Green Giant Project Fotadrevo, Province of Toliara, Madagascar

Technical Report Update NI 43-101

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Agence de Promotion du Secteur Minier ..... ASPM
Ariary Madagascan Currency ..... MGA
Betsimisaraka Suture ..... BS
Bureau du Cadastre Minier de Madagascar ..... BCMM
Bureau de Recherches Géologiques et Minières (France) ..... BRGM
Cobalt ..... Co
Copper ..... Cu
Diamond Drill Hole ..... DDH
Free Acid Titration ..... FAT
Free Acid ..... FA
Gigaannum ..... Ga
Gold ..... Au
Hydrochloric Acid ..... HCl
Induced Coupled Plasma ..... ICP
Madagascar Minerals & Resources SARL ..... MMR
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Qualified Persons ..... QPs
Quality Assurance/Quality Control ..... QA/QC
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Sulphuric Acid ..... H_2SO_4
Taiga Consultants Ltd. ..... Taiga
Three Dimensional 3D
Universal Transverse Mercator ..... UTM
Uranium Star Corporation ..... Uranium Star
Uranium Star Minerals SARL ..... USM
Uranium ..... U
Vanadium Pentoxide ..... V_2O_5
Vanadium V
Volcanic Massive Sulphide ..... VMS

Whole Rock Analysis ..... WRA
X-Ray Fluorescence ..... XRF

Units of Measure

Centimetres ..... cm
Degrees ..... °
Degrees Celsius ..... °C
Feet ..... ft
Grams ..... g
Grams per litre ..... g/L
Hectares ..... ha
Kilogram per tonne ..... kg/t
Kilograms ..... kg
Kilovolt-amp ..... KVA
Metre ..... m
Metres above sea level ..... masl
Milligrams per litre ..... mg/L
Millilitres ..... mL
Million tonnes ..... Mt
Part per billion ..... ppb
Parts per million ..... ppm
10,000 parts per million = 1% ..... ppm vs. %
Percent ..... %
Tonne ..... t

1 SUMMARY

Energizer Resources Inc. (Energizer) (formerly Uranium Star Corp.) has commissioned AGP Mining Consultants Inc. (AGP) to update the mineral resource estimate described in the NI 43-101 Technical Report for the Green Giant Property in Madagascar dated June 18, 2010. This resource update includes drilling carried out by Energizer during the period of May to June 2010 on the Manga and Mainty deposit and also an updated metallurgical study conducted by Mintek (South Africa) and SGS Canada under the supervision of AGP.

The Green Giant project comprises claims located in south-central Madagascar located in the UTM zone 38S on the WGS 84 datum at coordinates 510,000 E 7,350,000 N, 145 km southeast of the city of Toliara, in the Tulear region/Fotadrevo, covering an area of 225 km^2 situated in two separate blocks. The property is composed of two separate groups of four and two Research Permits respectively. Energizer Resources Inc. (Energizer) has acquired an indirect 100% interest in the property from Madagascar Minerals and Resources (MMR).

The property is located in an area that has abundant access via a network of seasonal secondary roads radiating outward from the village of Fotadrevo. Fotadrevo in turn has access to a regional road system that leads to the regional capital of Toliara. Dry semi-desert climate subjected to seasonal cyclonic rainfall characterize the region and the property. The rocks in the region are oxidized to a shallow depth, usually less than 10 m.

The property is underlain by highly metamorphosed and sheared quarto-feldspathic ± biotite ± garnet gneisses, metasedimentary rocks (marble, chert, quartzite, and iron formation), hornblende biotite gneiss and minor amphibolite, graphitic schist, and granitoid generally striking 010°. Two main directions of faulting occur on the property, parallel to foliation and 320°. There are no known historic mineral occurrences on the property.

Energizer retained Taiga Consultants Ltd. (Taiga) to manage the exploration activities of the Green Giant Project and AGP Mining Consultants Inc. (AGP) to provide an independent Mineral Resource Estimate and Technical Report for the Green Giant Property. Work completed on the Green Giant Property from 2007 through to 2009 by Taiga has been detailed in series of internal company report and also in three earlier NI 43-101 compliant report available for download on SEDAR.

Energizer initially completed a Joint Venture agreement with Madagascar Minerals & Resources SARL (MMR) of Madagascar for a 75% interest in the Green Giant project. A subsequent purchase and sale agreement for the remaining 25% has resulted in Energizer now owning an indirect 100% interest in the property.

The discovery of potentially economic vanadium mineralization on the property changed the focus of the 2008 diamond-drilling program. Through a combination of prospecting, ground based scintillometer surveying, and analysis of a published airborne radiometric survey, five extensive vanadium-bearing trends were identified during the 2008 exploration program. These vanadiferous trends are theorized to have formed in a black shale or paleo-roll-front environment before being subjected to regional granulite facies metamorphism. Energizer selected the Jaky and Manga vanadium-bearing trend as the most prospective targets on the property and focus the late 2009-drill program at delineating Inferred and Indicated resources on these two deposits. In 2010, Energizer continues to expand the resources on the Manga deposit in addition to delineating Inferred and Indicated resources on the Mainty deposit.

Various metallurgical scoping test programs have been completed since Q4 2009, covering physical and chemical preconcentration processes, acid and alkaline leaching (atmospheric and pressure), alkaline salt roasting and high definition mineralogical characterisation.

Mineralogical characterisation of several silicate samples has revealed a unique deportment of vanadium at Green Giant. Vanadium bearing minerals include clays, micas, oxides, and sulphides. The vanadium deportment for three recent silicate composites is summarized in Table 1-1.

Table 1-1: Vanadium Deportment, Mass % – Summary

Mineral	HMC (%)	MPC (%)	Silicate (%)
Other	0.0	0.1	0.1
Rutile	1.7	1.3	2.0
Pyrrhotite	0.4	2.0	0.5
Other Micas/Clays	0.7	4.0	3.0
Sillimanite	1.3	0.2	0.0
Cordierite	3.0	5.1	4.2
Phlogophite (low-V)	53.5	5.0	5.8
Phlogophite (high-V)	26.1	19.5	26.1
Roscoelite	14.5	11.1	15.0
V-Phosphate	0.7	0.0	0
V-Oxides	28.6	22.6	18.6
V-Fe Sulphide	17.4	29.2	24.6

Clearly, vanadium is spread across a range of mineral types, but is primarily found in Phlogophite (of various V tenors) Oxides and sulphides. Gangue minerals of note include quartz (generally 30-40% of sample mass) K-feldspar (10% of sample mass) and graphite

(<10% of sample mass). Similar work completed in 2009 suggests that the oxide zone differs mineralogically in that a greater percentage of vanadium occurs in oxide minerals, with less in clays/micas and none in sulphides.

Leaching with sulphuric acid can achieve high vanadium extractions (up to 77%), but always at the expense of acid consumption and leach liquor quality. Acid consumptions have varied, but have generally been in the 3 to 500 kg/t range. The vigorous co-extraction of elements such as aluminium, magnesium, and iron is considered detrimental to downstream processes, and is also believed to be responsible for the high acid consumption.

Leaching with alkaline lixiviants such as soda ash (Na_2CO_3) and caustic soda (NaOH) has historically not resulted in high vanadium extractions. Pressure leaching with soda ash at Mintek (Phase 2) resulted in 30% to 40% vanadium extraction, which although lower than the acid-based leach results, was significantly higher than atmospheric alkaline leach extractions. The more selective alkaline lixiviants provide much cleaner leach liquors, with minimal co-extraction of problematic elements.

Early Phase 3 alkaline pressure leach tests observed an excess of micaceous material in leach residues, and it was postulated that the vanadium-bearing micas (phlogophite) might be more resistant to alkaline leaching. An oxidative pre-roast was introduced to the treatment process, with a resultant 25% increase in vanadium extraction rate. Comparing leach residues, the micaceous material was no longer present after pre-roasting. Further work is recommended to optimize conditions, but the most encouraging extraction results to date have been achieved on pre-roasted samples, using concentrated soda ash as a lixiviant at high temperature.

Table 1-2 shows a summary of the more encouraging alkaline batch-leach test-results.

Table 1-2: Phase 3 Alkaline Leach Results – Summary

PL	V_2O_5 Extraction	Roasting	Grind K_{80}	Feed % Solids	Na_2CO_3 kg/t	Na_2CO_3 g/L	°C	Hours
10	80.6	pre-roast – 1,000 °C / 3 h	105	10	n/r	100	240	4
11	82.0	pre-roast – 1,100 °C / 3 h	105	10	n/r	100	240	4
18	75.3	pre-roast – 1,100 °C / 3 h	105	10	147	50	220	4
20	64.0	pre-roast – 1,100 °C / 3 h	105	30	71	50	220	4

As the project develops, further scoping work is essential to allow optimization of the roast and leach conditions for both silicate and oxide samples from all zones.

The metallurgical processes tested would undoubtedly benefit from higher head grades. It is therefore important that future metallurgical programs asses the influence of higher feed vanadium concentrations.

Effective November 30, 2010, AGP has estimated the mineral resources for the Green Giant property in Madagascar. The mineral deposits on this property have been divided into three separate zones, which are referred to as the Jaky, Manga, and Mainty deposits. This mineral resource estimate utilized approximately 18,832 m of diamond drill hole data from the 2008, 2009, and 2010 drill program and was supplemented by approximately 5,928 m of trench data from the 2008 and 2009 exploration programs. No additional work was carried out on the Jaky deposit; therefore, the resources are merely re-stated from the NI43-101 report dated June 18, 2010.

The Jaky, Manga, and Mainty resource estimate is comprised of Indicated and Inferred resources reported as vanadium pentoxide mineralization at a base case cutoff grade of 0.5% V_2O_5.

The method employed to select the base case cutoff grade was to consider the mineralogical characteristic, envisioned mining methods and comparable Vanadium projects worldwide. Futher work is required to more accurately determine the optimum economic cutoff grade, and this is recommended as part of the Preliminary Economic Assessment.

The vanadium deposits on the Green Giant property are split into two separate categories: oxide and primary. The following resource values were determined at a 0.5% V_2O_5 cutoff. Within the oxide and primary zones of the Jaky, Manga, and Mainty deposits, the total Indicated resource (Table 17-10) is 49.5 Mt at 0.693% V_2O_5, containing 756.3 Mlb of vanadium pentoxide. The total Inferred resource (Table 17-11) is 9.7 Mt at a grade of 0.632% V_2O_5, containing 134.5 Mlb of vanadium pentoxide. Since no additional work was conducted, mineral resources at the Green Giant Property were classified using logic consistent with the CIM definitions referred to in NI 43-101 guidelines. This independent mineral resource estimate and review conducted by AGP supports the disclosure by Energizer of the mineral resource statement for the Jaky, Manga, and Mainty deposit dated November 30, 2010.

2 INTRODUCTION AND TERMS OF REFERENCE

This report describes the results of an updated mineral resource estimation of the Green Giant Project, located in southern Madagascar, which is owned by Energizer Resources Inc. (Energizer) based in Toronto, Canada. This report is written to comply with standards set out in National Instrument 43-101 (NI 43-101) by the Canadian Securities Administration. It was prepared at the request of Ms. Julie Lee Harrs, President and COO of Energizer.

Taiga Consultants Ltd. (Taiga) manages all exploration activities of the Green Giant Project since 2007. The project is in exploration stage and there are no known historical mineral resources of any kind within its boundaries that predate the NI 43-101 standards.

Three technical reports have been filed on the Green Giant project. The oldest report titled "Geological Evaluation of the Three Horses Property Fotadrevo, Province of Toliara, Madagascar" was authored by Scherba and Chisholm and is dated June 26, 2008. The report was commission by Energizer under its former name of Uranium Star. Since then, the Three Horses Property has been renamed the Green Giant Property.

The second report is dated November 27, 2009, and titled "Technical Report Update NI 43-101, Fotadrevo, Province of Toliara, Madagascar" was authored by Mr T. McCracken and Mr. A Holloway of PEG Mining Consultants and filed on SEDAR.

The most recent report dated June 18, 2010, and titled "Technical Report Update NI 43-101, Fotadrevo, Province of Toliara, Madagascar" was authored by Mr. P. Desautels, Mr T. McCracken, and Mr. A Holloway of PEG Mining Consultants and filed on SEDAR. Much of the information presented in this report from Sections 4 through 13 and Sections 15 was sourced from this report with updates sourced from an internal company report dated October 2010 and titled "Geological Evaluation of the Green Giant Property" author by C. Scherba of Taiga Consultants Ltd.

Unless specified, all measurements in this Technical Report use the metric system. Universal Transverse Mercator (UTM) coordinates are used within this report, and are reported in UTM zone 38S, WGS 84 datum. The report currency is expressed in US dollars.

The sections on Mining Operations, Process Metal Recoveries, Markets, Contracts, Environmental Considerations, Other Relevant Data and Information, Taxes, Capital and Operating Cost Estimates, Economic Analysis, Payback, and Mine Life, are not applicable to this report. All Illustrations are embedded within the body of the report.

2.1 Qualified Persons

Table 2-1 shows a list of the Qualified Persons (QPs), as defined in NI 43–101 and in compliance with Form 43–101 F1 (the "Technical Report"), responsible for the preparation of this report.

Table 2-1: QPs Sections Review and Responsibility

Qualified Person	Site Visit	Report Sections of Responsibility
Pierre Desautels	N/A	Section 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14.3, 14.4, 14.5, 15, 17, 18, 19, 20, 21, 22, and 23, and those portions of the summary, conclusions, and recommendations that pertain to these sections
Todd McCracken	October 7 to 16, 2009	Site visit, Section 14 with the exception of the assay validation in Section 14.3, Section 14.4 and the 2010 QA/QC in Section 14.5
Andy Holloway	May 12 to 14, 2010	Site Visit and Section 16

2.2 Site Visits

On behalf of PEG, Todd McCracken, P.Geo., visited the property to conduct an independent review during October 7 to 16, 2009. Only results up to September 2009 have been received and reviewed by Mr. McCracken.

In June 2010, PEG Mining Consultants dissolve and the technical team originally involved in the project is now working under the AGP Mining Consultant Inc. banner. For clarity, all references to the PEG Mining Consultants Inc. (PEG) in the remainder of this report was converted to AGP Mining consultants (AGP).

Following the original site visit by Mr. McCracken, Andy Holloway, P.Eng., CEng., of AGP Mining Consultant Inc. subsequently visited the property from May 12 to 14, 2010 to supervise the collection of the Phase 3 metallurgical samples.

3 RELIANCE ON OTHER EXPERTS

AGP has followed standard professional procedures in preparing the content of this report. Data used in this report has been verified where possible, and this report is based on information believed to be accurate at the time of its completion.

The QPs, authors of this Technical Report, state that they are qualified persons for those areas as identified in the appropriate QP "Certificate of Qualified Person" attached to this report. The authors have relied on and disclaim responsibility for information derived from the following reports pertaining to mineral rights permitting issues.

3.1 Mineral Tenure

AGP's QPs have not reviewed the mineral tenure nor have they independently verified the legal status or ownership of the Project area or underlying property agreements. AGP has relied on Energizer experts and independent experts retained by Energizer.

3.2 Permitting

Regarding the status of the current permits, AGP's QPs have relied on information, opinions, and data supplied by Energizer representatives and by independent experts retained by Energizer.

3.3 General

Property information in this report is sourced from photocopies of official documents, which has been supplied by Energizer. The authors are not responsible for the accuracy of any property data, and do not make any claim or state any opinion as to the validity of the property disposition described herein.

For the preparation of this report, the authors have relied on maps, documents, and electronic files generated by the current and past exploration crews, contributing consultants, and service providers working under their supervision. To the extent possible under the mandate of a NI 43-101 review, the data has been verified with regard to the material facts relating to the prospectiveness of the property reviewed in this report.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Location

The Green Giant Project is located in south-central Madagascar, 145 km southeast of the city of Toliara, in the Tulear region/Fotadrevo (Figure 4-1). The property comprises of two separate blocks, the Ianapera and Green Giant blocks are a combined 225 km^2 in area. The Green Giant property, the subject of this report, is 188 km^2. The project is centred on UTM coordinates 510,000 E 7,350,000 N (UTM WGS 84). Madagascar designates individual claims by a central LaBorde UTM location point, comprising a square with an area of 6.25 km^2, the block area extending 1.25 km in all directions from this central point.

The village of Fotadrevo is situated within the southwestern edge of the southern Green Giant project block.

4.2 Company Name Change

During the course of the exploration programs, Energizer changed the name of the project from Three Horses to Green Giant in the spring of 2009. At the Special and Annual Shareholders' meeting held on December 9, 2009, the Company's shareholders approved a change of the Company's name from Uranium Star Corp. (trading symbol "URST" on the OTC BB, now ENZR) to Energizer Resources Inc. Energizer Resources Inc. also commenced its trading on the TSX Venture Exchange (TSX-V) on May 5, 2010, under the trading symbol "EGZ."

4.3 Property Title and Land Tenure

The claims were previously held in the name of MMR, controlled by Director Cyriaque Mamy Cheung of Antananarivo. A Joint Venture agreement was entered into with MMR in 2007, which resulted in Energizer owning a 75% interest in the Green Giant property.

As stated earlier, Uranium Star Minerals SARL (USM) holder of the mining permits by way of an Extraordinary General Meeting dated April 6, 2010, approved a change of its name to Energizer Resources Minerals SARL (ERM). Mining rights to the property are shown in Table 4-1 and Figure 4-2.

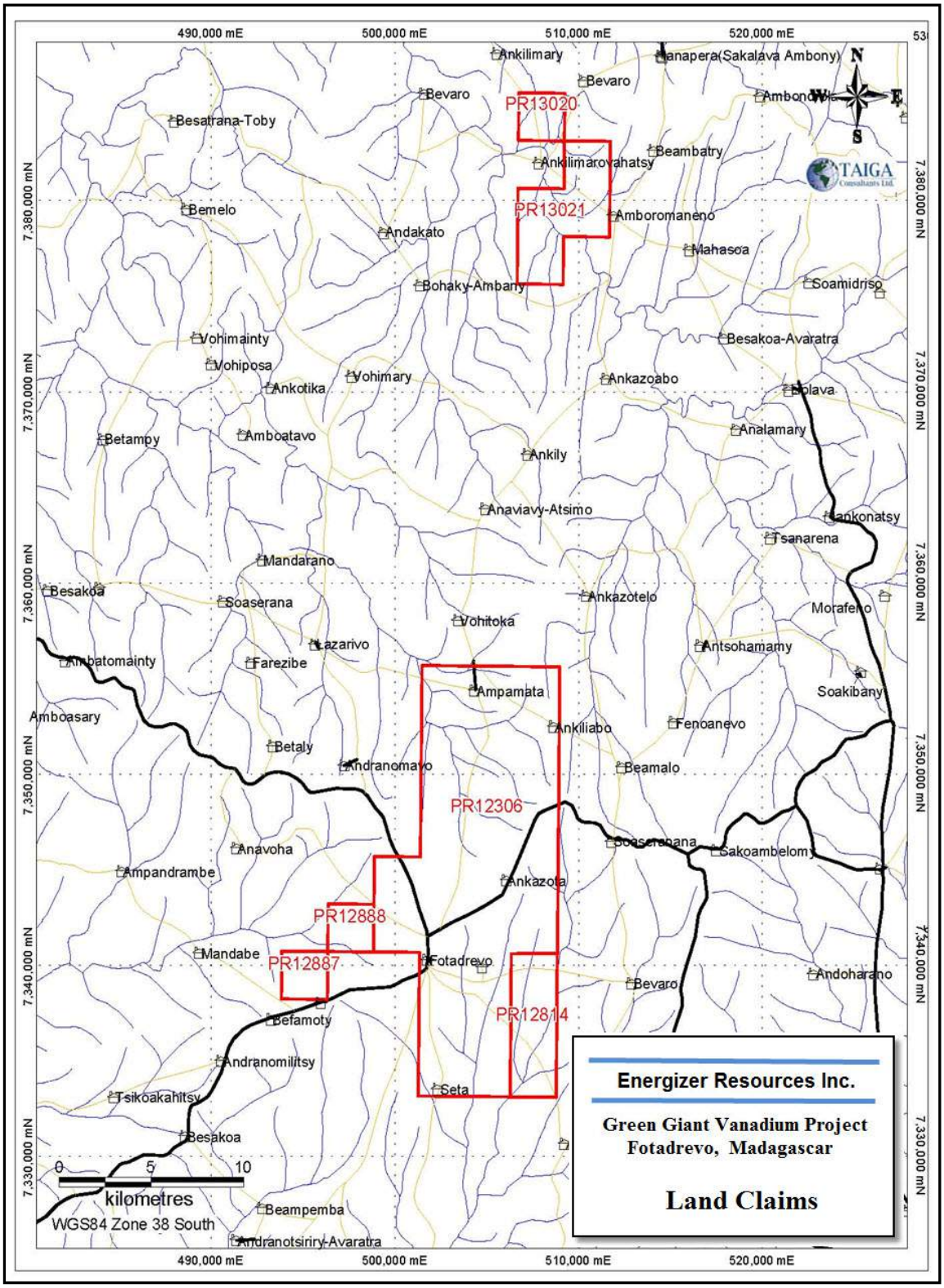
The change of name was officially registered by the Registrar of Commerce and of Companies in Antananarivo Madagascar on May 12, 2010.

Figure 4-1: Property Location

Table 4-1: Claims Status

Permit	Square #	LaBorde Projection X	LaBorde Projection Y	WGS 84, Zone 38 South UTMX	WGS 84, Zone 38 South UTMY	Date Granted dd/mm/yyyy	Expiration date dd/mm/yyyy
Green Giant Property							
PR12306	21275	253750	231250	500104.92	7341934.36	09/11/2004	09/11/2014
PR12306	21275	253750	233750	500127.07	7344434.45	09/11/2004	09/11/2014
PR12306	21275	256250	223750	502538.59	7334411.96	09/11/2004	09/11/2014
PR12306	21275	256250	226250	502560.72	7336912.05	09/11/2004	09/11/2014
PR12306	21275	256250	228750	502582.86	7339412.12	09/11/2004	09/11/2014
PR12306	21275	256250	231250	502605	7341912.21	09/11/2004	09/11/2014
PR12306	21275	256250	233750	502627.16	7344412.3	09/11/2004	09/11/2014
PR12306	21275	256250	236250	502649.32	7346912.39	09/11/2004	09/11/2014
PR12306	21275	256250	238750	502671.49	7349412.48	09/11/2004	09/11/2014
PR12306	21275	256250	241250	502693.66	7351912.57	09/11/2004	09/11/2014
PR12306	21275	256250	243750	502715.83	7354412.66	09/11/2004	09/11/2014
PR12306	21275	258750	223750	505038.66	7334389.84	09/11/2004	09/11/2014
PR12306	21275	258750	226250	505060.8	7336889.92	09/11/2004	09/11/2014
PR12306	21275	258750	228750	505082.94	7339389.99	09/11/2004	09/11/2014
PR12306	21275	258750	231250	505105.08	7341890.06	09/11/2004	09/11/2014
PR12306	21275	258750	233750	505127.24	7344390.14	09/11/2004	09/11/2014
PR12306	21275	258750	236250	505149.41	7346890.22	09/11/2004	09/11/2014
PR12306	21275	258750	238750	505171.57	7349390.31	09/11/2004	09/11/2014
PR12306	21275	258750	241250	505193.75	7351890.4	09/11/2004	09/11/2014
PR12306	21275	258750	243750	505215.93	7354390.48	09/11/2004	09/11/2014
PR12306	21275	261250	231250	507605.16	7341867.91	09/11/2004	09/11/2014
PR12306	21275	261250	233750	507627.32	7344367.99	09/11/2004	09/11/2014
PR12306	21275	261250	236250	507649.49	7346868.06	09/11/2004	09/11/2014
PR12306	21275	261250	238750	507671.65	7349368.14	09/11/2004	09/11/2014
PR12306	21275	261250	241250	507693.83	7351868.22	09/11/2004	09/11/2014
PR12306	21275	261250	243750	507716.02	7354368.29	09/11/2004	09/11/2014
PR12888	129	251250	231250	497604.82	7341956.51	26/01/2005	26/01/2015
PR12887	128	248750	228750	495082.58	7339478.55	26/01/2005	26/01/2015
PR12814	126	261250	223750	507538.73	7334367.7	26/01/2005	26/01/2015
PR12814	126	261250	226250	507560.86	7336867.77	26/01/2005	26/01/2015
PR12814	126	261250	228750	507583.01	7339367.83	26/01/2005	26/01/2015
Ianapera Property							
PR13020	132	261250	273750	507982.65	7384369.46	26/01/2005	26/01/2015
PR13021	133	261250	266250	507915.92	7376869.15	26/01/2005	26/01/2015
PR13021	133	261250	268750	507938.16	7379369.25	26/01/2005	26/01/2015
PR13021	133	263750	268750	510438.27	7379347.01	26/01/2005	26/01/2015
PR13021	133	263750	271250	510460.5	7381847.12	26/01/2005	26/01/2015

Figure 4-2: Land Claims



Shares held by MMR in USM/ERM were purchased entirely by THB Venture Limited (THB), a private company duly incorporated in Mauritius, bearing file number 079631 C2/GBL. Energizer Resources Inc. holds 100% of the shares in THB.

Energizer reports that URST and MMR completed a purchase and sale agreement on July 9, 2009, which gave URST the exclusive right to purchase the remaining 25% of the Green Giant project from MMR for the sum of US$100,000. In conjunction with the transaction, URST agreed to grant MMR a 2% Net Smelter Return (NSR) Royalty with URST having a "buyback" option, but not an obligation, to purchase the first 1% of the NSR for US$500,000. Upon exercising its option to purchase the first 1%, URST then has a further "buyback" option, but not an obligation, to purchase the second 1% of the NSR for US$1,000,000. Payments for the purchase of the NSR are payable in cash or equivalent shares at URST's sole discretion.

USM, as a locally incorporated joint venture subsidiary, can apply directly under the LGIM (Law on large investment in Mining) for customs exemptions for importing exploration and development materials.

Table 4-2 shows the property according to the mining permits.

Table 4-2: Mining Permits

Permit Number	Number of Squares	Square Kilometres
PR 12306	416	162.5
PR 12888	16	6.25
PR 12887	16	6.25
PR 12814	48	18.75
PR 13020	16	6.25
PR 13021	64	25
Total	**576**	**225**

The claims were acquired by MMR under the rules of the *Code Minier 1999*. Some limited amendments have been instituted to the Code by *Decret 2005-021,* which the Bureau du Cadastre Minier de Madagascar (BCMM), the administration body for mining permits, has published in a handout dated 2006, available in their office in Antananarivo. The amendments relate to the reduction of the permit duration (from 10 years to 5) and permittable *square* size (from 2.5 km x 2.5 km to 625 m x 625 m), and changes to the fees applied. Upon passage of the new decree, pre-existing old squares were converted to new squares, and pre-existing properties are now governed by the tenets of *Decret 2005-021*.

The updated Decret requires the payment of annual administration fees of Permits Research of 15,000 Ariary (MGA). The conversion rate (as at 30 November 2010) is approximately 1,992 Ariary to one US dollar. Annual fees are equivalent to roughly US$9 for research

permits and US$28 for exploitation permits in years one and two. Annual fees increase by multiplying by a factor equivalent to the number of years (plus 1) that the permit has been held by the company. Research permits have an updated duration of five years, with the possibility of two renewals of an additional three years each. Five of the permits (10 squares) are in Year 5, while one permit (26 squares) is in Year 6, therefore the next administration fee will be 30,000 MGA per square. Payments of the administration fees are due on March 31 of each year, along with the submission of an activity report.

Reporting requirements of exploration activities carried out by the titleholder on a Research Permit are relatively light. A titleholder must maintain a diary of events and record the names and dates present of persons active on the project. In addition, a site plan with a scale between 1/100 and 1/10,000 showing "a map of the work completed" must be presented.

Permit ownership is readily transferable. Upon establishment of a resource, Research Permits are readily transferable into Exploitation Permits by application.

The properties have not been legally surveyed; however, since all claim boundaries conform to the predetermined rectilinear LaBorde Projection grid, these can be readily located on the ground by use of Global Positioning System instruments.

Most current GPS units and software packages do not offer LaBorde among their available options, and therefore defined shifts have to be employed to display LaBorde data in the WGS 84 system. For convenience, all Energizer positional data is collected in WGS 84, and if necessary converted back to LaBorde.

4.4 Government Policy and Outlook Regarding the Mining Industry

The Malagasy Government embarked on an economic revival plan in 2000. The Ministry of Energy and Mines had already initiated reform through the PRSM program (*Projet de Reforme du Secteur Minier*) with the introduction of the new Mining Code in 1999 and the establishment of the Mining Titles (Cadastral) Registry (*Bureau du Cadastre Minier de Madagascar*, or BCMM) in 2000. These initiatives are already attracting new investors to Madagascar, including both junior and senior mining companies, to explore and develop the country's mineral endowment within a stable, transparent legal and regulatory framework.

During 2003, in furtherance of its economic policy, the Ministry commenced the 5-year PGRM program (*Projet de Gouvernances des Ressources Minérales*) with the following objectives:

- further improvement and enforcement of the legal and statutory framework, particularly with respect to mining

- promoting investment in the minerals sector through a dedicated ASPM (*Agence de Promotion du Secteur Minier*)
- improving the geoscientific knowledge of Madagascar through geophysical surveys, geological mapping, and remote sensing, with appropriate staff training to support mapping projects
- certification of and improvements in marketing gems
- creating community based system for artisanal and small scale mining, called 'Tan-tsoroka,' intended to help finance and promote sustainable mining activity
- together with addressing environmental health and safety issues, contribute to poverty reduction.

According to international news sources, in early November 2009 a power-sharing coalition government agreed to govern the country until the next election, scheduled for late 2010. Based on information provided by the Company, the Green Giant project has not been adversely affected by the political situation in Madagascar during this past year, nor are there any indications that it will be adversely affected going forward.

Energizer has established a Special Advisory Committee (SAC) to manage its Malagasy Government affairs in regard to the Green Giant vanadium project (29 June 2009, Energizer news release). The Committee is chaired by Brian Tobin, P.C., ICD.D, of Fraser Milner Casgrain LLP, who is expected to render political and financial advice to the Company. Contributing to the SAC will be Peter Harder, a former senior bureaucrat in the Department of Foreign Affairs and International Trade Canada. It is expected that the Committee will assist the Company to liaise with the Madagascar government and also provide direction and assistance in the search for strategic partners and project funding.

4.5 Madagascar Environmental Policy

The international donor community, led by the World Bank and USAID, has recognized Madagascar as one of the most unique places in the World, with over 80% of flora and fauna being endemic to the island. As most of Madagascar's inhabitants are agrarian however, many of the ecosystems on the island have been adversely altered through unsustainable subsistence agricultural practices. In an attempt to reconcile the need for both economic development and the establishment of sustainable environmental policies and institutions, the Malagasy government created the Malagasy Office of the Environment in the late 1980s, and signed the National Environmental Action Plan (NEAP), the most ambitious and comprehensive environmental program in Africa.

According to Razafindralambo and Gaylord (2005), the NEAP was launched operationally in 1991 with the following objectives:

- manage the national heritage of biodiversity in protected areas, in conjunction with sustainable development of surrounding areas
- improve human living conditions through protection and better management of natural resources, emphasizing watershed protection, reforestation, agroforestry, and improved water supply and sanitation
- promote environmental education, training, and communication
- improve policy and management
- establish mechanisms for research, managing data, and monitoring the environment.

4.6 Energizer Resources' Environmental Policy

The NEAP does not have a formalized 'best practices' outline for mining companies to follow. As a consequence, Energizer engages Malagasy environmental consultants from AGETIPA (Agence d'Exécution des Travaux d'Intérêt Public d'Antananarivo) to ensure compliance with the NEAP. Additionally, Energizer has adopted the *e3 Plus* exploration guideline (www.pdac.ca/e3plus/) developed by the Prospectors and Developers Association of Canada (PDAC) to help it continuously improve its social, environmental, and health and safety performance, and to comprehensively integrate these three aspects into all of their exploration work. This has involved adopting the following principles for responsible exploration:

1. Adopt responsible governance and management
Objective: To base the operation of exploration on sound management systems, professional excellence, the application of good practices, constructive interaction with stakeholders, and the principles of sustainable development.

2. Apply ethical business practices
Objective: To have management procedures in place that promote honesty, integrity transparency and accountability.

3. Respect human rights
Objective: To promote the principles of the United Nations Universal Declaration of Human Rights by incorporating them into policies and operational procedures for exploration.

4. Commit to project due diligence and risk assessment
Objective: To conduct an evaluation of risks, opportunities and challenges to exploration, and prepare strategies and operational plans to address them before going into the field.

5. Engage host communities and other affected and interested parties
Objective: To interact with communities, indigenous peoples, organizations, groups and individuals on the basis of respect, inclusion and meaningful participation.

6. Contribute to community development and social wellbeing
Objective: To have measures in place which support the social and economic advancement and capacity building of communities whose lives are affected by exploration, while respecting the communities' own vision of development.

7. Protect the environment
Objective: To conduct exploration activities in ways that create minimal disturbance to the environment and people.

8. Safeguard the health and safety of workers and the local population
Objective: To be proactive in implementing good practices for health and safety performance in all exploration activities and seek continual improvement.

Energizer has tried to integrate the *e3 Plus* principles into its exploration activities through:

- Employing an Antananarivo-based Country Manager who is responsible for continuously liaising with government officials and ensuring the Company complies with all environmental and mining policy
- Not promoting corruption by having a 'no bribery' policy
- Ensuring a safe and healthy work place, and protecting all employees, contractors and sub-contractors and affected communities from risks and hazards
- Providing compensation, benefits and working conditions that comply with national laws, are consistent with international standards, and compatible with local social and economic circumstances
- Obtaining permission from local land users before conducting any exploration activities
- Conducting its exploration activities in accordance to Canadian 'best practices' in the absence of Malagasy policy
- Integrating sensitivity to local customs and beliefs in exploration activities through continuous consultation with the community
- Mitigating environmental degradation by:
  - Sourcing water for diamond drilling activities from a Company constructed well in the middle of the Manga deposit. This has eliminated the need for water trucks to transport water on local roads and trails, and has not affected water levels at watering holes used by villagers for livestock and personal use
  - Ensuring all vehicles operated by Energizer Resources personnel or its agents on established roads or trails where possible
  - Reclaiming all drill holes and trenches within one week of completion.
- Safeguarding workers and the local population by:
  - Enclosing all open excavations within a fence to mitigate the risk of people or livestock falling in

- Providing workers employed on drilling equipment with Personal Protective Equipment (PPE), and training them in their usage
- Restricting all vehicles operated by Energizer Resources personnel or its agents to a maximum speed of 10 km/h (trucks) and 20 km/h (small vehicles) while driving in or around villages.

5 ACCESSIBILITY, PHYSIOGRAPHY, CLIMATE, INFRASTRUCTURE, AND SECURITY

5.1 Access

Access is via a 70 km paved road from southeastern Madagascar's administrative centre, Toliara, to the village of Andranovory. From Andranovory, secondary all-season roads are used to travel to Betioky, a distance of 93 km. From Betioky the property area can be reached by going via Ambatry to Fotadrevo, a distance of 105 km (268 km total), or from Betioky to Ejeda then onwards to Fotadrevo, a distance of 161 km (324 km total). This second route from Ejeda to Fotadrevo is used by heavy transports and during portions of the rainy season, as the other route quickly becomes impassable. At the height of the rainy season, both routes to Fotadrevo may be largely impassable. Figure 5-1 shows the road access to the Green Giant Property from the town of Toliara (also called Tulear).

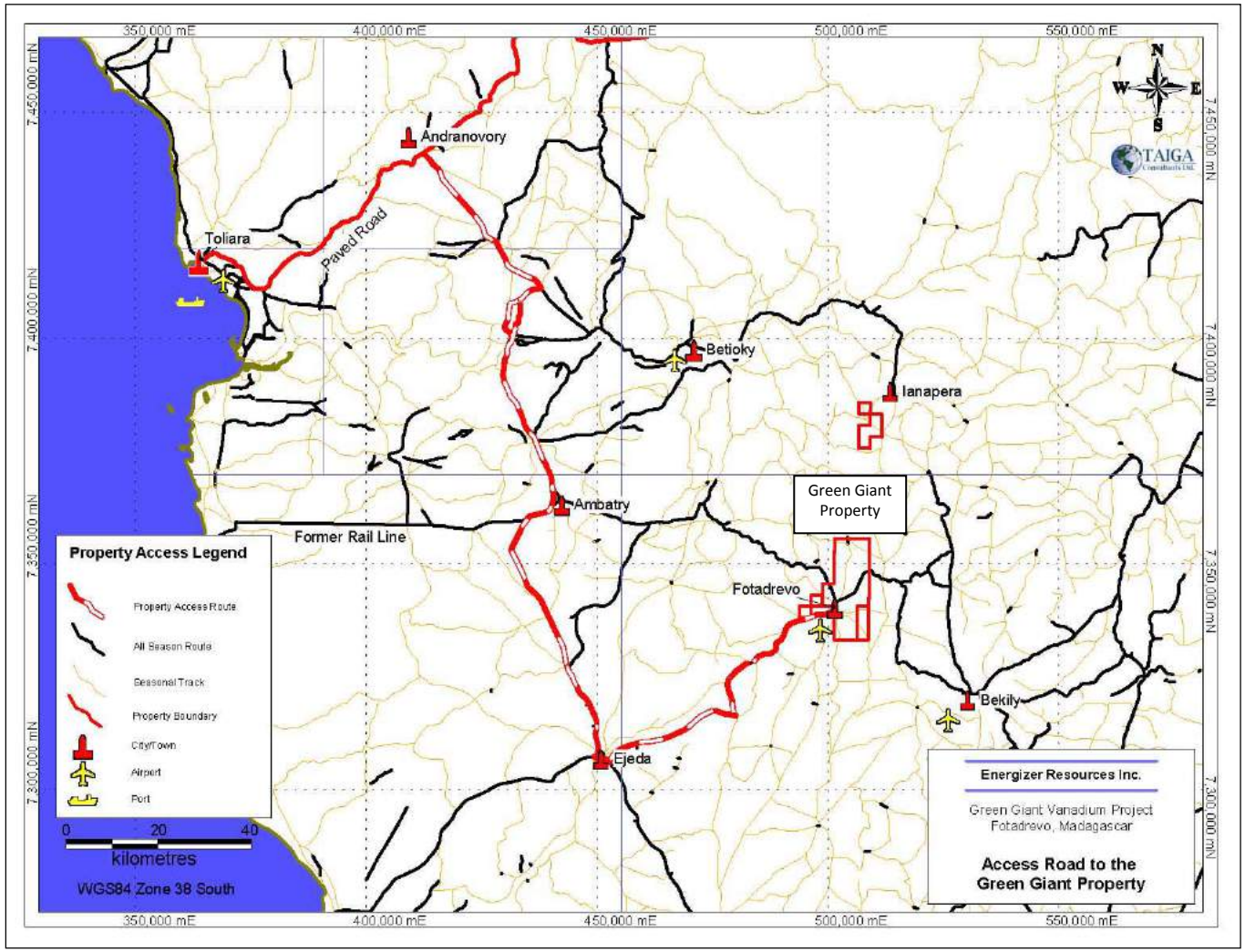
With the construction of an all-weather airstrip at Fotadrevo during the 2008 program, the property is now accessible year-round by air using private aircraft out of Antananarivo. Flying times to the Property are roughly 2.5 hours from Antananarivo and 45 min from Toliara.

The capital, Antananarivo, is currently serviced by Air France out of Paris, South African Airways services to Johannesburg, and Air Mauritius to Mauritius; Air Madagascar also provides services to Paris, Johannesburg, Mauritius, Nairobi, and Réunion. Air Madagascar also has infrequent flights to Bangkok and Milan; domestically, Air Madagascar has regularly scheduled jet and propjet flights throughout the country, including daily flights between Antananarivo and Toliara.

5.2 Physiography

The Green Giant project area is covered by sparse vegetation with scattered termite mounds fairly common, especially over the Fotadrevo Plateau, an area of laterite that dominates the central portion of the property. Grass cover is widespread and trees are widely spaced. Outcrop is fairly extensive. In areas of lower relief, alluvial cover is generally shallow and bedrock and/or float are readily observable. The property encompasses an area of primarily flat to rolling desert- and savannah-like plains, with the plateau of Fotadrevo composed of shallow iron-rich clay, overlying the east-central portion of the property. Elevations range between 500 and 550 masl.

Figure 5-1: Road Access to the Green Giant Property from the Town of Toliara



Typical of the tropics, the surface is subject to lateritic type weathering; however, full laterite profiles are rarely developed within the south climatic zone. It is assumed that aggressive erosion occurs during the cyclone season, which strips weathered material from the profile and prevents fully developed laterite zones from forming. The recent drilling on the property indicated that the weathered profile is less than 10 m thick in the region, which is roughly one third of that seen in other parts of the island and on the adjacent African continent. This should be kept in mind as it is bound to have significant effects in regards to interpretation of exploration data.

5.3 Climate

Five climatic zones divide Madagascar. The Green Giant project falls within the semi-desertic South zone, with elevated temperatures year round peaking in the hot season at an average of over 30°C. The climate is dominated by southeastern trade winds originating in the Indian Ocean anticyclone, a centre of high atmospheric pressure that seasonally changes its position over the ocean. Madagascar has two seasons, a hot, rainy season from December to March/April, and a cooler dry season from April/May to November. Total rainfall is sparse within the property area, with yearly precipitation ranging from 30 cm to 50 cm. The rainy season causes difficulty in travels off the main highway.

5.4 Local Resources and Infrastructure

The village of Fotadrevo is located within the southwestern edge of the property area. The village has been a labour source during the exploration programs carried on the property, and would likely provide a portion of the workforce during any future exploration and development. A few basic goods are commercially available in the village; however, the main centre for support of exploration and development is the city of Toliara.

A cellular telephone tower is located in the village of Fotadrevo, which provides convenient coverage for much of the property.

No potable water is currently available within the project area. A water well of 123 mm in diameter has been drilled to a depth of 42 m within the camp compound. This well can provide the camp with non-potable water.

Two 40 kVA diesel-powered generators provide power to the camp facility.

5.5 Security

Madagascar is an island and as such, no border issues or conflicts are known that might affect operations, security, or title in the region. On 18 March 2009, the elected government

of Marc Ravalomanana of the TIKO party was ejected from office by a popular uprising supported by the Madagascar military. His government was replaced by an interim civilian government named the "High Authority for Transition" led by Andry Rajoelina. In May 2010, Mr. Rajoelina unilaterally announced that there would be a constitutional referendum in August 2010, legislative elections in September, and a presidential vote in November in which he would not run. On November 22, 2010, voters in Madagascar have approved the constitutional referendum.

Security of personnel is a company policy directed by management. Considering that the area is predominantly rural, few police or other security patrols are common in the area. There is always a small possibility that local criminal activity might affect operations, and to mitigate this, the company employs the local military forces to accompany field parties away from secure areas. The Madagascar government provides a requested number of regular military troops, at minimum cost to Energizer, to ensure security on the property, on the work site, and for the company's equipment.

6 EXPLORATION HISTORY

In 1985, BRGM produced a country scale compilation of all exploration and mineral inventory data in their files in a three-volume set. Relatively little exploration and development work was completed in Madagascar after the BRGM work and therefore, the volumes are key to retracing historical and comprehensive work. Following independence in 1960, archival research did not reveal evidence of mineral exploration in modern times within the Green Giant region.

A series of excellent 1/100,000 scale geological maps (1952-53) are available for the region surrounding the property (Fotadrevo-Bekily, Ianapera, Sakamena-Sakoa). The property area is covered by 1/100,000 scale topographic map #H-60 Fotadrevo.

The region around the Green Giant property has primarily been explored for base metal type occurrences although colonial geologic services were alert to all kinds of mineral potential in the region. The Besakoa base metal mineral occurrence, located 9 km north of the Green Giant Property hosts the Besakoa polymetallic prospect, which was discovered by BRGM.

Just to the northeast of the Green Giant Property, three stone quarries are currently or have recently been exploiting anorthositic intrusions to produce 20 tonne labradorite blocks for export to Italy for the production of high end, polished dimension stone.

6.1 Property-Scale Exploration History

Prior to the exploration work completed by Energizer in 2007, there is no record of any previous mining or significant exploration activity within the Green Giant Project area. There is local evidence of minor artisanal works and of small exploratory pits for gems and gold made by the local population.

Energizer has retained Taiga Consultants Ltd. of Calgary (Taiga) since 2007, to manage exploration activities on the Green Giant Project. Table 6-1 shows a summary of the exploration activities on the Green Giant property.

Table 6-1: Historical Activities

Date	Activity	Company Responsible
2007	Stream sediment sampling (182 samples) Soil sampling (7.5 line km for 1,684 samples) Prospecting (226 grab samples) Property wide reconnaissance mapping (1:25,000 scale) Detailed geological mapping on selected targets (1:5,000 scale) Trenching (11 trenches for 525 m) Construction of camp Construction of gravel airstrip Repair road from camp to airstrip	Taiga
	Remote sensing interpretation	Earth Resource Surveys Inc. (ERSI)
	Airborne DIGHEM EM and magnetic survey (7,856 line km)	Fugro Airborne Systems
2008	Geological mapping entire project at 1:10,000 scale Prospecting (391 grab samples) Soil sampling (110 line km for 3,509 samples) Stream sediment sampling (311 samples) Scintillometer survey (18 km strike length)	Taiga
	Diamond drilling (33 holes for 4,073 m)	Cartwright Drilling
	Ground HLEM survey (152 km) Ground magnetics survey (419 km)	Spectral Geophysics
2009	Soil XRF survey on lines 200 m apart covering 18 km of strike length	Taiga
	ground scintillometer surveys on lines 200 m apart covering 18 km of strike	
	Trenching program (140 Trenches for 17,105 m)	
	Diamond drilling on Jaky Deposit (27 holes for 4,166 m)	Boart Longyear
	Diamond drilling for metallurgical samples on Jaky (3 holes for 344 m)	Boart Longyear
	Diamond drilling on Manga Deposit (24 holes for 4,422 m)	Boart Longyear
2010	Diamond drilling on Manga, Manga North, Manga South, and Mainty deposits (46 holes for 8,952 m) Prospecting (20 grab samples) Geologic mapping over Manga and Mainty Deposit at 1:5000 scale ERT ground geophysical survey (5.64 km) MAG ground geophysical survey (169.53 km) Gradient Array EM ground geophysical survey (128.82 km)	Boart Longyear Taiga Consultants Ltd. Taiga Consultants Ltd. SOING SOING SOING

7 GEOLOGICAL SETTING

7.1 Regional Geology

Madagascar can be described as formed by two geological entities, the Precambrian crystalline basement, and the much younger overlying Phanerozoic non-metamorphosed sedimentary formations. The central and eastern two-thirds of the island are mainly composed of Archean to Neoproterozoic-aged crystalline basement rocks, made up of metamorphic schist and gneiss intruded by granite and basic igneous rocks. The basement is ringed by a series of five sedimentary basins ranging in age from Permian to Quaternary. To the east, it is also bordered by a narrow band of Cretaceous basalt and rhyolite. The basement is also cut by large volcanic massifs of Jurassic basalt and rhyolite, the eruption of which is related to the breakup of the former Gondwana super-continent.

The geology of the basement of Madagascar is a complex mélange of intercontinental tectonic blocks made up of ancient poly-deformed high-grade metamorphic rocks and later igneous intrusions. The basement of north-central Madagascar is composed of two north-south trending Archean domains. In the northernmost part of the island, the Archean belts are overthrust by the east-west trending belt primarily composed of younger Neoproterozoic rocks metamorphosed up to granulite facies (high-grade) conditions during the Cambrian.

The tectonic and metallogenic framework of the basement has been subdivided (Besairie et al., 1964) into four blocks: the northern Bemarivo Block, the northeastern Antongil Block, the central Antananarivo Block, and the southern Bekily Block. The Green Giant project lies within the bounds of the Bekily Block (Figure 7-1). Later authors (Pitfield et al., 2006) divide the Precambrian basement of Madagascar in a somewhat different manner, with nine tectono-metamorphic units (Figure 7-2). In the case of the region around the Green Giant project both the tectonic block and the tectono-metamorphic unit cover nearly identical areas and therefore these divisions can be used interchangeably.

Figure 7-1: Country Geology – Geological Blocks

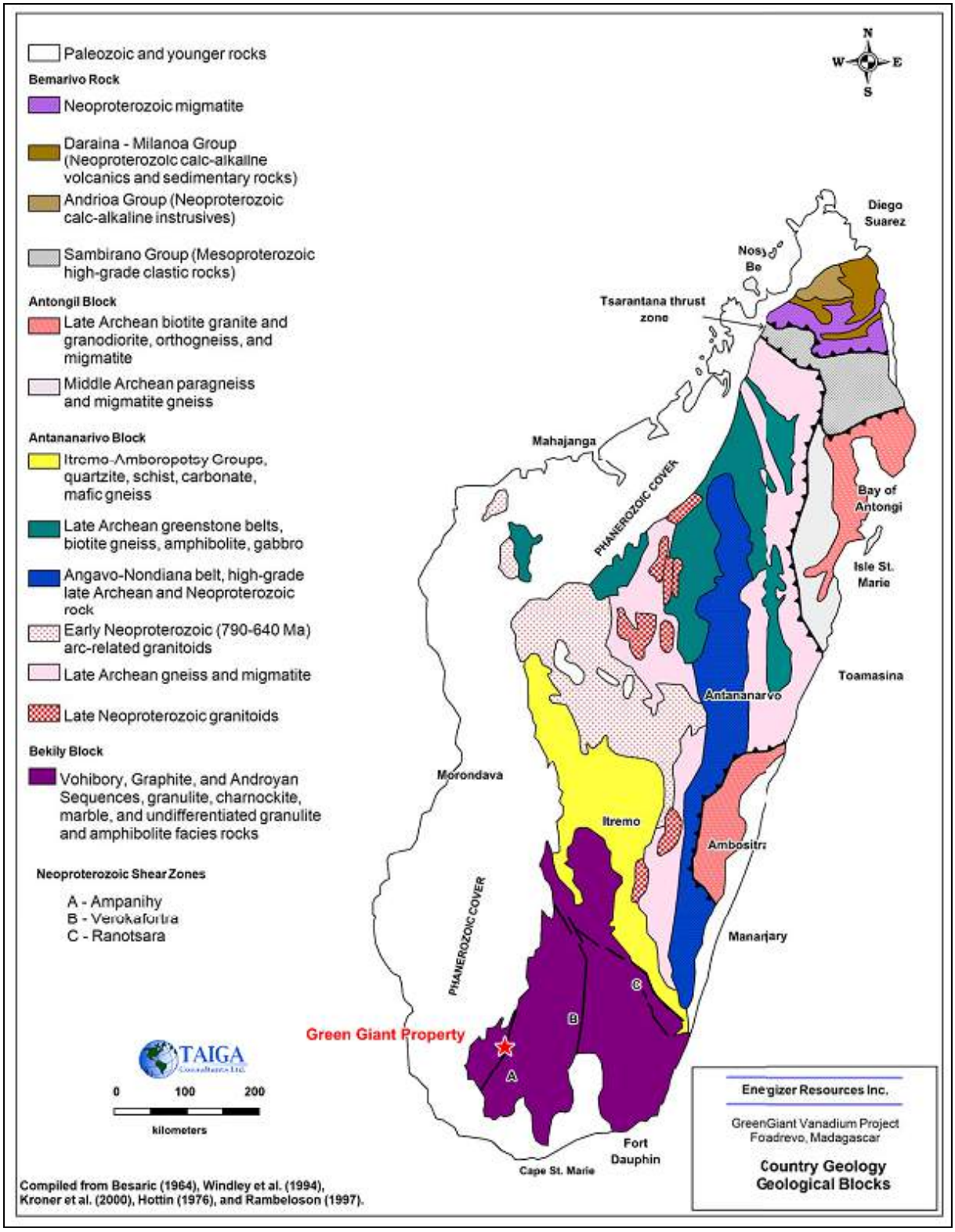
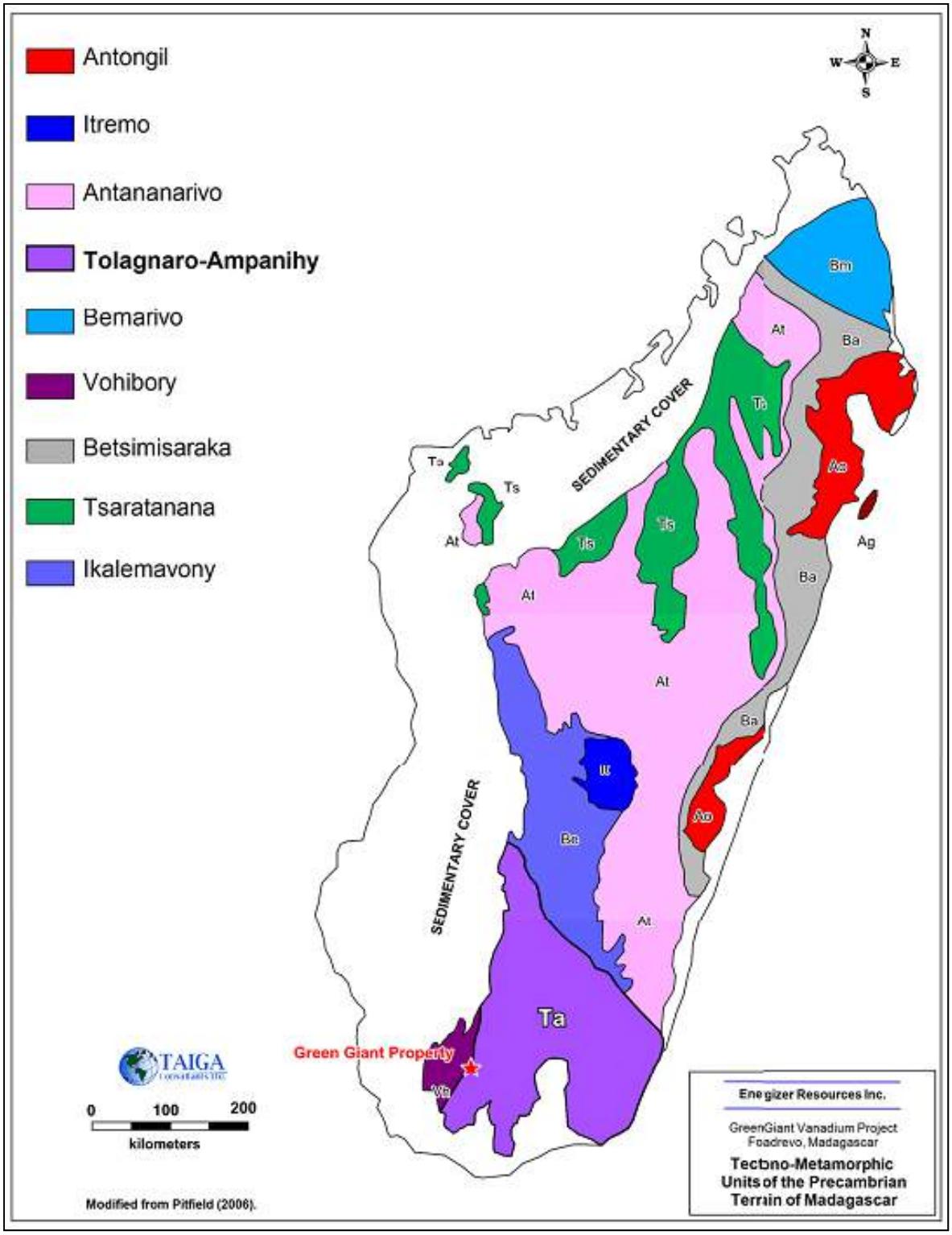


Figure 7-2: Tectono-Metamorphic Units of the Precambrian Terrain of Madagascar



Note: From Pitfield, 2006.

From north to south, the blocks are described below:

- The Bemarivo Block (Neoproterozoic-Mesoproterozoic) is considered a volcanic nappe sequence in the northern part of the country. This fold and thrust complex is composed of meta-sediments and calc-alkaline volcanic, granite, and gneiss that have collectively been thrust across north-central Madagascar during the Mesoproterozoic.
- The Antongil Block (Middle to Late Archean) exposed along the northeast coast is a tectonic fragment derived from the breakup of the western Dharwar craton of southern India. It comprises a complex of foliated and unfoliated granite, tonalite orthogneiss (Paleoarchean protolith age 3,190 Ma), and variably migmatite gneisses with 100s metre-scale lenses of kyanite-grade metasedimentary rocks and sparse bodies of low-grade, ultramafic-intermediate rocks (greenstones). The undeformed granites yield ages in the range 2,540 to 2,510 Ma. Sahantaha shelf sediments of Neoproterozoic age with a Dharwar craton provenance were deposited on the NW passive margin of the Antongil basement.
- The Antananarivo Block (NeoArchean to PaleoProterozoic) of central Madagascar consists of variably migmatitic paragneiss and granitoid orthogneiss with 2.75 to 2.5 Ga protoliths, intruded by voluminous magmatic rocks, formed within an active continental margin setting. The block was later affected by strain along the NNW-SSE Betsimisaraka Suture (BS) zone, tens of kilometres-wide, high strain belt, comprising amphibolite-granulite facies metasediments associated with km-scale lensoid masses of mafic-ultramafic rocks. It marks the line of closure of the Paleo-Mozambique Ocean, separating Central Madagascar from the Antongil Block to the east as a result of westward subduction during the Neoproterozoic. The metasedimentary protoliths were sourced from the Dharwar craton and have depositional ages of 800 to 550 Ma. Eastward thrusting onto the shelf-craton took place between 630 and 515 Ma (Cambrian age).
- The Bekily Block, within which the Green Giant project lies, is situated in the southern part of the country and is thought to be of Proterozoic age. The block is dominated by high-grade metamorphism (Figure 7-1) and is bound by several prominent shear zones. Numerous syntectonic mafic and felsic intrusions occur in the region. The rocks contain frequent graphitic sequences. Two prominent N-S trending late-Neoproterozoic ductile shear zones, (the Ampanihy and Vorokafotra shears), bisect the region, with a third set of en-echelon shears forming part of the NW-striking, early Palaeozoic aged Ranotsara shear zone, which defines the northern edge of the Block. The Green Giant Property is situated within the NNE striking Ampanihy shear zone.

In the Bekily Block, the Tolagnaro-Ampanihy unit (Pitfield et al., 2006) is essentially a modern equivalent to the Bekily Block of Besairie (1964) in terms of area covered. To the west, it is defined as limited by the north-south trending Ampanihy shear zone and is bisected by other

similar structures. The lithologies (gneiss, "leptynite" (translation: *granulite*), marble, and rare amphibolite) are interpreted to reflect a predominantly sedimentary origin with mainly acid volcanic intercalations. The age of the metamorphism and granites has been dated at 570 Ma in the eastern part of the unit. The Green Giant project appears to straddle the transition from high temperature-mid pressure rocks to the east, to high temperature-high pressure metamorphic facies rocks to the west. The Vohibory unit located in the south-western end of this granulite domain is lithologically characterized by the abundance of basic and ultrabasic rocks and by high temperature conditions. The metamorphism is dated at 650 to 630 Ma (Neoproterozoic).

The younger Phanerozoic sedimentary cover is largely restricted to the western side of the island where it covers much of the Ianapera property. The oldest Phanerozoic rocks are Permian-Triassic in age and are found in continental rift basins. Later, the Morondava Basin of Triassic to Miocene age formed along the continental margin, and deposited a coal-bearing transgressive-regressive sequence of arenaceous sediments. These later sediments correlate with the continental Karoo sequence of southern Africa, which was widespread in the former Gondwana Supercontinent.

7.1.1 Southern Madagascar Geology

The Bekily tectonic/metallogenic Block, also referred to as the Androyen region or the Tolagnaro-Ampanihy unit, forms a vast high-grade metasedimentary terrane that has been metamorphosed to granulite facies conditions. This region comprises a complex Neoproterozoic, Precambrian terrain of high-grade metamorphic rocks with a history of polyphase deformation and metamorphism. Two prominent N–S trending late Neoproterozoic ductile shear zones, the Ampanihy and Vorokafotra shears, each with projected strike length of > 450 km and between 10 and 20 km in width, crosscut the region. A third set of en echelon shears forms part of the early Palaeozoic Ranotsara Shear Zone that cuts the basement in a NW-SE direction over a combined strike length of > 400 km. The host rocks of these shears comprise paragneisses (metasediments). De Wit et al. (2001) reports recognizing four episodes of deformation and metamorphism. Two early episodes dated between 627 and 647 Ma of simple shear deformation (D_1 and D_1) at midcrustal levels occurred during which northeast verging recumbent sheath folds and ductile thrusts were formed. Early prolate mineral fabrics (L_1/L_2) are preserved in massif-type anorthosite bodies and their marginal country rocks. D_1 and D_2 deformation occurred between 647 and 627 Ma followed by followed by a 10–15 Ma period of static, annealing metamorphism when bulk shortening (D_3) took place. D_2 and D_3 are coaxial but are separated in time by leucocratic dykes that intruded between 610 and 620 Ma. Between 607 and 609 Ma, D_3 deformation was focused zonally, forming the prominent N–S shear zones; its oblate strain resulted in a strong composite D_2/D_3 fabric defined by subvertical S-tectonites and subhorizontal intersection lineations. A variety of post-D_3 pegmatites accompanied 85 Ma of relatively

static annealing and metasomatic/metamorphic mineral growth, during which numerous occurrences of phlogopite, uranium, and rare earth elements formed. A continuum of concordant monazite dates (520 and 605 Ma) suggests that this thermal event is part of an extended period of low-pressure (3–5 kbar) charnockite-producing processes. Deformation (D_4) recorded within the Ranotsara Shear Zone overlaps with the youngest parts of the regional metamorphic conditions. Between 490 and 530 Ma, prevailing low-pressure, high-temperature amphibolite-granulite facies rapidly gave way to greenschist.

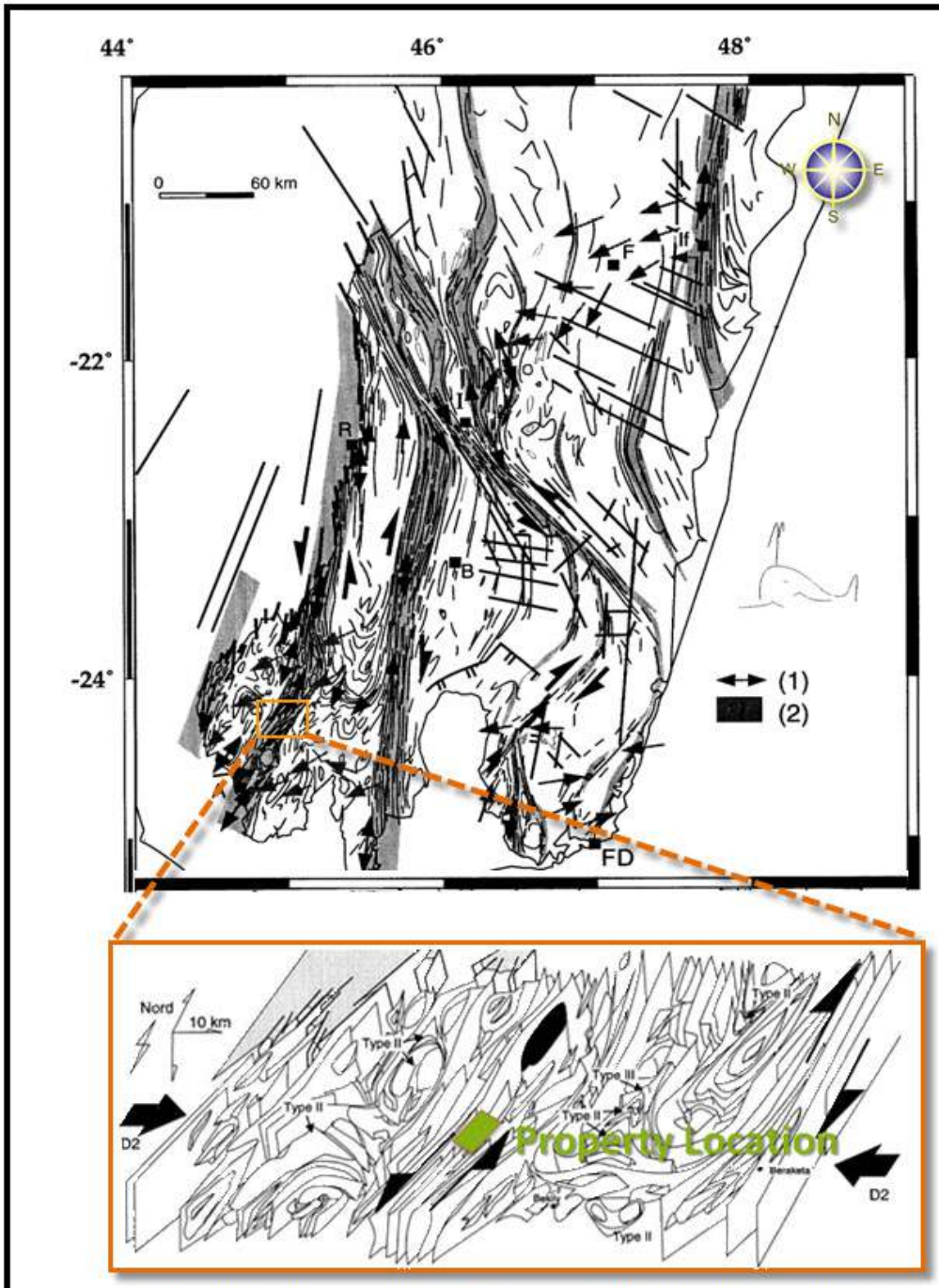
The Green Giant Property is found within the Ampanihy Shear Zone. The most conspicuous feature of rocks found within this regional shear zone is there well developed north-south foliation and vertical to subvertical nature. Martelat et al. (2000) state that this observed bulk strain pattern is clearly related to a transpressional regime during bulk horizontal shortening of heated crust, which resulted in the exhumation of lower crustal material. Figure 7-3 overleaf, illustrates the position of the Green Giant Property, relative to the D2 regional strain pattern, and the resulting Ampanihy Shear Zone.

Four massif-type anorthosite bodies 15 to 100 km^2 in area occur within the Bekily Block. Country rocks include abundant graphitic schist (some with 60% graphite), marble, quartzite, and minor amphibolite and leucogneiss. Metamorphism has produced abundant recrystallization and sporadic coronitic (mineral grains having coronas typical of high-pressure regimes) garnet + clinopyroxene assemblages.

7.2 Property Geology

The Green Giant project is underlain by supracrustal and plutonic rocks of Late Neoproterozoic age that are metamorphosed at upper amphibolite facies and deformed with upright NNE-trending structures. The supracrustal rocks involve migmatitic (± biotite, garnet) quartzofeldspathic gneiss, marble, chert, quartzite, and amphibolite gneiss. The metaplutonic rocks include migmatitic (± hornblende/diopside, biotite, garnet) feldspathic gneiss of monzodioritic to syenitic composition, biotite granodiorite, and leucogranite. An eastern region (occupying the southeastern part of the permit) contains a predominance of amphibolite gneiss that is regionally distinguishable from a western region (occupying most of the permit) containing a dominance of quartzofeldspathic gneiss with subordinate bands and discrete masses of amphibole-bearing gneiss. These appear to relate to the lithotectonic domains identified by Collins (2006) as the Androyen and Vohibory units, respectively.

Figure 7-3: Southern Madagascar Strain Pattern



Finite strain pattern of southern Madagascar with Ampanihy transpressive lithospheric shear zone shown in inset image

Modified from Martela, 2000

Most rock types form relatively narrow, alternating, rectilinear bands, which trend NNE and dip steeply to the WNW, parallel to the regional gneissosity and foliation. Isoclinal folding of compositional/gneissic layering (S0-S1) observed in some supracrustal units (amphibolitic gneiss, quartzite) implies that the regional NNE-trending lithological structure and parallel foliation represents a composite S2 anisotropy. A mineral extension lineation (L2), defined mainly by elongate quartz, feldspar, and biotite, plunges shallowly to the SW. The regular straight-trending structure of the region (relative to adjacent, more irregularly structured regions) suggests an overall high strain state, and a limited number of kinematic indicator structures (rotated feldspar augen, lenticular gneissic "foliation fish") imply ductile shearing involving dextral displacement across the regional foliation and oblique thrusting to the NE parallel to the mineral lineation.

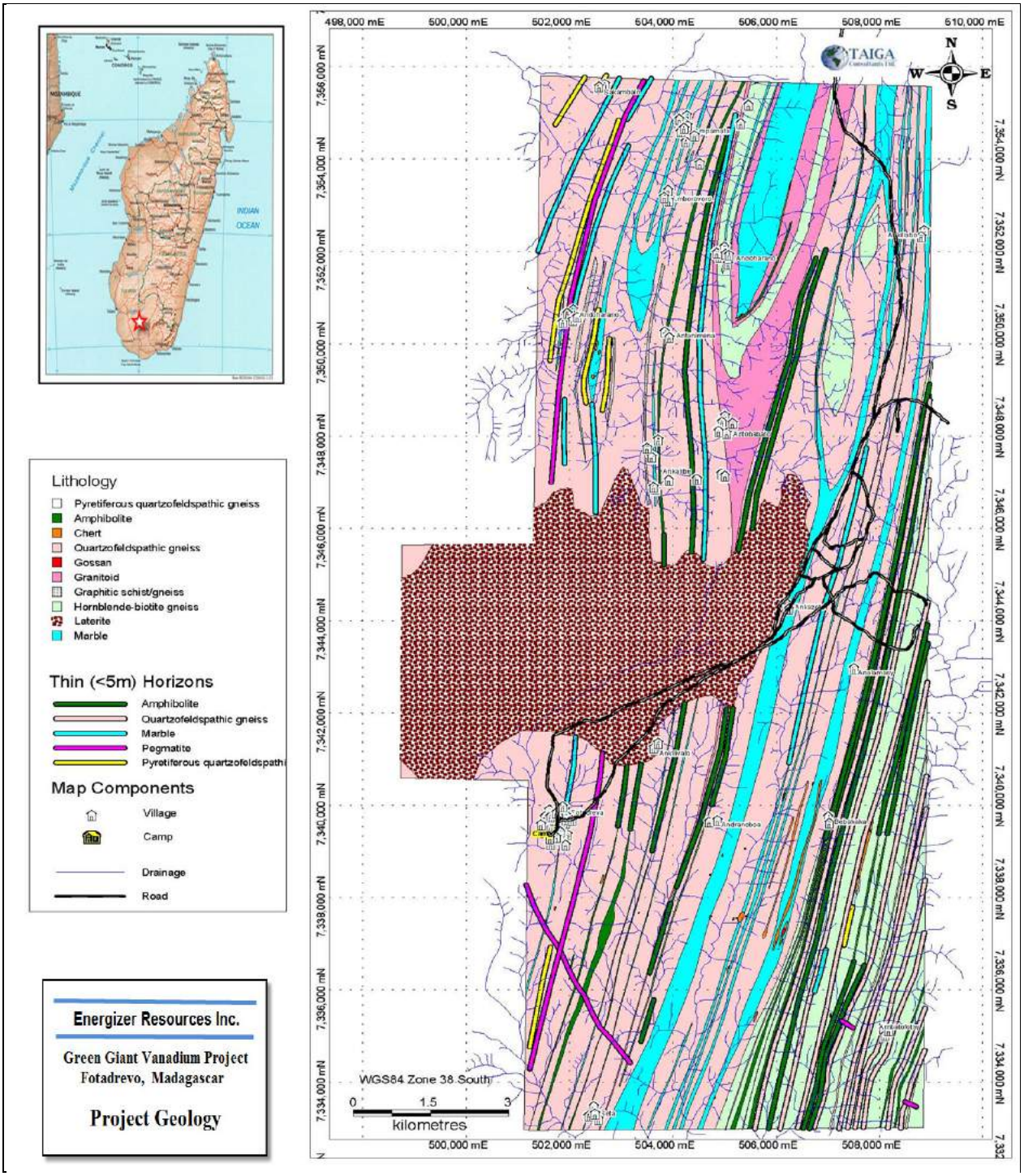
Several long, parallel, stratiform zones containing siliceous ferruginous gossan occur within a 2-km wide corridor that passes through the eastern boundary of the Green Giant permit, which coincides with the Ampanihy Shear Zone geometry. These gossan occur as concordant to discordant masses within composite marble-chert bands, quartzite, quartzofeldspathic gneiss, and feldspathic gneiss.

The marble-hosted gossan zones are by far the most common, characterized by relatively narrow, white calcite marble bands intercalated with brown siliceous Fe-carbonate marble, associated with boudins of grey-white chert and brown Fe-carbonate chert, and with concordant to discordant masses of siliceous ferruginous gossan. The grey-white chert exhibits polyphase brecciation, involving an early breccia phase with a siliceous matrix, and a later breccia phase with siliceous Fe-carbonate and ferruginous gossan matrix. The discrete gossan zones, although narrow (several metres in width), may exceed 1 km in strike continuity.

The quartzite- and quartzofeldspathic gneiss-hosted gossan zones involve narrow, concordant ferruginous lenses or layers, as well as discordant ferruginous gossan breccia matrix and vein-like masses. Quartzofeldspathic gneiss-hosted gossan zones display a distinct alteration assemblage (± kaolinite, albite, hematite, Fe-carbonate, silica), which lacks evidence of the early (Fe-carbonate free) siliceous alteration observed in chert of the marble-hosted gossan zones.

Figure 7-4 shows the local geology identified over the Green Giant project area. Descriptions of individual lithologic units currently identified by Scherba & Aussant (2009) are included below. Detailed geological mapping was completed in 2010 over the Mainty and Boko zones.

Figure 7-4: Project Geology



7.2.1 Lithological Descriptions of Individual Rock Formations

Amphibolitic Gneiss [am]

Dark grey to black, mesocratic to melanocratic, medium- to coarse-grained, subequigranular to porphyroblastic amphibolitic gneiss and amphibolite. Amphibolitic gneiss forms one or more major continuous bands in the eastern part of the permit, intercalated with quartzofeldspathic gneiss and spatially associated with marble. In the central portion of the detailed map-area, amphibolitic gneiss forms local bands or lenses intercalated with quartzofeldspathic gneiss and marble.

Quartzite [qzi]

White to greyish-white, weakly to moderately layered and foliated, coarse- to medium-grained quartzite. Brecciated quartzite with isoclinally folded layering is locally associated with dark brown ferruginous gossan. Unbrecciated quartzite very locally contains narrow, concordant, and discontinuous seams of gossan.

White Marble [mb]

White to greyish white, weakly to moderately layered and foliated, coarse- to medium-grained, subequigranular calcite marble. White marble is relatively homogeneous and contains ubiquitous small amounts (≤1%) of graphite and variable amounts of other accessory minerals (± biotite, diopside, feldspar, quartz, apatite, local asbestos, and serpentine). White marble forms long continuous bands that trend uniformly across the property, ranging between 5 m and 100 m wide.

Brown Marble [Femb]

Brown, weakly to moderately foliated, coarse- to medium-grained, subequigranular, siliceous Fe-carbonate marble. Brown marble is composed dominantly of Fe-carbonate (siderite-ankerite) with a fine, interlaced network of secondary silica and pervasively pitted interstices. The siliceous Fe-carbonate alteration producing brown marble appears to have developed through syntectonic to late syntectonic fluid dissolution processes largely parallel to layering and foliation and also occurring along fracture surfaces. Brown marble crosscuts white marble in places, following layering/foliation planes and transverse fracture planes, indicating a late-tectonic mobility of the altered rock.

Grey Marble [xmb]

Two varieties of fine-grained grey marble comprise a provisional map unit [xmb], namely *xenocrystic marble* and *intrusive calcareous rock*, which are considered to reflect late syntectonic to post-tectonic carbonate mobility.

Grey-white Chert [ch]

Mottled greyish-white, massive to brecciated, hyalocrystalline graphite-bearing chert (or possibly siliceous rhyodacite). Grey-white chert displays evidence of polyphase brecciation, involving cm- to mm-scale, angular white siliceous fragments in a relatively early translucent grey siliceous (chalcedony) breccia matrix, and/or a later opaque brown ferruginous gossan breccia matrix.

Brown Fe-carbonate Chert [Fech]

Tawny (yellowish) brown to reddish brown and chocolate brown, massive, hyalocrystalline opaque, graphite-bearing Fe-carbonate chert, variable biotite, and/or specularite. Brown chert, like grey-white chert, contains a small amount (≤1%) of fine-grained disseminated graphite, as well as variably small amounts of fine-grained disseminated biotite and/or specularite. Brown chert represents a widespread Fe-carbonatized alteration facies of grey-white chert, and both occur within the same chert masses. Brown chert is intimately associated with brown marble and ferruginous gossan.

Ferruginous Gossan [gos]

Dark purplish brown to black, dense, massive to brecciform and quasi-layered, aphanitic to fine-grained, siliceous ferruginous gossan. The gossan is variably highly siliceous to moderately siliceous and pitted, composed in part of Fe-carbonate (siderite-ankerite) and generally contains disseminated to clustered, fine-grained specularite, biotite, and/or graphite. Siliceous ferruginous gossan occurs as:

- breccia matrix of late-stage chert breccia and quartzite breccia
- concordant layers intercalated with chert and marble and discontinuous concordant seams in quartzite
- discordant masses cutting regional structure in quartzofeldspathic gneiss and marble.

Siliceous ferruginous gossan is locally associated with cm-scale patchy masses of green, opaque calc-silicate or bright green amorphous and resinous calc-silicate mineral. In one area, cm- to dm-scale pods of massive to foliated (± biotite) calc-silicate rock occur enclosed within quartzofeldspathic gneiss along a horizon that extends 125 m parallel to a nearby contact with siliceous ferruginous gossan.

Quartzofeldspathic Gneiss [qfg]

Light grey to white, migmatitic, well foliated, and locally lineated, leucocratic to hololeucocratic, generally medium-grained (to fine- or coarse-grained), subequigranular to porphyroblastic, biotite-garnet quartzofeldspathic gneiss. The quartzofeldspathic gneiss comprises a mixture of fundamental constituent lithologies, dependent on the relative abundance or absence of biotite and garnet.

Granodiorite [grd]

Light grey, leucocratic, foliated, medium-grained, equigranular biotite granodiorite.

Feldspathic Gneiss [fdg]

Pinkish grey to pink, migmatitic, foliated, medium- to coarse-grained, leucocratic (± hornblende/diopside, biotite, garnet) feldspathic gneiss. The feldspathic gneiss is comprised of a mixture of quartz-poor constituent lithologies:

- leucocratic biotite monzonitic to monzodioritic gneiss: "monzonitic gneiss"
- hololeucocratic syenitic gneiss: "syenitic gneiss."

Leucogranite [lgr]

Pale beige-white to light pink, foliated, medium- to very coarse-grained and commonly pegmatitic, hololeucocratic (± biotite, magnetite) granite. Massive pegmatitic leucogranite also forms late- or post-tectonic intrusive bodies and dykes, commonly displaying graphic quartz-K-feldspar intergrowth texture, and containing accessory biotite, magnetite, tourmaline, apatite, or locally garnet. The granitic pegmatite dykes generally trend WNW to NW.

7.2.2 Structural Geology

There is a paucity of outcrop on the property (<10% exposure), and where present, it is found to exhibit a very strong NNE to SSW foliation dipping steeply (vertical to 70 degrees) to the west. As such, the structural geology underlying the property is very difficult to discern. A structural interpretation was therefore undertaken by Hadyn Butler based on the 2007 Fugro Airborne Surveys (Fugro) DIGHEM V multi-coil, multi-frequency electromagnetic and high sensitivity cesium magnetometer airborne geophysical survey. Only magnetite-bearing units were capable of being interpreted, except where putative intrusions crosscut the main fabric in a magnetized area.

The property is dominated by structures associated with the Ampanihy Shear Zone. Specifically, Butler (2010a) has identified three magnetic domains associated with the shear system:

1. Zones where magnetic units are parallel or near-parallel to the walls of the domain. In these regions, the shearing has reduced intrafolial folds into sheared out 'tectonic fish'. There are also broad zones where a low content of magnetite (± pyrrhotite) may be present which most likely represent a different metamorphic mineral assemblage (different pressure and temperature conditions), or pre-metamorphic alteration and/or rock types.

2. Zones where magnetic units vary from parallel to a high angle at the domain boundary. These regions are interpreted to be the intrafolial fold remnants of sheath folds. The boundary shear of these domains may represent a sheared-out early thrust or high angle fault.

3. Zones with refolded chaos folds in domain lozenges. These regions occur in the north-central portion of the study area, and may be a remnant of a broad F3 episode enclosed within intense zones of ductility.

In addition to the structural interpretation based on airborne geophysics, Butler (2010b) also interpreted lithologic 'domains' within the property through the analysis of satellite imagery.

8 DEPOSIT TYPES

The Green Giant project has the potential to host three different deposit types: 1) Algoma-type iron formation, 2) volcanogenic massive sulphides deposits (VMS), and 3) metamorphosed black shale/roll front redox vanadium deposits.

The iron formation and VMS potential have been described in detail in a previous report (Scherba and Chisholm, 2008) and will not be discussed further here, as they are no longer considered material to the prospectivity of the property.

Vanadium is characterized as an element highly mobile in oxidizing acid-alkaline waters and immobile in reducing environments (Levinson, 1974) (see Figure 8-1).

Figure 8-1: Relative Mobility of Elements in a Secondary Environment (Levinson, 1974)

Relative Mobility	Environmental Conditions			
	Oxidizing	Acid	Neutral to Alkaline	Reducing
Very High	Cl, I, Bs S, B	Cl, I, Bs S, B	Cl, I, Bs S, B Mo, V, U, Sc, Re	Cl, I, Bs
High	Mo, V, U, Sc, Re Ca, Na, Mg, F, Sr, Ra Zn	Mo, V, U, Sc, Re Ca, Na, Mg, F, Sr, Ra Zn Cu, Co, Ni, Hg, Ag, Au	Ca, Na, Mg, F, Sr, Ra	Ca, Na, Mg, F, Sr, Ra
Medium	Cu, Co, Ni, Hg, Ag, Au As, Cd	As, Cd	As, Cd	
Low	Si, P, K Pb, Li, Rb, Ba, Be Bi, Sb, Ge, Cs, Ti	Si, P, K Pb, Li, Rb, Ba, Be Bi, Sb, Ge, Cs, Ti Fe, Mn	Si, P, K Pb, Li, Rb, Ba, Be Bi, Sb, Ge, Cs, Ti Fe, Mn	Si, P, K Fe, Mn
Very Low to Immobile	Fe, Mn Al, Ti, Sn, Te, W Nb, Ta, Pt, Cr, Zr Th, Rare Earths	Al, Ti, Sn, Te, W Nb, Ta, Pt, Cr, Zr Th, Rare Earths	Al, Ti, Sn, Te, W Nb, Ta, Pt, Cr, Zr Th, Rare Earths Zn Cu, Co, Hi, Hg, Ag, Au	Al, Ti, Sn, Te, W Nb, Ta, Pt, Cr, Zr Th, Rare Earths S, B Mo, V, U, Se, Re Zn Cu, Co, Hi, Hg, Ag, Au As, Cd Pb, Li, Rb, Ba, Be Bi, Sb, Ge, Cs, Ti

Two slightly different genetic models are presented below as possible deposit varieties. No deposit analogue for the Green Giant vanadium deposit has been identified to date. Currently, the genetic model for the deposit is believed to be a hybrid between a metamorphosed black shale deposit and a roll front deposit model.

8.1 Metamorphosed Black Shale Deposit

The following is summarized from an internal memo (Barrie, 2009).

The Green Giant vanadium deposit may represent a form of a metamorphosed black shale vanadium deposit with similarities to the Mecca Quarry black shale in the central USA. The metallic suite of V-Mo-U-C is characteristic yet not unique to black shale deposits.

Initial vanadium enrichment of the sea floor sediment may have occurred in a euxenic marine environment similar to that of the present day Black Sea. Vanadium is adsorbed onto clays and settled to the organic-rich seafloor under anoxic conditions. Further vanadium enrichment occurred during burial and diagenesis, as basinal fluids under neutral to oxidized, low pH conditions transported vanadium, molybdenum, and uranium to the reduced, organic-rich sites where they precipitated.

The source of the vanadium, molybdenum, and uranium may have been volcanic rocks in the stratigraphy, and at least partly other black shales that had an initial seafloor metallic enrichment.

Vanadium initially bonds strongly in the organic material, but is progressively incorporated into clays and layered silicates with increasing pressure and temperature during burial, diagenesis, and metamorphism. The Green Giant project strata were subjected to amphibolite or higher metamorphic grade, given the presence of kyanite. At these metamorphic grades, all or nearly all of the organic material is converted to graphite, and the vanadium migrated from the carbon compounds into silicate phases (principally roscoelite (muscovite structure) and phlogopite), and oxide phases (principally titanite and rutile, at least where available).

8.2 Roll Front Deposit

Globally, primary vanadium mineralization is typically found in oxide-rich magmatic segregations within layered ultramafic intrusions, including those of anorthositic composition (Taner et al., 2000). This is currently the most important source of economic vanadium production. Prior to the early 1980s, however the most prolific source of vanadium was as a byproduct of uranium mining in sedimentary or sandstone uranium deposits in western USA (Polyak, 2007).

In the classic roll-front model, mechanical breakdown associated with weathering of vanadium rich-host rock and subsequent dissolution of vanadium-bearing minerals releases the vanadium into the aqueous environment. The fluids are trapped as connate and general ground water, and contribute to gravity-driven, down-dip, basinal drainage along high porosity and permeable sandstone horizons within deltaic, continental, and marginal marine sedimentary sequences, leading to the transport and concentration of vanadium. The process is one of a continuous cycle of dissolution and transport, followed by fixation by reductants, followed by subsequent re-dissolution-transport-fixation as the basinal fluids migrate down-dip. As the cycle proceeds, the concentrations of vanadium and related mobile elements increases as vanadium-bearing minerals resident in the porous unit dissolve and liberate additional metals to add to the mobile element budget. Vanadium is typically precipitated when it encounters a strongly reducing environment surrounding organic material, such as detrital organic trash or humates typically found in epicontinental sedimentary environments.

It is known that the classic roll-front model can be modified by large fault structures such as in the Niger uranium camp which is characterized by the Arlit-InAzawa and Madaouela faults found in the Tin Mersoi basin to form Tectonic-Lithologic type deposits of significant size (Cazoulat, 1985; Pagel, et al., 2005). In this case-type, the resulting uranium-zirconium-molybdenum-vanadium deposits take the form of stacked amorphous-shaped lensoid deposits of very large size. The interaction of migrating fluids within the major Arlit-InAzawa fault structure resulted in the creation of standing solution fronts which have allowed super giant deposits (>100,000 tonnes U) to form which are somewhat different than the more modestly sized classical western states-Colorado Plateau type of roll-front. Similar type uranium deposits are also found within south-central Kazakhstan (Jaireth, 2008). Pagel et al. (2005) postulates that the depositional system also involved a contribution of hot deep fluids circulating upwards along structures to meet descending ground water.

8.3 Other Possible Deposit Types on the property

During the course of the 2010 exploration program, disseminated nickel and copper sulphides typical of Magmatic Ni-Cu-PGE Deposits were identified within a high metamorphic grade metaperidotite. Petrographic analysis (Gole, 2010) indicated that the sulphides were originally disseminated magmatic sulphide before metamorphism.

Also, present on the property is a gold showing (Boko) that was identified in the west-central portion of the Green Giant property in February, 2010. Attention was drawn to this area by the presence of hundreds of local artisanal miners' hand mining and panning at least three parallel veins and the residual soils surrounding this site. The Boko showing has the characteristics of a mesothermal quartz vein-style gold deposit.

Mesothermal gold mineralization is characteristically associated with regional brittle-ductile structures in large tectonic corridors (Roberts, 1988), that have been subjected to transpressive deformation (Kerrich and Wyman, 1990). Gold-bearing quartz veins preferentially develop at dilational zones where there are compositional or structural irregularities (Roberts, 1988). The Green Giant property sits amidst the Ampanihy Transpressive Lithospheric Shear Zone, and future exploration for gold mineralization on the property should focus on dilational zones.

9 MINERALIZATION

9.1 Vanadium Mineralization

Vanadium mineralization was recognized visually in the field within diamond drill core by the presence of some bright green minerals as well as the presence of distinctive bronzy coloured mica. Later the minerals were identified as vanadiferous with the aid of Innov-X-Systems' X-50 mobile X-Ray Fluorescence (XRF) tabletop analyzer. It is to be noted that the use of the XRF machine was used for mineral identification and provided Energizer with an indication of the potential analytical results. At no time have XRF results been used in the reporting of results.

Limited petrographic and microprobe analysis by R.L. Barnett Geological Consulting Inc. (Barnett, 2009) and Mintex (2009) indicate that the vanadium occurs in several mineral phases including a high V content roscoelite, a low V content roscoelite, a V-bearing clay, V-rutile, a FE-V-Ti oxide, a V-Ti oxide, and two types of Fe-V oxides. With the exception of the roscoelite, the mineralization is not discernible to the naked eye and requires the use of analytical methods to identify. The presence of other redox minerals such as uranium bearing minerals assists with identifying the vanadium-rich horizons.

The mineralization occurs both in the upper oxidized horizon and lower down in the primary rock. Both the oxide and primary horizons contain substantial amounts of quartz and graphite, yet are distinct metallurgical units likely requiring different processing methods.

There has not been enough work conducted on the vanadium-bearing zones to determine if the zones have similar mineralogical characteristics or are distinct zones on the same horizon.

9.2 Nickel Mineralization

During the course of the 2009 exploration program, a trench (TR-09-065) was excavated to the southeast of the Manga Zone to test for vanadium mineralization. No appreciable vanadium was recorded in the trench via field XRF analysis, so no samples were submitted for analysis. Mapping of the trench however revealed the presence of a 'chalk white material' that was hypothesized by the trench mapper to be an altered ultramafic protolith.

The compiled geochemical database for the Green Giant property was reanalyzed as part of the 2010 exploration program, and revealed an interesting cluster of Ni, Cr and Mo in the vicinity of trench TR-09-065. The area was deemed to be prospective for nickel, and so a diamond drill hole (Ni-01) was emplaced behind TR-09-065 to test the nickel prospectivity of

the area on May 14, 2010. This hole intersected 59.13 m of metaperidotite which contained 1-5% very fine pale sulphides, was underlain by a gabbro, and exhibited cumulate textures.

9.3 Gold Mineralization

The mineralized veins were discovered by locals and a small girl named Boko by panning along the nearest creek, and then by following the mineralization upslope to the veins. It has been reported by locals that large nuggets were common. Vein mining is restricted to a series of thin, 4 cm wide veins (up to 4 veins) striking north/south and having a dip of 80˚ west. The actual workings have a strike length of 140 m. The zone is apparently displaced/ cut off both to the north and the south. Mining along trend ceased because the local miners could not interpret the sense of displacement. Mining continued to approximately 15 to 20 m down dip and was eventually terminated because of the intersection with the water table. Down slope and to the east of the vein system, the majority of the thin (0.5 to 1 m) soil has been stripped and panned.

10 EXPLORATION

The original focus of the exploration on the Green Giant project was for VMS type base metals similar to the Besakoa property located to the north. To date, no significant occurrences of copper or zinc have been discovered within the project boundaries.

Following the discovery of vanadium using the portable XRF machine on diamond drill core, the exploration strategy changed focus to pursue the vanadium-rich results. This included reviewing previous results and interpretations of the past exploration programs.

The focus of the 2010 exploration program was to delineate additional vanadium resources on the Green Giant property. Due to the identification of anomalous gold and nickel on the property however, grass-roots exploration was conducted over selected targets to ascertain their prospectivity. Exploration activities in 2010 therefore consisted of diamond drilling, geologic mapping, soil sampling, prospecting and sampling, and ground geophysical surveying.

10.1 Diamond Drilling

During the period of October to November 2008 Energizer drilled 33 holes on the property. Encouraging results from this drilling led to the extensive trenching program conducted from May to July 2009 and again from October to November 2009. Encouraging results from the 2008 drilling and early 2009 trench program led to the intensification of the drilling on the most prospective Vanadium targets in October and November 2009. Taiga also continued the trenching program during the same period. During May and June of 2010, an additional 45 drill holes were completed on the property. The program was focus on expanding the resources on the Manga deposit and delineating new resource over the Mainty deposit. Two holes were drilled over the Nickel and Gold targets.

10.2 Geological Mapping

Only cursory prospecting had been conducted in the past over the Mainty Zone, a zone of anomalous vanadium mineralization identified in the northern portion of the property in 2008. During the course of the 2010 exploration program therefore, a geologic mapping program was conducted over the area at a scale of 1:5000. Additionally, the identification of the Boko Gold Zone prompted the production of a geologic map at a scale of 1:2000.

10.2.1 Mainty Zone

A geologic map of the Mainty Zone was conducted at a scale of 1:5000. Mapping revealed at least three graphitic gneiss horizons intercalated with quatzofeldspathic gneiss and marble units. All graphitic gneiss was found to contain anomalous quantities of vanadium when field-tested with the portable XRF unit (i.e., >200 ppm V). Mapping also revealed the vanadium-bearing trend is at least 1.5 km in strike length. Figure 10-1 illustrates the geology over the Mainty Zone.

10.2.2 Boko Gold Zone

The area from 7,347,600 N through 7,348,280 N and 502,900 E through 503,420 E was mapped using GPS techniques at a scale of 1:2000. Outcrops were sparse. Rock units identified were massive brown to white chert, an extensive series of white bull quartz blowouts, four separate horizons of massive graphite, small outcrops of garnet- amphibolitic-quartz gneiss, two small iron gossans, white muscovite bearing quartzite, a limonitic gneiss and white crystalline marble.

10.3 Soil XRF

To follow up on the vanadium mineralization identified in drill core, an extensive XRF analysis of soils was undertaken in May 2009, on lines 200 m apart to cover a strike length of over 18 km. Figure 10-2 is LandSat imagery of the property with the vanadium zones identified. Figure 10-3 displays the results of the XRF survey and clearly defines significant zones of anomalous vanadium along an interpreted stratigraphic horizon. The gap in the soil anomaly through the middle portion of the property is due to a thick cover of laterite material that results in a masking effect, thus providing a poorly defined vanadium trend.

In 2010, two geochemical lines 7,734,7,760 N and 7,348,050 N were sampled over the Boko Gold Zone at approximately a 1 m depth from 503,3000 E to 503,3300 E of an unmarked GPS grid. The purpose of the sampling was to try to identify additional gold-bearing quartz veins.

Figure 10-1: Geology of the Mainty Zone

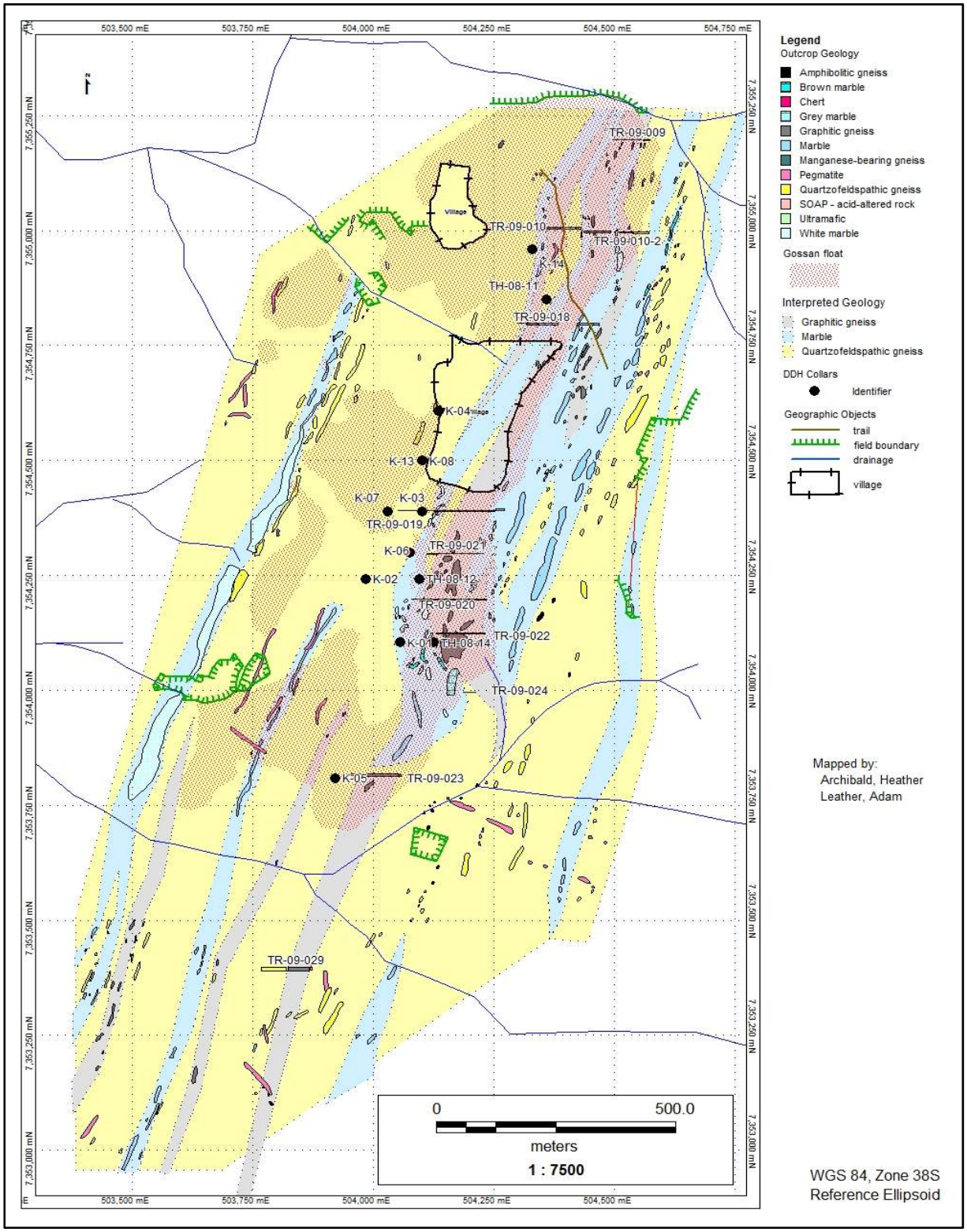
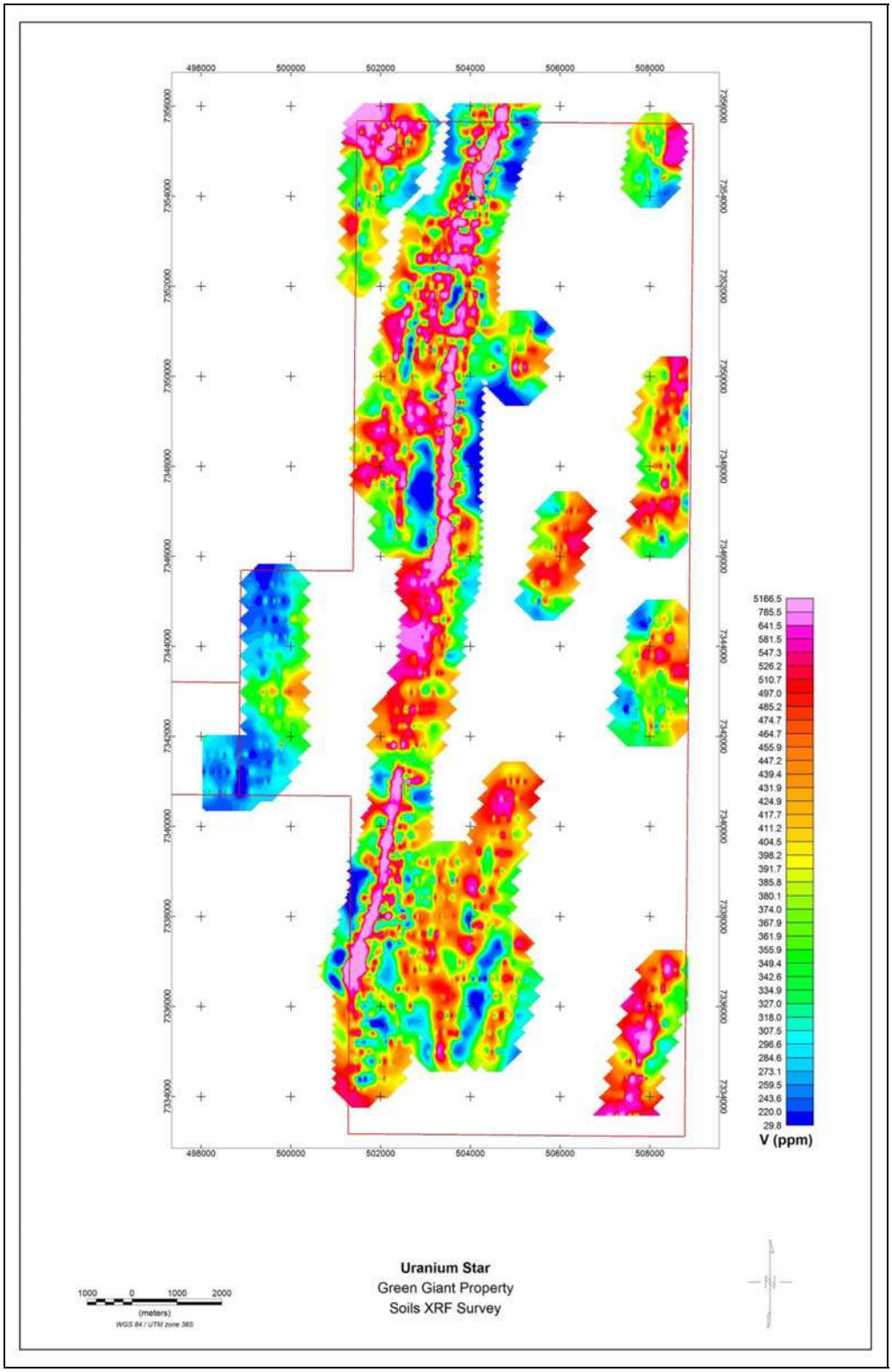


Figure 10-2: Vanadium Targets

Figure 10-3: Soil XRF Survey



10.4 Radiometrics

In May 2009, ground scintillometer surveys were completed over the +18 km strike length of the interpreted vanadium mineralized trend in conjunction with the XRF analysis of soils on a regular 200 m line spacing basis. Figure 10-4 outlines the results of this survey work. It can be clearly seen that there is minor radioactivity directly associated with the XRF analysis of soils for vanadium. Obviously, the laterite-covered zone located in the west central part of the property does not exhibit a radiometric signature of any significance.

10.5 Trenching Program

In early 2009, it was felt that the vanadiferous trends were insufficiently understood in terms of their areal extent, and because of the lack of sampling in the weathered zone by the 2008 drilling, little was known about the distribution of vanadium near surface.

As of December 2009, 140 trenches with a combined length of 17,105 m have been completed, as shown in Figure 10-5. Trenches were completed in the Jaky, Mainty, and Manga Zones. The layout of the trenches in the Mainty and Jaky Zones was designed to test for extensions of the vanadium mineralization found in the 2008 drill holes into these areas. Trenches in the Manga Zone were located to test the regional structure, which joins the Mainty and Jaky Zones.

Trenching was completed by two 28-ton Komatsu backhoes, followed by a crew hand-shovelling excess material out of the trench. This was in turn followed by a crew that swept the trench floor clean of the remaining fines. The trench depth varies from 0.5 m to 4 m depending on the thickness of the overburden material.

XRF instruments used during the soil survey are both Niton XL3t 500 XRF Analyzers manufactured by Thermo Scientific. Serial numbers of the units are 31899 and 31980.

Trenches were marked out using wooden pegs at 2 m intervals using a tape measure. The zero marker and end of trench marker were picked up using a hand held GPS. The trenches are assumed straight and are oriented in a general east-west fashion to crosscut stratigraphy.

XRF readings were conducted at a maximum interval of 2 m; unless the instrument reported anomalous high values, in which case the reading intervals are shortened. This was done to ensure that the highly anomalous value reported is accurate. Upon completion of the reading, the corresponding reading number was recorded internally within the unit and manually recorded on paper next to the appropriate trench station meterage.

Figure 10-4: Radiometric Survey

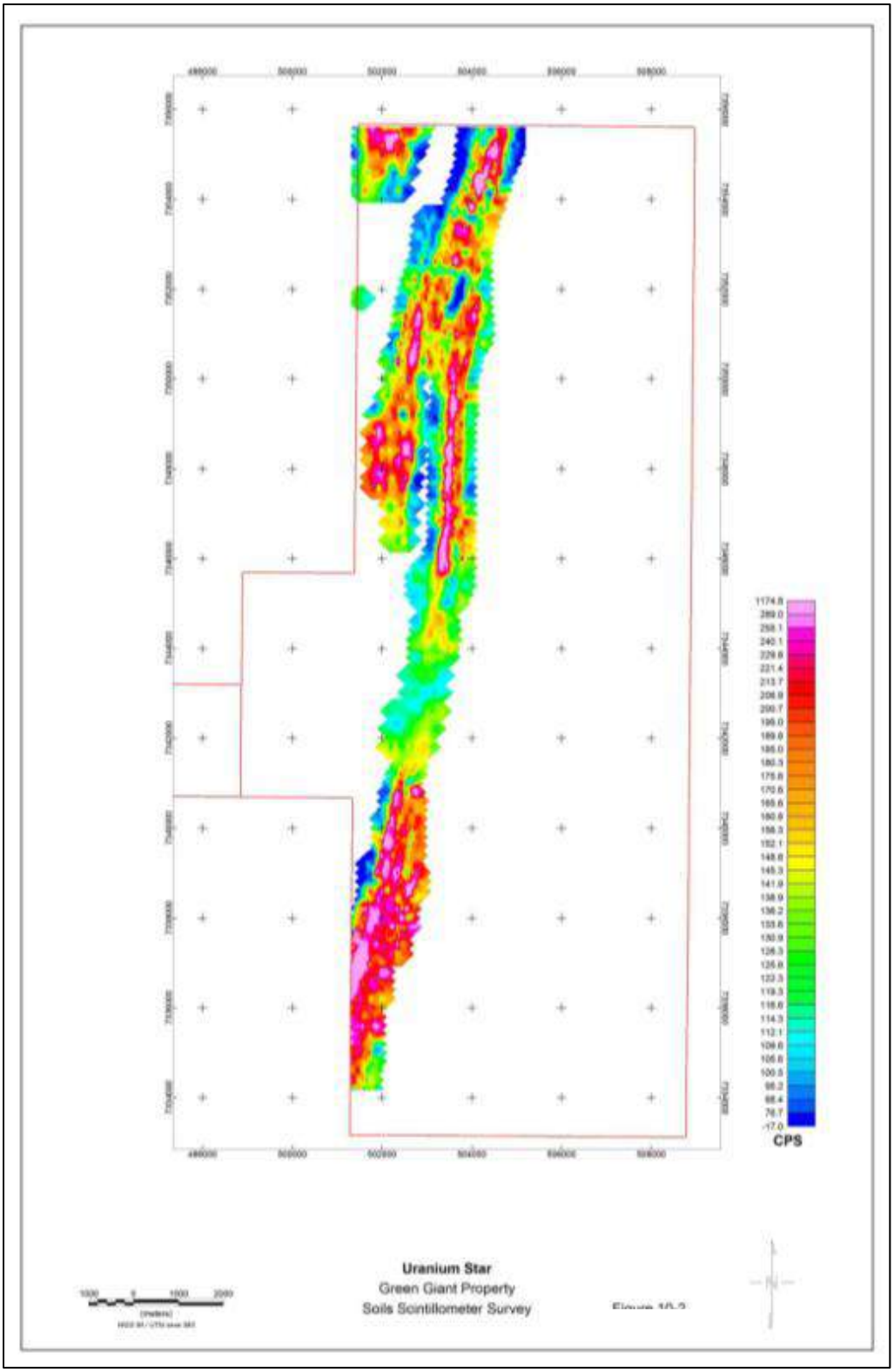
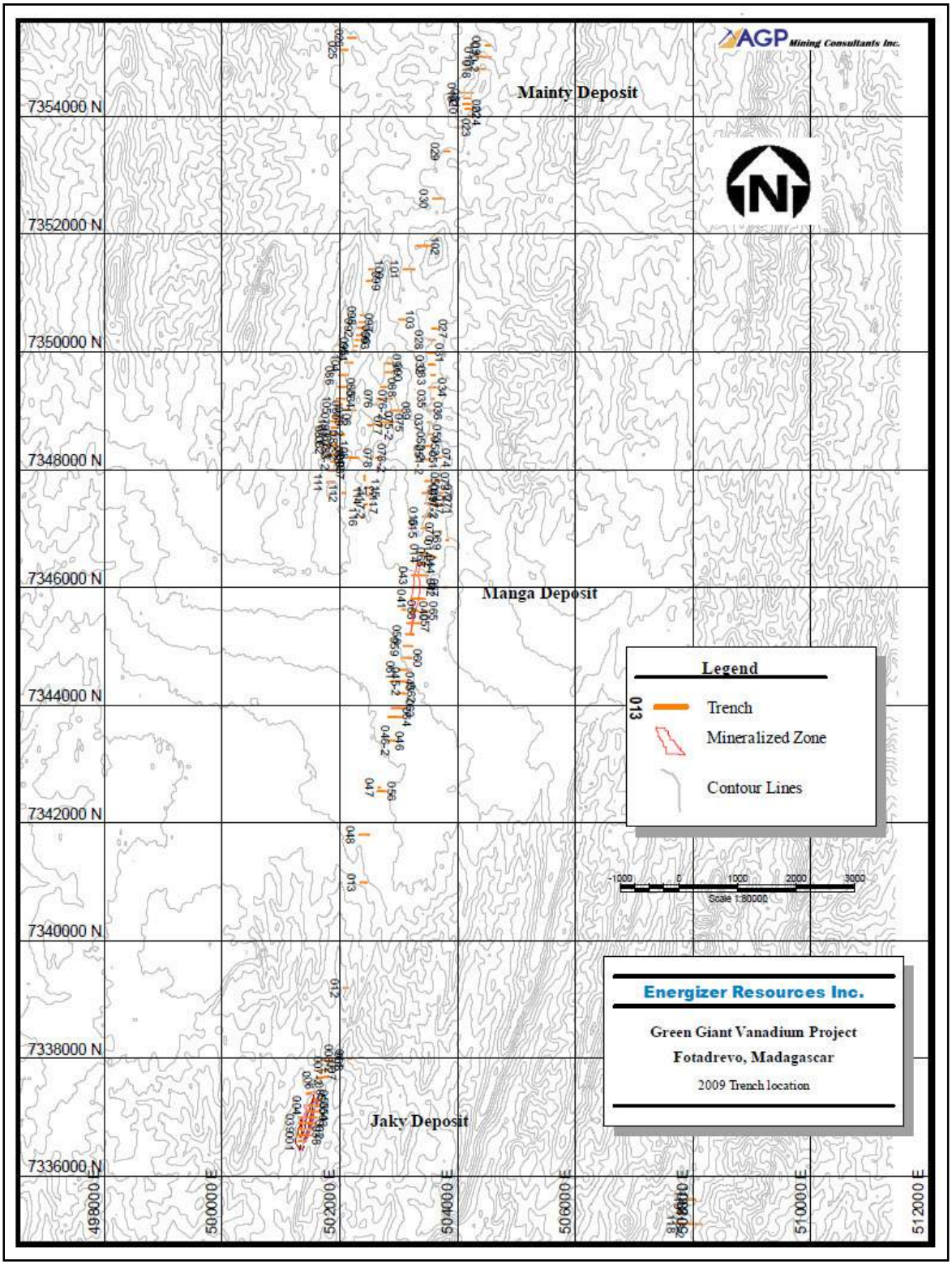


Figure 10-5: Trench Locations



Two-metre long continuous chip samples were then collected along the trench floor consisting of about 3 kg to 4 kg of material per sample. The samples are collected in numbered plastic bags with the sample location noted in the assay tag book. The trench samples are transported at the end of each day to camp and stored in a locked building. When sufficient sample material has been collected, the samples are trucked or flown to Genalysis in Antananarivo accompanied by an Energizer employee. Genalysis prepares the samples in Antananarivo and the pulps are then shipped to Genalysis Laboratory Services in Perth, Australia for final fusion analysis.

In the case of the Jaky Zone, the anomalous vanadium values, which define the zone extend for over 1.1 km, and for the Mainty Zone for at least 1 km. The width of the zone defined by the assays is also in excess of that seen in the subsurface. Portions of the Jaky Zone are over 200 m wide, and for the Mainty Zone over 100 m wide.

Appendix A shows a summary of the significant composited vanadium mineralization encountered in the 2009 trenching program. The composites are based on a minimum 4 m width at a 0.3% V_2O_5 cutoff. A maximum of 4 m of continuous internal waste could be included within a composite.

10.6 Ground Geophysical Surveying (2010)

SO.IN.G. Strutture e Ambiente SRL (SOING) from Livorno, Italy was contracted to complete ERT, ground magnetic, and gradient array ground geophysical surveys over targets deemed prospective for gold and nickel mineralization. SOING supplied all the geophysical equipment, and two expatriate operators for the survey.

SOING established a grid consisting of 100 m spaced lines and 25 m stations. This grid was then surveyed with a gradient array geophysical system consisting of 1 IRIS Instruments SYSCAL PRO 10 channel receiver, one 10 kVA generator, and a Walcer 10 kVA transmitter. Following the gradient array survey, a Total Magnetic Intensity and Vertical Gradient magnetic survey was conducted over a slightly expanded target area. The survey utilized a continuous walkmag GEM Overhauser Model GSM 19W rover and EDA Omni Plus basestation, with a line spacing of 100 m. In total, 169.532 line-km of magnetic measurements were collected.

Following the completion of the gradient array and magnetics surveys, seven additional 2D ERT profiles were acquired to learn more about high-interest areas revealed by the preliminary gradient survey.

The result of the study will be use to target future exploration activity on the Nickel and Gold targets.

10.7 Prospecting and sampling

Although not relevant to the Vanadium resources, the summary below was included here to complete the 2010 exploration activity on the Green Giant property.

10.7.1 Mainty Zone

In the course of mapping the Mainty Zone, representative samples were taken of the extensive gossan float found in the area. Additionally, very heavy brown/black-stained siliceous float and subcrop was found in a parallel trend 300 m west of Mainty zone. This material yielded XRF values up to 35% manganese and 8,000 ppm cobalt.

10.7.2 Boko Gold Zone

A total of 15 channel and selected grab samples were collected from the Boko area. Samples 13056 thru 13060 were a series of channel samples cut across a 1.16 m wide unmined horst in the main mine area located at 503,108E/ 7,347,859N. The mineralization contained in this horst was uninteresting to the artisanal miners as it was left untouched. The only mineralized sample was 13060, which was a 4 cm wide channel sample of quartz vein material cut out of the top of the principal vein in the main artisanal shaft. This sample carried 12.3 ppm gold and was weakly anomalous in copper and zinc returning values of 176 and 158 ppm respectively. Elevated values of Fe, Cu, Pb, and Zn were observed in many of the other samples.

10.7.3 Nickel Targets

XRF sample analyses revealed an interesting cluster of Ni, Cr, and Mo anomalies to the immediate east of the Manga Zone. This correlated very well with Ni-in-streams data, which showed a highly anomalous Ni trend from a N-S stream bisecting the area. Analysis of the database revealed a trench was excavated in the area in 2009 (TR-09-065), and a chalky white material was found. This was hypothesized by the trench mapper (Pascal Marchand) to be an altered ultramafic protolith.

A diamond drill hole (Ni-01) was emplaced behind the trench to test the nickel prospectivity of the area on May 14, 2010. This hole intersected 59.13 m of meta-peridotite. The meta-peridotite contained 1-5% very fine pale sulphides, was underlain by a gabbro, and exhibited cumulate textures. A number of representative samples from the core were collected, and have been submitted for petrographic analysis. The core is currently being analyzed by Intertek for nickel and platinum group elements. Additionally, the area will also be tested by the ground geophysical team.

Following the confirmation of sulphide-bearing ultramafics in the Ni-01 drill hole, additional ultramafic targets were selected from the database. The most promising of these targets was an anomalous gossan float sample collected in 2008 at 506490E/7342356N. This sample returned assay values of 0.43% nickel and 5,900 ppm chromium. This sample site was recently revisited (June 2010), and a resistant chalcedony-rich 'mound' (probably resulting from the weathering of an ultramafic) roughly 15 m long x 5 m wide was discovered. The feature was surrounded by heavy gossan float that returned (with XRF) nickel values to 0.8% and chromium values to 1.1%.

10.7.4 Rare Earth Element (REE) Prospecting

From the stream sediment geochemical database, a Y (yttrium)/La(lanthanum)/Ce (cesium) trend was found along a north-south trending river (508487E/7342115N), and flagged as being prospective for REEs. A river traverse was done with the spectrometer/scintillometer from south to north along the river, and found quartzofeldspathic gneiss +/-garnet +/-biotite throughout the area. The gneiss was anomalously radioactive for approximately 10 m (210 cps compared to 140 background), and the thorium registered roughly 20 ppm (with the average background in the drainage ranging from 0-4 ppm).

At 508390E/7341715N, the samples were taken from the anomalous veins. Further north, and along strike of this unit, another radiometric anomaly was identified, but with no outcrop exposure.

10.7.5 Arsenic Trend Prospecting

To the east of the Boko gold zone, there is an extensive arsenic trend as identified by the soil and stream sediment. The trend was found to occur along north-south geographic highs underlain by lightly clay-altered and hematized quartzofeldspathic gneiss hosting abundant siliceous veins and lenses. Local patches of outcrop ran 10-40 ppm As (as analyzed by the XRF in soil mode).

11 DIAMOND DRILLING

Thirty-one diamond drill holes, TH-08-01 to TH-08-31, comprising 4,073.3 m of diamond drilling were completed from 7 October to 20 November 2008 on the Green Giant Property. The objective of the drill program was to investigate several geochemical, geophysical, and/or geological targets defined during the course of exploration programs completed on the property.

Between October and December 2009, Energizer focused their attention at delineating vanadium resources on two of the most promising target evaluated during the 2008 drill campaign. Thirty drill holes were completed on the Jaky deposit totalling 4,510 m, of these, three were large diameter core used for metallurgical samples. On the Manga deposit, 24 holes were drilled totalling 4,422 m. Selected drill holes were oriented with point load test and orientation measurements were recorded.

The exploration work continued the following year and forty-six diamond drill holes, comprising 8,952 m of diamond drilling were completed from May 5 to July 2, 2010, on the Green Giant Property. The objective of the 2010 drill program was to delineate additional vanadium resources on the property, as well as to test the prospectivity of both a gold and nickel target.

With this drill program, a total of one hundred and thirty-one (131) diamond drill holes, comprising 21,956.3 m have been completed on the property.

The 2008 and 2009 drill holes collar locations are shown in Figure 11-1 for Jaky. The 2008 through to 2010 drill hole collars for Manga and Mainty are illustrated in Figures 11-2 and 11-3, respectively.

11.1 Energizer 2008 – 2010 Diamond Drill Program

11.1.1 Diamond Drill Contractor

During 2008, the diamond drilling was carried out using a CDI 500 skid-mounted wire-line drill owned and operated by Cartwright Drilling, a full service contractor out of Goose Bay, Labrador, Canada. Drilling was completed using thin wall BTW core (~42 mm diameter).

Figure 11-1: 2009 Drill Holes Collar Location for Jaky

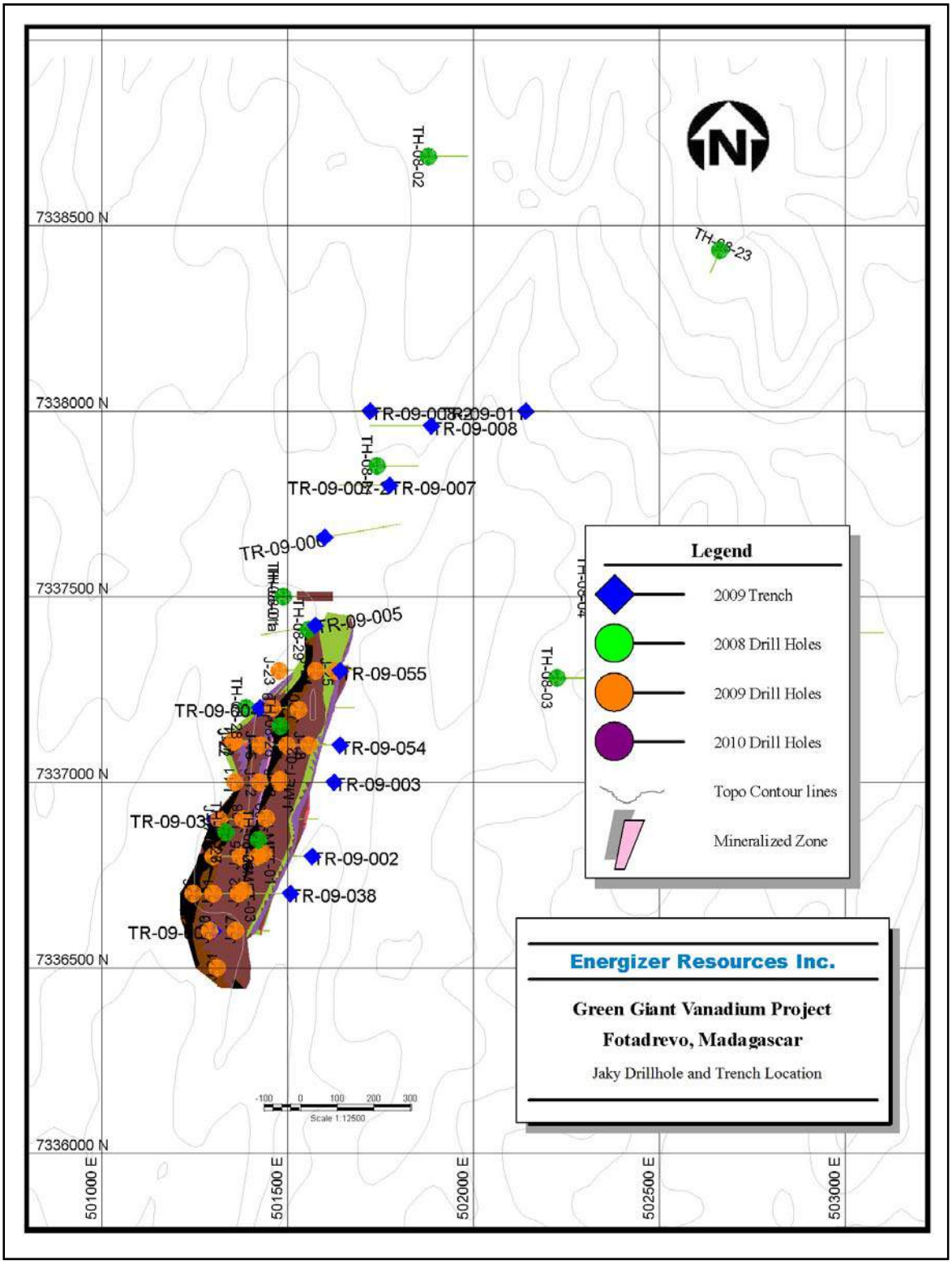


Figure 11-2: 2009 Drill Holes Collar Locations for Manga

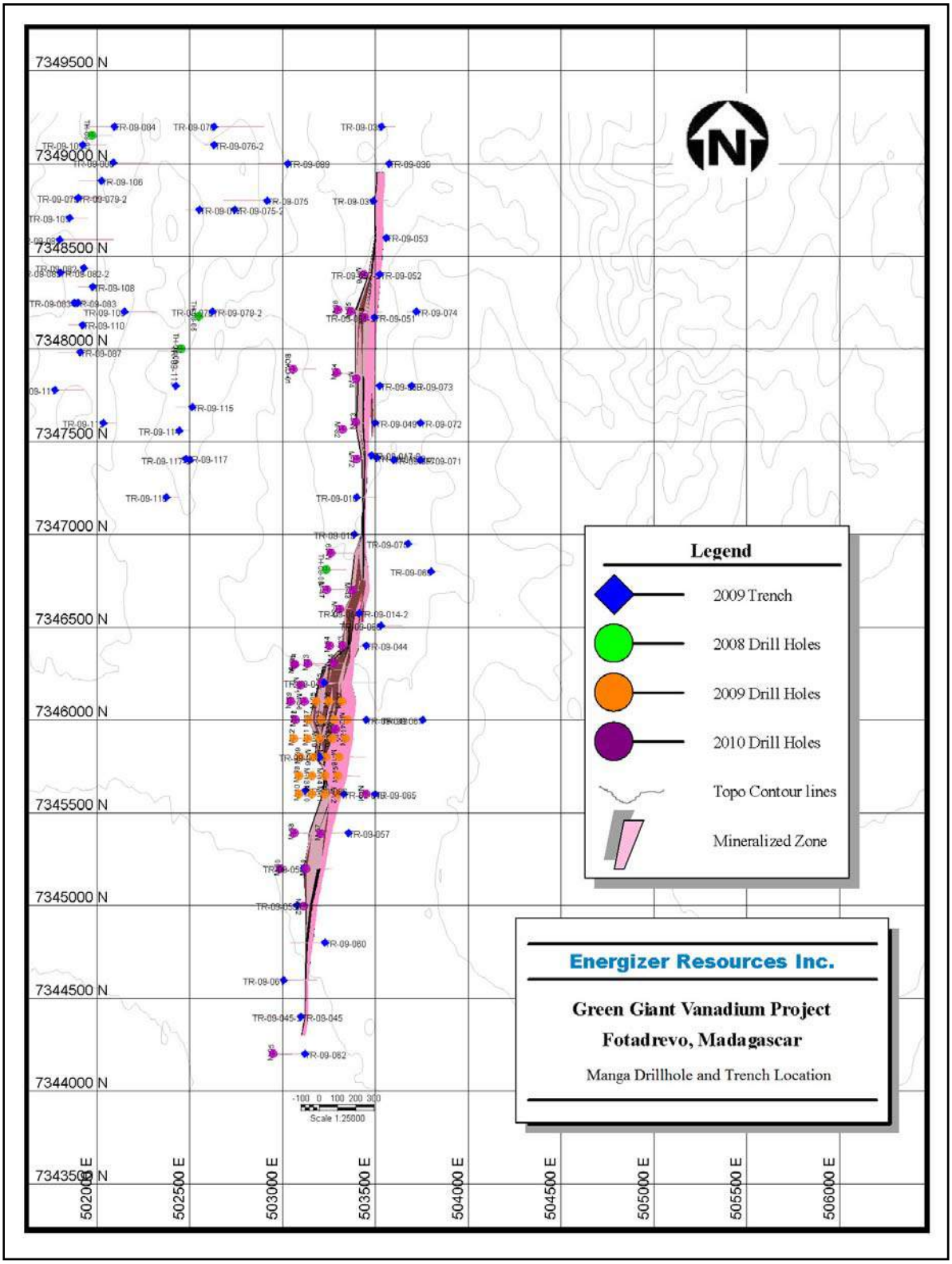
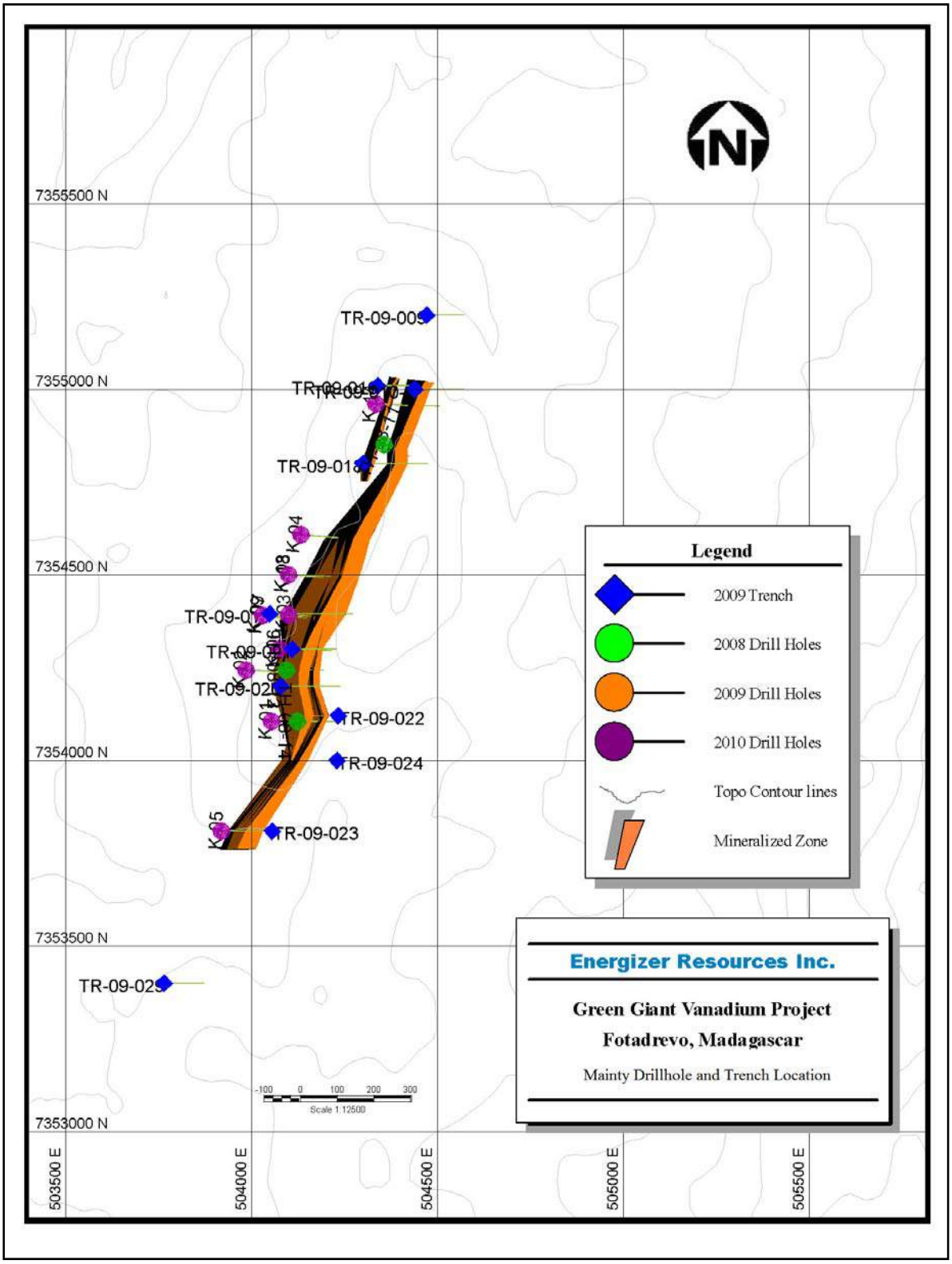


Figure 11-3: 2009 Drill Holes Collar Locations for Mainty



Drill moves were completed using the rental water trucks servicing the drill. Drill pads and access road construction was prepared using a rental grader, and drill sumps were dug by manual labourers. While drilling, a funnel and hose line returned overflow fluids to the mud tank. This measure was taken to conserve drill fluids and to prevent site contamination by drilling additives or metals liberated by the drilling. Water for the drill program was trucked from small pools located sporadically along the many drainages on the property, and stored at the drill site in a 10,000 L wheeled tank.

In 2009 and 2010, the diamond drilling was carried out using a Longyear 44 skid-mounted wire-line rig, and a Lonygear LF-90 skid-mounted wire-line rig, owned and operated by Boart-Longyear (Longyear). The initial 70 to 100 m of drilling was generally completed with HQ core (63.5 mm diameter). Once reasonably competent rock was encountered a reduction to NQ sized core (47.6 mm diameter) was undertaken.

The drill moves were completed using Longyear's John Deere skidder equipped with a blade and winch. Drill pads and sumps were prepared using a rental CAT 420D backhoe/loader. While drilling, all fluids were pumped directly from the sumps, with all overflow fluids directed back to the sumps. These measures were taken in order to conserve drill fluids and to prevent site contamination by drill additives or metals liberated by the drilling.

During the 2009 drill program, water for the drilling was trucked from ponds sporadically located along the main drainages crossing the property, and stored at the drill site until required. Diamond drill hole M-43 encountered abundant subsurface water, and was therefore fitted with a submersible pump to provide water for the 2010 diamond drilling. Water was trucked to the drills from M-43 for all drilling completed in the Manga areas. Water for drilling in the Mainty area was trucked from a pond located 2 km north-west of the Mainty drilling.

11.1.2 Core Handling Procedures

The core is delivered from the drill site to the camp by pickup truck under the supervision of the drilling company or an official designated by Energizer at the end of every 12-hour shift. Drill core is stored in galvanized-steel core boxes 1 m in length holding 6 m BTW core (2008) and 5 m HQ core or 7 m NQ core (2009). The core boxes are laid out on the benches in order. A general review of the core takes place, looking at the overall condition and recovery of the core. Errors in run markers are noted. Technicians wash mud and debris from the core with the use of hand pump sprayers and brushes. All drill core is stored at Energizer's Fotadrevo campsite within a 20 m x 25 m fenced enclosure.

11.1.3 Core Logging

Energizer is using a logging system developed by Taiga. At this early stage of exploration, there is no restricted list of rock units for core logging as the stratigraphy is still being developed. Taiga contracted a geologist graduated from an accredited university who logged the drill core.

Core logging is recorded onto paper logs with subsequent transfer to computer. No hand-written logs were available for recent drilling. Core logs contain observations of geology, structure, mineralogy, alteration, and sample interval descriptions.

The drill program manager checked the logs and limited programming within the computer file to avoid overlapping intervals or interval gaps.

11.1.4 Core Recovery

Trained technicians are responsible for collecting geotechnical data such as rock quality description (RQD) and core recovery. The data is recorded onto paper forms with entry into computer logs at the end of the day.

Core recovery from the 2008 drill program logs indicate that recovery was poor to fair in the weathered rock zones, and fair to good in the fresh rock recovery. AGP personnel on-site visually confirmed this observation.

Recovery has improved during the fall 2009 drill program, which took place during the site visit. This is likely due to the use of a larger core diameter, more efficient use of drilling mud, and possibly due to a change in the drill contractor.

11.1.5 Core Photography

The core was photographed in groups of two boxes and then forwarded for cutting. Core was typically photographed wet.

11.1.6 Collar Survey

Hole collar locations were initially established in the field using global positioning system (GPS) instruments. Collar locations were re-measured using a hand-held GPS following hole completion. Nominal accuracy of these positions, as stated by the manufacturer of the GPS units, is ±3 m.

All drill collar sites have been reclaimed and collar markings were wither not left in the ground or have been removed by the local population. It was recommended to Energizer to

plug the drill holes approximately one metre down the hole, fill the hole with cement up to surface level, then insert a one-metre piece of rebar into the cement. This makes the removal of the stake difficult and allows the collar to be located with the use of a metal detector if required. Upon completion of each drill hole, Energizer now pours a concrete marker to mark the location of the hole.

11.1.7 Down Hole Surveys

In 2008, there were no down hole azimuths or declinations recorded for any of the drill holes. In 2009 and 2010, Boart Longyear used single shot Reflex equipment on all diamond drill holes to measure down hole azimuths and inclinations. Measurements were taken after the surface casing (generally 10 m to 15 m depth) and every 50 m thereafter unless hole conditions dictated otherwise.

11.1.8 Geotechnical Logging

Geotechnical logging consisted of RQD measurements and core recovery calculations. The data was collected on paper forms and later transcribed into an Excel spreadsheet.

RQD measurements were calculated using a minimum 10 cm core length according to the following formula.

$$RQD = Run\ Length - \frac{(\sum Pieces\ of\ core < 10\ cm)}{Run\ Length}$$

Due to the poor core recoveries, the rock strength and weathered properties were not considered in the calculation.

Core recovery was a function of actual measured core in the run divided by the expected core length.

11.1.9 Diamond Drill Results

During the course of drilling VMS targets, vanadium mineralization was identified with the aid of Innov-X-Systems' X-50 mobile XRF analyzer. Subsequently, 12 diamond drill holes designed to test vanadiferous mineralization were drilled (TH-08-11 through 14, TH-08-24 through 29, and TH-08-31).

Five vanadium-bearing trends were identified during the course of the exploration program. Figure 11-4 shows these areas, which have been given Malagasy names and are listed below with the meaning of their names in parentheses:

- **Mainty** (black) – Named after its preponderance of sooty black gossan. Tested with holes TH-08-11, 12, 13, and 14
- **Manga** (blue) – Tested with one hole (Th-08-08), but is believed to be continuous with the Mainty and Jaky target areas
- **Jaky** (red) – Named after the red laterite on its northern boundary. Tested with holes TH-08-01, 02, 24, 25, 26, 27, 28, 29, and 31
- **Fondrana** (yellow) – Tested with one hole (TH-08-10)
- **Maitso** (green) – Named after the mysterious emerald green mineral that initiated vanadium exploration efforts. Tested with holes TH-08-5, 6, 7, and 9.

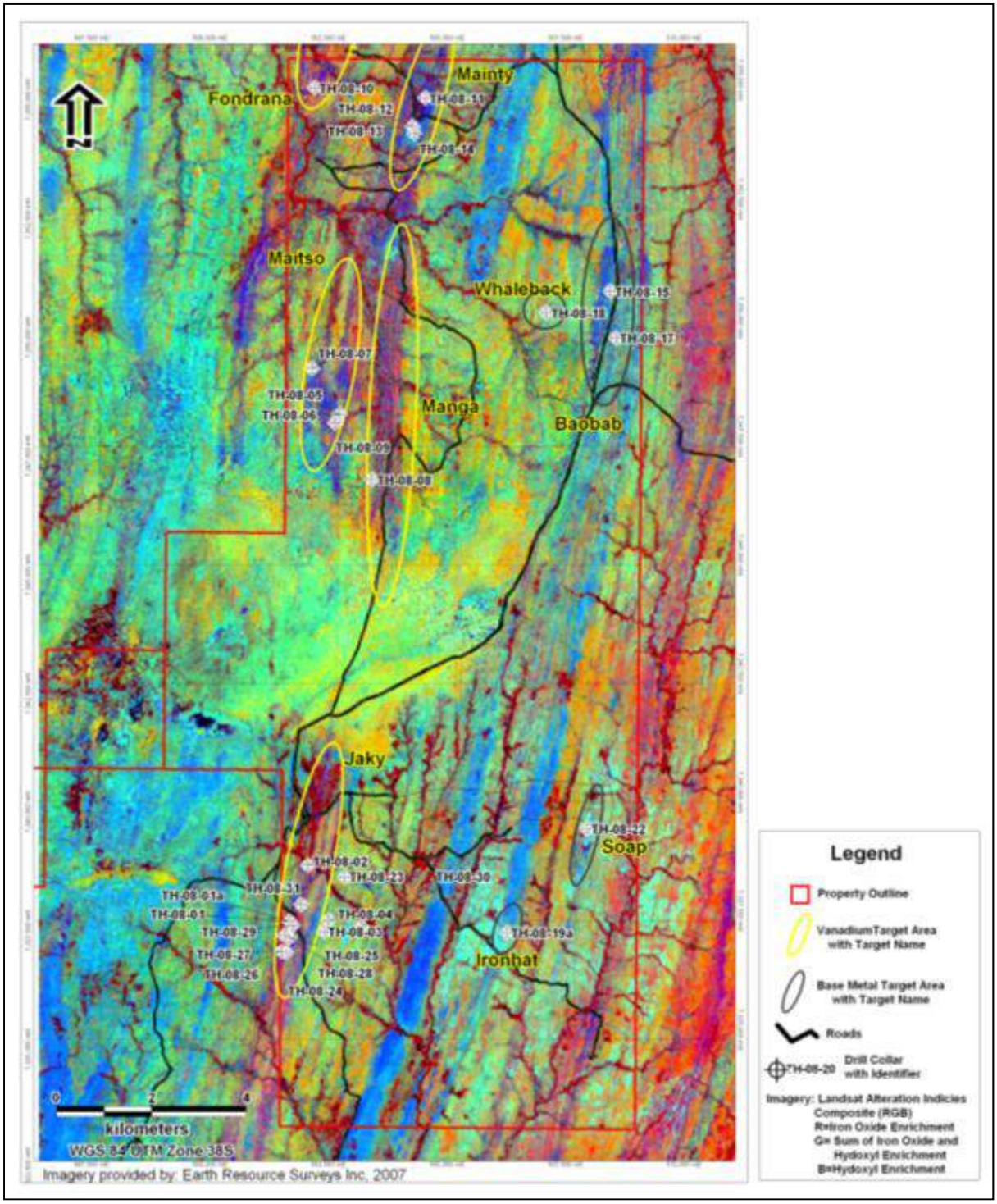
In addition to the five areas listed above, trace levels of vanadium were detected via XRF analysis in the remaining drill holes, over four additional areas not related to radiometric trends. These areas are:

- **Whaleback** – Named after the resemblance of the resistant brecciated chert to the back of a whale. Tested with hole TH-08-18
- **Soap** – Named after the acidified rock encountered in core. Tested with holes TH-08-20, 21, and 22
- **Baobab** – Named after the baobab trees found in the area. Tested with holes TH-08-15, 16, and 18
- **Ironhat** – Named after the 'Iron Hat' gossan that was drill tested with hole TH-08-19.

Drill core sampling returned significant vanadium mineralization from the Mainty and Jaky target areas. The elevated vanadium implied in the other areas was not reproduced.

The Jaky vanadium enriched target area has been investigated by nine diamond drill holes in 2008 (TH-08-01, TH-08-02, TH-08-24 through -29, and TH-08-31) and has been traced over a strike length of 1,800 m. The southern portion of the target area has been drill tested by several ~300 m spaced drill holes. Two incomplete sections (2 holes per section line) were drilled across the southern part of the target. These early sections indicate that there may be at least two mineralized zones.

Figure 11-4: Vanadium Bearing Trend Location



Results from the 2009 program on the Jaky deposit indicated an increase southward of the vanadium mineralization both in strength and in depth with a possible southward plunge. The only mapable units on the sections are the calcareous gneiss and the garnetiferous gneiss intersected in the footwall by the drill holes. The mineralization intersected at Jaky appears strataform, dipping shallowly (35 to 40 degrees) to the west, consisting of at least two parallel-mineralized zones, the grade of vanadium quite variable. The mineralized zone is bounded by a garnetiferous gneiss along the footwall, and a narrow coarsely crystalline marble unit along the hanging wall, striking 10 degrees.

The Jaky mineralized zone extend southward onto the neighbouring property and has been closed off to the north by the current drilling program. There is no further drilling recommended.

The second target area, which returned significant vanadium mineralization (Mainty), is located 16 km north of the northernmost drill hole drilled on the Jaky target. This area was tested in 2008 by four diamond drill holes (TH-08-11 through -14) over a strike length of 750 m. Results from this early program indicated that additional diamond drilling would be required to more adequately test this target area. No further drilling was conducted in 2009 on this target.

It was recognized in 2008 that the Manga vanadium target area located between the Jaky and Mainty occurrences should be drill tested, as similar geophysical and geochemical signatures were detected in this area. One diamond drill hole targeting possible VMS mineralization was completed near this prospect; however, it was collared too far to the west to intersect the possible trend of vanadium mineralization.

The 2009 drill program indicated that the Manga mineralization appears to be a large funnel shaped boudin dipping at 60 to 65 degrees west, plunging to the north, extending to a depth of at least 175 m. The mineralized body has a central high-grade core (>0.8% V_2O_5) surrounded by an envelope of lower grade material. The zone was believed to be open along strike north and south and at depth.

Additional drilling along 200 m spaced section lines, coincident with trench locations, along strike both north and south of the current drilled area was recommended.

During the 2010 exploration program, Energizer focused their attention on further delineating at depth their vanadium resource at the Manga deposit, as well as expanding the Manga deposit on strike to the north (Manga North) and to the south (Manga South). Additionally, Energizer drill tested the vanadium mineralization first identified in the Mainty zone during the course of the 2008 exploration program.

A total of 18 diamond drill holes totalling 3,627.8 m were drilled at the Manga 'Main' deposit. Eleven diamond drill holes totalling 1,934.3 m were drilled to extend the

mineralization north of the Manga deposit, as well as four diamond drill holes totalling 738.5 m being drilled to extend the mineralization south of the Manga deposit.

The 2010 drill program was successful in delineating additional resources to the north of Manga from section 46100N to section 46700N. A narrow zone of mineralization exists between sections 46700N to 47500N. This zone is currently poorly drilled and appears to be less than 10 m wide. North of section 47500N, the Manga Zone expands once again to reach widths of approximately 35 m. To the south, the 2010 drilling extended the Manga deposit from section 47500N to section 46700N. The mineralization ranged in width between 10 to 20 m.

The Mainty target received 11 diamond drill holes totalling 2,351 m. Two additional diamond drill holes were drilled on non-vanadium targets. Specifically, the Ni-01 drill hole (124.7 m) which tested a nickel laterite target, and the Boko-01 drill hole (176 m) which tested the depth extension of artisanal gold workings. Listing of all drill hole collar and direction is included in appendix A.

The drilling at Mainty outlined a mineralized zone of approximately 1,000 m in strike length. Grade distribution within the zone indicates a high-grade core with assay values exceeding 0.5% V_2O_5 over 450 m long surrounded by a lower grade envelope.

12 SAMPLING METHOD AND APPROACH

12.1 X-Ray Fluorescence Analysis

The XRF method is a well-known standard laboratory analysis procedure with a long history in mineral exploration. The use of portable XRF units, however, is much more recent. Originally, the units were developed for use in the steel industry to analyze for product consistency, and to test for unknown metals in the scrap business. Only recently has the mineral industry employed this technology on a wide scale. Generally, the units are well suited for material where the elements to be measured are present in quantities of at least 100s of PPM, and preferably in the percent levels. Care must be taken to calibrate machines often and to ensure that they are in good working order. The machines cannot measure all elements, and have particular difficulty in measuring light elements. Because the machines are measuring spectra and there is spectra overlap between certain elements, it can sometimes be difficult to differentiate a response between adjacent elements on the elemental periodic table, which have spectra overlap. Energizer employs reference standards supplied by the XRF manufacturers and calibration according to Energizer's own in-house standards. XRF units are a valuable tool for mineral exploration; however, they do not duplicate the sample and laboratory analysis procedure, and so are not a replacement for standard industry sampling and analysis procedures.

12.2 Standard Sampling

Energizer employs standard geochemical and channel-sampling procedures and does not process its own samples.

12.2.1 Trench Sampling (2008-2009)

Continuous two-metre chip samples approximately 4 cm wide were taken along the northern edge of the trench floor. The following procedural steps were taken during the sampling process:

- Plastic sample bags are sequentially numbered with a unique series from pre-printed sample books. The QA/QC sample numbers are flagged at this point for later insertion.
- The trench floor is swept clean with hand brooms to ensure there is no contamination from rubble or fines.
- Two technicians use hammers and moils (chisels) to gently dislodge the weathered rock along the channel profile.

- A third technician follows behind to collect the sample material, first verifying the sample tag is in the bag, then matching the sample bag number and the sample book interval.
- The sample bag is sealed with a zip tie with the sample tag inside the bag.
- All samples are brought back to the camp at night for storage in a secure facility until shipment. No trench samples were collected by Energizer in 2010.

12.3 Diamond Drill Sampling

The methodology described below was sourced from the October 2010 report from Taiga consulting as well as by core and log observation and discussions with the geologist on site during the initial site visit conducted by Mr. T. McCracken.

The sampling methodology utilized by Energizer for diamond drill core sampling was first established by Taiga during the 2008 exploration program, and then modified based on recommendations from AGP during the 2009 exploration program.

The diamond drill core sampling procedure, current for the 2010 drill program, can be described as follow:

- Sample intervals is set at 1.5 m (run length), and shortened based on lithologic breaks.
- Sample intervals are recorded in the drill log and in pre-printed sample books. QA/QC samples numbers are flagged at this point for later insertion.
- Plastic sample bags are numbered sequentially with the appropriate sample number.
- Core is cut by a technician using a clean water spray table rock saw. It was observed during the original site visit that no preferred orientation was indicated to the technician.
- Both halves of the sawn core are place back in the box.
- The geologist who logged the core verifies the sample tag with the sample book and placed half of the cut core into the sample bag.
- The sample bag is sealed with a zip tie, placed in another bag (i.e., double bagged) with a duplicate sample number, and a sample tag is inserted between the sample bags to mitigate the destruction of the sample tag.
- All the samples are stored in a secure facility until shipment.

13 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

All of the stream sediment, soil, and rock samples collected in 2007 and 2008 were analyzed by ALS Chemex in Gauteng, a suburb of Johannesburg, South Africa, and later during the program, the samples were analyzed by ALS Chemex in Perth, Australia or Vancouver. All ALS Chemex facilities are ISO 9001:2000 certified.

The analytical methods used in 2008 were fire assay with atomic absorption or gravimetric finish used for gold and silver. Induced Coupled Plasma (ICP) was used for silver trace values. The analytical methods used for base metals (Cu, Pb, Zn) were aqua-regia digestion and either atomic absorption finish or ICP for trace level values. The ICP analysis included: As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, S, Sb, Sc, Sn, Ti, Tl, U, V, W, and Zn. The results were posted to a secure website as CSV files and downloaded by Energizer personnel utilizing a secure client key number obtained directly from ALS Chemex.

The 2009 trench samples and all of the diamond drill hole samples, with the exception of those collected from the BOKO-01 drill hole, were prepared at Genalysis Laboratory Services' Antananarivo facility, and the pulps were then shipped by air to Genalysis in Perth, Australia for final analysis. Genalysis Laboratory Services Pty. Ltd. is accredited to operate in accordance with ISO/IEC 17025, which includes the management requirements of ISO 9001: 2000.

The analytical methods used for vanadium deposit delineation were ICP-OEM for Cu, Ni, V, and Zn, and ICP-MS for As, Pb, Th, and U (Genalysis code D/OES/MS).

Digestion was by oxidative alkaline fusion, using sodium peroxide as the flux in zirconium crucibles, and hydrochloric acid to dissolve the melt. This results in a total dissolution for virtually all minerals. The analytical methods used in 2009 were ICP-OEM for Cu, Ni, V, and Zn, and ICP-MS for the following elements: As, Pb, Th, and U.

Samples with appreciable (>5%) sulphides were subjected by Genalysis to a multi-acid digestion which included hydrofluoric, nitric, perchloric and hydrochloric acids, which was followed by ICP-OES and ICP-MS analyses (Genalysis code AT/OES/MS). The ICP-OES analysis tested for Al, Ca, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, P, S, Sc, Ti, V and Zn, while the ICP-MS tested for Ag, As, Ba, Be, Bi, Cd, Ce, Co, Cs, Dy, Er, Eu, Ga, Gd, Hf, Ho, In, La, Li, Lu, Mo, Nb, Nd, Pb, Pr, Rb, Re, Sb, Se, Sm, Sn, Sr, Ta, tb, Te, Th, Tl, Tm, U, W, Y, Yb and Zr.

During the 2010 drill campaign, Samples deemed by field geologists to potentially host gold mineralization were analyzed using a 25-gram lead collection fire assay with a flame AAS finish (Genalysis code FA25/AAS). Samples deemed by field geologists to potentially host

platinum group element (PGE) mineralization were analyzed with a fire assay with MS finish (Genalysis code NIS/MS). This analysis tested for Au, Ir, Os, Pd, Pt, Rh and Ru.

Drill core samples collected from the BOKO-01 diamond drill hole, as well as soil samples collected in the vicinity of the Boko Gold showing, were submitted to Mintek in Johannesburg, South Africa to expedite the receipt of gold assays. Mintek is accredited to operate in accordance with ISO/IEC 17025, which includes the management requirements of ISO 9001: 2000. Mintek tested the samples for gold with standard fire assay followed by low temperature cupellation and analysis with ICP-OES (Mintek code FA5). A comprehensive suite of elements was also tested for selective samples through XRF analysis (Mintek code XRF5). The elements tested included Al, Si, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Ge, As Se, Br, Rb, Sr, Y, Zr, Nb, Mo, Ag, Cd, in, Sn, Sb, Te, I, Cs, Ba, La, Ce, Hf, Ta, W, Hg, Tl, Pb, Bi, Th and U. The change in laboratory for these samples does not affect the results of the core holes used in this resource estimate update.

All analytical results were emailed directly by both Genalyis and Mintek to the Green Giant Project Manager, as well as the Energizer executive staff and posted on a secure website and downloaded by Energizer personnel using a secure username and password.

At all times during sample collection, storage, and shipment to the laboratory facility, the samples are in the control of Energizer or their agents.

It is AGP's opinion that samples were prepared and analyzed according to industry standards and that the results are secure.

14 DATA VERIFICATION

Taiga geological staff (under contract by Energizer) have made a strong commitment to the geological and assay database for Energizer resources and have, as far as it is possible, produced a database that is complete and well documented.

14.1 Collar and Down Hole Surveys

AGP randomly selected six drill collars during the original site visit to validate (2% of the drill hole dataset). Five of the six drill hole collars were physically located and plotted within the accuracy of the handheld GPS unit being used for validation.

14.2 Drill Logs

During the original site visit, AGP randomly selected six drill holes to review the log's data against the drill core. The holes were not relogged, just checked to verify that the intervals in the logs matched the drill core. No discrepancies were observed.

14.3 Assays

AGP collected a set of trench samples and quartered drill core during the original site visit in an effort to duplicate the results provided by Taiga, Energizer's field contractor. The trench samples have been lost in shipment. Table 14-1 displays a comparison between the original Energizer split core samples and AGP's quarter core samples. Borehole TH-08-24 was the only core not sampled during the 2009 metallurgical program containing significant vanadium mineralization available for sampling. The AGP samples duplicated the Energizer samples and these indicated that the results are reproducible within this dataset (8% of the samples within borehole TH-08-24).

Table 14-1: Drill Core Assay Duplicates

Uranium Star Sample (1/2 core)	V (ppm)	AGP Sample (1/4 core)	V (ppm)	Abs. Relative Diff. %
TH-08-24 20033	4970	00917	4350	12
TH-08-24 20036	5780	00918	6450	10
TH-08-24 20037	4060	00919	4090	1
TH-08-24 20038	4960	00920	5240	5
TH-08-24 20043	6780	00921	7250	6

AGP carried out an internal validation of the drill holes in the Green Giant Property database used in the May 11, 2010's resource estimate. Assay certificates were selected for validation according to the following criteria:

- highest vanadium grade
- the certificates with the highest average vanadium grade
- certificates with the highest assay count
- distribution of the assays in the deposits.

Requests for the certificates were forwarded to Genalysis who issued 36 certificates in comma delimited format directly to AGP's e-mail account.

A total of 72 drill holes and 43 trenches were either partially or completely validated amounting to 3,344 individual samples out of 10,212 that were checked against the electronic version of the certificate provided by the issuing laboratory. The validation rate amounted to 33% of the total assay database.

Vanadium, uranium, thorium, lead, zinc, copper, nickel, and arsenic assays were validated with no errors encountered in the data as shown in Table 14-2.

Table 14-2: Assay Validation Rate

	No. of Assays in Database	No. of Assays Validated	Percent Validated	Nb Errors
DDH (Pre 2010)	3,883	2,070	53%	0
Trench (Pre 2010)	6,327	1,274	20%	0
DDH (2010)	2,159	996	46%	0
Total	**12,369**	**4,343**	**35%**	**0**

The drill database was also validated for out of sequence, overlapping, and zero length intervals using the tools supplied by GEMS. Minor errors were reported by the application and all were corrected prior to the resource estimation.

The same procedure was used for the 2010 drill results. Ten certificates were requested from Genalysis who issued the certificate in comma delimited format directly into AGP's e-mail account.

A total of 27 drill holes drilled in 2010 were either partially or completely validated amounting to 996 individual samples out of 2159 that were checked against the electronic version of the certificate provided by the issuing laboratory. The validation rate amounted to

46% of the 2010 assay results. Validation rate for the Mainty deposit amounted to 25% of all 2010 assays and for Manga the validation rate amounted to 62%.

Vanadium, uranium, thorium, lead, zinc, copper, nickel, and arsenic assays were validated with no errors encountered in the data as shown in Table 14-2.

14.4 Density

Samples were not collected for density measurement during the 2008-drill program; however, the equipment to measure the specific gravity was already on-site during the site visit in preparation for the fall 2009 drill program.

The process to measure the specific gravity is as follow:

- Pieces of whole core are collected and the rock types documented.
- Pieces of core are dipped into wet paraffin wax and allowed to dry; this seals the core to avoid the absorption of moisture.
- The pieces of core are weighed dry, followed by weighing in a water bath (see Photo 1).

All data is collected on paper forms and transferred to a spreadsheet for future calculations.

Photo 1: *SG Scale*

At the completion of the 2009 drill campaign, an additional 230 samples were added to the 72 measurements previously recorded in the database.

Energizer continues to measure the specific gravity during the 2010 drill program and 324 additional readings were collected. The number of reading in the database now totalled 626.

14.5 Assay QA/QC

14.5.1 Standard Reference Material

During the 2008 exploration program, Energizer began implementing protocols for a QA/QC program, which consisted of the insertion of standards within the sample streams. Base metal and precious metal certified standard reference material (SRM) was inserted within both the stream and core sampling completed during the 2008 program. Vanadium standards were not used in the 2008 drill program as the exploration was at that time focused on VMS targets.

In 2008, Energizer used two certified standards purchased from Ore Research & Exploration Pty Ltd. of Bayswater North, Australia. Ore research provides reference material with a range of low-grade, mid-grade, and high-grade precious and base metal standards with known values and within statistically acceptable limits. Uranium Star used low- to high-iron multi-element geochemical standards OREAS 43P and 44P. These samples are composites, having been prepared from several source materials (gold-bearing greywacke, gossan, laterite, etc.) to optimize metal concentrations and retain gold homogeneity.

A total of 38 certified standards (5% of samples) were inserted within the diamond drill core sample sequence: 18 OREAS 43P and 20 OREAS 44P samples. AGP has not reviewed the results of the SRM used during the 2008 drill program since neither SRM is certified for vanadium.

Due to the lack of commercially available vanadium certified reference standards, Energizer has created two vanadium reference standards, TH01 and TH02, from material sourced on the property. CDN Resources Labs of Delta, BC, prepared the two standards and the material has completed Round Robin assaying and was certified by Dr. Barry.

Both SRM samples are certified for fusion-XRF analysis, while the current V analysis done by Genalysis is ICP-OES. A failure of an SRM is considered any result outside the certified mean ±3 standard deviations.

14.5.2 TH01

TH01 is a low-grade V SRM and had an insertion rate of 6%. The grade of this SRM is potentially well below any cutoff grade to be utilized in future resource calculations.

The TH01 samples submitted during the 2009 trenching and drilling program had a failure rate of 54% or 224 samples (Figure 14-1) with five of the failures likely related to mislabelling of the standard. This is an extremely high error rate. The 0.341% V_2O_5 mean of the 422 TH01 samples submitted was outside the +3 standard deviations of the certified mean. The standard deviation of this SRM is extremely low at 0.0025%, and it was noted in the round robin for this SRM that the results from Genalysis were at the higher end of the dataset.

The TH01 samples submitted during the 2010 drilling program had a failure rate of 16.9% or 12 samples out of 71 (Figure 14-2) with four of the failures likely related to mislabelling of the standard. With the extraction of the mislabelled standards, the failure rate was 11.3%, over twice the industry accepted standard of 5%.

Figure 14-1: TH01 (Pre-2010)

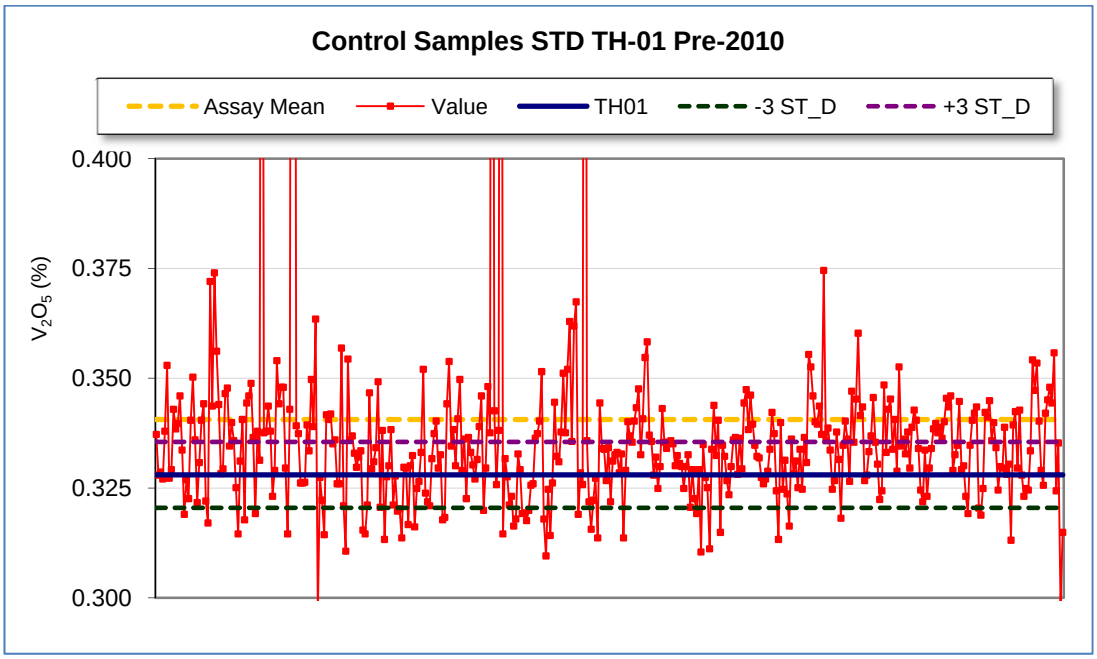
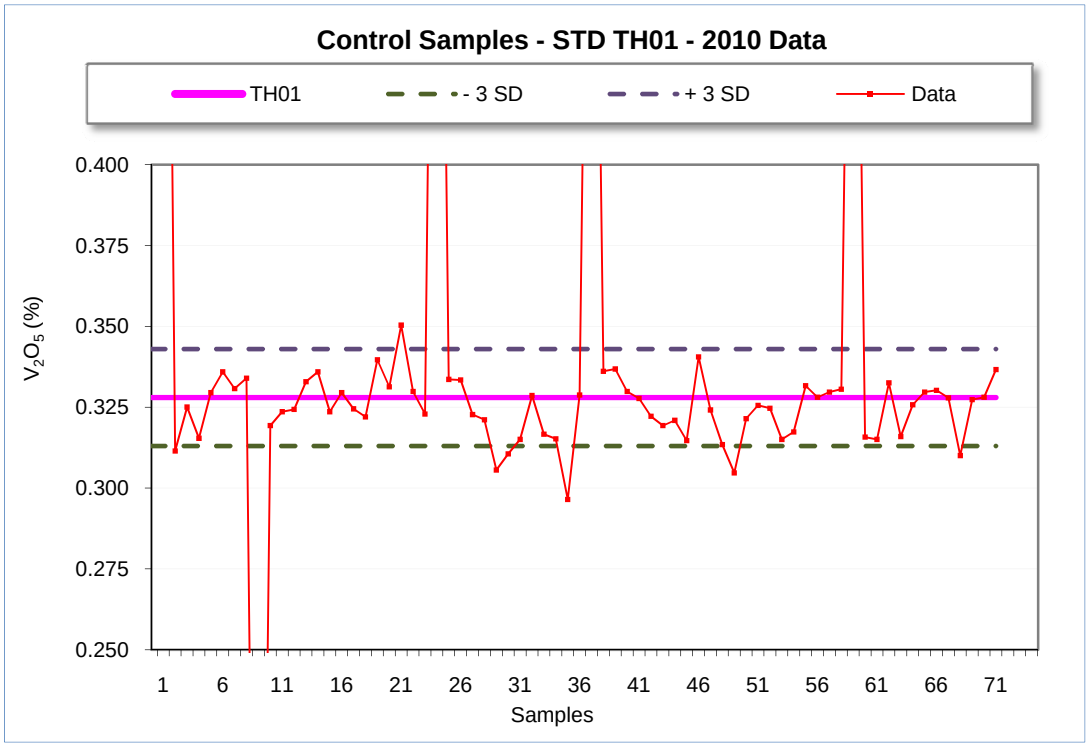


Figure 14-2: TH01 (2010)

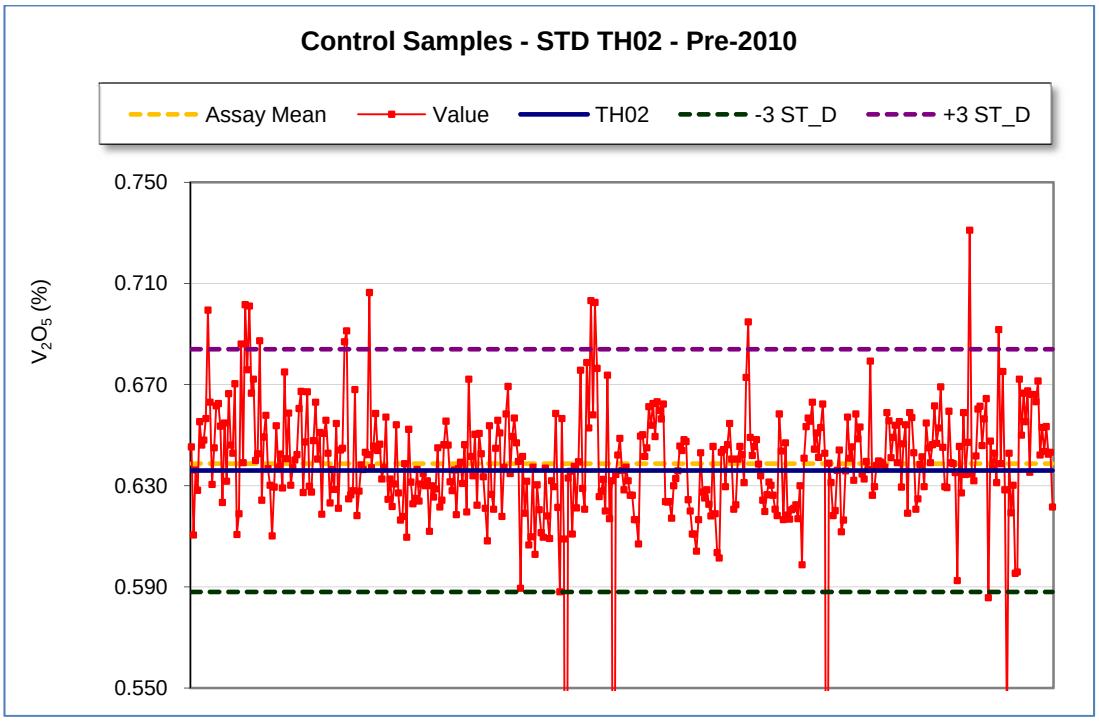


The continuing poor performance of this standard was discussed with Genalysis and the likely cause of the high failure rate is the different analytical procedure. It is recommended that Energizer re-assay a series of pulps at a secondary laboratory, switch analytical procedures to test the suitability of the analytical method to provide accurate results, and more closely monitor their QA/QC sample insertion procedure to mitigate labelling errors.

14.5.3 TH02

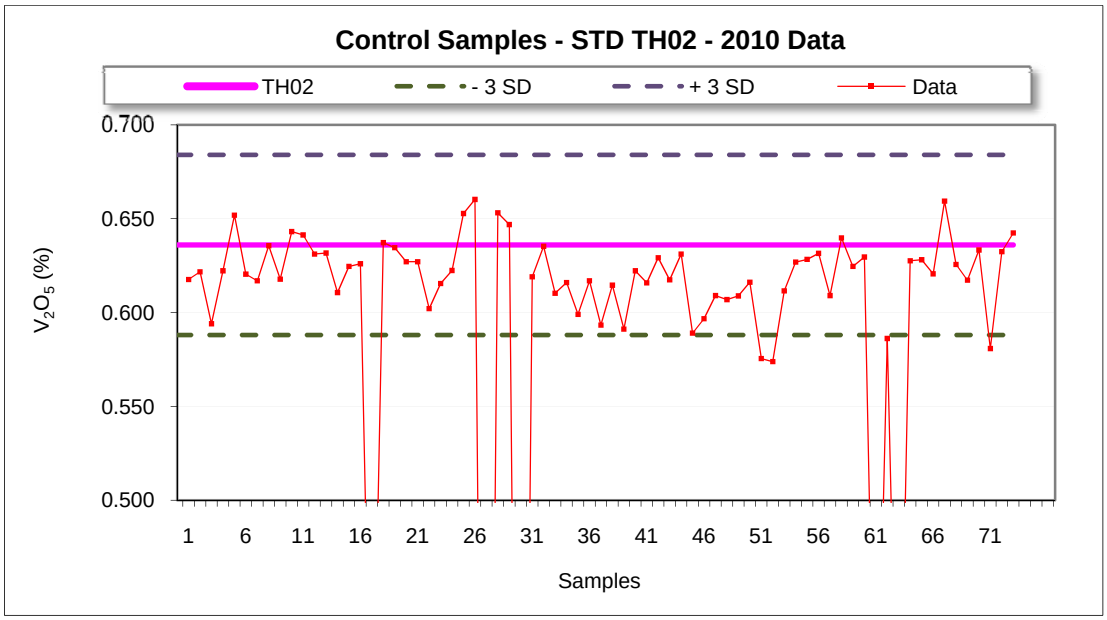
TH02 is a medium grade V SRM submitted during the 2009 trenching and drilling program and had an insertion rate of 5%. The failure rate was 4% or 18 samples (Figure 14-3) with four of the failures likely related to mislabelling of the standard. This is only slightly lower than the industry accepted 5%. The 0.639% V_2O_5 mean value of the analytical results was the very close the expected SRM value of 0.636% V_2O_5.

Figure 14-3: Control Samples – STD TH02, Pre-2010



TH02 samples submitted during the 2010 drilling program had an insertion rate of 5%. The failure rate was 12.3% or 9 samples out of 73 (Figure 14-4) with four of the failures likely related to mislabelling of the standard. With the extraction of the mislabelled standards, the failure rate was 6.8%, slightly higher than the industry accepted 5%.

Figure 14-4: Control Samples – STD TH02, 2010 Data



14.5.4 Duplicates

No duplicate core samples were collected during the 2008 diamond drill program.

During the spring 2009 drilling and trenching program, 287 duplicate samples were collected, representing an insertion rate of 5%, which is acceptable industry standard.

Regression line shows excellent correlation between the original value and the duplicate with a R^2 value of 0.94 (Figure 14-5). The removal of six outliers improves the R^2 value to 0.98.

During the course of the 2010 exploration program, 47 duplicate samples were collected, representing an insertion rate of 2.2%. Regression analysis shows an excellent correlation between the original value and the duplicate with a R^2 value of 0.95 (Figure 14-6). The removal of one outlier improves the R^2 value to 0.99.

Figure 14-5: Duplicate for Pre-2010 Data

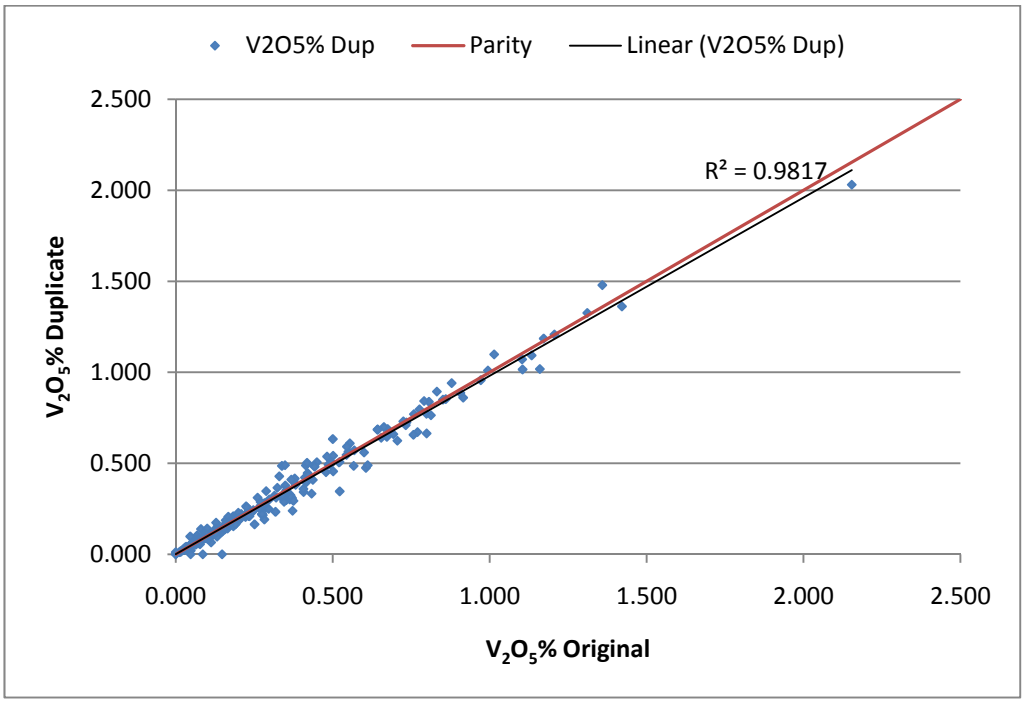
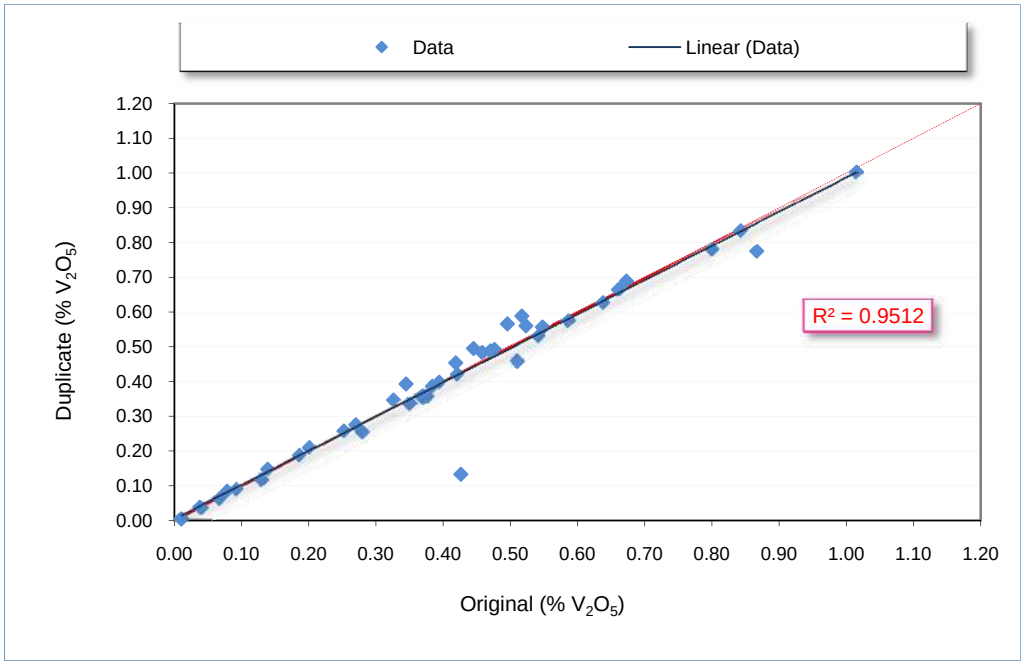


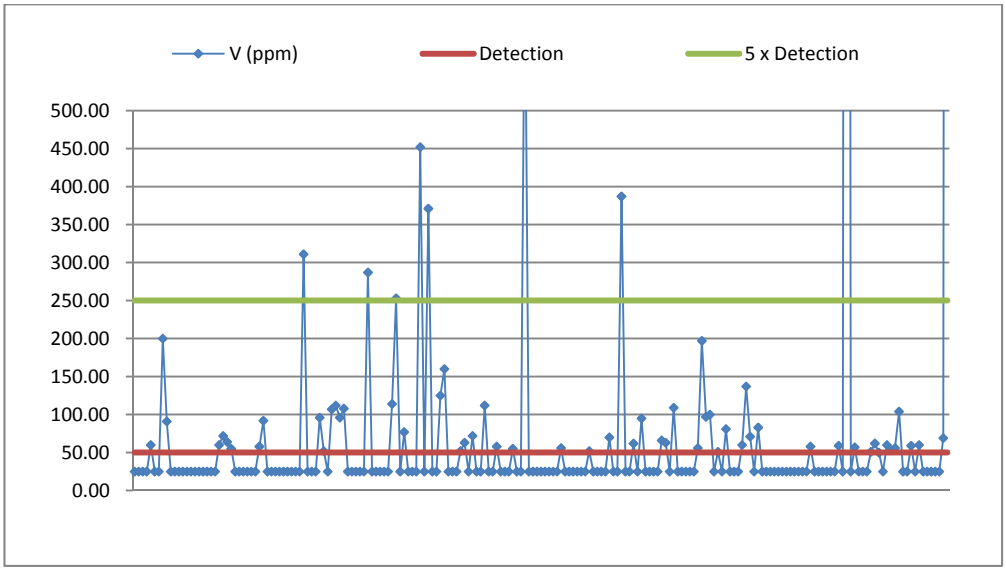
Figure 14-6: Duplicate for 2010 Data



14.5.5 Blanks

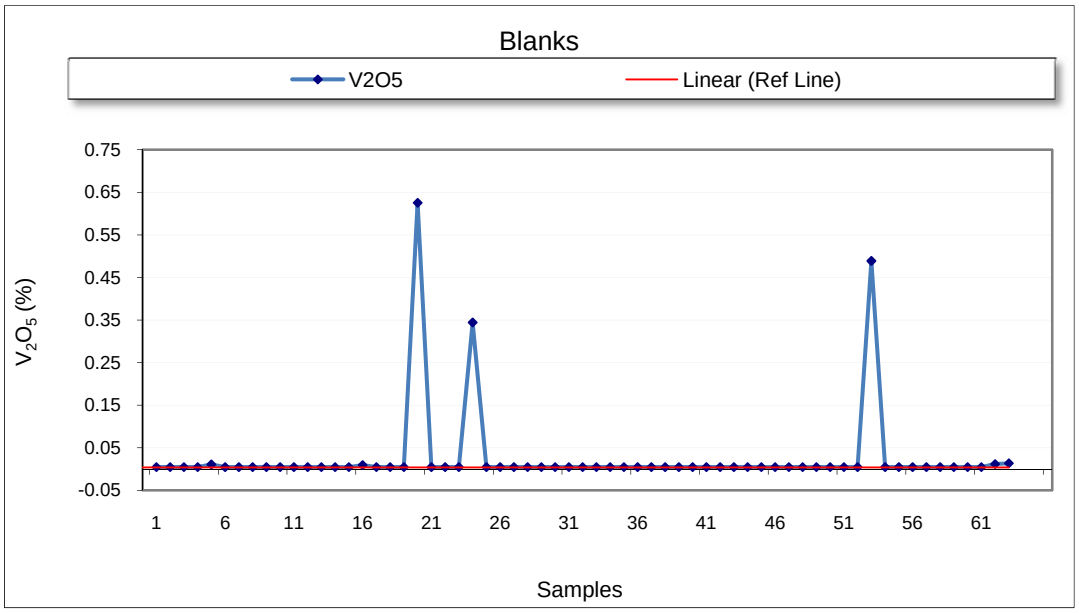
No blank samples were submitted into the sample streams for the 2008 diamond drill program or the spring 2009 trenching program. During the 2009 drill program, Energizer has now implemented this additional protocol. A total of 204 blank samples were inserted in the sample stream. The blank material used was marble. Results from the analysis indicated that nine samples out of 204 exceeded five times the detection limit (Figure 14-7). This amounted to a failure rate of 4.4%, which is considered by AGP to be high, but still within acceptable range considering the material used.

Figure 14-7: Blank Results for 2009



During the course of the 2010 exploration program, 63 blanks were inserted into the sample stream, representing an insertion rate of 2.9%. The blank material used was 'play sand', fine-grained quartz sand, sourced from a hardware store in Antananarivo. Results from the analysis indicated that three samples greatly exceeded the detection limit of vanadium, which represents 4.8% failure (Figure 14-8). However, the assayed values of these samples indicated that they were mislabelled reference standards. It is recommended that Energizer more closely monitor their QA/QC sample insertion protocols in the future to mitigate labelling errors.

Figure 14-8: Blanks Results for 2010



14.6 XRF QA/QC Procedures

During field use, each Niton XRF unit is calibrated daily using the internal calibration function to verify each unit is functioning correctly. The unit measures a small grain of silver located on the back of the X-ray tube's shutter and generates spectra, which are then compared with the internally stored spectra for silver. If the calibration reading differs greatly from the stored number, it is an indication that the unit's optics are out of alignment, and subsequent sample readings will be highly suspect.

After each shutdown and restart of the instrument throughout the day, the operator also conducts a calibration.

Following the initial daily calibration, six samples contained within XRF sample cups are analyzed:

- 20029
- 20073
- 21245
- TH01 (prepared for program)
- TH02 (prepared for program)
- SiO_2 Blank (supplied by Elemental Controls Ltd).

While not certified standard material, samples 20029, 20073, and 21245 were measured daily in order to provide an additional verification of the equipment used. The units have been found to provide highly consistent readings during field-testing.

TH01, TH02, and the SiO_2 Blank are prepared sample standards. Reported vanadium values can be verified and/or corrected when these samples have been analyzed. The SiO_2 Blank has a known value of 55 ppm vanadium.

None of the XRF data was used in the resource estimation; Taiga uses the equipment to assist in the exploration program.

14.7 Metallurgical Sample Selection, Collection and Shipping

Samples of oxide and silicate mineralization for the Phase 3 metallurgical program were selected by Andy Holloway of AGP Mining Consultants (detailed in Section 16.0). The on-site collection, bagging and shipping preparation work was supervised in part by Mr Holloway as part of a site visit in May 2010.

14.8 Site Visit Photos

A series of selected photographs from the site visit are included below. The author would like to illustrate via these photos (Figure 14-9) the robust trenching program on the Green Giant property.

Figure 14-9: Site Visit Photos

Trenches on the Green Giant property

Sampling at the bottom of the trench

Diamond drilling

Core cutting area

TH08-24 at 36.9 m grading 0.89% V_2O_5 - Jaky

Core logging on the Green Giant property

Metallurgical Samples awaiting cutting (foreground) and bagged for shipping (background)

15 ADJACENT PROPERTIES

Three stone quarries located to the northeast of the Green Giant Property, only one of which is currently in production. This quarry produces labradorite blocks for export to Italy through the port of Toliara.

There are no previous reports of vanadium mineralization in the area.

16 MINERAL PROCESSING AND METALLURGICAL TESTING

When it was established in 2008 that a group of significant vanadium deposits existed within the Green Giant property, a preliminary series of petrographic studies and preliminary metallurgical tests were completed on a selection of reject samples from the original laboratory analyses. A summary of this historical work is described below.

Subsequent hydrometallurgical scoping work has tested a variety of leaching options for several composite samples of oxide and primary mineralization. The results of the more recent scoping testwork are also discussed herein.

16.1 Historical Work

Metallurgical testwork on samples of Green Giant oxide mineralization commenced in 2008, with heavy liquids separation work at Microlithics Laboratories and sulphuric acid leaching work at SGS Canada Inc. (Lakefield). This work is described in the 2010 43-101 Technical Report (24 June 2010)

At Microlithics, a series of heavy liquids separations were conducted at 2.88 kg/L and 3.35 kg/L on 12 assay reject samples (-4mm). Each sample was split into size fractions and only the middle fraction (-2 mm +0.25 mm) was selected for heavy liquid processing. The results did not provide satisfactory vanadium separations for the oxide samples, with the conclusion drawn that gravity separation techniques would be challenging for the oxide mineralization.

After completion of the Microlithics HLS work, Energizer directed SGS Minerals Services to complete a preliminary acid leaching program to determine the extractability of vanadium from two composite samples (silicate and oxide mineralization). Sample headgrades are given in Table 16-1.

Two leaching tests were completed on each composite using sulphuric acid as a lixiviant, a leach temperature of 80°C and different free acid concentrations (20 g/L and 100 g/L). The vanadium extractions obtained with 100 g/L acid were encouraging (78.2% extraction for the silicate composite and 69.9% for the oxide composite), but the calculated consumption of sulphuric acid was judged to be rather high at 250 kg/t and 179 kg/t for the oxide and silicate composite respectively. The high consumptions were attributed to the high co-extraction of acid consuming elements such as aluminium, magnesium, and manganese in both samples.

Table 16-2 summarizes test conditions and rates of vanadium extraction for the four tests.

Table 16-1: Head Assays

	Silicate Composite	Oxide Composite
V_2O_5, %	0.57	0.95
SiO_2, %	56.4	61.6
Al_2O_3, %	11.4	12.3
Fe_2O_3, %	6.26	7.86
MgO, %	2.61	0.47
CaO, %	2.56	0.13
Na_2O, %	0.15	0.17
K_2O, %	1.87	1.9
TiO_2, %	0.58	0.63
P_2O_5, %	0.77	1.32
MnO, %	0.13	0.01
Cr_2O_3, %	0.04	0.05
LOI, %	14.7	12.9
Sum, %	98.1	100.3

Table 16-2: Average Test Conditions

Test ID	L1	L2	L3	L4
Sample	Oxide	Oxide	Silicate	Silicate
Avg. T, °C	82	81	81	81
Feed % solids	25	25	25	25
Avg. FAT, g/L H_2SO_4	101	20	103	20
Avg. pH	-0.2	0.8	-0.3	0.5
Avg. ORP, mV	630	516	865	731
Acid Consumption	250	102	179	52
24 h V Extraction	69.9%	34.5%	78.2%	39.9%

16.2 2009/2010 Metallurgical Test Program

As the early metallurgical work on assay reject samples indicated that vanadium is not refractory to leaching with sulphuric acid, the metallurgical test program was expanded to include a wider range of scoping testwork and mineralogical characterisation. It was anticipated that this program of work would provide sufficient information to allow production of an internal desktop study including order of magnitude capital and operating cost estimates.

The 2009/10 metallurgical program included the following areas of focus:

- Mineralogical Characterization — To improve understanding of the distribution and association of vanadium-rich minerals within samples of silicate and oxide mineralization.
- Preconcentration — A program of physical and chemical separation techniques (such as flotation, screening, and/or gravity concentration) designed to upgrade the run of mine material prior to hydrometallurgical processing.
- Acid Leaching — To develop the initial acid leaching work conducted at SGS, testing a variety of different conditions, including temperature/pressure, leach time, mesh of grind, oxidant additions.
- Alkaline Leaching — Parallel work to test amenability of oxide and primary mineralization to various alkaline lixiviants (Soda ash, caustic

Metallurgical scoping work was conducted in several phases as summarized below.

16.2.1 Phase 1 (2009): Mintek, Mineralogy, and Leaching

Trench and core samples of oxide and silicate mineralization were selected by Energizer and delivered to Mintek, Johannesburg. These samples were used to create an oxide composite of 138 kg and a silicate composite of 108 kg, and both composites were then submitted for mineralogy and a series of atmospheric leaching tests as outlined below.

The Mintek Phase 1 report (3 February 2010) is attached (Appendix H).

Sample headgrades were considered low to average.

Table 16-3: Sample Headgrades

Head Samples	V (g/t)	V_2O_5 (g/t)	Si (%)	Al (%)	Fe (%)	Ti (%)	Ca (%)	Mg (%)
Oxide	2,700	4,820	29.6	6.62	5.23	0.36	0.32	0.31
Primary	2,500	4,463	27.7	5.7	5.19	0.34	0.86	1.04
Head Samples	Cr %	Mn %	Co %	Ni %	Cu %	Zn %	Pb %	Total C %
Oxide	0.064	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	n/a
Primary	<0.05	0.18	<0.05	<0.05	0.07	<0.05	<0.05	n/a

A total of 13 grab samples were taken from the two composites prior to crushing. The mineralogical investigation, which included x-ray diffraction, optical point counting, and scanning electron microscopy, described the composites as follows:

Oxide: Weathered and oxidized graphite phlogophite schists with high percentages of kaolinite clay, jarosite, and goethite

Primary: Graphite phlogophite schists with jarosite and pyrite. Parts of some samples a carbonatized by a Mn Fe Carbonate (Oligonite)

Table 16-4 shows a summary of the modal mineral abundance data generated by this investigation.

Table 16-4: Modal Percentages of Minerals Present in Primary and Oxide Composites

Mineral	Formulae	Primary (%)	Oxide (%)
Sulphides	FeS_2	3.3	0.0
Quartz	SiO_2	33.9	35.9
Graphite	C	17.2	15.9
Clay Mineral	$Al_2Si_20_5(OH)_4$	16.9	22.3
K Feldspar	$KAl_2Si_30_8$	9.9	3.4
Roscoelite	$K(Mg,Al,V^{3+})[(Si,Al)_40_{10}](OH)_2$	6.3	0.5
Clay Mineral with V	$(Al,V)_2Si_20_5(OH)_4$	4.5	6.5
Ti/Fe Oxides with V		1.6	4.0
Others		6.4	11.5

The modal data together with mineral chemistry measurements (measured by electron microprobe) allows for the calculation of vanadium deportment data, which is summarized in Table 16-5.

Table 16-5: Vanadium Deportment Data

Mineral	Primary (%)	Oxide (%)
Roscoelite (Low V)	42.6	2.0
Clay Mineral V	7.4	11.8
Roscoelite	7.4	2.0
FeTiV Oxide	1.8	11.8
FeV Oxide	35.2	64.6
TiV Oxide	3.8	7.8
Others	1.8	0.0

The data suggests that in both composites, the majority of vanadium is contained in iron oxides and clay minerals. Roscoelite is a vanadium bearing mica mineral. As expected, the silicate composite was determined to have more vanadium bearing silicate minerals compared to the oxide composite (58%/42% silicate/oxide split in the silicate composite versus 18%/82% for the oxide composite).

Atmospheric leaching of both composites was completed using sulphuric acid, sodium carbonate and sodium hydroxide as alternative lixiviants. In all cases, a 48-hour leach at 70°°C was tested using feed samples ground to 100 µm at 40% solids. For the acid leach tests, the redox potential was maintained at 700 MV (Ag/AgCl) using MnO_2.

Vanadium extraction and lixiviant consumption rate for each test is shown in Table 16-6.

Table 16-6: Phase 1 Leaching Test Results

	V_20_5 Extraction, %		Lixiviant Dosage (kg/t)	
Lixiviant	Primary	Oxide	Primary	Oxide
Conc. Sulphuric Acid	77	72	373	180
Sodium Carbonate	3	10	18	43
Sodium Hydroxide	7	3	35	26

Clearly sulphuric acid is a more aggressive lixiviant, and better able to extract vanadium from the silicate and oxide gangue minerals. Both alkaline lixiviants were ineffective, with very low vanadium extractions achieved under the stated conditions. Consistent with the historical work, sulphuric acid dosages remain high.

It was noted from the mineralogical investigation that approximately 50% of the mass in both composites was made up of quartz and graphite and thus it was recommended that preconcentration methods be tested with the objective of removing some or all of this mass prior to leaching. The vanadium deportment data suggests that little to no vanadium is associated with these gangue minerals, although liberation data was not supplied as part of this preliminary investigation.

It was also noted that given the high acid consumptions measured for silicate ore, further (Phase 2) testing should be conducted on higher-grade samples.

Preliminary attempts at removal of quartz and graphite using flotation and shaking tables/hydroseparators was unsuccessful, although more complete testing was recommended for future samples.

16.2.2 Phase 2 (2010): Mintek, Leaching and Preconcentration

As the exploration work continued, more focus was placed on the Manga zone. Drill core samples of silicate mineralization from both Jaky and Manga zones were selected by Energizer and delivered to Mintek, Johannesburg. These samples were used to create a Manga Silicate composite of 221 kg and a Jaky silicate composite of 252kg.

The Phase 2 program at Mintek was designed to further test preconcentration (flotation and screening) and to develop the extraction program to include pressure leaches, finer grinds, and salt roasting/water leach processes.

The Mintek Phase 2 report (26 October 2010) is attached (Appendix H).

As anticipated, sample headgrades were more in line with initial estimates of average process feed grades – close to double the grades from Phase 1. Table 16-7 lists the head analysis for the new Mintek composites.

Table 16-7: Sample Headgrades

Head Samples	V	V_2O_5	Si	Al	Fe	Ti	Ca	Mg
	g/t	g/t	%	%	%	%	%	%
Jaky	5250	9371	27.70	6.92	4.80	0.36	0.77	1.28
Manga	5100	9104	26.04	6.22	5.77	0.34	1.20	1.38

Head Samples	Cr	Mn	Co	Ni	Cu	Zn	Pb	Total C
	%	%	%	%	%	%	%	%
Jaky	<0.05	0.08	<0.05	<0.05	0.06	<0.05	<0.05	3.27
Manga	<0.05	0.54	<0.05	<0.05	0.07	<0.05	<0.05	3.03

Flotation

The flotation test-work program investigated the feasibility of graphite removal ahead of leaching as a means to obtain a higher leach feed vanadium grade. Removal of quartz in a reverse-type flotation was attempted to further upgrade the vanadium stream prior to leaching. For the Jacky sample, the graphite removal stage removed only 10% of the total carbon, while removal of 81% of the total carbon was obtained for the Manga samples. However, 8% and 5% of the V_2O_5 were also removed, respectively. The V_2O_5 distribution was strongly associated with the mass distribution.

The graphite bulk float tails was de-slimed using a cyclone. Flotation test work was conducted on products from the cyclone underflow samples that focused on quartz removal. These tests indicated that there was no significant quartz removal to the flotation froth

stream. Also, any flotation of easily floatable carbon, sulphide or carbonate invariably resulted in losses of vanadium. Hence, flotation was not able to significantly upgrade the vanadium for both ores, as the vanadium appeared to be closely associated with all the mineral types present.

A staged-milling test was conducted on the Manga sample in an attempt to concentrate the harder quartz mineralization into coarse fractions. Test results indicated that there was no significant upgrade of vanadium to the coarse or slimes fractions, but all slime fractions merely graded similarly to that of the feed sample.

Leaching

Atmospheric leach tests were carried out on the Manga sample (silicate mineralization) only, using sulphuric acid as lixiviant. Test results are summarized in Table 16-8.

Table 16-8: Phase 2 Acid Leaching

Acid Leach Conditions	Leach Time (h)	%V Extraction (solids)	H_2SO_4 Addition (kg/t)	H_2SO_4 Consumption (kg/t)	MnO_4 Consumption (kg/t)
Test 1: 100 g/L H_2SO_4, 70°C, 80% -75 µm	24	67	535	401	139
Test 2: 100 g/L H_2SO_4, 90°C, 80% -45 µm	24	69	586	478	132
Test 3: 100 g/L H_2SO_4, 90°C, 80% -75 µm	24	66	541	393	82
Test 4: 50 g/L H_2SO_4, 90°C, 80% -75 µm	24	53	599	515	122
Test 5: 300 kg/t H_2SO_4, 180°C, 80% -45 µm	3	77	297	218	-
Test 6: 150 kg/t H_2SO_4, 70°C, 80% -75 µm	3	36	150	56	-

Grind size, residual sulphuric acid concentrations and temperature influenced the vanadium extraction efficiencies, but acid consumption rates remained high in order to achieve higher vanadium extractions. Where higher vanadium extractions were noted, similarly high co-extraction of other elements occurred. High levels of magnesium and aluminium is believed to result from the dissolution from vanadium bearing micas and clays.

Table 16-9 gives the final solution analysis for tests 2 and 5.

Table 16-9: Leach Solution Assays – Phase 2 Testing

Test	Mg (ppm)	Al (g/L)	Si (ppm)	Ti (ppm)	Cr (ppm)	Mn (g/L)	Fe (g/L)	Ni (ppm)	Cu (ppm)	S (g/L)
2	6,760	15.7	<2	498	590	50.7	20.7	307	290	192
5	10,900	19.0	209	185	358	4.5	15.8	300	640	96.6

Compared to acid leaching, the pressure leach using sodium carbonate resulted in lower vanadium extraction efficiencies (given in Table 16-10). It should be noted however, that these extractions represent a significant increase in effectiveness compared to the atmospheric tests completed as part of Phase 1. In addition, pregnant leach solutions remain relatively clear of the problematic elements measured for the sulphuric acid work.

Table 16-10: Phase 2 Alkaline Leaching

Alkaline Leach Conditions	Leach Time (h)	%V Extraction (solids)	Na_2CO_3 Addition (kg/t)	Na_2CO_3 Consumption (kg/t)
220°C, 80% -45 µm, 600 kPa overpressure	3	43	168	85
220°C, 80% -45 µm, 1,100 kPa overpressure	3	51	261	126

In addition to acid and alkaline leaching, samples of the Manga composite were submitted for preliminary alkaline salt roasting work using sodium chloride, sodium carbonate, and sodium sulphate in the roasting processes. One-hour roasts at +1,000°C were conducted on 10-kg charges. The salt roasting process is common in ultramafic vanadium operations, and would be expected to result in the production of water-soluble vanadium salts.

Leaching of the salt roast residues was completed over a 24-hour period, using water heated to 90°C and a pulp density of 40% solids (w/w). Residues were ground to 80% -75 µm. Vanadium extractions were poor, with 33% extracted from the NaCl roast residue, 26% extracted from the Na_2CO_3 roast residue and only 7% extracted from the Na_2SO_4 roast residue.

16.2.3 Phase 3 (2010): Sample Selection and Composite Preparation

For Phase 3 testing, updated resource data together with the most recent exploration information was used to select two sets of drill core samples, chosen to represent to oxide and silicate (primary) mineralization. These sample sets were further split into two, with the first set then sent to Mintek (Johannesburg) and the second set sent to SGS (Lakefield, Ontario).

Samples were selected from a wide range of locations in the x, y, and z planes within the respective envelope (oxide or silicate) from the Manga Zone. An average grade of 0.7% to 0.8% V_2O_5 was targeted, simulating the average deposit grade at a cutoff grade of 0.5% V_2O_5.

The sample breakdown and grade estimates are summarized in Table 16-11.

Table 16-11: Sample Selection and Average Grades

	To Mintek			To SGS		
	# Samples	# Holes	% V_2O_5	# Samples	# Holes	% V_2O_5
Silicate (Primary)	61	9	0.80	149	9	0.74
Oxide	73	9	0.69	110	9	0.69

On receipt at SGS and Mintek, the silicate samples received were crushed and blended to create a 2010 Manga Silicate composite for metallurgical testwork at each facility. The Mintek composite is described as the "HMC Comp" and the SGS composite is described as "Silicate Comp" in the SGS Mineralogical QEMSCAN™ Study (Section 16.2.5).

Head analyses as reported by SGS and Mintek are listed in Table 16-12. The measured composite grades are very close to the grades estimated from drill core sample masses and grades.

Table 16-12: Composite Head Grades

Element	SGS Composite (%)	Mintek Composite (%)
C (graphite)	3.87	n/r
V_2O_5	0.74	0.81

Compared to previous work, these metallurgical composites are believed to be the most representative of the mineralized envelope for silicate and oxide mineralization in the Manga Zone, taking into account the June 2010 resource estimate and cutoff grade assumptions. The samples for these composites were selected by Andy Holloway, P.Eng. and collected for shipping during a site visit by Mr. Holloway (Figure 16-1).

Figure 16-1: Metallurgical Samples on Site Awaiting Shipping

16.2.4 Phase 3 (2010): Mintek, Leaching and Preconcentration

A batch of Phase 3 Manga mineralization samples (silicate and oxide) were shipped from the Green Giant Project Site to Mintek in June 2010. The Phase 3 program at Mintek included sulphuric acid pressure leaching (various optimizations, including temperature and acid dosage), lime pressure leaching, acid pugging followed by various leaching options, further salt roasting work and a short program of mineralogy on leach residues.

At the time of publication of this technical report, a draft report of this work from Mintek is not available. The results of this component of the Phase 3 metallurgical program will be reported in subsequent project updates.

16.2.5 Phase 3 (2010): SGS Canada, Beneficiation Testwork

Samples of oxide and silicate mineralization were delivered to SGS in June 2010. Sample selection and grade estimation is described in Section 16.2.3.

The SGS report titled "Beneficiation Testwork on Samples from the Green Giant Vanadium Deposit," December 15, 2010, is included as reference in Appendix H.

The objective of this test package was to use high definition mineralogy (QEMSCAN^{TM}) to assist the development of a preconcentration route for Green Giant. Phase 1 and Phase 2 hydrometallurgical testwork has linked high vanadium extraction to high lixiviant

consumption and therefore the removal of barren minerals such as quartz (and to a lesser degree, graphite) was deemed to be an important part of flowsheet development.

Mineralogy is described in Section 16.2.6.

All beneficiation testwork was completed on the silicate composite.

As with previous attempts, proposed separation techniques included physical (size and density) and chemical (flotation).

Physical Separation

Several tests were conducted to test the silicate sample's amenability to stagewise liberation of clays and silicates from the more competent quartz gangue. Size fraction analysis shows that a stagewise grinding circuit tends to liberate most minerals equally. The exception is graphite, which as one would expect tends to concentrate into the coarser size fractions. Overall, attritioning and screening to separate vanadium bearing minerals from gangue was unsuccessful.

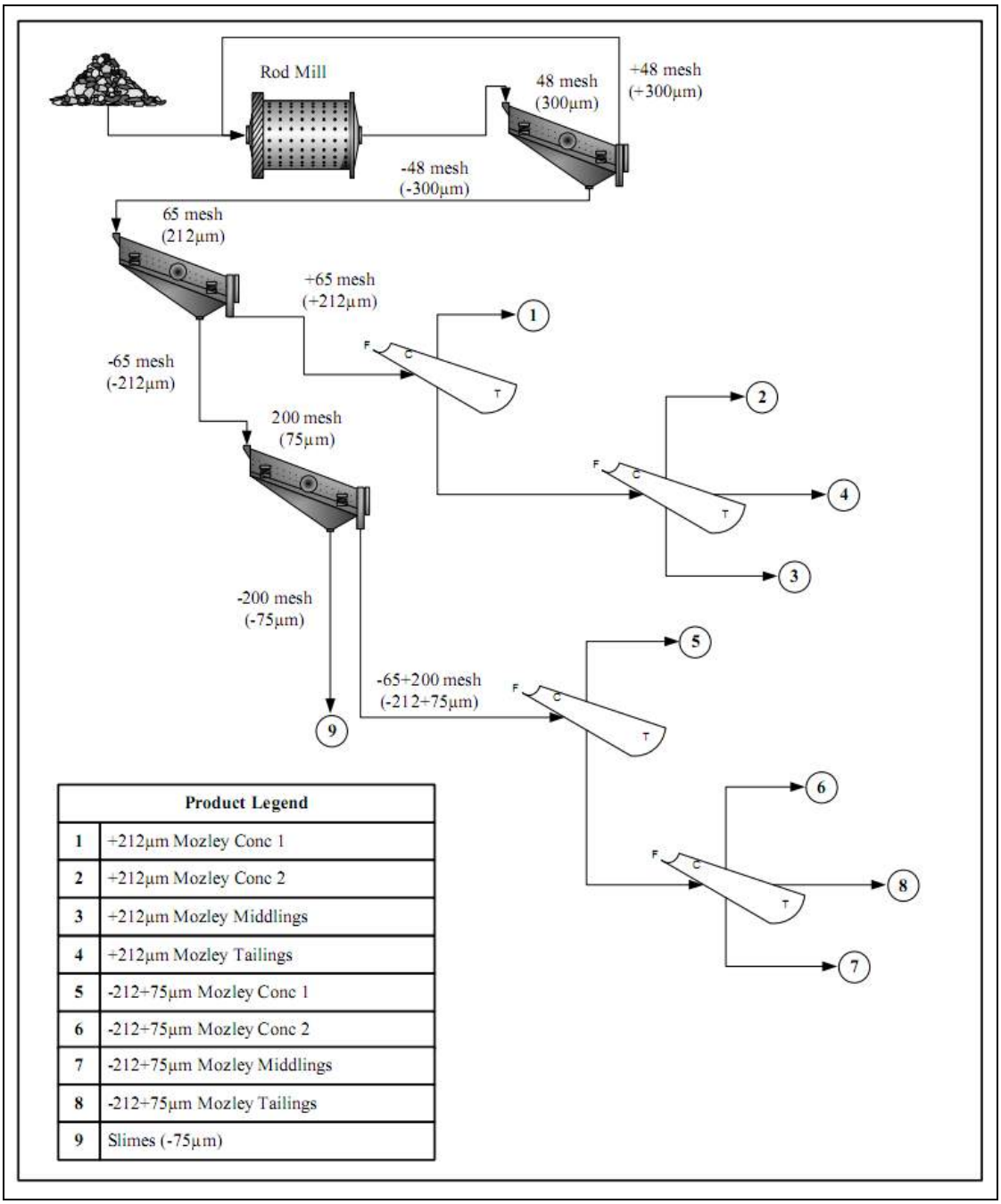
Gravity separation work consisted of stage grinding, separation using tables (Mozley Table) and high-g centrifugal concentrators (Knelson Concentrator). Figure 16-2 shows a typical flowsheet.

For all gravity testwork, very little upgrading of vanadium was achieved in any part of the process. However, the sulphide minerals present in silicate mineralization were separated reasonably well, with approximately 60% of sulphur recovered into a concentrate of 8% mass and 11% V_2O_5 distribution. Given that mineralogical work has identified sulphide minerals with an approximately 20% vanadium content, a proportion of the vanadium reporting to this gravity concentrate is expected to occur in solid solution within the sulphides and thus cannot be separated.

Although this gravity concentrate cannot be discarded, it is recommended that future leaching work might consider the separate processing of sulphide and non-sulphide streams.

The mineralogy for these samples (Section 16.2.6) describes a relatively complex vanadium deportment, with several low to medium grade vanadium bearing minerals of different densities and sizes and this is believed to be contributing to the poor results in this area.

Figure 16-2: SGS Gravity Flowsheet



Chemical Separation

Flotation was recommended as a possible preconcentration route, as the removal of graphite, sulphides and possibly quartz from the bulk of the sample would result in a lower tonnage, higher-grade feed to the selected hydrometallurgical process.

A series of nine flotation tests was conducted as part of the beneficiation program. Tests aimed at recovering sulphides and graphite gave reasonable separations, although significant vanadium losses to the graphite and sulphide concentrates are apparent.

Table 16-13: Rougher Concentrate Specifications

	Mass	Grade (%)				Distribution (%)			
	(%)	C(t)	S	SiO_2	V_2O_5	C(t)	S	SiO_2	V_2O_5
F1 Graphite Conc.	14.2	24.1	1.95	37.0	0.79	84.0	6.21	8.88	15.7
F2 Sulphide Conc.	9.4	1.15	34.5	16.8	0.56	2.65	72.8	2.67	7.4
F2 Graphite Conc.	17.0	23.3	2.6	35.5	0.76	89.4	9.7	10.5	16.9
F2 Sulphide Conc.	13.2	2.66	27.6	21.4	0.87	7.96	80.1	4.92	15.0

As discussed previously, the presence of a V-Fe sulphide in the silicate samples means that vanadium deportment to the sulphide concentrate is unavoidable. EMP measurements of graphite show trace levels of vanadium in graphite, but complex intergrowths of graphite and silicates have been observed in every mineralogical program and this is believed to be responsible for the recovery of vanadium to the graphite concentrate.

In all cases, the relatively high deportment of vanadium to the flotation concentrates means that these products are likely not suitable for disposal.

Silicate flotation had limited success. A wide range of silicate collectors was tested and other than EDA (an etheramine), mass recovery to flotation concentrate was quite low. Using EDA as a collector, concentrate mass recovery improvements were achieved, but vanadium selectivity was poor. None of the depressants evaluated were able to improve selectivity. As vanadium is distributed between a range of silicate minerals with similar surface properties, the separation by flotation is likely not feasible.

16.2.6 Phase 3 (2010): SGS Canada, Mineralogy

Three 1-kg sub-samples were submitted for high definition QEMSCAN™ analysis to determine the mineral assemblages, elemental deportment, and liberation/association characteristics of the minerals of interest. A detailed Mineralogical Report by SGS (December 2, 2010) is attached for reference (Appendix H).

The following three samples were tested:

- Mintek Silicate Composite (labelled as MPC by SGS), to represent the Phase 2 Manga Silicate Composite as tested at Mintek in early 2010.

- SGS Silicate Composite (Labelled as Silicate Comp by SGS) – to represent the Phase 3 Manga Silicate Composite. This sample represents material tested for preconcentration and alkaline pressure leaching at SGS, Lakefield.
- A second Mintek Silicate Composite (Labelled as HMC Comp by SGS) – to represent the Phase 3 Manga Silicate Composite tested at Mintek (expected to be similar to the SGS silicate composite).

To provide liberation information, the mineralogical characterisation was completed on several size fractions. Table 16-14 lists the sample mass distributions.

Table 16-14: Mass Size Distributions

	Mass Size Distribution (%)			
Sample ID	+212 µm	-212+106 µm	-106+53 µm	-53 µm
MPC Comp	25.1	32.2	22.2	20.5
Silicate Comp	22.9	18.2	36.6	22.4
HMC Comp	15.9	40.0	20.4	23.8

The QEMSCAN™, EMPA, and SEM mineralogical study of these composite size fractions identified the following characteristics:

- Mineral abundance data suggests that all samples are composed primarily of quartz, pyrite and K-feldspar. The graphite component in these samples is relatively insignificant, at between 2% and 4%. The vanadium-bearing minerals identified in all three composites include V-Fe-sulphides, V-oxides group (including karelianite (V_2O_3,), Cr-karelianite (V_2O_3,), berdesinskiite (V_2TiO_5), montroseite, kyzylkumite ($V_2Ti_3O_9$)) and V-silicates group (including roscoelite, sillimanite, phlogophite (high and low V contents) and cordierite).
- For each sample, the mineral abundance by size fraction shows that vanadium minerals accumulate with decreasing size fractions, generally in the -106/+53 µm and -53 µm size fractions.
- The vanadium grade for the HMC Composite, MPC composite, and silicate composite is 0.4%, 0.6%, and 0.4%, respectively.
- For all samples, vanadium is hosted mainly by vanadium silicates (including roscoelite, phlogophite (high V), phlogophite (low V), cordierite, sillimanite and other micas/clays), followed by V-oxides , V-Fe sulphides, pyrite, pyrrhotite and V-phosphate low Ca (detected only in the HMC Composite).
- Low amounts (close to the detection limit) of vanadium were detected in graphite with the EMP.

The liberation and association characteristics of the V-bearing silicates, V-oxides and V-Fe-sulphides are summarized below:

Vanadium-bearing Silicate Liberation

HMC Composite: The vanadium-bearing silicate liberation is moderate at 63.3% (free and liberated combined) of which 42.2% is free; the highest liberation is achieved at 72.3% (free and liberated combined) in the -106/+53 µm size fraction. The main association is with silicate gangue (48.9% of the overall sample).

MPC Composite: The vanadium-bearing silicate liberation is moderate at 61.6% (free and liberated combined) of which 45.8% is free; the highest liberation is achieved at 80.7% (free and liberated combined) in the -53 µm size fraction. The main association is with silicate gangue (30.1% of the overall sample).

Silicate Composite: The vanadium-bearing silicate liberation is moderate at 61.5% (free and liberated combined) of which 40.1% is free; the highest liberation is achieved at 69.3% (free and liberated combined) in the -150/+53 µm and the -53 µm size fractions. The main association is with silicate gangue (40.2% of the overall sample).

V-Oxides Liberation

HMC Composite: The V-oxides liberation is poor at 36.9% (free and liberated combined) of which 22.4% is free; the highest liberation is achieved at 41.5% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (53.2% of the overall sample).

MPC Composite: The V-oxides liberation is poor at 38.0% (free and liberated combined) of which 31.7% is free; the highest liberation is achieved at 71.3% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (30.1% of the overall sample).

Silicate Composite: The V-oxides liberation is very poor at 15.0% (free and liberated combined) of which only 1.9% is free; the highest liberation is achieved at 5.7% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (42.2% of the overall sample).

V-Fe-sulphides Liberation

HMC Composite: The V-Fe-sulphides liberation is very poor at 9.4% (free and liberated combined) of which 3.7% is free, while the highest liberation is achieved at only 14.3% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (68.6% of the overall sample).

MPC Composite: The V-Fe-sulphides liberation is poor at 31.2% (free and liberated combined) of which 19.6% is free; the highest liberation is achieved at 53.6% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (64.5% of the overall sample).

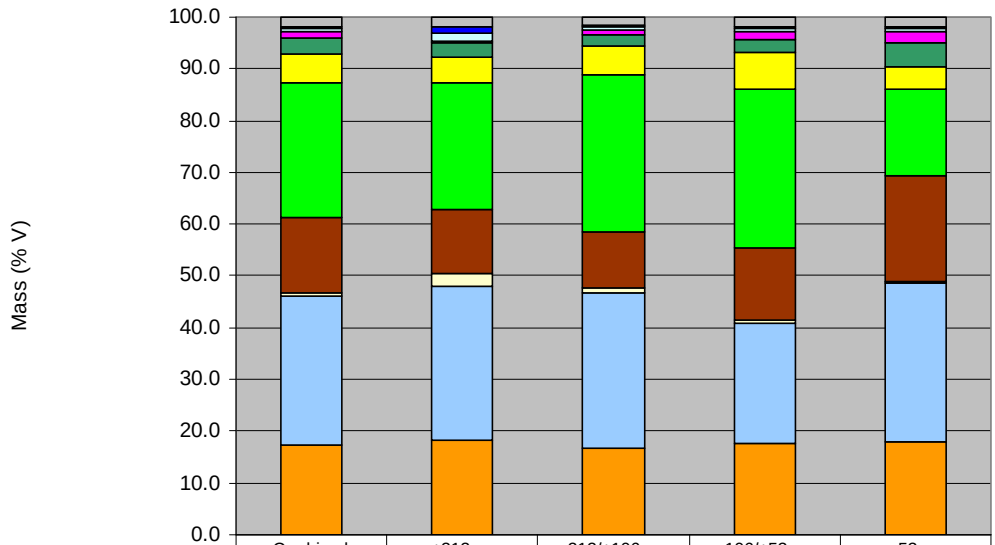
Silicate Composite: The V-Fe-sulphides liberation is very poor at 6.7% (free and liberated combined) of which 2.7% is free; the highest liberation is achieved at 11.5% (free and liberated combined) in the -53 µm size fraction. The main association is with complex particles (70.2% of the overall sample).

In contrast to previous mineralogical work, a significant sulphide component is present in all samples. Further, much of the sulphide mineralization is noted to be vanadium bearing, with EMPA average composition data indicating approximately 20% Vanadium in an unidentified vanadium-iron sulphide mineral.

Vanadium Deportment for each of the three composites is given in the following figures

The distribution of vanadium in the **HMC Comp** is shown in Figure 16-3. V-oxides, phlogophite (high V) account, V-Fe-sulphides and roscoelite account for most of the vanadium at ~28.6%, ~26.1%, ~17.4% and 14.4% respectively, followed by phlogophite (low V) (~5.5%), cordierite (~3.0%), rutile (~1.7%), sillimanite (~1.3%) and trace amounts from other minerals.

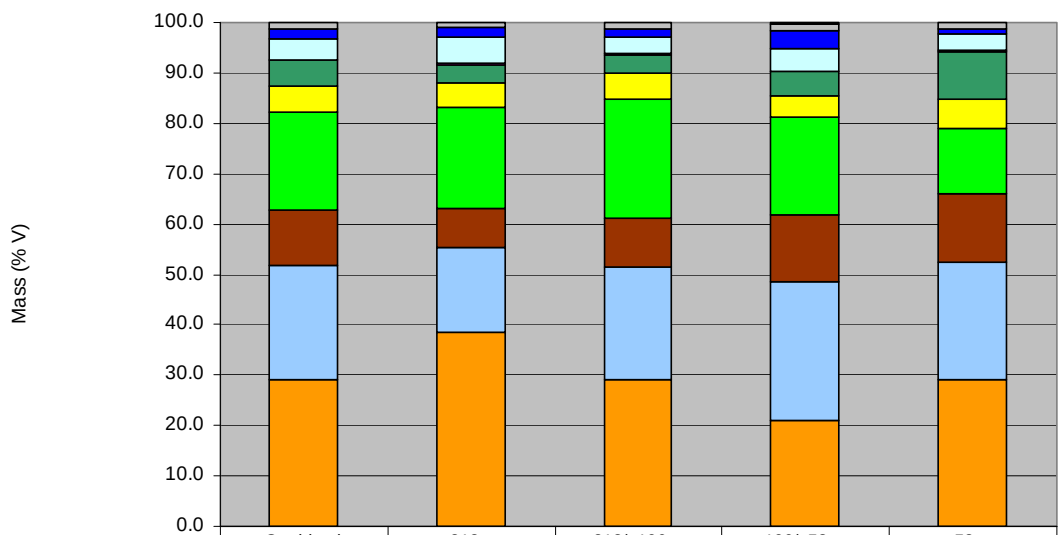
Figure 16-3: Vanadium Deportment by Size – HMC Composite



	Combined	+212um	-212/+106um	-106/+53um	-53um
Other	0.0	0.1	0.0	0.1	0.0
Rutile	1.7	1.9	1.6	1.7	1.7
Pyrrhotite	0.4	1.1	0.3	0.4	0.3
Other Micas/Clays	0.7	1.5	0.4	0.5	0.9
Sillimanite	1.3	0.3	0.9	1.5	2.0
Cordierite	3.0	2.8	2.2	2.6	4.6
Phlogophite(Low V)	5.5	5.0	5.7	6.9	4.3
Phlogophite(HighV)	26.1	24.4	30.1	30.7	16.9
Roscoelite	14.5	12.5	11.0	14.2	20.5
V-Phosphate Low Ca	0.7	2.4	0.9	0.4	0.2
V-Oxides	28.6	29.8	29.9	23.4	30.8
V-Fe-Sulphide	17.4	18.2	16.8	17.5	17.8

The distribution of vanadium in the sample **MPC Comp** is shown in Figure 16-4. V-Fe-sulphides, V-oxides and phlogophite (high V) account for most of the vanadium at ~29.2%, ~22.6% and ~19.5%, respectively, followed by roscoelite (~11.1%), cordierite (~5.1%), phlogophite (low V) (~5.0%), other micas clays (~4.0%), pyrrhotite (~2.0%) and rutile (~1.3%), and trace amounts of sillimanite (~0.2%).

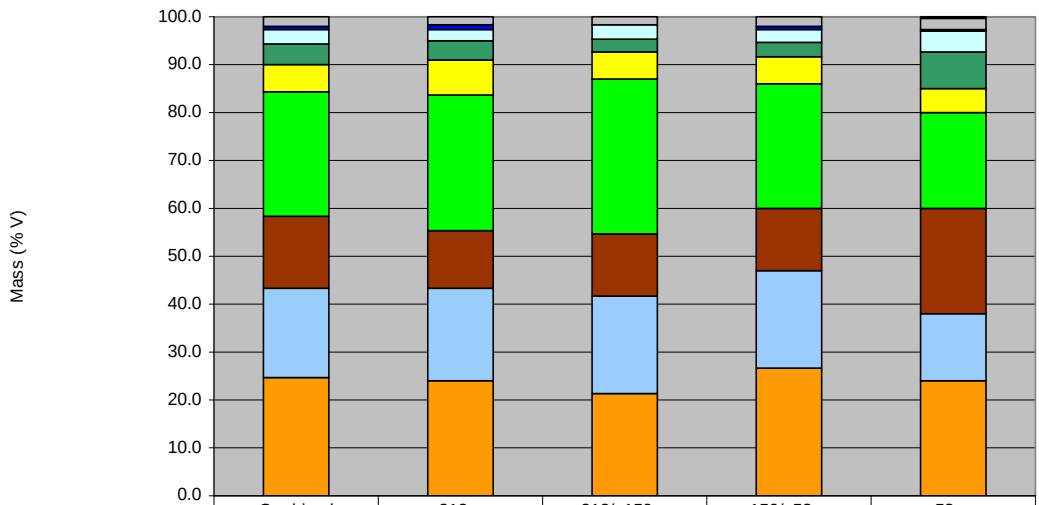
Figure 16-4: Vanadium Deportment by Size – MPC Composite



	Combined	+212um	-212/+106um	-106/+53um	-53um
Other	0.1	0.0	0.0	0.3	0.0
Rutile	1.3	0.9	1.4	1.4	1.2
Pyrrhotite	2.0	2.0	1.6	3.4	1.1
Other Micas/Clays	4.0	5.2	3.3	4.6	3.2
Sillimanite	0.2	0.4	0.2	0.2	0.1
Cordierite	5.1	3.5	3.6	4.6	9.4
Phlogophite(Low V)	5.0	4.9	4.9	4.4	5.9
Phlogophite(HighV)	19.5	20.0	23.6	19.2	12.8
Roscoelite	11.1	7.6	9.9	13.2	13.8
V-Oxides	22.6	16.8	22.2	27.7	23.2
V-Fe-Sulphide	29.2	38.6	29.2	21.0	29.2

The distribution of vanadium in the sample **Silicate Comp** is shown in Figure 16-5. The main vanadium minerals are phlogophite (high V) and V-Fe sulphide account for ~26.1% and ~24.6%, respectively of the overall V within the sample. V-oxides (~18.6%), roscoelite (~15.0%), phlogophite (high V) (~5.8%), cordierite (~4.2%) other micas/clays (~3.0%), rutile (~2.0%) and pyrrhotite (~0.5%) account for the remainder.

Figure 16-5: Vanadium Deportment by Size: Silicate Composite



	Combined	+212um	-212/+150um	-150/+53um	-53um
Other	0.1	0.2	0.0	0.1	0.2
Rutile	2.0	1.6	1.5	2.0	2.5
Pyrrhotite	0.5	1.1	0.2	0.6	0.3
Other Micas/Clays	3.0	2.1	2.9	2.8	4.3
Sillimanite	0.0	0.0	0.0	0.0	0.1
Cordierite	4.2	4.2	2.7	2.8	7.7
Phlogophite(Low V)	5.8	7.3	5.8	5.8	4.8
Phlogophite(HighV)	26.1	28.4	32.1	25.9	20.1
Roscoelite	15.0	11.9	13.2	13.1	22.1
V-Oxides	18.6	19.2	20.3	20.3	14.0
V-Fe-Sulphide	24.6	24.1	21.3	26.7	23.9

16.2.7 Phase 3 (2010): SGS Canada, Alkaline Pressure Leaching

A sub-sample of the Phase 3 SGS silicate composite was submitted for a series of alkaline pressure leaching tests. The SGS report "Alkaline Pressure Leaching on Samples from the Green Giant Vanadium deposit" dated December 17, 2010, is included in Appendix H.

Testwork was designed to examine the sensitivity of vanadium extraction to various lixivant strengths, temperatures/pressures and mesh of grind. In addition, the effectiveness of an oxidative roast prior to leaching was tested.

Head analysis confirmed that the sample was representative of the master composite submitted to SGS for preconcentration work and mineralogical characterisation (the composite described as "Silicate Comp" in the mineralogical study).

Alkaline pressure leach conditions are summarized in Table 16-15. Tests PL1 – PL18 were conducted using a leach pulp density of 10% solids (weight %) whilst tests PL19-PL23 tested the effect of higher feed densities.

Table 16-15: Alkaline Pressure Leach Conditions

PL	Roasting	Grind K_{80}	% Solids	Lixiviant	Strength (g/L)	°C	Hours	pO_2 (psi)
1	none	105	10	Na_2CO_3	50	240	2	50
2	none	95	10	Na_2CO_3	50	240	2	50
3	none	105	10	Na_2CO_3	100	240	2	50
4	pre-roast – 900C / 3h	105	10	Na_2CO_3	100	240	2	50
5	none	105	10	NaOH	50	240	2	50
6	none	105	10	NaOH	100	240	2	50
7	pre-roast – 900C / 3h	105	10	Na_2CO_3	100	240	4	50
8	pre-roast – 900C / 3h	105	10	Na_2CO_3	150	240	4	50
9	none	<38	10	Na_2CO_3	50	240	4	50
10	pre-roast – 1,000C / 3h	105	10	Na_2CO_3	100	240	4	50
11	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	100	240	4	50
12	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	50	200	4	50
13	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	50	160	4	50
14	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	50	120	4	50
15	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	30	200	4	50
16	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	10	200	4	50
17	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	50	95	4	10
18	pre-roast – 1,100C / 3h	105	10	Na_2CO_3	50	220	4	50
19	pre-roast – 1,100C / 3h	105	20	Na_2CO_3	50	220	4	50
20	pre-roast – 1,100C / 3h	105	30	Na_2CO_3	50	220	4	50
21	pre-roast – 1,100C / 3h	105	30	Na_2CO_3	target 50	220	4	50
22	pre-roast – 1,100C / 3h	105	30	Na_2CO_3	target 50	220	4	50
23	pre-roast – 1,100C / 3h	105	30	Na_2CO_3	target 50	220	4	50

Metal extractions (vanadium and contaminants such as aluminium, iron, etc.) for each test are summarized in Table 16-16. In contrast to previous leaching work conducted with sulphuric acid, the co-extraction of problematic contaminants (Al, Mg, Fe, etc.) is considered low for almost all the leach tests in this series.

Table 16-16: Metal Extractions (Test PL1-PL12)

%	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8	PL9	PL10	PL11	PL12
V	49.0	43.0	51.3	75.9	50.4	50.3	75.6	82.4	48.3	80.6	82.0	71.3
Si	0.2	1.1	1.0	3.1	40.3	49.4	5.4	12.1	0.8	3.2	2.8	2.6
Al	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ca	0.1	0.2	0.3	0.2	0.1	0.1	0.2	1.4	0.1	0.2	0.1	0.1
K	5.7	5.1	8.0	22.1	35.6	63.4	21.4	34.3	7.3	29.3	44.5	50.6
Cr	12.1	9.2	19.9	4.7	18.4	44.7	5.5	6.7	19.3	5.0	6.1	3.3
Ti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P	1.9	1.8	2.2	13.9	3.4	3.9	13.1	19.4	4.1	25.5	31.1	8.0
Mn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Table 16-17: Metal Extractions (Test PL13-PL23)

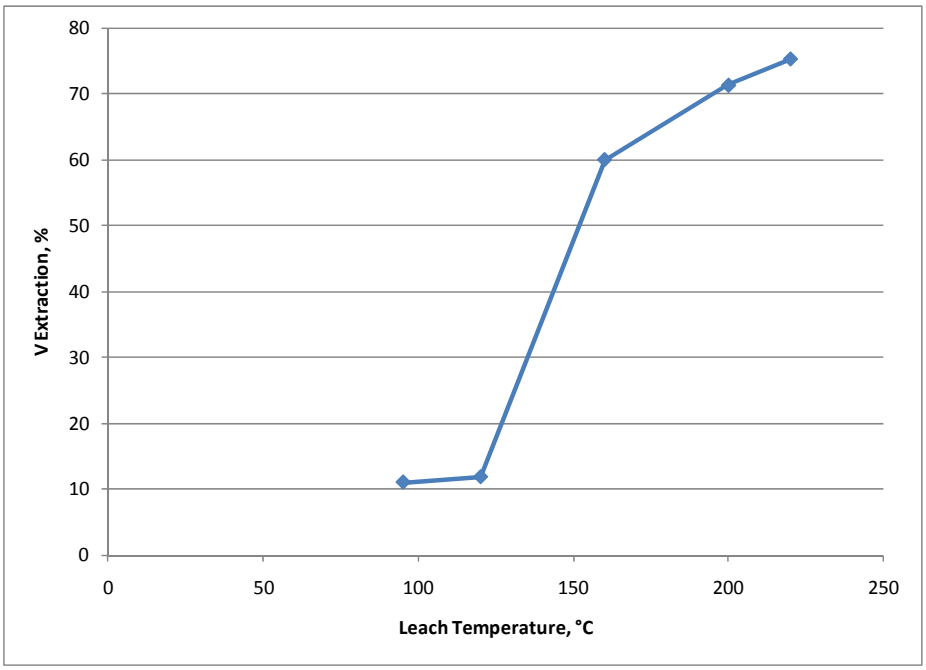
%	PL13	PL14	PL15	PL16	PL17	PL18	PL19	PL20	PL21	PL22	PL23
V	60.0	11.8	67.8	51.1	11.0	75.3	71.5	64.0	53.1	64.0	61.2
Si	3.5	0.4	3.1	2.3	0.4	0.8	0.4	0.6	0.3	1.2	1.2
Al	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ca	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.2
K	43.3	3.2	42.4	26.6	2.1	51.3	36.8	22.9	44.0	61.6	89.7
Cr	2.8	0.1	2.7	0.3	0.2	6.0	3.6	2.9	3.5	4.1	8.8
Ti	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P	5.6	2.5	4.5	1.1	3.0	5.4	2.2	0.9	1.9	0.0	13.4
Mn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vanadium extractions of between 11% and 82% were achieved in this test series, with the most significant increase in leaching performance observed after the introduction of an oxidative roast prior to leaching. Comparing test PL4 with PL3, an increase of at approximately 25% vanadium extraction can be attributed to the pre-roast process.

A limited range of pre-roasting conditions was tested as part of this program. While many leach tests were conducted on samples that had received the 1,100°C, 3-hour roast prior to leaching, the effects of shorter and lower temperature roasts is not fully understood. This remains an area of opportunity for further testing.

Increased leach temperature was observed to increase vanadium extraction, with a rapid drop-off in leach performance below ~160°C. At 120°C, a vanadium extraction of 11.8% was one of the poorest, despite pre-roasting and normal lixiviant additions. This relationship is illustrated in Figure 4-1.

Figure 16-6: Effect of Leach Temperature



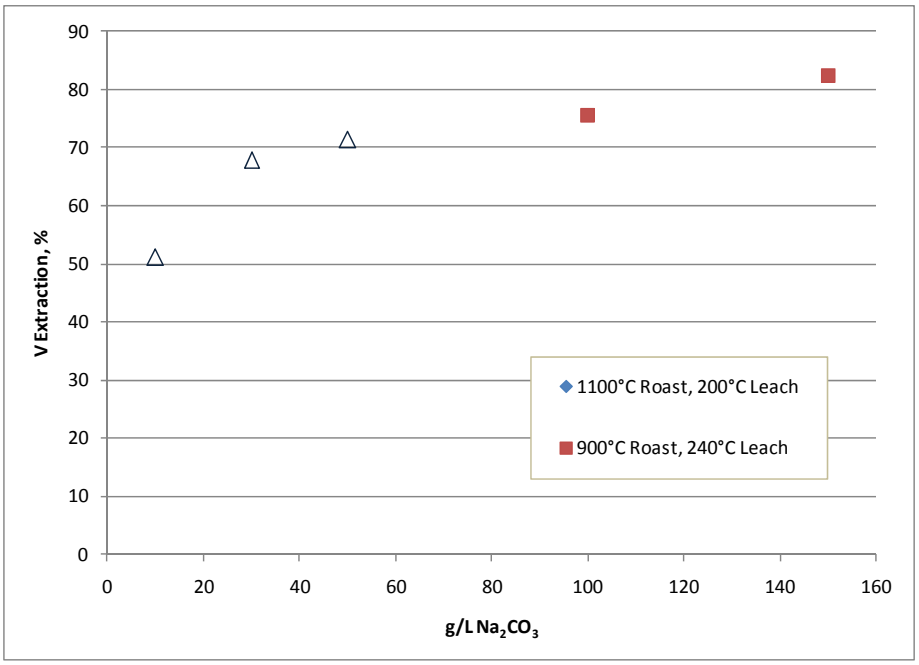
The leaching effectiveness did not appear to be overly sensitive to mesh of grind, with similar results to the baseline 80% -105 µm achieved at 90% -38 µm. Coarser grinds than the baseline 105 µm were not tested, and the option of coarser leach feeds remains an opportunity for further testing.

The use of caustic (NaOH) as a lixiviant (PL5 and PL6) did not result in any significant improvement in vanadium extraction. However, the dissolution of silicon into solution was dramatically higher and this coupled with the additional cost of this reagent suggests that soda ash (Na_2CO_3) remains the most cost-effective reagent for this sample. Soda ash was used for all subsequent tests.

The effect of soda ash concentration was also tested. As tests were conducted at fixed volume, an increased soda ash concentration was equivalent to increasing the reagent

dosage also. Increasing concentration/dosage improved the extraction of all elements including vanadium, with maximum extraction achieved using 150 g/L Na_2CO_3.

Figure 16-7: Effect of Soda Ash Concentration



Tests PL19 to Pl23 tested the effect of higher feed pulp densities (up to 30% w/w). Vanadium extractions dropped slightly with increasing pulp density, in line with the effectively lower Na_2CO_3 addition rates. However, vanadium tenor in the leach solution did increase with increasing density, despite slightly lower extraction rates. Therefore, at equivalent lixiviant addition rates, one would expect to see increased leach solution tenor at a similar rate of vanadium extraction.

Final tests in this series examined the effect of leach solution recycling. Three tests (PL21-23) were conducted, with each tests using recycled leach liquor from the previous test. All Tests were completed using pre-roasted samples at 30% solids and a leach temperature of 220°C. Initial problems were experienced maintaining the required 50 g/L residual Na_2CO_3, but the final two test results suggest that reasonable extractions are achievable at higher percent solids whilst simultaneously achieving high vanadium tenors in the final leach solution.

17 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

AGP has produced a resource estimate of the Green Giant Deposit for Energizer Resources. Gemcom software GEMS 6.2.4™ was used for the resource estimate, along with Sage 2001 for the variography. The metal of interest at the Green Giant Deposit is vanadium.

As stated earlier, Energizer retained Taiga Consultants Ltd. (Taiga) to manage the exploration activities of the Green Giant Project, and all information provided for the resource estimate originated from them. Taiga provided an updated digital drill hole database in Microsoft Access dated October 8, 2010, containing a series of tables describing the collar, survey, major and minor lithological intervals, and assay results. Tables containing alterations, mineralization, structure, QA/QC, XRF assays, and geotechnical data were also present in the database. Topographical information used in this update remains the same as the previous NI 43-101 and originated from Taiga exploration as elevated contour lines (5 m) in DXF format. Additional information provided consisted of original logs in XLS format, core photos, and laboratory certificates.

The complete Green Giant drill database includes 133 diamond drill holes, totalling 21,957 m of core drilling, supplemented by a total of 140 surface trenches. Of this data, 107 holes were used in the resource estimate along with 41 surface trenches, as shown in Table 17-1. The remaining holes were drilled on various exploration targets and the remaining trenches were part of the regional exploration program.

The resource described in this section is 66% supported by diamond drill core assay and 34% by trench assays.

Table 17-1: Summary of Drill Holes and Trench Data

	No. of Hole/ Trench in Database	Total Metres	Total No. of Assays	Total No. Holes used in Resource	Total Metres used in Resources	Total No. of Assays used in Resources	Percent of Total Assays used in Resources
Diamond Drill Hole	133	21,957	6,042	107	18,832	5,638	66
Trench Data	140	17,105	6,327	41	5,928	2,942	34
Total in Digital Database	**273**	**39,062**	**12,369**	**148**	**24,760**	**8,580**	**-**

17.1 Geological Interpretation

The main-ore bearing lithological units on the Green Giant property are logged as gneiss and graphitic gneiss. AGP analyzed the population distribution for these two units separately and found them to be different enough to justify further investigation. Contact plots indicated sharp boundaries between the gneiss and graphitic gneiss in the primary unit. In the oxidation layer, the contact was found to be gradational. In 3D, the lithological units were difficult to separate. Taiga field geologists indicated that the vanadium can be in both units. The decision to classify a rock as graphitic gneiss versus gneiss is based on visual observation of the graphite content by the geologist logging the core, and is therefore subject to interpretation. For that reason, the 3D wireframes developed to control the grade interpolation of the resource model were generally based on a 0.2% V_2O_5 cutoff grade, as opposed to using a lithological envelope. Based on the statistical work, AGP believes that the graphite content of the core should be evaluated further, since it may bear a control on the mineralization and may also have an effect on the metallurgical properties of the ore. Taiga now visually estimate the graphite content and record this information as a percentage during the core logging procedure. A statistical analysis of this data has yet to be conducted. Following the statistical study, the model could be adjusted if needed.

The grade shell wireframe was constructed using all drill hole intercepts and surface trench assays within the Jaky, Manga, and Mainty Zones. During construction of the wireframe, continuous zones of mineralization where V_2O_5 exceeded 0.2% were incorporated in the model. Exceptions were made when necessary, to include lower grade intercepts to allow for zonal continuity. The grade shell contacts were drawn on set vertical cross-sections spaced 100 m apart. The wireframe construction was carried out in multiple steps as follows:

- Polylines describing the upper and lower contacts of the zones were digitized on the sections using a 0.2% V_2O_5 cutoff grade as the primary guiding principle snapping to all drill hole and trench intercepts.
- The sectional polylines were reconciled in plan view and wireframed into a temporary solid.
- The mineralization was generally projected between 50 m to 60 m down-dip past the last drill hole. The projection distance could reach up to 90 m if the mineralization was extremely strong (i.e., 0.6% V_2O_5 over multiple samples).
- At Jaky, the thinly bedded footwall zones were expanded 12.5 m laterally beyond the last drill fence to complete the model. The main zone at Jaky was projected laterally half way to the next section, or 50 m beyond the last drill fence.
- Based on trench data, the mineralization at Manga was extended for 600 m to the south and 450 m to the north of the last drill fence. At Mainty, mineralization was not extended past the last drill fence however, the information from the trenches allow the

mineralization to be extended 225 m between section 53875N and 54050N. Mineralization supported solely by trench data was kept near surface and does not extend much below topography in the down-dip direction unless there was reasonable evidence from surrounding drill hole data that the mineralization should be projected down dip.

- For Jaky and Mainty, a low-grade mineralized envelope was also constructed in order to capture any mineralization that was left out of the higher-grade wireframes. This step was unnecessary at Manga, as the mineralization appeared in one single entity.
- The models were wireframed and verified.
- During the verification process, grades less than 0.3% V_2O_5 on the very edge of the wireframe were dropped from the mineralized envelope.

The model was validated for triangulation errors, checked against the drill holes, and adjusted as necessary for one final iteration.

The topography surface was constructed using the elevated contour lines distributed by Taiga and wireframed into a 3D surface.

A bedrock surface was constructed by selecting the last overburden interval in the drill holes and wireframing the data points using a Laplace transformation, which tends to smooth the surface. The resulting surface is sufficiently close to the data points while not necessarily honouring all point locations. Areas protruding above the topography were corrected to include a minimal amount (0.5 m) of overburden.

The oxidation layer on the Green Giant property ranges between 40 m to 60 m in depth, and based on the data available appears to be planar with very few spikes. Taiga reported a poorly developed mix zone between the oxidation and the primary material, therefore a mixed bottom contact was not modelled. The bottom of the oxidation layer was constructed by selecting the last oxidation interval in the drill hole. For holes that terminated within the oxidation layer, a point 5 m to 10 m lower than the end of the hole was added to the dataset. The complete oxidation dataset was wireframed using a Laplace transformation as with the overburden layer.

The final wireframes consisted of twelve high-grade mineralized solids along with one low-grade envelope on the Jaky deposit and two separate wireframes for Manga, as shown in Table 17-2. Figure 17-1 illustrates the Jaky model in an isometric view without the Jaky low-grade solid visible and Figure 17-2 the Manga model. New to this update is a wireframe covering the Mainty resources illustrated in Figure 17-3.

Table 17-2: Wireframe Final Volumes for Jaky, Manga, and Mainty Deposit

Mineralization Volume Clipped to Overburden	Block Model Code	(m^3)
Jaky-3	130	4,937
Jaky-9	190	4,041
Jaky-12	170	2,699
Jaky-10	170	4,754
Jaky-11	170	4,542
Jaky-6	160	170,625
Jaky-6a	160	19,394
Jaky-1	110	4,767,665
Jaky-2	120	320,810
Jaky-2a	120	25,039
Jaky-4	140	89,180
Jaky-5	150	1,098,947
Jaky Low-grade Envelope	300	28,427,583
Manga-1	210	18,448,950
Manga-2	220	5,817,156
Mainty-1	410	9,519,096
Mainty-2	420	171,982
Mainty Low-grade envelope	430	12,770,953

Figure 17-1: Isometric View of the Jaky Wireframe

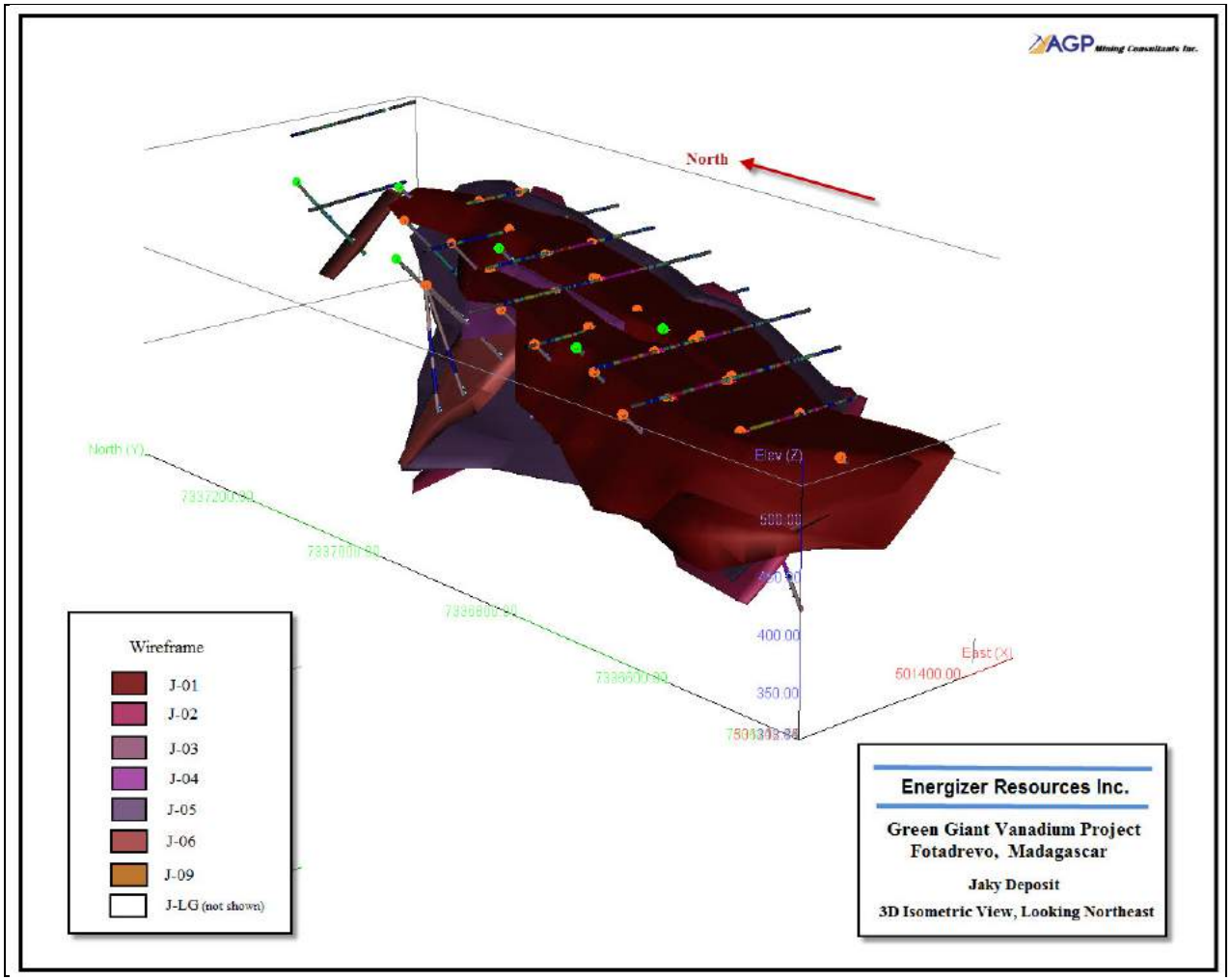


Figure 17-2: Isometric View of the Manga Wireframe

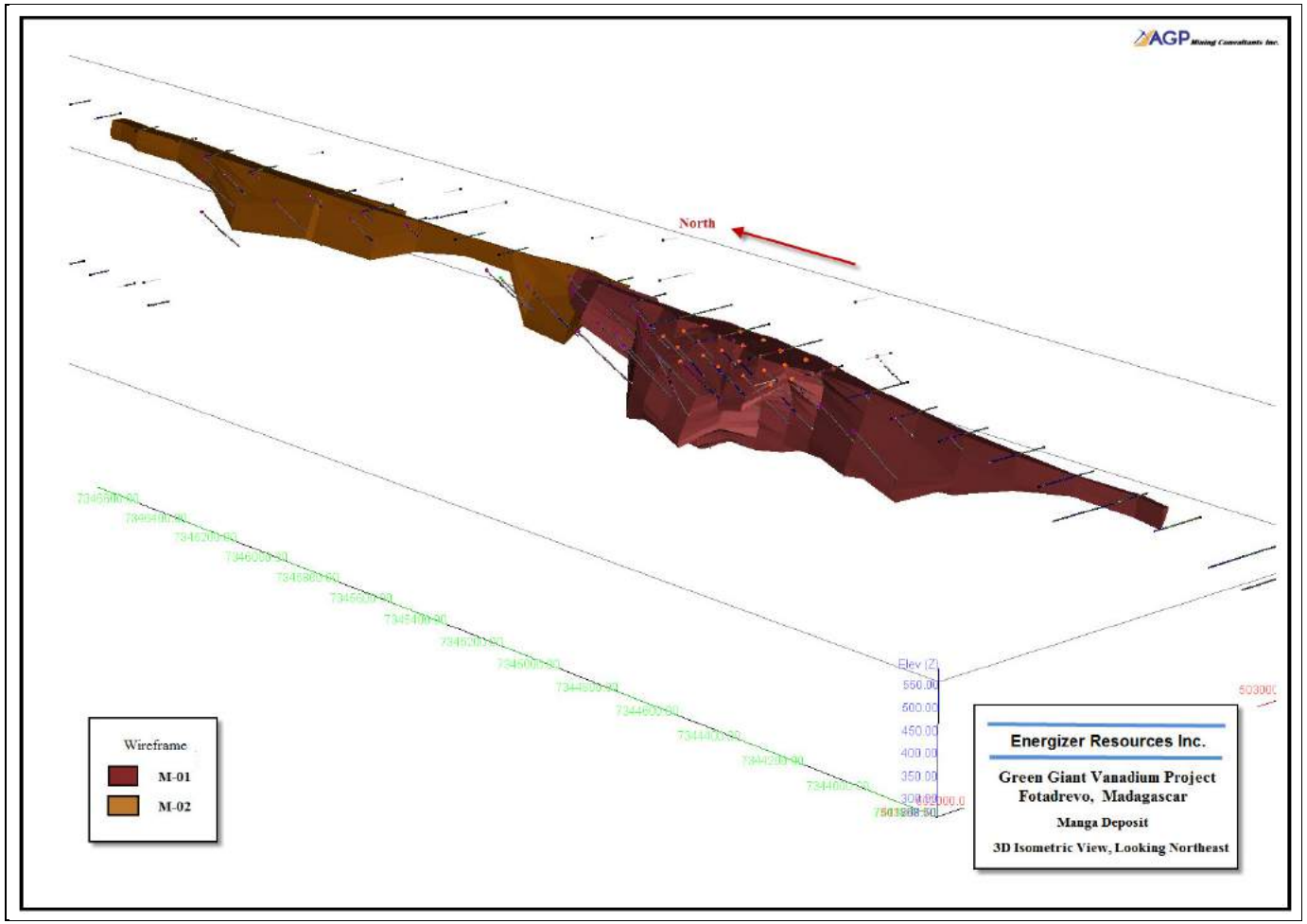
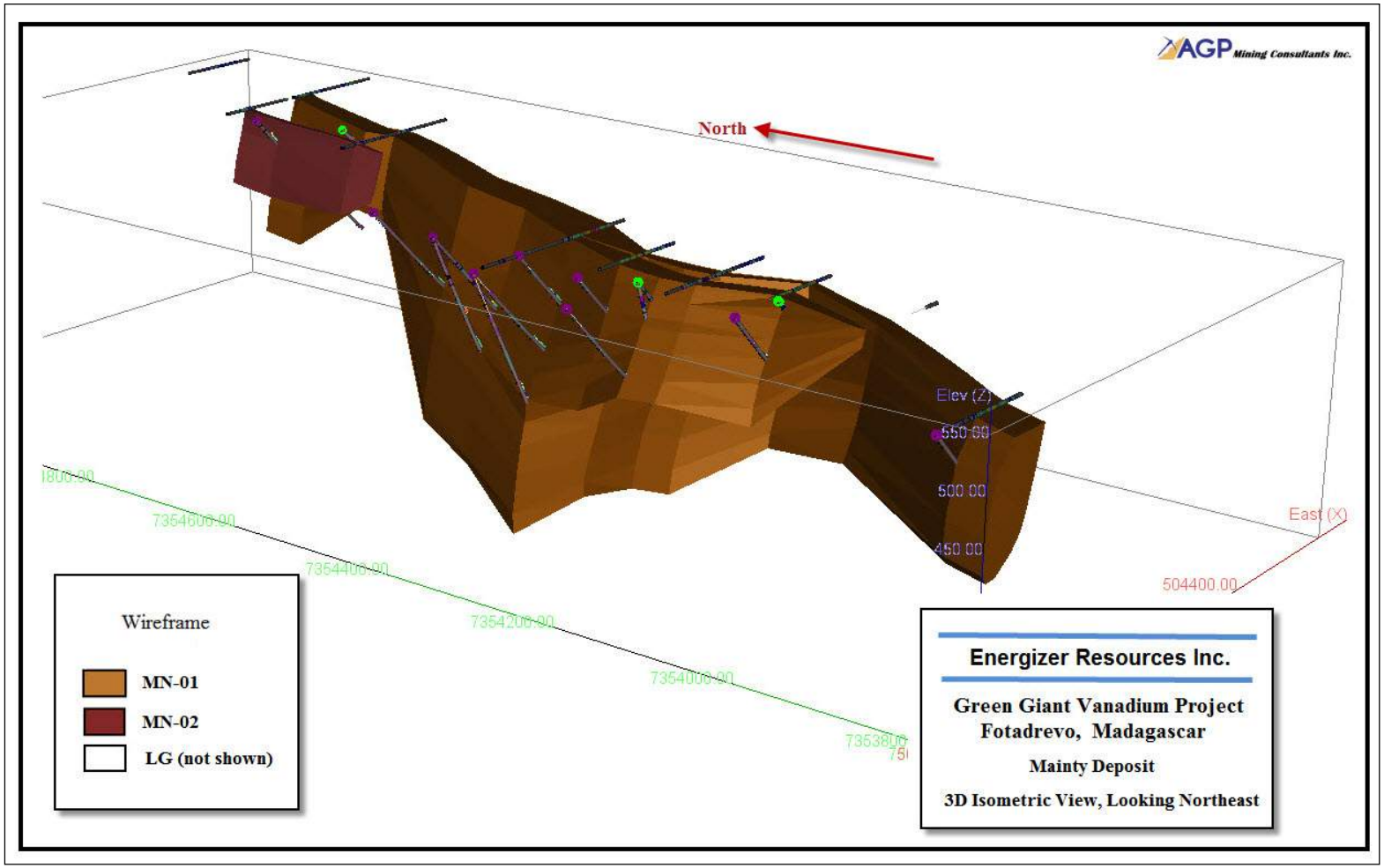


Figure 17-3: Isometric View of the Mainty Wireframe



17.2 Exploratory Data Analysis

Exploratory data analysis is the application of various statistical tools to characterize the statistical behaviour or grade distributions of the data set. In this case, the objective is to understand the population distribution of the grade elements in the various units using such tools as histograms, descriptive statistics, and probability plots.

17.2.1 Assays

AGP evaluated the raw assay statistics, grouping all assays within the Jaky, Manga, and Mainty wireframes, and separating the dataset between the oxidation and primary units.

The mean value of the vanadium pentoxide for the Manga deposit is noticeably higher in the primary layer than in the oxidation unit. For Jaky the grade difference is not as large as with Manga, but the vanadium grade is in general also higher in the primary layer than in the oxidation layer. Generally lower grade than Manga, the Mainty grade in the primary unit is 1.5 time higher than the grade in the oxidation layer.

Frequency distribution in the Jaky oxidation domain shows a near normal distribution, with 90% of the V_2O_5 values below 1%. In the primary domain, the distribution is not as clean and the histogram indicates the presence of a bi-population. There is a peak at about 0.3% to 0.4% V_2O_5 and a second peak at about 0.7% to 0.8% V_2O_5, which is reflected in the graphitic gneiss distribution. At Manga, the frequency distribution is similar to Jaky indicating that the grade distribution in the vanadium trend is likely very uniform. The bi-population of the vanadium assay for Jaky and Manga should be investigated further, as it could indicate a change in the mineralogical assemblages, or could simply be related to graphite content of the rock, which is currently not yet quantified in sufficient detail to allow for the separation of the population. Once the bi-population is explained, the domains may need to be separated in future resource estimates via discrete wireframes or by using indicators. Mainty deposit also show a by population although it is not as well developed as Manga. There is a peak at about 0.4% V_2O_5 and a second peak at 0.6% V_2O_5. Table 17-3 provides descriptive statistics for the trench and drill hole samples within the oxidation and primary domains. Appendix B includes the complete raw assay statistics.

Correlation tables show poor correlation between most elements. The highest overall correlation factor R^2 of 0.561 is between vanadium and uranium. When separated by the oxidation and primary domain it become evident that a strong correlation only exists in the primary zone, with an R^2 of 0.823, which is not reflected in the oxidation zone. Correlation table were not updated since the last NI 43-101 report.

Vanadium also shows a weak correlation with copper.

Table 17-3: Descriptive V_2O_5 Raw Assays Statistics

	Jaky		Manga		Mainty	
	Oxide	Primary	Oxide	Primary	Oxide	Primary
Valid Cases	1,166	1,783	820	1,469	318	901
Mean	0.43	0.31	0.54	0.67	0.28	0.41
Std. Error of Mean	0.01	0.01	0.01	0.01	0.02	0.01
Variance	0.12	0.08	0.07	0.10	0.09	0.04
Std. Deviation	0.35	0.28	0.27	0.32	0.29	0.20
Variation Coefficient	0.80	0.91	0.50	0.47	1.04	0.50
Rel. V. Coefficient (%)	2.36	2.15	1.74	1.22	5.86	1.65
Skew	1.54	1.40	1.91	0.50	7.52	-0.01
Kurtosis	3.43	1.47	6.90	0.68	88.41	0.14
Minimum	0.00	0.02	0.06	0.00	0.00	0.00
Maximum	2.46	1.56	2.28	2.60	4.06	1.52
Range	2.46	1.55	2.21	2.60	4.05	1.51
Sum	503	555	441	991	89	372
1st Percentile	0.03	0.02	0.12	0.10	0.01	0.01
5th Percentile	0.06	0.04	0.22	0.19	0.02	0.04
10th Percentile	0.10	0.06	0.27	0.28	0.03	0.12
25th Percentile	0.17	0.10	0.36	0.42	0.13	0.28
Median	0.33	0.21	0.49	0.69	0.26	0.41
75th Percentile	0.62	0.43	0.65	0.87	0.37	0.58
90th Percentile	0.89	0.75	0.85	1.07	0.49	0.67
95th Percentile	1.08	0.91	1.00	1.19	0.60	0.71
99th Percentile	1.71	1.21	1.57	1.51	0.84	0.83
Geom. Mean	0.31	0.20	0.48	0.59	0.18	0.32

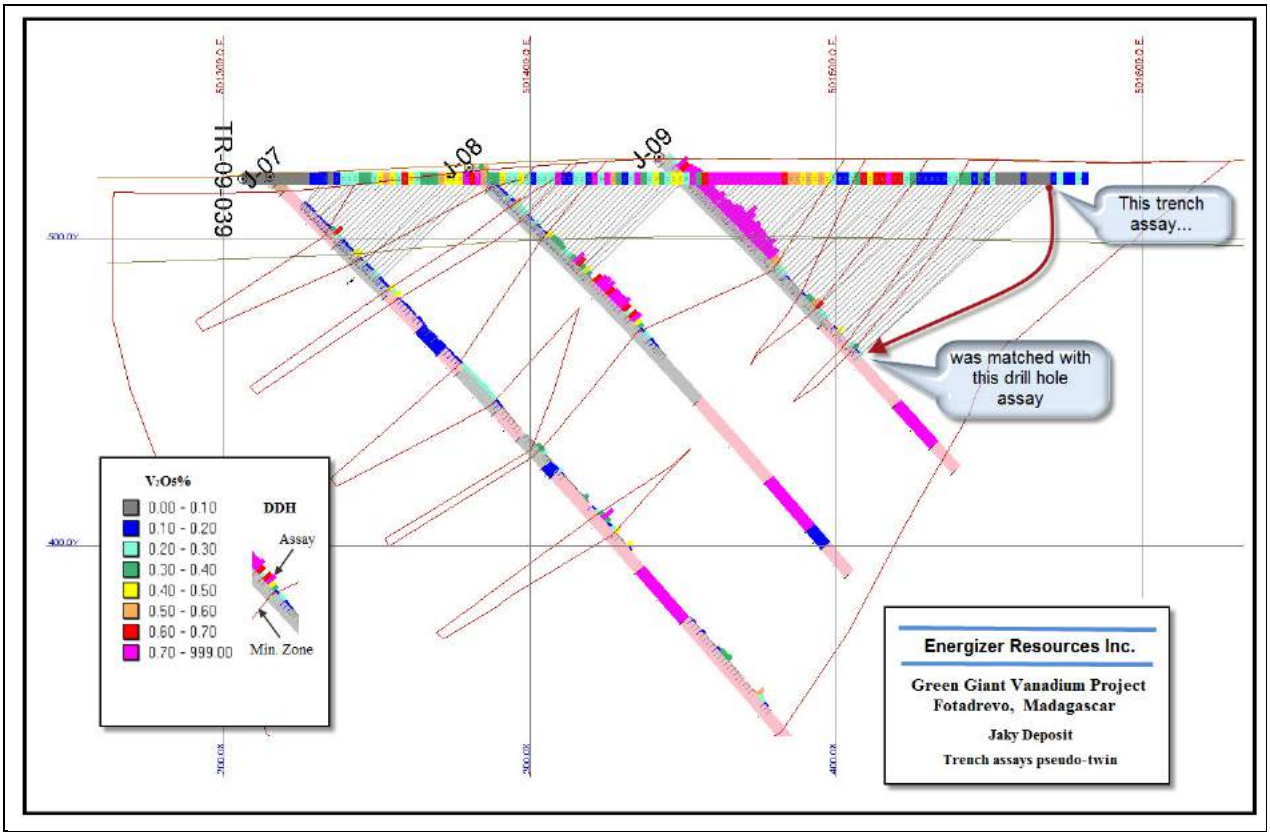
Contact plot studies conducted on the assays within the Jaky, Manga, and Mainty wireframes show a typical gradational contact between the oxidation and primary zones. At the Manga deposit, the transition between these two layers appears statistically more abrupt and could be described as a semi-soft boundary.

The 3D high-grade envelopes at Jaky and Mainty capture most of the mineralization, leaving very little high-grade material outside the wireframe. Contact plots also show that the grade distribution is not gradational near the contacts, allowing the interpolation parameters to treat all boundaries between the high-grade and low-grade envelope as sharp in the model.

17.2.2 Trench Data Evaluation

As part of the previous resource estimate, considerable effort was carried out to assess the impact of using the trench data with the diamond drill holes in the resource estimate. Trench assay data was matched with the nearest down-dip diamond drill hole assays as illustrated in Figure 17-4. These pseudo twin samples are considered by AGP to be statistically representative although in some cases, the "twin" is matched between assays located in the oxidation layer with one samples in the primary unit, which is less than ideal.

Figure 17-4: Trench Assays Pseudo Twin



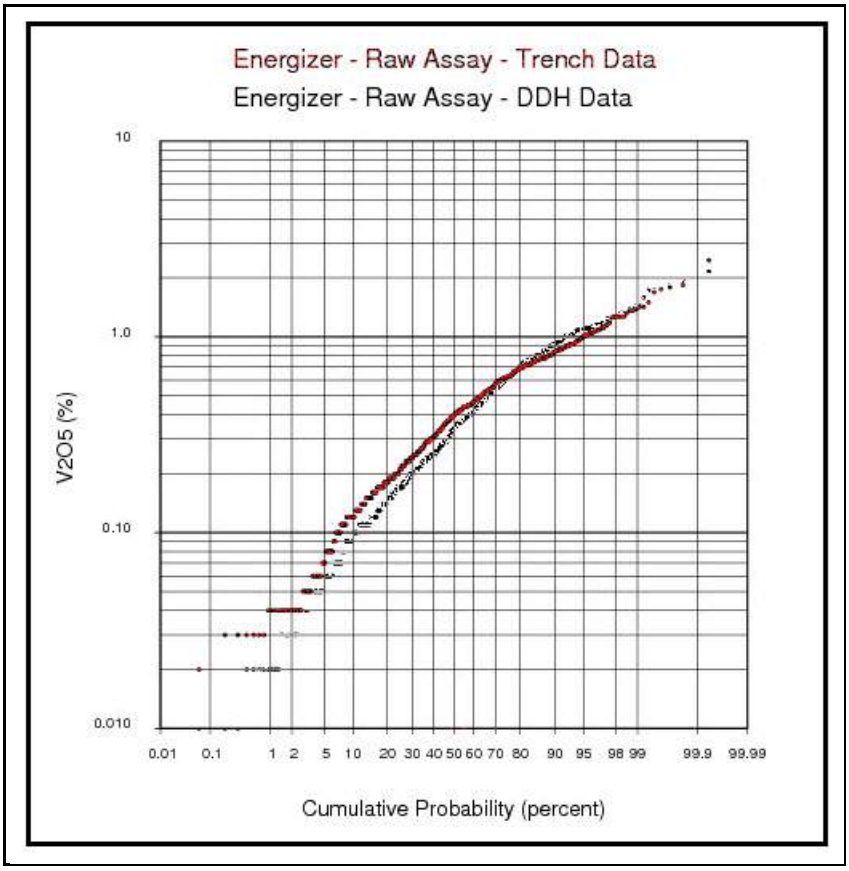
The analysis included descriptive statistics, box plots, regression analysis, histograms and QQ-plots, and a re-run of the resources with and without the trench data.

The descriptive statistics indicated that the mean value of the trench samples is very close to the mean value of matching drill hole samples, with 0.535% V_2O_5 for the trench versus 0.590% V_2O_5 for the drill holes. Box plots show a 0.16% higher grade in the upper third quartile of the drill hole assays when compared to the trench assays. A simple regression curve between the paired samples shows poor correlation at Manga with an R^2 of 0.128, despite the scatter appearing evenly distributed on either side of the regression line. For

Jaky, an R^2 of 0.290 is shown, slightly better than Manga. Again, the scatter of the paired data appears evenly distributed on either side of the regression line.

The probability plot shows that the trench and diamond drill assays populations are very similar (Figure 17-5). The trench data tended to return higher grades than the drill hole assays below the 70th percentile of the distribution below 0.6% V_2O_5. This trend is reversed for assays above the 80th percentile of the distribution above 0.7% V_2O_5, where the drill hole grades indicated higher values, especially between the 0.8% to 1.1% V_2O_5 range. This trend was mirrored on the QQ plots.

Figure 17-5: Probability Plot Comparing Trench and Drill Data (2009 data set)



AGP concluded from these results that the trench samples will not introduce a significant bias in the resource estimate, especially for grades ranging between 0.5% to 0.8% V_2O_5. To verify the impact of the trench data on the overall resource, the models were re-interpolated without the trench composites and the results were compared.

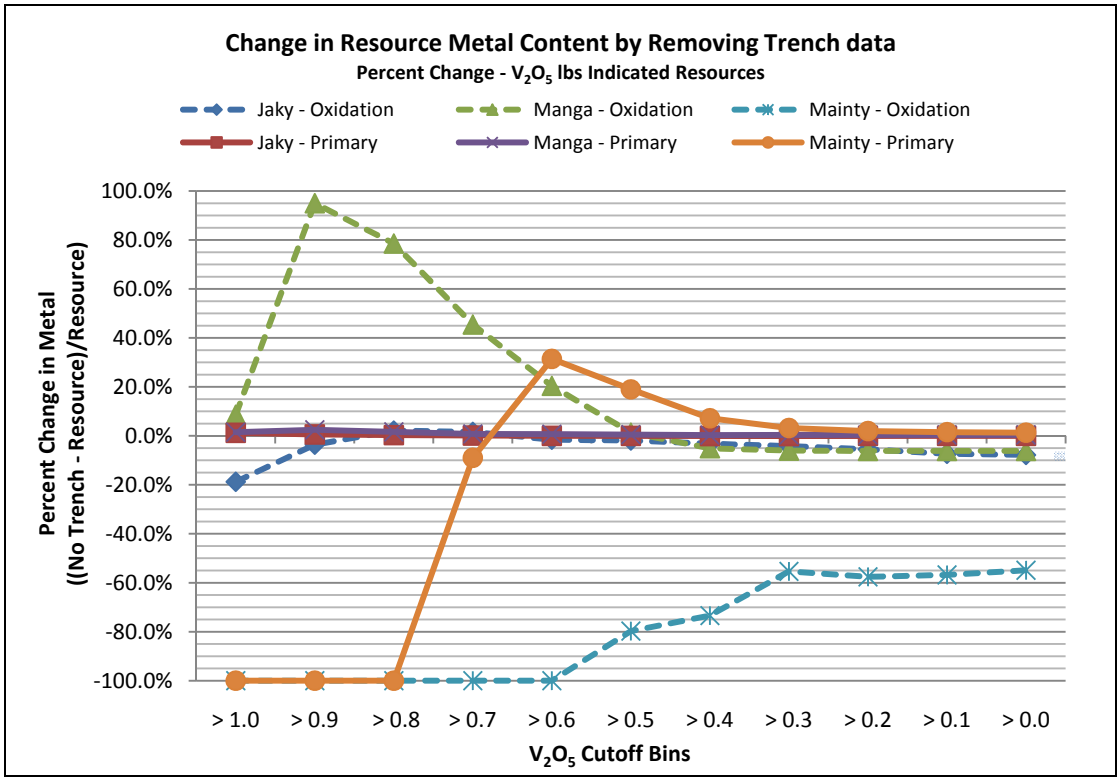
At Jaky, the removal of the trench data reduced the global total metal content of the Indicated resources by 7.8% in the oxidation zone and by 0.0% in the primary zone. At the

0.5% V_2O_5 cutoff, the removal of the trench data reduces the metal content by 1.9% in the oxide layer and 0.0% in the primary zone.

At Manga, the removal of the trench data reduced the global metal content of the Indicated resources by 6.2% in the oxidation layer and increased it by 0.4% in the primary zone. At the 0.5% V_2O_5 cutoff, the removal of the trench data increased the overall metal content in the oxidation and primary zones by 1.3% and 0.7% respectively.

At Mainty, the removal of the trench data reduced the global metal content of the Indicated resources by 54% in the oxidation layer and increased it by 1.3% in the primary zone. At the 0.5% V_2O_5 cutoff, the removal of the trench data decrease the overall metal content in the oxidation by 79.7% and increase the overall metal content in the primary zone by 19%. Metal content differences at various cutoff bins are shown in Figure 17-6.

Figure 17-6: Metal Content Difference after Removing Trench Data



The large differences at Mainty is attributed to the lack of diamond drill hole in the mineralize horizon of the shallow oxidation layer. This causes the oxidation model for Mainty to be supported almost entirely by trench data. Without the use of trench data the Mainty model fail to produce tonnages above the 0.6% V_2O_5 bin in the oxidation layer and above 0.8% V_2O_5 bin in the primary zone.

The difference in metal content in the Inferred resources category at Manga and Mainty could not be accurately evaluated because of the large volume of the resource supported only by trench data, which once removed, significantly altered the statistics.

It is in AGP's opinion that the trench data still provide valuable information in the oxidation layer in the form of a full cross section, which would be difficult to gather with inclined drill holes. This is especially true for Mainty where the oxidation zone is 15 m or less. The alternate solution would be to diamond drill the oxidation layer with a series of sub-vertical short holes. At Mainty, it would take six holes to have the same coverage as one trench.

17.2.3 Capping

A combination of decile analysis and a review of probability plots were used to determine the potential risk of grade distortion from higher-grade assays. A decile is any of the nine values that divide the sorted data into ten equal parts so that each part represents one tenth of the sample or population. In a mining project, high-grade outliers can contribute excessively to the total metal content of the deposit.

Typically, in a decile analysis, capping is warranted if:

- the last decile has more than 40% metal
- the last decile contains more than 2.3 times the metal quantity contained in the penultimate decile the last centile contains more than 10% metal
- the last centile contains more than 1.75 times the metal quantity contained in penultimate decile.

The decile analysis indicated that grade capping was not warranted for any of the zones. This is not uncommon in these types of deposits where the grade tends to be uniformly distributed with very few outliers.

Capping statistics are available in Appendix C.

17.3 Composites

Sampling intervals on the Green Giant property average 1.66 m. Sampling at 1.5 m and 3.0 m intervals is common, creating a gap in the sampling length distribution between 1.5 and 3.0 m. The upper third quartile of the sampling length shows a value of 1.5 m. AGP elected to use a composite length of 2.0 m, generating about two data points per block in the 5 m x 5 m x 5 m block matrix selected at Jaky and also in the 10 m x 10 m x 5 m block matrix selected at Manga and Mainty, while allowing grade variations to be represented.

Assays below detectable limits used half the detection limit. Assays were length-weighted averaged and no grade capping was applied to the raw assay data prior to compositing. Gaps in sampling (if present) were composited at zero grade.

Composite intervals were created down from the collar of the holes toward the hole bottoms within the mineralized wireframes, leaving small remnants at the lower intersections of the wireframes. The compositing methodology restarted the compositing interval at each intersection with the wireframes in the Jaky and Mainty deposit. No composites were created outside the wireframes in Manga or outside the low-grade shell wireframe in Jaky and Mainty. The trench composites used the same procedures as the drill hole composites and were appended to the Green Giant composite file.

The methodology employed to create the composite intervals resulted in intervals less than 2.0 m in length. Statistical analysis of these composite remnants indicates that at Jaky, intervals less than 0.5 m in length could be safely eliminated from the dataset without introducing a bias in the remaining composites while at Manga and Mainty this interval was 0.7 m. Sixty composite remnants were eliminated at Jaky, 31 at Manga, and 32 at Mainty.

An additional 61 zero (or near zero) grade composites created in the overburden layer were eliminated from the composite file.

The resulting composite file contains a total of 6,273 composites with 53% distributed in Jaky, 29% in Manga and 18% in Mainty. Table 17-4 shows the descriptive composite statistics. Complete composite statistics are provided in Appendix C.

Table 17-4: Descriptive Statistics for Composites (drill hole and trenches)

	Jaky		Manga		Mainty	
	Oxidation	Primary	Oxidation	Primary	Oxidation	Primary
Valid Cases	1,149	2,187	715	1,119	328	775
Mean	0.39	0.22	0.53	0.66	0.27	0.36
Std. Error of Mean	0.01	0.01	0.01	0.01	0.02	0.01
Variance	0.12	0.07	0.06	0.10	0.09	0.05
Std. Deviation	0.34	0.27	0.24	0.31	0.29	0.22
Variation Coefficient	0.88	1.24	0.46	0.47	1.07	0.60
Rel. V. Coefficient (%)	2.61	2.66	1.71	1.40	5.89	2.16
Skew	1.44	1.68	1.63	0.43	7.49	-0.13
Kurtosis	2.94	2.62	5.40	0.53	88.62	-0.93
Minimum	0.00	0.00	0.06	0.00	0.00	0.00
Maximum	2.46	1.55	2.02	2.32	4.06	0.87
Range	2.46	1.55	1.96	2.32	4.06	0.87
Sum	443	474	378	741	90	282

	Jaky		Manga		Mainty	
	Oxidation	Primary	Oxidation	Primary	Oxidation	Primary
1st Percentile	0.00	0.00	0.12	0.00	0.00	0.00
5th Percentile	0.00	0.00	0.23	0.21	0.01	0.00
10th Percentile	0.04	0.00	0.28	0.30	0.02	0.02
25th Percentile	0.13	0.00	0.36	0.41	0.12	0.20
Median	0.28	0.12	0.48	0.68	0.25	0.37
75th Percentile	0.56	0.30	0.64	0.86	0.36	0.55
90th Percentile	0.85	0.63	0.81	1.04	0.49	0.64
95th Percentile	1.02	0.80	0.93	1.17	0.59	0.69
99th Percentile	1.51	1.14	1.34	1.50	0.84	0.80
Geom. Mean	-	-	0.48	-	-	-

17.4 Bulk Density

A total of 626 specific gravity (SG) readings were collected on the Green Giant Property averaging 2.56 g/cm^3. AGP conducted a statistical analysis of the data provided and concluded that the SG is primarily controlled by the oxidation and primary domain. From the result of the statistical analysis included in Appendix D, as shown in Table 17-5, AGP assigned SG to the wireframe outlining the mineralization.

Table 17-5: Specific Gravity Used in the Resource Model

Domain	Area	SG (g/cm^3)
Oxide Domain	Jaky Background Outside Wireframe	2.28
	Jaky (All Wireframe but excluding J-01)	2.28
	Jaky – J-01 Wireframe	2.18
	Manga Background Outside Wireframe	2.32
	Manga Wireframe	2.32
	Mainty high-grade domain	2.50
	Mainty low-grade domain	2.54
Primary Domain	Jaky Background Outside Wireframe	2.68
	Jaky (All Wireframe but Excluding J-01)	2.68
	Jaky – J-01 Wireframe	2.34
	Manga Background Outside Wireframe	2.67
	Manga Wireframe	2.67
	Mainty high-grade domain	2.52
	Mainty low-grade domain	2.64

17.5 Spatial Analysis

17.5.1 Variography

Geostatisticians use a variety of tools to describe the pattern of spatial continuity, or strength of the spatial similarity of a variable with separation distance and direction. The correlogram measures the correlation between data values as a function of their separation distance and direction. If we compare samples that are close together, it is common to observe that their values are quite similar, and the correlation coefficient for closely spaced samples is near 1.0. As the separation between samples increases, there is likely to be less similarity in the values, and the correlogram tends to decrease toward 0.0. The distance at which the correlogram reaches zero is called the "range of correlation," or simply the "range." The range of the correlogram corresponds roughly to the more qualitative notion of the "range of influence" of a sample; it is the distance over which sample values show some persistence or correlation. The shape of the correlogram describes the pattern of spatial continuity. A very rapid decrease near the origin indicates short scale variability. A more gradual decrease moving away from the origin suggests longer-scale continuity.

Variography was conducted for the Green Giant property using Sage 2001 software. Directional sample correlograms were calculated for V_2O_5 for Jaky, Manga, and Mainty in the oxide and primary domains along horizontal azimuths of 0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, and 330 degrees. For each azimuth, a series of sample correlograms were also calculated at 15° dip increments. Lastly, a correlogram was calculated in the vertical direction. Using the complete suite of correlograms, an algorithm determined the best-fit model. The model is described by the nugget (C_0) which was derived using down hole variograms, one structure variance contribution (C_1), ranges for the variance contributions, and the model type (traditional exponential). After fitting the variance parameters, the algorithm then fits an ellipsoid to all ranges from the directional models for each structure. The lengths and orientations of the axes of the ellipsoids give the final models of anisotropy. For the Jaky deposit, the data was filtered on the composites contained within the Jaky-01 wireframe, since it offered the largest and most continuous domain. Variography on the other domains was assumed to be similar to the Jaky-01.

All anisotropy models generated by Sage 2001 were visually inspected in Gems and compared with the expected geological controls on the mineralization.

Table 17-6 shows a summary of the variography results for the domains that returned a conclusive variogram. The traditional exponential range in the tables is defined as Gam(3R) = 0.95 x Sill as defined by the first edition of GSLIB (Deutsch and Journel). Traditionally, the order and rotation parameters are derived from the variography.

Table 17-6: Variogram Parameters

	Component	Increment	Cumulative	Rotation	Rotation Angle	Range 1 (x)	Range 2 (y)	Range 3 (z)
Jaky – Oxidation	Nugget C_0	0.2	0.2	-	-	-	-	-
	Exponential C_1	0.8	1.0	ZXZ	62, 38, -84	5.5	228.3	43.3
Jaky – Primary	Nugget C_0	0.2	0.2	-	-	-	-	-
	Exponential C_1	0.8	1.0	ZXZ	89, -9, -117	8.3	229	18.5
Manga – Oxidation	Nugget C_0	0.178	0.178	-	-	-	-	-
	Exponential C_1	0.356	0.534	ZXZ	-22, -22, -68	193.8	9.1	64.0
	Exponential C_2	0.466	1	ZXZ	13, 90, -23	7.5	49.4	314.0
Manga – Primary	Nugget C_0	0.157	0.157	-	-	-	-	-
	Exponential C_1	0.653	0.810	ZXZ	-30, -47, -45	75.5	10.8	25.5
	Exponential C_2	0.190	1	ZXZ	5, 48, -18	5.8	54.5	201.4
Mainty – Oxidation and Primary	Nugget C_0	0.362	0.326	-	-	-	-	-
	Exponential C_1	0.389	0.715	ZXZ	-100, 36, -24	216	2.4	15.5
	Exponential C_2	0.285	1.0	ZXZ	0, 85, -29	15	530.5	450.8

Reasonable variograms were obtained for the Jaky and Manga deposits, showing a preferred north northeast orientation with a moderate to steep dip to the northwest. The C1 component axis oriented more or less with the mineralized zone at Jaky when plotted in GEMS. In GEMS, at Manga, the orientation of the C_1 and C_2 components pointed between 10 to 25 degree off-strike from the true orientation of the zone. The Mainty variogram could use more data points, as it was more difficult to obtain a valid model due in part to the widely spaced grid-drilling pattern. A separate variogram for the oxidation and primary domain could not be constructed therefore a common variogram was used for both domains. Despite these drawbacks, the variograms at Mainty pointed reasonably well in the expected direction of the mineralization.

17.5.2 Search Ellipsoid Dimension and Orientation

The variogram is the key function in geostatistics, as it is used to fit a model of the temporal/spatial correlation of the observed phenomenon, and ultimately sets the weights that will be applied to the samples during the grade interpolation. While it is common to use the variogram model *as a guide* to set the search ellipsoids' range and attitude, the geologist modelling the deposit must consider both the strike and dip of the mineralized horizon and the drill hole spacing and distribution. AGP used the result of the variography as one of the guiding principles for setting the sample-search ellipsoid-dimension.

The first pass was sized to reach at least the next drill section spacing along the main axis of the mineralization as expressed by the variograms. A second and third multiplier was used to set the subsequent search dimensions for Pass 2 and Pass 3, leaving the ratio between the X, Y, and Z-axes consistent with the results of the variography. The maximum range of the third pass search ellipsoid was set to approximately 90% of the sill value on the best exponential "traditional" variogram.

The deposit is very linear in orientation, therefore only one search ellipsoid orientation was necessary.

Table 17-7 lists the final values used in the resource model for the range of the major, semi-major, and minor axes. Variography summary and search ellipsoid orientations are available in Appendix E.

In GEMS, a ZYZ or ZXZ rotation is define following the right-hand rule with the initial orientation of the search ellipsoid parallel to the block model matrix orientation.

Table 17-7: Ellipsoid Sample Search Parameters – Range

Domain	Axis	Pass 1	Pass 2	Pass 3	GEMS Rotation	Angles
Jaky	X	92	147	206	Z	66
	Y	26	42	58	X	-35
	Z	12	19	27	Z	0
Manga Oxidation	X	140	196	274	Z	85
	Y	110	153	215	X	-65
	Z	23	32	44	Z	0
Manga Primary	X	100	140	196	Z	85
	Y	100	140	196	X	-65
	Z	25	35	49	Z	0
Mainty	X	65	91	127	Z	71
	Y	113	158	221	X	-69
	Z	32	45	63	Z	0

17.6 Resource Block Model

Three block models were constructed using Gemcom's GEMS version 6.2.4™ software. A 5 x 5 x 5 m block size was selected based on mining selectivity considerations and the density of the dataset for Jaky. At Manga and Mainty the block model matrix was expanded to 10 x 10 x 5 m block size.

The block models were defined on the project coordinate system (UTM zone 38S, WGS 84 datum) with no rotation. Table 17-8 lists the upper southeast corner of the models and is defined on the block edge.

The rock type model was coded by combining the oxide/primary codes of 1,000 and 2,000 respectively with the geology/wireframe model codes 110 to 430 (Table 17-8) to allow control of the interpolation parameters.

Table 17-8: Block Model Definition (block edge)

Model Parameters	Jaky	Manga	Mainty
Easting (m)	501,175	502,350	503,350
Northing (m)	7,336,400	7,344,250	7,353,250
Top Elevation (m)	600	600	600
Rotation Angle (degrees)	0	0	0
Block Size (X, Y, Z) (m)	5 x 5 x 5	10 x 10 x 5	10 x 10 x 5
Number of Blocks in the X Direction	145	120	150
Number of Blocks in the Y Direction	230	500	215
Number of Blocks in the Z direction	70	90	90

17.7 Interpolation Plan

Both resource models were created in GEMS using a single-folder setup. At Jaky and Mainty, the low-grade model was interpolated separately from the high-grade and combined into a final grade model by weighting the V_2O_5 tenor based on the percentage of the block occupied by the high-grade wireframe according to the following block manipulation equation:

Final V_2O_5grade = ((HG x Perc) + (LG x (100 – Perc)))/100

where

HG = V_2O_5 grade inside the high-grade wireframe

LG = V_2O_5 grade inside the low-grade envelope

Perc = Percentage of the block inside the high-grade wireframe

The grade model was interpolated using ordinary kriging, with inverse distance square and nearest neighbour check models.

The interpolation was carried out in a multi-pass approach, with an increasing search dimension coupled with decreasing sample restriction.

Pass 1 uses an ellipsoid search with six samples minimum, and 15 maximum. A maximum of five samples per hole was imposed on the data selection, forcing a minimum of two holes.

Pass 2 uses an ellipsoid search with four samples minimum, and 15 maximum. A maximum of three samples per hole was imposed on the data selection, forcing a minimum of two holes.

Pass 3 uses an ellipsoid search with two samples minimum, and 15 maximum. A maximum of three samples per hole was imposed on the data selection, allowing a block to be interpolated by a single hole.

On the Jaky and Mainty deposit, boundaries between the high-grade wireframe and the low-grade envelope were treated as hard boundaries, not allowing samples from one domain to be used with the samples of the other domain. For Jaky, Manga, and Mainty, the boundary between the oxidation and primary domain was treated as a soft boundary, allowing samples from the oxide to use samples from the primary domain (and vice versa) in the most restrictive Pass 1 interpolation only. For Passes 2 and 3 the boundary was considered hard. No blocks were interpolated unrestricted, outside a wireframe.

17.8 Mineral Resource Classification

Several factors are considered in the definition of a resource classification:

- Canadian Institute of Mining (CIM) requirements and guidelines
- experience with similar deposits
- spatial continuity
- confidence limit analysis geology.

No environmental, permitting, legal, title, taxation, socioeconomic, marketing, or other relevant issues are known to the author that may currently affect the estimate of mineral resources. Mineral reserves can only be estimated on the basis of an economic evaluation that is used in a prefeasibility or feasibility study of a mineral project. Thus, no reserves have been estimated. As per NI 43-101, mineral resources, which are not mineral reserves, do not have demonstrated economic viability.

Two confidence categories exist in the model. The usual CIM guidelines of Indicated and Inferred classes are Coded 2 and 3, respectively.

Typically, confidence level for a grade in the block model is reduced with increases in the search ellipsoid size, along with diminishing restrictions on the number of samples used for the grade interpolation. This is essentially controlled via the pass number of the interpolation plan described in the previous section. A common technique is to categorize a model based on the pass number and distance to the closest sample.

Variograms indicated that at 97% of the sill value, the range for Jaky, Manga is in the order of 200 to 220 m on strike while Mainty showed only 130 m. The down-dip direction varies between 70 m at Jaky to approximately 200 m at Manga and Mainty. At 60% of the sill value, the range is much shorter, showing ranges less than 40 m for Jaky, Manga, and Mainty. For classification purposes, AGP chose a distance to the closest sample of less than 75 m for the Indicated category, and a maximum distance equal to the maximum reach of the third pass search ellipsoid for the Inferred category. Blocks supported only by trench data for the North and South extension for Manga and Mainty were manually downgraded to inferred regardless of the interpolation pass and distance to closest samples.

Table 17-9 shows a summary of the classification parameters used for the Green Giant resource statement.

Table 17-9: Classification Parameters

Deposit	Measured	Indicated	Inferred
Jaky	Not used	< 15 m distance to closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3) OR < 75 m distance to closest composite, with blocks interpolated with a minimum of 2 or more holes (Passes 1 and 2)	≥75 m and < 206 m distance to closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3)
Manga	Not used	< 15 m distance to closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3) OR < 75 m distance to closest composite, with blocks interpolated with a minimum of 2 or more holes (Passes 1 and 2)	≥ 75 m and < 196 m in the primary zone or < 274 m in the Oxidation zone. Distances are measure to the closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3). Blocks supported only by trench data were manually downgraded to inferred
Mainty	Not used	< 15 m distance to closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3) OR < 75 m distance to closest composite, with blocks interpolated with a minimum of 2 or more holes (Passes 1 and 2)	≥75 m and < 225 m distance to closest composite, with blocks interpolated from 1 or more holes. (Passes 1, 2, or 3) Blocks supported only by trench data were manually downgraded to inferred

Based on the criteria outlined in Table 17-9, approximately 55% of the blocks estimated on the Jaky deposit are Indicated resources. Inferred resources accounted for 37% of the total volume, with 8% of the blocks left uninterpolated. At Manga, approximately 79% of the

blocks estimated are Indicated resources. Inferred resources accounted for 21% of the total volume. At Mainty, approximately 49% of the blocks estimated are Indicated resources. Inferred resources accounted for 42% of the total volume, with 9% of the blocks left uninterpolated. No resources were classified as Measured.

17.9 Mineral Resource Tabulation

Effective November 30, 2010, AGP has estimated the mineral resources for the Green Giant property in Madagascar. The mineral deposits on this property have been divided into three separate zones, which are referred to as the Jaky, Manga, and Mainty deposits. This mineral resource estimate utilized approximately 18,832 m of diamond drill hole data from the 2008, 2009 and 2010 drill program and was supplemented by approximately 5,928 m of trench data from the 2008, 2009 exploration programs. No additional work was carried out on the Jaky deposit since the June 18, 2010 report; therefore, for this deposit the resources are merely re-stated from the previous report.

The Jaky, Manga, and Mainty resource estimate is comprised of Indicated and Inferred resources reported as vanadium pentoxide mineralization at a base case cutoff grade of 0.5% V_2O_5.

The method employed to select the base case cutoff grades was to consider the mineralogical characteristics, envisioned mining methods, and comparable vanadium projects worldwide. Rounding of tonnes as required by reporting guidelines in all tables below may result in apparent differences between tonnes, grades, and contained metal.

The vanadium deposits on the Green Giant property are split into two separate categories: oxide and primary. The following resource values were determined at a 0.5% V_2O_5 cutoff. Within the oxide and primary zones of the Jaky, Manga, and Mainty deposits, the total Indicated resource (Table 17-10) is 49.5 Mt at 0.693% V_2O_5, containing 756.3 Mlb of vanadium pentoxide. The total Inferred resource (Table 17-11) is 9.7 Mt at a grade of 0.632% V_2O_5, containing 134.5 Mlb of vanadium pentoxide. The total change in the indicated category since the June 18, 2010 report amounted to an increase of 27.7 Mt or 128% change containing an additional 392.5 Mlb of V_2O_5 or 108% change. The overall change in the inferred category amounted to an increase of 5.5 Mt representing a 133% change containing an additional 74.7 Mlb of V_2O_5 or 125% change.

Within the oxide and primary zones of the Jaky deposit, the total Indicated resource is 5.4 Mt at 0.724% V_2O_5, containing 86.4 Mlb of vanadium pentoxide. The total Inferred resource is 0.7 Mt at a grade of 0.619 % V_2O_5, containing 9.0 Mlb of vanadium pentoxide. The Jaky deposit remains the same as the May 11, 2010, resource estimate since Energizer did not carry out any exploration work on this particular deposit.

Table 17-10: Indicated Resources for the Green Giant Property at 0.5% V_2O_5 Cutoff

Category	Deposit / Domain	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Indicated	Jaky	5.4	0.724	86.4
	Manga	37.5	0.709	586.5
	Mainty	6.6	0.576	83.3
Total	**Jaky+Manga+Mainty**	**49.5**	**0.693**	**756.3**
Inferred	Jaky	0.7	0.619	9.0
	Manga	6.0	0.652	86.7
	Mainty	3.0	0.593	38.9
Total	**Jaky+Manga+Mainty**	**9.7**	**0.632**	**134.5**

The Manga resource is larger than Jaky. Within the oxide and primary zones of the Manga deposit, the total Indicated resource is 37.5 Mt at 0.709% V_2O_5, containing 586.5 Mlb of vanadium pentoxide. The total Inferred resource is 6.0 Mt at a grade of 0.652% V_2O_5, containing 86.7 Mlb of vanadium pentoxide. The indicated resource at Manga increased by 21.2 Mt containing an additional 309.2 Mlb of vanadium pentoxide equivalent to a 130% change in tonnage and 111% change in contained metal. The inferred resource at Manga increased by 2.5 Mt containing an additional 35.8 Mlb of vanadium pentoxide equivalent to a 73% change in tonnage and a 70% change in contained metal.

The newly drilled Mainty deposit returned within the oxide and primary zones a total indicated resource of 6.6 Mt grading 0.576% V_2O_5, containing 83.3 Mlb of vanadium pentoxide. The inferred resources returned 3.0 Mt grading 0.593% V_2O_5, containing 38.9 Mlb of vanadium pentoxide.

Tables 17-11 and 17-12 show summaries of the mineral resource estimates for Jaky at various cutoff grades in the Indicated and Inferred categories, respectively. These findings have also been illustrated in Figures 17-7 and 17-8, respectively.

Table 17-11: Jaky Indicated Resources

Category	V_2O_5 Cutoff (%)	Volume (M m^3)	Density (t/m^3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.1	2.18	0.2	1.172	5.8
	> 0.9	0.2	2.18	0.4	1.074	9.3
	> 0.8	0.3	2.18	0.6	0.987	14.0
	> 0.7	0.5	2.18	1.1	0.884	21.9
	> 0.6	0.8	2.18	1.8	0.793	32.0
	> 0.5	**1.2**	**2.18**	**2.6**	**0.720**	**41.4**
	> 0.4	1.61	2.18	3.5	0.649	50.5
	> 0.3	2.05	2.19	4.5	0.586	57.8
	> 0.2	2.64	2.20	5.8	0.508	64.9
Primary Zone	> 1.0	0.10	2.34	0.2	1.066	5.3
	> 0.9	0.2	2.34	0.5	0.998	11.9
	> 0.8	0.4	2.34	0.9	0.939	18.2
	> 0.7	0.6	2.34	1.4	0.867	27.3
	> 0.6	0.8	2.34	2.0	0.807	34.9
	> 0.5	**1.2**	**2.36**	**2.8**	**0.729**	**45.1**
	> 0.4	1.7	2.40	4.1	0.639	57.9
	> 0.3	2.5	2.43	6.0	0.548	72.1
	> 0.2	3.57	2.47	8.8	0.450	87.6

Table 17-12: Jaky Inferred Resources

Category	V_2O_5 Cutoff (%)	Volume (M m^3)	Density (t/m^3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.00	2.18	0.0	1.059	0.0
	> 0.9	0.00	2.18	0.0	0.970	0.1
	> 0.8	0.00	2.18	0.0	0.894	0.2
	> 0.7	0.01	2.18	0.0	0.778	0.5
	> 0.6	0.05	2.18	0.1	0.690	1.6
	> 0.5	**0.08**	**2.18**	**0.2**	**0.638**	**2.4**
	> 0.4	0.11	2.19	0.3	0.578	3.2
	> 0.3	0.20	2.21	0.4	0.478	4.6
	> 0.2	0.36	2.23	0.8	0.368	6.5
Primary Zone	> 1.0	0.00	2.34	0.0	1.043	0.1
	> 0.9	0.01	2.34	0.0	0.984	0.3
	> 0.8	0.02	2.34	0.0	0.879	0.7
	> 0.7	0.04	2.35	0.1	0.810	1.6
	> 0.6	0.08	2.37	0.2	0.719	2.9
	> 0.5	**0.20**	**2.39**	**0.5**	**0.612**	**6.6**
	> 0.4	0.43	2.42	1.0	0.525	11.9
	> 0.3	0.74	2.45	1.8	0.447	18.0
	> 0.2	1.83	2.55	4.7	0.314	32.3

Figure 17-7: Jaky Indicated Resources Grade-Tonnage Curve

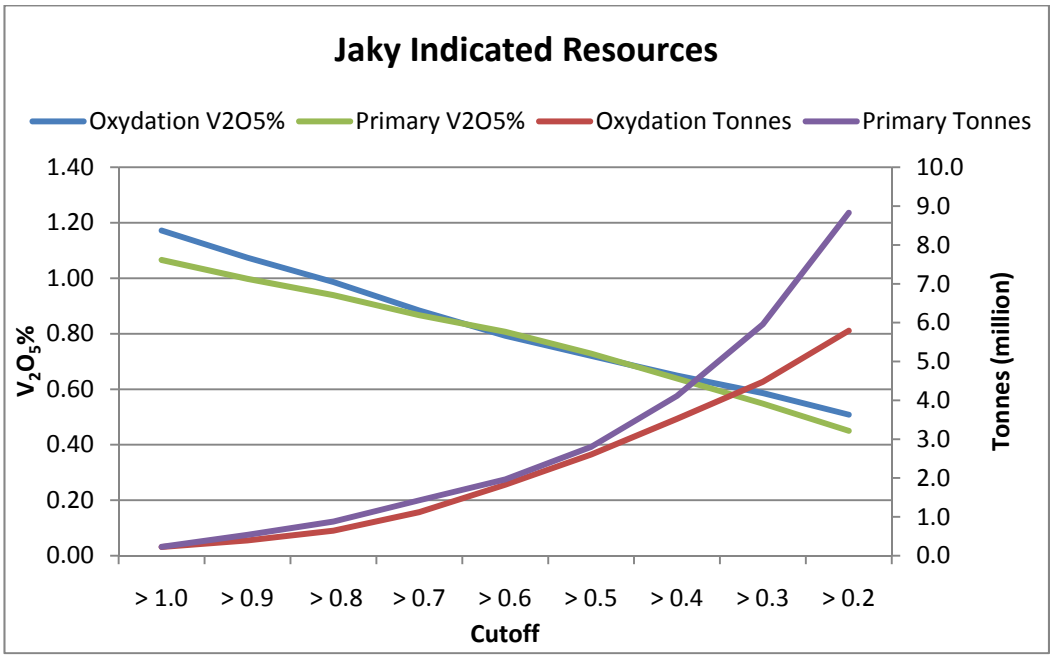
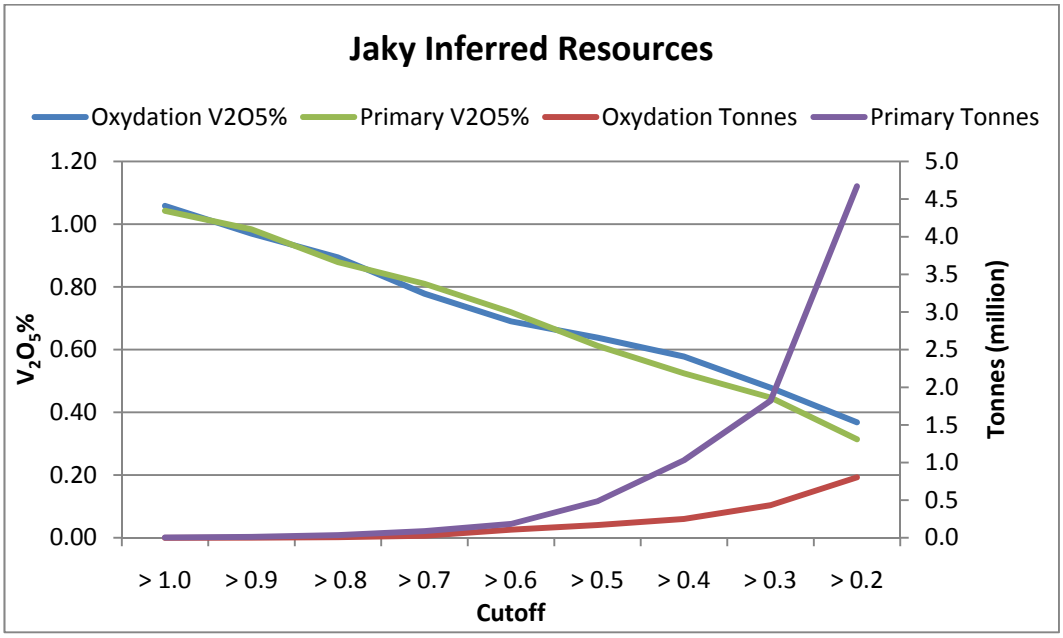


Figure 17-8: Jaky Inferred Resource Grade-Tonnage Curve



Tables 17-13 and 17-14 show summaries of the mineral resource estimates for Manga at various cutoff grades in the Indicated and Inferred category, respectively. These findings have also been illustrated in Figures 17-9 and 17-10, respectively.

Table 17-13: Manga Indicated Resources

Category	V_2O_5 Cutoff (%)	Volume (Mm^3)	Density (t/m^3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.09	2.32	0.21	1.178	5.5
	> 0.9	0.13	2.32	0.29	1.112	7.2
	> 0.8	0.35	2.32	0.81	0.940	16.7
	> 0.7	0.97	2.32	2.26	0.813	40.6
	> 0.6	1.99	2.32	4.62	0.729	74.2
	> 0.5	**3.33**	**2.32**	**7.73**	**0.657**	**112.0**
	> 0.4	4.60	2.32	10.67	0.600	141.1
	> 0.3	5.52	2.32	12.80	0.559	157.8
	> 0.2	5.66	2.32	13.14	0.552	159.8
Primary Zone	> 1.0	0.53	2.67	1.42	1.128	35.4
	> 0.9	1.21	2.67	3.22	1.025	72.7
	> 0.8	2.83	2.67	7.56	0.920	153.4
	> 0.7	5.87	2.67	15.68	0.831	287.2
	> 0.6	8.61	2.67	23.00	0.773	392.1
	> 0.5	**11.15**	**2.67**	**29.78**	**0.723**	**474.5**
	> 0.4	13.10	2.67	34.98	0.683	526.4
	> 0.3	14.48	2.67	38.66	0.652	555.7
	> 0.2	14.56	2.67	38.88	0.650	557.0

Table 17-14: Manga Inferred Resources

Category	V_2O_5 Cutoff (%)	Volume (Mm^3)	Density (t/m3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.00	0.00	0.00	0.000	0.0
	> 0.9	0.00	0.00	0.00	0.000	0.0
	> 0.8	0.00	2.32	0.01	0.863	0.2
	> 0.7	0.02	2.32	0.06	0.763	1.0
	> 0.6	0.08	2.32	0.19	0.674	2.8
	> 0.5	**0.28**	**2.32**	**0.65**	**0.580**	**8.3**
	> 0.4	0.74	2.32	1.71	0.493	18.5
	> 0.3	1.10	2.32	2.54	0.450	25.2
	> 0.2	1.11	2.32	2.58	0.448	25.5
Primary Zone	> 1.0	0.00	2.67	0.00	1.004	0.0
	> 0.9	0.03	2.67	0.09	0.921	1.8
	> 0.8	0.21	2.67	0.55	0.855	10.5
	> 0.7	0.73	2.67	1.96	0.781	33.8
	> 0.6	1.22	2.67	3.25	0.728	52.1
	> 0.5	**2.02**	**2.67**	**5.38**	**0.661**	**78.4**
	> 0.4	2.50	2.67	6.67	0.622	91.6
	> 0.3	2.62	2.67	7.00	0.610	94.1
	> 0.2	2.65	2.67	7.07	0.606	94.6

Figure 17-9: Manga Indicated Resources Grade-Tonnage Curve

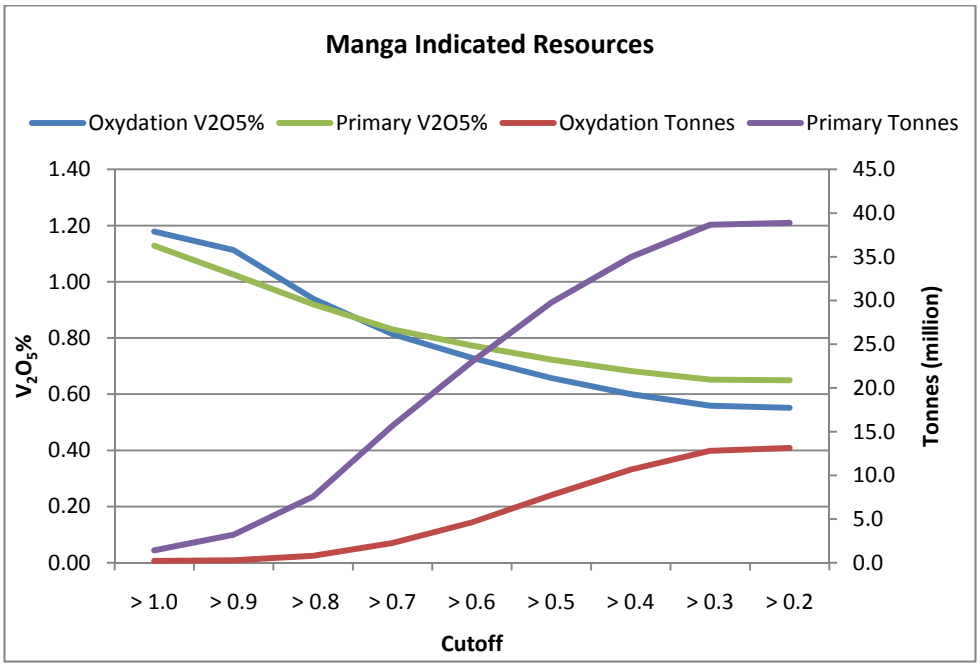
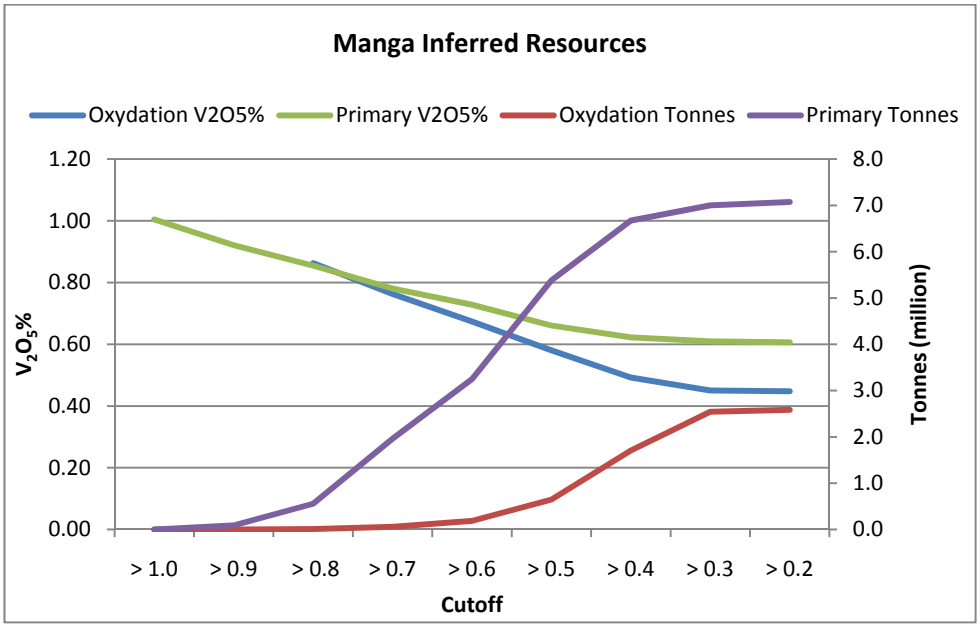


Figure 17-10: Manga Inferred Resources Grade-Tonnage Curve



Tables 17-15 and 17-16 show summaries of the mineral resource estimates for Mainty at various cutoff grades in the Indicated and Inferred category, respectively. These findings have also been illustrated in Figures 17-11 and 17-12, respectively.

Table 17-15: Mainty Indicated Resources

Category	V_2O_5 Cutoff (%)	Volume (Mm^3)	Density (t/m^3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.003	2.50	0.01	1.151	0.2
	> 0.9	0.003	2.51	0.01	1.132	0.2
	> 0.8	0.004	2.50	0.01	1.111	0.2
	> 0.7	0.004	2.50	0.01	1.049	0.2
	> 0.6	0.013	2.50	0.03	0.771	0.6
	> 0.5	**0.029**	**2.50**	**0.07**	**0.643**	**1.0**
	> 0.4	0.091	2.50	0.23	0.503	2.5
	> 0.3	0.245	2.51	0.61	0.405	5.5
	> 0.2	0.381	2.51	0.96	0.351	7.4
Primary Zone	> 1.0	0.002	2.52	0.01	1.248	0.1
	> 0.9	0.004	2.52	0.01	1.102	0.2
	> 0.8	0.006	2.53	0.02	1.018	0.3
	> 0.7	0.126	2.52	0.32	0.740	5.2
	> 0.6	0.646	2.52	1.63	0.656	23.6
	> 0.5	**2.571**	**2.52**	**6.48**	**0.576**	**82.3**
	> 0.4	4.496	2.53	11.35	0.522	130.6
	> 0.3	6.546	2.54	16.64	0.465	170.4
	> 0.2	8.517	2.56	21.78	0.415	199.4

Table 17-16: Mainty Inferred Resources

Category	V_2O_5 Cutoff (%)	Volume (Mm^3)	Density (t/m3)	Tonnage (Mt)	V_2O_5 (%)	V_2O_5 (Mlb)
Oxidation Zone	> 1.0	0.03	2.50	0.06	1.688	2.4
	> 0.9	0.03	2.50	0.07	1.640	2.4
	> 0.8	0.03	2.50	0.09	1.473	2.8
	> 0.7	0.04	2.50	0.10	1.393	3.0
	> 0.6	0.05	2.50	0.12	1.256	3.3
	> 0.5	**0.06**	**2.50**	**0.14**	**1.136**	**3.6**
	> 0.4	0.08	2.50	0.19	0.960	4.0
	> 0.3	0.14	2.50	0.34	0.681	5.1
	> 0.2	0.23	2.51	0.57	0.505	6.4
Primary Zone	> 1.0	0.00	0.00	0.00	0.000	0.0
	> 0.9	0.00	0.00	0.00	0.000	0.0
	> 0.8	0.00	0.00	0.00	0.000	0.0
	> 0.7	0.01	2.52	0.02	0.730	0.3
	> 0.6	0.18	2.52	0.45	0.626	6.2
	> 0.5	**1.12**	**2.52**	**2.83**	**0.565**	**35.3**
	> 0.4	2.01	2.53	5.08	0.516	57.8
	> 0.3	3.79	2.57	9.75	0.432	92.8
	> 0.2	5.34	2.58	13.79	0.376	114.4

Figure 17-11: Mainty Indicated Resources Grade-Tonnage Curve

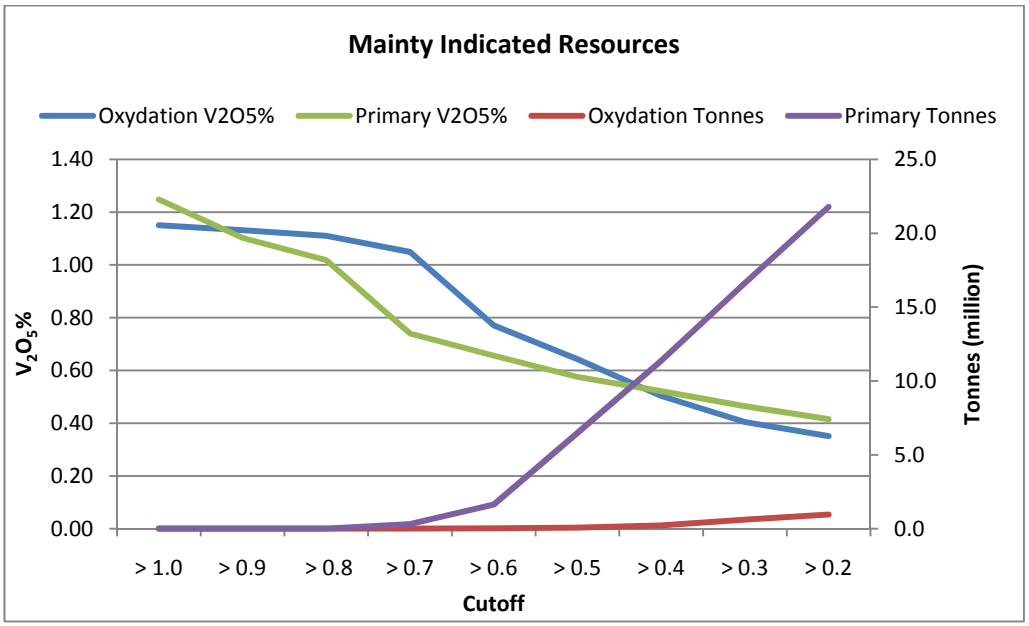
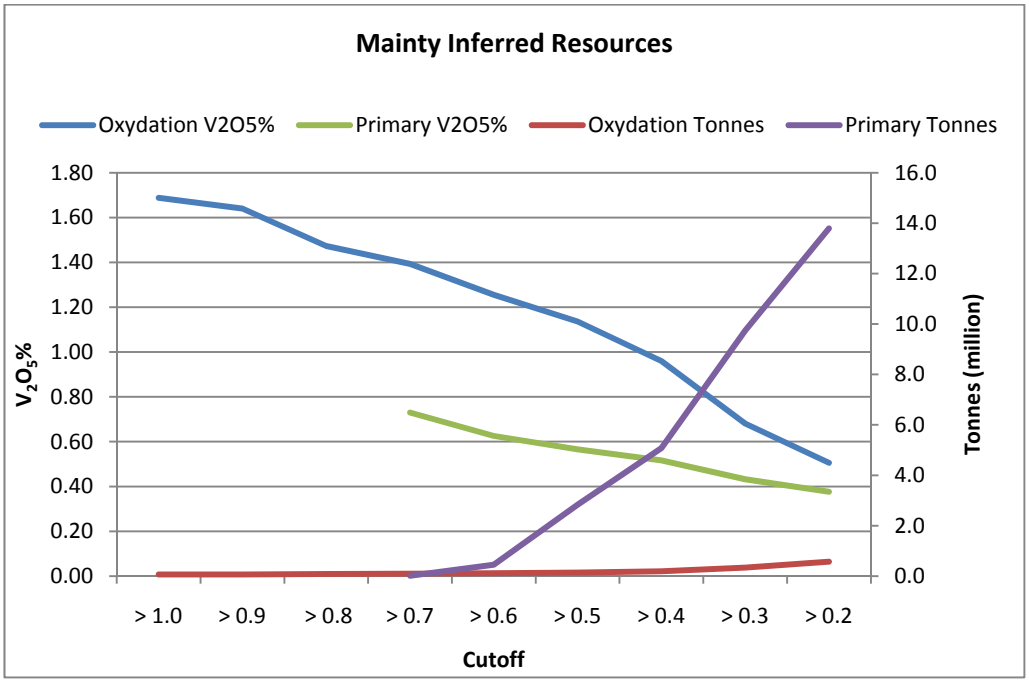


Figure 17-12: Mainty Inferred Resources Grade-Tonnage Curve



17.10 Block Model Validation

The Jaky, Manga, and Mainty grade models were validated by four methods:

- visual comparison of colour-coded block model grades with composite grades on section plots
- comparison of the global mean block grades for ordinary kriging, inverse distance, nearest neighbour models, composite, and raw assay grades
- comparison using grade profiles to investigate local bias in the estimate
- naïve cross-validation test.

17.10.1 Visual Comparison

The visual comparison of block model grades with composite grades showed a reasonable correlation between values. No significant discrepancies were apparent from the plans and sections reviewed. The orientations of the estimated grades on sections more or less followed the projection angles defined by the search ellipsoid. Representative drill sections are shown in Appendix F.

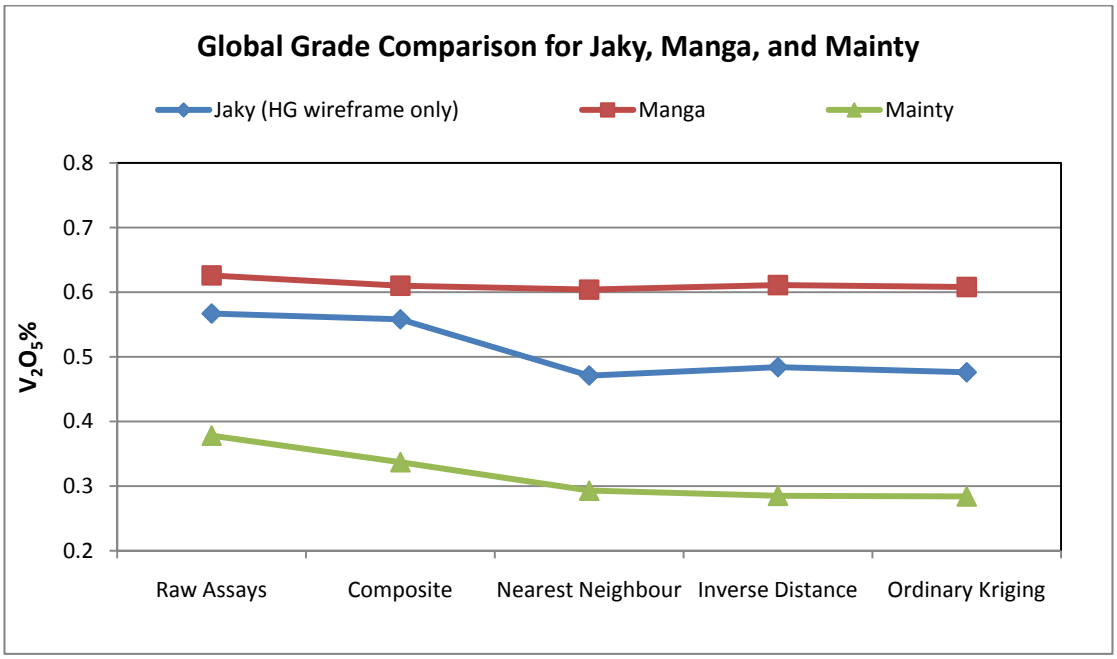
17.10.2 Global Comparisons

Table 17-17 shows the grade statistics for the raw assays, composites, ordinary kriging, nearest neighbour and inverse distance models. Figure 17-13 shows the differences. At Jaky, Manga, and Mainty statistics for the vanadium pentoxide composite mean grade compare well to raw assay grade, with a normal reduction in value due to smoothing related to volume variance, and also partly due to the addition of zero grade composite assigned to unsampled intervals during the compositing process. For Jaky, Manga, and Mainty the grade of the nearest neighbour, inverse distance, and ordinary kriging at 0.00 cutoff are all within less than 4% of each other, showing that no global bias was introduced from the interpolation method used.

Table 17-17: Global Comparisons – V_2O_5 Grade at 0.00 Cutoff

Methodology	Jaky (within high-grade wireframe only)	Manga	Mainty
Raw Assays	0.567	0.626	0.378
Composite	0.558	0.610	0.337
Nearest Neighbour	0.471	0.604	0.293
Inverse Distance	0.484	0.611	0.285
Ordinary Kriging	0.476	0.608	0.284

Figure 17-13: Green Giant Property – Global Grade Comparison at 0.00 Cutoff



17.10.3 Local Comparisons – Grade Profile

The comparison of the grade profiles (swath plots) of the raw assays, composites, and estimated grades allows for a visual verification of an over- or under-estimation of the block grades at the global and local scales. A qualitative assessment of the smoothing and variability of the estimates can also be observed from the plots. The output consists of three swath plots generated at 25 m intervals in the X-axis, 100 m in the Y-axis at Jaky and Mainty, 200 m in the Y-axis at Manga, and 24 m vertically for all deposits.

The kriged estimate should be smoother than the nearest neighbour estimate, thus the nearest neighbour estimate should fluctuate around the kriged estimate on the plots or display a slightly higher grade. The composite line is generally located between the assay and the interpolated grade. A model with good composite distribution should show very few crossovers between the composite and the interpolated grade line on the plots. In the fringes of the deposits, as composite data points become sparse, crossovers are often unavoidable. The swath size also controls this effect to a certain extent; if the swaths are too small then fewer composites will be encountered, which usually results in a very erratic line on the plots.

Due to the orientation of the Green Giant deposit, the swath plots in the Y-axes and Z-axes should show the best results for this model.

In general, the swath plots show good agreement, with all three methodologies showing no major local bias, except at Manga south of 7,345,236 m where the composite line is located below the interpolated grade. This specific area of the model was visually inspected on both plans and sections with the composite and raw assays and no evidence of grade smearing was apparent considering the poor sample support, mostly from trench data. For this reason, AGP elected to downgrade all Manga and Mainty blocks supported solely by trench data to the inferred category. Grade profiles for V_2O_5 Y-axis are presented in Figures 17-14 to 17-16. The remaining profiles are included in Appendix G.

Figure 17-14: Y-Axis Swath Plots at Jaky

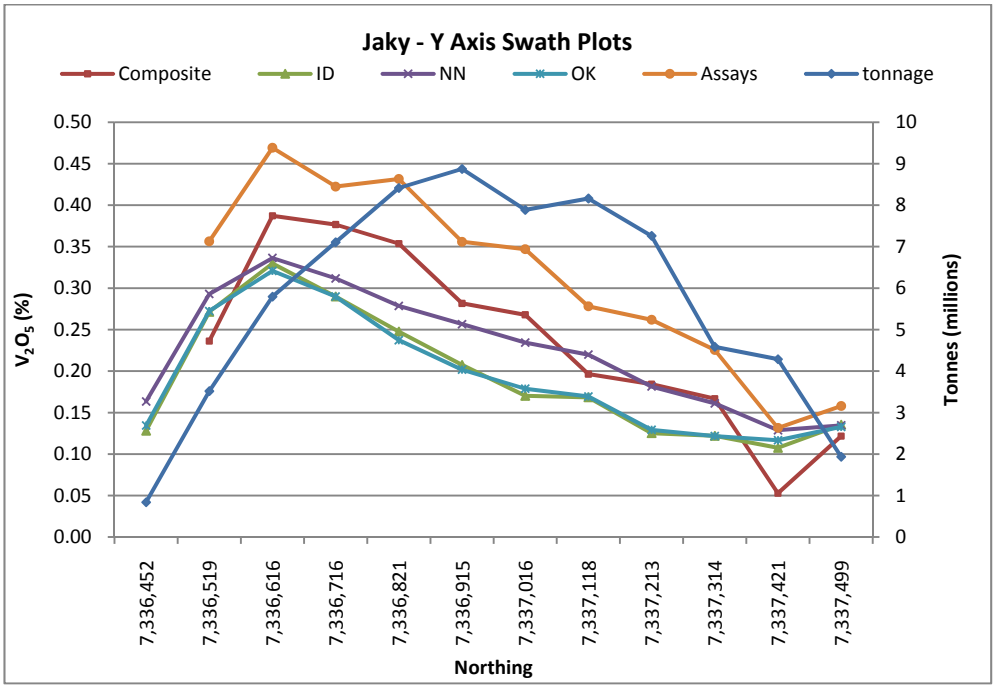


Figure 17-15: Y Axis Swath Plots at Manga

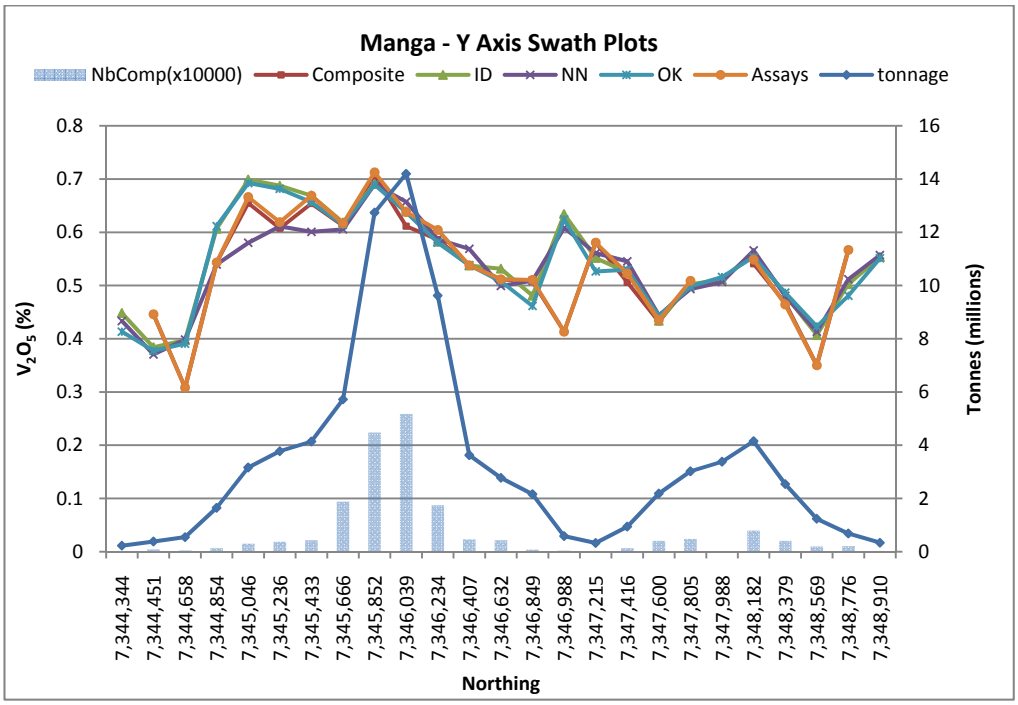
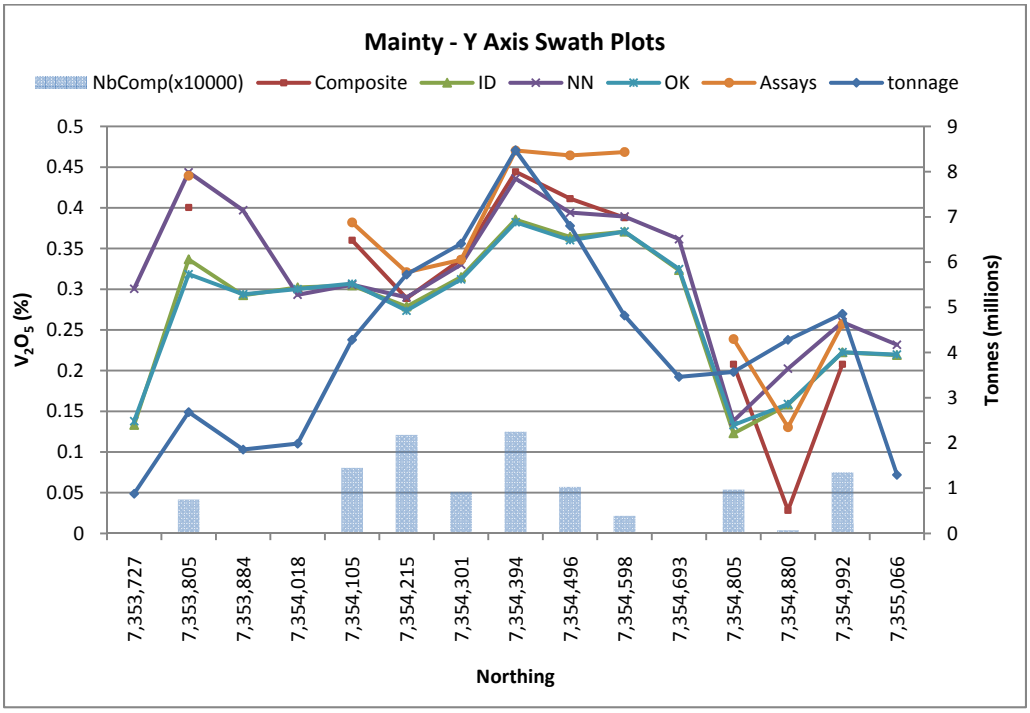


Figure 17-16: Y Axis Swath Plots at Mainty



17.10.4 Naïve Cross-Validation Test

A comparison of the average grade of the composites within a block with the estimated grade of that block provides an assessment of the estimation process close to measured data. Pairing of these grades on a scattered plot gives a statistical valuation of the estimates. This methodology differs from "Jack Knifing," which replaces a composite with a pseudo-block at the same location. Jack knifing evaluates and compares the estimated grade of the pseudo-block against that of the composite grade.

It is anticipated that the estimated block grades should be similar to the composited grades within the block, without being exactly the same value.

A high correlation coefficient indicates satisfactory results in the interpolation process, while a medium to low correlation coefficient indicates larger differences in the estimates, and may suggest a further review of the interpolation process, or might be simply related to low data density. Results from the pairing of the composited and estimated grades within blocks pierced by a drill hole are presented in Figures 17-17 to 17-19 for Jaky, Manga, and Mainty respectively. The R^2 value at Jaky is 0.920 (maximum 1) indicating a great fit.

At Manga, the R^2 value is lower than at Jaky, but is still good at 0.869. Mainty is at an earlier stage of exploration and shows the poorest correlation at 0.789 R^2 value.

Figure 17-17: Naïve Cross Validation Test Results at Jaky

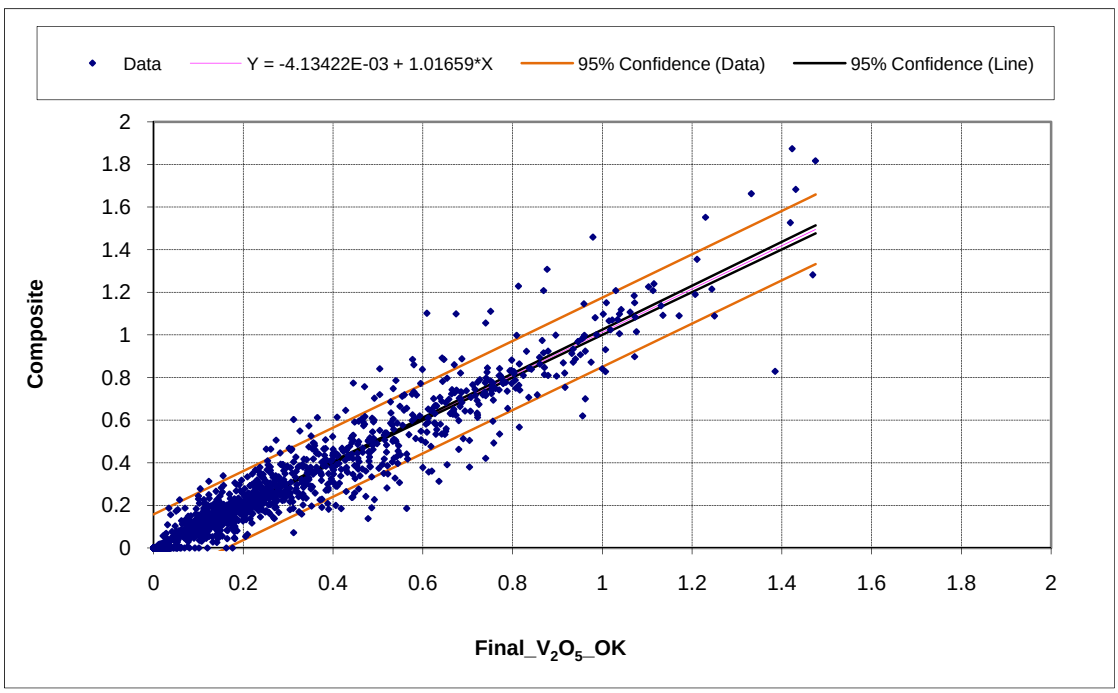


Figure 17-18: Naïve Cross Validation Test Results at Manga

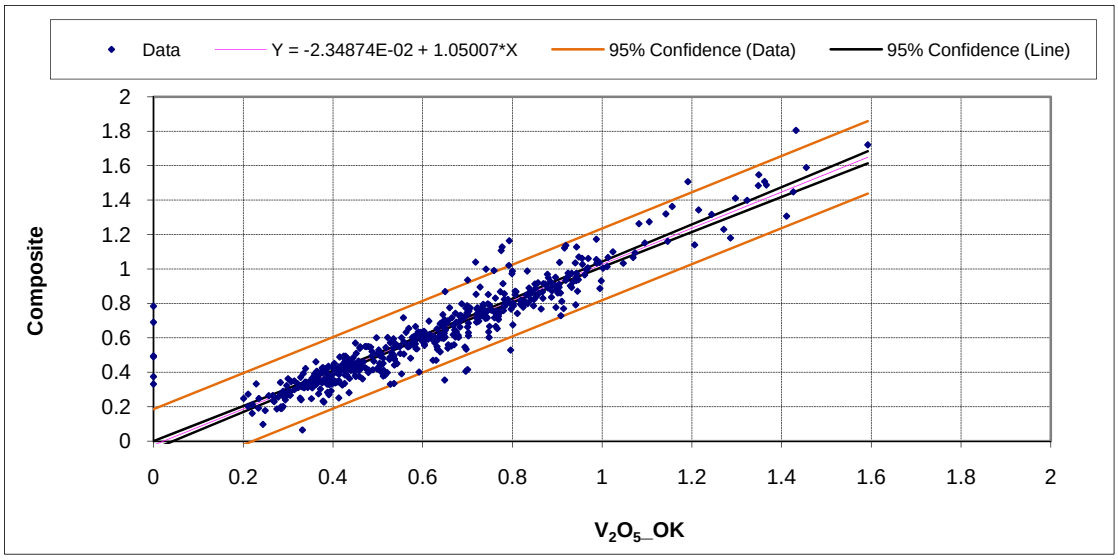
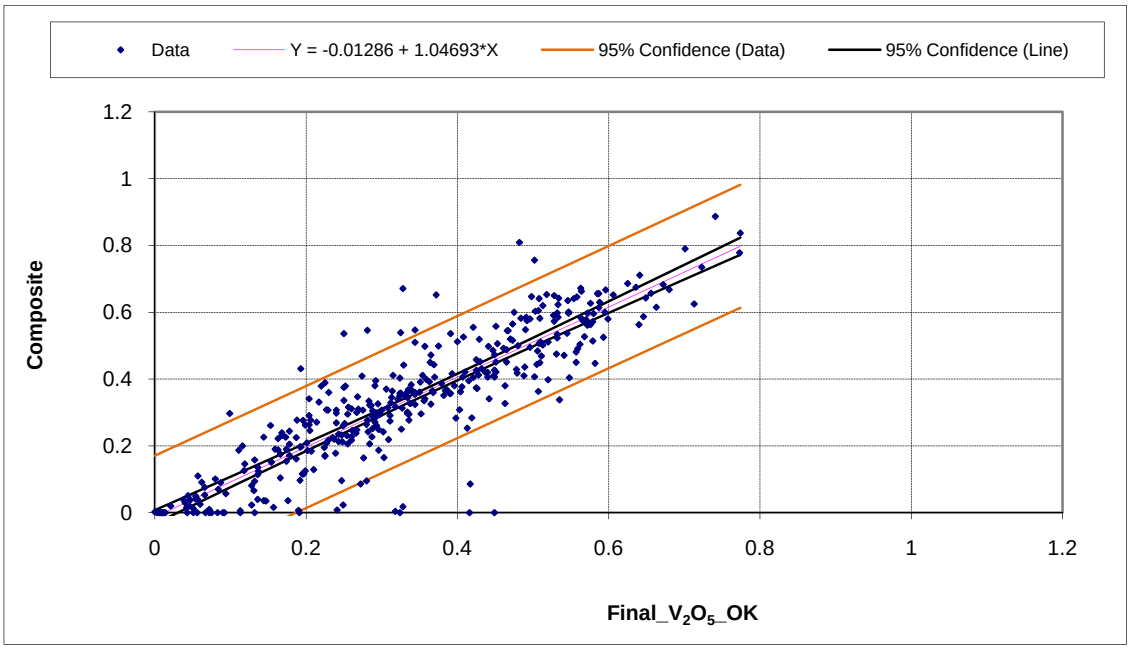


Figure 17-19: Naïve Cross Validation Test Results at Mainty



18 OTHER RELEVANT DATA AND INFORMATION

The author is not aware of any other information on the properties that would affect their interpretations or conclusions regarding the subject properties.

19 ADDITIONAL NEEDS FOR DEVELOPMENT AND PRODUCTION PROPERTIES

This item does not apply to the Green Giant Project at this time.

20 INTERPRETATION AND CONCLUSIONS

The Green Giant Project is located in south-central Madagascar, 145 km southeast of the city of Toliara, in the Tulear region/Fotadrevo. The property can be accessed through an extensive network of paved and/or gravel roads from southeastern Madagascar's administrative centre, Toliara. Since the 2008 program, Energizer constructed an all-weather airstrip at Fotadrevo, and the property is now accessible year-round by air using private aircraft out of Antananarivo.

The project is centred on UTM coordinates 510,000 E 7,350,000 N (UTM WGS 84) and comprises 36 individual "old style" squares.

The geology of the basement of Madagascar is a complex mélange of intercontinental tectonic blocks made up of ancient poly-deformed high-grade metamorphic rocks and later igneous intrusions. The tectonic and metallogenic framework of the basement of Madagascar has been subdivided into four blocks. The Bekily Block, within which the Green Giant project lies, is situated in the southern part of the country and is thought to be of Proterozoic age. The block is dominated by high-grade metamorphism and is bound by several prominent shear zones. The Green Giant Property is situated within the NNE striking Ampanihy shear zone.

The Green Giant project is underlain by supracrustal and plutonic rocks of Late Neoproterozoic age that are metamorphosed at upper amphibolite facies and deformed with upright NNE-trending structures. The supracrustal rocks involve migmatitic (± biotite, garnet) quartzofeldspathic gneiss, marble, chert, quartzite, and amphibolite gneiss. The metaplutonic rocks include migmatitic (± hornblende/diopside, biotite, garnet) feldspathic gneiss of monzodioritic to syenitic composition, biotite granodiorite, and leucogranite.

Vanadium occurs in several mineral phases including a high V-content roscoelite, a low V-content roscoelite, a V-bearing clay, V-rutile, a FE-V-Ti oxide, a V-Ti oxide, and two types of Fe-V oxides. With the exception of the roscoelite, the mineralization is not discernible to the naked eye and requires the use of analytical methods to identify.

Energizer completed initial airborne and ground-based exploration on the Green Giant project in Madagascar with the intent of evaluating the potential of the property to host Volcanogenic Massive Sulphide (VMS) mineralization. When targets were drill tested in 2007, no significant base metal mineralization was encountered, but Taiga did encounter a number of zones with vanadium and other anomalous concentrations of multi-elements.

The discovery of potentially economic vanadium mineralization on the property changed the focus of the diamond-drilling program. Through a combination of prospecting, ground-based

scintillometer surveying, and analysis of airborne radiometric survey data, five extensive vanadium-bearing trends were identified over the course of the 2008 exploration program. These vanadiferous trends are believed to have formed in a black shale or paleo-roll-front environment before being subjected to regional granulite facies metamorphism.

The 2009 trenching program was designed to test further the surficial extent of the recently discovered vanadium zones, to pinpoint the areal extent of the vanadium trends at surface, and provide information on the vanadium mineralization in the oxidized zone above known subsurface vanadium trends.

The early 2009 trench data confirms the vanadium mineralization identified during the 2008 drill program. Both the Jaky and Mainty Zones were found to extend at surface for over 1 km in length each, with the Jaky Zone having a width in excess of 200 m, while the Mainty Zone exceeds widths of 100 m. Based upon the encouraging results of the early trenching program, Energizer followed up with additional trenching and a diamond drill program targeting the Jaky and Manga deposits in late 2009 with follow up drilling at Manga and exploration drilling at Mainty early 2010.

Metallurgical work has systematically tested several different process options for the extraction of vanadium from Green Giant mineralization samples. The work has tested oxide and silicate mineralization from Manga, Jaky, and Mainty zones, although the majority of work has focussed on silicate mineralization from Manga (this being one of the largest zones within the Green Giant deposit).

Mineralogical characterisation of several samples has revealed a unique deportment of vanadium. Vanadium bearing minerals include clays, micas, oxides, and sulphides. The vanadium deportment for three recent composites is summarized in Table 20-1.

Table 20-1: Vanadium Deportment, Mass % – Summary

Mineral	HMC (%)	MPC (%)	Silicate (%)
Other	0.0	0.1	0.1
Rutile	1.7	1.3	2.0
Pyrrhotite	0.4	2.0	0.5
Other Micas/Clays	0.7	4.0	3.0
Sillimanite	1.3	0.2	0.0
Cordierite	3.0	5.1	4.2
Phlogophite (low-V)	53.5	5.0	5.8
Phlogophite (high-V)	26.1	19.5	26.1
Roscoelite	14.5	11.1	15.0
V-Phosphate	0.7	0.0	0
V-Oxides	28.6	22.6	18.6
V-Fe Sulphide	17.4	29.2	24.6

Clearly, vanadium is spread across a range of mineral types, but is primarily found in Phlogophite (of various V tenors) Oxides and sulphides. Gangue minerals of note include quartz (generally 30% to 40% of sample mass) K-feldspar (10% of sample mass) and graphite (<10% of sample mass).

At a grind size of 80% -212 µm, the degree of liberation for the main vanadium bearing minerals is summarized in Table 20-2.

Table 20-2: Vanadium Mineral Liberation

	% Free + % Liberated
Vanadium Silicates	61.5
Vanadium Oxides	15.0
Vanadium-Iron Sulphides	12.5

The current estimated cutoff grade suggests that the process plant would be required to treat an average grade of less than 1% V_2O_5. Given this, a preconcentration process of some description would be preferable, and therefore numerous attempts have been made to remove quartz, graphite, and sulphides using flotation and/or physical separation techniques.

The mineralogical information in Table 20-1 and Table 20-2 highlights a relatively high degree of locking at the submitted grind of 80% -212 µm. This, together with the mineralogically diverse vanadium budget makes preconcentration processes prone to inefficient vanadium separation. Demonstrating this, flotation of graphite and sulphides would show promise, with >90% graphite recovery and 82% sulphide recovery to separate flotation concentrates but for the fact that the concentrates also contain significant vanadium (up to 21% V in the graphite concentrate and 13% in the sulphide concentrate). This precludes direct disposal of the concentrates, but does not rule out separate process routes for the resultant three products (sulphide, graphite, and mica/clay/quartz). This should be examined as part of future work programs

Sulphuric acid leaching at various temperatures up to 200°C has been examined. This lixiviant can achieve a good extraction of vanadium, but in every test to date; high vanadium extraction is achieved only with high sulphuric acid consumption and high co-extraction of impurities such as aluminium, magnesium, and Iron. The resultant leach solution is considered “dirty” and this negatively affects the feasibility of the overall process.

In contrast, promising leach results have been achieved using sodium carbonate (soda ash) in a pressure leach process after subjecting the samples to an oxidizing pre-roast at 1,100°C. Without pre-roasting, the micas are believed to be resistant to alkaline leaching and this

results in a 50% maximum extraction for the silicate samples. However, when the silicate samples are subjected to an oxidizing pre-roast, extractions as high as 82.4% have been achieved. The re-cycling of leach liquors, plus the introduction of higher density feed slurries does not appear to significantly reduce leach efficiency, so long as lixiviant concentrations are maintained throughout the leach. This should be the focus of future work, as high vanadium tenors in the pregnant leach solution would be beneficial for downstream processing.

In all cases, the alkaline leaching testwork has generated much cleaner leach liquors, with significantly lower concentrations of problematic elements such as aluminium, magnesium, and iron noted for all tests. Testwork to investigate the effectiveness of vanadium removal from solution (SX/EX, etc.) should form part of subsequent test programs.

A total of 133 drill holes and 140 trenches existed in the Energizer database prior to the resource estimation. Of this data, 107 holes were used in the resource estimate, along with 41 surface trenches.

AGP performed data verification through site visits in late 2009 and in 2010 as part of the metallurgical sample collection program. AGP collected independent character samples, and performed a database audit prior to mineral resource estimation. AGP validated 35% of the entire assay database and found no errors.

A total of 626 specific gravity (SG) measurements were collected on the Green Giant Property, averaging 2.56 g/cm^3. Following a statistical analysis of the data provided, AGP concluded that the SG is primarily controlled by the oxidation and primary domains.

Mineral resources at the Green Giant Property were classified using logic consistent with the CIM definitions referred to in NI 43-101 guidelines. At Jaky, Manga, and Mainty the mineralization, density, and position of the drill holes satisfies sufficient criteria to be classified in the Indicated and Inferred categories. This independent mineral resource estimate and review by AGP supports the November 30, 2010, disclosure by Energizer of the mineral resource statements for the Jaky, Manga, and Mainty deposits.

21 RECOMMENDATIONS

As the Green Giant project is looking increasingly more substantial, the Company is advised to begin the collection of weather, environmental, and socioeconomic data, which would be required in any engineering and socioeconomic prefeasibility studies. In terms of weather, at least two years of complete year-round data is required to establish climatic baselines. In areas where mineralization comes in close contact to habitation, the Company is advised to set up liaison with local civic groups, and at the earliest possible opportunity complete a local census to establish population levels.

The metallurgical process testwork has been, and continues to be, an important element of the project development. 2009/10 testwork has demonstrated the technical viability of a pre-roast/alkaline leach process to extract the vanadium into a clean leach liquor. Although not expected to be problematic, further testwork is required to investigate the complexity of downstream processes, including vanadium upgrading and V_2O_5 production. Given the recent metallurgical results and resource data, Energizer should initiate a Preliminary Economic Assessment (PEA) on the Green Giant Property to begin to determine an estimate of project economics. If the economic metrics determined by this study are positive, then resource delineation drilling will be required to advance the inferred vanadium resources to an indicated classification and continue exploration over the vanadium-bearing zones. AGP recommends the following:

- Future drill campaigns should focus on the following areas:
  - AGP believes that the drilling done near the surface is currently sufficient for delineating a sizeable open pit with the majority of material in the Indicated category. The drill program should be delineated with a drill spacing of 100 m in a diamond pattern to define additional inferred resources, with the main goal of the program to discover the true strike length of both deposits and delineate additional tonnes that can be included in a preliminary economic assessment.
  - The resource model of the Manga deposit is currently supported by trench data north of section 48400N and south of section 44900N. AGP consider these areas as high priority targets for diamond drilling that should be conducted in Phase I of the exploration program especially to the north since Trench TR09-037, TR09-036, and TR09-035 all shows encouraging grades.
  - Energizer should also focus on extending the resources on the Mainty deposit north of section 55027N with additional trenching followed by a limited exploratory drill program. To the south, additional drilling may extend the mineralization to section 52500N since the trenches appear to indicate moderate mineralization. AGP note

that poor results from the Trenching program is not necessarily indicative of poor drill results as evidenced by hole K-05 on section 53800N.

- At Jaky, the deposit appears to be closed to the north; therefore, AGP recommends additional drilling and trenching south of section 36400N.

- Energizer should continue the trenching program since the assay from the trenches provides valuable information, especially in the oxidation zone, which is more difficult and expensive to collect using drill data.
- Collection of SG data was incorporated in the 2010 drill program. This program should be continued. The SG data collection should also incorporate waste rocks for those areas that are likely to be within the reach of an open pit around the perimeter of the deposit.
- As part of the next drill campaign, AGP recommends Energizer continue with the collection of geotechnical.
- In addition to the normal data collected during the drilling campaign, it is recommended to continue recording the oxide/fresh rock contact down hole in order to profile this boundary for any future resource evaluation.
- Energizer implemented a change in the logging in 2010 to quantify the graphite content of the core. This practice should be maintained in subsequent program. AGP also recommends a statistical study focusing first on the Mainty deposit where all core holes were logged with the graphite information. Results from the statistical study may assist in resolving the origin of the by-population seen on the histogram of the vanadium assays and assist in refining the domains used in the resource estimation.

Following the site visit, audit of the project database, and review of the QA/QC program, PEG recommends the following:

- Energizer should re-submit a selected suite of samples using fusion-XRF analysis instead of the current ICP-OES procedure done by Genalysis, in order to verify the high failure rate of the low-grade vanadium standards and assess the impact of the analytical procedure with vanadium grades ranging from 0.2% to 0.8% V_2O_5. The samples should be submitted to a secondary laboratory not previously used by Energizer.
- It is also recommended that Energizer modify the insertion of blank samples into the sample stream, it is preferred that samples be inserted following samples that return high-grade vanadium from the XFR analyzer.

Coarse rejects and pulps from earlier assays should be inserted in the sample stream with a new tag number in order to incorporate a blind coarse and pulp duplicate procedure into the QA/QC protocol. This recommendation assumes that rejects and pulp samples are shipped back from the laboratory in a timely fashion. This additional protocol is optional, and should

be considered on larger drill programs. Obviously, the additional cost of adding this procedure to the QA/QC program should be weighed against the benefit obtained.

The economic potential of the Green Giant project rests upon the ability to extract vanadium using reasonable, potentially economic parameters. The Company is encouraged to carry out further larger sample tests and more complete metallurgical testing of mineralization from all currently identified zones to establish the technological and economic parameters of vanadium processing. Scoping work has identified a pre-roast and alkaline pressure leach process as the basis for a potentially economic processing plant. Further work to determine optimum parameters for all mineralization styles is recommended to support a preliminary economic assessment. This work would aim to optimize the following:

- pre-roasting time and temperature
- soda ash concentration and addition rate
- leach temperature/pressure
- the effect of graphite and/or sulphide removal on leach efficiency
- higher feed slurry percentage solids
- leach solution recycling and/or counter current leaching tests.

In addition, downstream process design criteria must be defined. This will require larger quantities of pregnant leach solution and larger scale leach tests will be required once leach conditions are optimized. The nature of downstream processes will depend on the ability of the selected leach process to effectively load vanadium into solution.

Grindability and other physical characteristics should be determined, to assist with comminution equipment sizing and selection for preliminary economic assessment.

The metallurgical process would undoubtedly benefit from higher headgrades. Future studies should investigate the effect of higher cutoff grades on project economics.

21.1 Proposed Budget

Metallurgical testwork should continue as part of the Preliminary Economic Assessment. It is envisaged that this work would focus on development of the pre-roast and alkaline leach processes, while also investigating the feasibility of downstream processing. The scope of work should be widened to include oxide mineralization and zones other than Manga. This work is estimated to cost between $500,000 and $1,000,000.

Assuming that the PEA indicates positive economics, AGP propose the following exploratory drill budget.

Table 21-1 and Figures 21-1 to 21-3 show the proposed data drill plan targeting resource definition on the Manga and Mainty deposit.

For Manga, 28 holes are targeting the northern and southern extension of the deposit beyond the area define solely by trench data. Ten infill holes are proposed to delineate the extent of the mineralization in the area currently supported only by trench data and the remaining 23 holes are targeted at upgrading the categorization from Inferred to Indicated in the core of the deposit.

For Mainty, six holes are proposed to target the southern extension of the mineralization and nine holes are proposed to upgrade inferred resources to indicated.

A total of 11,356 m is budgeted at an all-in cost of US$283.83/m including camp costs, travel, and expatriate wages. Total costs for the program including assay charges and contingency are US$3,804,735, as shown in Table 21-2.

Table 21-1: Drill Hole Plan

Hole_ID	Easting	Northing	Length	Azimuth	Dip	Target
M01	503164	7345500	169	90	-45	Inferred to Indicated
M02	503022	7345500	308	90	-48	Inferred to Indicated
M03	503140	7345300	156	90	-50	Inferred to Indicated
M04	502987	7345300	306	90	-52	Inferred to Indicated
M05	503054	7345100	229	90	-48	Inferred to Indicated
M06	502992	7345000	270	90	-51	Inferred to Indicated
M07	503078	7344800	134	90	-47	Infill below Trench
M08	502991	7344800	224	90	-49	Infill below trench
M09	503024	7344600	186	90	-49	Infill below trench
M10	502998	7344400	213	90	-48	Infill below trench
M11	502958	7344200	225	90	-49	South extension
M12	503026	7344200	148	90	-50	South Extension
M13	502904	7344000	205	90	-47	South Extension
M14	502866	7343800	178	90	-49	South extension
M15	503016	7346200	393	90	-55	Inferred to indicated
M16	503338	7346500	105	90	-41	Inferred to Indicated
M17	503283	7346500	167	90	-59	Inferred to Indicated
M18	503361	7347700	171	90	-53	Inferred to Indicated
M19	503403	7348000	144	90	-49	Inferred to Indicated
M20	503309	7348000	225	90	-52	Inferred to Indicated
M21	503345	7348100	197	90	-52	Inferred to Indicated
M22	503408	7348300	155	90	-50	Inferred to Indicated
M23	503450	7348600	120	90	-49	Infill below Trench
M24	503359	7348600	221	90	-51	Infill below Trench
M25	503436	7348800	138	90	-47	Infill below Trench

Hole_ID	Easting	Northing	Length	Azimuth	Dip	Target
M26	503359	7348800	199	90	-49	Infill below Trench
M27	503389	7348700	182	90	-45	Infill below Trench
M28	503429	7349000	210	90	-48	North Extension
M29	503517	7349000	126	90	-41	North Extension
M30	503529	7349200	116	90	-40	North Extension
M31	503445	7349200	198	90	-47	North Extension
M32	503546	7349400	108	90	-38	North Extension
M33	503472	7349400	176	90	-45	North Extension
M34	503544	7349600	106	90	-38	North Extension
M35	503486	7349600	166	90	-50	North Extension
M36	503519	7349500	127	90	-45	North Extension
M37	503536	7349800	111	90	-40	North Extension
M38	503477	7349800	167	90	-45	North Extension
M39	503530	7350000	121	90	-42	North Extension
M40	503473	7350000	168	90	-45	North Extension
M41	503528	7350200	116	90	-41	North Extension
M42	503477	7350200	184	90	-48	North Extension
M43	503570	7350400	125	90	-49	North Extension
M44	503506	7349300	155	90	-44	North Extension
M45	503474	7348900	128	90	-47	Infill below Trench
M46	503477	7349100	166	90	-45	North Extension
Manga Total Metre (46 holes)			**8,142**			
MN01	504009	7353900	127	90	-42	Inferred to Indicated
MN02	503895	7353900	218	90	-49	Inferred to Indicated
MN03	504051	7354000	155	90	-45	Inferred to Indicated
MN04	503968	7354300	279	90	-55	Inferred to Indicated
MN05	504225	7354600	154	90	-43	Inferred to Indicated
MN06	504055	7354600	375	90	-62	Inferred to Indicated
MN07	504182	7354700	263	90	-42	Inferred to Indicated
MN08	504205	7354800	273	90	-55	Inferred to Indicated
MN09	504291	7354900	207	90	-64	Inferred to Indicated
MN11	503857	7353500	226	90	-31	South Extension
MN12	503836	7353300	228	90	-31	South Extension
MN13	503789	7353300	337	90	-58	South Extension
MN14	503955	7353600	70	90	-33	South Extension
MN15	503919	7353600	121	90	-51	South Extension
MN16	503908	7353700	181	90	-63	South Extension
Mainty Total Metre (15 holes)			**19,498**	**15**		

Figure 21-1: Drill Hole Plan – Manga South Portion

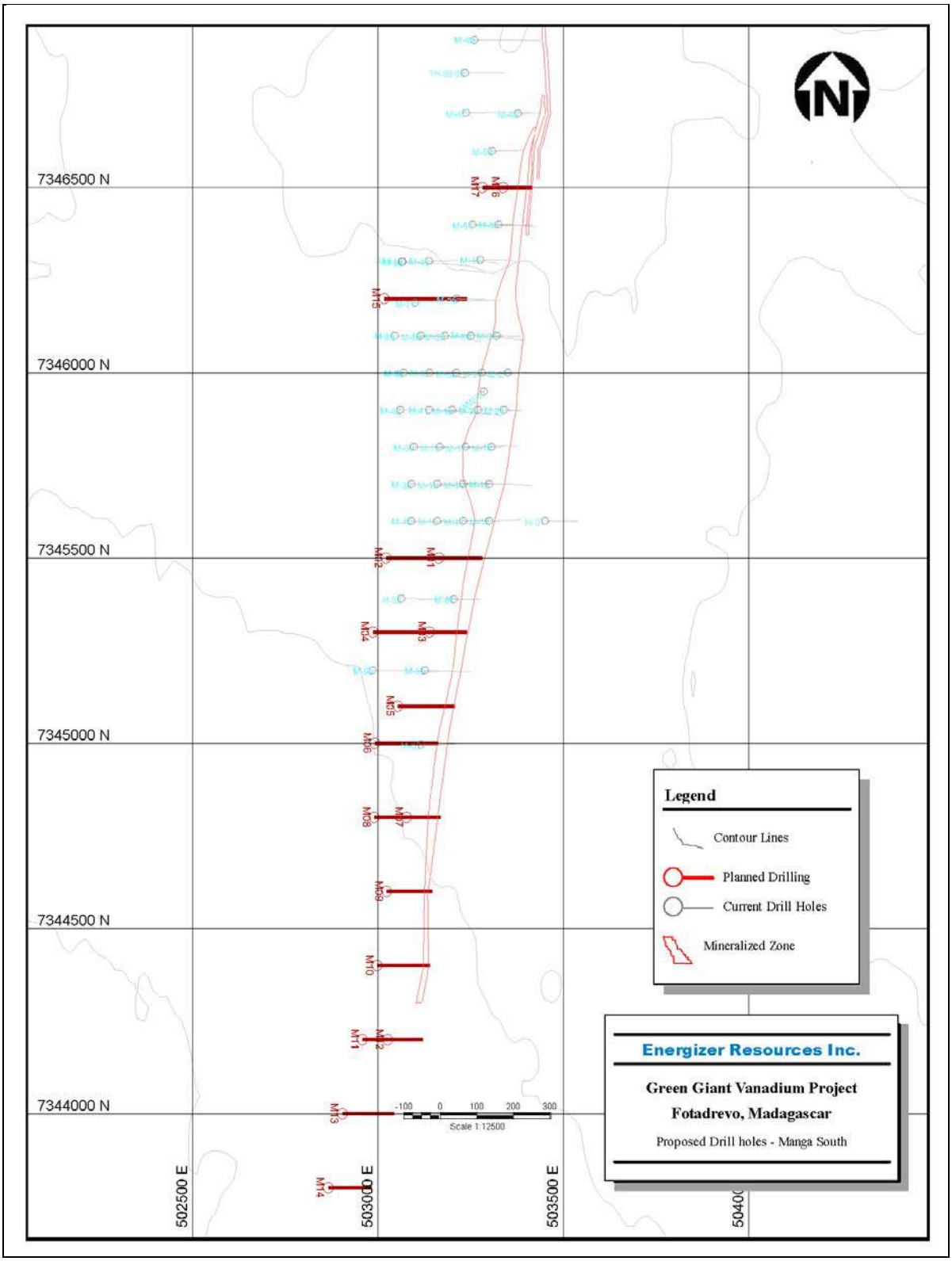


Figure 21-2: Drill Hole Plan – Manga North Portion

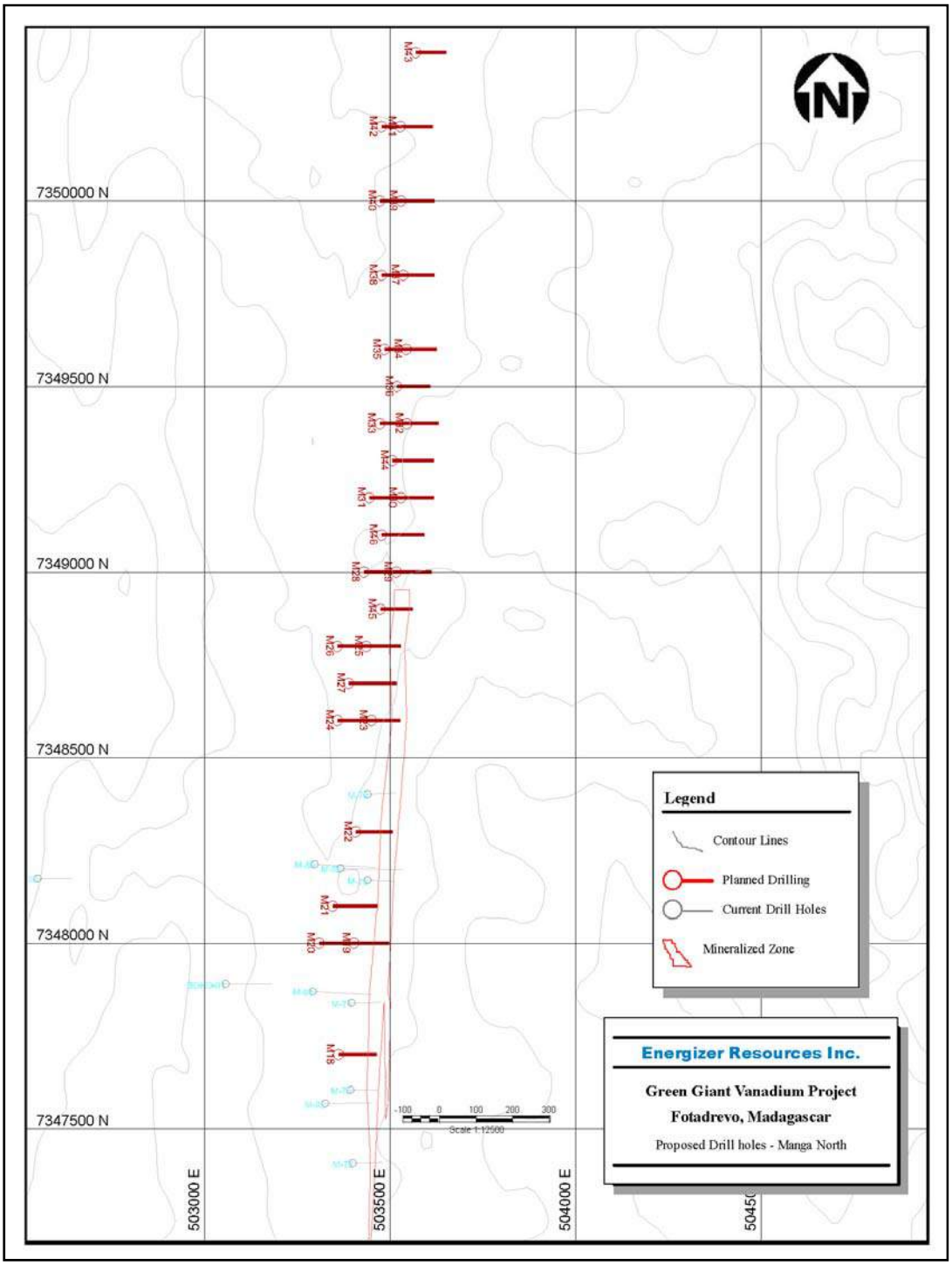


Figure 21-3: Drill Hole Plan – Mainty

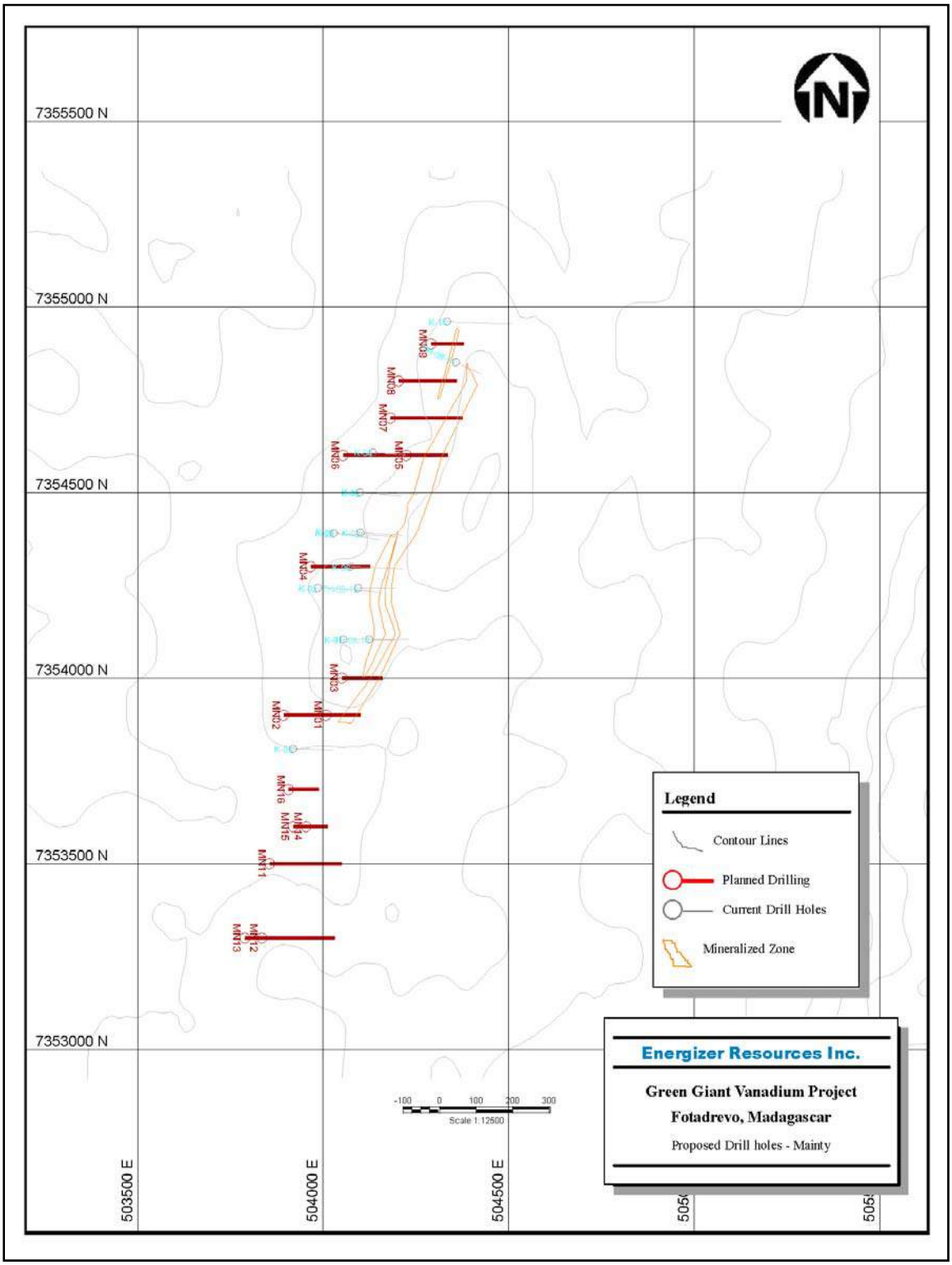


Table 21-2 outlines the expected cost of US$3,804,735 for the recommended program.

Table 21-2: Exploration Budget

Category	Unit Cost (US$)	Total Cost (US$)
Drilling (all up) – 11,400 m	283.83/m	3,235,700
Assay cost – 9,000 samples	22.57	203,150
Report writing	-	20,000
Contingency (15%)	-	345,885
Total	**-**	**3,804,735**

22 CERTIFICATES OF QUALIFIED PERSONS

22.1 Joseph Rosaire Pierre Desautels, P.Geo.

I, Joseph Rosaire Pierre Desautels of Barrie, Ontario, do hereby certify that as one of the authors of this updated technical report titled "National Instrument 43-101 (NI 43-101) Resource Estimate Technical Report for the Green Giant Vanadium Project, Fotadrevo, Province of Toliara, Madagascar," dated January 14, 2011, I hereby make the following statements:

- I am a Principal Resource Geologist with AGP Mining Consultants Inc. with a business address at 92 Caplan Avenue, Suite 246, Barrie, Ontario, L4N 0Z7.
- I am a graduate of Ottawa University (B.Sc. Hons., 1978).
- I am a member in good standing of the Association of Professional Geoscientists of Ontario (Registration #1362).
- I have practiced my profession in the mining industry continuously since graduation.
- I did not visit the property
- I have read the definition of "qualified person" set out in 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 purpose of NI 43-101.
- My relevant experience with respect to resource modelling includes 31 years experience in the mining sector covering database, mine geology, grade control, and resource modelling. I was involved in numerous projects around the world in both base metals and precious metals deposits.
- I am responsible for the content of Sections 1.1, 2-13, a portion of Section 14.3 dealing with the assay validation, Sections 14.4, 14.5, 15, 17, 18, 20, and 21 of this updated technical report titled "NI 43-101 Resource Estimate Technical Report for the Green Giant Vanadium Project, Madagascar," dated January 14, 2011.
- I have no prior involvement with the property that is the subject of the Technical Report.
- As of the date of this Certificate, to my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- I am independent of the Issuer as defined by Section 1.4 of the Instrument.
- I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Signed and dated this 14th day of January 2011.

"Original Document Signed and Sealed"

Pierre Desautels, P.Geo.

22.2 Todd McCracken, P.Geol.

I, Todd McCracken, P.Geol., of Sudbury, Ontario, do hereby certify that as one of the authors of this updated technical report titled "National Instrument 43-101 (NI 43-101) Resource Estimate Technical Report for the Green Giant Vanadium Project, Fotadrevo, Province of Toliara, Madagascar," dated January 14, 2011, I hereby make the following statements:

- I am a Senior Geologist with Wardrop Engineering with a business address at 101-957 Cambrian Heights, Sudbury, Ontario, P3C 5M6 Canada.
- I am a graduate of University of Waterloo (B.Sc. Hons., 1992).
- I am a member in good standing of the Association of Professional Geoscientists of Ontario (Registration #0631).
- I have practiced my profession in the mining industry continuously since graduation.
- I visited the property from October 7 to 16, 2009.
- 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 purpose of NI 43-101.
- My relevant experience with respect to exploration and resource modelling includes 17 years experience in the mining sector covering exploration, mine geology, grade control, and resource modelling. I was involved in numerous projects around the world in both base metals and precious metals deposits.
- I am responsible for much of the content of Section 14 with the exception of the assay validation in Section 14.3, Section 14.4, and the 2010 QA/QC in Section 14.5 of this technical report titled "Technical Report Update NI 43-101 for the Green Giant Project, Fotadrevo, Province of Toliara, Madagascar, dated January 14, 2010.
- I have no prior involvement with the property that is the subject of the Technical Report.
- As of the date of this Certificate, to my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- I am independent of the Issuer as defined by Section 1.4 of the Instrument.
- I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Signed and dated this 14th day of January 2011.

"Original Document Signed and Sealed"

Todd McCracken, P.Geol.

22.3 Andy Holloway, P.Eng.

I, Andy Holloway, P.Eng., of Peterborough, Ontario, do hereby certify that as one of the authors of this updated technical report titled "National Instrument 43-101 (NI 43-101) Resource Estimate Technical Report for the Green Giant Vanadium Project, Fotadrevo, Province of Toliara, Madagascar," dated January 14, 2011, I hereby make the following statements:

- I am a Principal Process Engineer with AGP Mining Consultants Inc. with a business address at 92 Caplan Avenue, Suite 246, Barrie, Ontario, L4N 0Z7.
- I am a graduate of the University of Newcastle upon Tyne, England, B.Eng. (Hons.), 1989, and I have practiced my profession continuously since then.
- I am a Professional Engineer licensed by Professional Engineers Ontario (Membership Number 100082475).
- I visited the property from May 12 to 16, 2010 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 purpose of NI 43-101.
- My relevant experience with respect to mineral processing and metallurgy includes 19 years experience in the mining sector covering mineral processing, process plant operation, design engineering, and management. I have been involved in numerous projects around the world in both base metals and precious metals deposits.
- I am responsible for the content of Section 16.0 of this technical report titled "Technical Report Update NI 43-101 for the Green Giant Project, Fotadrevo, Province of Toliara, Madagascar, dated January 14, 2011.
- I have no prior involvement with the property that is the subject of the Technical Report.
- As of the date of this Certificate, to my knowledge, information, and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- I am independent of the Issuer as defined by Section 1.4 of the Instrument.
- I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Signed and dated this 14th day of January 2011.

"Original Document Signed and Sealed"

Andy Holloway, P.Eng.

23 REFERENCES

Ballington, B., Singh, S., Pillay, K., Thompson, W., Radebe, T. (February 2010). Evaluation of a Vanadium Production Route for the Green Giant Vanadium Deposit. Mintek Metallurgical Report, Ref: 5502

Barnett, R.L. (2009). Petrographic-electron microprobe investigation of selected samples from the Three Horses Vanadium Prospect, Madagascar. Private report for Uranium Star; 13 pp.

Barrie, T.C., Ph.D., P.Geo. (Sep. 2009). Memo: Genesis of the Green Giant Vanadium Deposit.

Besairie, H. (1964). Madagascar, Carte Géologique 1/1,000,000. In three sheets, Antananarivo.

BRGM (1985). Plan Directeur d'Actions Pour la Mise en Valeur des Ressources du Sol et du Sous-Sol de Madagascar, Direction des Mines et de la Géologie, Contrat d'etude No 01/84/MIEM-DME/FED, Three volumes: Premier Phase-Premier partie 573 pp; - Deuxieme partie 418 pp; Deuxieme Phase 146 pp.

Cazoulat, M. (1985). Geologic Environment of the Uranium Deposits in the Carboniferous and Jurassic Sandstone of the Western Margin of the Air Mountains in the Republic of Niger: International Atomic Energy Agency TECDOC 328, pp. 247-263.

Claude H. Aussant, P.Geol., C. Scherba, P. Geol, and R. Maynard. Summary Report for the (April to July 2009 and September to December 2009) Exploration Programs on the Three Horses Property February 2010.

C. Scherba, P. Geol. October 2010. Geological Evaluation of the Green Giant Property.

Collins, Alan S. (2006). Madagascar and the amalgamation of Central Gondwana. Gondwana Research 9, pp. 3-16.

Desautels Pierre P.Geol., McCracken Todd P.Geol and Holloway Andy P.Eng., June 18, 2010. Technical Report Update NI 43-101, Fotadrevo, Province of Toliara, Madagascar.

Fleury-Frenette, K., Gunning, C., December 2010. Mineralogical and Chemical Characterisation of Three Vanadium Composites; SGS Canada Inc. Mineralogical Report Ref: 12439-001

Fugro Airborne Surveys Corp. (2008). DIGHEM Survey for Madagascar Mining Investments, Three Horse Property, Tulear, Madagascar Map Sheets G59, C60, H59, H60, April 23, 2008, Report #07090.

Levinson, A.A. (1974). Introduction to Exploration Geochemistry. Applied Publishing, Wilmette, IL, 924 pp.

McCracken, T., Holloway, A., (Nov. 2009). Technical Report Update NI 43-101, Fotadrevo, Province of Toliara, Madagascar.

Mothapu, N., Perumal, M., Ballington, B., Sadiki, M., (October 2010). Evaluation of Vanadium Recovery from the Green Giant Vanadium Deposit (Phase 2). Mintek Metallurgical Report, Ref : 5729R

Pagel, M.; Cavellec, S.; Forbes, P.; Gerbaud, Vergley, P.; Wagani, I.; Mathieu, R. (2005). Uranium Deposits in the Arlit Area (Niger), Min. Dep. Res.: Meeting the Global Challenge, Proc. of the 8th Biennial SGA Meeting, Beijing, August 2005. pp 304-306.

Pitfield, P.; Bauer, W.; Schofield, D.; Tusky, T.; Randriamananjana, T. (2006). Reappraisal of the geology and structural evolution of the Precambrian basement in north and east-central Madagascar. Geophysical research Abstracts, Vol. 8.

Polyak, D.E. (2007). Vanadium, USGS Minerals Yearbook, publication April 2007, pp 80-1 to 80-11.

Scherba, C.; Aussant, C.H. (2009). Exploration Report on the Three Horses Property; unfinished draft prepared for Uranium Star Corporation; 86 pp.

Scherba, C.S.; Chisholm, R.E. (2008). Geological Evaluation of the Three Horses Property. Private report prepared for Uranium Star Corporation; 81 pp.

Taner, M.F.; Gault, A.; Ercit, T.S., (2000). Vanadium mineralization and its industry in Canada. The Gangue; 65: pp 3-9.

Verbaan, N.; Smith, J., (2011). Alkaline Pressure Leaching on Samples From the Green Giant Vanadium Deposit; SGS Canada Inc. Metallurgical Report Ref: 12459-001

Yu, B.; Imeson, D., (2011). Beneficiation Testwork on Samples from the Green Giant Vanadium Deposit; SGS Canada Inc. Metallurgical Report Ref: 12439-001

APPENDIX A

CERTIFICATES OF STANDARDS

APPENDIX B

RAW ASSAYS STATISTICS

APPENDIX C

CAPPING AND COMPOSITE STATISTICS

APPENDIX D

BULK DENSITY

APPENDIX E

VARIOGRAPHY SUMMARY

APPENDIX F

DRILL SECTIONS

APPENDIX G

SWATH PLOTS

APPENDIX H

METALLURGICAL REPORTS

(DOCUMENT AVAILABLE FROM ENERGIZER)