TECHNICAL REPORT ON THE

MANITOUWADGE GRAPHITE EXPLORATION PROPERTY

AT MANITOUWADGE, ONTARIO,

CANADA.

prepared by

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VP – Exploration

September 17, 2012

RARE EARTH
METALS INC

Thunder Bay, Canada

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GLOS S A R Y

UNITS OF MEASURE

approximately……………………………………………………………………………… ~

billion years ago.. Ga

centimetre .... cm

degree.. °

degrees Celsius .... °C

dollar (Canadian) .... Cdn$

foot.. ft

gram.. g

grams per litre... g/L

grams per tonne... g/t

greater than.. >

hectare (10,000 m2) .... ha

kilogram .... kg

kilometre .... km

less than.. <

litre L

litres per minute .... L/m

metre... m

metric ton (tonne)... t microns .... µm

miles………………………………………………………………………………………….……..mi

milligram... mg

milligrams per litre... mg/L

millilitre.. mL

millimetre... mm

million... M

million tonnes... MT

minus……………………………………………………………………………………………..-

minute (plane angle) .... '

minute (time)...min

month... mo

ounce .... oz

pascal .... Pa

parts per million...ppm

parts per billion...ppb

percent... %

plus……………………………………………………………………………………..………..+

pound(s)... lb

second (plane angle) .... "

second (time) .... s

specific gravity .... SG

square centimetre cm2

square foot...ft2

square inch in2

square kilometre .... km2 square metre.. m2

tonne (1,000 kg).. t

week .... wk

weight percent... wt%

year (annum).. a

ABBREVIATIONS AND ACRONYMS

Activation Laboratories Ltd. .... Actlabs

Airborne Electromagnetic Survey…………………………………………………………………..AEM

Aluminum………………………………………………………………………………………Al

Antimony……………………………………………………………………………………….Sb

Arsenic…………………………………………………………………………………………As

Boron…………………………………………………………………………………………….B

Backscattered Electron Imaging .... BSE

Beryllium……………………………………………………………………………...……..Be

Bismuth…………………………………………………………………………………….,..…Bi

cadmium………………………………………………………………………………………Cd

calcium………………………………………………………………………………………. .Ca

Carbon…………………………………………………………………………………….….C

Carbon Dioxide………………………………………………………………………………CO_2

Carbon Monoxide……………………………………………………………………………...CO

chromium………………………………………………………………………………………Cr

cobalt…………………………………………………………………………………………...Co

copper…………………………………………………………………………………….….Cu

diamond drillhole... DDH

East…………………………………………………………………………….………...E

Electric Vehicle…………………………………………………………………………………….….EV

Electro-Magnetic……………………………………………………………………………….....EM

Energy-Dispersive x-ray Spectrometer .... EDS

European Union……………………………………………………………………………….….EU

gallium……………………………………………………………………………………………Ga

Geological Survey of Canada……………………………………………………………………..GSC

gold……………………………………………………………………………………………….Au

Horizontal Loop Electromagnetic……………………………………………………..……..HLEM

Government………………………………………………………………………………..gov

global positioning system.. GPS

Graphitic Carbon…………………………………………………………………...…C-graphite

inductively coupled plasma.. ICP

inductively coupled plasma/mass spectrometry.. ICP/MS

infer-red…………………………………………………………………………………….....IR

International Organization for Standardization...ISO

iron oxide Fe2O3

iron...Fe

Lanthanum………………………………………………………………………………………..La

lead………………………………………………………………………………………………...Pb

magnesium……………………………………………………………………………………….…Mg

manganese………………………………………………………………………………………..Mn

Manitouwadge Graphite……. .... the Property

Mineral Liberation Analyzer…………………………………………………….………….…MLA

Mercury…………………………………………………………………………………….…….Hg

Mining Act Modernization……………………………………………………………………MAM

Ministry of Environment……………………………………………………………...…..MOE

Ministry of Northern Development and Mines…………………………………………………...MNDM

Molybdenum…………………………………………………………………………….……..Mo

National Environmental Laboratory Accreditation Program ....NELAP

National Instrument 43-101..NI 43-101

National Topographic System..NTS

net smelter return...NSR

nickel……………………………………………………………………………………..……..Ni

North…………………………………………………………………………………………….N

North American Datum ....NAD

Ontario Geological Survey……………………………………………………………………..OGS

OTC Markets Group Inc...OTCQX

Particle Size Analysis…………………………………………………………………….…..PSA

Phosphorus…………………………………………………………………………………….…P

Palladium……………………………………………………………………………...….…Pd

Platinum…………………………………………………………………………..…………Pt

Potassium………………………………………………………………………………………..K

Qualified Person ....QP

quality assurance/quality control..QA/QC

reference……………………………………………………………………………………..ref

REM . ... Rare Earth Metals Inc.

rock quality designation .... RQD

scandium………………………………………………………………………………….....Sc

scanning electron microscopy.. SEM

silver .... Ag

sodium…………………………………………………………………………………….……Na

South…………………………………………………………………………………………….S specific gravity ....SG

strontium.. Sr

Sulfur……………………………………………………………………………………...…..S

Tellurium……………………………………………………………………………………Te

thallium .... Tl

titanium………………………………………………………………………………………Ti

TSX Venture Exchange .... TSXV

tungsten... W

ultraviolet .... UV

United States Geological Survey………………………………………………………...USGS

Universal Transverse Mercator.. UTM

uranium... U

vanadium... V

Very Low Frequency……………………………………………………………………....VLF

West……………………………………………………………………………..………....W

x-ray element mapping .... XEM

x-ray fluorescence .... XRF

yttrium... Y

zinc .... Zn

zirconium .... Zr

1. SUMMARY

LAND STATUS: The Manitouwadge Graphite project consists of a total of 220 unpatented claim units encompassing 35.6 square kilometers (13.7 square miles) or 3561 ha. The property was staked by Rare Earth Metals Inc. (REM) in 2011 and is 100% owned by REM.

LOCATION/LOGISTICS: The Manitouwadge Graphite Property is located approximately 30 to 40 kilometers northeast of the town of Manitouwadge, Ontario. Manitouwadge is the location of the former Geco Mine which was owned and operated by Noranda from 1954 to 1995. The town of Manitouwadge is situated at the north end of Highway 614, 331 kilometres (206 mi) east of Thunder Bay and 378 kilometres (235 mi) west of Sault Ste. Marie, north-western Ontario. Access to the western part of the property is obtained by logging roads leading north from Manitouwadge. Parts of the property which are inaccessible from roads are best reached by helicopter from the Marathon Airfield.

GEOLOGY: The area is underlain by migmatites and gneisses of the Quetico Metasedimentary Subprovince. The country rock strikes generally east-west and is composed of strongly metamorphosed metasediments. The property encompasses the Thomas Lake Road Graphite Occurrence as well as several airborne electromagnetic conductors thought to be associated with the Graphite. The Thomas Lake Road Occurrence is described as a flake graphite showing, locally up to 20%, hosted within a four meter wide structural zone within strongly metamorphosed sediments (ref. OGS Open File Report 5889).

WORK TO DATE: The staked claims encompass a number of airborne electromagnetic (AEM) anomalies which were identified from a 1989 geophysical survey completed by Dighem Surveys for Noranda Exploration Services. A due diligence prospecting program was undertaken by REM in April, 2012 and values ranging up to 6.17% C-graphite were obtained from samples of three new graphite occurrences along a minimum 900 meter trend coincident with three parallel conductive zones located within an intense magnetic low. The Company has recently completed a prospecting and geologic mapping program, a ground HLEM geophysical survey, a trenching/chip sampling program, and a preliminary mineralogy/particle size analysis. Results include 3.92% C-Graphite over 8.0 meters (m) from the North Zone, 2.96% C-Graphite over 12 m from the Central Zone, and 4.18% C-Graphite over 6.5 m from the South Zone (Thomas Lake Road Occurrence). The particle size analysis was completed on a crushed portion of a sample from the North Zone which analyzed 9.27% C-Graphite. Flake graphite was recognized in both the plus 65 mesh (Tyler scale) (0.212 mm) and the plus 35 mesh (Tyler scale) (0.425 mm) fractions with 42.9% of the total Graphite reporting to the plus 35 mesh and 69.4% of total Graphite in the plus 65 mesh fraction. The sample was also sent for a mineralogical analysis to determine the grain size of graphite and a semi-quantitative mineralogical analysis. It has been confirmed that graphite is significantly liberated at a 20 mesh grind and flake size determinations show a size of 310 microns which is considered coarse flake graphite. Metallurgical test work to analyze the beneficiation characteristics of graphite from a mineral sample also from the North Zone resulted in product grades in the range of 80 - 93 % graphite. Grinding, flotation and gravity separation techniques resulted in producing a primary (flotation rougher) recovery of

97.32% and a final flotation concentrate grade of 62.15 % C-Graphitic. A particle size analysis performed after a gravity concentration test indicated that 10.3% of the graphite reported to the +300µm (jumbo) size fraction, with a grade of 86% C-Graphitic, 29% of the graphite reported to the +180µm (large) size fraction, with a grade of 83% C-Graphitic, and 11.1% of the graphite reported to the +150µm (medium) size fraction, with a grade of 80.3% C-Graphitic. The +425 µm (jumbo) graphite fraction was screened out after grinding and prior to flotation and had a grade of 92.6% C-Graphitic, and constituted 16.2% of the graphite.

RECOMMENDATIONS: There has been a recent surge in exploration for graphite. Traditional industrial users for graphite such as refractories, metal castings, and lubricants will have to compete for supply with new technology producers. High value graphite applications such as lithium-ion batteries, fuel cells, and pebble bed nuclear reactors require flake and/or high purity graphite. There is over 5 to 20 times more graphite in a lithium ion battery than there is lithium. The lithium-ion battery industry is growing at 20 to 40% annually, and the electric vehicle market is expected to grow as much as 20 % annually (each EV will require 20 kg to 40 kg of graphite which means 1MT of graphite will be needed annually by 2020). The booming demand will require more than a doubling of current global graphite production.

The best potential for new sources is in metamorphic geologic terrains like Quebec and Ontario, especially in marbles and gneisses. The Manitouwadge Graphite Property has a number of positive elements including a geological environment consisting of recrystallized meta-sediments which is a common host to most flake graphite deposits, a known, but little worked, flake graphite showing, and the occurrence of numerous AEM “conductors”, one of which is proximal to a coarse flake graphite showing.

A drill program is recommended to further test the nature and extent of the graphite mineralization along three parallel HLEM conductive zones. The new graphite showings are coincident with a 4 kilometer long AEM trend, however, the full relationship of the graphite and the airborne “conductors” remains to be ascertained. Graphite is a highly conductive mineral; however, the electromagnetic signature depends on the zones’ thickness, purity and continuity of the graphite minerals. A number of other similar AEM “conductors” in the area have also been staked and are recommended to be evaluated for their graphite potential.

2. INTRODUCTION AND TERMS OF REFERENCE

This technical report on the Manitouwadge Graphite properties has been prepared by Reginald Felix, a qualified person under National Instrument 43-101. He is Vice President – Exploration of Rare Earth Metals Inc.

Rare Earth Metals Inc. (the “Company” or “Rare Earth”) is a Canadian development stage public company focused on the acquisition and development of mineral properties. The Company’s common shares are listed on the TSX Venture Exchange under the trading symbol “RA” and on the OTCQX under the trading symbol “RAREF”.

The focus of the Company is to seek out and explore mineral properties of potential economic significance and advance these projects through prospecting, sampling, geological mapping and geophysical surveying, trenching, and diamond drilling in order for management to determine if further work is justified. The Company's property portfolio consists of projects focusing on rare earth metals and strategic metals.

The information, interpretations, and conclusions contained in this report are based on information available to the author at the time of preparation of this report. Interpretations and conclusions are based on assumptions and conditions as set forth in this report. Sources of information that have been utilized to inform this report include:

1. The Ontario Ministry of Northern Development and Mines, ("MNDM"), Mines which administers Ontario's Mining Act has provided:
    i. Recorded description, including current status, of the Manitouwadge Graphite property unpatented claims as well as recorded adjacent claims and
    ii. Copies of archived assessment files which include work reports, maps, data of exploration work completed on the property.
2. Public domain geological literature completed and published largely by the Ontario Geological Survey and the Geological Survey of Canada which describe and interpret the geological setting of the Manitouwadge Graphite property.
3. Discussion with OGS personnel, one of whom formerly worked on the property.
4. Mineralogical analyses and Metallurgical testing reports on samples from the Manitouwadge Graphite property completed by ActLabs of Thunder Bay and Ancaster, Ontario.
5. A site visit to the Manitouwadge Graphite property completed by the author and accompanied by Michael Stares who has worked on the property on a prospecting basis and Glen Penney who was initiating a geological survey of the property. The site visit was completed on July 5, 2012. The scope of the visit included confirmation of access, evidence of historical exploration, confirmation of recent exploration work carried out by Rare Earth Metals Inc., and confirmation of the existence of geology and graphite bearing zones as described. The results of the site visits are presented in Item 14.

3. DISCLAIMER

Some of the statements made in this report are forward-looking statements, such as statements that describe the Company's objectives or goals, including words to the effect that the Company or management expects a stated condition or result to occur. Other statements rely on extrapolation of published regional data to the Manitouwadge area (for example the delineation of AEM anomalies associated with a magnetic low from an airborne electromagnetic- magnetic survey flown by Dighem Surveys for Noranda Exploration Services in 1989), and some statements rely on interpreted results (for example the Manitouwadge Graphite Property hosts a number of graphite horizons associated with highly favourable geophysical anomalies that are ready-made targeting features for a drilling program). Such statements involve risks and uncertainties. Actual results in each case could differ materially from those currently anticipated or interpreted.

Core drilling will be needed to confirm whether reported flake size, widths and average grade of graphite mineralization at depth reflect graphite mineralization at surface, and bulk sampling with further metallurgical test work of graphite mineralization will be needed to indicate how well the flake graphite can be concentrated.

The Claim information was acquired from the Ontario Ministry of Northern Development and Mines ("MNDM") web site. The Government web site contains a disclaimer regarding the accuracy of the data.

4. PROPERTY DESCRIPTION AND LOCATION

The Manitouwadge Graphite Property, located in the Ramsay Lake, Thomas Lake, Olie Lake, and Flanders Lake areas and Flanders Township within the Thunder Bay Mining Division, Ontario, and in Foch Township within the Porcupine Mining Division, consists of 18 claims totalling 220 unpatented claim units encompassing 35.6 square kilometers (13.7 square miles) or 3561 ha. The 18 claims consists of a contiguous block of 11 unpatented mining claims centered about the Thomas Lake Road Graphite Occurrence, and a second contiguous block of 3 unpatented mining claims and 4 non-contiguous unpatented mining claims centered over other AEM conductors in the area. The unpatented claims, listed in Table 1, are all in good standing until the early winter of 2014 at which time work expenditures of $400 per claim unit are due, as required by the Mining Act of Ontario. The property was staked by Rare Earth Metals Inc. in 2012 and is 100% owned by REM., not subject to any royalties, back-in agreements, or other payments/agreements/encumbrances. To the author’s knowledge there are no registered aboriginal land claims or any known adverse environmental issues or public hazards associated with the lands. No permits are required for REM’S current exploration programs, but it must adhere to guidelines established by the Ministry of Northern Development and Mines (MNDM) in regards to aboriginal consultation and the Ministry of the Environment ("MOE") for working near water. The Company has issued letters of notification with local aboriginal communities. The property is an early stage exploration property, and has not been the subject of any mineral production. The Property has not been legally surveyed. Claim data are summarized in Table 1.

Table 1: Manitouwadge Graphite Property Unpatented Claims with current status

Claim Number	Township/Area	Recorded Holder	Recording Date	Due Date	Units	Work Required
4268977	Ramsay Lake G-0608	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	15	$ 6,000.00
4268978	Thomas Lake G-0616	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	15	$ 6,000.00
4268979	Thomas Lake G-0616	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	15	$ 6,000.00
4268934	Thomas Lake G-0616	Rare Earth Metals Inc. (100%)	09-May-12	09-May-14	16	$ 6,400.00
4268933	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	09-May-12	09-May-14	16	$ 6,400.00
4268932	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	23-Apr-12	23-Apr-14	15	$ 6,000.00
4268952	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	9	$ 3,600.00
4268953	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	12	$ 4,800.00
4268975	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	16	$ 6,400.00
4268976	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	15	$ 6,000.00
4268935	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	05-Jun-12	05-Jun-14	9	$ 4,800.00
4269016	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	15	$ 6,000.00
4269015	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	22-Feb-12	22-Feb-14	16	$ 6,400.00
4268936	Ollie Lake Area G-0605	Rare Earth Metals Inc. (100%)	09-May-12	09-May-14	7	$ 2,800.00
4265960	Flanders Lake Area G-0590	Rare Earth Metals Inc. (100%)	09-May-12	09-May-14	4	$ 1,600.00
4268938	Flanders Lake Area G-0590	Rare Earth Metals Inc. (100%)	09-May-12	04-Jan-14	4	$ 1,600.00
4268939	Foch (G-2309)	Rare Earth Metals Inc. (100%)	09-May-12	09-May-14	12	$ 4,800.00
4268937	Flanders (G-0572)	Rare Earth Metals Inc. (100%)	05-Jun-12	05-Jun-14	9	$ 3,600.00
18					**220**	**$89,200.00**

A claim is a mineral right that gives its holder the exclusive right to explore a designated territory for any mineral substance that is part of the public domain, except for loose surficial deposits of gravel, sand and clay. A claim does not bestow any surface rights and Rare Earth Metals Inc. owns no surface rights. To maintain a claim in good standing, approved exploration work of required dollar value must be completed and filed with the MNDM. As prescribed by the Ontario Mining Act and regulations, work to a value of $400 per year is required per claim unit, except for the first year, when no assessment work is required. Assessment work must be performed and applied to each of the mining claims until the holder applies for a Mining Lease. To date no work has been filed for these claims and assessment work must be performed and applied by as early as February 22, 2014 for 9 of the claims.

Recent amendments made to the Mining Act are being brought into effect as implementing regulations and policies are developed, in an ongoing roll-out of the Mining Act Modernization (MAM) initiative. The current set of regulation proposal postings (Phase II regulations) include implementation of a new graduated regulatory scheme for early exploration activities, the criteria for sites of Aboriginal cultural significance, clarifying Aboriginal consultation requirements relating to closure plans, implementing voluntary rehabilitation of abandoned sites including Aboriginal consultation requirements, changes to bulk sample permits, assessment work credits and some changes to administrative processes relating to mining claims and mining land tax notices. New Exploration Plans and Permits Regulation would apply to early exploration activities take place before an advanced exploration stage project and closure plan is triggered.

The regulation would include requirements for notification of surface rights owners, Aboriginal consultation and rehabilitation requirements for carrying out exploration as well as rehabilitation of exploration sites when the activity is completed. The Ministry proposes to phase-in the provisions for Exploration Plans and Permits and to make them mandatory within six months after the regulation is approved.

The Claims are located approximately 30 to 40 kilometers northeast of the town of Manitouwadge, Ontario, centred at approximately 85°36′53.8”W Longitude and 49°21′1.97”N Latitude within National Topographic System ("NTS") map sheets 42F05 and 42F06. The town of Manitouwadge is situated at 85°50′W Longitude and 49°08′N Latitude, at the north end of Highway 614, 331 kilometres (206 mi) east of Thunder Bay and 378 kilometres (235 mi) west of Sault Ste. Marie, north-western Ontario. The location of the Property and the Claims is shown on Figures 1 and 2 respectively.

Figure 1: General Location Map

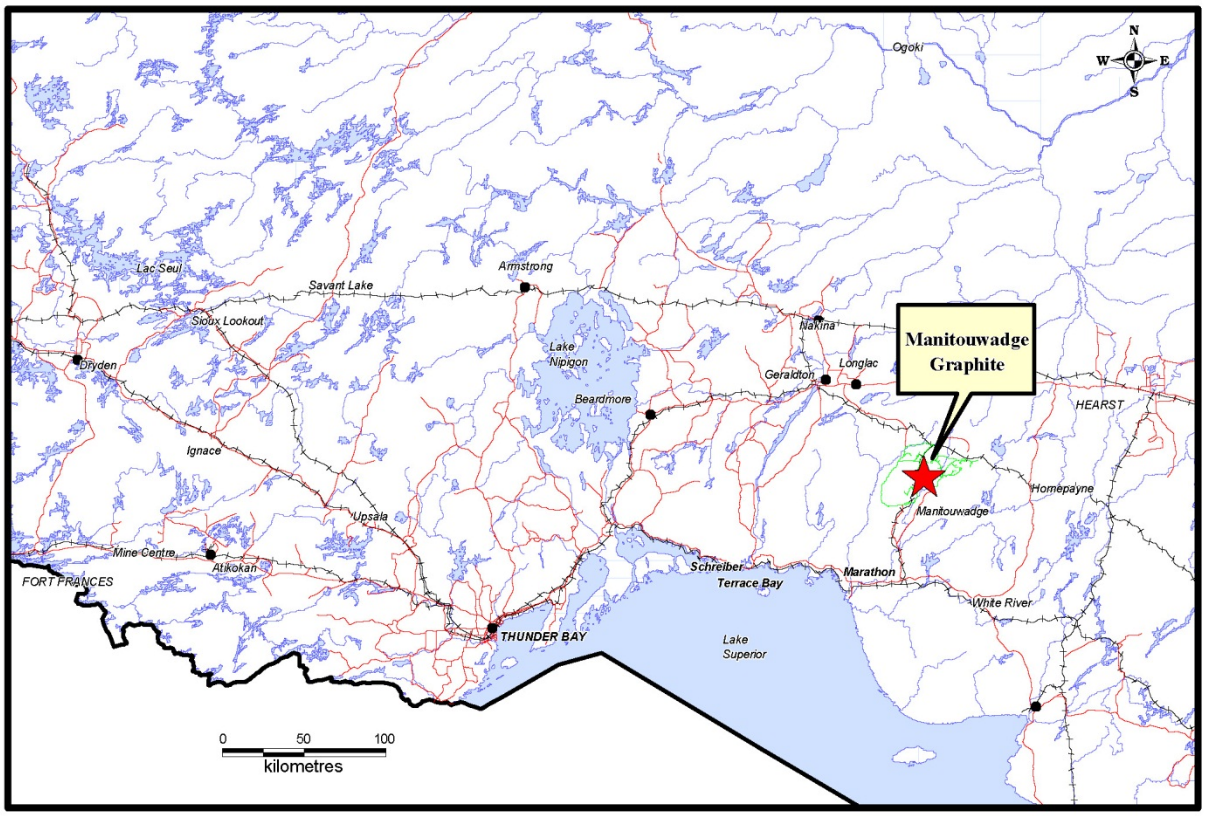
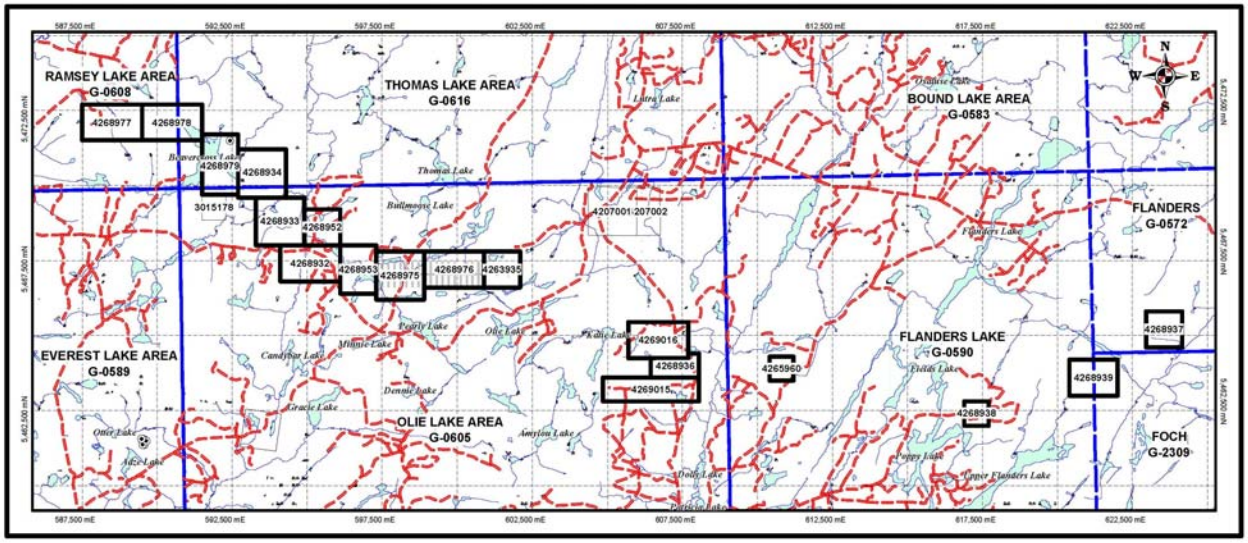


Figure 1
General Location Map

Figure 2: Claims Map



5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access to the western part of the property is obtained by a series of logging roads leading north and east approximately 45 kilometers from Manitouwadge; depart from Manitouwadge east on Road 10 towards Hillsport, a community situated about 65 km. north of Manitouwadge. Via Rail has a railway station in Hillsport. The Thomas Lake road bisects the western sector of the property approximately 10 km. southwest of Hillsport. Access to the eastern part of the property which is inaccessible from roads is best reached by helicopter from the Marathon Airfield.

The area is characterized by a humid continental climate typical of the northern temperate zones. Temperatures may reach 30°C in the summer and -40°C in the winter. Snowfalls in the area are frequent and snow accumulations reach over a meter in depth in a typical winter.

Medical and emergency facilities are available at Manitouwadge which has hospital facilities and is about 15 minutes away by helicopter. Basic food, lumber and fuel can be bought at Manitouwadge with lodging available at both Manitouwadge and Hillsport. The residents of Manitouwadge are keen for employment and, while mining has always been at the forefront of Manitouwadge's economic activity, forestry also plays a significant part in the town's economy. The town is also turning itself into a retirement community, offering some of the lowest housing prices in the country.

Except for a few creeks, the waters of the area drain north. The main waterways in the area, Foch River, Flanders River, and White Otter River, and Osawin River, trend almost north-south. These are mainly passable by canoe, but are narrow, shallow, rocky, and often 'weed-choked'. There is little relief in the greater part of the region, so the streams and rivers tend to meander, and there are large areas of swamp and muskeg. The strongest topographic features over much of the area are of glacial origin. The most marked of these are the eskers, which in some cases rise to over

15 meters above the general level. These eskers generally trend northeast and frequently form traps enclosing elongated lakes. Rounded hills up to 30 meters or more in height are found in the southern and south-western parts of the region.

Much of the Manitouwadge Graphite property has been cut or burned over so that thick tree cover now consists of older hardwood, mostly trembling aspen and white birch, mixed with a dense younger growth of softwoods, predominantly black spruce and balsam with some jackpine in granitic and in sandy areas to the north, particularly around Hillsport. Scattered areas of cedar and tamarack occur around lakeshores and in the swamps. Scrub alder grows in many swamp areas and is very abundant along creek banks. Most of the wood harvesting is done on the higher poplar- and spruce-covered ridges in the area. Most of the rivers and lakes in the region contain pike and pickerel. Foch River is reported to have trout along certain stretches, and White Otter Lake has produced catches of pike, pickerel, and perch. The shallow lakes and weedy rivers provide excellent grazing for moose, in spring and early summer, particularly around Flanders Lake. In the fall, however, they tend to move into the higher ground farther south and are seen less often. Some caribou and black bear also inhabit the area, and partridge abound.

6. HISTORY

Previous exploration carried out in Manitouwadge Graphite project area has been for base metals, precious metals and graphite. Work has been carried out by Brinklow, Gionet and the Company. A summary (chronology) of historical geological mapping, geochemical and geophysical surveys and exploration programs is presented below:

1960: A reconnaissance geological survey of the Flanders Lake area (eastern region of the Manitouwadge Graphite project area) was carried out during the summer of 1960 by V.G.Milne for Ontario Department of Mines. The Flanders Lake area lies 20 miles northeast of Manitouwadge and straddles the boundary between the current mining divisions of Porcupine and Thunder Bay. Interest in the area was stimulated by the discovery, in the Manitouwadge area, of the Geco and Willroy orebodies. No sulphide deposits of any significance were encountered in the area and it was concluded that the rather monotonous nature of the sedimentary rocks in the Flanders Lake area, and the absence of fracturing or fold features capable of localizing ore, suggest that base metal ore bodies such as those of the Willroy or Geco mines in the Manitouwadge region are unlikely to be present in the Flanders Lake area.

1965: Examined and mapped by M.E. Coates for Ontario Department of Mines

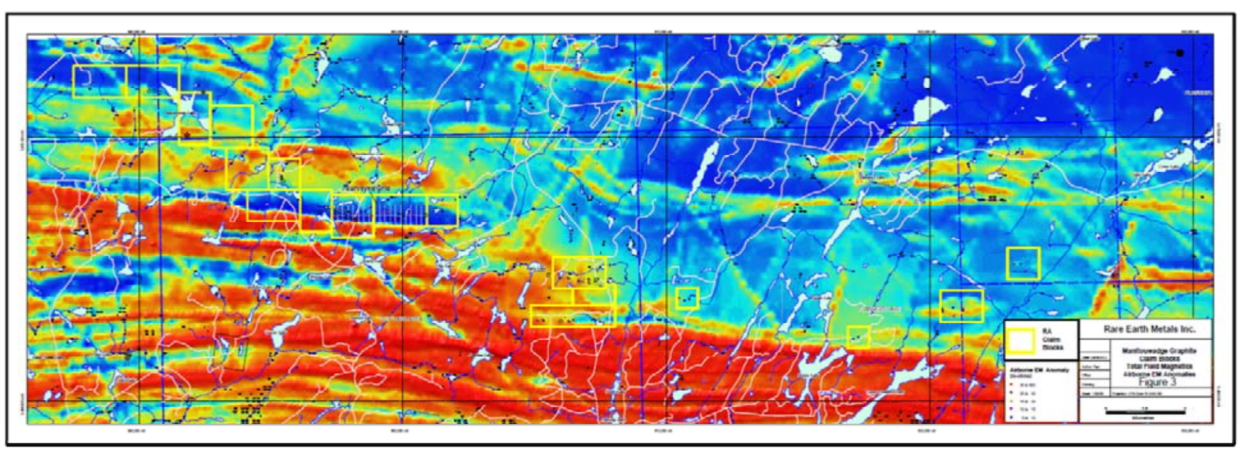
1974-1979: Regional lake sediment and water geochemical survey was conducted in the area by the Geological Survey of Canada and the Ministry of Natural Resources.

1980: Staked by R. Koivisto and transferred to the Hudson Bay Exploration and Development Company.

1989: Examined and mapped by H. Williams and F. Breaks for the Ontario Geology Survey.

1989: Geophysical survey completed by Dighem Surveys for Noranda Exploration Services was conducted over the area. A number of airborne electromagnetic (AEM) anomalies were identified in the Manitouwadge Graphite property area; one AEM anomaly trend is 4 km long coincident with a magnetic low (Figure 3).

Figure 3: Dighem AEM/AMAG



1991-1993: Staked in the name of R. Vaudrin.

1992: a new graphite occurrence was located by L.Brinklow and P.Nivens. Claims were staked and stripping and trenching conducted. Samples were sent out by the prospectors to evaluate the potential for base metal mineralization. Results were not encouraging. Phantom Exploration Services Ltd. of Thunder Bay, Ontario were contracted to establish a 10 km.grid, and to conduct magnetic (Scintex Omni IV) and VLF (Geonics EM-16) and HLEM (Apex Parametrics MaxMin II) electromagnetic surveys on their Thomas Lake property. Phantom Exploration Services reported that the best VLF anomalous trend extends for 1.4 km. from line 5+00 E at 3+00N to 9+00W near the baseline and exhibits good conductivity. A short two line response located on lines 3+00E and 4+00E at 6+50N also exhibits conductivity. Subsequent checking with the MaxMin II unit showed the main conductive trend to be a good bed rock conductor. Phantom also stated that the lack of associated magnetic features with most of the main conductive trend suggests that this anomaly is due mainly to graphite. (Stripping and trenching totalling 3525 square meters on lines 3+00W and 4+00W on this conductive trend by Brinklow showed this analysis to be correct.) It was recommended that some consideration should be given to the possible exploitation of the graphite itself and that typical representative samples should be sent for evaluation.

1992 -1993: Examined by Ontario Geology Survey (Hinz, Lucas). The occurrence is hosted within a 4 m wide shear zone within Quetico paragneiss. On the south side of shear a pegmatite dike is observed. Flake graphite is present within the shear zone as a graphitic schist. Graphite comprises 5% (locally up to 20%) of the rock with trace chalcopyrite, pyrite, magnetite, pyrrhotite; abundance of biotite within the schist. Sample taken by P. Hinz returned a value of 4.5% graphitic carbon from a field visit 92/06/16. A polished thin section of a small sample taken by Hinz revealed flake graphite. Another 40 kg. high grade sample of graphitic schist was sent to Lakefield Research for a flotation test. A report on the results of the flotation test provided by Lakefield (1993) states that graphite can be readily recovered by conventional flotation techniques from this ore. However, because of intimate mineral associations between graphite and biotite, this does not seem to be a good ore to produce high grade +49 mesh graphite flake. It was also commented in the Ontario Geology Survey Report Open File Report 5889 by P. Hinz and R.M. Landry in 1994 that this occurrence is of interest as it is the third and largest such occurrence, north of Manitouwadge.

1995 -1998: Area south of Beavercross Lake in the Thomas Lake area was targeted by Gionet for exploration (48 miles of beepmatting, prospecting, 19 days of trenching, 1200 feet of drilling) when grab samples returned assays showing significant amounts of copper, nickel, zinc and gold; 3 claims (totalling 10 claim units) were staked. Gionet recently (April 2012) re-staked 1 claim totalling 4 claim units and is tied on to REM's property.

2012: Claims staked by REM (18 unpatented claims encompassing 220 claim units). The Thomas Lake Road Graphite Occurrence as well as several airborne electromagnetic conductors within a well-defined magnetic low identified from a 1989 geophysical survey completed by Dighem Surveys for Noranda Exploration Services and trending for a strike length in excess of 4 km was targeted. A number of other similar AEM "conductors" in the area were also staked and targeted to be evaluated for their graphite potential. The Company completed a 22 kilometer cut grid as well as completed 18.5 kilometers of ground horizontal loop electromagnetic (HLEM) survey, prospecting and geological mapping. The HLEM survey delineated 6 conductors that range in strike length from 150 meters to greater than 1.6 kilometers (Figures 4a, 4b, Appendix 1).

Figure 4a: HLEM Survey (444Hz) of the Thomas Lake Road Grid Area

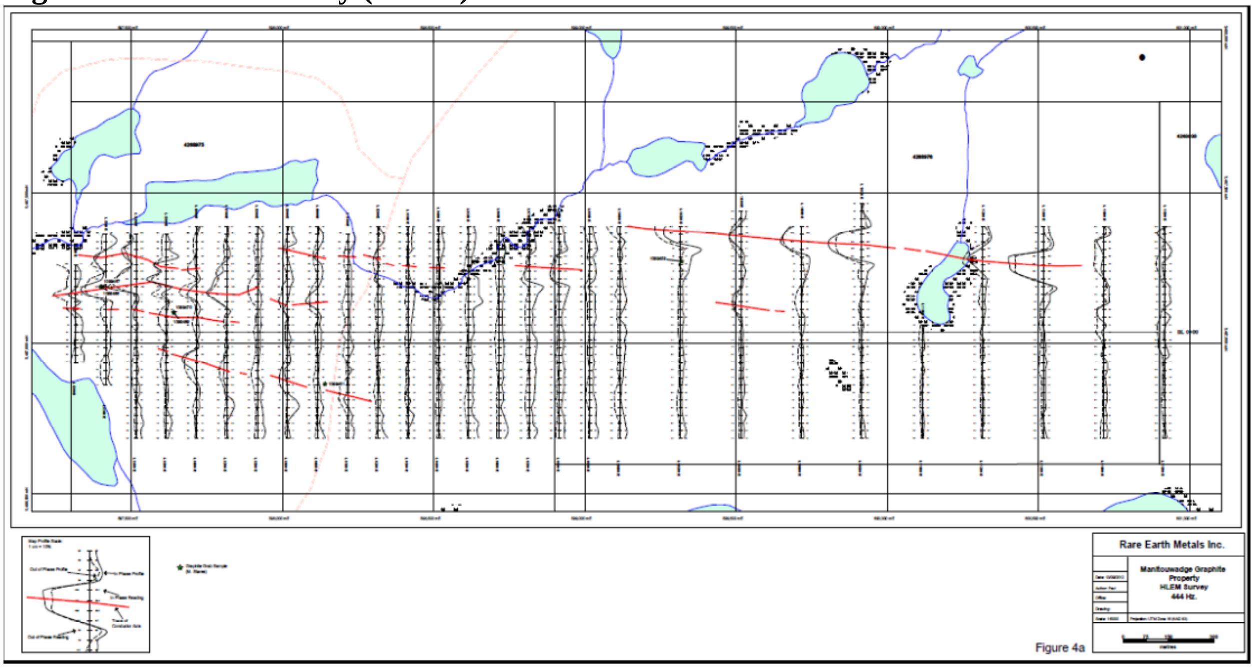
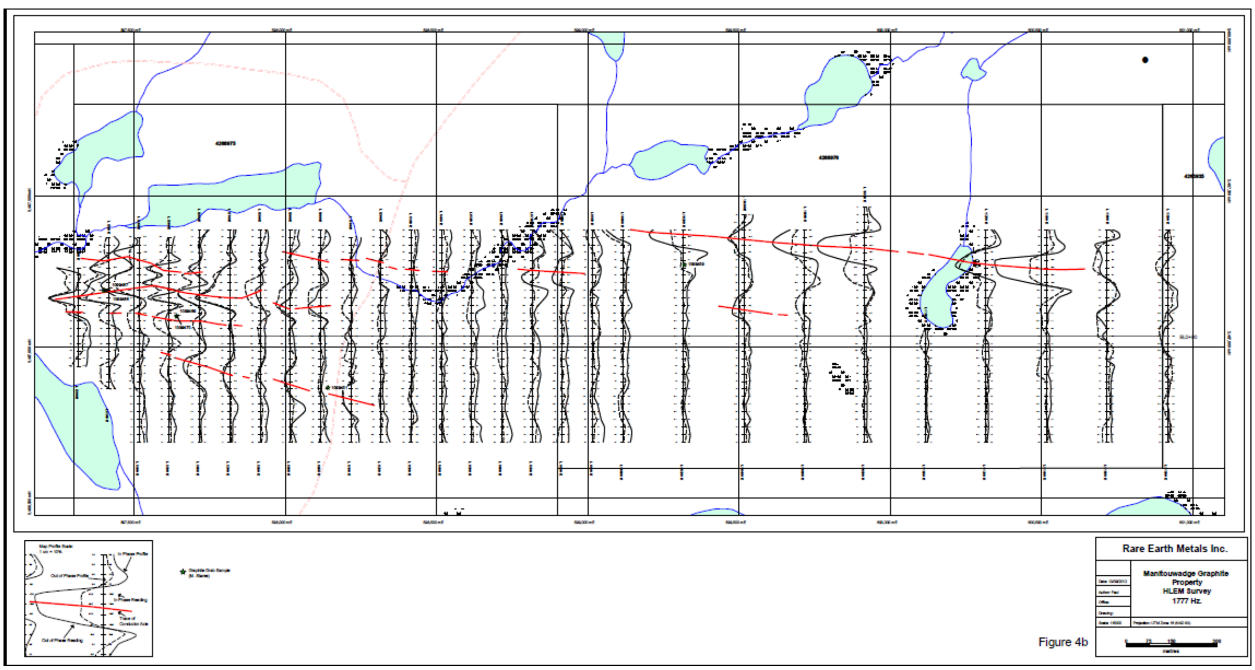


Figure 4b: HLEM Survey (1777 Hz) of the Thomas Lake Road Grid Area



Three of the conductors are coincident with three graphitic horizons and values ranging up to 6.17% C-graphite were obtained from samples of three new graphite occurrences along a minimum 900 meter trend coincident with three parallel conductive zones located within an intense magnetic low. Chip samples from 1410 square meters of trenching recently completed by the Company delineated graphite zones that vary from 4 to 12 meters thick with grades ranging from 2.04% to 4.18% carbon (Figures 5, 6 and 7, Appendix 1).

Figure 5: Trench Map – Thomas Lake Road Showing

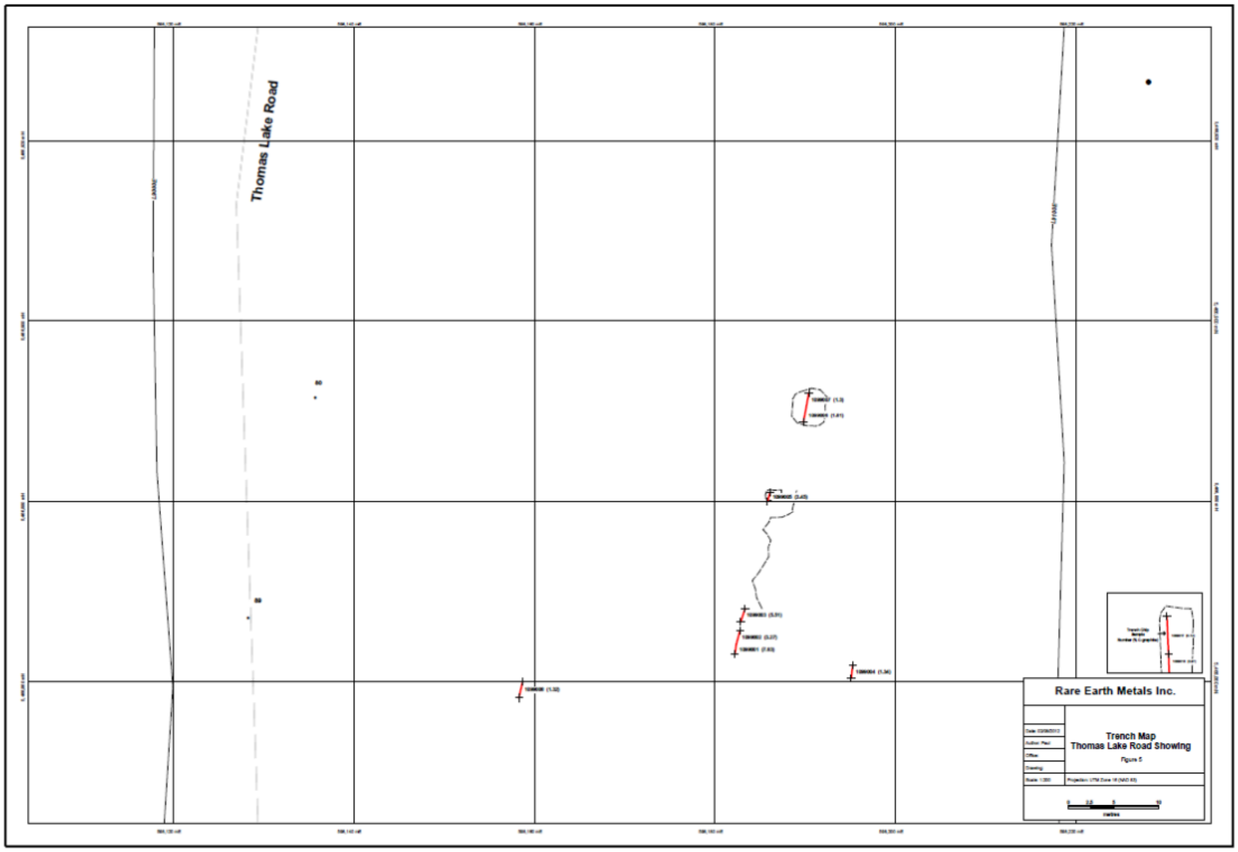


Figure 6: Trench Map – North Central 1 Showing

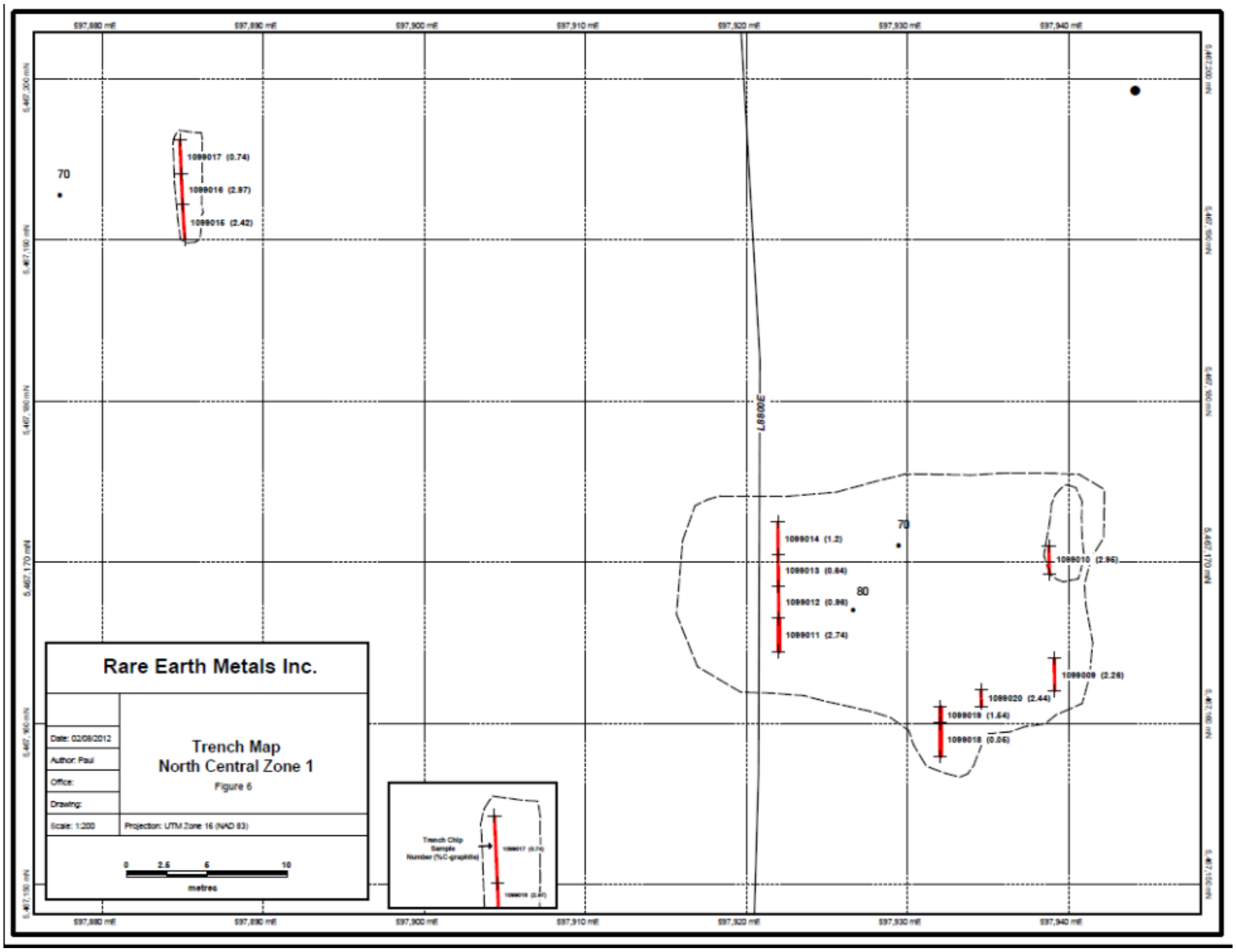
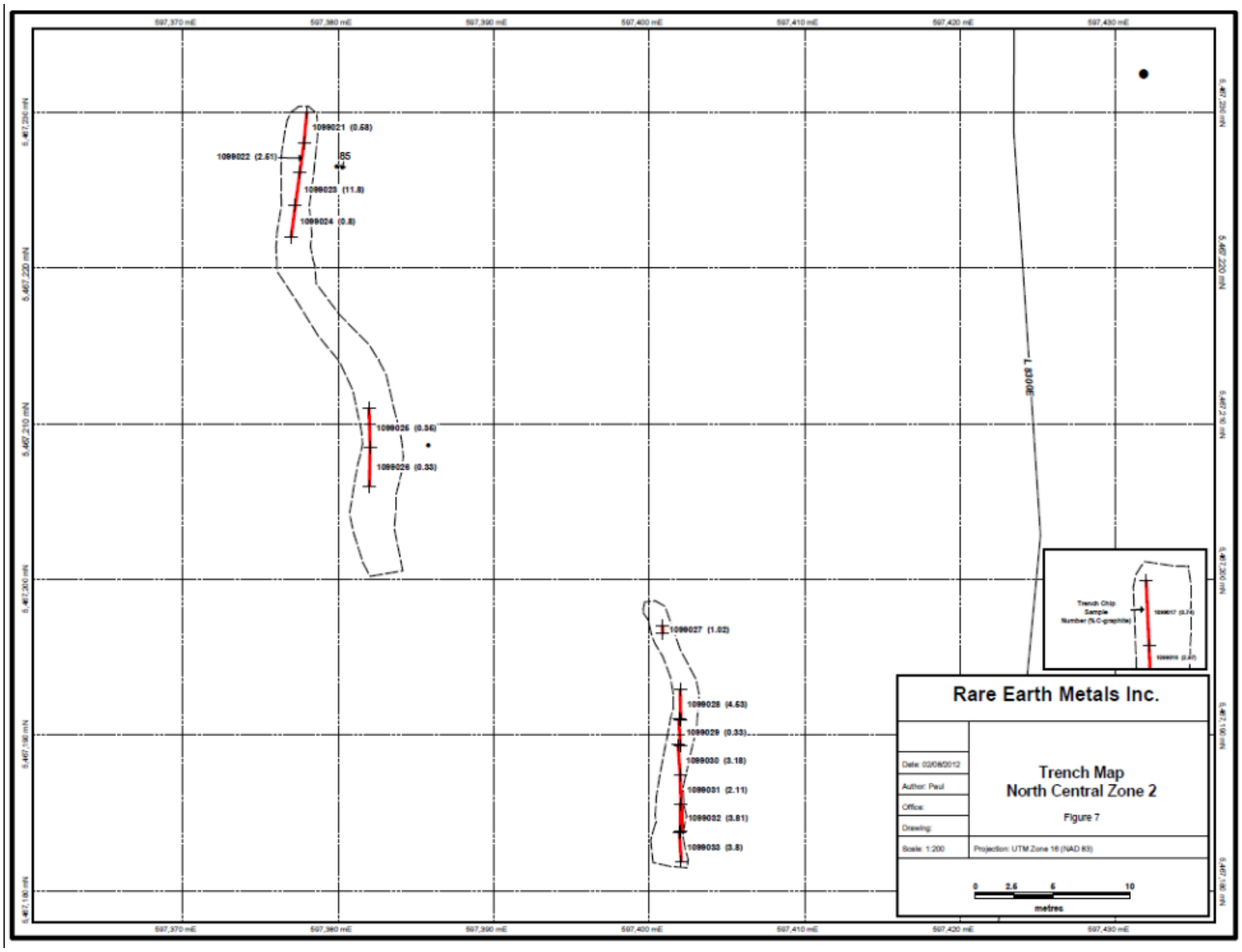


Figure 7: Trench Map – North Central 2 Showing

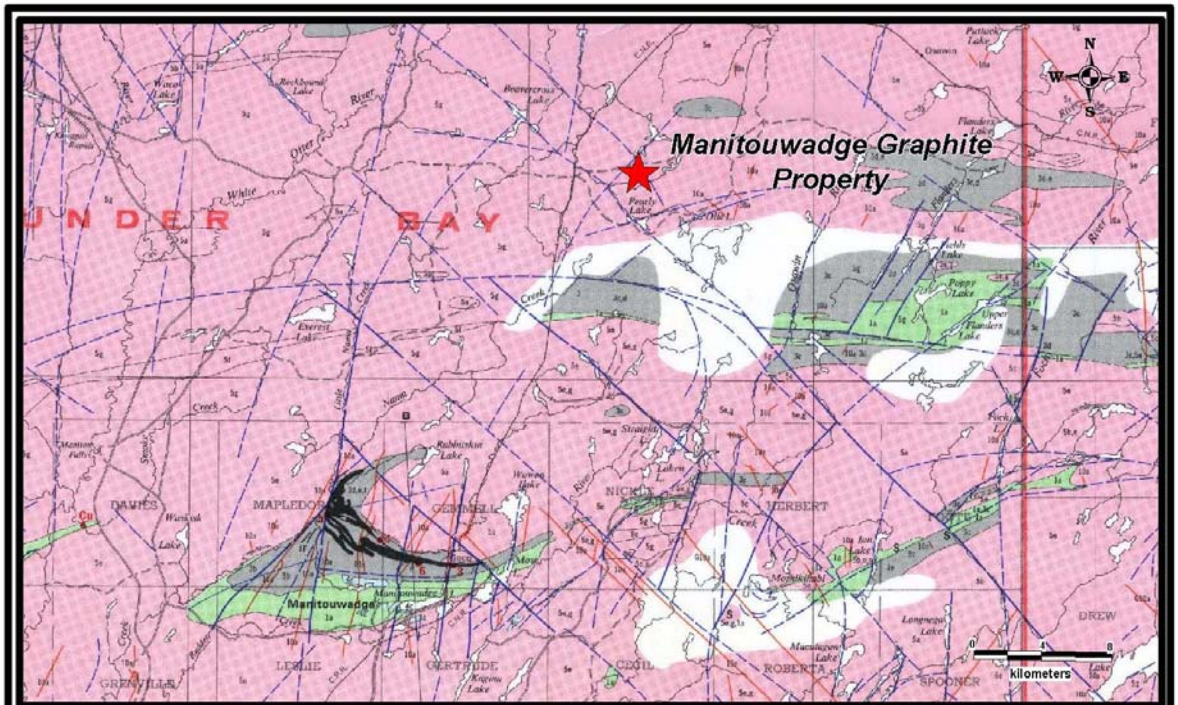


Screen tests completed on the higher grade composite sample by Actlabs confirmed the presence of flake graphite, recognized in both the plus 65 mesh (0.212mm) and plus 35 mesh (0.425mm) fraction. Metallurgical work to analyze the beneficiation characteristics of graphite from a 2 kg. mineral sample from the Rare Earth Metals' Manitouwadge Graphite Property was also completed by Actlabs. Testing included grinding, flotation and gravity separation techniques. The final concentrate underwent a Particle Size Analysis (PSA) to indicate the size of the recovered graphite flake. Results of this test work are summarized in Item 16.

7. GEOLOGICAL SETTING

The Manitouwadge Graphite property is located within the Quetico Metasedimentary Suprovince of the Archean Superior Province of the Canadian Shield (Figure 8). Previous regional mapping in the area was carried out at various scales by Pye (1960), Milne (1964), Coates (1968), Giguere (1972), and Williams and Breaks (1989, 1990). A description of the Quetico Subprovince is summarized from Williams (Geological Survey of Canada, Open File 3138- Beakhouse, Blackburn, Breaks, Ayer, Stone, Scott, 94 pp, 1991):

Figure 8: Regional Geology (Legend Appendix 6)



(Extracted from Map 2220 Manitouwadge-Wawa Sheet
- Ontario Department of Mines and Northern Development 1970-71)

Figure 8 - Regional Geology

The Quetico subprovince is a linear belt, 15 -60 kilometers wide and at least 800 kilometers long. To the west it extends a further unknown distance beneath poorly exposed areas and Paleozoic cover. Variously migmatized metasedimentary rocks, originally consisting of wacke and siltstone, predominate. Minor ironstone and conglomerate are also components of this supracrustal assemblage. Primary sedimentary structures, including even, continuous metre to decimetre thick bedding, graded bedding, scour and rarer ripple marks, cross-stratification and dewatering structures, are preserved in many areas, particularly those characterized by lower grades of metamorphism and less pervasive migmatization. The compositions and sedimentary structures have been interpreted to indicate that the supracrustal assemblage represents deposition of immature detritus from turbidity flows in a submarine basin of great lateral extent.
Granitoid rocks include late, massive to foliated granodiorite to granite and minor, earlier, foliated to gneissic tonalite. The earliest tectonic deformation consists of layer-parallel shearing and associated folding which is related to regional scale fabric formation. This fabric, as well as migmatitic layering, is subsequently deformed in a second phase of more upright folding. Later structures include small-scale shear zones as well as major faults. The major faults include those which are oriented parallel to, and lie near, the subprovince boundary (Quetico, Seine River) as well as others which transect the subprovince (Gravel River, Kapuskasing Structural Zone).

Regional metamorphism occurred synchronously with the waning stages of deformation and was accompanied by partial melting in higher grade portions of the subprovince. In general, there is a progression from lower grades near the margins to higher grades in the central portions of the subprovince.

The Property area is underlain by *"*steeply dipping, approximately east-west-striking, gneissic and migmatitic metasedimentary rocks of the Quetico Metasedimentary Subprovince. The country rock generally is composed of primarily granulite facies paragneiss and biotite migmatite. Williams and Breaks (1990) located an orthopyroxene isograd in which the Thomas Lake Road graphite occurrence is located. The occurrences of the isograd would confirm the level of metamorphism as being granulite. Migmatites, consisting of lit-par-lit quartzo-feldspathic neosome and biotitic and graphitic paleosome, are complexly folded, isolated outcrops on non-foliated, equigranular diorite occur to the east. The migmatites and diorites are intruded by irregular, buff to pink, graphic textured, quartz-feldspar pegmatite dykes. These dykes are locally garnetiferous and may contain cordierite. They bear remarkable similarity to those that occur at the former Willroy and Geco mines at Manitouwadge. Subhedral to euhedral porphyroblasts may attain lengths of over 15 cm in the pegmatitic. A Paleoproterozoic diabase dyke that intrudes the aforementionned country rocks in the vicinity of the occurences strikes 160^{o}, parallel to other prominent dykes (i.e. the Hearst swarm; Osmani 1991) in the area*."

*The above paragraph has been extracted from a report on the Gionet sulphide occurrence compiled by Mr. Bemie Schnieders and Mr. Mark Smyk from the Ontario Geological Survey-Open File Report 5958, reference as follows: Newsome, J.W. and Laderoute, D. (Editors) 1997. Report of activities 1996, Resident Geologists; Ontario Geological Survey, Open File Report 5958, 465p.

In 2012, REM completed a 22 kilometer grid in the area of the mineralized zones covering the Thomas Lake Road sector of the Manitouwadge property and performed detailed geological mapping (Penney) producing a 1:5000 scale map (Figure 9). The distribution of outcrop throughout the property averages 25-35%. The majority of outcrop consists of glacially smoothed exposures along the Thomas Lake Road and secondary trails. The remaining outcrop exposure occurs along the periphery of moderate to steeply sloping ridges, with up to 10-15 m relief, as moss covered hummocks and steep sided cliffs. The tops of the ridges are generally covered with overburden and forest cover. The low ground between the ridges is generally wet forest or outright swamp. According to Penney, the Manitouwadge property is underlain by a sequence of gneissic and migmatized metasedimentary rocks. Four main lithology types were observed:

1. Biotite Quartz Feldspar Gneiss (Migmatite):

   This unit comprises up to 60% of the map area and is comprised of very strongly deformed, 1mm scale laminations, of Biotite (10 – 40%), Quartz (30 – 40%), and (Feldspar 20 – 50%). Compositional segregations of Quartz and Feldspar up to 50 cm long by 3cm wide attenuated horizons are common.
2. Garnet Biotite Quartz Feldspar Gneiss (Migmatite):

   This unit comprises up to 35% of the map area, generally in the south – southwest portion of the grid. It is essentially the same mode and morphology as the Biotite Quartz Feldspar

Gneiss, however this unit contains up to 20% fine to medium grained red-pink Garnet, occurring as sub-euhedral – euhedral porphyroblasts disseminated throughout the Biotite Quartz Feldspar Gneiss and not affected by deformation (Garnet porphyroblasts grow across compositional banding and are not preferentially concentrated or aligned).

3. Pegmatite:

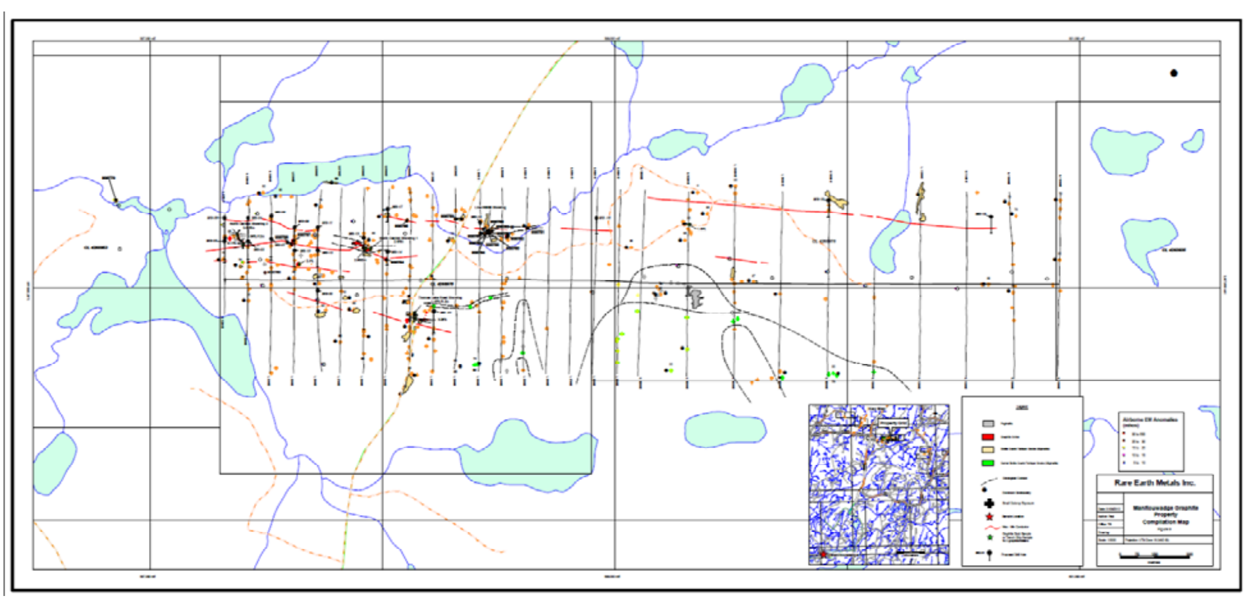
Pegmatite comprises up to 5% of outcrop volume. It consist of very coarse grained, massive, Biotite (5%), Quartz (40 – 50%), and Feldspar (50 – 60%). The Pegmatite is generally discordant with the host gneisses and may represent very late stage partial melting of the arkosic, semi-arkosic sedimentary protolith.

4. Graphitic Schist

The graphitic schist is a distinctive weathering unit (1-12 meters wide), commonly exposed by the stripping and trenching by Brinklow (1992) and REM (2012) of mineralized biotite quartz-feldspathic gneiss (generally a gossanous purple-red brown to pale yellow-brown color). Graphite, pyrite and pyrrhotite occur throughout. Graphite occurs in concentrations along the foliation planes and is visually estimated to be from 1 to 10 %. Sulphides occur in concentrations from 1 to 5 %. In its un-weathered state, the rock unit is pale to medium grey in color. Schistosity (105^{o} – 110^{o}, 285^{o} – 290^{o}) within the graphitic unit is slightly discordant with the dominant gneissosity of the property.

The dominant gneissosity is generally east – west (085^{o}– 090^{o}, 275^{o} – 270^{o}) and steeply dipping. North of the baseline, the gneissosity dips steeply to the north (70^{o} - 90^{o}). South of the baseline (in the vicinity of the Thomas Lake Road) showing, the dip direction switches back and forth from north to south while remaining very steep (70^{o} - 90^{o}). This possibly indicates the presence very tight isoclinal folding, with the axial traces parallel to the dominant gneissosity. Asymmetrical isoclinals Z – fold was observed in an outcrop ~ 100m north of the Thomas Lake Road showing. Axial trace of the Z-fold is parallel with dominant gneissosity of the surrounding outcrop.

Figure 9: Geocompilation map of the property



8. DEPOSIT TYPES

According to R.S.Kalyoncu (2000), there are two general types of graphite, natural and synthetic. A description* of the types of graphite is summarized from a paper by Kalyoncu that can be found at: minerals.usgs.gov/minerals/pubs/commodity/graphite/310496.pdf
**Worldwide, natural graphite deposits occur as lenses or layers of disseminated or massive flakes. The three principal types of natural graphite—lump, crystalline flake, and amorphous—are distinguished by physical characteristics that are the result of major differences in geologic origin and occurrence. Lump graphite occurs in veins and is believed to be hydrothermal in origin. It is typically massive, ranging in particle size from extremely fine to coarse, platy intergrowths of fibrous or acicular crystalline aggregates with the long axis parallel to the enclosing wall rock (Kenan, 1984). Crystalline flake graphite consists of isolated, flat, plate-like particles with angular, rounded, or irregular edges. It is usually found in layers or pockets in metamorphic rocks. In some deposits, the flake graphite occurs as massive accumulations in veins, lenses, or pods. Amorphous graphite is formed by the thermal metamorphism of coal. The designation amorphous is a misnomer. Its relatively low degree of crystalline order and very fine particle size make it appear amorphous. It is usually of lower purity than the crystalline flake graphite and, therefore, commands a lower price than its more ordered counterpart.*

Three key factors in a graphite deposit are flake size, grade, and purity. Currently about 40 % of the graphite market is flake type and 60% is amorphous. Crystalline flake type is sold by flake size (large, medium, small) and carbon content. According to Industrial Minerals Market Tracker WEBSITE (http://www.indmin.com/MarketTracker/197195/Graphite.html?id=GT-C), graphite prices (July 2012) range from $600 to $3000/tonne depending whether it is powder or flake and on carbon contents. A recent European Commission study regarding the criticality of 41 different materials to the European economy included graphite among the 14 materials high in both economic importance and supply risk (Critical Raw Materials for the EU, July 2010). See http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/report-b_en.pdf. Demand for graphite and thereby prices are expected to rise as electric vehicles and lithium battery technology continue to be adopted and while the material performs a greater role in new technology applications. Graphite prices have been increasing in recent months and over the last couple of years and prices for large flake, high purity graphite (+80 mesh, 0.2mm, 94-97% Carbon) have more than doubled.

The mineral deposit type being explored for on the Manitouwadge Graphite Claims and in the Regional Area is metamorphic rock hosted flake graphite. The best potential for new sources is in metamorphic geologic terrains like Quebec and Ontario, especially in marbles and gneisses.

9. MINERALIZATION

Graphite mineralization within the Manitouwadge Property consists of 1 – 12m wide zones of fine to medium grained, disseminated flake graphite that is commonly associated with pyrite and pyrrhotite. These zones have a core of very strongly deformed biotite quartz feldspar gneiss up to 3-4 m wide in which the concentration of biotite increases up to 40% along with 8-10% coarse grained graphite that is preferentially aligned along gneissosity planes. This gives the core zone a schistose looking texture. Four main zones of graphite mineralization have been discovered so far on the Manitouwadge Property (Figure 9):

a) Thomas Lake Road Showing (Grid: L9000+21E – 1+70S)
Graphite mineralization is exposed in several narrow, shear zones within a large (15 m wide by 40 m long) outcrop located adjacent to the ditch on the east side of the road. Graphite comprises 5% (locally up to 20%) of the rock with trace chalcopyrite, pyrite, magnetite, pyrrhotite; abundance of biotite within the schist. Gneissosity/Schistosity of the graphitic schist and host gneisses is 110 - 115 degrees, with a steep (70^o – 85^o) dip to the south.

b) North Central Showing 1 (Grid: L8800+9E - 1+37N)
Graphite mineralization is exposed in 2m to 6m wide zones of graphitic schist with a large (15m wide by 88m long) outcrop located 320m northwest of the Thomas Lake Road Showing. The showing has similar mineralogy to the Thomas lake road showing with up to 15% flake graphite present within the schist. Three historic blast pits are located along the 88 m length of the outcrop. Schistosity of the graphitic schist is 290 - 295 degrees, with a steep (70^o – 85^o) dip to the north.

c) North Central Showing 2 (Grid: L8200+89E – 1+57N)
Graphite mineralization was discovered during recent trenching activities. Four separate graphitic schist horizons from 2m – 12m in width, separated by biotite quartz feldspar gneisses and local pegmatite, were uncovered along a 91m sinuous, machine excavated, trench. The trench is located 530m west of the North Central Showing 1. All of the graphitic schist horizons have similar mineralogy to the Thomas Lake Road Showing, with up to 10% flake graphite present within the schist. Gneissosity/Schistosity of the graphitic schist and host gneisses is 290 - 295 degrees, with a steep (70^o – 85^o) dip to the north.

d) L9300E showing (Grid: L9300+34E – 2+15N)
Graphite mineralization was discovered during recent geological mapping activities. The showing consists of a 4m wide zone of graphitic schist and a 5 meter wide graphite – pyrrhotite bearing biotite quartz feldspar gneiss. The graphitic schist zone has similar mineralogy to the Thomas Lake Road Showing, with up to 10% flake graphite present. Gneissosity/Schistosity of the graphitic schist and host gneisses is 290 - 295 degrees, with a steep (70^o – 85^o) dip to the north.

The mineralized zones correlate very well with HLEM conductive horizons. The strongest HLEM conductor, located in the north east portion of the grid, is entirely covered with overburden (Figure 9).

10. EXPLORATION

The exploration history of the Manitouwadge Graphite property has been outlined in Item 6. Of particular significance to mineral exploration was the DIGHEM IV airborne geophysical survey carried out for Noranda Exploration Company, Limited, in the Manitouwadge area from June l to September 16, 1989. This survey, consisting of 32,326.4 km of coverage, was completed over 9 survey blocks; the blocks are located on NTS map sheets 42C, D, E and F. The purpose of the survey was to detect zones of conductive mineralization and to provide information that could be used to map the geology and structure of the survey area. The information from the survey was processed to produce maps which display the conductive and magnetic properties of the survey area. A number of airborne electromagnetic (AEM) anomalies from this survey are located in the Manitouwadge Graphite property area; one AEM anomaly trend is 4 km long coincident with a magnetic low (Figure 4). Graphite is a highly conductive mineral; however, the electromagnetic signature depends on the zones' thickness, purity and continuity of the graphite minerals. The full relationship of the airborne "conductors" to graphite mineralization needs to be ascertained.

Since discovery of the Brinklow-Thomas Lake Road graphite showing and associated ground geophysics and trenching and stripping of the Thomas Lake Road and North Central 1 occurrences in 1992, and the beepmatting, prospecting, trenching, and drilling of the Gionet-Beavercross Lake sulphide showing in 1995- 1998, there has been no record of additional mineral exploration activity within the Manitouwadge Graphite property area until REM acquired the property in 2012.

In April 2012, shortly after the claims were staked a total of six surface grab samples were taken during a prospecting program and assay values ranging from 0.2% to 6.17% graphite were realized. The samples were collected from an area 900 meters by 300 meters in size and encompassed the Thomas Lake Road Graphite Occurrence. As a result of the prospecting program, it appeared that there were at least three sub-parallel zones of graphite mineralization- North, Central and South. Sampling at the Thomas Lake Road showing within the South Zone resulted in an assay of 3.62% C-Graphite and the highest value of 6.17% C-Graphite came from the North Zone located 900 meters to the west (Figure 9). Backhoe trenching and chip sampling were completed on five different portions of the three graphitic horizons. Results included 3.92% C-Graphite over 8.0 meters (m) from the North Zone, 2.96% C-Graphite over 12 m from the Central Zone, and 4.18% C-Graphite over 6.5 m from the South Zone (Thomas Lake Road Occurrence). The table below details the results from the five trenches. Locations of the trenches with assay results of the chip sampling are compiled on Figure 9. Trench maps are presented in Figures 5, 6 and 7. Certificates of analysis for the samples taken can be found in Appendix 2.

Table 2: Manitouwadge Graphite Property Trench Results

Trench	Composite (Cgt/meters)
North Zone - West Extension	3.92%/8m
North Zone - West Pits	2.04%/6m
North Zone - East Pits	2.13%/4m
Central Zone	2.96%/12m

South Zone (Thomas Lake Road Occurrence)	4.18%/6.5m

In June 2012 the Company completed a 22 kilometer cut grid as well as completed 18.5 kilometers of ground horizontal loop electromagnetic (HLEM) survey on the property. The HLEM survey delineated 6 conductors that range in strike length from 150 meters to greater than 1.6 kilometers. Three of the conductors are coincident with the three graphitic horizons. The other three HLEM conductors have yet to be tested and explained. The results of the survey are presented in Figure 5. In addition, a number of unexplained AEM anomalies to the northwest and southeast of the recent surveying have yet to be investigated. Geologic mapping of the gridded portion of the property was completed by mid-July and the results of that mapping have been reported in Items 7 and 9.

11. DRILLING

Rare Earth Metals has not completed any drilling on the Manitouwadge graphite property. There are no records or evidence of any historic drilling on the property.

12. SAMPLING METHOD AND APPROACH

The surface grab samples described in this report are selective by nature and are unlikely to represent average grades on the property.

The chip samples described in this report were taken using a hammer and chisel to systematically sample a continuous channel of bedrock material across the graphite mineralized trend.

The Particle Size Analysis was completed on a surface 2 Kg. grab sample which is selective by nature and unlikely to represent average grades on the property.

For the mineralogy study, assay reject from the sample used for the PSA was shipped by ACTLABS from Thunder Bay to Ancaster.

All other sampling on the Manitouwadge Graphite property, as discussed below, has been completed by previous operators or government geologists. The following are comments and general recommendations by the author.

The general exploration history of the property has been outlined in Items 6 of this report. Detailed description of historical sampling method and approach for the historical prospecting and trenching program are not available. However, based on inspection of reports available which include those from Phantom Exploration Services Ltd., P. Hinz and R.M. Landry, and G.Gionet it appears that the method and approach to sampling is consistent with historical industry standards and approaches. The author recommends that future sample intervals be based on lithological, mineralogical, and textural criteria such that individual samples are comprised of like material. Furthermore, it is hereby recommended that future sample description, employed by REM and used on the Manitouwadge Graphite property, include mineralogy, percent minerals, primary and deformation fabrics and textures, such that these features can be related to assay grade and the mineralogical, textural, and geometric controls on mineralization can be established.

13. SAMPLE PREPARATION, ASSAYING AND SECURITY

The samples were collected by Michael Stares, president of Rare Earth Metals Inc. The assay samples were taken from the field and then hand delivered by M. Stares to the sample preparation facility in Thunder Bay, Ontario. Once the samples arrive in the laboratory, Actlabs ensure that they are prepared properly. As a routine practice with rock and core, the entire sample is crushed to a nominal minus 10 mesh (1.7 mm), mechanically split (riffle) to obtain a representative sample and then pulverized to at least 95% minus 150 mesh (105 microns). Once processed, samples are sent to Activation Laboratories Ltd.'s analytical facility in Ancaster, Ontario where they are analyzed for their graphitic carbon content (Code 5D – C –Graphitic) using internal lab QA/QC protocols. Quality control samples are inserted by Actlabs within all batches assayed and consist of either one or more of the following, a blank, duplicate, and/or a certified reference material sample. Assay results for internal quality control samples are submitted with assaying results and reviewed for consistency by REM personnel. Actlabs is an ISO 17025 (Lab 266) and NELAP (lab E87979) accredited lab for specific registered tests.

Geochemical Analyses

At the Ancaster facility a 0.5 g sample is either digested with hydrochloric and perchloric acids, or subjected to a multistage furnace treatment to remove all forms of carbon with the exception of graphitic carbon. The residue is vacuum-filtered and dried. Accelerator material is added to the dried filter. The inductive elements of the sample and accelerator couple with the high frequency field of the induction furnace. The pure oxygen environment and the heat generated by this coupling cause the sample to combust. During combustion, carbon-bearing elements are reduced, releasing the carbon, which immediately binds with the oxygen to form CO and CO_2, the majority being CO_2. Carbon is measured as carbon dioxide in the IR cell as gases flow through the IR cells. Carbon dioxide absorbs IR energy at a precise wavelength within the IR spectrum. Energy from the IR source is absorbed as the gas passes through the cell, preventing it from reaching the IR detector. All other IR energy is prevented from reaching the IR detector by a narrow bandpass filter. Because of the filter, the absorption of IR energy can be attributed only to carbon dioxide (CO_2). The concentration of CO_2 is detected as a reduction in the level of energy at the detector. Assay results of samples collected by REM can be found in Appendix 2.

The Particle Size Analyses (PSA), mineralogy studies, and metallurgical test work were performed by Actlabs.

Particle Size Analyses

The Particle Size Analyses was completed at the ACTLABS Thunder Bay facility. A sample from the North Zone was crushed to reduce particle size and a Jones Riffle splitter was used to split the sample to approximately 500g. The PSA was performed using four sieve sizes; 1700µm, 850µm, 425µm, 212µm and the undersize was collected in the bottom pan. The sample on each sieve was weighed and then analyzed for % C-graphitic (Appendix 3).

Mineralogy Study

For the mineralogy study, the sample was received as a minus 2 mm assay reject sample and riffle-split to a 200 gram subsample for Mineral Liberation Analyser (MLA) sample preparation. The sample was then screened at 850 microns (20 mesh) and the oversize stage-crushed to passing 850 micron to generate a 100% passing -20 mesh sample. This material was then screened into two size fractions at 300 micrometers (50 mesh) to prepare as polished sections using carnauba wax for the first mounting step. Once cured, the wax-mount was cut vertically and mounted in cold-curing epoxy resin to prepare a transversely mounted section that would reduce any density segregation effects that would otherwise produce bias in measurement. The resulting 30 mm diameter polished sections were ground and polished by standard lapidary methods using diamond media. Samples were then carbon-coated to render surfaces conductive and measured by the MLA, a Quanta600F instrument equipped with back-scattered electron imaging and two Bruker 5010 SDD Energy Dispersive X-ray Spectrometers. The samples were measured using the XBSE mode of MLA measurement, whereby the exposed analytical face of each section was measured. BSE is an acronym for Back-Scattered Electron signal intensity, which is proportional to the mean atomic number of minerals as they are bombarded by the electron beam. The XBSE measurement mode first separates particles from the mounting medium (where graphite is brighter than the carnauba wax) and all features or BSE 'domains' within a particle are measured separately by EDS to identify the elemental composition. This composition is matched to a mineral reference list calibrated against minerals in the measured sample, and classification of particles performed by the MLA software system. In addition, a digital photomicrograph of each size fraction and the un-sized, passing 850 micron material was taken and these photographs are presented in ACTLABS MLA Analysis of Graphite Flake Size Report in Appendix 4.

Metallurgical Test

For the graphite beneficiation study, a sample from the North Zone was received as a 2 kg mineral sample and testing included grinding, flotation and gravity separation techniques; a three stage flotation test was performed to characterize the floatability of the ore sample. The final concentrate underwent a Particle Size Analysis (PSA) to indicate the size of the recovered graphite flake. Finally the sample was tested for chemical upgrading. A flow sheet summarizing the procedure is included in Appendix 5.

The grinding phases brought the ore samples to the economically optimum particle size; this size was dependent on the results from the MLA analysis. The MLA analysis specified the D80 flake size as 310 microns and the MLA liberation data showed that a grind of 100% passing 850 micron produced a global liberation of 47%. A primary target grind size of 90% -425 µm was chosen to ensure a high degree of liberation and to prevent over-grinding of the larger graphite flakes that were visible in the MLA image analysis. A wet, closed circuit batch rod grinding operation was chosen and at constant intervals the grinding was stopped so the samples could be classified using wet sieving at 425 µm. After classification the oversize was re-circulated until there was 90% passing 425 µm. This method of stage grinding produced a sharper size distribution and reduced unnecessary reduction in flake size. The grinding intervals in the Second Testing Procedure were reduced to optimize the grind size further. The grind was also slightly coarser at 85% passing 425 µm. The grinding for the 3rd test was increased again and a grind of 98.5% passing 425 µm was achieved. The oversize fraction (1.5% of feed) was inspected under a magnifying glass and it appeared to have very high graphite content. This +425 µm fraction was removed and sent for analysis.

A three stage flotation test was performed to characterize the floatability of the ore samples. There was a rougher stage and two cleaner stages:

Rougher

Water was added until the solid samples represented 30% of the total mass. Kerosene and Diesel were used as the collectors; both with concentration of 75 g/t. Conditioning time was noted. AEROFROTH 76A was used as the frother at 40 g/t staged addition to optimize froth height and recovery. 900 g/t of sodium silicate was used in staged addition to depress flocs of gangue slimes in the first flotation test, it was excluded in the second flotation test to increase concentrate grade based on observations of the first test. pH modification was achieved by adding soda ash in the 1st test and by hydrated lime in the 2nd test and 3rd test. The pH was higher during the 2nd test and hydrated lime acts as a pyrite depressant. Rougher Tails were assayed and compared to the head grade; a mass balance was used to calculate the grade of the concentrate.

1st and 2nd Cleaner Stage

Rougher concentrate was transferred to a smaller float cell. Water was added until the sample mass represented 30% of total mass. AEROFROTH 76A was added as needed. A sample from the tailings was split, assayed and compared to the head grade; a mass balance was used to calculate the grade of the concentrate.

Gravity Concentration

For the first flotation test, only the +300µm Concentrate Size Fraction was upgraded using the Wilfley Table to investigate the possibility of upgrading the concentrate grade. The results were positive, leading to the inclusion of gravity separation in the second test. Gravity separation was performed on the Wilfley Table using the entire Second Flotation Concentrate in order to increase the grade of all size fractions by removing gangue silicates and sulphides. For the 3rd test, the flotation concentrate was separated into +300 µm, +180µm and -180µm fractions.
Each of the fractions underwent separate shaking table tests to perform the concentrations in narrower size ranges.

Particle Size Analysis and Assay of Concentrate

A particle size analysis was performed on the concentrates, indicating the size of the flake graphite. Three sieve sizes were used, 300µm (50 mesh), 180µm (80 mesh), and 150µm (100 mesh) representing jumbo, large and medium sized flake graphite respectively. The size analysis split each sample into four fractions; each fraction was assayed for grade. This data was compared to the head grade and the percent recovery was calculated and full test mass calibration was calculated.

Chemical Upgrading

The +180μm concentrate was subjected to chemical upgrading using the methods below. Samples were 5 grams per test. After acid treatment, the excess acid was decanted and the samples were washed 3 times with water and dried for assay analysis.

Test 1

The concentrate was mixed with 15mL hydrofluoric acid (48%) for a duration of 24 hours.

Test 2

The concentrate was mixed with 15mL hydrofluoric acid (48%) and placed in a water bath set to Approximately 80°C for 4 hours.

Test 3

The concentrate was mixed with 7mL hydrofluoric acid (48%) and 7mL hydrochloric acid (36%). The mixture was then placed in a water bath set to 80°C for 4 hours.

The author is satisfied that the field procedures, security arrangements, processing procedures and internal laboratory checks on samples collected and submitted by REM result in secure and uncompromised data. No Secondary laboratory/Check assaying program has been conducted.

Details of sample preparation, assay and analytical procedures, and quality control and quality assurance measures implemented for the historical exploration programs and related sampling is not documented. This is, in general, consistent with the vintage of the exploration programs which were out of the scope of current day best practices. Nonetheless, it is the author's opinion that the historical assay data can be relied on as an indication of graphite grades, type of graphite, and the general presence of graphite on the Manitouwadge Graphite property. To the author's knowledge, no employee, officer, director, or associate of REM has been directly involved in any of the historical exploration programs. The author recommends that future sampling programs should include an industry standard quality assurance/quality control program that includes the use of standard reference materials, duplicate samples, and repeat pulp analyses.

14. DATA CORROBORATION

The author has assumed that government and scientific publications are accurate and complete as they are commonly controlled by editorial boards or committees or reviewed by peers and so should reflect reliable technical data. The author has not conducted an exhaustive examination of information derived from private reports or interpretations to verify their accuracy but did review these data using an objective and logical point of view.

The author has discussed the aeromagnetic and airborne electromagnetic interpretations with Paul Neilsen, P.Geo and agrees that the selected targets are real.

The author reviewed the claim data on the government web site with regards to status and ownership to exhibit the locations of the claims covered by the report and competitors ground.

The author has relied on Actlabs internal quality control programs for verification of the analytical data. For details on quality control at Actlabs see Item13.

To date comparatively little field exploration has been carried out on the property by REM. In addition to the recently completed prospecting, trenching, geological and HLEM surveys by REM, the author has completed examination of past reports, and has completed a property and/or site visit on July 5, 2012 to verify the location of the Thomas Lake Road graphite occurrences, the three major zones of graphite mineralization exposed in recent trenching and prospecting, and the existence of past work which would include stripping and blasting on the North Central 1 showing. Observations made by the author are recorded below:

1. Access to the western sector of the property is good and is essentially as described in Item 5. It appears that logging in the area in general and the transformation to a gravel road of an abandoned trunk rail line from Manitouwadge to the Hillsport Via Rail station has resulted in higher quality roads than described from historical exploration projects. The Thomas Lake Road area is currently accessible by 4-wheel drive vehicle.
2. The Thomas Lake Road graphite occurrence which was discovered in 1992 was located. It is as described in Item 9 - graphite mineralization exposed in several narrow, shear zones within a large (15 m wide by 40 m long) outcrop located adjacent to the ditch on the east side of the road. Graphite comprises 5% (locally up to 20%) of the rock with trace sulphides and an abundance of biotite within the schist.
3. Blasted and cleared outcrop comprising the North Central 1 zone of mineralization located 320 meters northwest of the Thomas Lake Road Showing was inspected. Graphite mineralization was observed over about 2m in a 6m wide zone of gossanous biotite quartz feldspar gneiss. Three historic blast pits were observed along the 90 meter length of the outcrop.
4. The recently exposed 12 meter zone of graphite mineralization within the trenches across the North Central 2 showing located approximately 500 m west of the North Central 1 Showing appears to be the western extension of the North Central 1 Showing with similar schistose attitudes of 290 - 295 degrees, with a steep (70^o – 85^o) dip to the north.

15. ADJACENT PROPERTIES

The reader is cautioned that information reported in this section is not necessarily indicative of mineralization on the Manitouwadge Graphite Property.

A claim numbered 3015178 encompassing 4 claim units adjacent to the Manitouwadge Graphite property near Beavercross Lake is held by M.L. Gionet. The claim area were initially targeted in 1995 when grab samples returned assays showing significant amounts of copper and nickel, as well as some zinc and gold. It was stated in a report dated July, 1998 by G. Gionet that in the summer of 1997 ‘*48 miles of beep-matting picked up numerous base metal readings. We did 1200 feet of drilling and 19 days of trenching on this property. The trenching showed visual copper, pyrite and nickel as well as very rich graphite*.’ It is not known if any work is planned on them.

Two claims numbered 4207001 and 4207002 encompassing 24 claim units are located to the east and north of the Manitouwadge Graphite property in the Olie Lake area. The claims were staked in 2005 and are registered in the name of Vale Canada Ltd. Presumably the claims secure an aeromagnetic feature.

16. MINERAL PROCESSING AND METALLURGICAL TESTING

A Particle Size Analysis (PSA) or screen test was completed by Act Labs on a sample from the North Central 2 showing which analyzed 9.27% C-Graphite. The results of the PSA are presented in Rare Earth Metals Manitouwadge Graphite: Particle Size Analysis report in Appendix 3. The sample was crushed to reduce particle size and a Jones Riffle splitter was used to split the sample to approximately 500g. The PSA was performed using four sieve sizes; 1700µm, 850µm, 425µm, 212µm and the undersize was collected in the bottom pan. The sample on each sieve was weighed and then analyzed for % C-graphitic. Flake graphite was recognized in both the plus 65 mesh (Tyler) (0.212 millimeters) and the plus 35 mesh (Tyler) (0.425 mm) fractions with 42.9% of the total Graphite reporting to the plus 35 mesh and 69.4% of total Graphite in the plus 65 mesh fraction.

The sample was also sent for a mineralogical analysis by MLA (Mineral Liberation Analyser, a proprietary mineral analysis system sold by the FEI Company) to determine the grain size of graphite and a semi-quantitative mineralogical analysis. The results of the MLA are presented in Actlabs MLA Analysis of Graphite Flake Size report in Appendix 4. Results from this study indicated that graphite is significantly liberated (about 40%) at the current grind (100% passing 850 microns/20 mesh) and the -850/+300 size fraction is more representative of the natural graphite flake size. In the -850/+300 micron fraction, the flake size determination is 310 microns which is considered coarse flake graphite.

Metallurgical testing which included grinding, flotation and gravity separation techniques to concentrate graphite was completed to determine the beneficiation characteristics of a sample of the mineralization in the North Central Zone on Rare Earth Metals Inc.'s Manitouwadge Property. A three stage flotation test was performed to characterize the floatability of the ore sample. The final concentrate underwent a Particle Size Analysis (PSA) to indicate the size of the recovered graphite flake. The results of the study are presented Actlabs Graphite Beneficiation Testing report in Appendix 5. Graphite beneficiation was achieved and product grades were consistently in the range of 80-93% graphite. The tests resulted in producing a primary (flotation rougher) recovery of 97.32% and a final flotation concentrate grade of 62.15 % C-Graphitic. A particle size analysis performed after a gravity concentration test indicated that 10.3% of the graphite reported to the +300µm (jumbo) size fraction, with a grade of 86% C-Graphitic, 29% of the graphite reported to the +180µm (large) size fraction, with a grade of 83% C-Graphitic, and 11.1% of the graphite reported to the +150µm (medium) size fraction, with a grade of 80.3% C-Graphitic . The +425 µm (jumbo) graphite fraction was screened out after grinding and prior to flotation and had a grade of 92.6% C-Graphitic, and constituted 16.2% of the graphite. The table below summarizes the results achieved:

Table 3: Graphite Beneficiation Results

	Test 1	Test 2	Test 3	
FLOTATION				
Primary recovery	99.24%	98.35%	97.32%	
Flotation Conc.	54.51% Cg	65.42% Cg	62.15% Cg	+425 µm fraction added to Test3 recovery and conc. for comparison
GRAVITY				
+425 µm (jumbo) *grade*			92.6% Cg	Test3 - removed after grinding, no flotation or gravity
+425 µm (jumbo) *% of conc.*			16.2%	
+300 µm (jumbo) *grade*	91.4% Cg	88.9% Cg	86 % Cg	Test 2 – 2stage gravity
+300 µm (jumbo) *% of conc.*	6.1%	25.7%	10.3%	
+180 µm (large) *grade*		87.1 % Cg	83 % Cg	No gravity performed Test 1
+180 µm (large) *% of conc.*		32.8%	29.0%	
+150 µm (med) *grade*		90.6% Cg	80.3 % Cg	No gravity performed Test 1
+150 µm (med) *% of conc.*		10.3%	11.1%	
-150 µm (fine) *grade*		87.9% Cg	81.5% Cg	No gravity performed Test 1
-150 µm (fine) *% of conc.*		31.2%	33.4%	

According to Jennifer Steyn, the senior metallurgist who completed the test work, "*Improvements were made to the 2nd and 3rd flotation tests, with an emphasis on improving the grade of the concentrate. …….. The gravity concentration on a Wilfley shaking table upgraded the graphite grades to 80-93% graphite……. It is recommended that further metallurgical tests be conducted in order to optimize the final product grades using multiple flotation and gravity recovery stages*."

17. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

As mentioned earlier, no drilling programs have yet been conducted on the Company's Claims and no mineral resource or reserve estimates have been made.

18. OTHER RELEVANT DATA AND INFORMATION

The Manitouwadge Graphite claims are located in a jurisdiction that has supported a long mining history; Manitouwadge was founded by Noranda (now part of Xstrata) in the early 1950s to support the company's Geco copper mine and mining historically has been at the forefront of Manitouwadge's economic activity. The residents of Manitouwadge are keen for employment and, while mining has always been at the forefront of Manitouwadge's economic activity, forestry also plays a significant part in the town's economy. The town is also turning itself into a retirement community, offering some of the lowest housing prices in the country. The property has excellent location, access, and access to power, water, and a population center to support a mining operation. However, the author has not researched any social, regulatory, political or economic factors that may impact the development of a future mining project other than the geological, exploration, and other technical factors described and interpreted in the other sections of this report and do not hereby express an opinion on any future impact of these factors.

19. INTERPRETATION AND CONCLUSIONS

There has been a recent surge in exploration for graphite as new applications emerge for the mineral. Traditional industrial users for graphite such as refractories, metal castings, and lubricants will have to compete for supply with new technology producers. High value graphite applications such as lithium-ion batteries, fuel cells, and pebble bed nuclear reactors require crystalline flake and/or high purity graphite. There is between 5 to 20 times more graphite in a lithium ion battery than there is lithium. The lithium-ion battery industry is growing at 20 to 40% annually (the advent of the laptops, mobile phones, tablet, and smartphone products has increased the demand for batteries), and the electric vehicle market is expected to grow as much as 20 % annually (each EV will require 20 to 40 kg of graphite which means 1MT of graphite will be needed annually by 2020). The booming demand will require more than a doubling of current global graphite production.

All graphite deposits are not created equal and contain various flake sizes and carbon contents. Each of the mesh sizes commands a different price on world markets according to size of flakes and according to carbon content. End users of natural flake graphite for new technology applications generally want a high quality graphite product or concentrate of premium flake size and a carbon content of high (> 94%) purity. Graphite ore usually needs beneficiation to produce a concentrate of high purity and this generally is done through grinding, flotation, and gravity techniques.

The Manitouwadge Graphite Property is host to a number of AEM "conductors", one of which is 4 km long coincident with a magnetic low and is proximal to a flake graphite showing. The full relationship of the graphite and the airborne "conductors" remains to be ascertained. Graphite is a highly conductive mineral; however, the electromagnetic signature depends on the zones' thickness, purity and continuity of the graphite minerals.

Furthermore, the property is underlain by a geological environment consisting of recrystallized meta-sediments which is a common host to most flake graphite deposits. A HLEM survey over a portion of the property delineated 6 conductors that range in strike length from 150 meters to greater than 1.6 kilometers. Three of the conductors are coincident with three graphitic horizons. The other three HLEM conductors have yet to be tested and explained. Work to date has confirmed the presence of 1 – 12m wide zones of fine to coarse grained, disseminated flake graphite from at least three sub-parallel zones of graphite mineralization from an area 900 meters by 300 meters in size. Results from a mineralogical analysis of a sample from one of the three zones of graphite mineralization discovered so far indicated that graphite is significantly liberated and the -850/+300 size fraction is more representative of the natural graphite flake size. In the -850/+300 micron fraction, the flake size determination is 310 microns which is considered coarse flake graphite. Metallurgical test work involving grinding, flotation and gravity separation techniques to get an early understanding of how well the flake graphite can be concentrated determined that successful graphite beneficiation was achieved and product grades were consistently in the range of 80-93% graphite.

It is concluded that the Manitouwadge Graphite Property has a number of positive elements including:

a) a favourable geological environment consisting of recrystallized meta-sediments which is a common host to most flake graphite deposits.
b) the occurrence of numerous AEM "conductors" which are priority targets for highly conductive minerals like graphite.
c) a known, but little worked, flake graphite showing.
d) three zones of graphitic mineralization up to 12 meters wide coincident with HLEM conductors up to 1.6 kilometers in strike length.
e) the natural graphite flake size of a sample from one of the zones of graphitic mineralization was determined to be 310 microns which is considered coarse flake graphite.
f) graphite mineralization can be significantly liberated.
g) beneficiation testing on a mineral sample from one of the zones of graphitic mineralization resulted in producing a primary (flotation rougher) recovery of 97.32% and a final flotation concentrate grade of 62.15 % C-Graphitic. A particle size analysis performed after a gravity concentration test indicated that 10.3% of the graphite reported to the +300µm (jumbo) size fraction, with a grade of 86% C-Graphitic, 29% of the graphite reported to the +180µm (large) size fraction, with a grade of 83% C-Graphitic, and 11.1% of the graphite reported to the +150µm (medium) size fraction, with a grade of 80.3% C-Graphitic . The +425 µm (jumbo) graphite fraction was screened out after grinding and prior to flotation and had a grade of 92.6% C-Graphitic, and constituted 16.2% of the graphite.

20. RECOMMENDATIONS

The Manitouwadge Graphite Property hosts a number of graphite horizons associated with highly favourable geophysical anomalies that are ready-made targeting features for a drilling program. It is recommended that the overall strike length and continuity of the graphite zones outlined to date by prospecting, geological mapping and trenching be tested with a diamond drilling program. A list of proposed drill hole locations are listed in Table 4.

Table 4: Manitouwadge Graphite Property Proposed Drill Holes

Claim	Hole No	Target	Location		Azimuth	Inclination	Depth (m)
			UTM E	UTM N			
4268975	MG -01	Thomas Lake Road Zone	598220	5466900	180	-45	130
4268975	MG-02	Thomas Lake Road Zone	597720	5466990	180	-45	80
4268975	MG-03	North Central Zone 2	597420	5467200	180	-45	130
4268975	MG-04	North Central Zone 2	597420	5467300	180	-45	250
4268975	MG-05	North Central Zone 2	597320	5467200	180	-45	130
4268975	MG-06	North Central Zone 2	597320	5467300	180	-45	250
4268975	MG-07	North Central Zone 2	597520	5467210	180	-45	130
4268975	MG-08	North Central Zone 2	597520	5467310	180	-45	250
4268975	MG-09	North Central Zone 2	597620	5467260	180	-45	100
4268975	MG-10	North Central Zone 2	597620	5467160	180	-45	100
4268975	MG-11	North Central Zone 2	597720	5467260	180	-45	130
4268975	MG-12	North Central Zone 2	597720	5467160	180	-45	100
4268975	MG-13	North Central Zone 1	597920	5467215	180	-45	80
4268975	MG-14	North Central Zone 1	598020	5467155	180	-45	80
4268975	MG-15	9300 Zone	598420	5467280	180	-45	80
4268975	MG -16	9300Zone	598920	5467300	180	-45	100
4271801	MG-17	9300 Zone	598020	5467340	180	-45	80
4271801	MG-18	108 Zone	599920	5467375	180	-45	100
4271801	MG-19	114 Zone	600620	5467305	180	-45	100
TOTAL							2400

In addition, a number of unexplained AEM anomalies to the northwest and southeast of the recent surveying have yet to be investigated. Follow up of these priority targets is also recommended.

21. SIGNATURE PAGE

This report titled "Technical Report On The Manitouwadge Graphite Exploration Property At Manitouwadge, Ontario, Canada." prepared for Rare Earth Metals Inc. and dated Sept 17, 2012 was prepared and signed by:

R Felix

(Signed & Sealed)

Reginald Felix, B.Sc., P.Geo.

Dated at Beresford, New Brunswick
Sept 17, 2012

CERTIFICATE

I, Reginald Felix, B. Sc., P. Geo. do hereby certify that:

1. I am a Consulting Geologist with business address at 229 MacDonald Street, Beresford, N.B., E8K1S6
2. I hold the following academic qualifications:
   B.Sc. Geology (1973); B.Ed. Science (2001), University of New Brunswick, Fredericton, N.B.
3. I am a member of the Association of Professional Geoscientists of Ontario (Member #2033) and a member of the Prospectors and Developers Association of Canada.
4. I have practised my profession in the mineral exploration industry in China and throughout Canada including New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Manitoba, Saskatchewan, British Columbia, Nunavut, and the Northwest Territories for more than 30 years as a geologist.
5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined 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.With the exception of a period from 1999 to 2007, I have worked as a geologist since my graduation.
6. I visited the Rare Earth Metals Inc. Manitouwadge Graphite Property in the Manitouwadge area on July 5, 2012 and carried out several geological examinations.
7. I am responsible for the entire technical report titled "Technical Report on the Manitouwadge Graphite Exploration Property At Manitouwadge, Ontario, Canada" for Rare Earth Metals Inc. and dated 17/09/2012 (the "Technical Report").
8. I have authored this report based on involvement with the supervision and compilation of fieldwork on the referenced mineral licenses.
9. I am not aware of any material fact or material changes with respect to the subject matter of this report, the omission of which would make this report misleading.
10. I have no direct interests in the mineral licenses referenced in this report.
11. I hold the position of Vice President – Exploration for Rare Earth Metals Inc. and I am paid for services on a consultant basis by Rare Earth Metals Inc.
12. I have a direct interest in Rare Earth Metals Inc. through various stock option issuances.
13. I hereby give my permission to use this technical report in its entirety, or the summary, by Rare Earth Metals Inc.

Dated this 17th Day of September, 2012.

Respectfully Submitted

R Felix

Reginald A. Felix, P Geo.

REFERENCES

Coates, M.E. 1968. Geology of the Stevens-Kagiano Lake area; Ontario Department of Mines, Geological Report, 68, 22 p.

Giguere, J.F. 1972. Geology of the Granitehill Lake area; Ontario Department of Mines and Northern Affairs, Geological Report, 95, 33 p.

Gionet, G. 1998. Beaver cross Area Technical Report; Ontario MNDM AFRI File: 42F05NE2001

Hamilton, C. 2012. MLA Analysis of Graphite Flake Size; ActLabs Internal Report to Rare Earth Metals Inc.

Hines, P. and Landry, R.M. 1994. Industrial Mineral Occurrences and Deposits in Northwestern Ontario; Ontario Geological Survey, Open File Report 5889, p 128 -131.

Jagodits, F.L. 1994. Report on Ground Geophysical Surveys, Foch 4 Project, Foch Township, Hornepayne Area, Ontario, Project 209, NTS 42F/3. MNDM Assessment File W9460.0202

Kalyoncu, R.S., 2000. Graphite. U.S. Geological Survey Minerals Yearbook—2000, minerals.usgs.gov/minerals/pubs/commodity/graphite/310496.pdf

McConnell, D.L., 1989. Dighem IV Survey for Noranda Exploration Company, Limited, Geco Manitouwadge Airborne GAEM JV, Manitouwadge, Ontario, NTS Sheets 42 C,D,E,F., Assessment Report Number W9004.97

McKay, D.B., 1994. Mineral Occurrences of the Manitouwadge Area; Ontario Geological Survey, Open File Report 5906.

Middaugh, R.D. 1992.Geophysical Surveys, Thomas Lake Project, NTS 42-F-5; Ontario MNDM MDI File MDI42F05SE00005; MNDM AFRI File 42F13SE0001

Milne, V.G.1964. Geology of the Flanders Lake area, Thunder Bay and Algoma Districts; Ontario Department of Mines, Geological Report, 21, 18 p.

Ontario Geological Survey 2002. Ontario airborne geophysical surveys, magnetic and electromagnetic data, Manitouwadge area; Ontario Geological Survey, Geophysical Data Set 1205 - Revised.

Ontario Geological Survey,Geological Survey of Canada. 1979. Regional lake sediment and water geochemical reconnaissance data, eastern shore Lake Superior, Ontario, NTS 42C, 42F (S half); Open File Report OFR5267.

Pye, E.G. 1960. Geology of the Manitouwadge area; Ontario Department of Mines, Annual Report, Volume LXVI, part 8, (1957), 1-114.

Schnieders, B. and Smyk, M. 1997. Newsome, J.W. and Laderoute, D. (Editors). Report of activities 1996, Resident Geologists; Ontario Geological Survey, Open File Report 5958, 465p.

Steyn, J. 2102. Rare Earth Metals Manitouwadge Graphite: Particle Size Analysis; Activation Laboratories, Metallurgy Department, Internal Report to Rare Earth Metals Inc.

Steyn, J. 2102. Graphite Beneficiation Testing; Activation Laboratories, Metallurgy Department, Internal Report to Rare Earth Metals Inc.

Williams (Geological Survey of Canada, Open File 3138- Beakhouse, Blackburn, Breaks, Ayer, Stone, Scott, 94 pp, 1991)

Williams, H.R. and Breaks, F.W. 1989. Geological studies in the Manitouwadge - Hornepayne area, Districts of Thunder Bay and Algoma. Ontario Geological Survey, Miscellaneous Paper 146, p. 79-91.

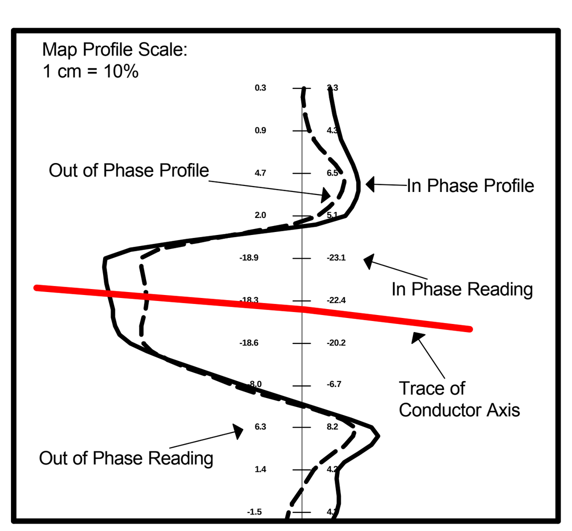
Williams, H.R. and Breaks, F.W. 1990. Geology of the Manitouwadge-Hornepayne area; Ontario Geological Survey, Open File Map 142, scale 1:50 000.

Websites:
Industrial Minerals Market Tracker.
(http://www.indmin.com/MarketTracker/197195/Graphite.html?id=GT-C)

Critical Raw Materials for the EU, July 2010).
http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/report-b_en.pdf.

Zaleski, E. and Peterson, V.L. and H. Lockwood and van Breernen, O. 1995. Geology, Structure and Age Relationships of the Manitouwadge Greenstone Belt and the Wawa- Quetico Subprovince Boundary, North western Ontario on Lake Superior Geology 41st Annual Meeting, May 13-18, 1995, Marathon, Ontario Proceedings Volume 41: Part 2b Field Trip Guidebook

APPENDIX 1
MAPS (FULL SCALE) FIGURES 4A, 4B, 5-7, AND 9



Graphite Grab Sample (M. Stares)

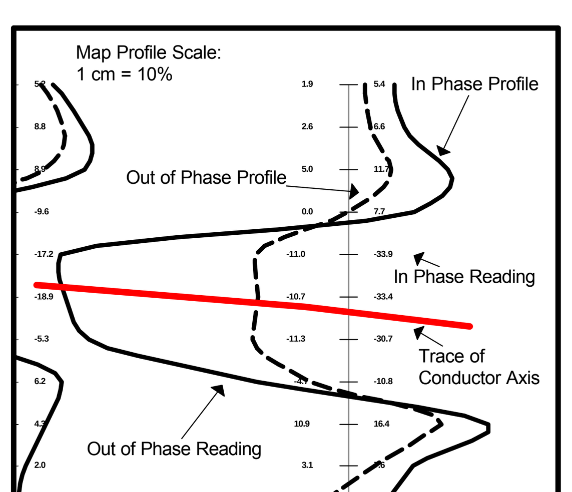
Figure 4a

Rare Earth Metals Inc.

Manitouwadge Graphite Property
HLEM Survey
444 Hz.

Date: 13/09/2012
Author: Paul
Office:
Drawing:
Scale: 1:5000
Projection: UTM Zone 16 (NAD 83)

0 75 150 300
metres



Graphite Grab Sample
(M. Stares)

Rare Earth Metals Inc.

Manitouwadge Graphite Property
HLEM Survey
1777 Hz.

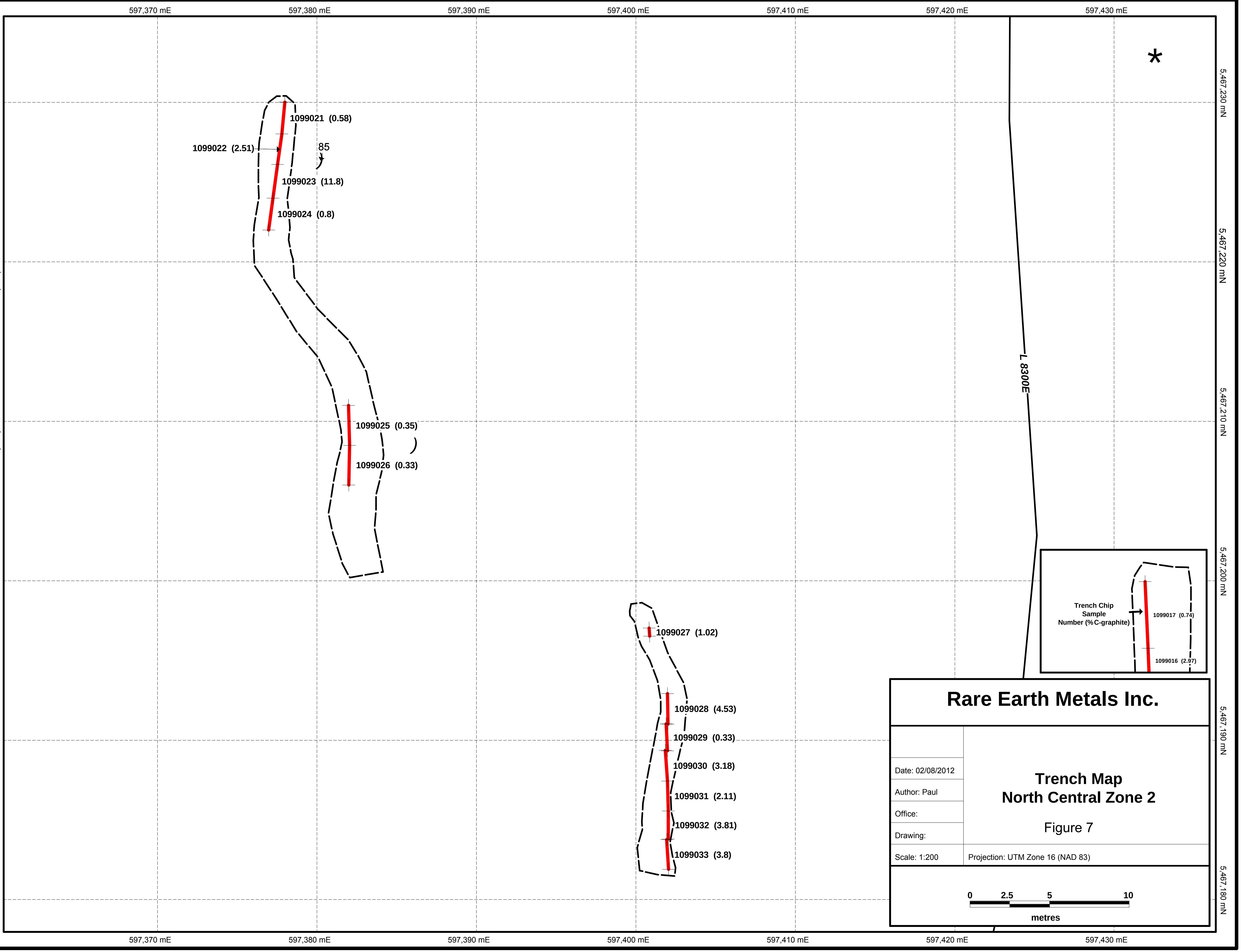
Date: 13/09/2012
Author: Paul
Office:
Drawing:
Scale: 1:5000
Projection: UTM Zone 16 (NAD 83)

0 75 150 300
metres

Figure 4b

598,120 mE
598,140 mE
598,160 mE
598,180 mE
598,200 mE
598,220 mE
5,466,920 mN
5,466,900 mN
5,466,880 mN
5,466,860 mN
Thomas Lake Road
L9000E
L9100E
80
89
1099007 (1.3)
1099006 (1.61)
1099005 (3.45)
1099003 (5.51)
1099002 (3.27)
1099001 (7.63)
1099004 (1.34)
1099008 (1.32)
Trench Chip Sample Number (%C-graphite)
1099017 (0.74)
1099016 (2.97)
Rare Earth Metals Inc.
Date: 02/08/2012
Author: Paul
Office:
Drawing:
Scale: 1:200
Trench Map
Thomas Lake Road Showing
Figure 5
Projection: UTM Zone 16 (NAD 83)
0 2.5 5 10
metres


597,880 mE
597,890 mE
597,900 mE
597,910 mE
597,920 mE
597,930 mE
597,940 mE
5,467,200 mN
5,467,190 mN
5,467,180 mN
5,467,170 mN
5,467,160 mN
5,467,150 mN
70
1099017 (0.74)
1099016 (2.97)
1099015 (2.42)
L8800E
70
1099014 (1.2)
1099013 (0.64)
80
1099012 (0.96)
1099011 (2.74)
1099010 (2.95)
1099009 (2.26)
1099020 (2.44)
1099019 (1.54)
1099018 (0.05)
Rare Earth Metals Inc.
Date: 02/08/2012
Author: Paul
Office:
Drawing:
Scale: 1:200
Trench Map
North Central Zone 1
Figure 6
Projection: UTM Zone 16 (NAD 83)
0
2.5
5
10
metres
Trench Chip Sample Number (%C-graphite)
1099017 (0.74)
1099016 (2.97)



Rare Earth Metals Inc.

Date: 02/08/2012	**Trench Map**
Author: Paul	**North Central Zone 2**
Office:	
Drawing:	Figure 7
Scale: 1:200	Projection: UTM Zone 16 (NAD 83)

597,000 mE
599,000 mE
601,000 mE
5,467,000 mN
938770
CL 4268953
CL 4268975
CL 4268976
CL 4263935
MG-06
MG-04
MG-08
MG-05
MG-03
MG-07
MG-09
MG-11
MG-10
MG-12
MG-13
MG-14
MG-17
MG-15
MG-02
MG -01
MG -16
MG-18
MG-19
North Central Showing 2
3.92%/8m
North Central Showing 1
2.04%/6m
L 9300E Showing
Thomas Lake Road Showing
1.45%/3.2m
3.26%
938766
938767
938768
938765
938754
938753
938759
938763
938761
938752
938751
938757
938762
938758
938760
938764
Key Map
Property Grid
Manitouwadge
kilometers
Legend
Pegmatite
Graphitic Schist
Biotite Quartz Feldspar Gneiss (Migmatite)
Garnet Biotite Quartz Feldspar Gneiss (Migmatite)
Geological Contact
Dominant Gneissosity
Small Outcrop Exposure
Sample Location
Max - Min Conductor
Graphite Grab Sample
or Trench Chip Sample
% C-graphite/Meters
MG-01
Proposed Drill Hole
Airborne EM Anomalies
(mhos)
30 to 600
20 to 30
15 to 20
10 to 15
5 to 10
Rare Earth Metals Inc.
Date: 01/08/2012
Author: Paul
Office: TB
Drawing:
Scale: 1:5000
Manitouwadge Graphite
Property
Compilation Map
Figure 9
Projection: UTM Zone 16 (NAD 83)
0
75
150
300
metres

APPENDIX 2
ANALYTICAL CERTIFICATES

Quality Analysis ... *Innovative Technologies*

Date Submitted:	02-Apr-12
Invoice No.:	A12-03427
Invoice Date:	11-Apr-12
Your Reference:	

Rare Earth Metal Inc.
3250 Highway 130
Rosslyn On P7K 0B1
Canada

ATTN: Mick Stares

CERTIFICATE OF ANALYSIS

6 Rock samples were submitted for analysis.

The following analytical package was requested: Code 5D-C-Graphitic Infrared

REPORT **A12-03427**

Notes:

CERTIFIED BY :

Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

1336 Sandhill Drive, Ancaster, Ontario Canada L9G 4V5 TELEPHONE +1.905.648.9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
1099451	3.62
1099459	1.49
1099466	0.12
1099467	6.17
1099469	2.24
1099470	0.61

Quality Control

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
Graphite Powder Meas	97.8
Graphite Powder Cert	99.99

Quality Analysis ... *Innovative Technologies*

Date Submitted:	02-Apr-12
Invoice No.:	A12-03428
Invoice Date:	16-Apr-12
Your Reference:	

Rare Earth Metal Inc.
3250 Highway 130
Rosslyn On P7K 0B1
Canada

ATTN: Mick Stares

CERTIFICATE OF ANALYSIS

2 Rock samples were submitted for analysis.

The following analytical packages were requested: Code 1C-OES-Tbay Fire Assay ICPOES (QOP Fire Assay Tbay)
Code 1E3-Tbay Aqua Regia ICP(AQUAGEO)

REPORT **A12-03428**

Notes:
Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY :

Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

1336 Sandhill Drive, Ancaster, Ontario Canada L9G 4V5 TELEPHONE +1.905.648.9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%
Detection Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01
Analysis Method	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1099455	13	16	8	< 0.2	< 0.5	470	378	1	62	< 2	52	5.32	< 2	< 10	41	0.5	< 2	4.11	37	23	4.40	10	< 1	0.03
1099456	3	< 5	< 5	< 0.2	0.6	129	657	< 1	7	< 2	42	2.94	< 2	< 10	33	< 0.5	< 2	2.50	7	36	4.37	< 10	< 1	0.07

Analyte Symbol	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Te	Tl	U	V	W	Y	Zr
Unit Symbol	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	0.01	0.001	0.001	0.01	2	1	1	0.01	1	2	10	1	10	1	1
Analysis Method	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
1099455	< 10	0.33	0.804	0.018	1.19	< 2	6	52	0.17	< 1	< 2	< 10	80	< 10	10	1
1099456	< 10	0.48	0.412	0.060	0.08	< 2	7	62	0.22	< 1	< 2	< 10	68	< 10	10	2

Quality Control

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg	K
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%
Detection Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1	0.01
Analysis Method	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
GXR-1 Meas				26.8	3.1	1070	845	12	33	614	653	0.29	335	10	305	0.7	1350	0.86	2	6	23.1	< 10	< 1	0.02
GXR-1 Cert				31.0	3.30	1110	852	18.0	41.0	730	760	3.52	427	15.0	750	1.22	1380	0.960	8.20	12.0	23.6	13.8	3.90	0.050
GXR-4 Meas				3.6	0.8	6490	147	299	38	43	77	2.51	94	< 10	29	1.2	21	1.06	13	52	3.37	10	< 1	1.35
GXR-4 Cert				4.00	0.860	6520	155	310	42.0	52.0	73.0	7.20	98.0	4.50	1640	1.90	19.0	1.01	14.6	64.0	3.09	20.0	0.110	4.01
GXR-6 Meas				0.3	0.8	68	1090	1	23	94	131	6.68	204	< 10	950	0.8	< 2	0.20	13	76	6.09	20	< 1	0.91
GXR-6 Cert				1.30	1.00	66.0	1010	2.40	27.0	101	118	17.7	330	9.80	1300	1.40	0.290	0.180	13.8	96.0	5.58	35.0	0.0680	1.87
OREAS 13P Meas						2570			2140												5.60			
OREAS 13P Cert						2500			2260												7.58			
PD1 Meas	535	597	460																					
PD1 Cert	542.000	563.000	456.000																					
1099456 Orig	4	< 5	< 5																					
1099456 Dup	2	< 5	< 5																					
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1	< 0.01
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1	< 0.01
Method Blank				0.8	< 0.5	7	< 5	< 1	17	< 2	12	< 0.01	< 2	< 10	< 10	< 0.5	< 2	0.01	< 1	30	0.02	< 10	< 1	< 0.01
Method Blank				< 0.2	< 0.5	< 1	< 5	< 1	< 1	< 2	< 2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	< 0.01	< 1	< 1	< 0.01	< 10	< 1	< 0.01
Method Blank	< 2	< 5	< 5																					

Quality Control

Analyte Symbol	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Te	Tl	U	V	W	Y	Zr
Unit Symbol	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	10	0.01	0.001	0.001	0.01	2	1	1	0.01	1	2	10	1	10	1	1
Analysis Method	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
GXR-1 Meas	< 10	0.13	0.040	0.042	0.19	75	< 1	166		6	< 2	32	65	168	20	12
GXR-1 Cert	7.50	0.217	0.0520	0.0650	0.257	122	1.58	275		13.0	0.390	34.9	80.0	164	32.0	38.0
GXR-4 Meas	46	1.74	0.104	0.129	1.81	5	7	68		< 1	2	< 10	74	13	11	9
GXR-4 Cert	64.5	1.66	0.564	0.120	1.77	4.80	7.70	221		0.970	3.20	6.20	87.0	30.8	14.0	186
GXR-6 Meas	11	0.43	0.080	0.034	0.01	3	23	35		< 1	< 2	< 10	155	< 10	6	7
GXR-6 Cert	13.9	0.609	0.104	0.0350	0.0160	3.60	27.6	35.0		0.0180	2.20	1.54	186	1.90	14.0	110
OREAS 13P Meas																
OREAS 13P Cert																
PD1 Meas																
PD1 Cert																
1099456 Orig																
1099456 Dup																
Method Blank	< 10	< 0.01	0.005	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 1	< 2	< 10	< 1	< 10	< 1	< 1
Method Blank	< 10	< 0.01	0.005	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 1	2	< 10	< 1	< 10	< 1	< 1
Method Blank	< 10	< 0.01	0.009	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 1	< 2	< 10	< 1	< 10	< 1	< 1
Method Blank	< 10	< 0.01	0.007	< 0.001	< 0.01	< 2	< 1	< 1	< 0.01	< 1	< 2	< 10	< 1	< 10	< 1	< 1
Method Blank																

Quality Analysis ... *Innovative Technologies*

Date Submitted:	08-May-12
Invoice No.:	A12-04844
Invoice Date:	25-May-12
Your Reference:	Manitouwadge Graphite

Rare Earth Metal Inc.
3250 Highway 130
Rosslyn On P7K 0B1
Canada

ATTN: Mick Stares

CERTIFICATE OF ANALYSIS

40 Rock samples were submitted for analysis.

The following analytical package was requested: Code 5D-C-Graphitic Infrared

REPORT **A12-04844**

Notes:

CERTIFIED BY :

Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited
LAB 266
LAB 266
Accrédité CCN

ACTIVATION LABORATORIES LTD.

1336 Sandhill Drive, Ancaster, Ontario Canada L9G 4V5 TELEPHONE +1.905.648.9611 or +1.888.228.5227 FAX +1.905.648.9613
E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
1099001	7.63
1099002	3.27
1099003	5.51
1099004	1.34
1099005	3.45
1099006	1.61
1099007	1.30
1099008	1.32
1099009	2.26
1099010	2.95
1099011	2.74
1099012	0.96
1099013	0.64
1099014	1.20
1099015	2.42
1099016	2.97
1099017	0.74
1099018	< 0.05
1099019	1.54
1099020	2.44
1099021	0.58
1099022	2.51
1099023	11.8
1099024	0.80
1099025	0.35
1099026	0.33
1099027	1.02
1099028	4.53
1099029	0.33
1099030	3.18
1099031	2.11
1099032	3.81
1099033	3.80
1099034	0.56
1099420	1.31
1099422	0.39
1099423	0.48
1099424	0.84
1099425	1.50
1099426	0.06

Quality Control

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
Graphite Powder Meas	98.9
Graphite Powder Cert	99.99
Graphite Powder Meas	97.8
Graphite Powder Cert	99.99
1099010 Orig	3.15
1099010 Dup	2.75
1099020 Orig	2.48
1099020 Dup	2.41
1099030 Orig	3.18
1099030 Split	3.16
1099030 Orig	3.18
1099030 Dup	3.17
1099426 Orig	0.06
1099426 Dup	0.06
Method Blank	< 0.05

Quality Analysis ... *Innovative Technologies*

Date Submitted:	14-May-12
Invoice No.:	A12-05232
Invoice Date:	24-May-12
Your Reference:	Manitouwadge Graphite

Rare Earth Metal Inc.
3250 Highway 130
Rosslyn On P7K 0B1
Canada

ATTN: Paul Neilson

CERTIFICATE OF ANALYSIS

5 Rock samples were submitted for analysis.

The following analytical package was requested: Code 5D-C-Graphitic Infrared

REPORT **A12-05232**

Notes:

CERTIFIED BY :

Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited LAB 266
LAB 266 Accrédité CCN

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E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
1049501 (+1700µm)	6.01
1049501 (+850µm)	5.77
1049501 (+425µm)	11.8
1049501 (+212µm)	17.1
1049501 (-212µm)	9.56

Quality Control

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
Graphite Powder Meas	95.4
Graphite Powder Cert	99.99
1049501 (-212µm) Orig	9.82
1049501 (-212µm) Dup	9.29
Method Blank	< 0.05

Quality Analysis ... *Innovative Technologies*

Date Submitted: 24-Jul-12
Invoice No.: A12-07949
Invoice Date: 03-Aug-12
Your Reference: Manitouwadge Graphite

Rare Earth Metal Inc.
3250 Highway 130
Rosslyn On P7K 0B1
Canada

ATTN: Mick Stares

CERTIFICATE OF ANALYSIS

20 Rock samples were submitted for analysis.

The following analytical package was requested: Code 5D-C-Graphitic Infrared

REPORT **A12-07949**

This report may be reproduced without our consent. If only selected portions of the report are reproduced, permission must be obtained. If no instructions were given at time of sample submittal regarding excess material, it will be discarded within 90 days of this report. Our liability is limited solely to the analytical cost of these analyses. Test results are representative only of material submitted for analysis.

Notes:

CERTIFIED BY :

Emmanuel Eseme , Ph.D.
Quality Control

ISO/IEC 17025
SCC Accredited LAB 266
LAB 266 Accrédité CCN

ACTIVATION LABORATORIES LTD.

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E-MAIL Ancaster@actlabs.com ACTLABS GROUP WEBSITE www.actlabs.com

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
983751	< 0.05
983752	< 0.05
983753	< 0.05
983754	1.13
983755	< 0.05
983756	< 0.05
983757	1.89
983758	0.10
983759	< 0.05
983760	< 0.05
983761	< 0.05
983762	< 0.05
983763	< 0.05
983764	0.55
983765	< 0.05
983766	3.29
983767	3.36
983768	1.23
983769	< 0.05
983770	0.29

Quality Control

Analyte Symbol	C-Graph
Unit Symbol	%
Detection Limit	0.05
Analysis Method	IR
Graphite Powder Meas	98.7
Graphite Powder Cert	99.99
Graphite Powder Meas	98.7
Graphite Powder Cert	99.99
Graphite Powder Meas	100
Graphite Powder Cert	99.99
983770 Orig	0.29
983770 Split	0.27
983770 Orig	0.29
983770 Dup	0.29
Method Blank	< 0.05
Method Blank	< 0.05

APPENDIX 3
RARE EARTH METALS MANITOUWADGE GRAPHITE: ACTLABS PARTICAL SIZE ANALYSIS

Activation Laboratories
1201 Walsh St, Thunder Bay, ON P7E 4X6

Rare Earth Metals Manitouwadge Graphite: Particle Size Analysis

Metallurgy Department

Jennifer Steyn

May 25, 2012

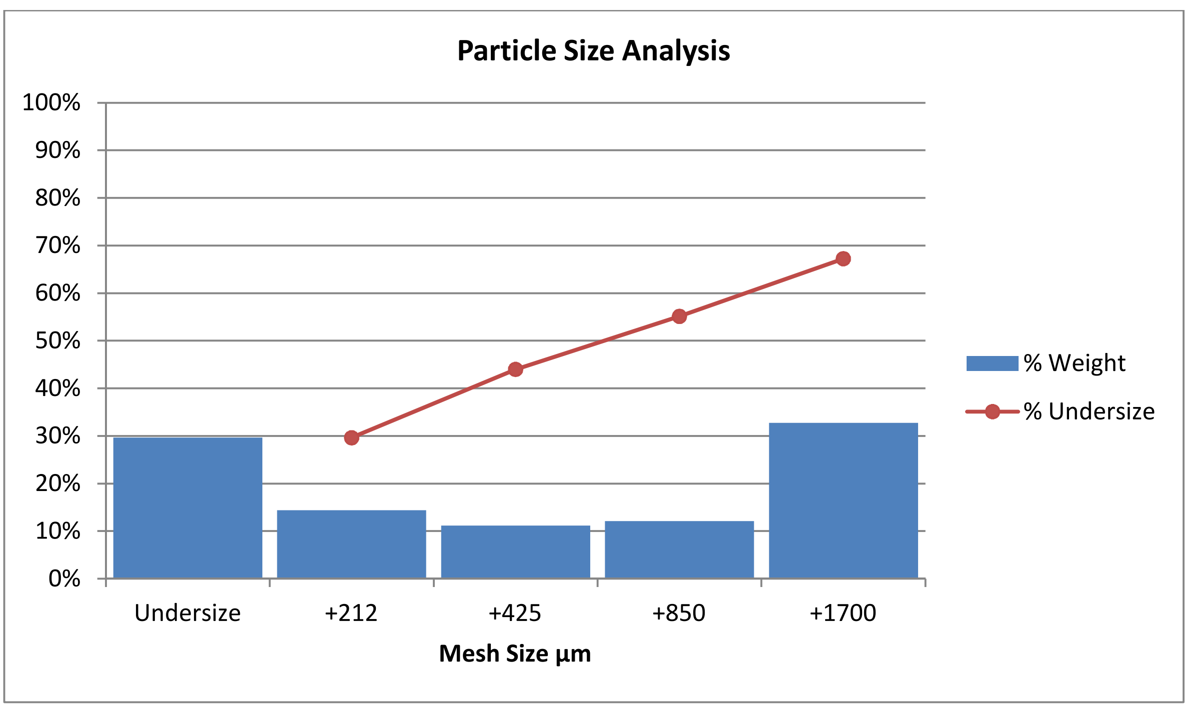
METALLURGY DEPARTMENT
1201 Walsh St, Thunder Bay, ON P7E 4X6| Tel: 807-622-6707 x 422 | JenniferSteyn@actlabs.com

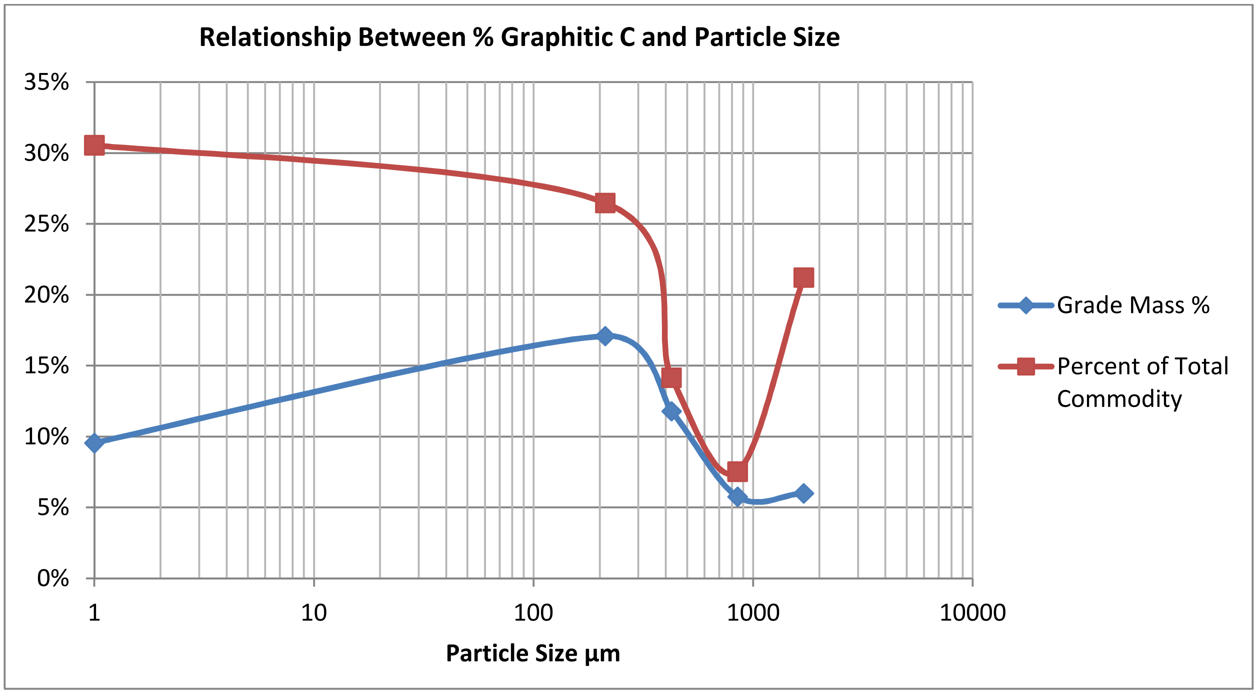
Rare Earth Metals Manitouwadge Graphite: Particle Size Analysis

A particle size analysis was performed on the sample provided to us. The sample was crushed to reduce particle size and a Jones Riffle splitter was used to split the sample to approximately 500g. The PSA was performed using four sieve sizes; 1700µm, 850µm, 425µm, 212 µm and the undersize was collected in the bottom pan. The sample on each sieve was weighed and then analyzed for % C-graphitic; results for the PSA are shown below.

Particle Size Analysis Results:

Particle Size Analysis							
Size µm	Weight g	**% Weight**	Cumulative % Oversize	Cumulative % Undersize	C Graphitic Mass %	Graphite g	Percent of Total Graphite
+1700	159.97	**32.75%**	32.75%	67.25%	**6.01%**	9.61	**21.2%**
+850	59.17	**12.11%**	44.86%	55.14%	**5.77%**	3.41	**7.5%**
+425	54.39	**11.13%**	56.00%	44.00%	**11.80%**	6.42	**14.2%**
+212	70.16	**14.36%**	70.36%	29.64%	**17.10%**	12.00	**26.5%**
undersize	144.79	**29.64%**	100.00%	0.00%	**9.56%**	13.84	**30.6%**
TOTAL	488.48	**100.00%**	N/A	N/A	**9.27%**	45.29	**N/A**





Discussion of Results:

- The results show that the overall grade of the sample was 9.27% Graphite.
- 57.1% of the graphite was in the -425 µm (35mesh) fraction.
- 21.2% of the total graphite was in the +1.7mm fraction, but the grade on this fraction was lower at 6.01%, indicating that this was un-liberated graphite with a larger gangue component.
- Visual inspection of the size fractions indicated the appearance of graphite flakes in the +425µm and +212µm fractions. The MLA report will better quantify these observations.
- The plot above showing the relationship between the particle size analysis and the analytical results shows a peak in the 200 to 300 µm range, which is another indication of a liberation size and thus flake size.

APPENDIX 4
ACTLABS MLA ANALYSIS OF GRAPHITE FLAKE SIZE

Mineralogy Services

Geometallurgy–MLA Dept

1348 Sandhill Dr, Ancaster, ON L9G 4V5 | *Tel: 905-648-9611 x 170* | Fax: 905-648-9613 | *ChrisHamilton@actlabs.com* | www.actlabsint.com

Laboratory No. A12-05128

Topic: MLA Analysis of Graphite Flake Size.

Attention: Paul Neilsen, Rare Earth Metals Inc.
Reg Felix

May 19, 2012

Sample Identification**: Manitouwadge Graphite**

Test Report Certified By:

Approved By: *Chris Hamilton, M.Sc.*
Department Manager

1348 Sandhill Dr, Ancaster, ON L9G 4V5 | *Tel: 905-648-9611 x 170* | Fax: 905-648-9613 | *ChrisHamilton@actlabs.com* | www.actlabsint.com

INTRODUCTION & OBJECTIVES

One graphite ore was submitted for mineralogical analysis by MLA to determine the grain size of graphite and a semi-quantitative mineralogical analysis. MLA is an acronym for Mineral Liberation Analyser, a proprietary mineral analysis system sold by the FEI Company.

METHODS USED

The sample was received as a minus 2 mm assay reject sample and riffle-split to a 200 gram sub-sample for MLA sample preparation. The sample was then screened at 850 microns (20 mesh) and the oversize stage-crushed to passing 850 micron to generate a 100% passing -20 mesh sample. This material was then screened into two size fractions at 300 micrometers (50 mesh) to prepare as polished sections using carnauba wax for the first mounting step. Once cured, the wax-mount was cut vertically and mounted in cold-curing epoxy resin to prepare a transversely mounted section that would reduce any density segregation effects that would otherwise produce bias in measurement. The resulting 30 mm diameter polished sections were ground and polished by standard lapidary methods using diamond media.

Samples were then carbon-coated to render surfaces conductive and measured by the MLA, a Quanta600F instrument equipped with back-scattered electron imaging and two Bruker 5010 SDD Energy Dispersive X-ray Spectrometers. The samples were measured using the XBSE mode of MLA measurement, whereby the exposed analytical face of each section was measured.

BSE is an acronym for Back-Scattered Electron signal intensity, which is proportional to the mean atomic number of minerals as they are bombarded by the electron beam. The XBSE measurement mode first separates particles from the mounting medium (where graphite is brighter than the carnauba wax) and all features or BSE 'domains' within a particle are measured separately by EDS to identify the elemental composition. This composition is matched to a mineral reference list calibrated against minerals in the measured sample, and classification of particles performed by the MLA software system. Flake size determinations are presented in Appendix 1.

In addition, a digital photomicrograph of each size fraction and the un-sized, passing 850 micron material was taken and these photographs are presented in Appendix 2.

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Evaluation – Results

The modal analysis (semi-quantitative) by MLA for the analysed samples is presented in Table 1, from which it is clear that sulphides account for about 7 % of the mass of the head and in increasing order of abundance, accompanying minerals include K-feldspar, followed by quartz and then plagioclase feldspar. It is interesting that phlogopite is present which is also platy and potentially flotable, as well as a trace of talc.

Table 1. Modal analysis results of the -850/+300 micron fraction of the stage-crushed, submitted sample as determined by MLA XBSE Analysis. The mineral detection limit is nominally 0.1 %.

Mineral	Head - Wt%
Graphite	17.8
Microcline	12.3
Plagioclase	37.4
Quartz	21.4
Epidote	0.6
Phlogopite	2.4
Chalcopyrite	0.0
Pyrite	5.9
Pyrrhotite	1.2
Talc	0.5
Rutile	0.0
Gypsum	0.4
Others	0.0
Total	**100.00**

Table 2. Screen analysis of the MLA-sample stage-ground to passing 20 mesh.

Size Fraction	Grams	% Wt.
-850/+300	15.43	36.25
-300	27.13	63.75
Head/Sum	42.56	100.00

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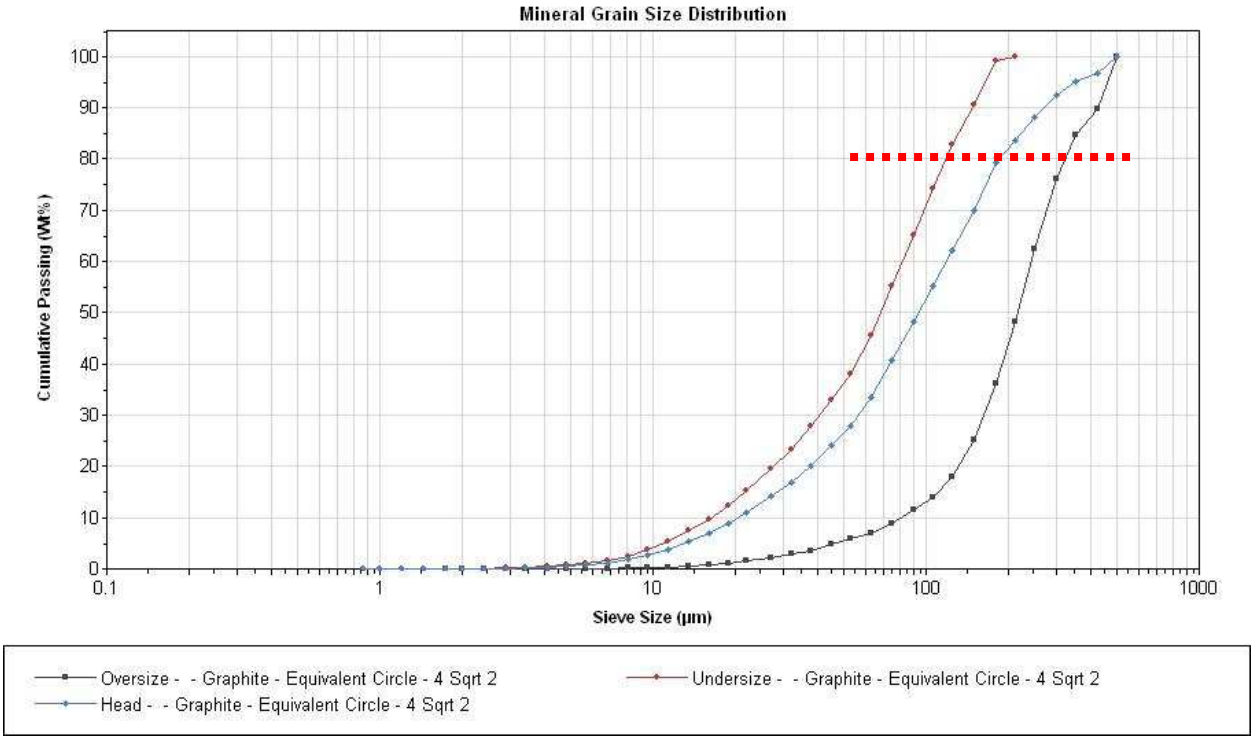

Figure 1. Grain Size distribution data for graphite based on MLA XBSE measurements. By conventional metallurgical format, the d_{80} size (red stippled line) is 110 µm in the passing 300 µm fraction and 320 µm in the -850/+300 µm fraction. A mass balanced size (assuming equal graphite content in each size) is 180 microns, but the coarser size fraction is more representative of the natural flake size due to grinding effects.

DISCUSSION AND RECOMMENDATIONS

The graphite size presented is subject to the following caveats:

1. They are 2-dimensional determinations, and represent side-on measurements. Being side-on measurements, the XBSE modal analysis may similarly not be accurate without reconciling to graphite assays.

2. The 'head' graphite flake size is weighted assuming equal graphite contents; ideally they should be weighted by graphite assays (or the product of the grade and size fraction mass) of the size fractions. However, the size determination was the brief of this study and thus the objective has been met.

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3. The size of the graphite in the finer size fraction is considerably smaller than the size above, and thus represents more of a 'processed size' due to grinding. In this regard, the -850/+300 size fraction is thus more representative of the natural graphite flake size.

4. It is estimated that graphite is about 40% liberated at the current grind (100% passing 850 microns/20 mesh). As this is beyond the scope of the present study, it is recommended that this be performed to define a primary grind and expedite the metallurgical study.

CONCLUSIONS AND RECOMMENDATIONS

1. The modal mineralogy of the submitted sample was determined by the XBSE mode of measurement using a Quanta 600F MLA system.

2. The graphite content of both size fractions is similar, and weighted flake distributions have been calculated by weighting the sample fraction distributions. In the -850/+300 micron fraction, the flake size determination is 310 microns (D_{80} of measured graphite distribution data.)

3. Carbon assays of the size fractions are recommended for more accurate determinations and XRD analysis to confirm the mineralogy.

4. A liberation determination is also recommended to expedite the primary grind evaluation for metallurgical testing. It is clear, however, that significant liberation is achieved when stage-ground to passing 20 mesh.

Approved by:

Chris Hamilton, M.Sc.
Manager – MLA/Mineralogy

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Appendix 1: Graphite grain size data as determined by MLA XBSE measurements in carnauba wax and MLA proprietary software data analysis.

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Sieve	Retained %		Cum % Retained		Cum. % Passing	
Size	-300	+300	-300	+300	-300	+300
500	0	0.00	0	0.00	100	100.00
425	0	10.22	0	10.22	100	89.78
355	0	5.15	0	15.37	100	84.63
300	0	8.67	0	24.04	100	75.96
250	0	13.52	0	37.57	100	62.43
212	0.00	14.29	0.00	51.86	100.00	48.14
180	0.97	12.12	0.97	63.97	99.03	36.03
150	8.41	10.89	9.38	74.87	90.62	25.13
125	7.94	7.30	17.32	82.17	82.68	17.83
106	8.50	3.82	25.82	85.99	74.18	14.01
90	9.21	2.58	35.03	88.57	64.97	11.43
75	9.76	2.50	44.80	91.06	55.20	8.94
63	9.63	1.91	54.43	92.97	45.57	7.03
53	7.46	1.10	61.89	94.07	38.11	5.93
45	5.15	1.23	67.03	95.30	32.97	4.70
38	5.22	1.11	72.25	96.40	27.75	3.60
32	4.47	0.73	76.72	97.14	23.28	2.86
27	3.64	0.60	80.36	97.74	19.64	2.26
22	4.35	0.65	84.71	98.39	15.29	1.61
19	3.02	0.45	87.73	98.84	12.27	1.16
16	2.62	0.43	90.35	99.27	9.65	0.73
13.5	2.24	0.27	92.59	99.54	7.41	0.46
11.4	2.07	0.13	94.66	99.67	5.34	0.33
9.6	1.63	0.10	96.28	99.77	3.72	0.23
8.1	1.21	0.07	97.50	99.83	2.50	0.17
6.8	0.83	0.05	98.33	99.88	1.67	0.12
5.7	0.62	0.05	98.95	99.93	1.05	0.07
4.8	0.38	0.04	99.33	99.97	0.67	0.03
4.1	0.20	0.02	99.53	100.00	0.47	0.00
3.4	0.19	0.00	99.72	100.00	0.28	0.00
2.9	0.11	0.00	99.83	100.00	0.17	0.00
2.4	0.07	0.00	99.89	100.00	0.11	0.00
2	0.07	0.00	99.96	100.00	0.04	0.00
1.75	0.01	0.00	99.97	100.00	0.03	0.00
1.45	0.01	0.00	99.98	100.00	0.02	0.00
1.2	0.00	0.00	99.98	100.00	0.02	0.00
1	0.02	0.00	100.00	100.00	0.00	0.00
0.87	0.00	0.00	100.00	100.00	0.00	0.00

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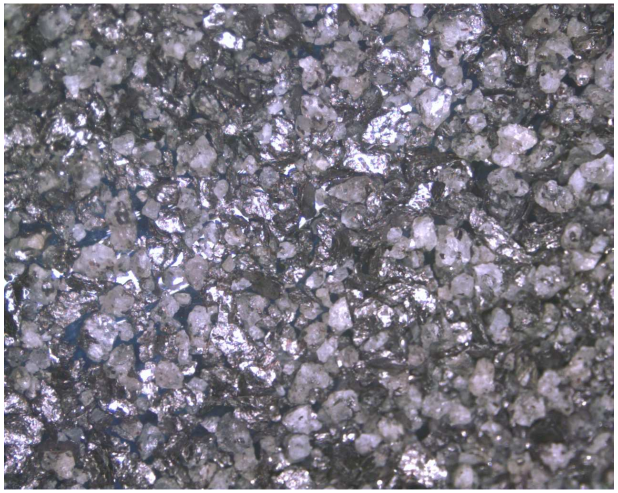
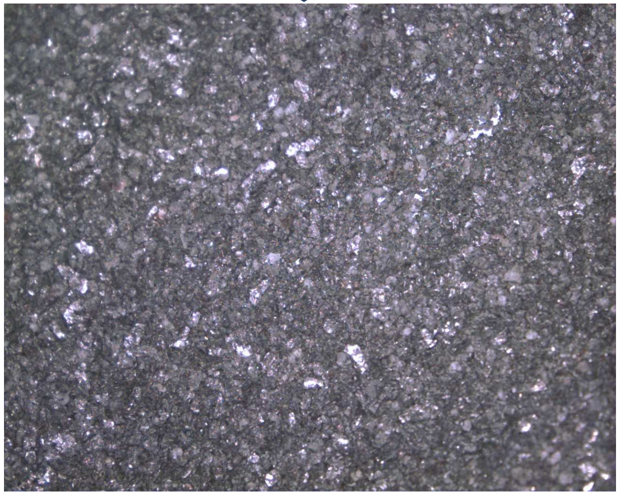
Appendix 2: Digital Photomicrographs of the material stage-ground to passing 850 microns (20 Mesh).
(Width of field of view is 810 mm.)

Ground to 100 % Passing 850 micron

-850/+300 micron Size Fraction (36.25 %)



-300 micron Size Fraction (63.75 %)



APPENDIX 5
ACTLABS GRAPHITE BENEFICIATION TESTING

Graphite Beneficiation Testing

Final Report

Rare Earth Metals Inc - Manitouwadge Graphite

Prepared for: Reg Felix, Rare Earth Metals

Prepared by: Jennifer Steyn, Senior Metallurgist, Actlabs

September 7, 2012

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1. Abstract

The goal of this study was to analyze the beneficiation characteristics of graphite from a mineral sample from Rare Earth Metals' Manitouwadge Property. Testing included grinding, flotation and gravity separation techniques. The final concentrate underwent a Particle Size Analysis (PSA) to indicate the size of the recovered graphite flake.

The table below summarizes the results achieved:

	Test 1	Test 2	Test 3	
FLOTATION				
Primary recovery	99.24%	98.35%	97.32%	
Flotation Conc.	54.51% Cg	65.42% Cg	62.15% Cg	+425 µm fraction added to Test3 recovery and conc. for comparison
GRAVITY				
+425 µm (jumbo) *grade*			92.6% Cg	Test3 - removed after grinding, no flotation or gravity
+425 µm (jumbo) *% of conc.*			16.2%	
+300 µm (jumbo) *grade*	91.4% Cg	88.9% Cg	86 % Cg	Test 2 – 2stage gravity
+300 µm (jumbo) *% of conc.*	6.1%	25.7%	10.3%	
+180 µm (large) *grade*		87.1 % Cg	83 % Cg	No gravity performed Test 1
+180 µm (large) *% of conc.*		32.8%	29.0%	
+150 µm (med) *grade*		90.6% Cg	80.3 % Cg	No gravity performed Test 1
+150 µm (med) *% of conc.*		10.3%	11.1%	
-150 µm (fine) *grade*		87.9% Cg	81.5% Cg	No gravity performed Test 1
-150 µm (fine) *% of conc.*		31.2%	33.4%	

Improvements were made to the 2nd and 3rd flotation tests, with an emphasis on improving the grade of the concentrate. These tests also used hydrated lime to act as a pyrite depressant and increase the pH of the flotation.

The gravity concentration on a Wilfley shaking table upgraded the graphite grades to 80-93% graphite.

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It was shown during the 3rd test that a high grade (92.6% Cg) jumbo flake fraction (+425 µm) could be removed after grinding. This fraction underwent no additional upgrades.

Successful beneficiation of graphite was achieved and further optimization and upgrade of the process and graphite products can be achieved with additional metallurgical testwork.

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2. Procedure

A flow sheet summarizing the procedure is included in Appendix A.

2.1. Grinding

The grinding phases brought the ore samples to the economically optimum particle size; this size was dependent on the results from the MLA analysis. The MLA analysis specified the D80 flake size as 310 microns and the MLA liberation data showed that a grind of 100% passing 850 micron produced a global liberation of 47%. A primary target grind size of 90% -425 µm was chosen to ensure a high degree of liberation and to prevent over-grinding of the larger graphite flakes that were visible in the MLA image analysis.

A wet, closed circuit batch rod grinding operation was chosen and at constant intervals the grinding was stopped so the samples could be classified using wet sieving at 425 µm. After classification the oversize was re-circulated until there was 90% passing 425 µm. This method of stage grinding produced a sharper size distribution and reduced unnecessary reduction in flake size. The grinding intervals in the Second Testing Procedure were reduced to optimize the grind size further. The grind was also slightly coarser at 85% passing 425 µm. The grinding for the 3rd test was increased again and a grind of 98.5% passing 425 µm was achieved. The oversize fraction (1.5% of feed) was inspected under a magnifying glass and it appeared to have very high graphite content. This +425 µm fraction was removed and sent for analysis.

2.2. Flotation

A three stage flotation test was performed to characterize the floatability of the ore samples. There was a rougher stage and two cleaner stages.

2.2.1. Rougher

Water was added until the solid samples represented 30% of the total mass. Kerosene and Diesel were used as the collectors; both with concentration of 75 g/t. Conditioning time was noted. AEROFROTH 76A was used as the frother at 40 g/t staged addition to optimize froth height and recovery. 900 g/t of sodium silicate was used in staged addition to depress flocs of gangue slimes in the first flotation test, it was excluded in the second flotation test to increase concentrate grade based on observations of the first test.

pH modification was achieved by adding soda ash in the 1st test and by hydrated lime in the 2nd test and 3rd test. The pH was higher during the 2nd test and hydrated lime acts as a pyrite depressant.

Rougher Tails were assayed and compared to the head grade; a mass balance was used to calculate the grade of the concentrate.

2.2.2. 1st and 2nd Cleaner Stage

Rougher concentrate was transferred to a smaller float cell. Water was added until the sample mass represented 30% of total mass. AEROFROTH 76A was added as needed.

A sample from the tailings was split, assayed and compared to the head grade; a mass balance was used to calculate the grade of the concentrate.

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2.3. Gravity Concentration

For the first flotation test, only the +300µm Concentrate Size Fraction was upgraded using the Wilfley Table to investigate the possibility of upgrading the concentrate grade. The results were positive, leading to the inclusion of gravity separation in the second test.
Gravity separation was performed on the Wilfley Table using the entire Second Flotation Concentrate in order to increase the grade of all size fractions by removing gangue silicates and sulphides.
For the 3rd test, the flotation concentrate was separated into +300 µm, +180µm and -180µm fractions. Each of the fractions underwent separate shaking table tests to perform the concentrations in narrower size ranges.

2.4. Particle Size Analysis and Assay of Concentrate

A particle size analysis was performed on the concentrates, indicating the size of the flake graphite. Three sieve sizes were used, 300µm (50 mesh), 180µm (80 mesh), and 150µm (100 mesh) representing jumbo, large and medium sized flake graphite respectively. The size analysis split each sample into four fractions; each fraction was assayed for grade. This data was compared to the head grade and the percent recovery was calculated and full test mass calibration was calculated.

2.5. Chemical Upgrading

The +180µm concentrate was subjected to chemical upgrading using the methods below. Samples were 5 grams per test. After acid treatment, the excess acid was decanted and the samples were washed 3 times with water and dried for assay analysis.

2.5.1. Test 1

The concentrate was mixed with 15mL hydrofluoric acid (48%) for a duration of 24 hours.

2.5.2. Test 2

The concentrate was mixed with 15mL hydrofluoric acid (48%) and placed in a water bath set to approximately 80°C for 4 hours.

2.5.3. Test 3

The concentrate was mixed with 7mL hydrofluoric acid (48%) and 7mL hydrochloric acid (36%). The mixture was then placed in a water bath set to 80°C for 4 hours.

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3. Results

3.1. Test 1 Results

3.1.1. Flotation

The following test conditions were used:

Stage	REAGENT ADDED (g/t)			Time (min)		pH
	Kerosene	Diesel	AF 76A	Condition	Froth	
Rougher	75	75	40	6	10	7.2
1st cleaner				2	10	
2nd cleaner			8	2	10	8.5

The following table indicates the mass balance of the flotation test. Shaded values are actual measured weights or grades from C-graphitic analysis. The C-graphitic analysis is performed using a LECO Carbon-Sulphur Analyzer. All other values are back-calculated using the mass balance. A procedure flow sheet showing the material balance is included in Appendix A.

	Mass (g)	% mass recovery	Graphite grade (%)	graphite mass (g)	Graphite recovery (%)
Feed	2009	100.00%	9.93%	199.44	100.00%
Rougher Tail	1506	74.96%	0.10%	1.51	0.76%
Rougher Conc.	503	25.04%	39.35%	197.94	99.24%
1st Cleaner Tail	110.37	5.49%	6.62%	7.31	3.66%
1st Cleaner Conc.	392.63	19.54%	48.55%	190.63	95.58%
2nd Cleaner Tail	50.62	2.52%	8.30%	4.20	2.11%
FINAL CONC	342.01	17.02%	54.51%	186.43	93.47%
+300µm	110.87	5.52%	**62.60%**	69.40	34.80%
+180µm	118.09	5.88%	**54.20%**	64.00	32.09%
+150µm	18.82	0.94%	**43.40%**	8.17	4.10%
undersize	94.23	4.69%	**47.60%**	44.85	22.49%

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3.1.2. Gravity Concentration on the +300 µm Size Fraction

The gravity testing was performed and the sample was separated into three parts corresponding to relative specific gravity; Low SG, High SG, and Middlings. The full test results are shown in the table below.

	Mass (g)	% mass recovery	Graphite grade (%Cg)	mass Cg (g)	Recovery (%)
+300µm Original Sample	54.3	100.00%	**62.60%**	33.99	N/A
Low SG (graphite conc)	20.96	38.60%	**91.40%**	19.15	56.3%
Middlings	14.38	26.48%	**80.00%**	11.50	33.8%
High SG	18.34	33.78%	**10.80%**	1.98	5.8%

3.1.3. Test Observations

A number of photographs were taken during testing and of each product. These are found in Appendix B.

3.2. Test 2 Results

3.2.1. Flotation and Gravity Concentration

The following test conditions were used:

Stage	REAGENT ADDED (g/t)			Time (min)		pH
	Kerosene	Diesel	AF 76A	Condition	Froth	
Rougher	75	75	40	6	9	7.92
1st cleaner				1	6	7.4
2nd cleaner				1	5	8.4

The following table indicates the mass balance of the flotation test. Shaded values are actual measured weights or grades from C-graphitic analysis. The C-graphitic analysis is performed using a LECO Carbon-Sulphur Analyzer. All other values are back-calculated using the mass balance. A procedure flow sheet showing the material balance is included in Appendix A.

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	Mass (g)	% mass recovery	Graphite grade (%Cg)	mass Cg (g)	Recovery (%)
Feed	1980	100.00%	9.88%	195.55255	100.00%
Rougher Tail	1540	77.79%	0.21%	3.234	1.65%
Rougher Conc	440	22.21%	43.74%	192.31855	98.35%
1st Cleaner Tail	134	6.77%	12.00%	16.08	8.22%
1st Cleaner Conc	306	15.44%	57.66%	176.23855	90.12%
2nd Cleaner Tail	46	2.32%	13.90%	6.394	3.27%
FINAL FLOAT CONC	260	13.12%	65.42%	169.84455	86.85%
HIGH SG	32	1.62%	10.00%	3.2	1.64%
MID SG	52	2.63%	28.20%	14.664	7.50%
GRAV CONC	175.64	8.87%	86.53%	151.98055	77.72%
+300µm	45.09	2.28%	**82.50%**	37.19925	19.02%
+180µm	57.64	2.91%	**87.10%**	50.20444	25.67%
+150µm	18.11	0.91%	**90.60%**	16.40766	8.39%
undersize	54.8	2.77%	**87.90%**	48.1692	24.63%

3.2.2. 2nd Gravity Concentration on the +300 µm Size Fraction

The +300 µm fraction was run on the Wilfley table again to further upgrade the product.

	Mass (g)	% mass recovery	Graphite grade (%Cg)	mass Cg (g)	Recovery (%)
+300µm Original Sample	23.91	100.00%	**82.50%**	19.73	100.00%
Low SG (graphite conc)	18.5	77.37%	**88.90%**	16.45	83.38%
High SG	5.41	22.63%	**60.61%**	3.28	16.62%

3.2.3. Test Observations

A number of photographs were taken during testing and of each product. These are found in Appendix C.

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3.3. Test 3 Results

3.3.1. Flotation and Gravity Concentration

The following test conditions were used:

Stage	REAGENT ADDED (g/t)			Time (min)		pH
	Kerosene	Diesel	AF 76A	Condition	Froth	
Rougher	75	75	40	6	5.5	8.56
1st cleaner				1	4	8.16
2nd cleaner				1	4	7.97

The following table indicates the mass balance of the flotation test. Shaded values are actual measured weights or grades from C-graphitic analysis. The C-graphitic analysis is performed using a LECO Carbon-Sulphur Analyzer. All other values are back-calculated using the mass balance. A procedure flow sheet showing the material balance is included in Appendix A.

	Mass (g)	% mass recovery	Graphite grade (%Cg)	mass Cg (g)	Recovery (%)
Feed	1913	100.00%	9.86%	188.62	100.00%
+425µm	29.43	1.54%	**92.60%**	27.25	14.45%
Rougher Tail	1534	80.21%	0.33%	5.06	2.68%
Rougher Conc	349	18.25%	44.77%	156.31	82.87%
1st Cleaner Tail	70	3.66%	3.44%	2.41	1.28%
1st Cleaner Conc	279	14.59%	55.13%	153.90	81.59%
2nd Cleaner Tail	20	1.05%	9.02%	1.80	0.96%
FINAL FLOAT CONC	259	13.55%	58.69%	152.09	80.63%
+300µm Low SG	18.77	0.98%	**86.00%**	16.14	8.56%
+300µm High SG	41.86	2.19%	27.90%	11.68	6.19%
+180µm Low SG	52.72	2.76%	**83.00%**	43.76	23.20%
+180µm High SG	47.71	2.49%	24.50%	11.69	6.20%
+150µm Low SG	20.20	1.06%	**80.30%**	16.22	8.60%
-150µm Low SG	60.77	3.18%	**81.50%**	49.53	26.26%
-180µm High SG	17.10	0.89%	18.00%	3.08	1.63%

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3.3.2. Chemical Upgrading

The graphite sample used had a grade of 83% C-graphitic prior to these tests. The results of the Chemical upgrade tests are:

	% C (graphitic)
Test 1	**77.3**
Test 2	**77.3**
Test 3	**78.4**

Results of this test were negative. A revision of the method should be investigated for future studies.

4. Discussion of Results

Graphite beneficiation was achieved and product grades were consistently in the range of 80-93% graphite.

The 2nd flotation test showed a 10.9% improvement in flotation concentrate grade over the 1st flotation test. When the +425 µm fraction was calculated back into the 3rd test flotation product it gave a final flotation concentrate grade of 62.2%, which compared well with the 65.4% of the 2nd test. Compared to the 1st test, the 2nd and 3rd tests were performed with an added emphasis on producing a higher grade, therefore recovery was slightly sacrificed to ensure less gangue mineral entrainment. The rougher recovery was high for all 3 tests; 99.24% (test 1), 98.35% (test 2), 97.32% (test 3 with +425 µm fraction added for comparison purposes). These recoveries indicate the expected losses of graphite to processing plant tailings, as all other streams could be re-circulated to a preceding stage. The percentage of graphite in the feed lost to tailings in each of the 3 flotation tests are 0.76%, 1.65% and 2.68% respectively. These values are well below industry accepted losses of 6%, ie. 94% recoveries.

In the 3rd test, the +425 µm graphite fraction (representing 1.54% of total feed weight) was removed after grinding and didn't undergo any further upgrades. Although this fraction is a small percentage of the total, it indicates that a jumbo flake fraction can be recovered directly from the grinding circuit. In practice this could be achieved by air classification on the grinding product. The grade of this fraction was 92.6%

In all tests, the flotation concentrate required further upgrading to produce a higher grade product. The gravity concentration step on the +300 µm fraction of the 1st flotation concentrate showed that it is possible to achieve a product above 90% graphite, in this case 91.4%. The 2nd and 3rd shaking table tests showed that similar results were obtained when the whole concentrate was upgraded and when the concentrate was split into size fractions. When the +300 µm fraction of the 2nd test was fed onto the Wilfley shaking table again, the grade was improved to 88.9% graphite, indicating that higher graphite product grades can be achieved with more gravity upgrade stages. Adding flotation cleaner stages will also increase flotation concentrate grade and it can be deduced that the gravity product could be improved as well.

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The negative results of the chemical upgrade tests are probably due to a procedural flaw and should not be interpreted as an inability to upgrade this graphite product chemically.

5. Recommendations

It is recommended that further metallurgical tests be conducted in order to optimize the final product grades using multiple flotation and gravity recovery stages.
Other processing options to test include:

- Air classification
- Regrinding of selective flotation and gravity products
- Optimization of flotation reagents
- Alternative gravity concentration methods

Microscopic examination of metallurgical products would also provide important information to assist future optimization of metallurgical beneficiation.

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Appendix A

Mass Balance Flow Sheets

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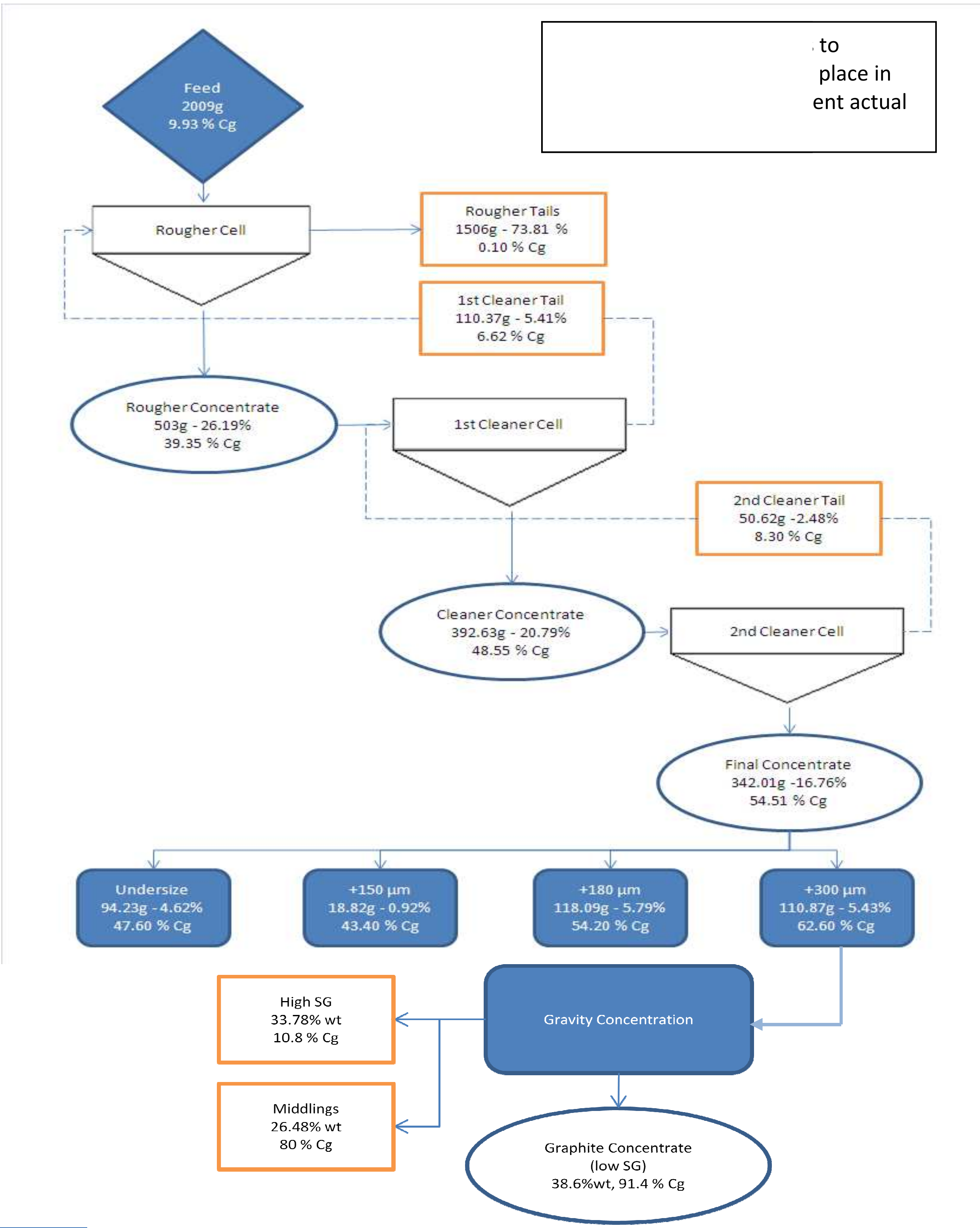
1st Testing Flow Sheet and Results



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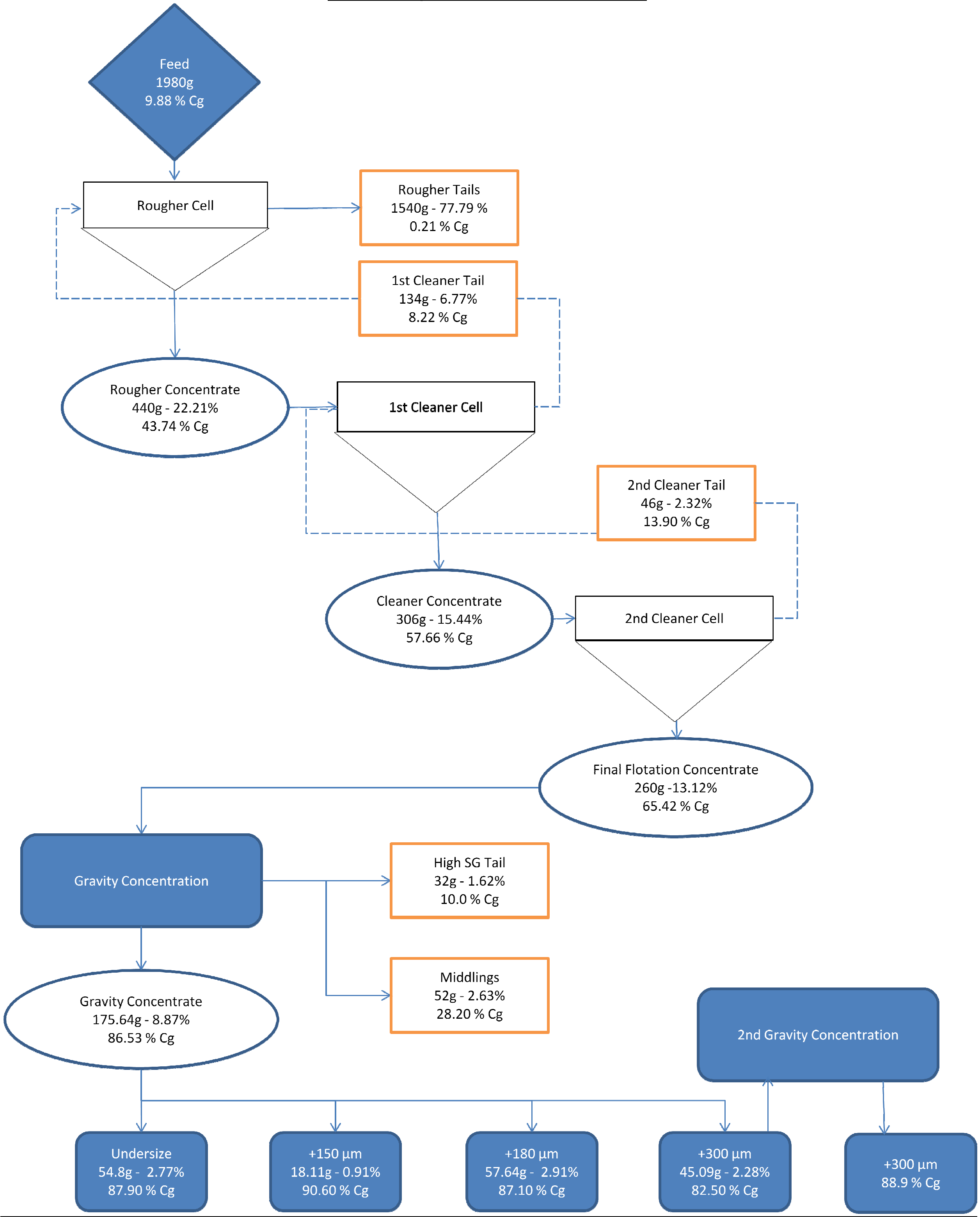
2nd Testing Flow Sheet and Results



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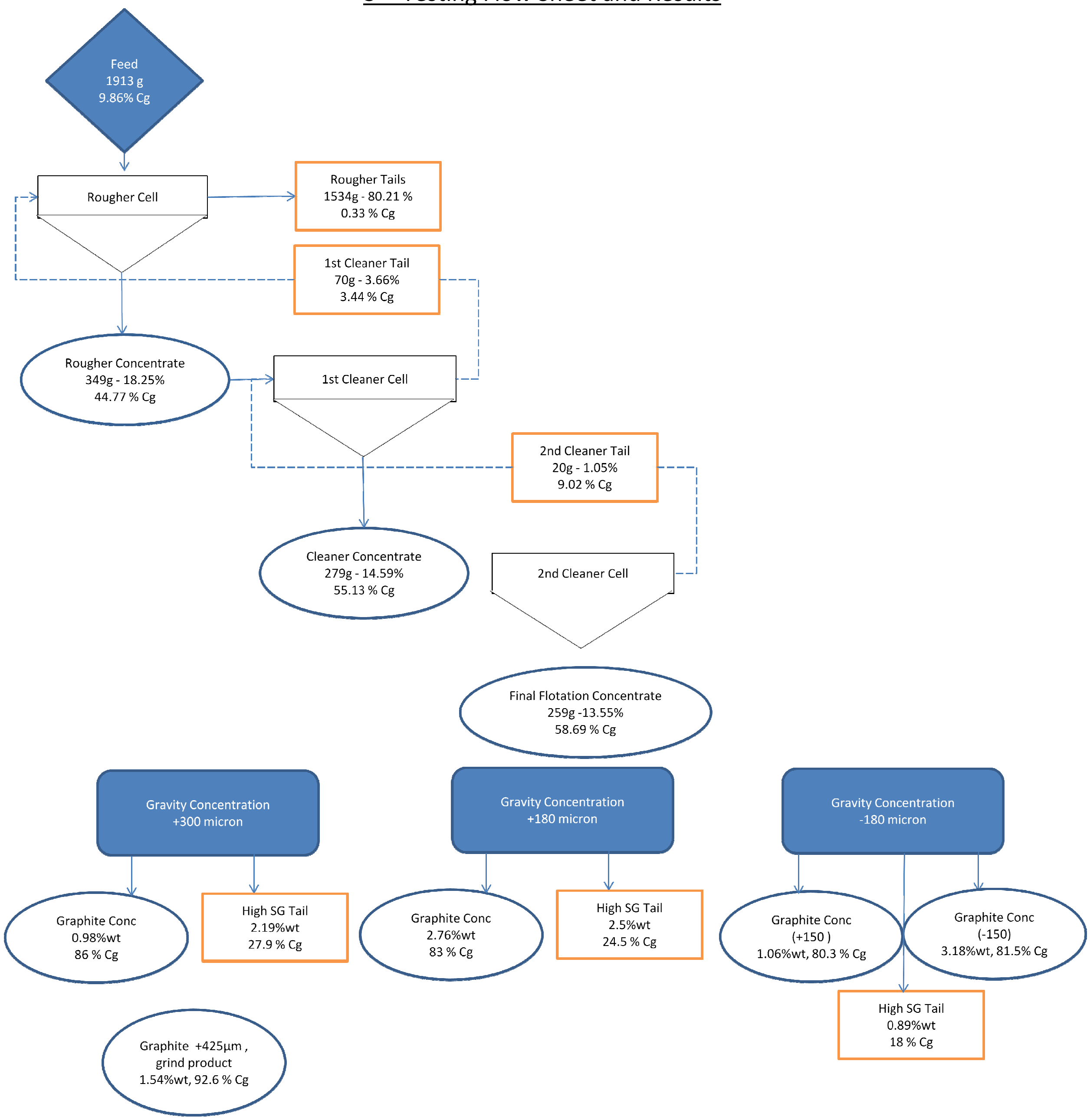
3rd Testing Flow Sheet and Results



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Appendix B

Photographs of 1st Flotation Test and Flotation Products

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Rougher Conditioning Stage

Rougher Flotation Stage

1st Cleaner Flotation Stage

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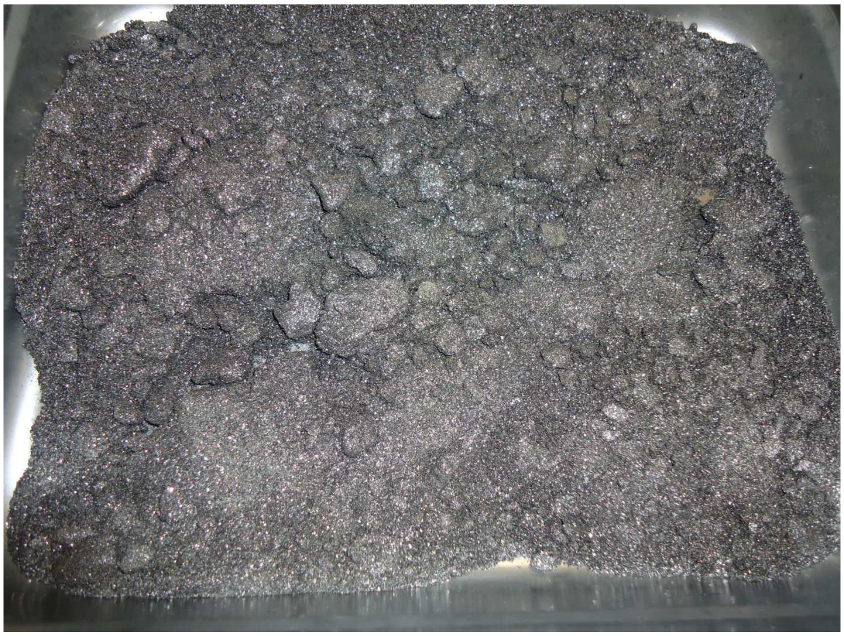

Final Flotation Graphite Concentrate
54.51% C-Graphitic

Rougher Tailings
0.10 % C-Graphitic – Low grade clearly visible, contains high amount of silicates.

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1st Cleaner Tailings
6.62 % C-Graphitic – Little graphite flake visible

2nd Cleaner Tails
8.30 % C-Graphitic

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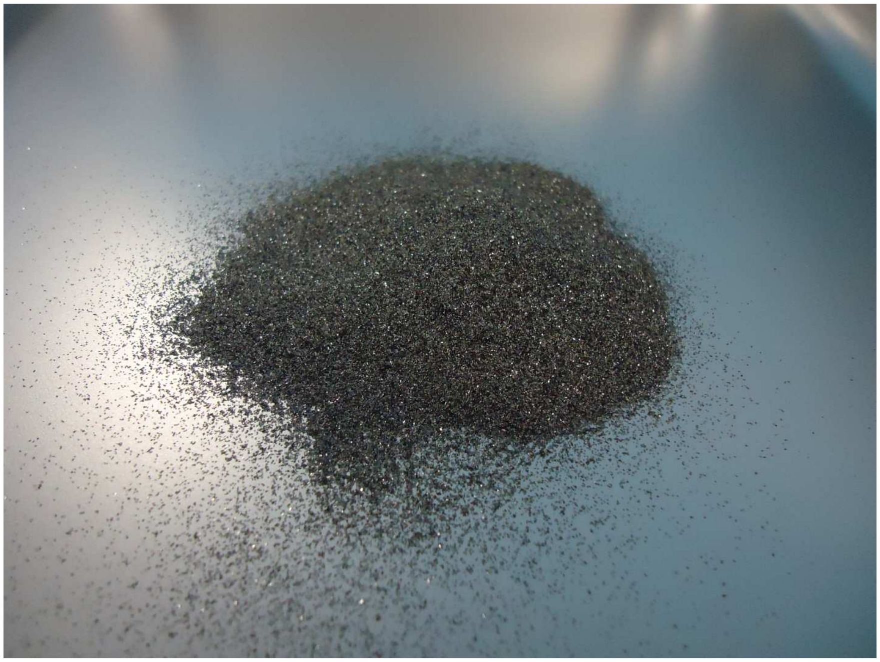

+ 150µm Concentrate
43.40 % C-Graphitic

+180µm Concentrate
54.20 % C- Graphitic

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+300µm Concentrate
62.60 % C-Graphitic

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Appendix C

Photographs of 2nd Flotation and Gravity Tests and Products

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Rougher Flotation

Cleaner Flotation

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Rougher Tails 0.21 % C-Graphitic

1st Cleaner Tails 8.22% C-Graphitic

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2^{nd} Cleaner Tails 13.90 % C-Graphitic

Gravity Concentration of Flotation Concentrate

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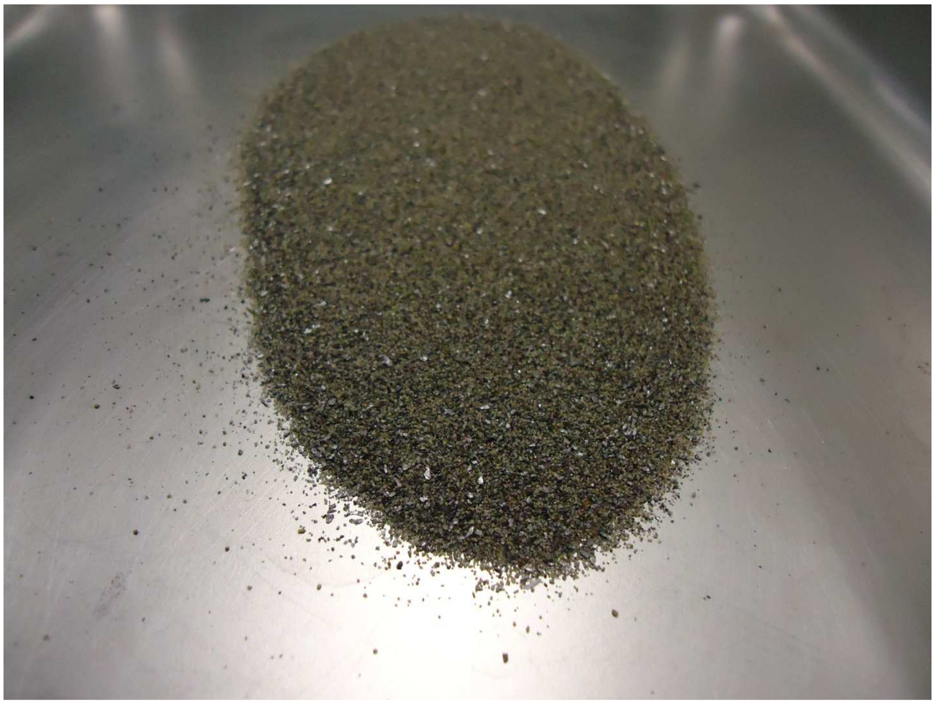

High SG Tailings 10.0 % C-Graphitic

Middlings 28.20 % C-Graphitic

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Low SG Concentrate 86.53 % C-Graphitic

+300 µm Concentrate 82.50 % C-Graphitic

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+180 µm 87.10 % C-Graphitic

Undersize 87.90 % C-Graphitic

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APPENDIX 6
REGIONAL GEOLOGY LEGEND
From Map 2220
Manitouwadge-Wawa Sheet
Ontario Department of Mines and Northern Development
(1970-71)

LEGEND

CENOZOIC

PLEISTOCENE AND RECENT[a]

Sand, gravel, clay.

UNCONFORMITY

PALEOZOIC

CAMBRIAN

11 — 11a *Jacobsville Formation:*[b] *sandstone, conglomerate, shale.*

UNCONFORMITY

PRECAMBRIAN

MIDDLE TO LATE PRECAMBRIAN (PROTEROZOIC)

MAFIC IGNEOUS ROCKS

10 — 10a *Diabase (dikes).*[c]

INTRUSIVE CONTACT

GAMITAGAMA LAKE COMPLEX[d]

9 —
- 9a *Granite, quartz monzonite, granodiorite, monzonite, syenite.*
- 9b *Gabbro, olivine gabbro, anorthosite, norite, diorite.*

CONTACT INDETERMINATE

LATE PRECAMBRIAN

CARBONATITE-ALKALIC COMPLEXES

8 —
- 8a *Nepheline syenite.*
- 8b *Hornblende syenite, syenite pegmatite.*
- 8c *Augite syenite.*
- 8d *Gabbro, olivine gabbro, anorthositic gabbro.*
- 8e *Intrusive calcite, dolomite, fenitized rock and lamprophyre.*

CONTACT INDETERMINATE

KEWEENAWAN

FELSIC IGNEOUS ROCKS[e]

7 —
- 7a *Quartz porphyry.*
- 7b *Microdiorite.*

INTRUSIVE CONTACT

SEDIMENTARY AND VOLCANIC ROCKS

6 —
- 6a *Mafic volcanic rocks.*
- 6b *Felsic volcanic rocks.*
- 6c *Conglomerate, sandstone, shale.*

UNCONFORMITY

EARLY PRECAMBRIAN (ARCHEAN)

FELSIC IGNEOUS AND METAMORPHIC ROCKS[f]

5 —
- 5 *Unsubdivided metamorphic and felsic intrusive rocks.*
- 5a *Massive granitic rocks.*
- 5b *Massive granodiorite and quartz monzonite.*
- 5c *Massive syenite.*
- 5d *Quartz porphyry, feldspar porphyry.*
- 5e *Granitic, granodioritic, dioritic and trondjhemitic gneisses.*
- 5f *Mafic amphibolitic gneisses.*
- 5g *Migmatite.*

INTRUSIVE CONTACT

MAFIC AND ULTRAMAFIC IGNEOUS ROCKS[g]

4 —
- 4 *Mafic intrusive rocks, unsubdivided.*
- 4a *Serpentinite.*
- 4b *Peridotite, pyroxenite, metapyroxenite.*
- 4c *Gabbro, metagabbro.*
- 4d *Diorite.*
- 4e *Massive amphibolite.*

INTRUSIVE CONTACT

METASEDIMENTS[h]

3 —
- 3 *Unsubdivided metasediments.*
- 3a *Conglomerate.*
- 3b *Greywacke, shale, arkose, quartzite.*
- 3c *Quartzo-feldspathic schists and gneisses.*
- 3d *Garnet quartzo-feldspathic schists and gneisses.*
- 3e *Cordierite quartzo-feldspathic schists and gneisses.*
- 3f *Sillimanite quartzo-feldspathic schists and gneisses.*

METAVOLCANICS[j]

FELSIC METAVOLCANICS

2 —
- 2a *Felsic volcanic rocks.*
- 2b *Felsic volcanic rocks with interbedded sedimentary and (or) mafic volcanic rocks.*

MAFIC METAVOLCANICS

1 —
- 1a *Mafic volcanic rocks.*
- 1b *Mafic volcanic rocks with interbedded sedimentary and (or) felsic volcanic rocks.*

IF — IF *Iron formation.*[k]

S — *Sulphide mineralization.*

a *Not shown on this map.*

b *Formerly classed as Lake Superior Sandstone.*

c *Several ages of dikes are included.*

d *Ages uncertain. May be intrusive equivalent of Keweenawan lavas or older.*

e *Recognized only on Michipicoten Island, intrusive into Keweenawan lavas. Presence in other parts of the map area uncertain.*

f *Formerly classed as Algoman. Contacts between rocks of this unit are largely interpretive.*

g *Ages uncertain. Individual intrusives may be any age younger than unit 3. Formerly classed as Haileyburian.*

h *In part, formerly classed as Timiskaming.*

j *In part, formerly classed as Keewatin.*

k *Iron formation (associated with formations of stratigraphic units 1, 2 and 3).*

The letter "G" preceeding a rock unit number, for example "G10a", indicates interpretation from geophysical data (in large drift covered, or unmapped areas).

SYMBOLS

Geological boundary.

Synclinal axis.

Anticlinal axis.

Fault.

Lineament.

1073' — *Altitude in feet above mean sea level.*

Railway with station or flagstop.

17 — *Provincial highway.*

Motor road.

Other road.

Aircraft landing facilities.

Larger community.

Smaller community.

Producing mine.

Past producing mine.

Mineral occurrence.

THUNDER BAY — *Mining Division with boundary.*

International boundary.

District boundary.

Township boundary, base or meridian line.

Township boundary, unsurveyed.

A B — *Line of section.*

METAL AND MINERAL REFERENCE

Ag	Silver	Mo	Molybdenum
As	Arsenic	Nb	Niobium
asb	Asbestos	Ni	Nickel
Au	Gold	neph	Nepheline
be	Beryl	Pb	Lead
Cd	Cadmium	py	Pyrite
Ce	Cerium	talc	Talc
Cu	Copper	Ti	Titanium
Fe	Iron	V	Vanadium
Li	Lithium	W	Tungsten
Mn	Manganese	Zn	Zinc

Legend from Map 2220

Manitouwadge-Wawa Sheet