 drill program. Unfortunately the core angles for this hole are poor, particularly early in the hole. Up until about 92 meters the average core angle is only 11 degrees, ranging from 0-26 degrees. From there to 114 meters, the bottom of the 90 meter calculated mineralized interval, the average core angle is 46.7 degrees. From this point down hole, the average is at approximately 40 degrees, with the entire length of the hole averaging 33.9 degrees. The low core angles are interpreted to be largely due to drilling at a less than optimal direction with respect to the strike of the sediments in this area.

SF16-8 was spotted in the north-central area of the Moody Hill anomaly and intersected 75 meters of 9.37% Mn (starting at 61 meters) which included 32.85 meters of 12.93% Mn. 18.7 meters of 8.58% Mn was intercepted starting from surface. The hole came up 15.2 degrees to 279 meters and ran essentially straight. The highest grades were encountered in mixed red, black, green and creamy white beds with the latter having among the highest grades in the entire survey at 16.9% Mn from 126-128 meters. 121 core angles were measured, some of questionable validity as they are referred to as “fabric” due to lack of evidence of good bedding. The average was 42.5 degrees, with lots of zero readings and many high angle measurements as well.

SF16-9 was spotted in the lowest elevation of the 2016 program, on the northwest area of the Moody Hill anomaly. The best intercept was 31.5 meters of 8.1% Mn starting at 31 meters, followed by 37.8 meters of 7.64% Mn starting at 80 meters, then 19.6 meters of 8.75% Mn starting at 153.4 meters. The best grades were encountered in dark grey to black siltstone in the middle intersection and dark red siltstone in the lower intersection. Out of 48 core angles measured the average was 40.7, the highest being toward the bottom. The hole came up 5.5 degrees to 180 meters and ran essentially straight with respect to azimuth.

SF16-10 was drilled in the opposite direction (315 degrees) to the other holes in the Sharpe Farm and Moody Hill area, to attempt to help in the interpretation of the complex structure of the area, and located within a few meters of SF16-2. This change in azimuth was prompted by the poor core angles obtained in, and sections of, some of the holes drilled to that point, and though assay results were dismal, the core angles were among the best obtained in the 2016 program. 34 core angles were measured with an average of 54.25 degrees, ranging from 25 to 84 degrees. The best intersection was 13 meters of 6.56% Mn, starting near the surface. This hole was spotted without the benefit of the magnetic anomaly map of R. Richard (Figure 9.5). It was positioned with the map seen in Figure 7 of the Hughes report, which indicated a much broader target. It appears that the Figure 9.3 version is more accurate. The hole intersected a mix of green, black and grey siltstone beds to 51 meters, where it encountered a 54 meter band of the calcareous Whitehead Formation. This was followed again by a mix of grey, black and green siltstones to shut down at 170 meters.

SF16-11 was positioned near the middle-western region of the Sharpe Farm anomalies, just under 200 meters along strike to the south of SF16-5, one of the better holes in the program. It was positioned to intersect two magnetic anomalies, one near the collar and one shown to occur at depth on the 3D model. The best intersection up-hole was 22.5 meters of 7.23%, which includes 4.9 meters that was not sampled and calculated as zero. This section consists of interbedded black, green, yellowish green and grey siltstone. Core angles ranged from 75 to 90 degrees in the mineralized zone. There were no significant results down hole, despite the 3-D model suggesting there should be. 66 core angle measurements were recorded with the average at 45.9 degrees, ranging from 0-90 degrees, and no particular pattern observed. The hole stayed quite straight, with respect to azimuth and came up to 42.2 degrees over its 302 meter length.

Table 10.5 2016 Moody Hill-Sharpe Farm Significant Intercepts

Hole #	From	To	Length (m)	Mn(%)	Fe(%)
SF16-1	4	91.7	87.7	9.35	16.54
incl	4	32.8	28.8	11.03	19.97
and	40.8	50.25	9.45	10.42	14.35
and	50.2	63.1	10.9	10.36	15.46

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and	72.15	91.7	19.55	11.03	17.53
SF16-2	8.5	21	12.5	6.82	10.78
	35.1	112	78.9	8.89	13.41
incl	56	96	40	10.76	15.81
	126	131.5	5.5	6.58	8.94
	179	182	3	10.46	20.26
SF16-3	11.7	52	40.3	8.24	13.15
incl	26.65	41	14.35	12.1	16.88
	76.5	87.15	10.65	7.06	10.44
	118.5	132	13.5	10.53	16.06
	145.15	152.85	7.7	8.65	11.14
SF16-4	19.4	24.5	5.1	7.49	8.55
	31.5	55.6	24.1	6.5	10.71
incl	46.3	54	7.7	9.65	14.63
	74.5	160	85.5	9.31	14.52
incl	74.5	114	39.5	10.51	16.07
and	127	160	33	9.9	14.45
SF16-5	38.4	91	52.6	10.75	16.75
SF16-6	49	90	41	10.4	14.49
	116	128	12	8.59	17.2
SF16-7	14	47	33	6.93	11.38
	59.4	64.4	5	11.59	14.69
	72.4	81.4	9	8.06	11.76
	88.2	104	15.8	9.05	15.98
SF16-8	5.3	24	18.7	8.59	7.31
	61.1	136.6	75.5	9.38	12.84
incl	103.75	136.6	32.85	12.96	14.99
SF16-9	33	64.5	31.5	8.1	13.4
	80	117.8	37.8	7.65	14.54
incl	95	116.6	21.6	8.97	16.96
	153.4	173	19.6	8.76	13.01
	186.7	192	5.3	9.74	13.94
SF16-10	5	18	13	6.66	11.01
	113.5	118.5	5	6.23	10.82
SF16-11	27	39.4	12.4	6.62	10.01
	71	86	15	9.55	14.12

Core angles varied in the drilling from 0-90° with an estimated average in the 45-50° range for the Sharpe Farm and Moody Hill areas. More drilling is required to more accurately calculate the true width of the intercepts.

10.30 2017 Manganese X Energy Drilling (modified from R. Dahn, 2018)

In 2017, MXE drilled nine holes on the Sharpe Farm and Moody Hill areas of the Battery Hill deposit. The drilling program totaled 1599 meters and was performed under contract by Maritime Diamond Drilling Ltd of Hilden, Nova Scotia. A summary of the 2017 drill program is shown in Table 10.6. Drill assay highlights are shown in Table 10.7. All drill holes were down hole surveyed for dip and azimuth orientation at approximately 30m intervals with a Fordia Reflex survey instrument.

The drill program was designed to further delineate, expand and to improve the structural understanding of the significant manganese mineralization identified by the 2016 drill program in the Sharpe Farm and Moody Hill sectors of the Battery Hill deposit. The main focus was Moody Hill where 7 of the 9 diamond drill holes were completed. Previous exploration work and the 2016 drill program indicate significant folding of the stratigraphy. In order to answer key structural questions and to improve the overall structural understanding of the deposit, three holes (SF-17-17, SF-17-19 and SF-17-20) were completed to “scissor” cut specific 2016 intersections. In the Sharpe Farm sector, SF-17-19 and SF -17-20 were drilled in a westerly direction to “scissor” SF-16-2 and SF-16-1, respectively. Hole SF-17-17 at Moody Hill was also drilled to the west to “scissor” SF-16-8.

For the 2017 drill program the author, as a consultant for MXE, logged and marked for sampling all the core. At the drill, core was placed sequentially in wooden core boxes at the drill and then closed and strapped for transport. The core boxes were transported by Manganese X Energy contract personnel or the drill company on a daily basis to the rented core logging facility located on Iron Ore Hill Road, where staff checked depth markers, box numbers and carefully reconstructed the core. The core recovery (CR) and rock quality designation (RQD) were then calculated.

Logging practice involved noting the lithologies, structure, alteration and mineralization observed in the core. Logging and sampling information was entered into a spreadsheet-based template that could be easily integrated into the project digital database. Prior to sampling, all drill core was photographed using a standardized format and digital camera to provide a permanent pre-sampling record of each hole. Core selected for sampling was cut in half using a diamond rock saw. Sample tags were then stapled in the core boxes at the beginning of the sample intervals.

Specific gravities were taken based on unit changes. A digital scale was used for this purpose. A representative portion of a particular unit was taken, encircled with a cotton thread and weighed on one scale, then suspended by the thread into a container of water to determine the mass of the sample. The SG value was determined by dividing the first value by the second. Un-mineralized material generally returned an SG value of 2.78 whereas the densest, presumably Mn-Fe rich material had a maximum value measured at 3.88.

Certified Reference Material (CRM), blanks and duplicates were inserted in the sample stream at irregular intervals. Sample lengths ranged from 0.7 to 4.1 meters and averaged 2.22 meters. Most of the holes recorded core angles that averaged greater than 45° but insufficient drilling has been done to determine true width.

10.3.1 Moody Hill

2016 diamond drilling by Manganese X Energy in this area consisted of 3 wide spaced holes, totaling 708 meters, as a first test of the broad magnetic feature in this area. The magnetic feature is approximately 650 meters wide and consists of at least three trends. These individual trends potentially are due to fold repetitions / closures. All three holes intersected significant grades of Mn mineralization, highlighted by hole SF-16-8, located in the central portion of the magnetic trend, that returned 9.38% Mn and 12.84% Fe over 75.5 meters (core 2016 diamond drilling by Manganese X Energy in this area consisted of 3 wide spaced holes, totaling 708 meters, as a first test of the broad magnetic feature in this area). The magnetic feature is approximately 650 meters wide and consists of at least three trends. These individual trends are potentially due to fold repetitions / closures. All three holes intersected significant grades of Mn mineralization, highlighted by hole SF-16-8, located in the central portion of the magnetic trend, that returned 9.38% Mn and 12.84% Fe over 75.5 meters (core width) and includes 12.96% Mn and 14.99% Fe over 32.85 meters.

The 2017 drill program in the Moody Hill sector consisted of 7 diamond drill holes totaling 1,319 meters. Highlighting the 2017 drill program results was hole SF-17-18 that intersected 74.0 meters grading 9.39% Mn and 14.72% Fe.

Table 10.6 2017 Moody Hill-Sharpe Farm Drill Hole Details

Hole #	Easting	Northing	Elevation(m)	Azimuth (true)	Dip	Length (m)
SF-17-12	605232.37	5116531.623	171.759	315	-45	215
SF-17-13	605232.37	5116532.623	171.759	135	-45	146
SF-17-14	604916.068	5116571.584	151.8	315	-80	110
SF-17-15	604826.331	5116532.549	137.6	135	-45	269
SF-17-16	605200.371	5116570.373	170.5	315	-45	170
SF-17-17	605074.758	5116444.563	166.2	315	-45	224
SF-17-18	604982.052	5116396.19	158.4	315	-45	182
SF-17-19	605422.949	5116750.674	173.6	315	-45	170
SF-17-20	605513.303	5116917.78	187.1	315	-45	113

Drill hole SF-17-12 and SF-17-16, were drilled on a section located approximately 200 meters grid north of SF-16-8. The holes were completed as a 200 meter step-out, along the Moody Central magnetic trend, from SF-16-8 which returned 9.38% Mn and 12.84% Fe over 75.5 meters (core width). Both holes were drilled on a 315 deg azimuth at -45 degree. Hole SF-17-16 was located approximately 50 meters in front of (to the northwest) SF-17-12. Hole SF-17-12 intersected 25.3 meters (from 92.7 to 118.0m) averaging 8.83% Mn and 11.99% Fe including 14.3 meters of 11.25% Mn and 13.53% Fe. Drill hole SF-17-16 returned an intersection of 44.6 meters (from 32.4 to 77.0m) grading 10.21% Mn and 13.40% Fe; which included 23.6 meters grading 13.45% Mn and 15.87% Fe. The mineralization was hosted within fine grained, dark grey-green siltstones ("Grey Ore Type") and a mixed red-green-grey -creamy white to buff, banded siltstone sequence ("Mixed Ore Type"). The higher grade interval in hole 16 (23.6m of 13.45% Mn) was dominantly "mixed type". Correlation between the two holes indicates a steep, sub-vertical dip of the stratigraphy and mineralization. Strike is interpreted to be approximately 050 deg azimuth, correlating

well with the magnetic trend.

Drill hole SF-17-13 was drilled from the same set-up as SF-17-12, but in the opposite direction at an azimuth of 135 degrees and -45 deg inclination. The hole was an approximately 100 meter step-out to the northeast (grid north) of SF-16-6 which intersected 41.0 meters (core width) of 10.40% Mn and 14.49% Fe. The mineralization encountered in both holes correlates well with the Moody Eastern magnetic trend. Hole

SF-17-13 returned three intervals ranging for 4.9m to 6.6m in thickness grading in the 6.1 to 6.9% Mn range. Potential exists to the southwest of SF-16-6 to extend the mineralized horizon.

SF-17-17 was completed on the Moody Central trend, as a “scissor” hole to SF-16-8. The hole collar was located approximately 140 meters grid east of and was drilled towards SF-16-8 at 315 degree azimuth (-45 deg). The hole intersected significant mineralization from 66.5 to 125.3 meters (58.8 meter core width) grading 8.39% Mn and 11.84% Fe which included a higher grade 21.1m section assaying 11.89% Mn. The two holes confirm a steep, sub-vertical dip of the stratigraphy and mineralization. The mineralized interval consisted of approximately 75% “Grey Ore Types” and 25% “Mixed Ore Type” with minor “Red Ore”. Between 206.0 and 211.6 meters, the fine grained red siltstones (Red Ore Type) averaged 7.66% Mn and 11.68% Fe.

Holes SF-17-15 and SF-17-18 were completed as a fence, approximately 100 meters grid south (southwest) of SF-16-8 and SF-17-17. Hole 15 was drilled to the southeast at 135 degree azimuth and Hole 18 to the northwest at 315 degree azimuth, both at -45 degrees. The holes encountered significant manganese mineralization as follows:

- SF-17-15: From 208 to 214m (6.0m core width) grading 9.47% Mn and 11.48% Fe and from 218 to 257.2m (39.2m core width) grading 8.12% Mn and 12.02% Fe.
- SF-17-18: Intersected 74.0 meters (from 40.0 to 114.0m) that averaged 9.39% Mn and 14.72% Fe.

Higher grade intervals within this broad zone included 54 meters of 10.56% Mn or 31.5 meters at 12.33% Mn. The majority of mineralization was “Mixed” and “Red” types with significant, but lesser amounts of “Grey” hosted mineralization. The holes indicate the mineralization and stratigraphy to be dipping steeply to the southeast.

The Moody Hill area drilling results indicate three mineralized trends/zones, named from west to east as the Moody West, Moody Central and Moody East. Moody West has been tested by only SF-16-9. Moody Central has been tested by six holes (SF-16-8, SF-17-12, 15, 16, 17 and 18) over an approximate 300m strike length to a maximum vertical depth of approximately 150 meters in hole SF-17-15. Moody East has seen only two drill holes, SF-16-6 and SF-17-13 located approximately 100m grid north of hole SF-16-6. Each of these mineralized zones remain open for further resource expansion drilling and have significant proportions of “Grey”, “Mixed” and “Red” mineralization types.

Moody West is located in an area approximately 20 meters lower in elevation than Moody Central and Moody East, so may be in a slightly less favourable location for mining purposes.

10.3.2 Sharpe Farm Sector Drill Holes

Manganese X Energy completed eight diamond drill holes totaling 1830 meters during 2016 and two diamond drill holes totaling 283 meters during 2017 in the Sharpe Farm sector. Manganese mineralization in the Sharpe Farm sector holes is dominantly hosted by fine grained dark grey to black siltstones with some green to buff colored sequences (“Grey”). Very little to no “Red or Mixed” types occur in the Sharpe Farm drill holes.

In an attempt to answer key structural questions and to improve the overall structural understanding of the deposit in the Sharpe Farm sector, holes SF-17-19 and SF-17-20 were drilled in a westerly direction to “scissor” SF-16-2 and SF-16-1, respectively.

Hole SF-17-19, was drilled at 315 deg azimuth (in the opposite direction to SF-16-2) to “scissor” the broad SF-16-2 intersection of 8.89% Mn and 13.41% Fe. Hole 19 collared into grey, highly calcareous Whitehead formation before entering into the host Mn rich siltstone assemblage. From 60.0 to 123.0 meters, assays averaged 7.4% Mn and 12.60% Fe over 63.0 meters core width. Within this wide zone a higher grade interval returned 32.8 meters grading 9.17% Mn and 14.43% Fe. The drill hole indicates that the overall dip of the mineralization and stratigraphy is approximately 70 to 75 degrees to the southeast.

Hole SF-17- 20, located approximately 200m to the northeast (grid north) of hole SF-17-19, was also drilled at an azimuth of 315 deg to “scissor” the wide mineralized interval in SF-16-1 (87.7m of 7.24% Mn and 11.57% Fe). Hole SF-17-20 again collared into the calcareous Whitehead Formation until a depth of 14.9 meters. Significant mineralization included 7.94% Mn and 12.22% Fe over 44.0 meters (core width) including 7.5 meters of 12.11% Mn. Similar to hole 19, SF-17-20 confirmed a southeastern dip to the mineralization and stratigraphy.

Based on the drilling completed to date in the Sharpe Farm sector, it appears that stratigraphy along the eastern side of the magnetic feature dips to the southeast and on the west side of the magnetic feature dips are sub-vertical to northwest dipping. The magnetic feature which has a “stretched donut” shape (Figure 9.5) suggests either a domal anticlinal or synclinal structure with apparent closure at both ends.

Holes on the eastern side of the magnetic feature (SF-16-1, 2, 3, 4 and SF-17-19 and 20) indicate a southeast dip to stratigraphy. On the west side of the magnetic feature, holes SF-16-5, 10 and 11 had good core angles indicating a sub-vertical to steep northwesterly dip to the units. The magnetic low internal to the overall “donut” shaped magnetic feature could be due to the occurrence of Whitehead Formation calcareous siltstones as intersected in holes SF-16-5, 10 and 11. The Whitehead formation is the basal rock unit of the area with the Smyrna Mills, manganiferous siltstones overlying them.

Table 10.7 2017 MXE Moody Hill-Sharpe Farm Significant Drill Intercepts

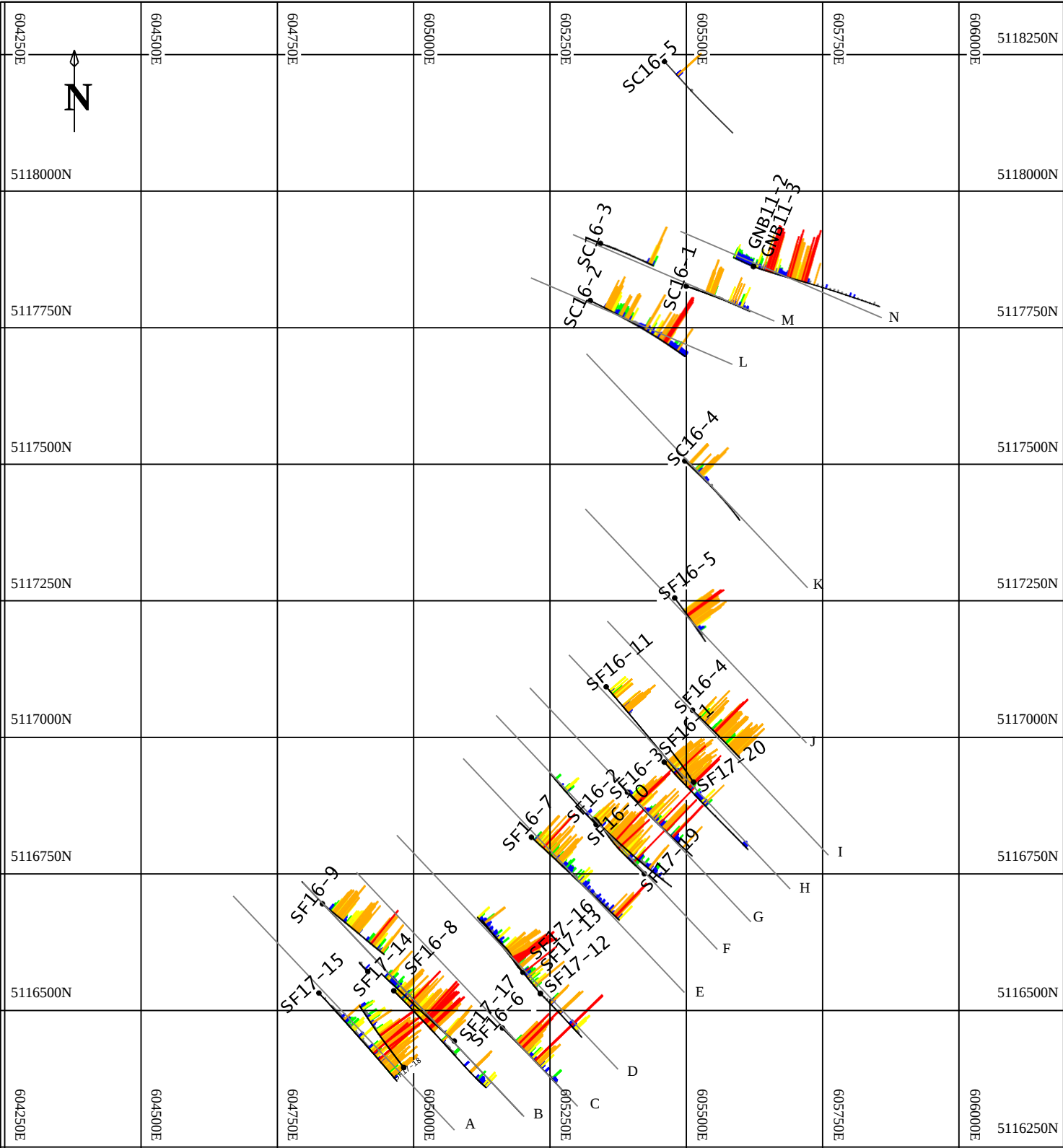
Hole #	From	To	Interval (m)	Mn (%)	Fe (%)
SF17-12	92.7	118	25.3	8.83	11.99
incl	92.7	107	14.3	11.25	13.53
SF17-13	31	37	6	6.18	10.58
	64.7	69.6	4.9	6.94	10
	117.4	124	6.6	6.28	10.26

SF17-14	no significant intercepts				
SF17-15	177.1	192	14.9	6.78	8.68
	208	214	6	9.47	11.48
	218	257.2	39.2	8.12	12.02
SF17-16	32.4	77	44.6	10.21	13.4
incl	32.4	56	23.6	13.45	15.87
SF17-17	17	30	13	8.35	16.93
	66.5	125.3	58.8	8.39	11.84
incl	66.5	100	33.5	10.22	13.12
incl	83	93	10	14.25	16.16
	130.5	144.5	14	5.5	9.7
	206	211	5.6	7.66	11.68
SF17-18	40	114	74	9.39	14.72
incl	40	94	54	10.56	16.45
incl	60.5	92	31.5	12.33	18.99
SF17-19	29.3	42.1	12.8	5.63	10.29
	60	123	63	7.4	12.6
	77	109.8	32.8	9.17	14.43
	84.5	108	23.5	10.35	14.59
SF17-20	37.5	81.5	44	7.94	12.22
incl	37.5	70	32.5	8.42	12.95
incl	55.8	64	8.2	12.11	18.07

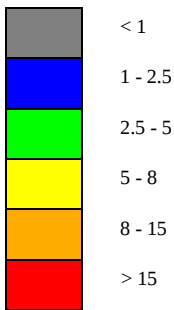
Figure 10.1 (below) is a drill plan map incorporating all the drilling on Battery Hill since 2011 with colour coded bar graphs depicting the grades encountered in each. Moody Hill is at the bottom.

Figure 9.3 (above) shows the general locations of Moody West, East and Centre.

Two sections across the Moody Hill mineralization may be found in Appendix II.



Mn %



Manganese X Energy Corp

Battery Hill Project - Drill Plan

Mn % Bar Graphs

UTM NAD83 Zone 19

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Globex Drilling 2011

For the 2011 Globex drill program the core was delivered directly from the drill to a secure core shack rented from Snokist Farms where it was logged, sampled and split by consulting geologist (for Globex) Richard Flynn, and supervised by the author. The sections of core identified for sampling were marked appropriately with crayon and split in two using a diamond saw. Half of the core was put in plastic sample bags, tagged, zip tied and put in boxes and deposited at the Activation Laboratory (Actlabs) office in Fredericton by Mr. Flynn, where initial crushing was done. From there they were forwarded by Actlabs to their Ancaster, Ontario lab where whole rock analysis was done on them.

11.20 MXE Drill Program 2016

For the 2016 program, the core was taken from the core tube at the drill by the drill crew, placed in core boxes and, when the individual tray was full, a lid was put on it and secured with sturdy rubber bands or fibre tape. Core was then delivered by the drilling company or Manganese X Energy staff to the rented Manganese X Energy core shack, a very large multi-purpose garage that was locked at all times when staff were not present. Some of the core was placed inside the building immediately upon delivery, however when lack of space precluded this, the core was stacked near the building with lids still in place.

The core was then moved into the secure core shack rented from Sharpe Farm property owner Roy Sharpe, logged by the author and geologist Rob Richard, marked for splitting with a red crayon, photographed then stacked adjacent to one of two Husqvarna overhead, water cooled, diamond blade core saws. The saws were operated by area residents and MXE staff who were trained in standard core cutting procedures and QA/QC protocols. Once the operators cut the core in two, down the middle as marked by the geologist, half of the core was returned in place in the core box, the other half placed in a heavy duty, clear poly bag along with a tag bearing the sample identification number. A second, duplicate tag was placed under the split core near the start of the sample in the core box. Red crayon was also used to mark the beginning and end of each sample in the box.

The tag number was then written in indelible marker on the outside of the poly bag, for easy identification at the lab. The sample bag was then zip tied and placed in a larger fiber bag for shipping to the lab. The fiber bag (holding 4 to 7 samples) was also zip tied and the range of numbers for the samples contained within were marked with indelible marker on the outside.

When sufficient, full, fiber bags had accumulated, they were itemized on a submission form which listed the samples included in the shipment, then loaded on a truck and driven by Manganese X Energy staff directly to the Actlabs prep lab in Fredericton where, depending on the backlog, they would be processed there. If the backlog was too great, the lot would be shipped by Actlabs to their main lab in Ancaster, Ontario. If they were processed in Fredericton, only the pulps would be sent to Ancaster.

A total of 1046 samples were taken in the original sampling of the 2016 drilling, and a combined total of inserts, consisting of blanks, duplicates and Certified Reference Materials, were added to the sample stream. This comprised 16.7 % of the total.

11.2.1 2016 Drilling QA/QC

As part of QA/QC protocol, blanks composed of commercially available, bagged silica sand were inserted approximately every 20 samples. Also, approximately every 20 samples a sample was quartered and inserted in the samples as a duplicate. In addition, approximately every 10 samples, one of two, alternating, Certified Reference Material (CRM) samples were placed in the sample sequence. The CRM's consisted of supergene manganese ore from lower cretaceous sediments in the Northern Territory of Australia (Oreas 171) and tungsten-magnetite supergene manganese skarn from NSW Australia (Oreas 700). Although these two are not very close in grade to the expected manganese values, it is the closest that could be found in an online search worldwide. Iron values are closer to the range expected in the Woodstock property. The supplying company is Ore Research and Exploration Pty Ltd. (OREAS). See Table 11.1 for certified reference material details.

Table 11.1 Certified Reference Material Details

Certified Reference Material		Certified Value	95% Confidence	95% Confidence
Oreas 171			low	high
Mn Ore	Mn	35.1	34.84	35.36
	Fe	3.66	3.48	3.84
Oreas 700				
W-magnetite Skarn	Mn	0.321	0.315	0.327
	Fe	16.06	15.95	16.16

11.2.2 Comment on QA/QC Results

46 blanks consisting of commercially available, bagged silica sand were inserted in the sample series. The Fe range was from 0.217% to 0.950% with an average of 0.46%, and the Mn range was from 0%-0.045%, with an average of 0.01%. These results are considered acceptable to the author.

46 duplicate samples obtained by quartering the half core and entering it immediately after the main sample in the sample stream. The results for Fe ranged from a difference of 0% to 3.18% with an average difference of 0.540%. For Mn, the range of differences were from 0.003 to 1.41% with an average of 0.348%. Given the layering in many of the samples, and the not uncommon occurrence of laminated bedding paralleling core in some areas, the average difference of approximately 0.5% for these elements is considered acceptable to the author.

39 OREAS 700 Certified Reference Material (CRM) standards were inserted in the sampling stream with a range of 15.97% to 16.53% and an average of 16.26 for Fe. The certified value for the standard, as indicated in Table 11, is 16.06, with a 95% confidence level of 15.95% to 16.16%. For Mn, the range was 0.313% to 0.334% with an average of 0.323%. The Certified Value for Oreas 700 is 0.321 (for elemental Mn) with a 95% confidence range of 0.315% to 0.327%. These values are marginally outside the expected parameters of the CRM, which may be in part attributable to the CRM material being from volcanoclastic/skarn host rock.

44 OREAS 171 CRM standards were inserted, on an alternating basis with OREAS 700, into the sample

stream. The range of assays was from 3.19% to 3.66% Fe, with an average of 3.50%. The Certified Value for Fe was 3.66% with a 5% window of 3.48% to 3.84%. For Mn the range was 33.39% to 34.59% with an average of 33.94%. The Certified Value for Mn was 35.10% with a 95% confidence level of being within 34.84% to 35.36%. Again the assay results are somewhat off from the expected range, on the lower side. This may be attributable to the CRM being best suited for Mn values ranging from 35-46% Mn. The Fe values are within the expected range and the author finds the results of the results for this CRM as being acceptable.

11.2.3 Check Samples

Six samples from the 2016 drill program assay pulps tested at Actlabs facilities were sent to SGS Laboratories for check analysis. The results, along with the results of the original sample results, are shown in Table 11.2. A single sample of each of the Certified Reference Material samples were also tested. All comparisons were within reasonable limits and acceptable to the author.

Table 11.2 2016 Check Sample Results

Woodstock 2016 Drill Program					
Independent Laboratory Results	SGS	Actlabs	SGS	Actlabs	SGS
		Fe2O3	Fe2O3	MnO	MnO
Sample # Original	Sample # Check	Value Original	Value Check	Value Original	Value Check
1400332	319401	23.35	23.2	14.9	15
1400342	319402	16.71	16.1	20.53	20.4
319148	319403	22.9	23.5	16.2	16.31
319155	319404	24.88	25.1	20.54	20.2
319165	319405	19.83	19.7	9.651	9.77
319175	319406	14.15	13.6	8.091	8.3
CRM 700	319407	22.96	22.8	0.415	0.42
CRM171	319408	5.233	5.14	45.32	44.9

11.30 2017 Drill Program

For the 2017 drill program the author, as a consultant for MXE, logged and marked for sampling all the core. At the drill, core was placed sequentially in wooden core boxes at the drill and then closed and strapped for transport. The core boxes were transported by Manganese X Energy contract personnel or the drill company on a daily basis to the rented core logging facility located on Iron Ore Hill Road, where staff checked depth markers, box numbers and carefully reconstructed the core. The core recovery (CR) and rock quality designation (RQD) were then calculated.

Logging practice involved noting the lithologies, structure, alteration and mineralization observed in the core. Logging and sampling information was entered into a spreadsheet-based template that could be easily integrated into the project digital database. Prior to sampling, all drill core was photographed using a standardized format and digital camera to provide a permanent pre-sampling record of each hole. Core selected for sampling was cut in half using a diamond rock saw. Sample tags were then stapled in the core

boxes at the beginning of the sample intervals.

Specific gravities were taken based on unit changes. A digital scale was used for this purpose. A representative portion of a particular unit was taken, encircled with a cotton thread and weighed on one scale, then suspended by the thread into a container of water to determine the mass of the sample. The SG value was determined by dividing the first value by the second. Un-mineralized material generally returned an SG value of 2.78 whereas the densest, presumably Mn-Fe rich material had a maximum value measured at 3.88.

After processing, the samples were dropped off at Activation Laboratories Ltd sample preparation facility in Fredericton, New Brunswick. All core from the drilling program are stored at the NBDEM core storage facility in Sussex.

11.3.1 2017 Drilling QA/QC

For quality analysis and quality control three standard/reference samples were used; a blank sample consisting of silica sand, a two alternating certified reference material (CRM). These standard/reference samples were inserted at approximately 20 to 25 sample intervals. In addition, duplicate sampling was inserted, completed at approximately every 20 sample, by quarter cutting the sample interval. The CRM used was Oreas 171 and Oreas 700 both obtained from Ore Research and Exploration Pty Ltd. CRM's consisted of supergene manganese ore from lower cretaceous sediments in Northern Territory of Australia (Oreas 171) and tungsten-magnetite skarn (Oreas 700) from NSW Australia. Table 11.1 provides details the certified reference material used. Table 11.2 compares results between Actlabs and SGS Laboratories from the same sample pulps. These results are considered acceptable to the author.

11.3.2 Comment on QA/QC

10 blanks of silica sand were placed at irregular intervals in the sample stream. The results ranged from 0.22% to 0.55% Fe, with an average of 0.41%. Mn results ranged from 0.005% to 0.132% with an average of 0.04%. These results are considered acceptable for the purpose intended.

12 samples of half core were quartered and entered into the sample stream immediately following the main sample. For Fe the results of the differences between the two samples ranged from 0.042% to a high of 1.19% with an average difference of 0.59%. For Mn, the differences between the samples ranged from 0.033% to 1.79% with an average of 0.501%. Given the inconsistency of the layering in the core, these results are considered well within the expected range.

6 samples of CRM OREAS 700 were inserted, with the range for Fe being from 16.07% to 16.23% with an average of 16.16%. The Certified Value for Fe for this CRM is 16.06% with a 95% confidence range of 15.95% to 16.16%. The results obtained are within the expected range and are considered acceptable. For Mn, the results obtained ranged from 0.319% to 0.336% with an average of 0.323%. The Certified Value for Mn for this CRM is 0.321 with a 95% Confidence range of 0.315% to 0.327%. These results are considered acceptable by the author.

There were 6 samples of CRM OREAS 171 placed in the sample stream. For Fe the results ranged from 3.31% to 3.69% with an average of 3.45%. The Certified Value for this CRM is 3.66% with a 95% Confidence Range of 3.48% to 3.84%. For Mn, the results ranged from 33.93% to 35.26% with an average of 34.43%. The Certified Value for Mn for this CRM is 35.1% with a 95% Confidence Range of 34.84% to 35.36%. For

both these elements the results are slightly lower than the Certified Value of the CRM. The slight differences may be attributable to the differences in ore types (unidentified sedimentary Mn ore mixed with barren siltstone vs Mn rich iron formation at Woodstock) and the possible different reactivities with acids due to metallurgical differences. These results are considered acceptable to the author.

One error was encountered in this research in that sample 318962, which was identified as CRM 171, but the results were not close to the expected results. The following sample, 318963, did have results that are within the range of CRM 171, and it is assumed that the CRM should have been identified as the latter sample.

No check samples were done in the 2017 program.

11.4 Sample Preparation

Laboratory prep procedures involved Actlabs Code RX1, which included drying, crushing entire sample (up to 5 kg) to 80%-10 mesh, riffle split and pulverizing a 350 gram split (500 gram bowl) to 95% -150 mesh. A cleaner sand is automatically used between every sample to avoid contamination. All crushing and pulverizing equipment are TM Engineering Terminators and TM MAX 2 pulverizers which are all new state-of-the-art sample preparation equipment. Dust control systems are also state-of-the-art, to maintain contamination to as low a level as possible. One in forty samples has a second pulp prepared from the reject as a QC check. Pulp duplicates are also routinely prepared (1 in 20). Quality of the rejects and pulps are routinely monitored to ensure proper preparation procedures are performed.

11.5 Laboratory Procedures

The assay method chosen for both the 2016 and 2017 drilling programs was XRF-Fusion, Actlabs Code 4C where samples are fused with lithium metaborate/ tetraborate in platinum crucibles using automated fluxers at 1150 degrees Celsius. The molten mixture is poured into heated platinum molds and allowed to cool. The glass disc formed is analyzed with either a Panalytical Axios Advanced or PW2400 wavelength dispersive XRF.

Assay results were received by email from Actlabs. Actlabs is an international, full service analytical service company in business for 25 years. It is ISO 17025 accredited and/ or certified to 9001:2008, OMAFRA accredited, Health Canada Licensed and audited by the FDA.

12.0 DATA VERIFICATION

The author visited the site and implemented or supervised all the exploration programs on the Battery Hill, Globex and Manganese X Energy property since 2009. The 2010, 2011 and 2016 sampling were reported in the 2016 NI 43-101 Technical Report on the Property and briefly in preceding sections. The author is confident in the accuracy of this information. The 2016 and 2017 drill programs and sampling employed standard QA/QC practices, and the author is confident in the accuracy of the results obtained in those programs.

During the various exploration activities conducted on the MXE Battery Hill Property since 2010, the author has located all the various manganese-iron showings and old workings as indicated in the limited historic documents. Surface sampling by the author of these sites has produced values similar to those obtained in the results of the drill programs, and similar results have also been obtained in the drilling results. The author is satisfied with the results of the data verification and therefore for the purposes of this report the data provided is deemed adequate and accurate.

Drill holes were spotted using a handheld GPS on a virtual grid system. The author is confident that the locations of the drill holes are as presented in Figures 9.5 and 10.8, within the error limits of the handheld device, generally being 3-4 meters. All drill holes were subsequently surveyed by Dale M. MacFarlane Surveys Ltd of Woodstock, NB, ensuring the locations and elevations are plotted as accurately as possible, and the results were shown to be generally within a meter of the intended site.

No check sampling was done for the current Technical Report as the author was responsible for all aspects of the exploration efforts on the Property since 2010, including sampling procedures. The last site visit by the author was on June 15th, 2017 after a long period of working (drilling and logging) on the Property. No site visit was undertaken at the present time as COVID-19 restrictions prevent Provincial border crossings.

13.0 Mineral Processing and Metallurgical Testing (modified from R. Dahn, P. Geo., 2018)

13.1 Historical Metallurgical Testing

K.M. Ralston, a mining engineer, in a report to the Canadian National Railway, reports that Noranda Mines did a series of metallurgical tests of the mineralization near Woodstock and determined that the deposits “are too intimately associated to be separated by floatation. Some encouragement was given by a process that involved leaching of the manganese by nitrogen dioxide gas, clarification of the resulting solution of manganese nitrate, and precipitation of the manganese by electrolysis”. Gravity and magnetic methods were also investigated at this time.

In the 1950’s Stratmat extracted bulk samples from the Plymouth Deposit and shipped them to a facility owned by that company in Niagara Falls Ontario where pyro-metallurgical process was tested. The cost of heating the ore proved to be the downfall of this attempt.

In 1969, Mandate Refining Company, who had taken over the claims previously owned by Stratmat, produced a report on the investigations into the processing of the Woodstock area ferro-manganiferous material that involved the addition of pyrite obtained from the mining of base metal ore at Bathurst, New Brunswick, combining it with the manganese material, heating the combination to form an oxide, then utilizing an electrolytic process to produce an economically viable product. It too, proved to be less than viable.

In 2011-2012 Thibault and Associates Inc. was enlisted by CMC to run a bench scale testing of the manganiferous material provided by CMC from recently drilled core at the nearby Plymouth deposit. In conjunction with the Minerals Engineering Centre at Dalhousie, the testing determined that an “atmospheric sulphuric acid leach may provide sufficient extraction of manganese from the mineralized material”. Pre-concentration testing in 2012-2013 using several different methods was explored as itemized in the following list:

- High gradient magnetic separation
- Heavy media separation
- Floatation (several types)

A flotation method proved to be the most favourable resulting in 17.4% Mn at 68.6% recovery. Further hydrometallurgical fine tuning was undertaken in early 2013. Using the final formula, taking into account economic viability, the recovery of manganese in the combined leach-primary ion unit operations provided a recovery range between 85.7 and 88.2%, with an average of 87%.

In the CMC 2014 PEA report, Tetra Tech reports, using the optimal processing methodology explored to date (July 2014) “leach extraction of manganese for the present study are based on preliminary bench scale test program results for leaching red and grey High Gradient Magnetic Separation concentrate samples, which demonstrated leach extractions of 89.75% and 91.11% percent manganese. The overall manganese recovery in the hydrometallurgical portion of the process block diagram has therefore been defined as 90% for the PEA study”. Additional testing determined the major solid residue provided by the above process is primarily comprised of gypsum, silica and minor amounts of phyllosilicate type minerals.

Note: The above testing and results have been undertaken by companies external to MXE and material provided exclusively from the Plymouth Deposit and, although cursory examinations show there are similarities between that deposit and the mineralized horizons located on MXE claims, there can be no assurance that the same hydrometallurgical processes will be applicable to the mineralization that exists on MXE claims.

13.2 Current Mineral Processing and Metallurgical Testing

Significant manganese mineralization on the Property is hosted primarily within brick red to maroon coloured siltstones, green-grey to black siltstones and a banded, mix of the red and grey siltstones. These three mineralization host siltstones have been termed Red, Grey and Mixed for simplicity. Based on reported historic metallurgical testing at the Plymouth deposit located approximately 5 kilometers to the south of the Property, it was determined that the brick red siltstones and green-grey to black siltstones would likely differ in mineralogy, with respect to the types of manganese and iron minerals present.

During 2017, Manganese X Energy initiated a number of preliminary mineralogical and metallurgical related studies, further described in the following sections. The studies were completed on composite samples of Red and Grey mineralization and Mixed in some cases. The primary (master) composite samples for the assorted test work were obtained from samples assay reject material from drill holes SF-16-6, 8 and 9 located on the Moody Hill and hole SF-16-2, 4 and 5 located on the Sharpe Farm sectors of the Battery Hill deposit. The composite samples of Red and Grey mineralization totaled 98.84 Kilograms and 251.84 kilograms respectively. Sampling and compositing was completed at the core logging facility located on Iron Ore Hill Road, between March 10 and 12, 2017, by Roger Dahn and the author. As the composite samples were being prepared each individual reject sample was weighted using a digital scale and recorded, to allow for weighted average grade calculations of the composite samples. Details of the Red and Grey composite samples are presented in Table 13.1. The composite sample material for each of the Red and Grey samples was then delivered to RPC Science and Engineering (RPC) located in Fredericton, New Brunswick, for final mixing and homogenization. The two homogenized "master" composite samples (J2035 Red sample and J2035 Grey sample) are securely stored at RPC. As certain assorted mineralogical or metallurgical test work was initiated, the required amount of material was shipped directly from RPC.

Table 13.1: Red and Grey Mineralization "Master" Composite Samples

COMPOSITE SAMPLES OF 2016 DRILL PROGRAM "REJECT SAMPLE MATERIAL" FOR ASSORTED METALUGICAL TESTWORK					
RED ORE COMPOSITE		98.84 KG's of Rejects with a weighted average grade of 9.12 % Mn and 11.95 % Fe			
		Red composite was formed by combining 100% of reject material from 19 samples from holes SF-6, SF-8 and SF-9. The weight (Kgs) and grade of the drill intervals used are listed below.			
		% Mn	% Fe	Weight (Kg)	
100% of rejects	SF-6 (Moody)	9.33	17.65	18.55	
100% of rejects	SF-8 (Moody)	9.39	7.63	37.03	
100% of rejects	SF-9 (Moody)	8.80	13.20	43.25	
GREY (NON-RED) ORE COMPOSITE		251.84 KG's of Rejects with a weighted average grade of 10.34 % Mn and 15.01 % Fe			
		"Grey" composite was formed by combining 50% of reject material from 69 samples from holes SF-2, SF-4 and SF-5; and 100% of reject material from 23 samples from holes SF-8 and SF-9. The weight (Kgs) and grade of the drill intervals used are listed below.			
		% Mn	% Fe	Weight (Kg)	
50% of rejects	SF-16-2 (Sharpe)	10.88	15.99	44.41	
50% of rejects	SF-16-4 (Sharpe)	9.87	15.50	49.11	
50% of rejects	SF-16-5 (Sharpe)	10.70	16.71	58.62	
100% of rejects	SF-16-8 (Moody)	13.57	10.55	26.78	
100% of rejects	SF-16-9 (Moody)	8.67	14.46	58.98	
100% of rejects	SF-16-9 (Moody)	9.74	13.94	13.92	

13.3 Mineralogical Testing – QEMSCAN (modified from R. Dahn, 2018)

Four composite samples from the property were submitted to the Minerals Services group of SGS Canada for chemical analysis and mineralogical characterization by X-ray diffraction analysis and QEMSCAN. Two of the manganese composite samples (A-Red and B-Grey) were from Globex Mining drill holes GNB-11-2 and GNB-11-3 located on the Iron Ore Hill Occurrence and two manganese composites J2035 Red material and J2035 Grey material were portions of the “master” composite Red and Grey samples from holes in the Sharpe Farm and Moody Hill sectors of the Battery Hill deposit. One of the objectives of this study was to compare the Red and Grey samples from both areas of property to determine if they are the same or similar with regards to the overall mineral contents, deportment of manganese, and liberation of the manganese minerals. The following summary has been taken from the SGS Canada Inc report titled “The Mineralogical Characteristics of two Manganese Composite Samples from the Battery Hill Property – Report 16134-002 Final Report” dated May 10, 2017.

The X-ray diffraction and QEMSCAN analyses detected several manganese-bearing minerals. The analysis showed that the manganese phases have highly variable manganese concentrations. The QEMSCAN results include the modal mineralogy and various sets of deportment data illustrating the minerals by composition. Table 13.2 presents the manganese mineral discrimination by QEMSCAN study and the mineral identification by composition, where Table 13.2 and 13.3 present the overall mineral distributions comparing the two Red samples and two Grey samples.

To summarize,

- Sample A (Red) from the Iron Ore Hill area is mainly comprised of the Mn-Fe silicate (+/- Al, Ca & Mg) at nearly 30% with moderate amounts of Fe-oxides (9.1%), Mn-Ca carbonate (7.3%), sericite/muscovite (6.6%), Ca-phosphate (low impurities) (6.2%), quartz (5%), and plagioclase (5.7%). Other minerals detected in minor and trace levels include the rhodonite minerals (Mn-silicate - 1.7%, Mn-Ca-silicate - 2.8% and Mn-Ca-Al silicate - 2.5%), Mn-mica/clays (4.8%), other Mn-carbonates (kutnohorite) phases (Ca-Mn-Fe carbonate - 2.0%, Mn-Fe carbonate - 0.3%), K-feldspar (1.1%), biotite (3.2%), chlorite (2.5%), clays (4.3%), Fe-Al silicate (1.7%), siderite (1.5%), barite (0.1%), and sulphides (1.2%).
- J2035 Red material from the Moody Hill-Sharpe Farm areas, is mainly comprised of the moderate amounts of quartz (12.0%), Mn-Fe silicate (+/- Al, Ca & Mg) (10.1%), Fe-oxides (6.2%), Mn-Ca carbonate (7.5%), sericite/muscovite (9.5%), chlorite (11.1%), and biotite (8.65%). Other mineral detected in minor and trace levels include the rhodonite minerals (Mn-silicate - 2.0%, Mn-Ca-silicate - 4.5% and Mn-Ca-Al silicate - 1.6%), Mn-mica/clays (3.3%), the other Mn-carbonates (kutnohorite) phases (Ca-Mn-Fe carbonate - 1.1%, Mn-Fe carbonate - 0.32%), Mn-carbonate (rhodochrosite – 4.4%) Ca-phosphate (low impurities) (2.8%), and plagioclase (3.8%), K-feldspar (2.3%), biotite (3.2%), plagioclase (3.8%), clays (1.9%), Fe-Al silicate (4.4%) and siderite (0.74%).
- Sample B (Grey) from the Iron Ore Hill area is mainly comprised of Mn-Fe silicate (+/- Al, Ca and Mg) at nearly 25%, with moderate amounts of quartz (12.6%) and chlorite (11.2%), and moderate to minor amounts of the kutnohorite phases (Mn-Ca carbonate – 7.8%, Mn-Ca carbonate - 6.5% and Mn-Fe carbonate - 2.5%). Other phases in minor and traces levels include rhodonite (Mn-silicate - 0.86%, Mn-Ca-silicate - 0.75% and Mn-Ca-Al silicate - 1.6%), Mn- mica/clays (1.2%), rhodochrosite (Mn-carbonate - 2.8%), plagioclase, (0.4%), K-feldspar (1.1%), sericite/muscovite (4.0%), biotite (2%), clays (1.8%), Fe-Al silicate (5.0%), rutile (0.63%), siderite (4.1%), Fe-oxides (0.64%), Ca-phosphate (low impurities) (6.15%), and sulphides (0.89%).
- J2035 Grey sample from the Moody Hill-Sharpe Farm areas is mainly comprised of Mn-Fe silicate (+/- Al, Ca and Mg) at nearly 21%, with moderate amounts of quartz (8.1%) and chlorite (14.9%), and moderate to minor amounts of the kutnohorite phases (Mn-Ca-Fe carbonate – 4.8%, Mn-Ca carbonate - 8.1% and Mn-Fe carbonate - 4.2%). Other phases in minor and traces levels include rhodonite (Mn-silicate

- 0.61%, Mn-Ca-silicate - 0.88% and Mn-Ca-Al silicate - 0.83%), Mn- mica/clays (1.52%), rhodochrosite (Mn-carbonate - 2.8%), plagioclase, (2.2%), K-feldspar (1.2%), sericite/muscovite (5.8%), biotite (2.3%), clays (1.4%), Fe-Al silicate (7.5%), rutile (0.61%), siderite (0.65%), Fe-oxides (1.10%), Ca-phosphate (low impurities) (5.1%), and sulphides (1.58%).

Table 13.2 illustrates that there is a significant difference between the two Red samples where Sample A (Red) from Iron Ore Hill has a higher abundance of Mn-Fe silicate (+/- aluminum, calcium, and magnesium) (by 19.7%), plagioclase (2%), clays (2.4%), Fe-oxides (2.3%), and Ca-phosphates (3.4%). The J2035 Red Ore from the Moody Hill-Sharpe Farm area has higher concentrations of chlorite (8.1%), K- feldspar (1.2%), quartz (7%), biotite (5.3%), Fe-Al silicate (2.1%) and notably, the Mn-carbonate (rhodochrosite at 4.4%).

Table 13.2: QEMSCAN Mineral Discriminations and Mineral Identifications: Modal Distributions (Mass%) of the Calculated Head for Each Red Material Sample and the Difference Between Them

LIMS #	MI5022-FEB17	MI5028-MAR17	
Sample Name	Sample A(Red)	J2035 Red Ore	Difference
Deposit Name	Houston Woodstock	Battery Hill	
Mn-Silicate	1.85	2.02	-0.37
Mn-Ca-Silicate	2.84	4.53	-1.68
Mn-Ca-Al Silicate	2.48	1.83	0.85
Mn-Fe Silicate (+/- Al, Ca & Mg)	29.80	9.76	20.03
Mn Mica/Clays	4.83	3.32	1.51
Ca-Mn-Fe Carbonate	1.96	1.13	0.83
Mn-Ca Carbonate	7.30	7.54	-0.25
Mn-Fe Carbonate	0.33	0.32	0.02
Mn-Carbonate	0.09	4.39	-4.30
Mn Others	0.00	0.03	-0.03
Quartz	4.98	12.61	-7.65
Plagioclase	5.72	3.83	1.90
K-Feldspar	1.14	2.25	-1.12
Sericite/Muscovite	6.51	9.50	-2.98
Biotite	3.17	8.65	-5.48
Chlorite	2.45	11.05	-8.60
Clays	4.28	1.85	2.42
Fe-Al Silicate	1.74	4.44	-2.70
Other Silicates	0.06	0.12	-0.06
Rutile	0.48	0.72	-0.24
Siderite	1.52	0.74	0.78
Fe-Oxides	9.10	6.22	2.89
Other Oxides	0.03	0.12	-0.09
Carbonates	0.02	0.12	-0.11
Ca-Phosphate (Low Impurities)	6.23	2.78	3.45
Barite	0.11	0.18	-0.07
Sulphides	1.16	0.04	1.11
Other	0.05	0.11	-0.06

Table 13.3 shows that the difference between the two Grey samples is subtle where Sample B (Grey) has slightly higher concentrations of the Mn-Fe silicate (+/-aluminum, calcium, and magnesium) (3.17%), Ca-Mn-Fe carbonate (2.88%), quartz (4.3%), and siderite (3.4%). The J2035 Grey Ore has higher concentrations of the Mn-Ca carbonate (1.7%), Mn-Fe carbonate (1.8%), and chlorite (4%).

The average composition of the various manganese phases from the SEM-EDS analyses from the previous program (MI5022-FEB17) was applied in conjunction with the modal mineralogy to determine the manganese, aluminum, and silicon deportment. Table 13.2 and Table 13.3 also compare the calculated head manganese deportment for the two Red and Grey samples.

Table 13.3: Modal Distributions (Mass%) of the Calculated Head for Each Grey Sample and the Difference in Mineral Grade

LIMS # Sample Name Deposit Name	MI5022-FEB17 Sample B (Grey) Houston Woodstock	MI5028-MAR17 J2035 Grey Ore Battery Hill	Difference
Mn-Silicate	0.85	0.61	0.24
Mn-Ca-Silicate	0.74	0.88	-0.14
Mn-Ca-Al Silicate	1.54	0.83	0.72
Mn-Fe Silicate (+/- Al, Ca & Mg)	24.56	21.39	3.17
Mn Mica/Clays	1.20	1.52	-0.32
Ca-Mn-Fe Carbonate	7.73	4.82	2.91
Mn-Ca Carbonate	6.43	8.14	-1.70
Mn-Fe Carbonate	2.47	4.24	-1.77
Mn-Carbonate	2.76	2.82	-0.06
Mn Others	0.00	0.01	-0.01
Quartz	12.49	8.36	4.13
Plagioclase	0.39	2.16	-1.77
K-Feldspar	1.12	1.20	-0.08
Sericite/Muscovite	3.94	5.76	-1.82
Biotite	1.95	2.29	-0.34
Chlorite	11.08	14.92	-3.84
Clays	1.74	1.41	0.33
Fe-Al Silicate	4.93	7.54	-2.61
Other Silicates	0.05	1.35	-1.30
Rutile	0.62	0.61	0.01
Siderite	4.05	0.65	3.40
Fe-Oxides	0.64	1.10	-0.47
Other Oxides	0.16	0.24	-0.08
Carbonates	0.34	0.27	0.07
Ca-Phosphate (Low Impurities)	6.08	5.13	0.95
Barite	0.00	0.00	0.00
Sulphides	2.06	1.58	0.49
Other	0.07	0.17	-0.10

As per the modal distributions, Table 13.4 illustrates that the manganese deportment between the two Red samples is significantly different, where Sample A (Red) from the Iron Ore Hill area hosts most of the manganese in the Mn-Fe silicates (+/-aluminum, calcium, and magnesium) at 44%. This phase only accounts for 16.3% in the J2035 Red sample from the Moody Hill-Sharpe Farm areas. Notably, the manganese contribution is significantly higher from the Mn-carbonate for the J2035 Red Moody Hill- Sharpe Farm area sample at 22.9%, where it is almost nil for Sample A (Red) from Iron Ore Hill.

Table 13.5 shows that the deportment of manganese between the two Grey samples is similar, where the main difference is between the Mn-Ca carbonate and Mn-Fe carbonate contents.

Table 13.4: Manganese Department (Normalized Mass%) of the Calculated Head for Each Red Material Sample

Minerals	Sample A(Red):	J2035 Red Ore:	Difference
Mn-Silicate	5.92	7.26	1.34
Mn-Ca-Silicate	2.80	5.04	2.23
Mn-Ca-Al Silicate	2.45	1.87	-0.58
Mn-Fe Silicate (+/- Al, Ca & Mg)	44.08	16.39	-27.68
Mn Mica/Clays	3.22	2.78	-0.43
Ca-Mn-Fe Carbonate	6.16	3.91	-2.25
Mn-Ca Carbonate	27.35	32.54	5.19
Mn-Fe Carbonate	0.92	0.95	0.04
Mn-Carbonate	0.40	23.31	22.91
Mn Others	0.00	0.19	0.18
Chlorite	0.56	2.63	2.07
Other Silicates	0.01	0.00	-0.01
Other Oxides	0.00	0.01	0.01
Ca-Phosphate (Low Impurities)	6.14	3.12	-3.02
Sulphides	0.00	0.00	0.00
Other	0.00	0.00	0.00

Table 13.5: Manganese Department (Normalized Mass%) of the Calculated Head for Each Grey Material Sample

Minerals	Sample B (Grey):	J2035 Grey Ore:	Difference
Mn-Silicate	2.41	1.82	-0.59
Mn-Ca-Silicate	0.61	0.76	0.15
Mn-Ca-Al Silicate	1.28	0.70	-0.58
Mn-Fe Silicate (+/- Al, Ca & Mg)	30.49	27.35	-3.14
Mn Mica/Clays	0.85	0.85	-0.01
Ca-Mn-Fe Carbonate	20.35	13.16	-7.19
Mn-Ca Carbonate	20.24	26.33	6.09
Mn-Fe Carbonate	5.69	10.22	4.53
Mn-Carbonate	10.91	11.37	0.46
Mn Others	0.01	0.06	0.05
Chlorite	2.11	2.96	0.85
Other Silicates	0.01	0.00	0.00
Other Oxides	0.01	0.02	0.01
Ca-Phosphate (Low Impurities)	5.03	4.40	-0.63
Sulphides	0.00	0.00	0.00
Other	0.00	0.00	0.00

13.4 Diagnostic Leach and Purification Testing

MXE initiated diagnostic leach testing of the Battery Hill material by two separate firms, Kemetco Research Inc. (Kemetco) of Richmond, British Columbia and Kingston Process Metallurgy Inc. (KPM) of Kingston, Ontario. Both firms completed their test work on the two “master” composite Red and Grey samples (J2035 Red material and J2035 Grey material) from the holes in the Sharpe Farm and Moody Hill sector. In addition, KPM also completed test work on a composite sample of Mixed mineralization from the Moody Hill central zone. The Mixed Composite sample was collected from drill core sample rejects from 2017 diamond drill holes SF-17-16 (samples 318728 to 318738), SF-17-17 (samples 318805 to 08; 318810 and 318811) and SF-17-18 (samples 318881 to 86 and 318888 to 95). The grade of the Mixed Composite sample based on the weighted average calculations was 12.9% Mn and 17.5% Fe.

The laboratory scale acid leaching tests were conducted to determine the extent of Mn recovery, investigate the leach rate of the main elements (Mn, Fe, Mg) and measure the acid consumption, for the three main types of mineralization (Red, Grey and Mixed mineralization) on the Property.

The test results were encouraging with manganese extractions exceeding 95%. Overall test results from both firms (KPM and Kemetco) showed similar results and characteristics, as summarized below:

- Both mineralization types (Red and Grey) showed very high Mn extraction (>95%) indicating manganese in readily extractable minerals.
- Mn extraction was very fast (less than 2 hours) for the Red and slower in the Grey
- Fe extraction was quite different between the two types of mineralization (Red and Grey), with the Grey showing much higher leachable iron. It will therefore be easier to extract Mn while minimizing the Fe and Mg dissolution when treating the Red material.
- The mixed material showed intermediate kinetics, slightly lower Mn extraction than the two other samples, intermediate extraction of Fe, and lowest extraction of Mg.
- Overall, Mn extraction varied from 84 to 96%, depending on the material type and the test conditions.

Figure 13.1 Extraction Profile for Red Material - Mn and Fe (from Kemetco Report)

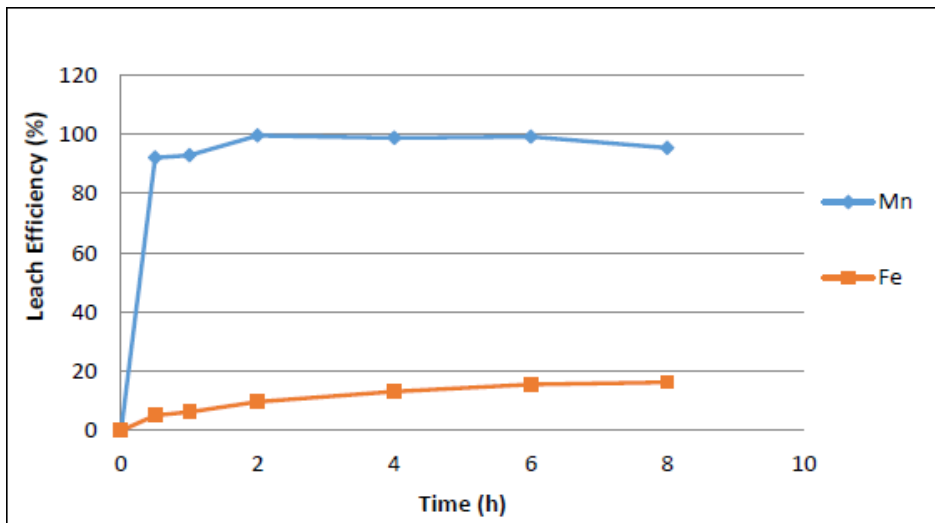
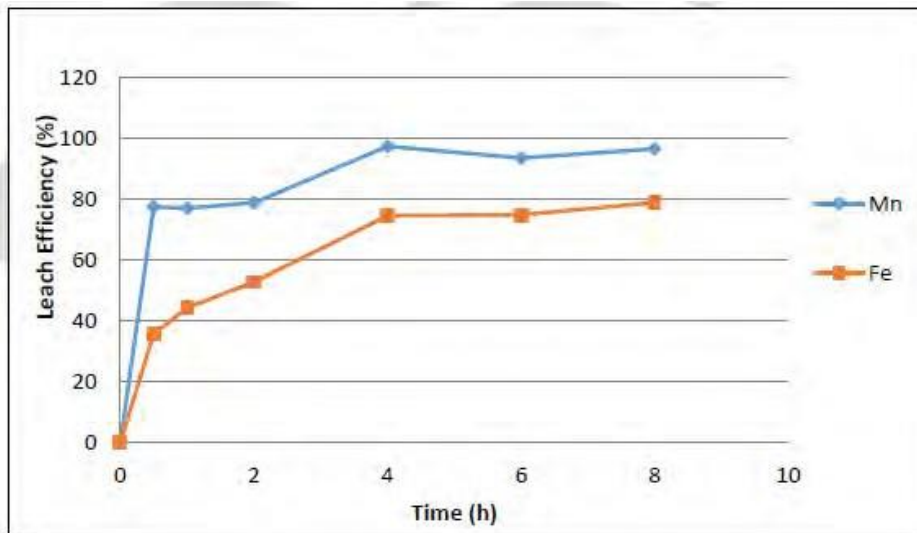


Figure 13.2 Extraction Profile for Grey Material - Mn and Fe (from Kemetco Report)



Diagnostic leach testing results were taken from the following reports as titled below:

1. Manganese Diagnostic Leach Project – Project ID: K1005, by Kemetco Research Inc., June 22, 2017
2. Sulfuric Acid Leach of Battery Hill Ore, by Parisa Ebrahimi, Kingston Process Metallurgy Inc., June 22, 2017 (updated 171010).

The following is a summarization of a Memo from Kemetco to MXE regarding additional purification testing in 2019-2020.

MXE enlisted Kemetco to further the purification testing on the Battery Hill mineralization. A sample of Manganese X ore was subjected to a sulphuric acid leach. The leach slurry was pressure filtered to produce a clear leachate solution for purification, evaporation and crystallization. The leach solution was subjected to two stages of impurity removal, the first stage, primarily to remove iron and aluminum, and the second to precipitate calcium and magnesium.

Based on stage 1 and stage 2 results, it was decided to add a further upgrading stage to reduce soluble contaminants before proceeding to the final crystallization step. Table 13.6 shows the analytical results for final crystal products, both of which had a calculated impurity content of 0.10% or lower. The success of this methodology, suggests that even lower levels of impurities could be achieved, but even at current levels the analytical detection limits create a practical limit to analyzing and reporting the product purities. Further purification could be reported based on the ppm levels of individual contaminants, but the overall total impurity values calculated become too strongly affected by the unknown quantities of elements present below their various detection limits to be reliable. If needed, alternative analytical methods could be investigated, but in general ultra-trace analyses are challenging in the presence of high metal concentration products such as these.

Table 13.6 Analysis of Crystals Products from Final Evaporation Test

Element	Crystal 1	Crystal 1 - washed
	mg/kg	mg/kg
Ag Silver	<2.5	<2.5
Al Aluminium	<10.	<10.
As Arsenic	<10.	<10.
B Boron	<25.	<25.
Ba Barium	<0.5	<0.5
Be Beryllium	<0.5	<0.5
Bi Bismuth	<12.5	<12.5
Ca Calcium	147	54.3
Cd Cadmium	<0.5	<0.5
Co Cobalt	4.58	<2.5
Cr Chromium	<2.5	<2.5
Cu Copper	<5.	<5.
Fe Iron	<5.	<5.
K Potassium	<25.	29.0
Li Lithium	6.03	5.67
Mg Magnesium	23.8	<5.
Mn Manganese	308746	316184
Mo Molybdenum	<5.	<5.
Na Sodium	86.6	52.8
Ni Nickel	<2.5	<2.5
P Phosphorus	<15.	<15.
Pb Lead	<10.	<10.
S Sulfur	179515	180705
Sb Antimony	<10.	<10.
Se Selenium	<10.	<10.
Si Silicon	14.7	23.5
Sn Tin	<10.	<10.
Sr Strontium	0.78	0.68
Ti Titanium	<5.	<5.
Tl Thallium	<10.	<10.
U Uranium	<25.	<25.
V Vanadium	<5.	<5.
Zn Zinc	<2.5	<2.5
Calc. Impurity (%)	0.10	0.05
Total % Mn ppt	23.59	27.06

Kemetco recommended that the remaining manganese products from the present leach test will be processed further to obtain additional high purity MnSO₄, which can be made available for additional outside testing, if needed. This will also provide additional process information for the final purification stages and allow rough mass balances to be calculated.

Their current work has successfully demonstrated purification techniques capable of producing high purity MnSO₄ to 99.95%, with low contaminants, a level potentially sufficient for the use as a component in the production of EV and storage battery manufacturing. For the next steps in process development, future work should focus on flowsheet development, to combine the steps identified into a complete process that is efficient and effective. Within the purification stages circulating loads, bleed streams and impurity rejection all need to be determined as part of a complete flowsheet. Leaching and solid-liquid separation are also areas that need to be further investigated. More detailed work would also provide more complete mass balance and recovery determinations.

13.5 NRC Ore Upgrading and Purification Tests

As recommended by Thibault and Associates and KPM on the Plymouth Mn Deposit, in 2018 MXE contracted NRC to investigate the potential of ore upgrading to remove acid consumers for reduced acid consumption and the feasibility of the fluoride precipitation process for removing alkali metals to generate a final HPMS product. MXE sent a total of 80 kg, separated into six, 10 kg charges and one, 6 kg charge to the NRC Montreal Road Campus and two, 2 kg charges to SGS Lakefield location for testing. The following results were obtained:

- Gravity separation using a laboratory shaking table on the SFA1 size fraction demonstrated limited separation.
- Magnetic separation demonstrated some selectivity. The combined magnetics, grading 15.0% Mn, recovered 77.9% of the manganese in 61.8% mass. An upgrading factor of 1.26 times.
- Two flotation reagent schemes, based on fatty acids and hydroxamic acids collectors were investigated.

Rougher and cleaner flotation testing using 2 kg charges were conducted. The best results were achieved when a 2 kg charge was ground for 40 minutes and floated for ten minutes in the rougher. The cumulative rougher concentrates was cleaned three times with FA1 addition of 1050 g/t and 315 g/t in the 1st cleaner and scavenger, respectively. The combined 1st cleaner and scavenger concentrates, grading 17.3% Mn, recovered 64.1% of the manganese in 43.7% mass. Further cleaning resulted in further upgrading. The 3rd cleaner concentrate graded 19.5% Mn with 51.3% recovery in 31.1% mass.

Additional flotation test work was recommended to identify collectors for manganese silicates or evaluate primary grinding or regrinding. An alternate flow sheet configuration was also recommended where the initial rougher concentrates would be collected directly as the final concentrate while the rougher concentrates (3-4) are reground and cleaned.

13.6 Preliminary Upgrading Research - Ore Sorting and Tribo-Electrostatic Separation Tests

The average grade range of mineralization at Battery Hill is projected to be in the 8 to 10.5% Mn range. The Company recognized that upgrading technologies could be a key to improving the economics of a potential operation. During 2017, the Company initiated preliminary studies of two upgrading technologies, "Ore Sorting" and "Tribo-Electrostatic Separation".

Brief summaries of the two studies are provided in the sections below. The full Ore Sorting report by Steinert US is titled "XRT Test Work Report- Manganese X Energy Corp- Waste Rock Sorting Test Work" document TRE-9044-XRT-507 dated November 2, 2017.

13.6.1 Ore Sorting Test Work

The basic objective of this preliminary program was to determine if, and to what extent, an ore sorting technology could upgrade the “ore”, through the elimination of gangue minerals and/or low grade manganese material. There potentially could be significant improved economics if upgrades to the average deposit grade could approach the approximately 15% Mn range. The preliminary test work results were encouraging with product grades of 14.72% Mn being achieved, though with recovery rates somewhat lower than anticipated. Further ore sorting test work have been recommended by Steinert US.

The sample material for the ore sorting test work was 1/2 cut NQ drill core from hole SF-17-18 located from the Moody Central zone of the Battery Hill deposit. The sample material was collected on July 24th, 2017, by Roger Dahn and delivered to RPC Science and Engineering located in Fredericton, New Brunswick for crushing to -1 inch + 1/2 inch size material prior to shipping to the Steinert US facility located in Walton, Kentucky. The SF-17-18 drill core interval graded 9.39% Mn and 14.72 % Fe over 74.0 meters (from 40.0 to 114.0 meters depth) based on initial drill core sample assaying results. The interval hosted all three mineralization types (Grey, Red and Mixed) as well some lower grade (<3% Mn) material (Table 13.5), so it was felt to represent a good sample selection for the Ore Sorting test program.

Table 13.7: SF-17-18 Ore Sorting Sample Details (40.0 to 114.0 meters)

Mineralization Type	Width (m)	Percentage	% Mn	% Fe
Grey	22.5	30.4	8.13	12.49
Red + Mixed	44.3	59.9	11.29	17.45
Low Grade (< 3%)	7.2	9.7	1.69	4.89
Combined Total	74.00	100.00	9.39	14.72

Manganese X Energy provided approximately 88 kg of sample material consisting of crushed drill core to Steinert US for testing. The ore sorting test work was conducted at the facilities of Steinert US in Walton, Kentucky during August 2017. The objective of the small scale test work was to determine if and to what extent the manganese ore could be upgraded and to provide initial indication of which sensor or combination of sensors provides the best separation or sorting efficiency of this type of ore.

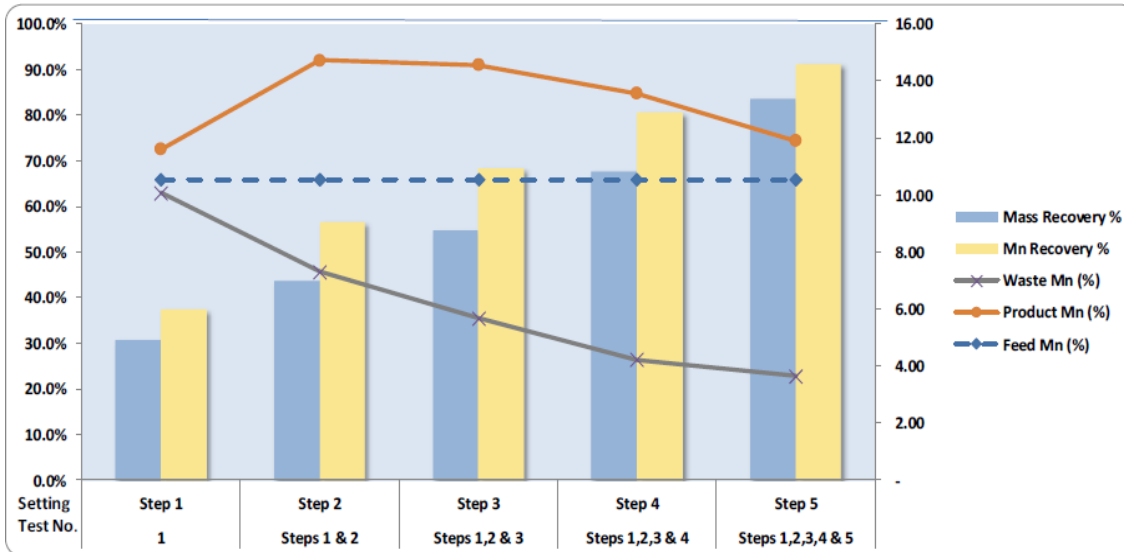
The ore sorting test work used the Steinert Combi-Sensor KSS 100 XT FLI sorter. This sorter comprises the following sensors: dual-energy X-ray transmission sensors (XRT), Color camera (F), 3-D Laser (L) and induction (I). XRT sorting is the preferred technology for mining applications since the detection is based on the x-ray absorption which determines the atomic density of the entire particle. The advantage is that the particles do not need to be clean/washed which would be necessary for surface detection sensors such as color camera and laser. XRT is thus truly a dry beneficiation process.

The grade of the feed sample was established to be 10.54% Mn. The highest Mn grade of 14.72% achieved was at sensitivity setting Step 2 which combines the products of the red hematite – iron-oxide material and the densest XRT product. At Step 3 the Mn was upgraded from 10.54% to a product grade of Mn 14.55% at a Mn recovery of 68.4% and a mass-pull to product of 54.7% (i.e. 45.3% mass is discarded at a grade Mn 5.68%). The Mn grade / recovery curve and Step result data for Steps 1 to 5 are shown in Table 13.7 and illustrated in Figure 13.4. The summary of steps is in Table 13.8.

Table 13.8: Ore Sorting - Step 1 to 5: Mn Grade / Recovery Results

Opportunity No.: 9044			Lab: 507							
Customer: Manganese X			-50 +12mm							
Date: 9/21/2017										
Test No.	MD Setting	Setting	Total Sample kg	Feed Mn (%)	Product kg	Mass Recovery %	Product Mn (%)	Mn Recovery %	Waste kg	Waste Mn (%)
1	Step 1	Color	85.00	10.54	26.00	30.6%	11.60	37.3%	59.00	10.07
Steps 1 & 2	Step 2	XRT/Laser	85.00	10.54	37.00	43.5%	14.72	56.6%	48.00	7.31
Steps 1,2 & 3	Step 3	XRT/Laser	85.00	10.54	46.50	54.7%	14.55	68.4%	38.50	5.68
Steps 1,2,3 & 4	Step 4	XRT/Laser	85.00	10.54	57.50	67.6%	13.56	80.6%	27.50	4.21
Steps 1,2,3,4 & 5	Step 5	XRT/Laser	85.00	10.54	71.00	83.5%	11.89	91.1%	14.00	3.65

Figure 13.3: Ore Sorting - Step 1 to 5: Mn Grade / Recovery Curve



The following conclusions are taken directly from the Steinert US report. The ore sorting test work on the Manganese X samples have shown the following:

- The sorter has proven effective in upgrading the sample at different sensitivity settings.
- With each step (sensitivity setting) the Mn and Fe recovery rate increases, with product grades lowering gradually.
- Mn and Fe show good correlation
- At Step 2 sensitivity setting the highest Mn grade of 14.72% was achieved.
- Further bulk test work is recommended.

The full Ore Sorting report by Steinert US is titled "XRT Test Work Report- Manganese X Energy Corp- Waste Rock Sorting Test Work" document TRE-9044-XRT-507 dated November 2, 2017.

13.6.2 Tribo-Electrostatic Separation Test

In July, 2017, the tribo-electrostatic separation potential was evaluated through an initial test study on a 3kg sample of Grey Mineralization (composite sample J2035 Grey). The electrostatic separation test was performed by ST Equipment & Technology LLC located in Needham, Massachusetts. Unfortunately the preliminary test did not lead to a significant separation or upgrading of the manganese under normal test conditions; due we believe to the intimate association of manganese in a variety of carbonate and silicate species together with numerous significant gangue silicate minerals. Further test work was not recommended and a report was not completed.

14. MINERAL RESOURCE ESTIMATES

There are no mineral resource estimates prepared for, or located within Manganese X Energy's claim unit 5816 or 5745.

23.0 ADJACENT PROPERTIES

The Plymouth deposit is located approximately 3 kilometers southwest of the south end of MXE's claims. It has been the prime focus of exploration of the widespread iron-manganese mineralization in the area, just west and northwest of Woodstock, New Brunswick, since it was identified by Stratmat in the mid 1950's. The mineralization elsewhere along the regional geological trend had been known for more than 100 years. The claims over the Plymouth deposit, which are currently held by Canadian Manganese Company Ltd. (CMC), are part of a large claim unit (5472) that surrounds the southern section of MXE claims and continues southwest to the Maine border, a distance of 17 kilometers.

Buchans Minerals Corporation (BMC) is 100% owner of CMC, who acquired the claims of the Plymouth deposit in 2010 from a private, Fredericton based company. CMC owns 100% of the License 5472. The Plymouth project area is located just north of Route 95, several kilometers west of the Town of Woodstock, New Brunswick, Canada. The claims have an issue date of 2008-11-14 and the claim name is Woodstock Mountain.

23.1 Plymouth Deposit

Canadian Manganese Corporation (CMC), in December 2013, engaged consulting company Tetra Tech, a worldwide engineering and technical services company, to complete a NI 43-101 preliminary economic assessment (PEA) for its Plymouth deposit. Preliminary work undertaken for CMC in 2012, included a Mineral Resource Estimate by Mercator Geological Services using a 5 diamond drill hole, 1,040 meter program completed by BMC on the deposit in 2011 plus a 15 diamond drill hole program totaling 4,082 meters in 2013. Additionally, Thibault and Associates Inc., a firm specializing in the design and development of metallurgical and hydro-metallurgical processes, was retained to do bench scale testing to develop a process to produce electrolytic manganese metal from the Plymouth mineralization. Initial testing provided a Mn recovery range of 87%-94.1% from a bulk sample comprised of drill core. A second phase of testing, which optimized processing with economic considerations, provided a recovery rate ranging from 85.7-88.2% Mn. In both cases sulphuric acid leach was used. No electro-winning option was considered in the studies.

In the mineral resource estimate provided by Mercator, the deposit was modeled as "a folded, stratiform Mn-Fe deposit occurring within a northeast striking, steeply dipping host sequence of red and grey siliciclastic sedimentary rocks". The block model possesses a 700 meter strike length and a maximum width of 200 meters. A minimum grade of 5% Mn over 12 meters (down hole) was used in the model.

Table 23.1 below is a tabulation of the resource estimate calculated at Mn cut-off percentages from 5% to 12%. This table is taken from the report prepared by Michael Cullen, P.Geo., Andrew Hilchey, P.Geo. of Mercator Geological Services Limited and Stephanie Goodine, P.Eng., Thibault and Associates Inc. entitled "Mineral Resource Estimate Technical Report for the Plymouth Mn-Fe Deposit, Woodstock Property, New Brunswick, Canada for Buchans Minerals Corporation (BMC) and Centrerock Mining Limited (a Wholly Owned Subsidiary of Minco plc.)". This report has an effective date of May 6, 2013 and is filed by BMC on SEDAR since May 23, 2013.

The total manganese contained in the Inferred Resource, based on a 5% Mn cut-off, is reported to be 43,710,000 tonnes grading 9.98% Mn (9.62 billion pounds, or 4,364,000 tonnes).

Mercator identified, in the same report, that the deposit remains open along strike and down dip, and that additional infill drilling at 50 meter spacing would be required to bring the current Inferred Resource to the Indicated Mineral Resource level. A Preliminary Economic Assessment study was recommended.

Table 23.1

(from MINERAL RESOURCE ESTIMATE TECHNICAL REPORT FOR THE PLYMOUTH MN-FE DEPOSIT WOODSTOCK PROPERTY NEW BRUNSWICK, CANADA for Buchans Minerals Corporation and Centrerock Mining Limited (A Wholly-Owned Subsidiary of Minco plc), May 16th, 2013.

Plymouth Mn-Fe Deposit Resource Estimate- May 6th, 2013*				
Mn% Cut-off	Resource Category	Rounded Tonnes	Mn%	Fe%
5	Inferred	43,710,000	9.98	14.29
6	Inferred	41,610,000	10.2	14.55
7	Inferred	38,260,000	10.52	14.91
8	Inferred	33,800,000	10.92	15.36
9	Inferred	28,830,000	11.34	15.83
10	Inferred	22,460,000	11.86	16.42
11	Inferred	15,330,000	12.49	17.12
12	Inferred	9,100,000	13.19	17.93

*Notes:

1. *Tonnages have been rounded to the nearest 10,000 tonnes.*
2. *The 5% Mn cut-off value for this resource statement is bolded above and reflects a reasonable expectation of economic viability for a deposit of this nature based on market conditions and open pit mining methods.*
3. *Mineral resources that are not mineral reserves do not have demonstrated economic viability*
4. *This estimate of mineral resources may be materially affected by environmental permitting, legal, title, taxation, sociopolitical, marketing, or other relevant issues.*

The author has been unable to verify the above information regarding the Plymouth Deposit and the information is not necessarily indicative of the mineralization on the Property that is the subject of this technical report.

Tetra Tech used the Mercator Resource model to develop two possible mining scenarios at the Plymouth deposit, at 1,500 and 3,000 tonnes per day. Four processing options were considered in the study, which involved an integrated sulphuric acid plant or direct purchase of sulphuric acid in each of the throughput options identified.

Bench scale testing by Thibault and Associates identified that the deposit mineralization occurs in two distinct forms, both containing the manganese carbonate rhodochrosite as the main Mn mineral, and easily identified by colour. The red material contains the iron oxides hematite, magnetite and ilmenite as the primary iron minerals, whereas the grey material has the iron carbonate mineral siderite, as the main iron mineral.

Tetra Tech then formulated a mining plan using the 3,000 tonnes per day mill production rate using the integrated sulphuric acid option. Table 23.2 outlines the parameters and details of the mine plan as described in the introduction to the 2014 Preliminary Economic Assessment entitled: "Report to Canadian Manganese Company Inc.- Preliminary Economic Assessment on the Woodstock Manganese Property, New Brunswick, Canada", filed as the Minco plc Technical Report on SEDAR on July 22, 2014.

Table 23.2 Results of Tetra Tech Base Case for a 3,000 tonne per day Mill Production Rate

Parameter	Base Case Resource Processing Rate of 3,000 t/d
Project Life	40 years
Number of Employees during Mining Period (Years 1-13)	223
Number of Employees during Stockpile Period (Years 14-40)	110
Life-of-Project Average Annual Electrolytic Manganese Metal (EMM) Production	80,104 t
EMM Price (99.7% Mn min. flake)	CDN\$1.53/lb (US\$1.38/lb)
Life-of-Project Average Annual Iron Ore Production	23,214 t
Iron Ore Price (62.0% Fe minimum)	CDN\$153.68/t (US\$139.04/t)
Life-of-Project Average Annual Revenue	CDN\$272,955,738
Life-of-Project Average Annual Operating Cost	CDN\$133,019,647
Life-of-Project Revenue to Operating Cost Ratio	2.05
Average EMM Operating costs	
Life-of-Project	CDN\$0.75/lb (US\$0.68/lb)
Production Years 1-30	CDN\$0.72/lb (US\$0.65/lb)
Production Years 1-20	CDN\$0.71/lb (US\$0.64/lb)
Pre-production Capital Investment	CDN\$863,592,227
Sustaining Capital	CDN\$267,375,082
Reclamation and Closure Costs	CDN\$49,603,998
Pre-tax Financials:	
Cumulative Cash Flow Life-of-Project	CDN\$4,416,872,316
Net Present Value (NPV) (8% discount)	CDN\$845,778,101
Internal Rate of Return (IRR)	17.97%
Payback Period (years)	5.6 years
Post-tax Financials:	
Cumulative Cash Flow Life-of-Project	CDN\$2,890,488,582
NPV (8% discount)	CDN\$461,125,870
IRR	14.40%
Payback Period (years)	6.9 years
Life-of-Project Federal Taxes	CDN\$593,936,010
Life-of-Project Provincial Taxes and Royalties	CDN\$932,447,724

Tetra Tech further provides that *“This PEA is preliminary in nature and includes Inferred Mineral Resources that are considered too speculative geologically, on which to apply economic considerations to categorize them as mineral reserves. There is no certainty that this PEA will be realized.”*

Tetra Tech identifies the factors which allow the positive economics of the Plymouth project as follows:

- Low mining costs – the Plymouth deposit is amenable to low-cost open pit mining methods with low stripping ratios.
- Manganese mineralization – manganese within the Plymouth deposit is present as rhodochrosite, which is readily soluble by direct sulphuric acid
- leaching, precluding the requirement for high-cost manganese reduction steps that are typical of manganese oxide processing.

- Low operating cost – average life-of-project operating costs for the production of EMM from the Plymouth deposit lie at the leading edge of the first quartile of the global EMM industry cost curve, indicating the competitiveness of CMCs product in the global marketplace.
- Long project life – the 40-year project life defined by the PEA for processing of the Plymouth deposit at the base case mill feed rate of 3,000 t/d allows for high returns on the initial capital investment and results in substantial life-of-project pre- and post-tax cumulative cash flows of CDN\$4.4 billion and CDN\$2.9 billion, respectively.

The author has been unable to verify the above information regarding the Tetra Tech PEA Summary for the Plymouth Deposit and the information is not necessarily indicative of the mineralization on the Property that is the subject of this technical report.

There have been no reports of significant developments for the Plymouth property on the Website of Canadian Manganese Company, or filed with SEDAR, since the 2014 Preliminary Economic Assessment.

24.0 OTHER RELEVANT INFORMATION

The Moody Hill-Sharpe Farm mineralization occurs on private property. Permission from the primary landowners has not been an issue in the past, but it is essential to maintain this good relationship in order to continue to explore and possibly develop this Property.

25.0 INTERPRETATION and CONCLUSIONS

MXE's Property near Woodstock, N.B. hosts significant manganese mineralization in three sectors: Iron Ore Hill, Sharpe Farm and Moody Hill, collectively referred to as the Battery Hill deposit. The historical resource estimates as reported by Sidwell (1957) are: i) Moody Hill occurrence an estimated 10,000,000 tons (9,072,000 tonnes); ii) the Sharpe Farm occurrence an estimated 8,000,000 tons (7,257,000 tonnes); and iii) the Iron Ore Hill occurrence 25,000,000 tons (22,680,000 tonnes); all with an estimate Mn content of 9%.

During 2016, Manganese X Energy performed 4 kms of gravity and an additional 124 kms of ground magnetic surveys over the Property and 16 diamond drill holes totaling 3589 meters. The program was designed as an initial evaluation of the three historic manganese occurrences on the property (Iron Ore Hill, Sharpe Farm and Moody Hill occurrences). Five holes totaling 1051 meters were completed in the Iron Ore Hill sector of the Property and eleven holes for 2538 meters in the Sharpe Farm – Moody Hill sector. Drilling was completed over a 1.8 kilometer strike length of the prospective manganese occurrence trend. Most holes intercepted significant grades and widths of manganese mineralization such as 10.75% Mn over 52.6 meters (core length) in SF-16-05 and 12.96% Mn over 32.85 meters (core length) in SF-16-08.

Diamond drilling in the Iron Ore Hill area has been limited to only seven, widely spaced holes by Globex Mining and Manganese X Energy. This area is somewhat less attractive for mining purposes than the aforementioned area due to the proximity of several homes but also, as (thus far) testing has shown, the area with the best potential for tonnage, grade and metallurgically preferable material is in the Moody Hill-Sharpe Farm area.

The 2017 drill program consisted of 9 holes totaling 1599 meters, all in the Sharpe Farm-Moody Hill area, which returned some of the best intersections drilled on the Property to date. The best intercept was in hole SF-17-18 (Moody Hill) which returned 74.0 meters grading 9.39% Mn and 14.72% Fe, including 31.5 meters of 12.33% Mn. The drill program was critical in improving the structural understanding of the deposit and also indicated:

- The Sharpe Farm sector consists dominantly of "Grey" mineralization.
- The Moody Hill sector, primarily the Moody Central Zone, has the highest grades and thicknesses of Mn mineralization; as well as the largest amount of the preferred "Red" and "Mixed" mineralization.
- Potential to significantly increase the extent of significant Mn mineralization associated with the Battery Hill deposit in the Sharpe Farm and Moody Hill areas, including "Red / Mixed" mineralization at the latter.

Based on the 2016 and 2017 diamond drilling programs completed in the Sharpe Farm and Moody Hill sectors, it is the author's opinion that the results from those programs have confirmed that the (historic) grade and tonnage ranges estimated by Sidwell in 1957 for these sectors are realistic. Considerable upside remains in each sector of the Battery Hill deposit, particularly in the Moody Hill-Sharpe Farm sector, to significantly expand the mineralization with further drilling.

To date there has been good correlation between the magnetometer results and the results obtained by drill testing the anomalies. The one questionable result was in hole SF16-11 on the western side of the Sharpe Farm mineralization. The 3-D model indicated significant mineralization at depth in this hole, which

did not materialize. By contrast, hole SF16-4 was drilled (prior to completion of the magnetometer survey) in a weak area of magnetism but intersected a fairly wide zone of moderate mineralization. The take-away from this is that more drilling is essential to gaining confidence in the continuity of the mineralization.

The 2018 Mercator "Exploration Target" study has provided a blueprint for further exploration drilling that will enable MXE to move the Battery Hill Property toward establishing a compliant resource estimate.

Mineralogical studies (QEMSCAN) indicated that the manganese mineralization is fine grained and occurs in the form of silicates and carbonates that display wide and varied compositions. Some preliminary metallurgical related studies were completed, which indicated a number of encouraging results / observations, principally that a significant portion of the manganese in the Red and Mixed samples is present in forms for which additional metallurgical testing has shown efficient Mn extraction processes exist.

Ore upgrading studies, using Ore Sorting technology by Steinert US, were encouraging with product grades of 14.72% Mn being achieved, though with recovery rates somewhat lower than anticipated. Further ore sorting test work has been recommended by Steinert US.

Diagnostic leach testing showed high Mn extractions up initially to 96% indicating manganese in readily extractable minerals. Mn extraction was very fast (less than 2 hrs) and Fe extraction was low in the "Red" mineralization (positive aspects). Therefore, easier to extract Mn while minimizing the Fe and Mg dissolution when treating the Red ore. Of the three mineralization types, the Red ore gave the most promising results followed by Mixed and lastly Grey ore. More recent purification test work by Kemetco has resulted in increasing MnSO_4 levels to 99.95%, with low contaminants, a level sufficient for use as a component in the production of EV and storage battery manufacturing. Kemetco recommends "the next step in process development should focus on flowsheet development to combine the steps identified into a complete process that is efficient and effective, including cost effective."

26.0 RECOMMENDATIONS

The Battery Hill Property is a property of merit. Successive exploration programs at MXE's Battery Hill Property have produced results that have increased the confidence level that there may be significant amounts of manganese mineralization contained in the rocks there presenting a viable "exploration target" and very good potential to develop a compliant resource. Ore upgrading and metallurgical testing to date has shown that there appears to be a methodology available that would enable the separation of the Mn from the gangue material. Additional drilling is recommended to better delineate the mineralization and attempt to bring it to an *inferred resource* category, as well as progressing to the next level of metallurgical testing.

The Moody Hill- Sharpe Farm sector has the highest grades and thicknesses of Mn mineralization on the Property, as well as the largest amount of the metallurgically preferable "Red" and "Mixed" mineralization types. Of these two areas the Moody Hill mineralization contains the widest intercepts and the better grades when compared to the other mineralized areas, and metallurgically, the Moody Hill mineralization contains the preferable "RED" mineralization in terms of ease of extraction of Mn.

The proposed fill-in drill program goal would be to provide sufficient data to elevate the mineralization in the Moody Hill area to *Inferred Resource* status. To accomplish this, it will be necessary to drill holes to reduce the hole separation to approximately 100 meters as well as to drill more shallow and deeper holes along the more prospective sections.

Mercator assisted MXE V.P. Exploration Roger Dahn in designing a drill program that could upgrade the exploration target to an Indicated Resource, assuming the thickness and grades intersected in the proposed drilling are similar to those obtained in the earlier drilling (see Figure 26.1). The Mercator 50 meter spaced drill hole pierce point design (for Indicated Resource status) remains an excellent template for further exploration, however it is recommended that near term efforts focus on sufficient holes required to achieve an approximate 100 meter separation at this time in an effort to attain *inferred* status. This recommendation is made with the knowledge that a 43 million tonne inferred resource estimate was made at the Plymouth Deposit utilizing the results of a drill program with one hundred meter line and hole separations that consisted of 26 holes totaling 5881 meters of core.

The two phase recommended work program is as follows:

Phase I

- In the Moody West area (see Figure 9.3), 2 holes are initially recommended to determine if further 100 meter step-out holes are warranted. These holes would total 350 meters, and if additional drilling is warranted, it would consist of four at 100 meter step-outs north and south totalling an additional 650 meters, for a total of 1000 meters at this site.
- With regard to the holes proposed for the Moody East area, one hole on either side of SF16-6 are proposed to test the continuity of that mineralization, for a total of 250 meters. If results are promising, an additional 4 holes totalling 750 meters should test 100 meters further at depth and to the southwest. The structure at this site is less understood than the others and the direction of drilling should be re-evaluated with each hole drilled. A possible 1000 meters are recommended at this site.
- The proposed holes for the Moody Central totalling 1500 meters are as follows:
 - 3 holes totalling 500 meters southwest of SF17-18
 - 1 deep hole totalling 225 meters between SF17-18 and SF16-8
 - 3 holes filling in the 200 meter gap between SF16-98 and SF17-7 for a total of 600 meters

- 1 hole at a 50 meter step-out northeast from SF17-16 for 175 meters

Including the possible holes, the total footage required for the entire program of the program would be 20 holes for a total of 3500 meters.

- Metallurgical testing (see Section 13) resulted in extraction rates as high as 99.95% MnSO₄. The next level of testing (as recommended by Kemetco) would be focussing on “flowsheet development to combine the steps identified into a complete process that is efficient and effective, including cost effective. This should be completed prior to the drill program.
- The Ore Sorting testing (Section 13.3) resulted in an improvement in the average grade to 14.72% Mn. This preliminary result shows promise and further testing is recommended.
- An environmental baseline study and sampling should be initiated as the project advances during 2020.

Phase II

Contingent on successful results from the Phase I program, a NI-43-101 compliant mineral resource estimate and technical report is recommended.

Table 26.1 details the estimated individual costs of the recommended programs.

Table 26.1

Proposed MXE Exploration Budget Recommendations			
Phase I	Drilling: 20 holes: 3500 meters		\$420,000
	Assays (approx 1050 samples @ \$40)		\$42,000
	Geologist and Geotech	50 days	\$38,000
	Project Management		\$20,000
	Admin (Core Shack, Office Expense)		\$6,000
	Travel, Hotel, Meals		\$9,000
	Metallurgical Testing		\$130,000
	Ore Sorting Testing:		\$25,000
	Environmental Background Study		\$15,000
Phase II	Resource Estimate:		\$30,000
	Subtotal		\$735,000
	Contingency	15%	110,000
	Total Program Estimate		\$845,000

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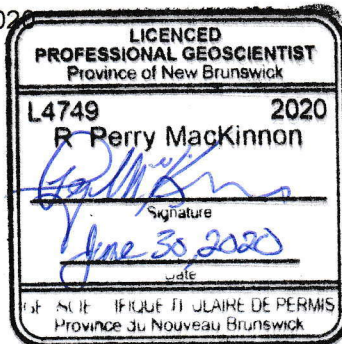
CERTIFICATE OF AUTHOR

I, R. Perry MacKinnon, P. Geo., do hereby certify that:

1. I reside at 43244 Cabot Trail, Skir Dhu, Nova Scotia, B0C1H0, Canada
I am responsible for all aspects of the report titled "NI 43-101 Technical Report on the Woodstock Manganese Occurrence Exploration Licence 5816 and 5745 Near Jacksonville and Irish Settlement, Carlton County New Brunswick, Effective Date: June 30, 2020.
2. I received a Bachelor of Science degree from Acadia University of Wolfville, Nova Scotia, Canada in 1982. I am currently self-employed as a consulting geologist. I have worked as an exploration and project geologist in a wide variety of geological environments throughout Canada since 1979, as well as in Alaska and Mexico, and filed numerous assessment reports on precious metal, base metal and industrial mineral properties.
3. I am a registered member in good standing of the Association of Professional Engineers and Geoscientists of New Brunswick, registration number L4749.
4. I have managed three exploration programs on the Battery Hill Property, the subject of this Technical Report, and have visited the site numerous times since 2009, including the duration of the two most recent drill programs in 2016 and 2017. My most recent visit was June 15th, 2017.
5. I have written all sections of the Technical Report for which I am responsible and they have been prepared in compliance with NI 43-101 guidelines.
6. I am independent of Manganese X Energy in applying all of the tests in Section 1.5 of NI 43-101. I have no interest or possible benefit from the properties.
7. On the same Manganese X Property, I have filed a report for assessment purposes for Globex Mining Enterprises and Sunset Cove Mining (now Manganese X Energy) in 2016 and an NI 43-101 Technical Report for the latter dated November 1, 2006. I have had involvement with the Property prior to 2009, that is the subject of this report.
8. I have read the definition of "Qualified Person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I have read the entirety of NI 43-101 and NI 43-IOIF and understand their contents.
9. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, all sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

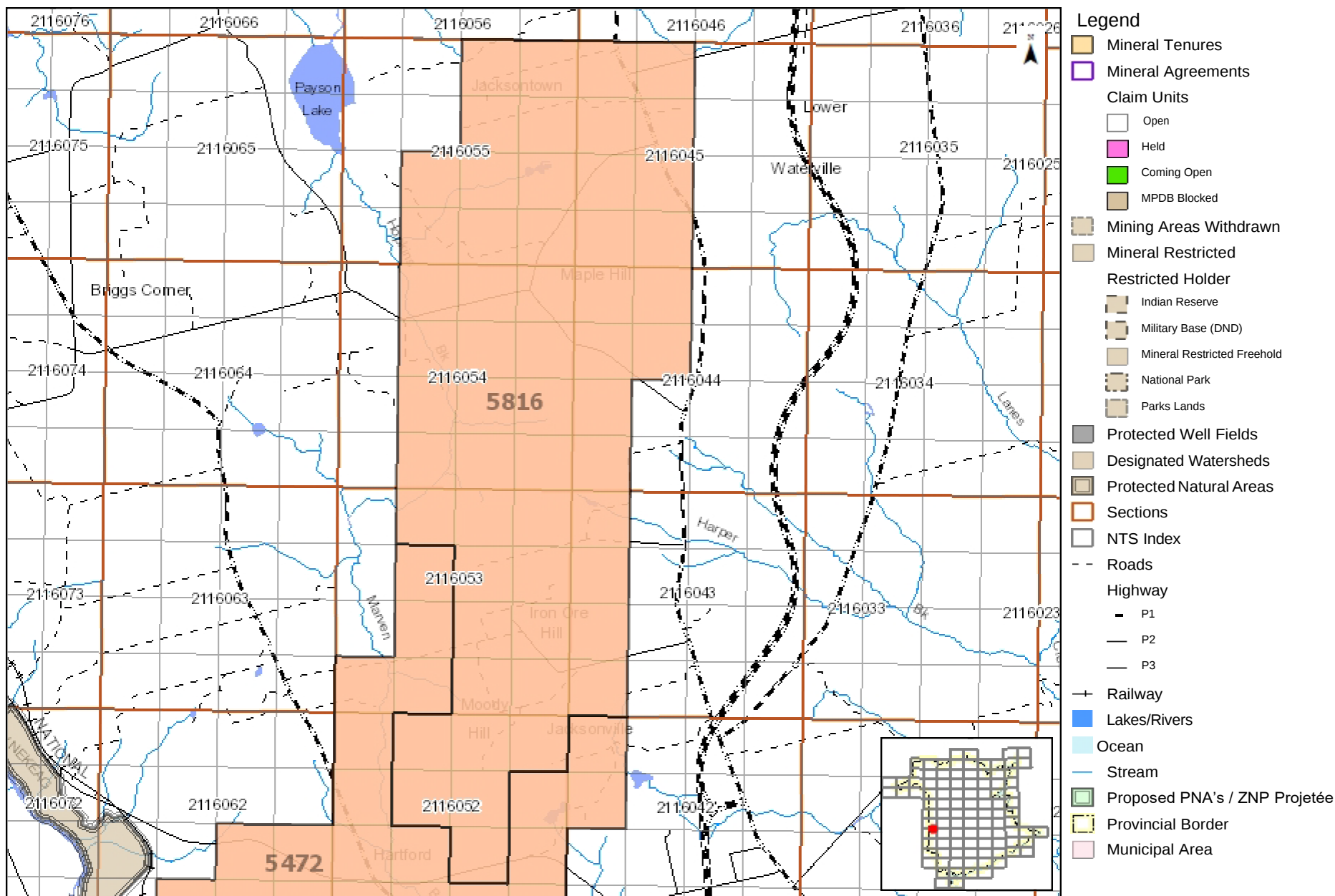
Dated this 30th Day of June, 2020

R. Perry MacKinnon

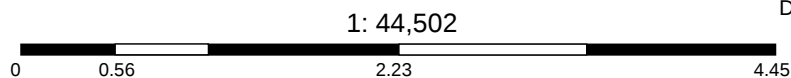


APPENDIX I
License 5816
Claims Map

MXE CLAIMS 2020



This map is created from the NB e-Claims for illustrative purposes only. New Brunswick Department of Energy and Mines cannot warrant or guarantee that the information is accurate, complete or current at all times; it accepts no liability or responsibility for any errors, inaccuracies and/or omissions.

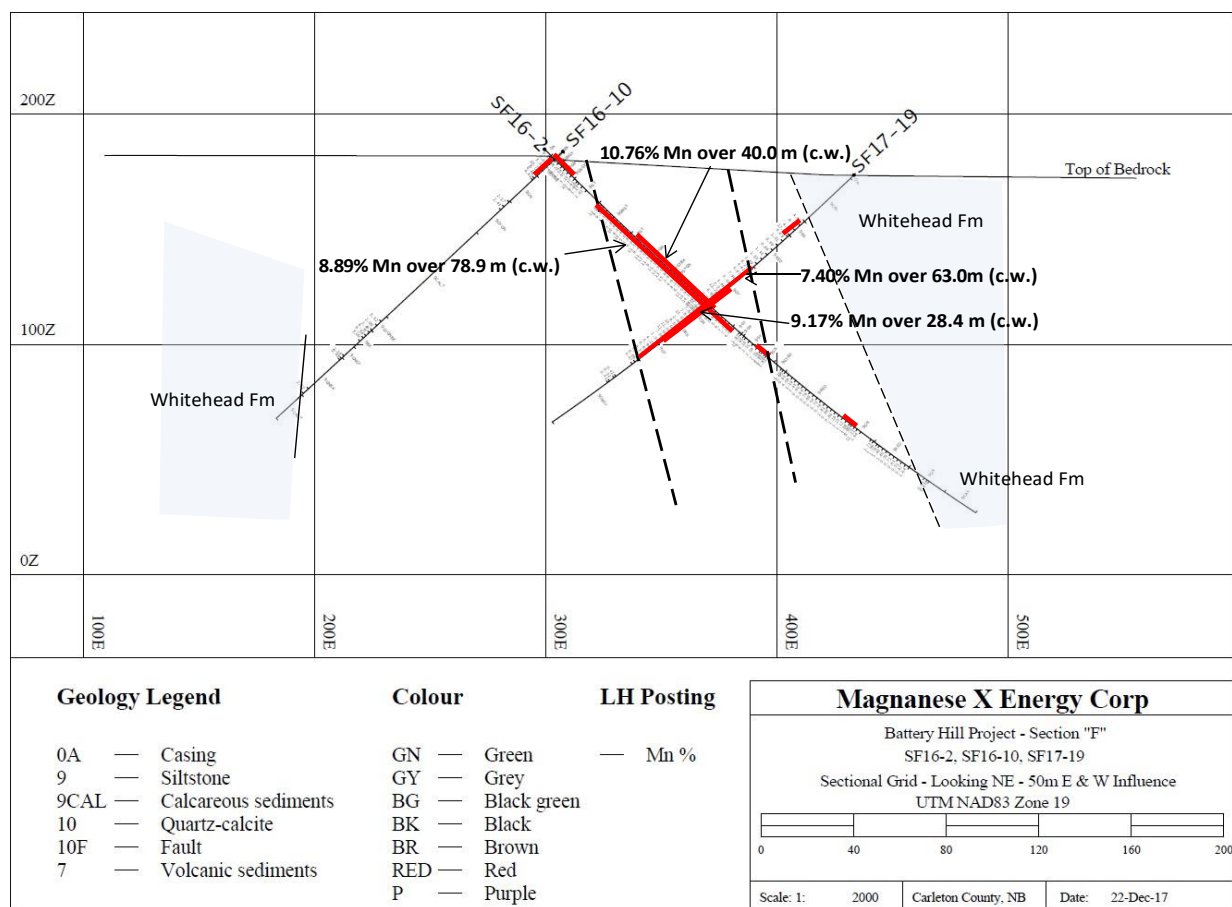


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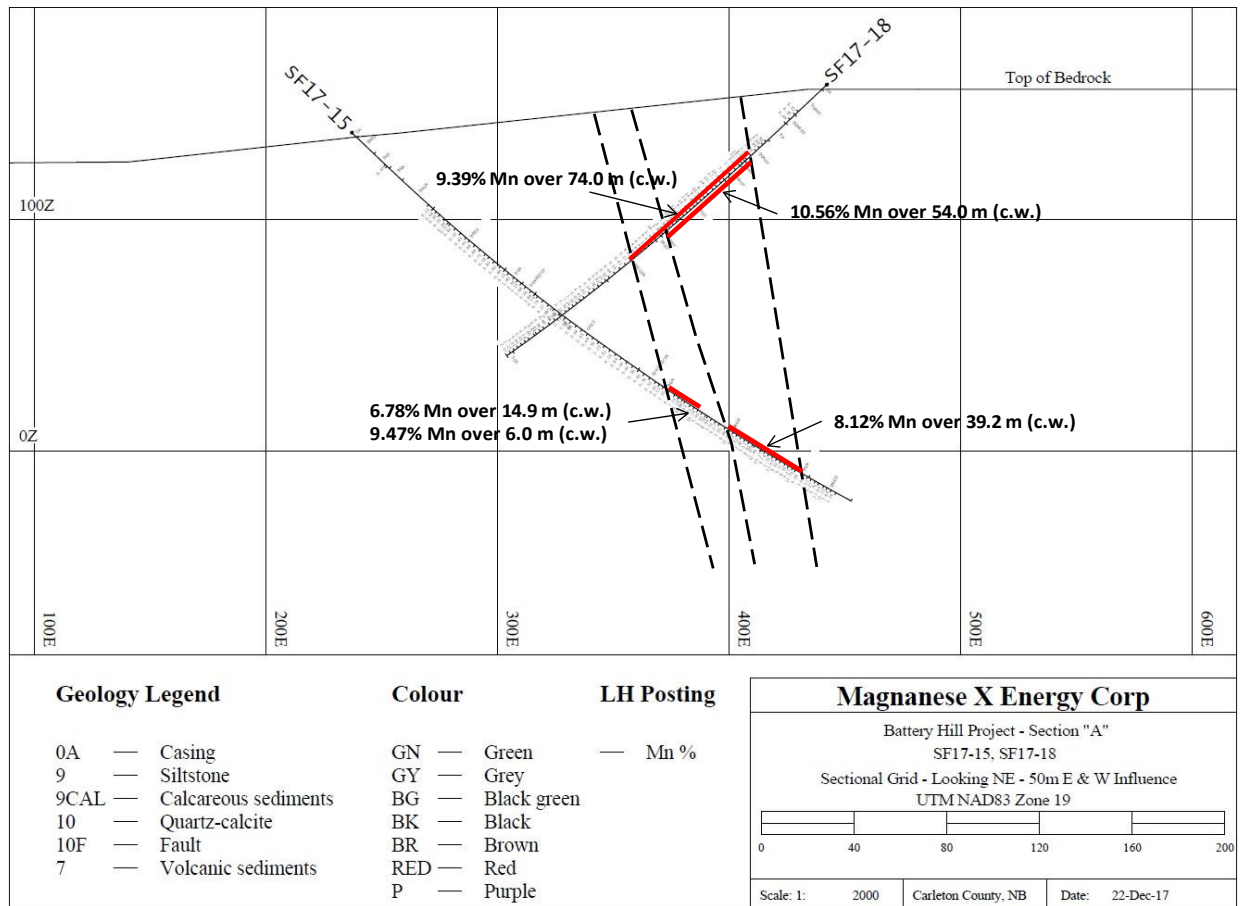
Date: 06/06/2020

Note:

APPENDIX II
Moody Hill Sections



Sharpe Farm X-Section (SF-17-19 and SF-16-2 and 10)



Moody Central X-Section (SF-17-15 and SF-17-18)