Report to:

RARE EARTH METALS INC.

Resource Estimate and Technical Report for the Two Tom REE Deposit of the Red Wine Complex Labrador, Canada

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RESOURCE ESTIMATE AND TECHNICAL REPORT FOR THE TWO TOM REE DEPOSIT OF THE RED WINE COMPLEX, LABRADOR, CANADA

EFFECTIVE DATE: JANUARY 20, 2012

Prepared by Paul Daigle, P.Geo.

Pd/vc

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Prepared by	*"Original document signed and sealed by Paul Daigle, P.Geo."* Paul Daigle, P.Geo.	Date	*January 20, 2012*
Reviewed by	*"Original document signed and sealed by Jeff Wilson, Ph.D., P.Geo."* Jeff Wilson, Ph.D., P.Geo.	Date	*January 20, 2012*
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REVISION HISTORY

REV. NO	ISSUE DATE	PREPARED BY AND DATE	REVIEWED BY AND DATE	APPROVED BY AND DATE	DESCRIPTION OF REVISION
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01	2012/01/20	P. Daigle	J. Wilson	P. Daigle	Final Report

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GLOSSARY

UNITS OF MEASURE

Above mean sea level	amsl
Acre	ac
Ampere	A
Annum (year)	a
Azimuth	Az
Billion	B
Billion tonnes	Bt
Billion years ago	Ga
British thermal unit	BTU
Centimetre	cm
Counts per second	cps
Cubic centimetre	cm^3
Cubic feet per minute	cfm
Cubic feet per second	ft^3/s
Cubic foot	ft^3
Cubic inch	in^3
Cubic metre	m^3
Cubic yard	yd^3
Coefficients of Variation	CVs
Day	d
Days per week	d/wk
Days per year (annum)	d/a
Dead weight tonnes	DWT
Decibel adjusted	dBa
Decibel	dB
Degree	°

Degrees Celsius	°C
Diameter	ø
Dollar (American)	US$
Dollar (Canadian)	Cdn$
Dry metric ton	dmt
Foot	ft
Gallon	gal
Gallons per minute (US)	gpm
Gigajoule	GJ
Gigapascal	GPa
Gigawatt	GW
Gram	g
Grams per cubic centimetre	g/cm^3
Grams per litre	g/L
Grams per tonne	g/t
Greater than	>
Hectare (10,000 m^2)	ha
Hertz	Hz
Horsepower	hp
Hour	h
Hours per day	h/d
Hours per week	h/wk
Hours per year	h/a
Inch	"
Kilo (thousand)	k
Kilogram	kg
Kilograms per cubic metre	kg/m^3
Kilograms per hour	kg/h
Kilograms per square metre	kg/m^2
Kilometre	km
Kilometres per hour	km/h
Kilopascal	kPa
Kilotonne	kt
Kilovolt	kV
Kilovolt-ampere	kVA
Kilovolts	kV
Kilowatt	kW
Kilowatt hour	kWh
Kilowatt hours per tonne (metric ton)	kWh/t
Kilowatt hours per year	kWh/a
Less than	<
Litre	L
Litres per minute	L/m
Megabytes per second	Mb/s
Megapascal	MPa
Megavolt-ampere	MVA

Megawatt	MW
Metre	m
Metres above sea level	mASL
Metres Baltic sea level	mbsl
Metres per minute	m/min
Metres per second	m/s
Metric ton (tonne)	t
Microns	µm
Milligram	mg
Milligrams per litre	mg/L
Millilitre	mL
Millimetre	mm
Million	M
Million bank cubic metres	Mbm^3
Million bank cubic metres per annum	Mbm^3/a
Million tonnes	Mt
Minute (plane angle)	'
Minute (time)	min
Month	mo
Ounce	oz
Pascal	Pa
Centipoise	mPa·s
Parts per million	ppm
Parts per billion	ppb
Percent	%
Pound(s)	lb
Pounds per square inch	psi
Revolutions per minute	rpm
Second (plane angle)	"
Second (time)	s
Specific gravity	SG
Square centimetre	cm^2
Square foot	ft^2
Square inch	in^2
Square kilometre	km^2
Square metre	m^2
Thousand tonnes	kt
Three Dimensional	3D
Three Dimensional Model	3DM
Tonne (1,000 kg)	t
Tonnes per day	t/d
Tonnes per hour	t/h
Tonnes per year	t/a
Tonnes seconds per hour metre cubed	ts/hm^3
Volt	V
Week	wk

Weight/weight	w/w
Wet metric ton	wmt
Year (annum)	a

Abbreviations and Acronyms

Activation Laboratories	ActLabs
Aeroquest International Limited	Aeroquest
ALS Canada Ltd.	ALS
Beryllium oxide	BeO
Beryllium	Be
Calcium	Ca
Canada Centre for Mineral & Energy Technology	Canmet
Canadian Institute of Mining	CIM
Cerium Oxide	Ce_2O_3
Cerium	Ce
Dysprosium Oxide	Dy_2O_3
Dysprosium	Dy
Dysprosium	Dy
Erbium Oxide	Er_2O_3
Erbium	Er
Europium Oxide	Eu_2O_3
Europium	Eu
Gadolinium Oxide	Gd_2O_3
Gadolinium	Gd
Ground Positioning Satellite	GPS
Heavy rare earth oxide	HREO
Holmium Oxide	Ho_2O_3
Holmium	Ho
Inductively Coupled Plasma-Mass Spectrometry	ICP-MS
Inductively Coupled Plasma-Optical Emission	ICP-OES
Inverse Distance Squared	ID
Landrill International Ltd.	Landrill
Lanthanum Oxide	La_2O_3
Lanthanum	La
Light rare earth oxide	LREO
Lutetium	Lu
Lutetium Oxide	Lu_2O_3
Mineral Liberation Analyser	MLA
National Instrument 43-101	NI 43-101
National Topographic System	NTS
Nearest Neighbour	NN
Neodymium Oxide	Nd_2O_3
Neodymium	Nd
Newfoundland and Labrador	NL
Niobium Pentoxide	Nb_2O_5

Niobium	Nb
Ordinary kriging	OK
Potassium	K
Praseodymium Oxide	Pr_2O_3
Praseodymium	Pr
Qualified Person	QP
Quality Assurance/Quality Control	QA/QC
Quebec	QC
Rare earth element.	REE
Rare Earth Metals Inc.	REM
Rare earth oxide	REO
Samarium Oxide	Sm_2O_3
Samarium	Sm
Scanning Electron Microscope	SEM
Terbium Oxide	Tb_2O_3
Terbium	Tb
Thorianite	ThO_2
Thorium Oxide	ThO_2
Thorium	Th
Thulium Oxide	Tm_2O_3
Thulium	Tm
Toronto Venture Stock Exchange	TSXV
Total rare earth oxides %	TREO%
Two Tom REE Property.	Property
Universal Helicopters Ltd.	Universal
Uranium	U
Wardrop, a Tetra Tech Company	Tetra Tech
X-ray Fluorescence	XRF
Ytterbium Oxide	Yb_2O_3
Ytterbium	Yb
Yttrium Oxide	Y_2O_3
Yttrium	Y
Zimtu Capital Corp.	Zimtu
North American Datum	NAD

1.0 SUMMARY

Wardrop, a Tetra Tech Company (Tetra Tech) was retained by Rare Earth Metals Inc. (REM) to produce the first National Instrument 43-101 (NI 43-101) compliant resource estimate on the Two Tom niobium-beryllium-rare earth element (Nb-Be-REE) Property (the Property), and to provide the accompanying NI 43-101 technical report. This technical report is prepared in accordance with NI 43-101 and Form 43-101F1.

Paul Daigle, P.Geo., Senior Geologist with Tetra Tech, conducted a site visit to the Property on July 19, 2011 for one day. The project site and base camp (core logging, sampling and storage facilities) were inspected during the site visit. Mr. Daigle was accompanied on the site visit by Mr. Glen Penney, Project Geologist for REM.

This technical report and resource estimate is on the Property in the Red Wine Complex Project in central Newfoundland and Labrador (NL), Canada, situated approximately 140 km northeast of Churchill Falls, NL, and 160 km northwest of Happy Valley-Goose Bay, NL.

1.1 PROPERTY DESCRIPTION

The Property is defined by the mineral rights to three contiguous mining licences, consisting of 46 mineral claims in central NL and covers an area of approximately 1,150 ha or 11.5 km^2. Currently, REM has option agreements for a 100% interest in all three licences.

REM has a 100% interest in the mineral licences that cover and encircle the Two Tom deposit, which is subject to two option agreements. The southeast half of the Two Tom deposit lies within Licence 016277M and is optioned from Roland and Eddie Quinlan, where R. Quinlan holds mineral rights to four mineral claims. The northwest half of the Two Tom deposit lies within Licence 016522M and is optioned from Zimtu Capital Corp. (Zimtu), where D. Lewis, a partner of Zimtu, holds the mineral rights to 12 mineral claims (REM Press Release, November 16, 2011).

Adjacent to the north, south and west, Licence No. 016548M is also subject to the same option agreement with Messrs. R. and E. Quinlan, where REM has a 100% interest. The mineral rights are held by Marilyn Quinlan and consist of 30 mineral claims.

1.2 GEOLOGY

The Property is situated within the Central Mineral Belt of Labrador, proximal to the northern margin of the Grenville Structural Province. It is underlain by peralkaline volcanic and porphyritic rocks of the Letitia Lake Group and cogenetic peralkaline and alkaline plutonic rocks of the Arc Lake and Red Wine Intrusive Suites (~1.3 Ga). The Letitia Lake Group and the associated intrusive rocks are bound on the north by terrestrial to shallow marine sedimentary rocks, basaltic flows and gabbro sills of the Seal Lake Group (1.0 to 1.2 Ga) and to the south by granitoid rocks of the Trans-Labrador batholith (1.65 Ga) (Belik 1996).

The Two Tom deposit occurs within a peralkaline syenite pluton that is 2 km in diameter. The southern portion of the pluton is comprised of unmineralized medium grained riebeckite syenite. According to Miller (1988), there is a mineralized syenite outcrop in the northern portion of the pluton, which intrudes the Letitia Lake Group at the lower contact with the Bessie Lake Formation (Miller 1988).

The northwest striking Two Tom deposit has been traced by prospecting, trenching and drilling; and has been interpreted over 1.1 km. The Two Tom deposit is situated within the eastern end of the Red Wine Complex (REM press release: September 18, 2011).

1.3 EXPLORATION

Exploration completed by REM in 2010 and 2011 on the Property includes prospecting, geological mapping, airborne geophysical surveys, trenching (channel sampling, and diamond core drilling.

1.4 CONCLUSIONS

Tetra Tech has estimated a new mineral resource estimate for the Two Tom deposit in accordance with the Canadian Institute of Mining (CIM) Best Practices and disclosed in accordance with NI 43-101. The effective date of the Two Tom mineral resource estimate is December 10, 2011.

The block model and mineral resource for the Two Tom deposit is classified as having Inferred Mineral Resources based on drillhole spacing and sample data populations. The mineral resource estimate for the deposit, at 0.6 total rare earth oxides percentage (TREO%) cut-off, is an Inferred Resource of 41 Mt at 1.18% TREO, 0.26% niobium pentoxide (Nb_20_5), 0.18% beryllium oxide (BeO) and 0.06 thorianite (ThO_2% with 5% of the TREO being made up of heavy rare earth oxides (HREO)).

The mineral resource was estimated by the ordinary kriging (OK) interpolation method on capped grades for all 15 rare earth oxides (REO) and three associated metal oxides, Nb_20_5, ThO_2 and BeO. The TREO% is a sum of the 15 individual interpolations of the REOs. No recoveries have been applied to the interpolated estimates.

Table 1.2and Table 1.3 summarize the Inferred Resource estimates for the Two Tom REE-Nb-Be deposit at various TREO% cut-offs between 0.5 and 1.4 TREO%.

1.5 RECOMMENDATIONS

Tetra Tech recommends that additional drilling is warranted to further investigate and develop the known Two Tom REE deposit. Additional drilling will determine, with greater confidence, both the continuity of the mineralized lithologies and the continuity of the REE, Nb_2O_5 and BeO grades. The recommended drilling includes step out drilling, either along strike or laterally, and in-fill drilling of the interpreted deposit.

Tetra Tech recommends a proposed drilling program with a minimum of 5,000 m in 19 drillholes. The locations of these drillholes are divided between the north and south domains and are designed to extend the known deposit along strike, to the northwest and southeast, and to better interpret the separation of the two domains. The budget for the proposed drill program is estimated at approximately $1.3 million.

A summary of the breakdown of costs for the proposed drill program is shown in Table 1.1.

Table 1.1 Estimated Cost Breakdown for Proposed Drill Program

Description	Estimated Cost (Cdn$)
Drilling	
Drilling – Mobilization/Demobilization	30,000
Drilling – $130/m x 5,000 m	650,000
Helicopter Support $1,800/h x 120 h	216,000
REM Personnel – Geologists, Geotechnicians	160,000
Assaying (including transport)	240,000
Total	**1,296,000**

Table 1.2 Inferred Resource Estimate for the Two Tom Deposit

TREO% Cut-off	Tonnes ('000)	Density	LREO%*	HREO%**	TREO%***	HREO:TREO Ratio	Nb_2O_5%	BeO	ThO_2%
1.40%	13,060	2.91	1.556	0.095	1.651	6%	0.26	0.22	0.06
1.20%	18,321	2.90	1.459	0.091	1.551	6%	0.26	0.21	0.06
1.00%	24,568	2.88	1.348	0.086	1.434	6%	0.27	0.21	0.06
0.90%	28,306	2.87	1.287	0.083	1.370	6%	0.28	0.20	0.06
0.80%	32,494	2.86	1.223	0.080	1.303	6%	0.27	0.20	0.06
0.70%	36,564	2.85	1.164	0.078	1.241	6%	0.27	0.19	0.06
0.60%	**40,635**	**2.84**	**1.107**	**0.075**	**1.182**	**6%**	**0.26**	**0.18**	**0.06**
0.50%	44,300	2.84	1.058	0.072	1.130	6%	0.26	0.18	0.06

Note: * Light rare earth oxide (LREO)
** Includes Y_2O_3
*** See Table 1.2

Table 1.3 Inferred Resource Estimate for the Two Tom Deposit by REOs

TREO% Cut-off	Tonnes ('000)	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
1.40%	13,060	0.419	0.765	0.078	0.254	0.040	0.004	0.025	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
1.20%	18,321	0.392	0.717	0.073	0.240	0.039	0.004	0.023	0.002	0.010	0.001	0.003	0.000	0.001	0.000	0.046
1.00%	24,568	0.358	0.662	0.068	0.224	0.037	0.003	0.022	0.002	0.009	0.001	0.003	0.000	0.001	0.000	0.044
0.90%	28,306	0.340	0.632	0.065	0.215	0.036	0.003	0.022	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.042
0.80%	32,494	0.321	0.600	0.062	0.205	0.034	0.003	0.021	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.041
0.70%	36,564	0.304	0.572	0.059	0.196	0.033	0.003	0.020	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.039
0.60%	**40,635**	**0.288**	**0.544**	**0.056**	**0.188**	**0.032**	**0.003**	**0.019**	**0.002**	**0.008**	**0.001**	**0.002**	**0.000**	**0.001**	**0.000**	**0.038**
0.50%	44,300	0.274	0.519	0.054	0.180	0.031	0.003	0.019	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.037

2.0 INTRODUCTION

REM is a Canadian-based and Canadian-registered resource company, based in Thunder Bay, Ontario, and is publicly listed on the TSX Venture Exchange (TSXV) as RA.V and with the OTC Markets Group Inc. (OTCQX) as RAREF. REM is a junior exploration company focused on REE projects with superior existing infrastructure or excellent potential infrastructure for mine development (Website; www.rareearthmetals.ca).

This technical report and resource estimate is on the Two Tom REE deposit in the Red Wine Complex Project in central NL, Canada, situated approximately 140 km northeast of Churchill Falls, NL, and 160 km northwest of Happy Valley-Goose Bay, NL.

2.1 TERMS OF REFERENCE AND PURPOSE OF REPORT

Tetra Tech was retained by REM to produce the first NI 43-101 compliant resource estimate on the Property and to provide the accompanying NI 43-101 technical report. This technical report conforms to the standards set out in NI 43-101 Standards and Disclosure for Mineral Projects and is in compliance with Form 43-101F1.

The objective of this study is to:

- produce an NI 43-101 resource estimate and technical report on the project, including a summary of land tenures, exploration history, trenching, geophysics, and drilling
- provide recommendations and a budget for additional work on the project.

The Qualified Person (QP) responsible for this report is Paul Daigle, P.Geo., and Senior Geologist for Tetra Tech.

2.1.1 UNITS OF MEASUREMENT

All units of measurement used in this technical report and resource estimate are in metric, unless otherwise stated.

2.2 INFORMATION AND DATA SOURCES

The main source of information in preparing this report is listed below. A complete list of references is provided in Section 19.0 of this report.

- Gebru, A., Penney, G., and Nielsen, P. 2011. Assessment Report of Diamond Drilling Activities on Mineral Licenses of the Red Wine Project, Letitia – Shallow Lake – Bessie Lake Areas, Labrador, pp. 55.

2.3 AGREEMENTS AND OPTIONS

REM has a 100% interest in the Two Tom property, which is subject to two option agreements. The southeast half of the occurrence is optioned from the individuals, Roland and Eddie Quinlan; and the northwest half of the zone is optioned from Zimtu (November 16, 201; press release).

2.4 TETRA TECH QP SITE VISIT

Paul Daigle, P.Geo., Senior Geologist with Tetra Tech, conducted a site visit to the Property on July 19, 2011 for one day. The project site and base camp, including the core logging, sampling and storage facilities, were inspected during the site visit. Mr. Daigle was accompanied on the site visit by Mr. Glen Penney, Project Geologist for REM.

3.0 RELIANCE ON OTHER EXPERTS

In preparation of this report, Tetra Tech has relied upon REM and others for information and for matters relating to property ownership, property titles, and environmental issues. The majority of the information has been sourced from REM internal reports, company press releases.

Tetra Tech is relying on reports, opinions, and statements from experts who are not QPs for information regarding legal, environmental, political, or other issues and factors relevant to the technical report. Neither Tetra Tech nor the Author are qualified to provide extensive comment on legal issues, including status tenure associated with the Two Tom project, and ownership is provided for general purposes only. Assessment of these aspects had relied on information provided by REM, which has not been independently verified by Tetra Tech.

Information from third party sources is referenced in Section 19.0. Tetra Tech used information from these sources under the assumption that the contents are accurate. Tetra Tech has not conducted an examination of land titles or mineral rights for the Property.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Property is defined by the mineral rights to three contiguous mining licences, covering 16 mineral claims in central NL and covers an area of approximately 1,150 ha or 11.5 km^2. Currently, REM has option agreements for a 100% interest in all three licences.

4.1 LOCATION

The Two Tom Property is located:

- within National Topographic System (NTS) map sheets 13L/01, 13L/02, 13L/08
- at approximately 555800E and 6007800N (Zone 20, North American Datum (NAD) 27) in central Labrador, Canada
- approximately 160 km northwest of Happy Valley-Goose Bay, Labrador
- approximately 140 km northeast of Churchill Falls
- approximately 60 km east of the Smallwood Reservoir
- approximately 50 km northeast of the Orma Lake Road
- approximately 4 km south of Bessie Lake
- approximately 3 km southeast of Letitia Lake
- within the north eastern portion of the Red Wine Complex

The Property is situated as shown in Figure 4.1, Figure 4.2, and Figure 4.3.

Figure 4.1 General Property Location Map

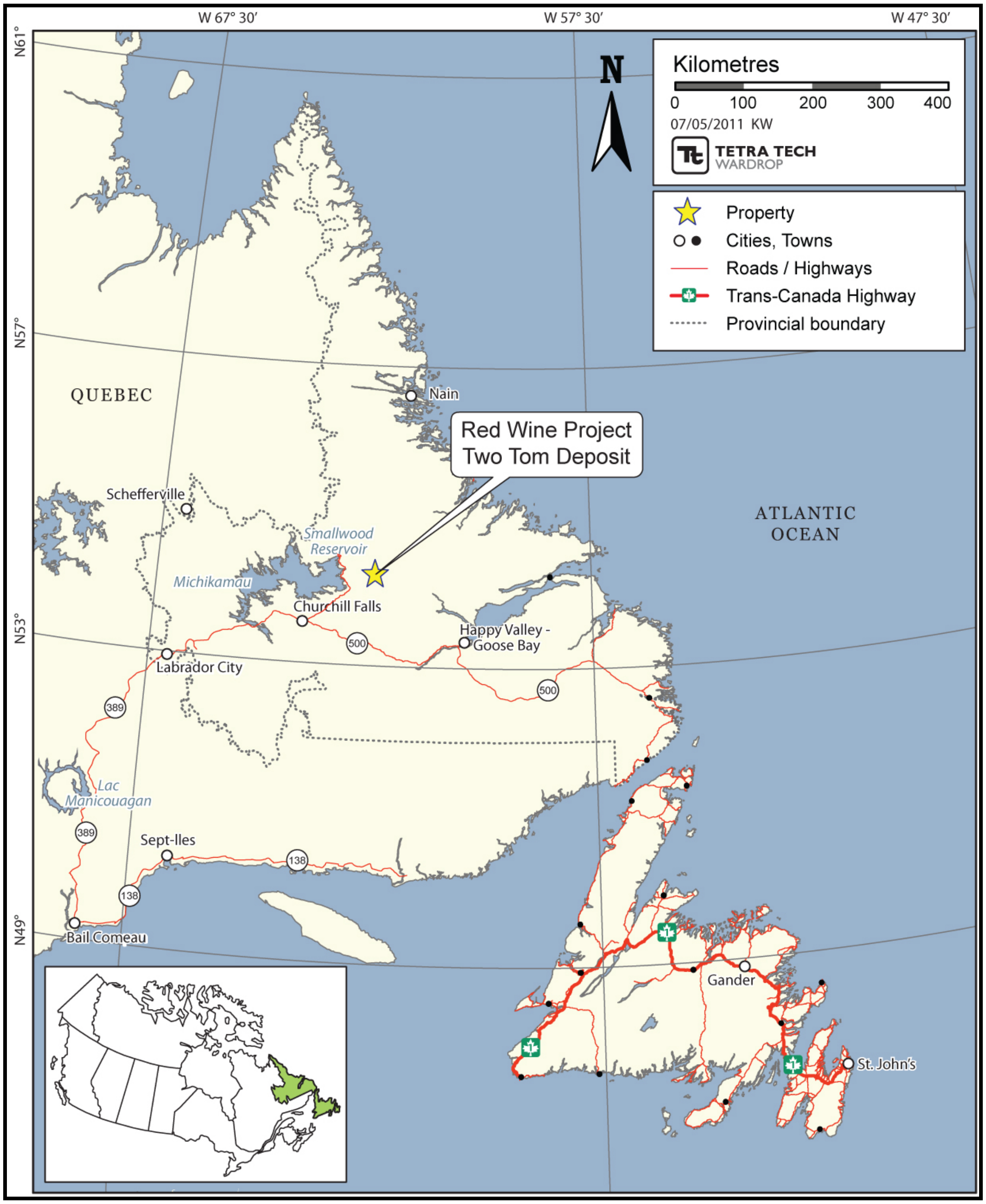


Figure 4.2 Property Location Map of the Two Tom Deposit of the Red Wine Project

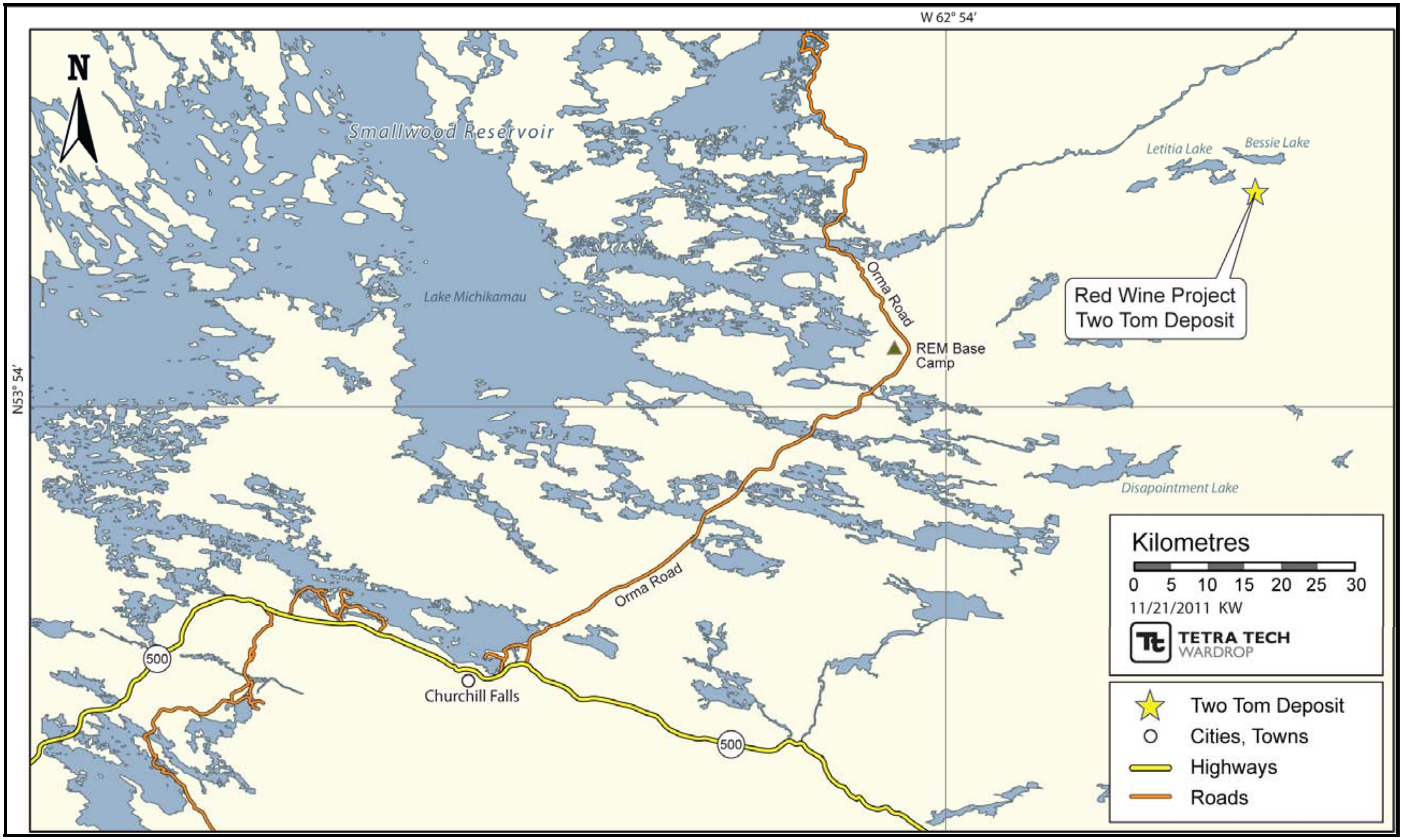
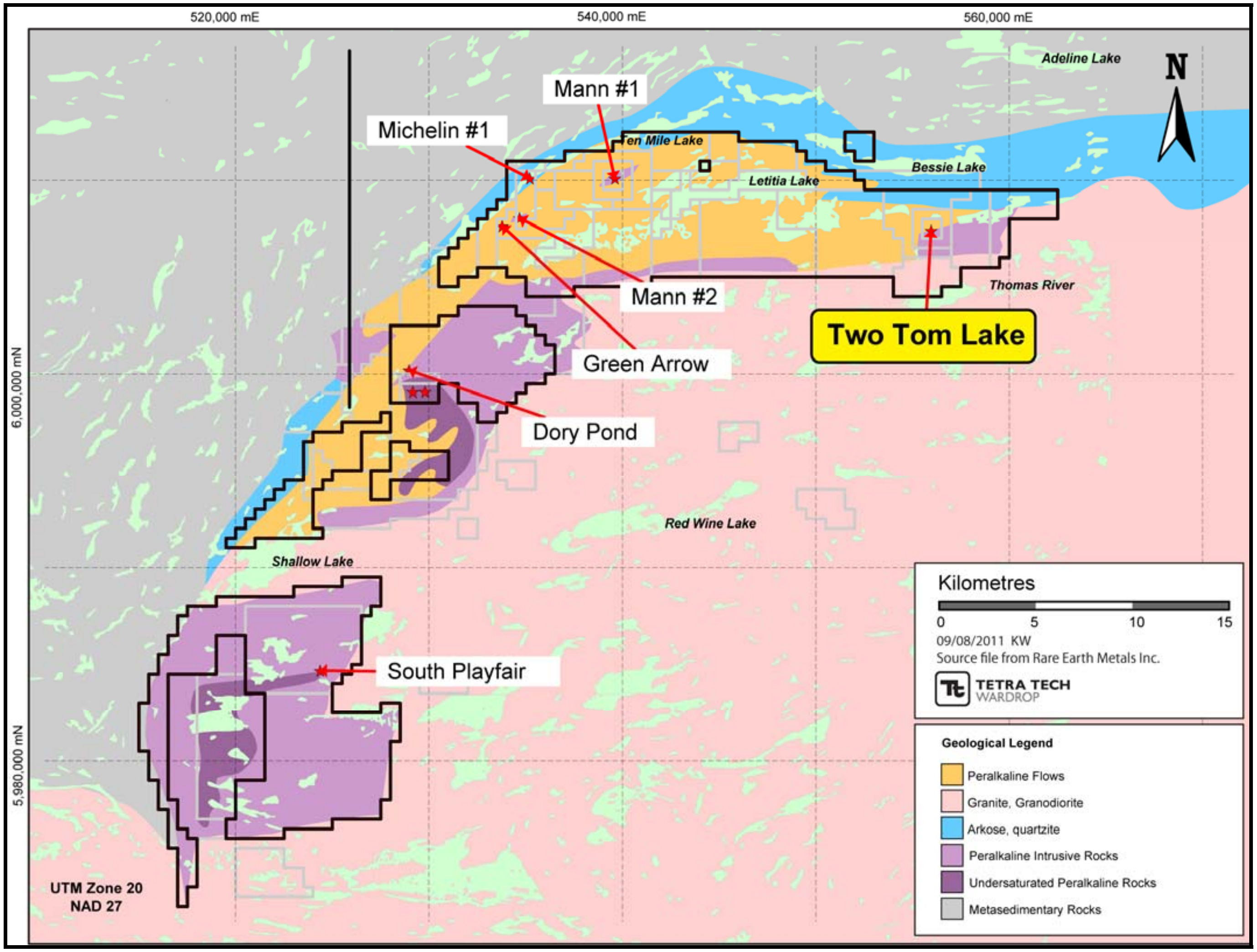


Figure 4.3 REE Mineral Occurrences Map of the Red Wine Complex



4.2 PROPERTY DESCRIPTION

REM's holds the mineral rights to 47 near contiguous mineral licences, for a total of 1,340 mineral claims, in the Red Wine Peralkaline Complex of central south Labrador. The mineral rights are held both directly and through various option agreements and covers a total of 340 km^2.

The Property is situated at the northeastern extreme of these licence blocks, in a block of three contiguous mineral licences (see Figure 4.3), consisting of 46 mineral claims, and covers an area of 11.5 km^2. The mineral rights to the Property are summarized in Table 4.1 and illustrated in Figure 4.4. Detailed information on these mineral licences is in Appendix A.

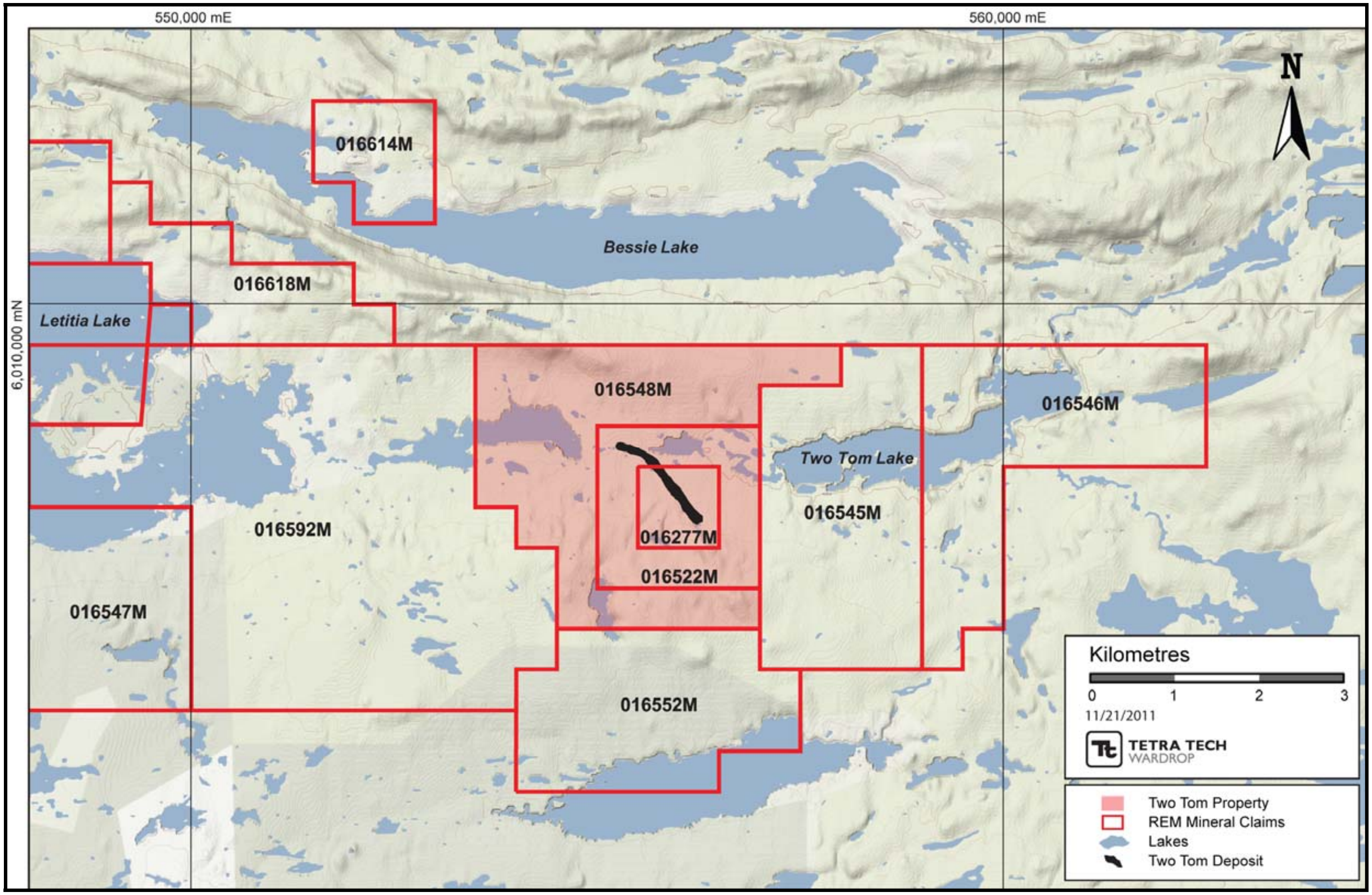
Table 4.1 Summary of the Two Tom Property

Licence No.	No. of Claims	Issued Date	Expiry Date	Interest	Held by	Area (km^2)
016277M	4	25Jun 2009	25 Jun 2014	100%	R. Quinlan	1.0
016522M	12	12 Oct 2009	12 Oct 2014	100%	D. Lewis	3.0
016548M	30	15 Oct 2009	15 Oct 2014	100%	M. Quinlan	7.5
Total	**46**					**11.5**

The Two Tom REE deposit is currently covered entirely by two mineral licences; Licence No. 016277M and 016522M. The Property consists of sufficient land for exploration and development purposes.

The Two Tom deposit is situated east of REM's rare metal showings Mann #1, Mann #2, Michelin #1, Green Arrow, and North Red Wine and it is situated roughly 25 km northeast of REM's two REE occurrences called Dory Pond and Playfair South (Website: http://www.rareearthmetals.ca/article/red-wine-complex-119.asp). These mineral occurrences are not subject to this report.

Figure 4.4 Two Tom Mineral Claims



4.3 OPTION AGREEMENTS

REM has a 100% interest in the mineral licences that cover and encircle the Two Tom deposit, which is subject to two option agreements. The southeast half of the Two Tom deposit lies within Licence 016277M and is optioned from Roland and Eddie Quinlan, where R. Quinlan holds mineral rights to four mineral claims. The northeast half of the Two Tom deposit lies within Licence 016522M and is optioned from Zimtu, where D. Lewis, a partner of Zimtu, holds the mineral rights to 12 mineral claims (REM Press Release, November 16, 2011).

Adjacent to the north, south and west, Licence No. 016548M is also subject to the same option agreement with Messrs.' R. and E. Quinlan, where REM has a 100% interest. The mineral rights are held by Marilyn Quinlan and consist of 30 mineral claims.

4.4 ENVIRONMENTAL AND SURFACE RIGHTS

Tetra Tech is not aware of any environmental or social issues regarding the Property.

All exploration activities conducted on the Property are in compliance with relevant environmental permitting requirements. To Tetra Tech's knowledge, REM has obtained permits to use the surface rights.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 ACCESSIBILITY

The Property area is located approximately 160 km northwest of Happy Valley-Goose Bay (population 7,572, Census 2006), and approximately 110 km northeast of Churchill Falls (population 650), Labrador. Access to the Property is most easily granted by helicopter. While the area is host to many lakes and ponds, the majority are unsuitable for the use of float planes, due to their shallow depths and the presence of abundant boulders (Gebru et. al 2011).

Most basic services and supplies may be sourced from Churchill Falls and Happy Valley-Goose Bay. The latter is regularly serviced via scheduled flights from St. John's, Newfoundland, and Halifax, Nova Scotia.

5.2 CLIMATE

Like most of Labrador, the climate in the region of the Property (south central Labrador) has a subarctic climate (*Dfc;* Köppen climate classification) and is known for short warm summers and long cold winters. In summer, cloud cover is very high due to the numerous lakes and unstable northerly airstreams that prevail in this region.

The minimum and maximum mean annual temperatures in the region are -8.6°C and 1.6°C, respectively. July average minimum and maximum temperatures are 8.3°C and 18.9°C, respectively, and January average minimum and maximum temperatures are -27.2°C and -15.8°C, respectively. The mean annual rainfall for the region is 915.8 mm (www.worldclimate.com – Churchill Falls).

Exploration activities may take place throughout the year.

5.3 LOCAL RESOURCES

The nearest town to the Property is Churchill Falls, population 670 (2006 Census). Basic supplies and fuel may be sourced from Churchill Falls. However, most support services, supplies, fuel and are sourced from Happy Valley-Goose Bay, population 7,572 (2006 Census). Activation Laboratories (Actlabs), an analytical services company, has a sample preparation laboratory set up in Happy Valley-Goose Bay.

Exploration activities are based out of a twelve to fifteen man camp on Orma Lake Road. The camp has good access to Churchill Falls, which is 80 km to the southwest. The centre of the Property is approximately 35 km from the camp (July 6 2010 press release). The Orma Lake Road, is a Churchill Falls hydro dam access road, and is located 40 km from the Property (REM press release, July 20, 2010).

5.4 INFRASTRUCTURE

There is no infrastructure on the Property. The nearest road to the Property is the hydro dam access road, Orma Lake Road, approximately 50 km southwest of the Property. The only access to the Property is by helicopter from REM's base camp on Orma Lake Road.

There is no electricity on the Property. The nearest source of electricity is hydroelectric generating station in Churchill Falls, approximately 140 km southwest of the Property.

The nearest airfield is located in Churchill Falls with a 1,676 m (5,500 ft) asphalt airstrip. Churchill Falls is serviced by NL based Provincial Airlines Ltd. The majority of air traffic for the region is handled from Happy Valley-Goose Bay. As home to a Canadian Air Force base, the airfield hosts two extended airstrips; 3,368 m (11,051 ft) and 2,920 m (9,580 ft) long. Happy Valley-Goose Bay is serviced by regular scheduled flights and also hosts charter airline and helicopter service companies.

The nearest railway is the Tshiuetin rail service linking Sept-Îles, Québec (QC) to Schefferville, QC where the nearest railhead is located at Rose Bay Junction, just east of Labrador City, located roughly 300 km southwest of the Property.

Water is abundant on the Property.

5.5 PHYSIOGRAPHY

The Property lies at elevations ranging from approximately 400 to 600 masl. Relief over the majority of the Red Wine Complex is gentle to moderate, and elongated lakes occupy numerous parallel ridges that trend east-northeast. These lakes and the various ponds of the region are often shallow and contain many boulders. Along the tops of the ranges of ridges, bedrock exposure is 75 to 100%. This decreases to 0 to 35% along the flanks of the ridges and valley floors, which are covered by thick forest cover, lakes, swamps or large boulder fields (Gebru et al. 2011).

6.0 HISTORY

Prior to the involvement of REM with the Property, various exploration activities on the Two Tom deposit of the Red Wine Complex took place between 1967 and 1987 (Table 6.1).

Table 6.1 Summary of Exploration Activities, 1967-1987

Year	Company	Activity	Comments	Source
1967	Barringer (commissioned by Brinex)	Airborne radiometric survey	Disclosed an area of high uranium and thorium activity centred immediately southwest of Two Tom Lake.	Boniwell, 1967
1968	Brinex	Geological mapping and scintillometer survey	Follow-up work to radiometric survey, established radioactive source to be boulder fields of radioactive syenite gneiss.	Smith, 1968
1970	Brinex	Geological mapping and metallurgical testing	Further mapping on a reconnaissance scale in the immediate area, and 518 kg bulk sample for metallurgical testing.	Westoll, 1971
1978-1979	A. Thomas, Newfoundland Government	Geological mapping	Detailed geological mapping of the Two Tom Lake and surrounding area.	Thomas, 1981
1986-1987	Batterson and Miller	Quaternary mapping, Nb-Be deposit search	Follow up on reports of radioactive boulder trains (attempt to discover bedrock sources), 1200 x 1000 m grid established, 259 station sites selected and 80 bedrock/boulder samples collected (up to 0.25% Y_2O_3*, 0.27% BeO, 0.25% Nb_2O_5 in bedrock and 0.30% Y_2O_3, 0.46% BeO, 0.23% Nb_2O_5 in boulders).	Batterson and Miller, 1987
1986	Batterson and Legrow	Boulder train and scintillometer survey	Two Tom Lake area was affected by eastward flowing ice of the Laurentide ice sheet	Batterson and Legrow, 1986

There are no historical mineral resources or reserves, nor has there been any historical production on the Property.

7.0 GEOLOGICAL SETTING AND MINERALIZATION

7.1 REGIONAL GEOLOGY

The Property is situated within the Central Mineral Belt of Labrador, proximal to the northern margin of the Grenville Structural Province. It is underlain by peralkaline volcanic and porphyritic rocks of the Letitia Lake Group and cogenetic peralkaline and alkaline plutonic rocks of the Arc Lake and Red Wine Intrusive Suites (~1.3 Ga). The Letitia Lake Group and the associated intrusive rocks are bound on the north by terrestrial to shallow marine sedimentary rocks, basaltic flows and gabbro sills of the Seal Lake Group (1.0 to 1.2 Ga) and to the south by granitoid rocks of the Trans-Labrador batholith (1.65 Ga) (Belik 1996).

7.2 LOCAL GEOLOGY

The Two Tom deposit occurs within a peralkaline syenite pluton that is 2 km in diameter. The southern portion of the pluton is comprised of unmineralized medium grained riebeckite syenite. According to Miller (1988), there is a mineralized syenite outcrop in the northern portion of the pluton, which intrudes the Letitia Lake Group at the lower contact with the Bessie Lake Formation (Miller 1988).

7.3 PROPERTY GEOLOGY

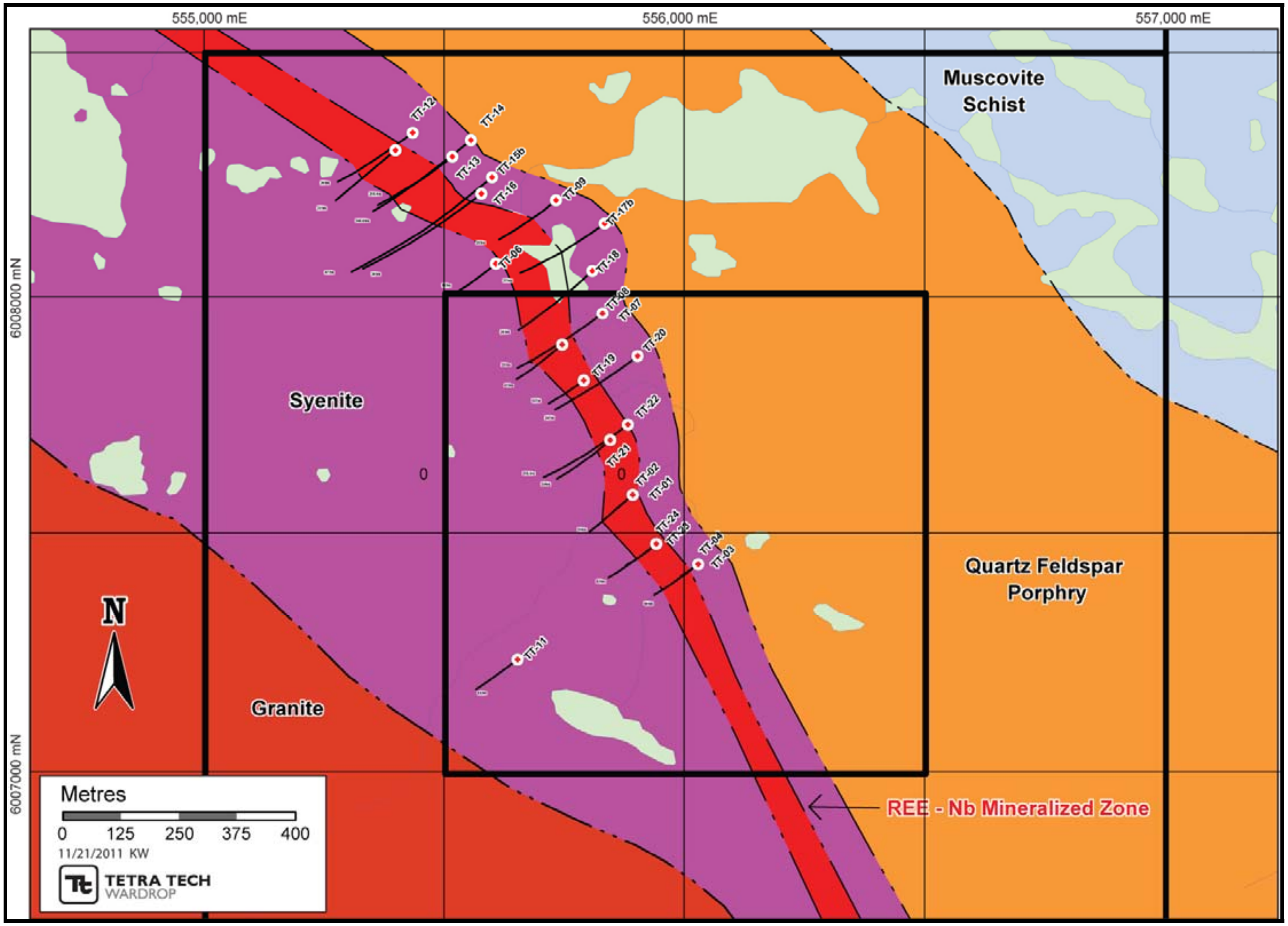
The northwest striking Two Tom zone has been traced by prospecting, trenching and drilling. It is at least 1,100 m long and is situated within the eastern end of the Red Wine Complex.

Exposure of the Two Tom Lake deposit is very poor, and consists mainly of radioactive boulder fields. The more radioactive western half of the area can be traced along the ground for approximately 244 m. It trends at roughly 040° and is 15 to 23 m wide. In a portion of this zone, the gneissic banding within the syenite boulders all display the same near-vertical dip and strike of approximately 137°. This suggests that they have not shifted very far from their bedrock source. From these boulder fields and from known outcrops, the total length of the mineralized zone is estimated to be at least 1,524 m in length. The predominant radioactive boulder type is a medium-grained, agpatic-textured alkali gneiss, which is a metamorphosed and metasomatized equivalent of an alkali syenite or granite protolith (Westoll 1971). The gneissic texture is comprised of alternating dark layers of arfvedsonite and aegirine-augite, with trace riebeckite and chlorite and light layers of albite and orthoclase with trace anorthoclase and fine-grained perthite or antiperthite (Deane 1970). As indicated by the distribution of boulders and outcrops, this rock type appears to be entirely contained within a quartz feldspar porphyry of the Letitia Lake Group (Westoll 1971).

There is a textural coarsening in the syenite complex from west to east. The syenite complex also gets progressively more felsic from west to east with increasing alkali-feldspar content. At Two Tom, shear deformation-related alteration in a thick syenite complex appears to be related to REE-Nb-Be mineralization. The strike of shear zones is mostly northwest-southeast. However, dip direction and dip is variable. In Two Tom North, it appears westerly and steeply dipping (65-75°). In the Two Tom South, shear zone dip direction is easterly whereas dip varies from shallow to steep (Gebru et al. 2011). A general map of the geology, with the drillhole locations shown is provided in Figure 7.1.

From mapping, trenching and drilling activities, six rocks units have been identified in the Two Tom South area (syenite porphyry, amphibole schist/altered syenite porphyry, feldspar-amphibole schist, microsyenite, amphibole feldspar porphyry and muscovite schist) and nine main rock types have been observed in the Two Tom North area (syenite porphyry, feldspar porphyry, amphibole gneiss, actinolitic amphibole schist and muscovite schist, biotite schist with intermittent green amphibole/pyroxene layers, meta-microsyenite, quartz and quartz-feldspar veins) (Gebru et al. 2011).

Figure 7.1 General Property Geology Map (REM, 2011)



7.3.1 TWO TOM SOUTH

Overburden thicknesses in the Two Tom South area vary between 6 to 14 m, and consist of syenitic boulders with lesser amounts of minor granitic cobbles and pebbles. Rock types observed in the Two Tom South area are described as follows:

Syenite porphyry: coarse grained, green to light grey and light pink mottled rock, comprised of amphibole, alkali-feldspar and quartz and accessory biotite. It occurs within various stratigraphic levels, and occupies the hanging wall side of the mineralization. Shear zones within a showing exhibit brownish oxidation and strike to the northwest with a dip of15-20°. Rhythmic banding between the pink alkali-feldspar and the green amphiboles/pyroxene (?) is occasionally observed. Beyond the shear zones, the unit is massive. Syenite porphyry to the west is coarse grained with light grey alkali-feldspars and minor biotite and amphiboles (Gebru et al. 2011).

Amphibole schist: fine grained schistose rock in contact with the pinkish syenite porphyry. It was not observed in outcrop due to the extensive boulder cover but occurs in the upper intersections of drillholes TT-01, TT-02, TT-03 and TT-04. The rock tends to be laminated and exhibits a phyllic fabric, and may be the product of grain size reduction of the syenite porphyry during shearing (Gebru et al. 2011).

Altered syenite: light to brownish green rock, comprised of retrograde minerals such as chlorite, epidote, actinolite and muscovite. Silicification and distinct quartz and feldspathic veining are present throughout. Narrow intercalations of remnant syenite porphyry are observed throughout (Gebru et al. 2011).

Feldspar-amphibole (actinolite) schist: green, medium to coarse grained schistose rock predominantly composed of actinolite, amphibole, pyroxene, feldspar and some biotite. This unit always marks the footwall of the altered syenite porphyry, and is variable in thickness. White quartz veins with coarse honey yellow coloured sphalerite and galena crystals are present. Aegirine is suspect to be present and is thought to have formed via the alteration of arfvedsonite through reaction with highly saline aqueous fluid at low temperatures ($\geq 350^{o}C$) (Gebru et al. 2011).

Sheared microsyenite: medium grained, comprised of light grey feldspars and dark green amphiboles and pyroxene. This unit displays a segregation fabric between the light grey felsic and green to dark green mafic minerals. Some muscovite and biotite are associated with the light grey segregations. Interlayers of 30 to 50 cm in thickness of blue green amphibole/pyroxene composition are very common. It is often encountered in the footwall of the mineralization, adjacent to the greenish actinolitic amphibole schist. The extent of this unit is not known but it is believed to dominate the western portion of the Two Tom syenite complex. Shear deformation is present, but mineralization is intermittent due to lack of wider shear zones (Gebru et al. 2011).

7.3.2 TWO TOM NORTH

No outcrops have been confirmed to be present in the Two Tom North area. Rock types observed in drill core from the Two Tom North area are described as follows:

Syenite porphyry: There are three varieties of this unit, each with different textures and possibly variable mineralogy. The first type occurs in the upper part of TT-07, and is dark grey, mottled with grey white, coarse grained, comprised of dark grey and dark green amphiboles (55 to 60%) and quartz and feldspar (40 to 45%). The quartz content is very minor and feldspar porphyroblasts are pale green. The rock is moderately deformed with aligned feldspars and mafic minerals. It is occasionally sheared and exhibits are reduction in grain size. The feldspar porphyroblasts are present, but are largely stretched parallel to schistosity. There are a number of shear zones with epidote(?), muscovite and biotite alteration throughout. Clay alteration along with muscovite and chlorite is ubiquitous and in such zones, the rock crumbles easily. Epidote mineralization is often observed in the margin where muscovite abundance is less. Shear foliation is intense in the alteration zones. Dips vary from 65 to 75° easterly as observed in hole TT-07 and 65-85° westerly in hole TT-09.

The second variety of the syenite porphyry occurs in the middle and lower part of TT-07. It is believed to have resulted by grain size reduction as a result of the shearing of the syenite porphyry. The resultant rock is a medium grained, dark grey to dark brown, and grey white mottled, composed of dark green to dark amphiboles/pyroxenes(?), grey white feldspars (albite), quartz, biotite and some muscovite. In places, the biotite content is prominent imparting a dark brown colour. Amphibole gneissic bands with large grey white porphyroblasts in places are present. This suggests that the amphibole gneiss which is mineralized is a metasomatic product in shear zones within this type of syenite; other finer grained green bands are also present in places. These green bands may correlate with those observed in TT-06, TT-01, TT-02, TT-03 and TT-04. In addition, approximately 5 to 7% pink and grey white feldspathic veins/metasomatites with zinc disseminations are observed.

The third variety occurs in lower part of hole TT-09, below the mineralized muscovite schist. It is dark grey, mottled with grey white, composed of dark green pyroxenes and dark amphiboles; biotite and muscovite as alteration minerals. Texturally coarse feldspars, with subordinate quartz, are set in a medium grained mafic groundmass, and. Some segregation of felsic and mafic minerals is visible. However, it is more of a schistose texture than gneiss as the rock is foliated despite the segregation. Muscovite rich shear zone bands up to 20 cm width are present. Radiometric counts in the interval shows high background 400 to 500 counts per second (cps) (Gebru et al. 2011).

Feldspar porphyry: pale green, light grey and dark green to grey mottled, coarse grained, composed of light grey to white pale green shaded feldspars, green and dark green amphibole with some epidote (?); rock is over 60% pale green shaded feldspars. It is very coarse grained, weakly foliated except in narrow shear zones, consists of grey white quartz veinlets up to 1 cm thickness and 3% abundance. Compositionally this rock appears to grade into granite (Gebru et al. 2011).

Banded amphibole schist / gneiss (mylonitic gneiss): dark to dark green and grey white mottled, comprised of amphiboles (dark and dark green), with some biotite, feldspar and quartz. Segregational features between the felsic and mafic minerals are present; the melanocratic section occurs as discontinuous pods or layers in a grey white to light green groundmass; boudinaging and transposition appears to be the cause of this disfiguration. Epidote(?) alteration occurs in the green to yellowish green groundmass. Based on core foliation and a similar unit intersected in DDH TT-05, this unit for the most part has a westerly dip of about 70° (Gebru et al. 2011).

Meta-microsyenite: green to dark green, medium grained, locally porphyritic, composed dominantly of mafic minerals (green and dark green amphiboles/ pyroxene?) up to 60 to 70% with grey white feldspars and quartz of 30 to 40%; some patchy quartz veinlets up to 3 mm thickness and 1 to 2% abundance are common. In places, it is fractured (fractures, measuring 40 to 50° to CA). In TT-07, the original microsyenite is largely obliterated and now looks like biotite schist; it displays dark brown to grey brown colour, largely reflecting alteration colour rather than original composition (Gebru et al. 2011).

Muscovite (sericite) schist: pale yellowish brown to grey white, medium grained rock, composed of muscovite/sericite, biotite, and relict mafic minerals (dark green pyroxene (?) and dark amphiboles. Albitization is common. Sphalerite stringers occur throughout and are more abundant where muscovite becomes richer, as well as in the albitized zones. Rare fine grained pyrite disseminations (<1%) are also present (Gebru et al. 2011).

7.4 MINERALIZATION

Drilling has defined the Two Tom mineralization as a minimum of 1.1 km long with an arcuate-shaped zone that strikes to the west/northwest to northwest and is steeply dipping to the northeast. Widths vary from 84 m to more than 200 m, and the mineralization is open in all directions (REM Press Release November 16, 2011).

Mineralogical test work on two composite REE samples from the Property (from the Mann#1 and Two Tom deposits) were conducted by SGS Mineral Services of Lakefield, Ontario via High Definition Mineralogy Analysis. The test work found that that monazite and cerium-calcium silicate host the majority of:

- La ~73% (~58% in monazite and 15% in the cerium-calcium silicates, respectively)
- Ce ~66% (~41% and 25%, respectively)
- Pr ~82% (~36% and 46%, respectively)
- Nd ~86% (~34% and 54%, respectively).

It also found that the cerium-calcium silicate hosts the majority of:

- Sm ~89%
- Gd ~90%
- Dy ~98%
- Y ~96%

Pyrochlore and niobophyllite host the majority of the niobium (~48% and ~26%, respectively).

Readily visible mineralization in Two Tom drill core is in the form of honey-yellow and light brown sphalerite disseminations and bands within or at the margin of feldspathic veins and in the more green coloured layers of amphibole. An off-white mineral, thought to be barite, is also visible. Within the Two Tom South area, a greenish brown to dark brown mineral, thought to be epidote, also occurs in association with the green amphiboles. Wilton (2010) analyzed three Two Tom samples, provided by REM in 2009, using a Scanning Electron Microscope (SEM) equipped with Mineral Liberation Analyser (MLA). A number of heavy “bright” minerals were identified by the MLA, the most significant of which are barylite, barium-silicate with niobium-iron-cerium(zinc), allanite, britholite, thorite and gadolinite. Barium-silicate, britholite and thorite were reported to appear to be secondary stage formation, often growing on other minerals (Gebru et al. 2011).

Chemical analyses of drillhole and trench samples indicate multiple zones of REE-Be-Nb mineralization. High zinc, thorium, barium and phosphorous values always accompany the REE-Be-Nb mineralization. The mineralization at Two Tom has been intersected in drilling over a strike length of 1.1 km and to a vertical depth of 100 to 150 m (Gebru et al. 2011).

Three modes of mineralization are recognized in Two Tom:

- REE-Nb-Be mineralization hosted in syenite and intersected in holes TT-01, TT-02, TT-03 and TT-04
- REE-Nb-Be mineralization hosted in banded amphibole schist/gneiss
- in muscovite schist interpreted as an alteration of feldspar-rich syenite porphyry.

The former occurs in Two Tom South whereas the latter two types occur in Two Tom North (Gebru et al. 2011).

Two scenarios are suggested regarding the modes of the mineralization.

- The main zone of mineralization intersected in ten drillholes (TT-01 to TT-10) is largely one entity interconnected from south to north as indicated in the geological map. In this scenario, the observed three styles of mineralization are simply variation in alteration types due to differing mineralizing fluid composition, and physio-chemical conditions such as different pressure-temperature conditions of mineral formation. Thus a continuous mineralized zone formed as a result of one large scale shear zone. Undulation in the shape of the mineralization is largely due to variations in structures (Gebru et al. 2011).

- Mineralization could represent several sub-parallel shear zones from north to south. In this scenario, mineralization formed in several distinct shear zones. This implies that the 80 m thick shear-hosted REE-Nb-Be mineralization intersected in Two Tom South continues to the north forming a separate zone west of the zone intersected in Two Tom North. Likewise, the mineralization intersected in Two Tom North occurs in two different sub parallel shear zones. Another separate parallel mineralized zone was intersected in DDH TT-11 (Gebru et al. 2011).

Table 7.1 presents the elements and common oxides that occur rare earth metal deposits (website: Web Mineral). References to TREO, unless otherwise stated, include yttrium oxide.

Table 7.1 List of REEs, REOs and Metal Oxides Associated with Rare Earth Metal Mineralization

Element	Element Acronym	Common Oxides	
Associated Elements and Oxides			
Niobium	Nb	Nb_2O_5	-
Beryllium	Be	BeO	
Thorium	Th	ThO_2	
Yttrium	Y	Y_2O_3	TREO
Light Rare Earth Elements and Oxides			
Lanthanum	La	La_2O_3	
Cerium	Ce	Ce_2O_3	
Praseodymium	Pr	Pr_2O_3	
Neodymium	Nd	Nd_2O_3	
Samarium	Sm	Sm_2O_3	
Heavy Rare Earth Elements and Oxides			
Europium	Eu	Eu_2O_3	
Gadolinium	Gd	Gd_2O_3	
Terbium	Tb	Tb_2O_3	
Dysprosium	Dy	Dy_2O_3	
Holmium	Ho	Ho_2O_3	
Erbium	Er	Er_2O_3	
Thulium	Tm	Tm_2O_3	
Ytterbium	Yb	Yb_2O_3	
Lutetium	Lu	Lu_2O_3	

8.0 DEPOSIT TYPES

The Two Tom deposit is considered to be a peralkaline igneous (syenite) intrusive deposit, that is, an igneous deposit that has a higher ratio of sodium and potassium to aluminium than is needed to produce feldspar. Peralkaline rocks span the range of silica saturation, from granites through syenites to feldspathoid-bearing undersaturated rocks. Deposits of rare metals in peralkaline rocks occur in all rock types without regard for silica activity (Richardson and Birkett 1995).

The following is taken from Kerr (2011).

> *Peralkaline igneous rocks are a tiny part of the spectrum of igneous rocks, but they are very distinctive. The high molecular values of (K_2O + Na_2O)/Al_2O_3) in these magmas favours crystallization of Na-bearing amphiboles (arfvedsonite, riebeckite) or pyroxenes (aegirine), and they may also be silica-undersaturated, containing nepheline or other feldspathoid minerals. Peralkaline magmas are commonly enriched in REE, Y, Zr, Nb, Hf, Ta, and in fluorine (F); they may also be enriched in incompatible elements, such as U, Th, Rb, Cs, Pb, and Be. Deposits associated with peralkaline suites tend to be enriched in Y and heavy REE compared to those linked to carbonatites (Richardson and Birkett, 1995a, b; Castor and Hedrick, 2006). The settings of deposits in peralkaline suites are varied, and they include a complete spectrum from orthomagmatic to hydrothermal−metasomatic. Orthomagmatic types include cumulate-like layered accumulations of REE-bearing minerals such as apatite or eudialyte (a Na−Zr−REE silicate) in syenites, and disseminated mineralization in evolved peralkaline granites, aplites and pegmatites. Deposits in these high-level plutonic to subvolcanic settings are influenced also by hydrothermal processes, but opinions on the importance and role of the latter diverge. There is a general consensus that magmatic fractionation processes provide the main mechanism for REE concentration (Richardson and Birkett, 1995a, b), although fluid interactions and hydrothermal processes maybe important in promoting deposition of the REE and controlling mineral assemblages (e.g., Williams-Jones, 2010).*

9.0 EXPLORATION

The Company has been performing field work on the Red Wine Complex since June 2010. The northwest striking Two Tom zone, situated at the eastern end of the complex, has been traced by prospecting, trenching and drilling over a strike-length of at least 1.3 km (September 8, 2011 press release).

9.1 2010 Airborne Magnetic Gradiometer and Radiometric Survey

In the summer of 2010, REM commissioned Aeroquest International Limited (Aeroquest) to conduct a low level airborne magnetic gradiometer and radiometric survey on the Red Wine Complex. During the period of June 29 to July 11, 2010, a total of 3,548 line km was flown. Lines were spaced 100 m apart and the aircraft was flown at a height of 50 m. The survey measured total field magnetic intensity and horizontal gradient measurements, and a radiometric dataset consisting of uranium (U), thorium (Th), and potassium (K) counts was collected. Various high priority radiometric/magnetic anomalies were isolated for follow-up, including the Two Tom deposit (July 20 2010 press release). The airborne survey was followed by an extensive field program, as outlined below.

9.2 2010 Exploration Program

In the summer of 2010, REM conducted an exploration program within the Red Wine Complex that included prospecting, geological mapping, trenching, litho-geochemical sampling and channel sampling. The program followed up on 73 high priority radiometric/magnetic anomaly clusters, including the Two Tom prospect (REM press release, 22 November, 2010). Universal Helicopters Ltd. (Universal), based in Happy Valley-Goose Bay, was contracted to transport the crew between the various properties from a 12 to 15 person base camp located on the Orma Lake Road approximately 80 km north of the town of Churchill Falls (Gebru et al. 2011).

Two Tom South hosts Be-Nb-REE showings referred to as A, B, C, D and E, in which trenches were cut (Gebru et al. 2011). Combined with channel sampling, this successfully outlined the mineralization and included the best result from Trench #2 where assays averaged 1.70% TREO, 0.34% Nb_2O_5, and 0.27% BeO over 17.8 m (REM press release: October 25, 2010). Furthermore, results from Trench #1 samples, located approximately 200 m along strike from Trench #2 averaged 1.55% TREO, 0.69% Nb_2O_5, and 0.16% BeO over 14.4 m (REM press release: August 31, 2010). A summary of the trench statistics is provided in Table 9.1.

Table 9.1 Summary of Two Tom Trenches

Trench-ID	Easting (m)	Northing (m)	Elevation (masl)	Length (m)	Azimuth (°)
TTR-01	555947	6007390	428	14.4	230
TTR-02A	555852	6007542	421	11.8	255
TTR-02B	555852	6007542	421	6.0	75
TR-03	555971	6007414	426	12.0	195

For the 2010 Two Tom prospecting campaign, 70 grab samples were collected, and a summary of the results is provided in Table 9.2.

Table 9.2 Summary of 2010 Two Tom Prospecting Samples

Number of Samples	TREO (%)	HREO (%)	Nb_2O_5 (%)	BeO (%)	ZrO_2 (%)	Ce_2O_3 (%)	La_2O_3 (%)	Nd_2O_3 (%)	Y_2O_3 (%)
70	0.02-11.9	2.7-42.1	0.01-2.88	0.002-0.73	0.003-1.96	0.006-5.75	0.01-2.72	0.002-1.81	0.004-0.46

Source: November 22 2010 press release

Based upon positive results of the 2010 summer exploration program, REM designed a preliminary diamond drill program at, what is now known as, the Two Tom deposit. Drilling on the Two Tom deposit commenced in September 2010 and is discussed further in Section 10.0.

10.0 DRILLING

To date, REM has drilled a total of 24 diamond drillholes on the Property. Two drillholes, TT-15 and TT-17, were abandoned due caving and poor drilling conditions, were moved and re-drilled as TT-15b and TT-17b.

Drillholes were drilled on sections approximately100 m apart, with a nominal vertical separation of 50 to 100 m between holes on the same section. Drilling to date has confirmed the extent of Nb-Be-REE mineralization over a strike length of approximately 1,100 m, and to an average vertical depth of 200 m. Mineralization appears to be open along strike to the northwest and to the south, as well as laterally to the east and west. A summary of the 2010 and 2011 drilling programs is provided below.

10.1 2010 Drilling Program

Based upon results of the airborne magnetic gradiometer and radiometric survey, and positive results of the 2010 summer exploration program, a diamond drill program was planned for the Two Tom deposit in the Red Wine Complex. Included in the 2010 diamond drilling program were the Mann #1 and Dory Pond prospects. The Mann#1 and Dory Pond prospects are not subject to this report.

At Two Tom, 11 diamond drillholes totalling 1,847 m (Table 10.1) were drilled between September 6 and September 30, 2010 by Landrill International Ltd. (Landrill) of Moncton, New Brunswick. Universal was contracted to provide helicopter support and both an A-Star-B2 and Bell 407 were utilized. Core diameter for all drillholes was NQ size (47.6 mm) and a total of 678 samples were collected for assaying (Gebru et al. 2011). Drillholes were surveyed using a Reflex EZ Shot instrument.

Table 10.1 Summary of the 2010 Two Tom Drill Program

Drillhole	Easting (m)	Northing (m)	Elevation (masl)	Length (m)	Bearing (°Azimuth)	Dip (°)
TT-01	555893	6007575	419	164	230	-45
TT-02	555893	6007575	419	152	230	-75
TT-03	556029	6007431	428	161	230	-45
TT-04	556029	6007431	428	171	230	-75
TT-05	555746	6007887	407	173	230	-45
TT-06	555608	6008056	405	143	230	-45
TT-07	555830	6007952	407	281	230	-45
TT-08	555830	6007952	407	26	230	-70
TT-09	555733	6008188	401	203	230	-45
TT-10	555399	6008292	405	221	230	-45
TT-11	555653	6007232	440	152	230	-45

All 11 drillholes were oriented 230° azimuth with a dip of -45°, with the exception of three drillholes, TT-02, TT-4 and TT-08, which had dips of either -75° or -70°. All drillholes intersected REE-Nb-Be mineralization and validated a mineralized strike length of at least 500 m. Drillhole TT-11 appears to have intersected REE-Nb-Be mineralization that does not conform to the main interpreted Two Tom deposit.

Table 10.2 summarizes select intersections of significant mineralization.

Table 10.2 Summary of Select Mineralized Intersections from the 2010 Drill Program

Drillhole	From (m)	To (m)	Interval (m)	TREO%	Y_2O_3%	Nb_2O_5%	BeO%
TT-01	20.80	126.50	105.70	1.35	0.049	0.31	0.32
	including 20.80	86.00	65.20	1.68	0.042	0.30	0.37
TT-02	18.50	99.60	81.00	1.11	0.038	0.29	0.23
TT-03	48.50	137.00	88.50	1.32	0.05	0.37	0.18
TT-04	78.00	151.00	73.00	1.18	0.046	0.38	0.18
TT-05	4.50	33.50	29.00	1.36	0.037	0.23	0.24
TT-07	44.00	246.50	202.50	0.99	0.041	0.22	0.13
TT-08	9.50	23.00	13.50	0.41	0.021	0.27	0.08
TT-11	6.10	17.00	10.90	0.98	0.038	0.06	0.11
	and 39.00	44.65	5.65	1.8	0.038	0.18	0.25
	and 65.45	70.00	4.55	1.59	0.052	0.21	0.39

Note: drill intercepts do not represent true widths.

10.2 2011 Drill Program

The 2011 program focused on infill and expansion drill testing of the Two Tom deposit. Thirteen additional diamond drillholes totalling 3,622.01 m () were drilled between June and September of 2011. Not included in this summary are holes TT-15 and TT-17 which, after caving and subsequently stuck rods, were abandoned and re-drilled as TT-15b and TT-17b, respectively.

Drilling was performed by Landrill and the core diameter for all drillholes was of NQ size (46.7 mm). Drillholes were surveyed using a Reflex EZ Shot instrument. The drill program was supported by Bell 407 helicopter from Wisk Air, a Thunder Bay, Ontario-based charter helicopter company.

Table 10.3 Summary of Drillholes for 2011 Two Tom Drilling Program

Drillhole	Easting (m)	Northing (m)	Elevation (masl)	Length (m)	Bearing (°Az)	Dip (°)
TT-12	555435	6008328	405	261.00	230	-45
TT-13	555517	6008278	407	258.40	230	-45
TT-14	555556	6008313	407	348.61	230	-45
TT-15b	555600	6008236	412	477.50	230	-45
TT-16	555578	6008201	409	381.00	230	-45
TT-17b	555834	6008140	407	276.00	230	-45
TT-18	555809	6008041	403	291.00	230	-45
TT-19	555791	6007813	402	127.00	230	-45
TT-20	555903	6007683	406	297.00	230	-45
TT-21	555846	6007689	40e	204.00	230	-45
TT-22	555883	6007721	406	310.50	230	-45
TT-23	555942	6007473	425	174.00	230	-45
TT-24	555942	6007473	425	216.00	230	-70

All drillholes were oriented 230°Az with a dip of -45°, with the exception of TT-24, that was drilled at -70° dip. All drillholes intersected REE-Nb-Be mineralization and extended the interpreted Two Tom deposit over a strike length of at least 1,100 m. Mineralization appears to be open to the northwest, south and laterally. Table 10.4 below summarizes selected intersections of significant mineralization.

Table 10.4 Summary of Select Mineralized Intersections from 2011 Drill Program

Drillhole	From (m)	To (m)	Interval (m)	TREO%	Y_2O_3%	Nb_2O_5%	BeO%
TT-12	41.20	189.50	148.30	1.52	0.040	0.17	0.18
	including 41.20	137.40	96.20	2.05	0.045	0.22	0.23
TT-13	23.40	218.50	195.10	1.46	0.040	0.19	0.18
	Including 49.80	171.30	121.50	1.86	0.050	0.22	0.22
TT-13	194.10	218.50	24.40	1.84	0.050	0.17	0.24
TT-14	123.00	212.00	89.00	1.82	0.055	0.26	0.27
TT-14	225.50	282.50	57.00	0.78	0.029	0.07	0.11
TT-15b	106.50	282.00	175.50	1.68	0.047	0.21	0.19
	including 106.50	226.50	120.00	2.15	0.058	0.27	0.24
TT-16	21.00	237.00	216.00	0.87	0.032	0.20	0.14
	including 21.00	115.50	94.50	1.14	0.039	0.39	0.21
	including 49.50	97.50	48.00	1.66	0.056	0.24	0.21
TT-17b	150.20	233.90	83.70	0.91	0.029	0.17	0.20
	including 151.70	185.90	34.20	1.03	0.034	1.06	0.24
TT-17b	203.90	221.90	18.00	1.06	0.300	0.27	0.19
TT-18	25.80	281.60	255.80	1.00	0.032	0.27	0.18
	including 90.40	183.90	93.50	1.42	0.040	0.41	0.28
	including 109.90	183.90	74.00	1.55	0.041	0.32	0.27
TT-18	209.90	281.60	71.70	1.30	0.043	0.11	0.15
	including 227.90	281.60	53.70	1.56	0.051	0.14	0.18
TT-19	6.00	121.50	115.50	0.78	0.023	0.16	0.12
	including 6.00	30.30	24.30	2.13	0.037	0.23	0.23
TT-20	16.60	297.00	280.40	0.82	0.028	0.33	0.11
	including 25.30	45.30	20.00	1.42	0.043	1.23	0.31
TT-20	202.00	297.00	95.00	1.46	0.042	0.19	0.16
TT-21	9.00	153.70	144.70	0.84	0.027	0.23	0.16
	including 9.00	48.90	39.90	1.80	0.045	0.30	0.31
TT-21	104.40	125.40	21.00	0.87	0.028	0.40	0.34
TT-22	12.00	218.20	206.20	0.84	0.027	0.19	0.13
	including 12.00	66.70	54.70	1.67	0.045	0.32	0.30
TT-22	102.70	146.20	43.50	0.90	0.028	0.18	0.13
TT-23	29.00	153.00	124.00	1.03	0.043	0.37	0.21
	including 29.00	90.70	61.70	1.49	0.049	0.57	0.33
TT-24	26.80	144.30	117.50	1.26	0.043	0.38	0.24
	including 26.80	91.50	64.70	1.89	0.057	0.61	0.38

Note: drill intercepts do not represent true widths.

10.3 DRILLING PROCEDURES

Core drilling is collected twice a day, generally at drill crew shift changes, where the shifts core boxes are transported by helicopter long-line to the base camp. At the base camp, the core boxes are collected by a project geologist next to the core logging tent.

Diamond drill core is rough logged by a geologist or geotechnician and initially marked for major lithology changes and sample intervals; and inserts a sample tag at the 'from' position of the sample interval. Sample intervals are marked on 1.5 m sample intervals and lithological boundaries are respected. REM used a scintillometer on the drill core to determine the extent of mineralization where sampling should end within a mineralized lithology. Scintillometer readings were taken every three meters. Where scintillometer returned background readings (i.e. less 150 to 170 counts per second), shoulder samples were marked for collected beyond the mineralization.

Detailed logging of the core was carried out within the core logging and sampling tent. Drill core descriptions were inputted directly into an Excel spreadsheet and included information such as lithological description, core recovery, number of veins, measure of foliation, etc.

The drill core is sampled by pneumatic core splitter. The core was split in half, where one half was returned to the core box and one half placed in the sample bag. When a sample interval is completed, the duplicate sample tag is inserted into the bag and is sealed with a zip tie. The core splitter is cleaned by paint brush after every sample.

In both drill programs, in 2010 and 2011, REM used a series of blank, standard and quarter split (or field) duplicates in the sample preparation as part of their internal quality assurance and quality control (QA/QC). An alternating blank, standard or duplicate sample was inserted every ten samples.

During the 2010 drill program, REM used blank samples taken from a local quarry of limestone. Standard samples were prepared by and purchased from Canada Centre for Mineral and Energy Technology (Canmet) listed below.

OKA-1	Reference Niobium Ore
OKA-2	Reference REE Thorium Ore
FER-1	Reference Iron Ore

During the 2011 drill program, REM used two types of blank samples and four types of standard samples. The blank and standard samples were prepared by and purchased from Ore Research & Exploration Pty Ltd Of Bayswater, Australia, and are listed below.

Oreas 22c	Quartz blank sample
Oreas 23a	Granite blank sample
Oreas100a	Uranium bearing multi-element reference material
Oreas 101a	Uranium ore multi-element reference material
Oreas 101b	Uranium ore multi-element reference material
Oreas 146	REE Ore Reference Material

Sample bags are put into larger rice bags, approximately five samples per bag, are labeled with permanent marker and also sealed with a zip tie. The rice bags are then stored beside the core logging and sampling tent. Batches of core samples are then transported, by REM personnel, mainly once per week, to the Actlabs sample preparation laboratory in Happy Valley-Goose Bay. The drive is typically six hours by road.

Tetra Tech believes that the stated chain of custody and QA/QC procedures followed by REM attains a standard that meets or exceeds industry norms. It is the opinion of Tetra Tech that there are no factors, with regards to logging and sampling procedures that could materially impact the accuracy and reliability of the results. Tetra Tech is also of the opinion that the procedures followed by REM are adequate for this type of exploration and drilling program.

11.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

11.1 2010 PROSPECTING

All samples from the 2010 prospecting program were delivered by REM personnel to the Actlabs sample preparation facility in Happy Valley-Goose Bay. The samples were processed and representative pulps were sent for analysis to the Actlabs analytical facility in Ancaster, Ontario. A total digestion technique employing a lithium metaborate/tetraborate fusion and the inductively coupled plasma-mass spectrometry (ICP-MS) or ICP-optical emission spectrometry (ICP-OES) and X-ray fluorescence (XRF) methods were utilized.

Actlabs is an ISO 17025 (Lab 266) and NELAP (Lab E87979) accredited lab for specific registered tests

11.2 2010 AND 2011 DRILLING

Drill core samples from the 2010 and 2011 Two Tom drill programs were delivered daily from the drill sites to the exploration camp via helicopter. In the core shack, drill core was logged and samples were taken at geologically significant intervals, typically one and half metres. Core recovery was approximately 95%. The designated sample intervals were cut using a diamond saw or manual core splitter. One half of the core was selected for geochemical analysis with the remaining half being placed back into the core box. Care was taken to ensure that neither half of the core represented a bias with respect to the nature and mineral content of the sample. All core boxes are stored in on site at the base camp (Gebru et al. 2011).

Drill core samples from the 2010 and 2011 Two Tom drill programs were transported and delivered by REM personnel to the Actlabs sample preparation facility in Happy Valley-Goose Bay.

Samples were prepared by crushing the sample with up to 90% of the sample passing a 2 mm screen. The sample was riffle split and 250 g were taken and pulverized with hardened steel to 95% of the material passing a 105 µm screen.

After processing, representative pulps were sent to the Actlabs analytical facility in Ancaster, Ontario. Sample rejects are stored in a warehouse in Happy Valley-Goose Bay.

At the analytical laboratory, the sample aliquot undergoes a total digestion technique employing a lithium metaborate/tetraborate fusion. The analysis methods were performed by ICP, ICP-MS, ICP-OES and XRF methods. Elemental analyses according to analytical technique are listed in Table 11.1 and Table 11.2.

Niobium is analysed separately using X-ray Fluorescence Spectroscopy (XRFS) analysis. Results are presented as Nb_2O_5% with a detection limit of 0.003%.

Tetra Tech is of the opinion that the analytical laboratory and the analytical methods employed are adequate for this type of REE deposit.

Table 11.1 REE Assay Package Major Elements (Actlabs Code 8)

Element	Detection Limit (ppm)
Ag	0.5
As	5
Ba	3
Be	1
Bi	0.4
Ce	0.1
Co	1
Cr	20
Cs	0.5
Cu	10
Dy	0.1
Er	0.1
Eu	0.05
Ga	1
Gd	0.1
Ge	1
Hf	0.2
Ho	0.1
In	0.2
La	0.1
Lu	0.04
Mo	2
Nb	1

Element	Detection Limit (ppm)
Nd	0.1
Ni	20
Pb	5
Pr	0.05
Rb	2
Sb	0.5
Sc	1
Sm	0.1
Sn	1
Sr	2
Ta	0.1
Tb	0.1
Th	0.1
Tl	0.1
Tm	0.05
U	0.1
V	5
W	1
Y	2
Yb	0.1
Zn	30
Zr	4

Table 11.2 Whole Rock Analysis (Actlabs Code 4B WRA-ICP)

Oxide	Detection Limit (%)
SiO_2	0.01
Al_2O_3	0.01
Fe_2O_3(T)	0.01
MgO	0.01
MnO	0.001
CaO	0.01
TiO_2	0.001
Na_2O	0.01
K_2O	0.01
P_2O_5	0.01
Loss on Ignition (LOI)	0.01
Element	**Detection Limit (ppm)**
Ba	3
Be	1
Sc	1
Sr	2
V	5
Y	2
Zr	4

12.0 DATA VERIFICATION

12.1 DATABASE VERIFICATION

Tetra Tech performed an internal verification process of the Two Tom project database against the laboratory-issued assay certificates. The validation of the data was completed on nine of the drillholes, representing 975 of the 2,503 total assays, and therefore accounting for approximately 39% of the dataset. Holes included in the verification process are as follows: TT-01, TT-03, TT-09, TT-10, TT-13, TT-18, TT-20, and TT-21.

The data verification process examined certificate ID, sample number, and all elemental analyses. No sample number or assay value errors were discovered within the database; however the 84 samples taken from TT-13 were attributed to the incorrect assay certificate ID. For samples 988723 to 988815, the database entry listed the certificate as A11-6265final, whereas the results were actually within certificate A11-6809final. Corrections were made to the database and this represents 8.62% of the certificate id dataset set.

The drillhole data set was imported into the Gemcom GEMS™ program and validated. Validation checks for duplicate intervals, overlapping intervals, and intervals beyond the end of the hole. No errors were identified within the routine.

Tetra Tech also conducted verification on the calculated oxides of the REEs. All REOs were calculated from the assay values, given in parts per million (ppm), by multiplying by the molecular weight of the REE. There were no errors in the conversion of the REE in ppm to their associated oxides. Niobium was reported as Nb_2O_5 from Actlabs and did not require a conversion factor. Table 12.1 shows the conversion factors used in the database.

Table 12.1 List of Element to Oxide Conversion Factors

Element	Element Acronym	Common Oxides	Oxide Conversion Factor
Niobium	Nb	Nb_2O_5	1.431
Beryllium	Be	BeO	2.775
Thorium	Th	ThO_2	1.138
Lanthanum	La	La_2O_3	1.173
Cerium	Ce	Ce_2O_3	1.171
Praseodymium	Pr	Pr_2O_3	1.170
Neodymium	Nd	Nd_2O_3	1.166
Samarium	Sm	Sm_2O_3	1.160
Europium	Eu	Eu_2O_3	1.158
Gadolinium	Gd	Gd_2O_3	1.153
Terbium	Tb	Tb_2O_3	1.151
Dysprosium	Dy	Dy_2O_3	1.148
Holmium	Ho	Ho_2O_3	1.146
Erbium	Er	Er_2O_3	1.143
Thulium	Tm	Tm_2O_3	1.142
Ytterbium	Yb	Yb_2O_3	1.139
Lutetium	Lu	Lu_2O_3	1.137
Yttrium	Y	Y_2O_3	1.270

12.2 Site Visit, July 2011

The site visit was conducted by Mr. Paul Daigle, Senior Geologist for Tetra Tech, between July 17 and 20, 2011. Both the Project site and exploration camp were visited on July 19, 2011. Mr. Daigle was accompanied by Glen Penney, Project Geologist for REM.

Access to site was by regular scheduled flight to Happy Valley-Goose Bay. A helicopter was chartered out of Goose Bay to reach REM's base camp. On July 18, an attempt to reach the camp was made; however, due to inclement weather the attempt was aborted. On July 19, the author was flown to REM's base camp. Flight time was approximately 1.25 h.

The base camp is located at a gravel quarry on the Orma Lake Road, an access road maintained by the Churchill Falls hydro company for access to the Smallwood Reservoir. The camp is accessible by road and requires two hours to reach Churchill Falls and an additional four hours to Happy Valley-Goose Bay.

Drill Core Logging and Sampling

The drill core is logged and sampled at the base camp. A purpose designed tent has been set up with core logging tables and a core sampling area where the pneumatic core splitter is set up. The standards and blank reference materials are also stored in this facility.

Drill Core Storage

The drill core is stored at the base camp, in open boxes, on sturdy constructed core storage racks. The drill core boxes are in good condition and are still clearly labelled with aluminium tags.

Two Tom Project Site

The Two Tom Project site is located approximately 60 km northeast of the base camp and is only accessible by helicopter. The flight to the Project site is typically 15 to 20 minutes.

The project site is moderately to thickly-forested with low to moderate relief. The majority of the area is covered in caribou moss, and low shrubs. Low lying areas are generally water saturated and there are wetlands to the west of drillhole TT-18. The higher elevations are generally drier with gentle slopes and thin overburden. Rock exposure is minimal in areas of the Property.

The author recorded ground positioning satellite (GPS) coordinates of the three channel sampling sites and ten diamond drill sites. The site inspection was conducted during REM's 2011 drill program. At the time of the visit, 14 drillholes had been completed and the drill was drilling at TT-15b Tetra Tech's GPS coordinates correlated well with REM's drill coordinates within a tolerance of 6 to 12 m.

The drill collars were clearly located, with the steel casing left in the drillhole and capped with an aluminium threaded cap. The drill sites, from both the 2010 and 2011 drill programs, were found to be clean of debris.

12.3 Check Assay Samples

Independent check samples were collected during the site visit by Tetra Tech. Four samples were collected from the available drill core at the core storage site at REM's base camp.

The check sample intervals were selected randomly within the mineralized lithologies and spatially within the Two Tom deposit. The samples collected were from the same sample interval as REM's sample and taken by splitting the half core into quarters where one quarter was returned to the core box and the second quarter placed in a sample bag. The core splitting was supervised by Tetra Tech, placed in sample bags with a sample tag, labelled and sealed on site by Tetra Tech.

The samples were kept with the author at all times for the duration of the site visit and return to Toronto. Upon return to Toronto, the check samples were sent to ALS Canada Ltd. (ALS) in Sudbury, ON for analysis.

At ALS, sample preparation was by the same methods as Actlabs. The sample was crushed to up to 85% of the sample passing 2 mm screen, split and 250 g pulverized to 90% passing a 75 µm screen (ALS code PREP-31). Analysis was conducted using a fusion and ICP-MS analysis method (ALS code: ME-MS81). For niobium, an additional trace level XRF analysis was carried out (ALS code: ME-XRF05).

The purpose of the check sample assays are to confirm indications of mineralization are not intended as duplicate or QA/QC samples. Tetra Tech check sample analysis correlates well with REM's assay results for the same sample intervals. That is, where elevated assay results were expected in the REM samples, the Tetra Tech samples returned similarly elevated assays results.

Tetra Tech is of the opinion that the analytical results have been confirmed and that they are adequate for purposes of this technical report.

Results of the check assay sample analysis and corresponding sample analysis by REM are shown in Table 12.2 and Table 12.3.

Table 12.2 Summary of Check Samples Collected by Tetra Tech

Tetra Tech Sample No.	REM Sample No.	Drill Hole	Sample Interval (m)	Lithology
11140	421377	TT-04	100.5 – 102.0	Sheared Syenite
11141	421573	TT-07	147.5 – 149.0	Amphibole Gneiss
11142	421679	TT-09	110.0 – 111.5	Syenite
11143	988705	TT-13	110.5 – 112.0	Amphibole Gneiss

Table 12.3 Comparison of Assay Results for REEs

Tetra Tech Sample No.	Drillhole	Nb_2O_5%	Th	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Y
11140	TT-04	1.09	503	2400	4860	519	1790	376	43.8	281	28.7	108.0	13.2	22.2	2.2	8.9	0.9	379
11141	TT-07	0.19	592	2440	4740	497	1685	296	33.3	223	26.7	116.0	16.0	31.2	3.2	13.7	1.4	494
11142	TT-09	0.29	903	2190	5310	583	2040	405	41.4	241	21.2	70.4	7.6	11.4	1.0	3.1	0.3	245
11143	TT-13	0.30	821	3090	5970	617	2030	342	39.5	253	30.6	133.5	18.9	37.8	4.0	17.9	2.0	561
REM Sample No.																		
421377	TT-04	1.127	566	2310	4560	538	1870	377	36.9	244	24.4	88.0	10.1	18.3	1.8	8.2	0.9	345
421573	TT-07	0.192	717	2990	5710	632	2020	341	32.5	221	26.8	111.0	15.2	30.5	3.2	14.7	1.4	516
421679	TT-09	0.267	1050	2690	6180	679	2420	485	43.0	252	22.7	72.9	7.9	13.1	1.1	4.5	0.5	300
988705	TT-13	0.291	892	3500	6650	708	2310	387	38.6	256	30.9	130.0	18.6	40.5	4.4	20.5	2.4	567
Difference (ppm)	-	0.03%	63	-90	-300	19	80	1	-7	-37	-4	-20	-3	-4	0	-1	0	-34
	-	0.00%	125	550	970	135	335	45	-1	-2	0	-5	-1	-1	0	1	0	22
	-	-0.02%	147	500	870	96	380	80	2	11	2	3	0	2	0	1	0	55
	-	-0.01%	71	410	680	91	280	45	-1	3	0	-4	0	3	0	3	0	6
Difference (%)	-	3%	11%	-4%	-7%	4%	4%	0%	-19%	-15%	-18%	-23%	-30%	-21%	-22%	-9%	0%	-10%
	-	0%	17%	18%	17%	21%	17%	13%	-2%	-1%	0%	-5%	-5%	-2%	-2%	7%	-1%	4%
	-	-9%	14%	19%	14%	14%	16%	16%	4%	4%	7%	3%	4%	13%	17%	32%	33%	18%
	-	-2%	8%	12%	10%	13%	12%	12%	-2%	1%	1%	-3%	-1%	7%	7%	13%	17%	1%

Note: All assay values are in ppm unless otherwise stated.

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

In March 2011, test work on two composite REE samples from the Red Wine Property were conducted by SGS Mineral Services of Lakefield, Ontario via High Definition Mineralogy Analysis. The composite samples were taken from REM's Two Tom (sample name: Two Tom-01) and Mann #1 (sample name: Mann#1-4) Projects. A summary of the results of this test work is taken from SGS (2011) below.

It is not within the scope of this report to undergo a detailed review of the results of the mineralogical test work. Results with regards to metallurgical recoveries, summarized below, are preliminary in nature and were obtained prior to the 2011 drill program. The metallurgical recoveries were not applied to the current resource estimate.

13.1.1 *MODAL MINERALOGY*

The mineralogical examination of the samples was carried out with X-ray diffraction (XRD), QEMSCAN™, electron microprobe, electron microscopy and chemical analysis. The purpose of this test program was to determine the overall mineral assemblage and the liberation/association of the REE-bearing minerals.

Results from the testwork suggest that the LREEs and HREEs at the Two Tom deposit are concentrated in monazite and a cerium-calcium silicate. The main REE-bearing phases include:

- monazite (1.2%)
- cerium-calcium silicate (1.1%)
- niobophyllite (0.2%)
- pyrochlore (0.1%)
- barium silicate (3.2%)
- apatite (0.3%)
- synchysite/bastnäsite (0.2%)
- thorium-calcium silicate (0.2%)
- zircon (0.1%)

13.1.2 *ELEMENTAL DEPORTMENT*

The elemental distribution of several individual REEs (La, Ce, Pr, Nd, Sm, Dy, Y) are calculated based on the mineral mass per size fraction and average values from the electron microprobe analyses. It was found that monazite and cerium-calcium silicate hosts the majority of:

- La ~73% (~58% in monazite and 15% in the cerium-calcium silicates, respectively)
- Ce ~66% (~41% and 25%, respectively)
- Pr ~82% (~36% and 46%, respectively)
- Nd ~86% (~34% and 54%, respectively).

It also found that the cerium-calcium silicate hosts the majority of:

- Sm ~89%
- Gd ~90%
- Dy ~98%
- Y ~96%.

Pyrochlore and niobophyllite host the majority of the niobium (~48% and ~26%, respectively).

13.1.3 LIBERATION AND ASSOCIATION

MONAZITE LIBERATION AND ASSOCIATION FOR THE TWO TOM-01

Free and liberated monazite accounts for 36.8%. The main association of monazite is as complex particles (43.6%), middling particles with quartz/feldspars (9.7%) and other silicates (8.2%). Similarly to the monazite in the Mann#1-04 sample, free and liberated monazite is relatively low in the +25 µm fractions (<14%) and increase significantly in the -25 µm fraction at ~62%.

Free and liberated monazite occurs in greater abundance in the <50 µm size classes.

CERIUM-CALCIUM SILICATES LIBERATION AND ASSOCIATION FOR TWO TOM-01

Free and liberated cerium-calcium silicates account for 19.5%. The main association of cerium-calcium silicates is as complex particles (64.6%), middling particles with other silicates (7.0%) and quartz/feldspars (6.4%).

Free and liberated cerium-calcium silicates are below 13% in the +25 µm fractions and increase substantially only in the -25 µm fraction to ~35%. Most liberated cerium-calcium silicates occur below <50 µm.

Free and liberated Ba silicates occur in greater abundance in the <100 µm size classes.

Barium Silicates Liberation and Association for Two Tom-01

Free and liberated barium silicates account for 64.7%. The main association of Barium silicates is as complex particles (22.2%), middling particles with other silicates (6.7%) and quartz/feldspars (5.3%). Free and liberated barium silicates increase with decreasing particle size from 16% to ~76%.

Free and liberated barium silicates occur in greater abundance in the <100 µm size classes.

Niobophyllite Liberation and Association for Two Tom-01

Free and liberated niobophyllite accounts for 9.8%. The main association of niobophyllite is as complex particles (61.1%), and middling particles with other silicates (19.5%), other sulphides (3.1%) quartz/feldspars (3.0%). Liberation of niobophyllite increases to only 18% in the -25 µm fraction. Most of the liberated niobophyllite occurs in greater abundance below <50 µm.

13.1.4 Mineral Release

For the Two Tom-01, liberation of the monazite ranges from 3 to 14% to 9 to 62% for 381 µm, 106 µm, 43 µm to 9 µm, respectively; that for cerium-calcium silicates from nil to 2% to 13 to 35%; barium silicates from 16 to 50% to 65 to 76%, niobophyllite from nil to 2 to 6% to 18%; thorium-calcium silicates from nil in the two coarse fractions to 15 to 10%, for the same sizes, respectively.

13.1.5 Grade Recovery

Monazite

The grade recovery curve representing the whole Two Tom-01 sample indicates monazite grades between 96% and 68% for monazite recoveries of 30 to 68%, respectively. The best grades and recoveries are projected for the finest fraction (-25 µm), at 97 to 79% monazite grades and 50 to 86% monazite recoveries, respectively.

Cercium-Calcium Silicates

The grade recovery curve representing the Two Tom-01 sample indicates cerium-calcium silicate grades between 89% and 47% for cerium-calcium silicate recoveries of 4 to 64%, respectively. The best grades and recoveries are projected for the finest fraction (-25 µm), at 92 to 51%.

14.0 MINERAL RESOURCE ESTIMATES

This section discloses a new resource estimate for the Two Tom REE deposit, prepared in accordance with the CIM Best Practices and disclosed in accordance with NI 43-101. The effective date of this resource estimate is December 10, 2011.

This resource estimate has been prepared using two interpreted domains. A cut-off grade of 0.6 TREO% was chosen for the REE deposit resource estimate based on cut-off grades from comparable REE deposits, specifically that of the B zone REE deposit, in the Strange Lake area. Tetra Tech considers this TREO% cut-off to be reasonable.

14.1.1 DATABASE

REM supplied all of the digital data for the resource estimate update. This data was compiled from the assay analyses, which came directly to REM from ALS Laboratories in Microsoft Excel® format. The data was verified and imported into Gemcom GEMS™ version 6.3.0.1 Resource Evaluation Edition.

The entire drillhole dataset included the header, survey, assay and lithology files for 24 drillholes totalling 5,518.65 m of diamond drilling; and four channel samples totalling 38.20 m and consists of 2,666 assay values. Out of the 24 drillholes, 23 drillholes intersect the mineralized deposit were used for the resource estimate, as well as the four trenches. The dataset used for the resource estimate consisted of 2,637 assay values that intersect the mineralized deposit.

A manual check on the database was made on new drill data from the 2011 drill program to search for obvious errors, such as negative values and overlapping sample intervals, prior to statistical treatments. No errors were found in the database.

14.1.2 SPECIFIC GRAVITY

REM conducted bulk density measurements on six lithology types from 17 drillholes, where two of the lithology types were grouped together. A total of 1404 readings were recorded and range from 2.44 to 3.35 g/cm^3. The density values were recorded into specific sample intervals that coincided with the sample intervals and were imported into the GEMS database and were assigned to one of the two domains of the Two Tom deposit. Densities were estimated into the blocks by Inverse Distance Squared (ID) into the block model. Overall, the SG values range from 2.20 to 3.08 g/cm^3.

14.2 EXPLORATORY DATA ANALYSIS

Exploratory data analysis is the application of various statistical tools to explain the characteristics of the data set. In this case, the objective is to understand the population distribution of the grade elements through the use of such tools as histograms, descriptive statistics and probability plots.

14.2.1 RAW ASSAYS

Raw assay statistics for the grades which intersect the deposit are shown in Table 14.1. Only those values greater than zero were used in the statistical analysis. A summary of descriptive statistics for all metals by domain may be found in Appendix B.

Table 14.1 Raw Assay Statistics (No Zeroes) for TREO% and Metal Oxides

	Length	TREO%	Nb_2O_5%	BeO%	ThO_2%
Count	2647	2647	2647	2645	2645
Minimum	0.400	0.002	0.001	0.000	0.001
Maximum	6.000	3.804	2.507	1.423	1.959
Mean	1.522	0.227	0.144	0.049	0.215
Standard Deviation	0.188	0.302	0.166	0.064	0.212
Variance	0.035	0.091	0.027	0.004	0.045
Coefficient of Variance	0.124	1.333	1.154	1.300	0.988

Table 14.2 Summary of Raw Assay Statistics for the REOs; All Lithologies

	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
Count	2645	2645	2645	2645	2645	2644	2645	2645	2645	2645	2645	2645	2645	2644	2645
Minimum	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	1.959	3.209	0.296	0.837	0.159	0.013	0.077	0.007	0.026	0.005	0.013	0.002	0.009	0.001	0.169
Mean	0.215	0.411	0.043	0.145	0.025	0.002	0.015	0.002	0.006	0.001	0.002	0.000	0.001	0.000	0.031
Standard Deviation	0.212	0.377	0.038	0.122	0.020	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.022
Variance	0.045	0.142	0.001	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coefficient of Variance	0.988	0.917	0.881	0.841	0.782	0.754	0.747	0.717	0.703	0.698	0.694	0.710	0.706	0.721	0.699

Table 14.3 Summary of Raw Assay Statistics for Syenite Porphyry Lithologies; Rock Codes 100, 101, 102, 103, 104, 111 and 112

	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
Count	1772	1772	1772	1772	1772	1771	1772	1772	1772	1772	1772	1772	1772	1772	1772
Minimum	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	1.959	3.209	0.296	0.837	0.159	0.013	0.077	0.007	0.026	0.005	0.013	0.002	0.009	0.001	0.169
Mean	0.150	0.298	0.032	0.109	0.020	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.024
Standard Deviation	0.190	0.340	0.034	0.112	0.019	0.002	0.011	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.019
Variance	0.036	0.116	0.001	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coefficient of Variance	1.260	1.142	1.085	1.025	0.938	0.888	0.884	0.830	0.794	0.774	0.772	0.799	0.788	0.798	0.784

Table 14.4 Summary of Raw Assay Statistics for Amphibole Gneiss Lithologies; Rock Codes 401, 402, and 403

	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
Count	792	792	792	792	792	792	792	792	792	792	792	792	792	791	792
Minimum	0.015	0.029	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.006
Maximum	0.972	1.557	0.166	0.587	0.130	0.012	0.069	0.006	0.022	0.004	0.009	0.001	0.005	0.001	0.122
Mean	0.378	0.698	0.071	0.236	0.039	0.004	0.024	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
Standard Deviation	0.176	0.302	0.030	0.094	0.015	0.001	0.009	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.019
Variance	0.031	0.091	0.001	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Coefficient of Variance	0.465	0.433	0.416	0.396	0.387	0.372	0.367	0.359	0.365	0.389	0.410	0.445	0.462	0.479	0.379

14.2.2 CAPPING

Cumulative probability plots and descriptive statistics were used to assess the need for capping of metal oxide and REO assays. Typically, a step-change in the profile or a separation of the data points is present if there are different populations in the dataset. High value outliers will show up in the last few percent of a cumulative probability plot (typically in the 97 to 100% range) and the break in the probability distribution may be selected to set a capping level.

Figure 14.1 and Figure 14.3 show examples of the histogram and cumulative frequency plots for the raw uncapped Nb_2O_5% and La_2O_3% data for all lithologies.

Figure 14.1 and Figure 14.3 show examples of the histogram and cumulative frequency plots for the raw uncapped Nb_2O_5% data for the syenite porphyry lithologies and amphibole gneiss lithologies respectively. Figure 14.2 and Figure 14.4 show examples of the histogram and cumulative frequency plots for the raw uncapped La_2O_3% data for the syenite porphyry lithologies and amphibole gneiss lithologies respectively.

Histogram and cumulative frequency plots for all metal oxides may be found in Appendix C.

Figure 14.1 Histogram and Cumulative Probability Plots for Nb_2O_5% (Rock Code 100 series)

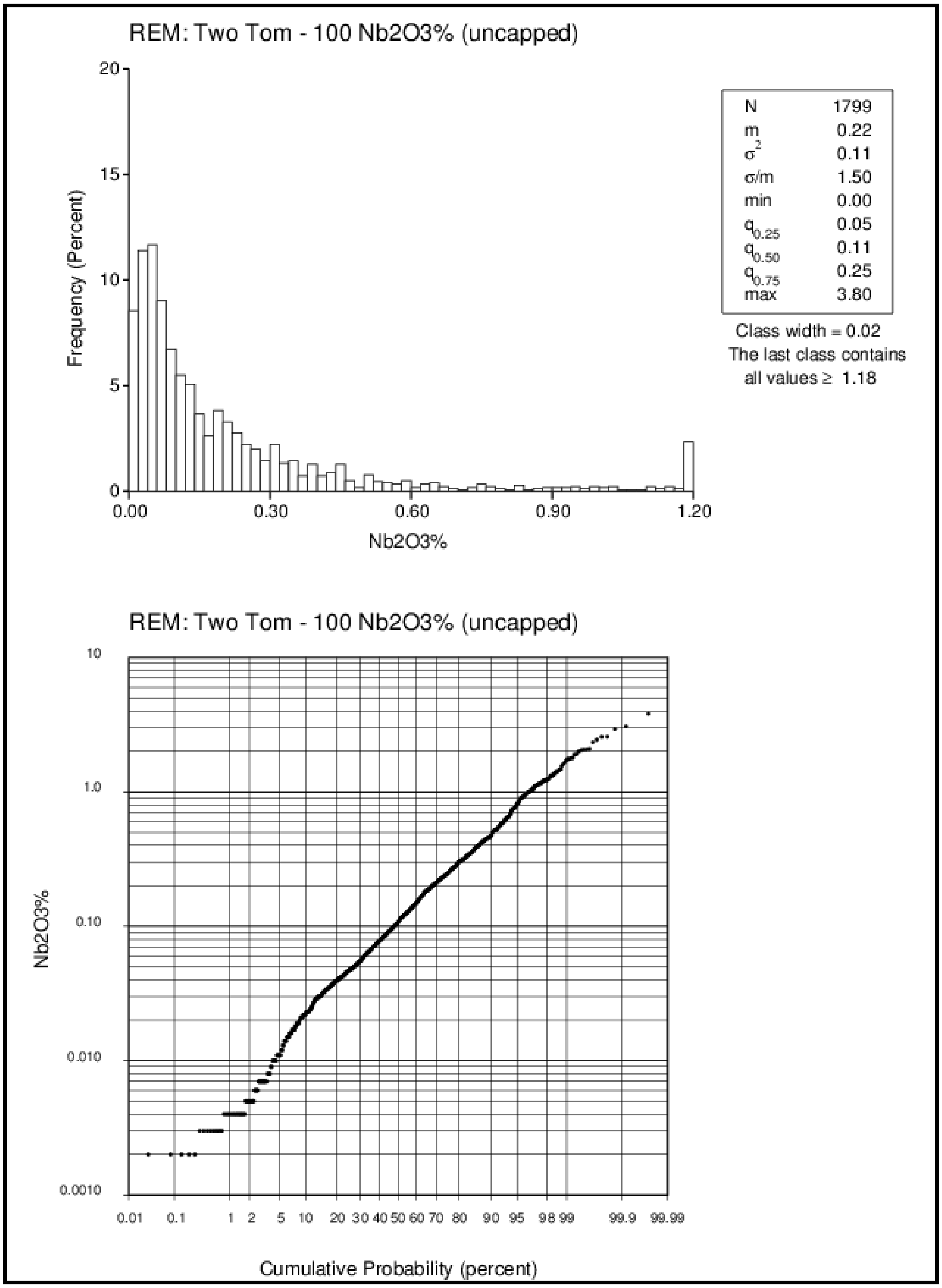
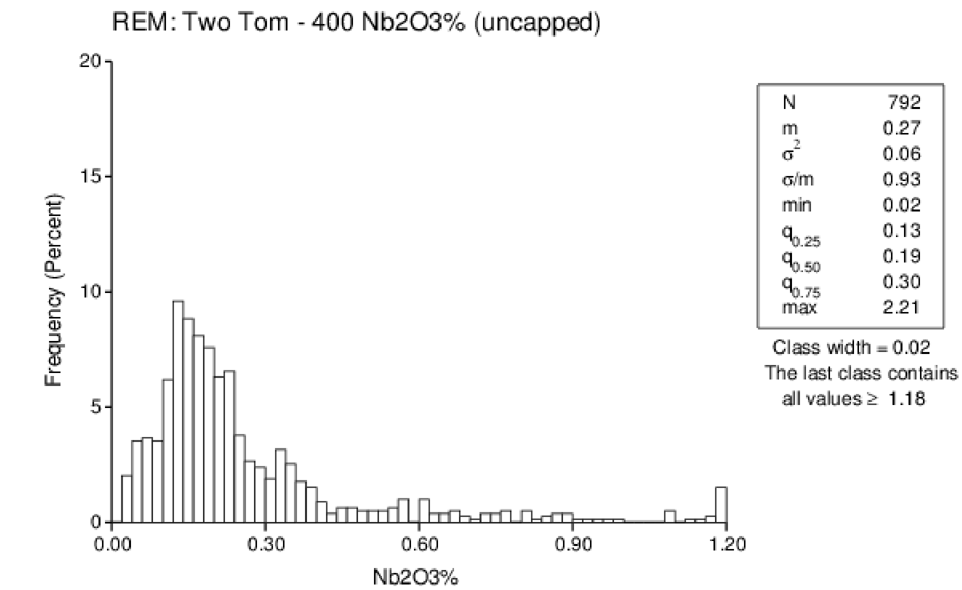


Figure 14.2 Histogram and Cumulative Probability Plots for Nb_2O_5% (Rock Code 400 series)



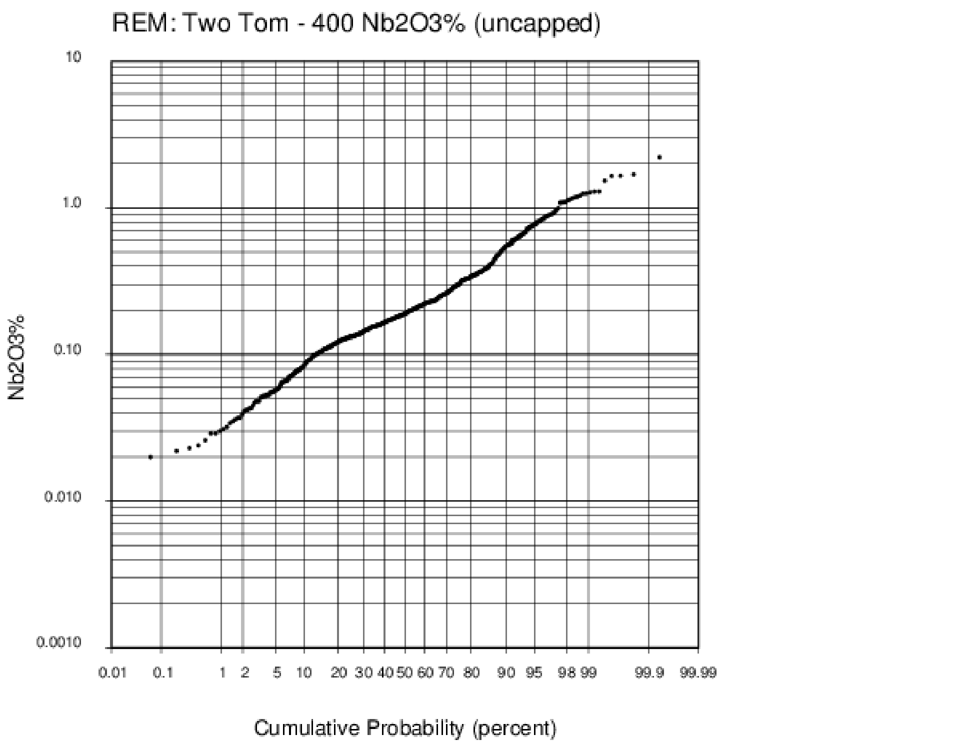


Figure 14.3 Histogram and Cumulative Probability Plot for La_2O_3% (Rock Code 100 series)

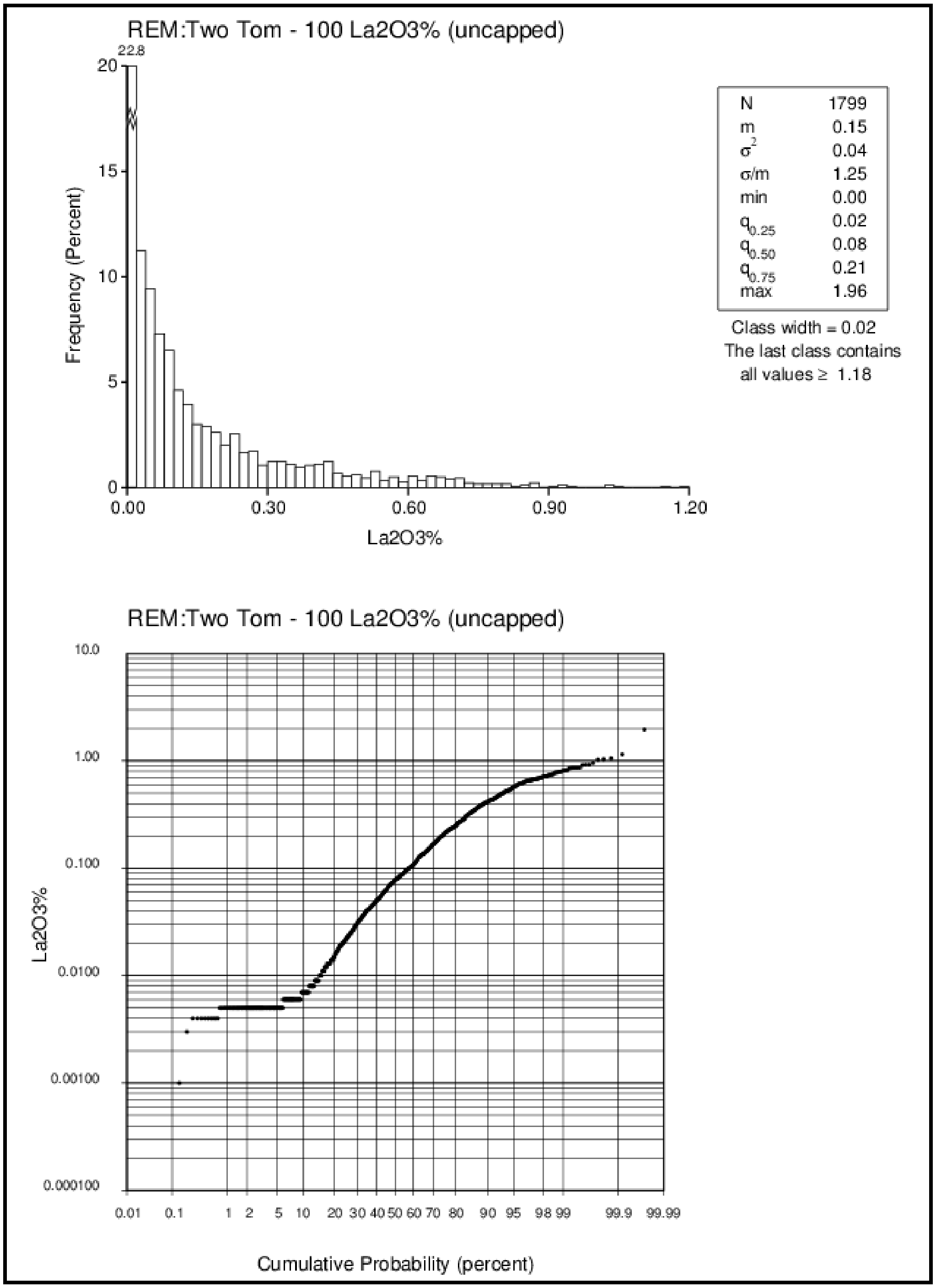
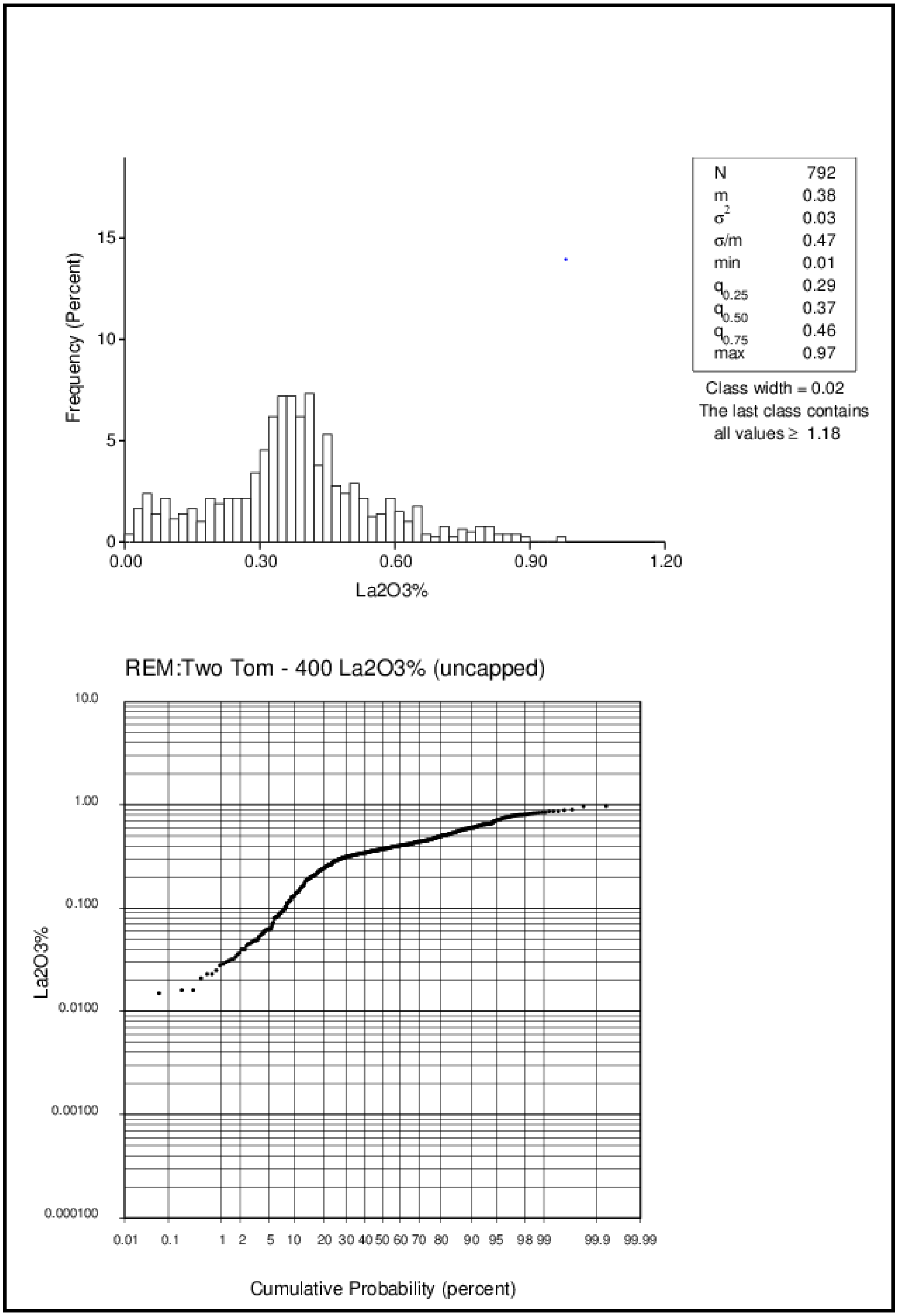


Figure 14.4 Histogram and Cumulative Probability Plot for La_2O_3% (Rock Code 400 series)



Assay data for the REOs and the metal oxides were analyzed by syenite porphyry and amphibole gneiss lithology groups (rock code series 100 and 400) and examined separately. Capping values were assessed for Nb_2O_5%, BeO, ThO_2, U_3O_8 and the 15 REOs for the two lithological groups. Table 14.5 below summarizes the capping levels for each metal oxide by lithology group and the number of affected assay values.

Table 14.5 Summary of Capping Levels

Oxide or Element	Syenite Porphyry		Amphibole Gneiss	
	Capped Value	Number of Assay Values Capped	Capped Value	Number of Assay Values Capped
Nb_2O_5%	2.10	7	1.30	5
BeO%	0.90	6	0.80	4
ThO_2%	0.45	11	0.20	3
U_3O_8%	-	-	-	-
La_2O_3%	1.00	10	0.90	2
Ce_2O_3%	1.60	7	1.50	4
Pr_2O_3%	0.17	3	0.15	3
Nd_2O_3%	0.52	5	0.50	4
Sm_2O_3%	0.09	6	0.09	6
Eu_2O_3%	0.009	5	0.008	6
Gd_2O_3%	0.052	5	0.048	6
Tb_2O_3%	-	-	-	-
Dy_2O_3%	0.02	4	-	-
Ho_2O_3%	-	-	-	-
Er_2O_3%	-	-	-	-
Tm_2O_3%	-	-	-	-
Yb_2O_3%	-	-	-	-
Lu_2O_3%	-	-	-	-
Y_2O_3%	0.09	6	0.1	3

Note: '-' indicates no capping applied

For comparison of the overall effect of capping of raw data, Table 14.6 shows statistical comparison on the raw and capped data for La_2O_3%, for the entire dataset used in the resource estimate and by domain. A summary of descriptive statistics for all capped REO and metal oxide data may be found in Appendix D.

Table 14.6 Comparison of Capped and Uncapped Nb_2O_5% and La_2O_3%

	Nb_2O_5% Uncapped	Nb_2O_5% Capped	La_2O_3% Uncapped	La_2O_3% Capped
All Lithologies				
Count	2647	2647	2645	2645
Minimum	0.002	0.002	0.001	0.001
Maximum	3.804	2.100	1.959	1.000
Mean	0.227	0.224	0.215	0.214
Variance	0.302	0.283	0.212	0.210
Standard Deviation	0.091	0.080	0.045	0.044
Coefficient of Variance	1.333	1.263	0.988	0.978
Syenite Porphyry				
Count	1774	1774	1772	1772
Minimum	0.002	0.002	0.001	0.001
Maximum	3.804	2.100	1.959	1.000
Mean	0.218	0.215	0.150	0.150
Variance	0.327	0.306	0.190	0.185
Standard Deviation	0.107	0.093	0.036	0.034
Coefficient of Variance	1.503	1.423	1.260	1.235
Amphibole Gneiss				
Count	792	792	792	792
Minimum	0.020	0.020	0.015	0.015
Maximum	2.210	1.300	0.972	0.900
Mean	0.266	0.263	0.378	0.378
Variance	0.246	0.230	0.176	0.175
Standard Deviation	0.061	0.053	0.031	0.031
Coefficient of Variance	0.926	0.877	0.465	0.464

14.2.3 COMPOSITES

In the Gemcom GEMS™ project, the table "3MCOMP", and the point area "3mComps" were created for composited point data that includes both capped and raw 3.0 m composite data.

Table 14.7 shows the descriptive statistics for the assay sample lengths of the entire raw data set for the Two Tom deposit. It was decided that a 3.0 m composite length would maintain a sufficient sample population for estimating the block model.

Table 14.7 Statistics on the Assay Sample Lengths of the Raw Data

	Count	Minimum	Maximum	Average	Standard Deviation
Length (m)	2647	0.40	6.00	1.52	0.19

A total of 1,125 composite samples were created constrained to the solid intersections of the two domains as described in Section 14.3 below. A total of 421 composites lie within the north domain and 704 in the south domain. All composited data was used in the interpolation of the Two Tom deposit.

As an example for comparison of the overall effect of capping levels, Table 14.8 shows statistical comparison for the 3.0 m composites on the all raw and capped data for La_2O_3% and Nb_2O_5%, and by mineralized lithology. A detailed list of the raw and capped 3.0 m composite data is found in Appendix E.

Table 14.8 Comparison of Capped and Uncapped Nb_2O_5% and La_2O_3% 3.0 m Composite Data

	Nb_2O_5% Uncapped	Nb_2O_5% Capped	La_2O_3% Uncapped	La_2O_3% Capped
All Lithologies				
Count	1125	1125	1125	1125
Minimum	0.005	0.005	0.002	0.002
Maximum	2.336	1.833	1.410	0.966
Mean	0.247	0.245	0.248	0.247
Variance	0.069	0.064	0.041	0.040
Standard Deviation	0.263	0.253	0.202	0.199
Coefficient of Variance	1.064	1.034	0.815	0.807
Syenite Porphyry				
Count	711	711	711	711
Minimum	0.005	0.005	0.002	0.002
Maximum	2.336	1.833	1.410	0.966
Mean	0.241	0.239	0.180	0.179
Variance	0.290	0.281	0.187	0.182
Standard Deviation	0.084	0.079	0.035	0.033
Coefficient of Variance	1.205	1.175	1.040	1.021
Amphibole Gneiss				
Count	398	398	398	398
Minimum	0.022	0.022	0.016	0.016
Maximum	1.421	1.246	0.862	0.862
Mean	0.266	0.263	0.378	0.378
Variance	0.205	0.195	0.160	0.160
Standard Deviation	0.042	0.038	0.026	0.026
Coefficient of Variance	0.772	0.739	0.424	0.423

14.3 GEOLOGICAL INTERPRETATION

Interpretation of the Two Tom REE deposit, based on current drill data, appears to have the form of an arc. The interpreted mineralization forms an arc extending to the northwest and to the south-southeast along a trend approximately 1,100 m along strike. The mineralized lithological units appear confined mainly to the syenite porphyry and amphibole gneiss. Both units appear to have a moderate to steep dip to the east-northeast.

Drilling to date appears to have outlined two main domains of the mineralization; one in the north and one to the south. The mineralization in the north domain is almost entirely contributed by the syenite porphyry. The drillhole fences are 100 m apart but show a strong continuity over 300 m. Moving to the east, the syenite porphyry is lost in the subsequent drill fence (TT-06 and TT-09), however, another REE mineralized body appears farther down dip. There is currently not enough data to show a continuity of the mineralization from the north to the south domain. The south domain appears to contain both mineralized syenite porphyry and amphibole gneiss lithologies and shows an inferred continuity over a length of 900 m.

Within these to domains, and over the wide drill sections, the mineralization appears varied between lithologies. It was decided that a gradeshell of 0.5 TREO% was the best method to capture and constrain the mineralized lithologies within these two domains. Three-dimensional (3D) polylines were created perpendicular to the trend of both domains and connected by tielines to create the north and south domains. An area of influence of up to 50 m from the drillhole was applied in creating the gradeshells.

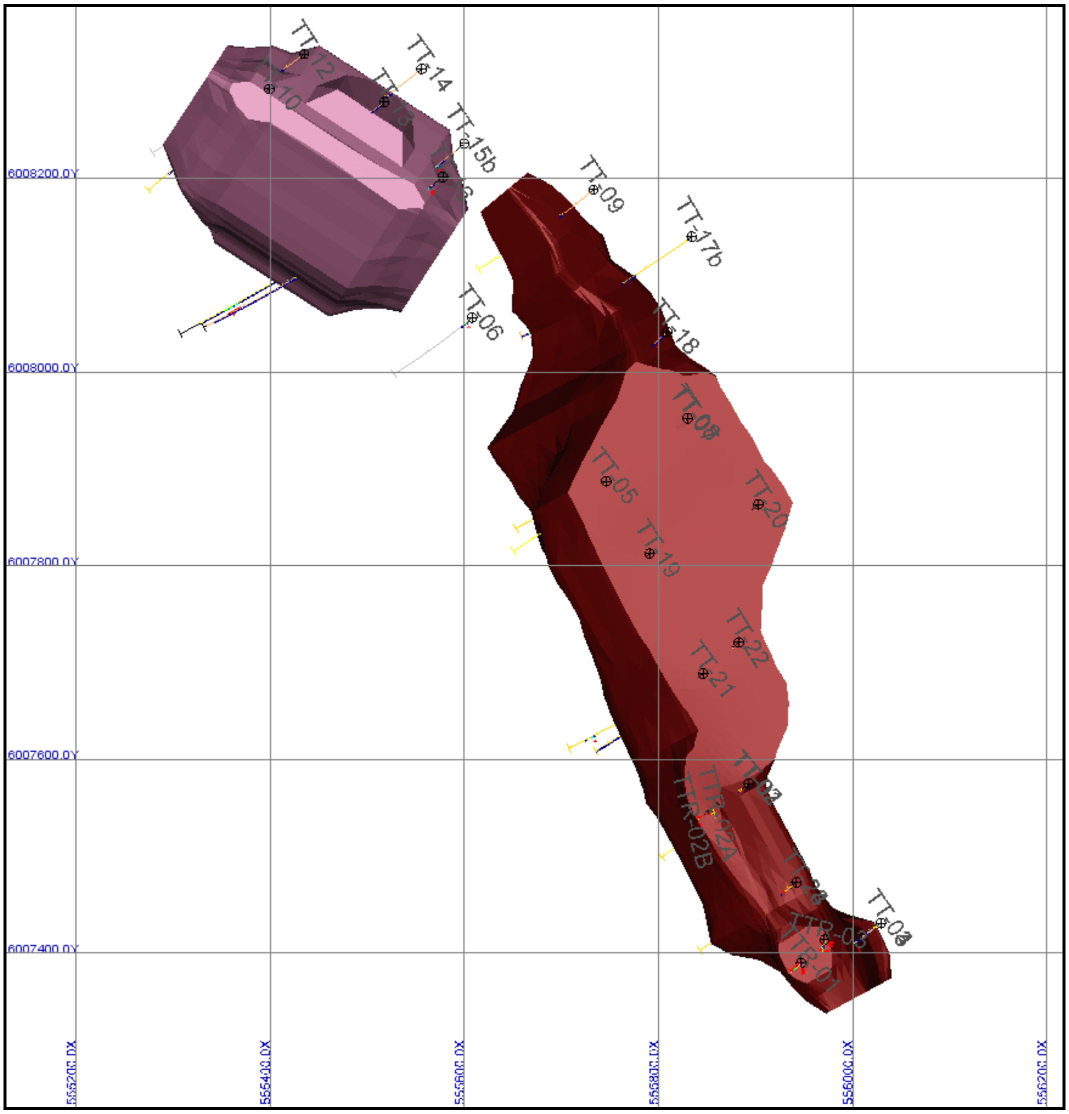
Rock codes were established for the main lithologies and the two domains. All rock codes and domain codes are summarized in Table 14.9

Table 14.9 List of Rock Codes and Wireframe Codes

Description	Rock Code	Rock Type	Domain
Air	AIR	0	
Water	WATER	1	
Syenite Porphyry	1SY-P	101	
Sheared Syenite Porphyry	1SY-P-S	102	
Syenite	1SY	103	
Microsyenite	1SY-M	104	
Muscovite (sericite) Schist / Sericitized Syenite Porphyry	1MS	111	
Actinolitic Amphibole Schist	1AAS	112	
Amphibole Schist	3AS	301	
Biotite Schist with amph/pyxn layers	3BS	302	
Biotite Amphibole Schist	3BAS	311	
Sheared and Altered Syenite Porphyry	4SYP	401	
Amphibole Gneiss	4AG	402	
Banded Amphibole Gneiss	4BAG	403	
Feldspar Quartz Porphyry	7FQP	701	
Northwest Domain		GS_N	4001
South Domain		GS_S	4002

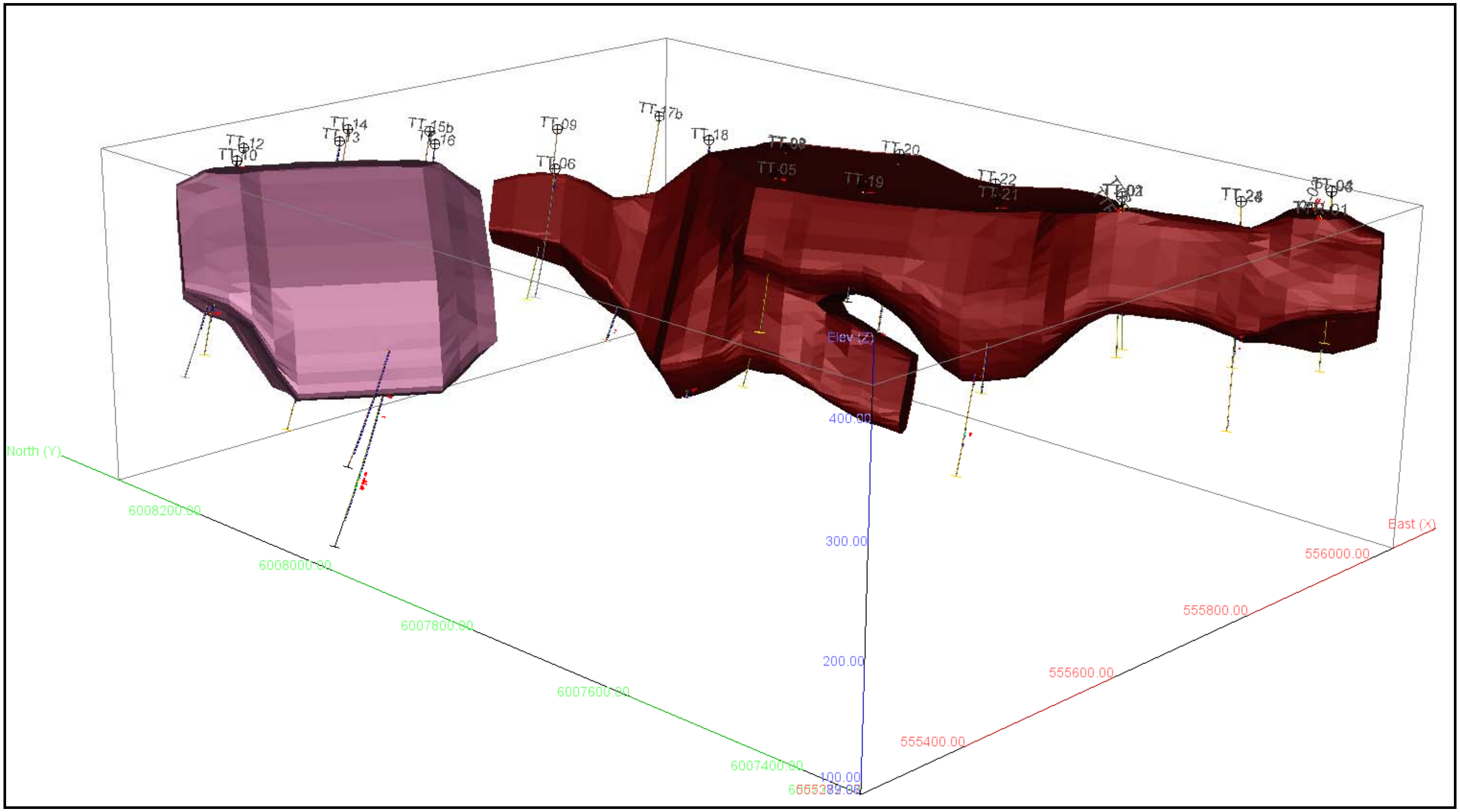
Figure 14.5 and Table 14.6 illustrate the north and south domain wireframes.

Figure 14.5 Plan View of Two Tom Wireframes - North and South Domains



Note: Plan View; each square represents 200 m x 200 m.

Figure 14.6 Perspective View of the Two Tom Deposit; Looking Northeast; North and South Domain; No Scale



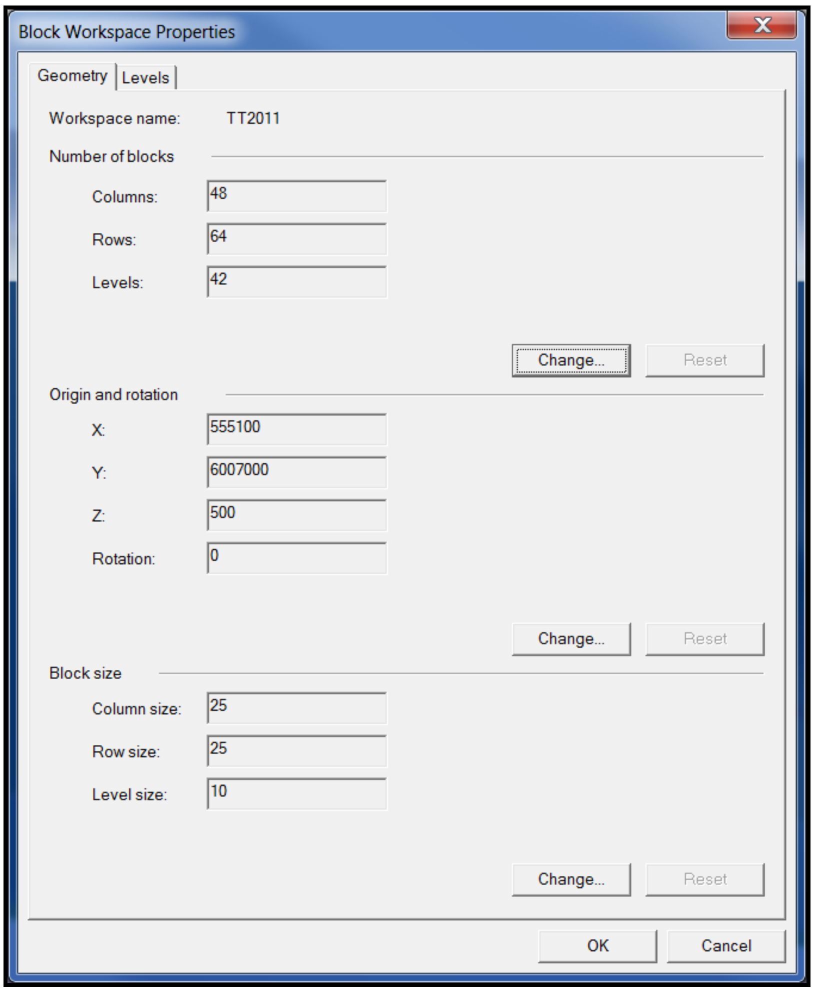
14.4 Block Model

A single block model was created to cover the interpreted Two Tom deposit. Table 14.10 and Figure 14.8 shows the Gemcom GEMS™ coordinates for the block model origins. A block size of 25 m x 25 m x 10 m was used for block model and resource estimate. The block size is considered reasonable where distances between drill fences are approximately 100 m.

Table 14.10 Block Coordinates for the Two Tom Block Model

	Minimum	Maximum	Number
Easting	555100	556300	48 columns
Northing	6007000	6008600	64 rows
Elevation	80	500	42 levels

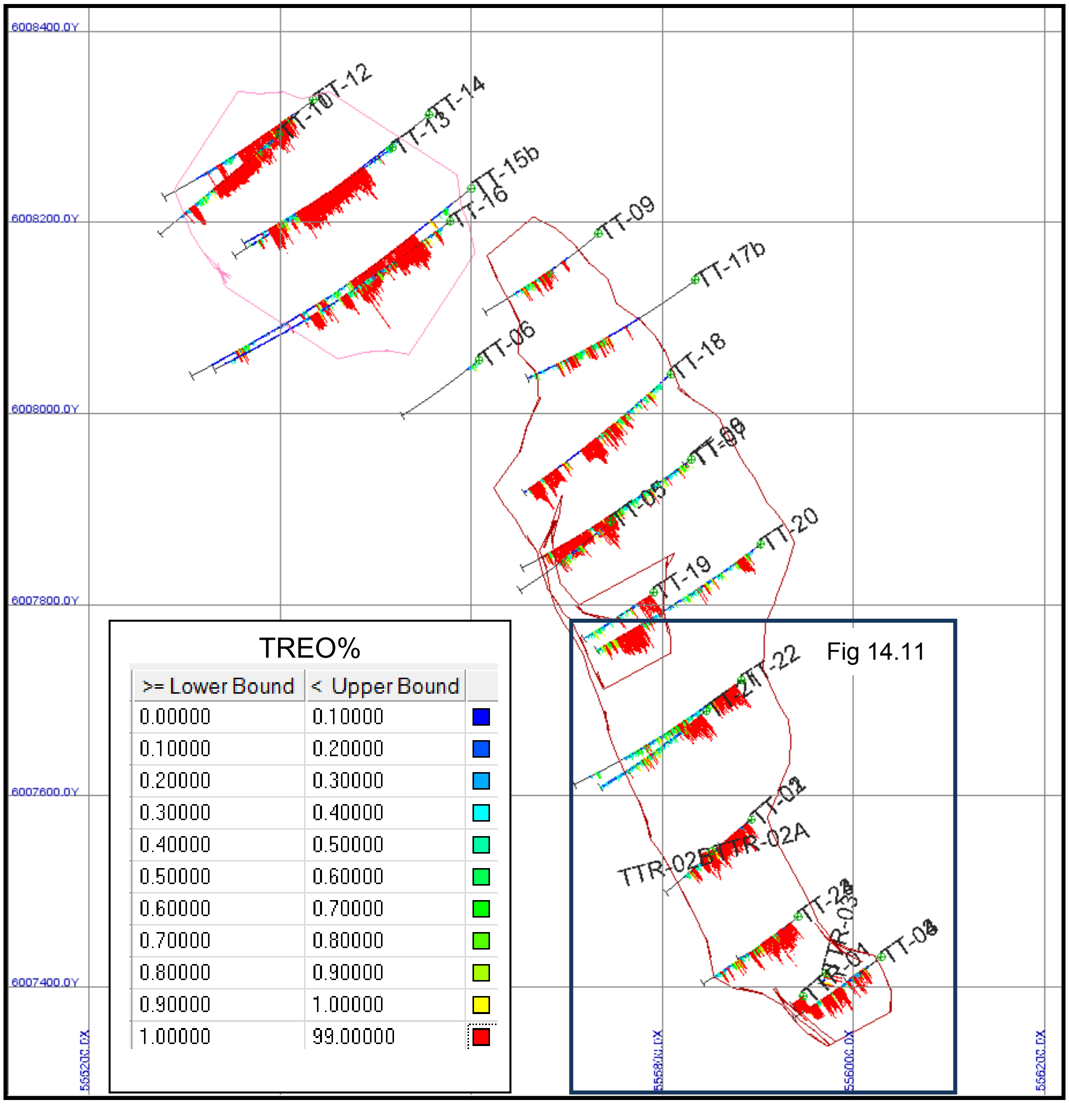
Figure 14.7 Block Model Origin for the Two Tom Block Model



Drill spacing varies between 35 to 200 m. The spacing between drill fences is nominally 100 m. Drillholes along the drill fences vary from approximately 50 m to approximately 100 m. In one instance, between TT-09 to TT-15b, does the spacing reach 140 m.

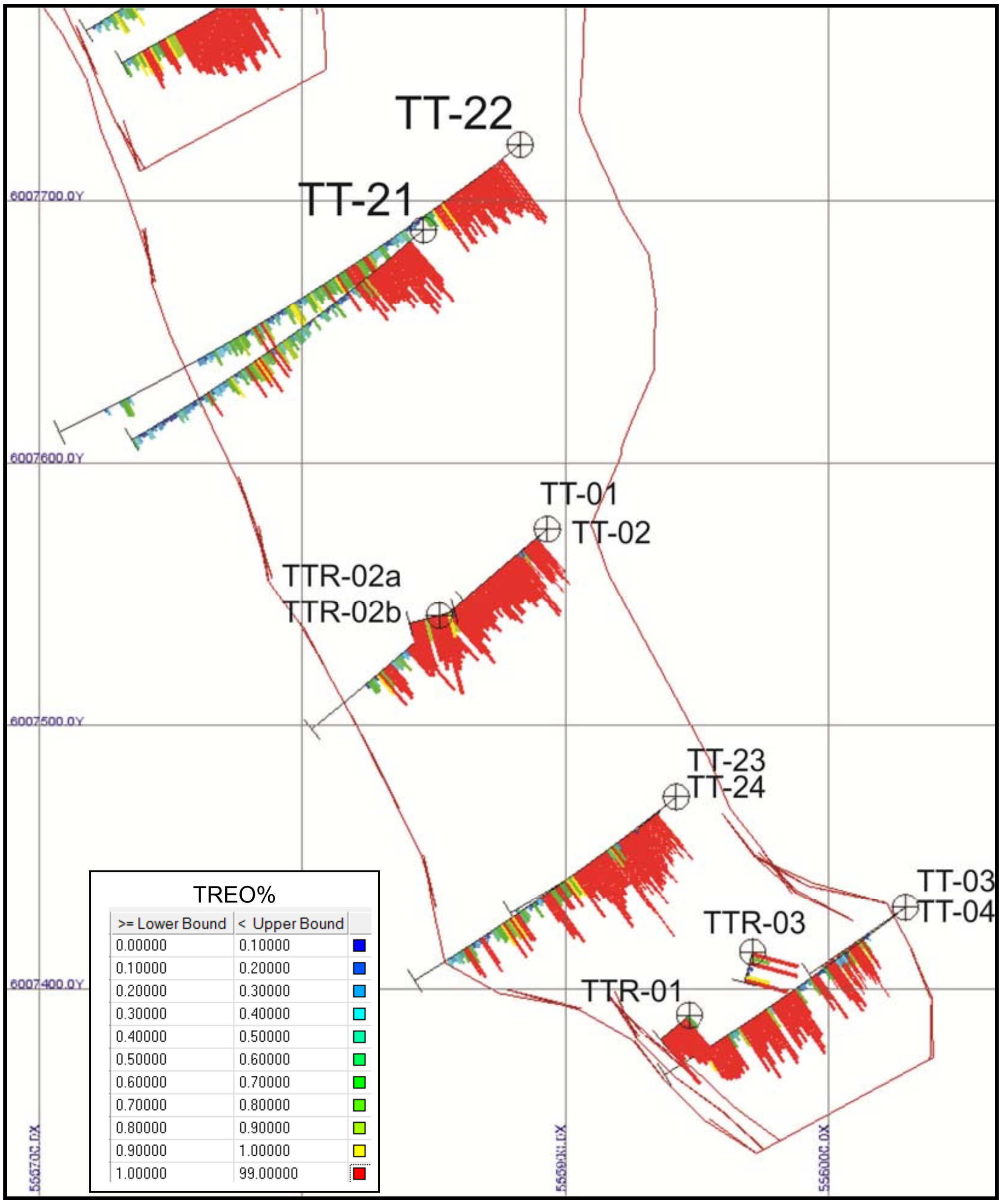
Drillhole and trench samples are shown in Figure 14.8 and Figure 14.9 respectively.

Figure 14.8 Drillhole Location in the Two Tom Deposit; Plan View



Note: Lines are 200 m x 200 m; North is up.

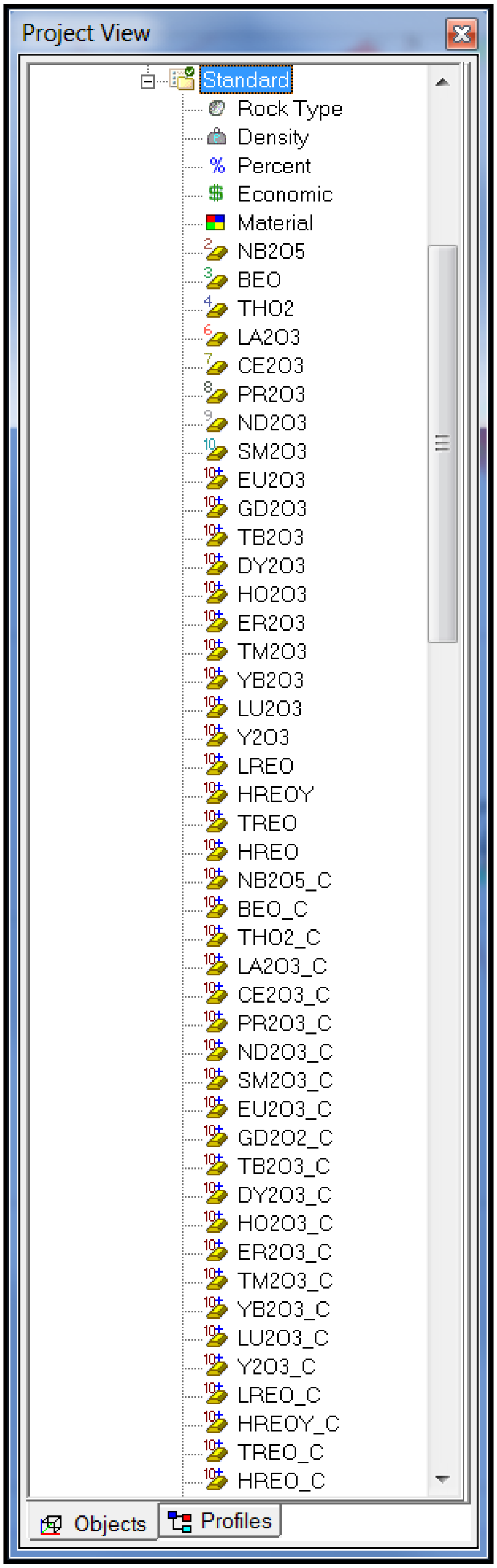
Figure 14.9 Drillhole and Trench Location in the Two Tom Deposit; Plan View



Note: Lines are 100 m x 100 m; North is up.

The attributes in the block model folder were created for the 18, capped and uncapped, metal oxide grades for the Two Tom resource estimate are shown in Figure 14.10.

Figure 14.10 Block Model Attributes for the Two Tom Deposit Resource Estimate



14.4.1 VARIOGRAPHY

Samples used for variography are a function of geological interpretation. All composite data within the two domains were used determining variograms. The data between individual LREOs and HREOs correlate well and variograms were determined for these two groups of REOs. Due to a lack of correlation of the Nb_2O_5, ThO_2, BeO to the REOs, variograms for each of these three associated metal oxides were determined separately. Variograms were established using all the 3.0 m composite samples and used for the two interpreted domains.

The variography was generated using Datamine Studio 3 software. The composited drillhole data was exported from Gemcom GEMS™ as a text file (.csv format) and imported into Datamine Studio 3. Down hole variograms, using a lag distance equal to the composite length, were created for each element group.

Since the distance between drillholes is variable, between 40 and 180 m, lag distances of 20 m were used in determining experimental variograms to capture the data along strike of the deposit. The ranges of the experimental variograms appear to reach the sill at approximately 40 to 100 m.

Experimental variography was subsequently used to calculate best-fit modeled variography. One or two spherical structures were used for spatial modelling and orientations for each grade group and were customized to Gemcom GEMS™ requirements. Modeled variography results were exported from Datamine Studio 3 as a report file and ellipses of the model variogram directions were exported in .dxf format for visual reference and are presented in Appendix F. Table 14.11 shows which variogram profile was used for each metal oxide.

Table 14.11 Variogram Parameter Profiles

Profile Name	Metal Oxides
4001_LR	La_2O_3, Ce_2O_3, Pr_2O_3, Nd_2O_3, Sm_2O_3
4001_HR	Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3
4001_NB	Nb_2O_5
4001_TH	ThO_2
4001_BE	BeO
4002_LR	La_2O_3, Ce_2O_3, Pr_2O_3, Nd_2O_3, Sm_2O_3
4002_HR	Eu_2O_3, Gd_2O_3, Tb_2O_3, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3
4001_NB	Nb_2O_5
4002_TH	ThO_2
4002_BE	BeO

14.4.2 VARIOGRAPHY PARAMETERS

In Gemcom GEMS™, the convention used for variography parameters for Kriging profiles is right hand in the Z direction, right hand in the X direction and right hand rotation in the Z direction. Table 14.12 to Table 14.17 summarizes the variography parameters used for OK interpolation for each group of metal oxides.

Table 14.12 Variography Parameters LREO% by Domain

Profile Name	Sill =0.887	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
Domain 4001 (GS_S)									
C0 (nugget)	0.075	-	-	-	-	-	-	-	-
C1	0.406	Rotation ZXZ	-60	-60	0	33.0	50.0	67.0	Spherical
C2	0.406	Rotation ZXZ	-60	-60	0	67	100	133	Spherical
Domain 4002 (GS_N)									
C0 (nugget)	0.020	-	-	-	-	-	-	-	-
C1	0.886	Rotation ZXZ	-30	-50	0	34	34	34	Spherical
C2	0.094	Rotation ZXZ	-30	-50	0	66	66	66	Spherical

Table 14.13 Variography Parameters for HREO% by Domain

Profile Name	Sill =1	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
Domain 4001 (GS_S)									
C0 (nugget)	0.040	-	-	-	-	-	-	-	-
	0.188	Rotation ZXZ	-60	-60	0	86	44	10	Spherical
	0.772	Rotation ZXZ	-60	-60	0	199	60	108	Spherical
Domain 4002 (GS_N)									
C0 (nugget)	0.030	-	-	-	-	-	-	-	-
C1	0.730	Rotation ZXZ	-30	-50	0	32	32	32	Spherical
C2	0.240	Rotation ZXZ	-30	-50	0	49	49	49	Spherical

Table 14.14 Variography Parameters for Nb_2O_5 by Domain

Profile Name	Sill =1	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
Domain 4001 (GS_S)									
C0 (nugget)	0.12	-	-	-	-	-	-	-	-
	0.55	Rotation ZXZ	-60	-60	0	86	44	10	Spherical
	0.33	Rotation ZXZ	-60	-60	0	199	60	108	Spherical
Domain 4002 (GS_N)									
C0 (nugget)	0.38	-	-	-	-	-	-	-	-
C1	0.536	Rotation ZXZ	-30	-50	0	19	19	19	Spherical
C2	0.084	Rotation ZXZ	-30	-50	0	136	136	136	Spherical

Table 14.15 Variography Parameters for ThO_2 by Domain

Profile Name	Sill =1	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
Domain 4001 (GS_S)									
C0 (nugget)	0.10	-	-	-	-	-	-	-	-
C1	0.90	Rotation ZXZ	-60	-60	0	160	140	140	Spherical
Domain 4002 (GS_N)									
C0 (nugget)	0.05	-	-	-	-	-	-	-	-
C1	0.626	Rotation ZXZ	-30	-50	0	20	20	20	Spherical
C2	0.324	Rotation ZXZ	-30	-50	0	72	72	72	Spherical

Table 14.16 Variography Parameters for BeO by Domain

Profile Name	Sill =1	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
Domain 4001 (GS_S)									
C0 (nugget)	0.078	-	-	-	-	-	-	-	-
	0.404	Rotation ZXZ	-60	-60	0	86	44	10	Spherical
	0.518	Rotation ZXZ	-60	-60	0	199	60	108	Spherical
Domain 4002 (GS_N)									
C0 (nugget)	0.09	-	-	-	-	-	-	-	-
C1	0.874	Rotation ZXZ	-30	-50	0	28	28	28	Spherical
C2	0.036	Rotation ZXZ	-30	-50	0	74	74	74	Spherical

14.4.3 *INTERPOLATION PLAN AND SPATIAL ANALYSIS*

The interpolation methods used for populating the block model were OK, ID and Nearest Neighbour (NN) on capped data. For validation purposes, OK, ID and NN interpolation methods were also carried out on uncapped data.

For all interpolation methods, two passes were used. For each domain, a minimum of nine and a maximum of eighteen composite samples were used on the first pass to interpolate a block for the five metals. This allows the grade for each block to be interpolated by using composite assay values from at least three drillholes. The second pass used a minimum of six and a maximum of eighteen composite samples to allow blocks to estimated using a minimum of two drillholes. A summary of the interpolation passes are described in Table 14.17.

Table 14.17 Description of Interpolation Passes for Domains 4001 and 4002

Profile Name	Number of Composite Samples Used	Maximum Samples per Drillhole	Minimum Number of Drillholes
4001_P1	Minimum 9; Maximum 24	4	3
4001_P2	Minimum 6; Maximum 24	4	2
4002_P1	Minimum 9; Maximum 24	4	3
4002_P2	Minimum 6; Maximum 24	4	2

The orientation of the search ellipses for the south domain differs from that of the north domain. Two search passes were made in both the north and south domains. A list of parameters for each search ellipse used for each pass is shown in Table

14.18. Figure 14.11 and Figure 14.12 illustrate the orientations of the search ellipses used in the interpolation of the Two Tom block model.

Table 14.18 Search Ellipse Parameters for Domains 4001 and 4002

Profile Name	Search Anisotropy	Rotation About Z (°)	Rotation About X (°)	Rotation About Z (°)	X Range (m)	Y Range (m)	Z Range (m)	Search Type
4001_P1	Rotation ZXZ	-60	-60	0	120	60	15	Ellipsoidal
4001_P2	Rotation ZXZ	-60	-60	0	240	120	30	Ellipsoidal
4002_P1	Rotation ZXZ	-30	-50	0	120	60	15	Ellipsoidal
4002_P2	Rotation ZXZ	-30	-50	0	240	120	30	Ellipsoidal

Figure 14.11 Search Ellipse 4001_P1 and 4001_P2 for the 4001 Domain; Perspective View Looking 060°Az; No Scale

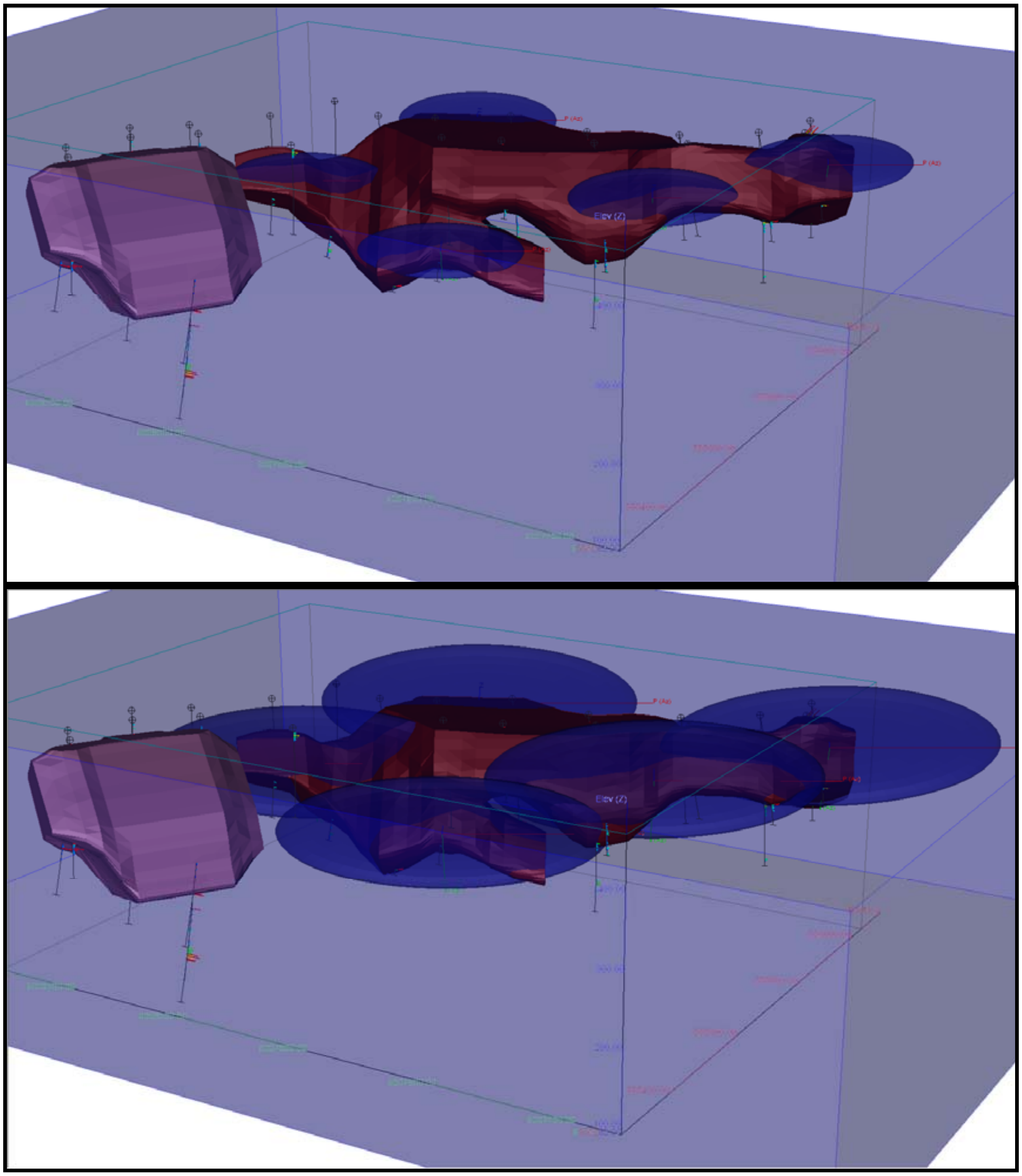


Figure 14.12 Search Ellipse 4002_P1 and 4002_P2 for the 4002 Domain; Perspective View Looking Northeast; No Scale

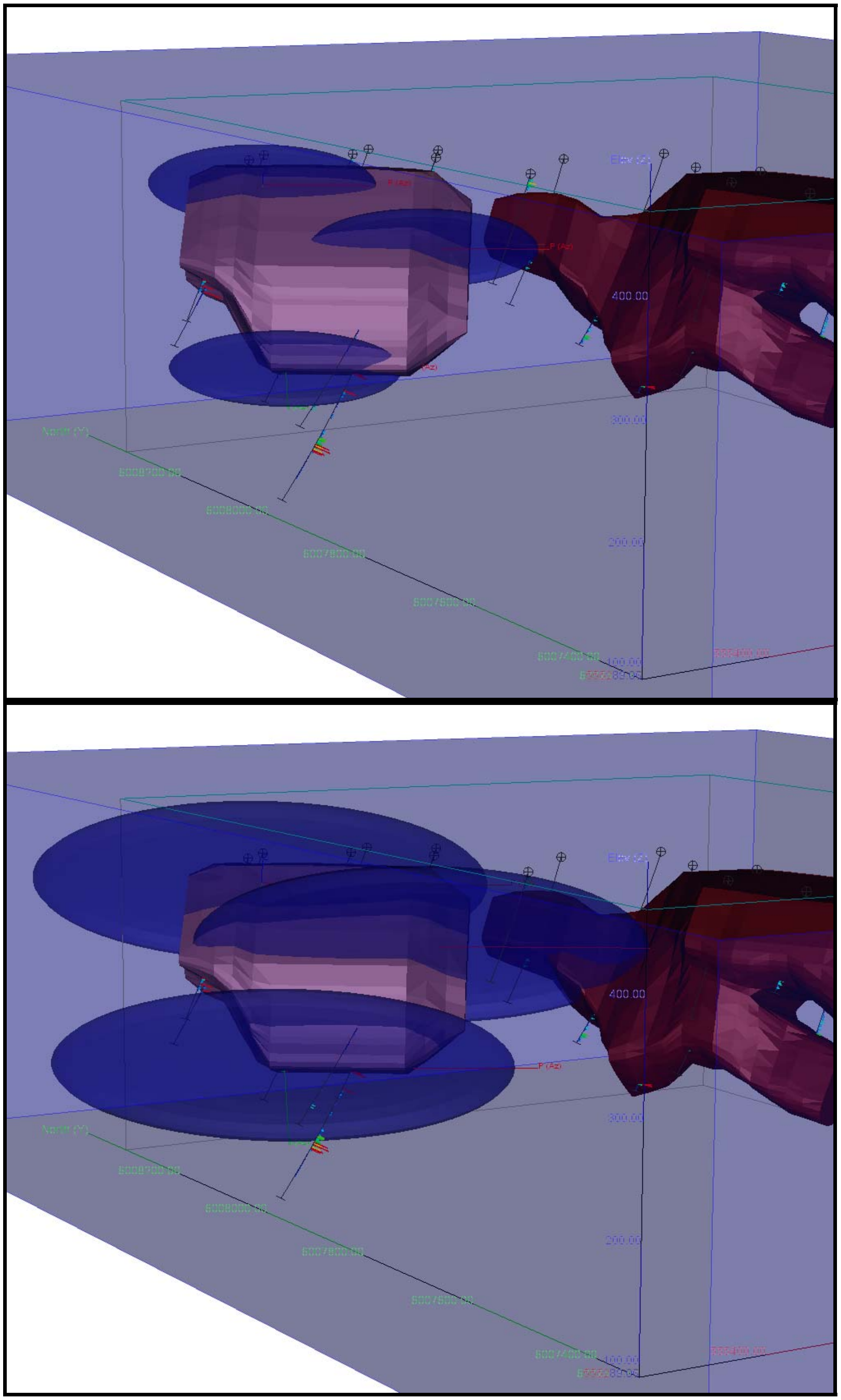
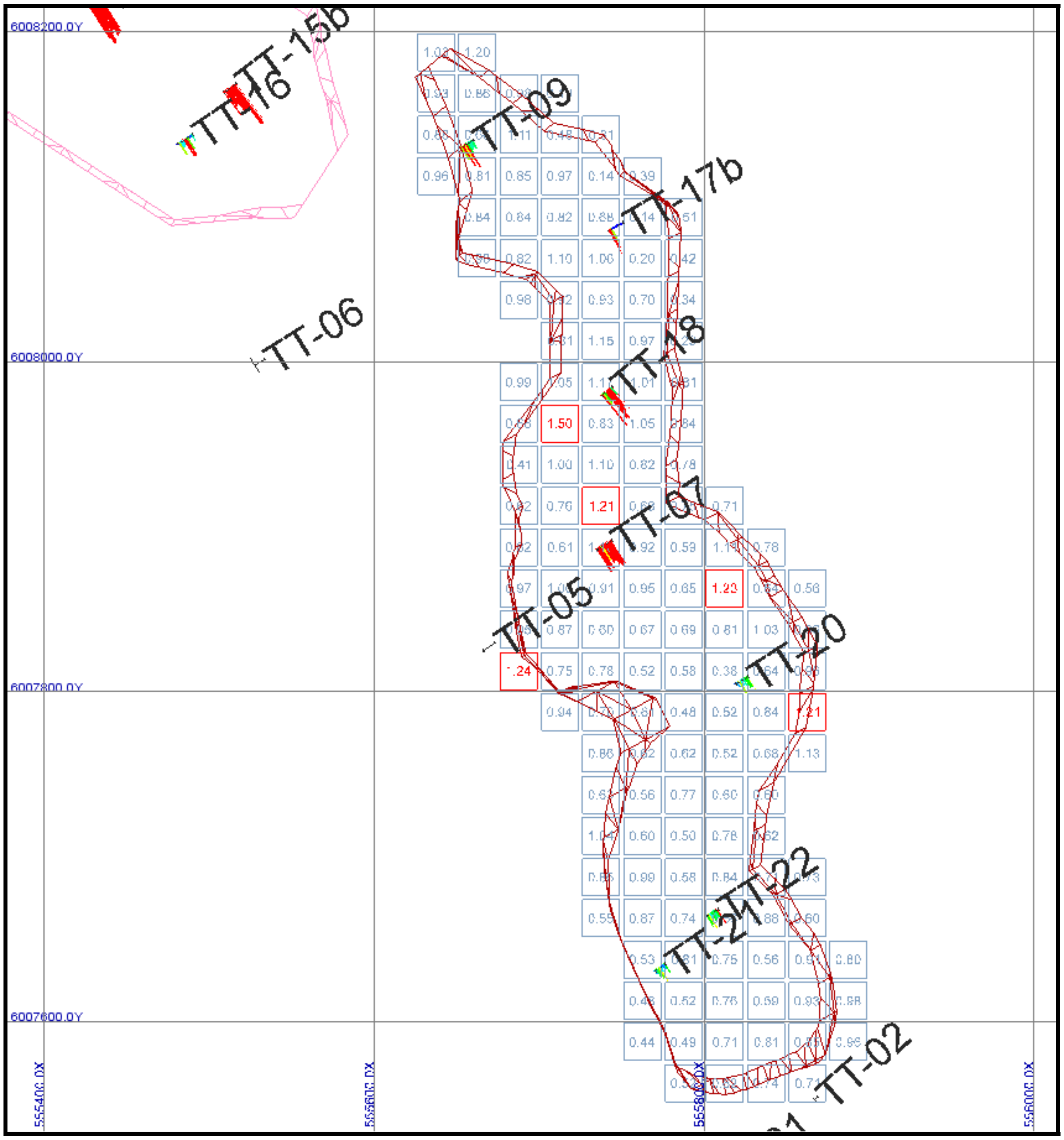


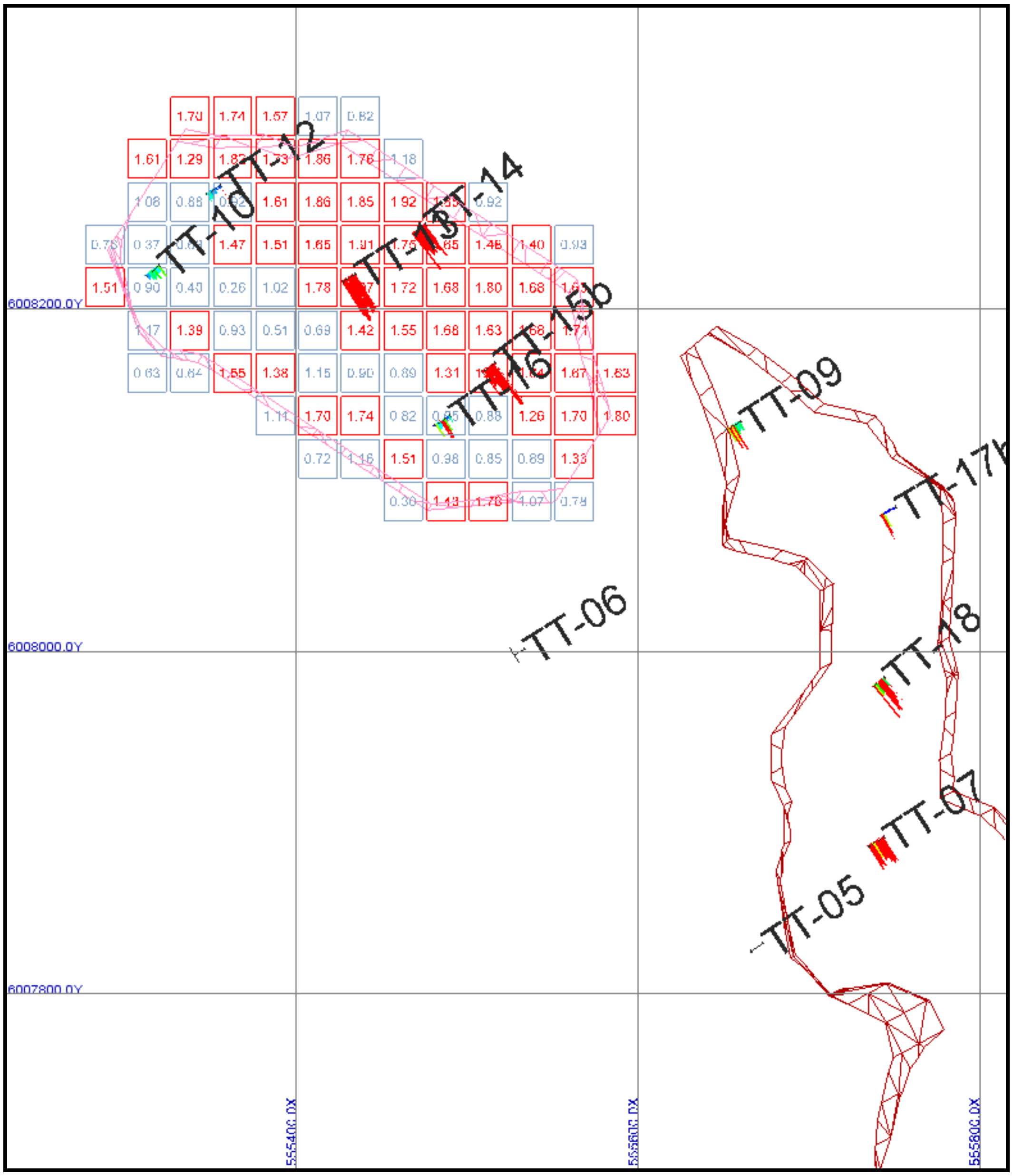
Figure 14.13 and Figure 14.14 present the resulting OK interpolation results for TREO%, at the 300 m elevation, illustrating the general trend of the mineralization in a north-northwest direction.

Figure 14.13 Block Model Plan Section of the 4001 Domain (300 m Elevation) Showing TREO%



Note: Block Size is 25 m x 25 m x 10 m

Figure 14.14 Block Model Plan Section of the 4001 Domain (300 m Elevation) Showing TREO%



Note: Block Size is 25 m x 25 m x 10 m

14.5 MINERAL RESOURCE ESTIMATE

14.5.1 MINERAL RESOURCE CLASSIFICATION

Tetra Tech has estimated a new mineral resource estimate for the Two Tom deposit in accordance with CIM Best Practices and disclosed in accordance with NI 43-101. The effective date of the Two Tom mineral resource estimate is December 10, 2011.

The block model and mineral resource for the Two Tom deposit is classified as having Inferred Mineral Resources based on drillhole spacing and sample data populations. The mineral resource estimate for the deposit, at 0.6 TREO% cut-off, is an Inferred Resource of 41 million tonnes (Mt) at 1.18% TREO, 0.26% Nb_20_5, 0.18% BeO and 0.06 ThO_2% with 5% of the TREO being made up of HREOs.

The mineral resource was estimated by the OK interpolation method on capped grades for all 15 REOs and three associated metal oxides, Nb_20_5, BeO and ThO_2. The TREO% is a sum of the 15 individual interpolations of the REOs. No recoveries have been applied to the interpolated estimates.

Table 14.19 and Table 14.20 summarize the Inferred Resource estimates for the Two Tom REE-Nb-Be deposit at various TREO% cut-offs between 0.5 and 1.4 TREO%. Figures 14.19 and 14.20 summarize the Inferred Resource estimates for the Southern and Northern Domains of the Two Tom deposit illustrates the grades and tonnages for the Inferred Resources for TREO%.

Table 14.19 Inferred Resource Estimate for the Two Tom Deposit

TREO% Cut-off	Tonnes ('000)	Density	LREO%	HREO%**	TREO%***	HREO:TREO Ratio	Nb_2O_5%	BeO	ThO_2%
1.40%	13,060	2.91	1.556	0.095	1.651	6%	0.26	0.22	0.06
1.20%	18,321	2.90	1.459	0.091	1.551	6%	0.26	0.21	0.06
1.00%	24,568	2.88	1.348	0.086	1.434	6%	0.27	0.21	0.06
0.90%	28,306	2.87	1.287	0.083	1.370	6%	0.28	0.20	0.06
0.80%	32,494	2.86	1.223	0.080	1.303	6%	0.27	0.20	0.06
0.70%	36,564	2.85	1.164	0.078	1.241	6%	0.27	0.19	0.06
0.60%	**40,635**	**2.84**	**1.107**	**0.075**	**1.182**	**6%**	**0.26**	**0.18**	**0.06**
0.50%	44,300	2.84	1.058	0.072	1.130	6%	0.26	0.18	0.06

Note: ** Includes Y_2O_3
*** See Table 14.20

Table 14.20 Inferred Resource Estimate for the Two Tom Deposit by REOs

TREO Cut-off	Tonnes ('000)	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
1.40%	13,060	0.419	0.765	0.078	0.254	0.040	0.004	0.025	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
1.20%	18,321	0.392	0.717	0.073	0.240	0.039	0.004	0.023	0.002	0.010	0.001	0.003	0.000	0.001	0.000	0.046
1.00%	24,568	0.358	0.662	0.068	0.224	0.037	0.003	0.022	0.002	0.009	0.001	0.003	0.000	0.001	0.000	0.044
0.90%	28,306	0.340	0.632	0.065	0.215	0.036	0.003	0.022	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.042
0.80%	32,494	0.321	0.600	0.062	0.205	0.034	0.003	0.021	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.041
0.70%	36,564	0.304	0.572	0.059	0.196	0.033	0.003	0.020	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.039
0.60%	**40,635**	**0.288**	**0.544**	**0.056**	**0.188**	**0.032**	**0.003**	**0.019**	**0.002**	**0.008**	**0.001**	**0.002**	**0.000**	**0.001**	**0.000**	**0.038**
0.50%	44,300	0.274	0.519	0.054	0.180	0.031	0.003	0.019	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.037

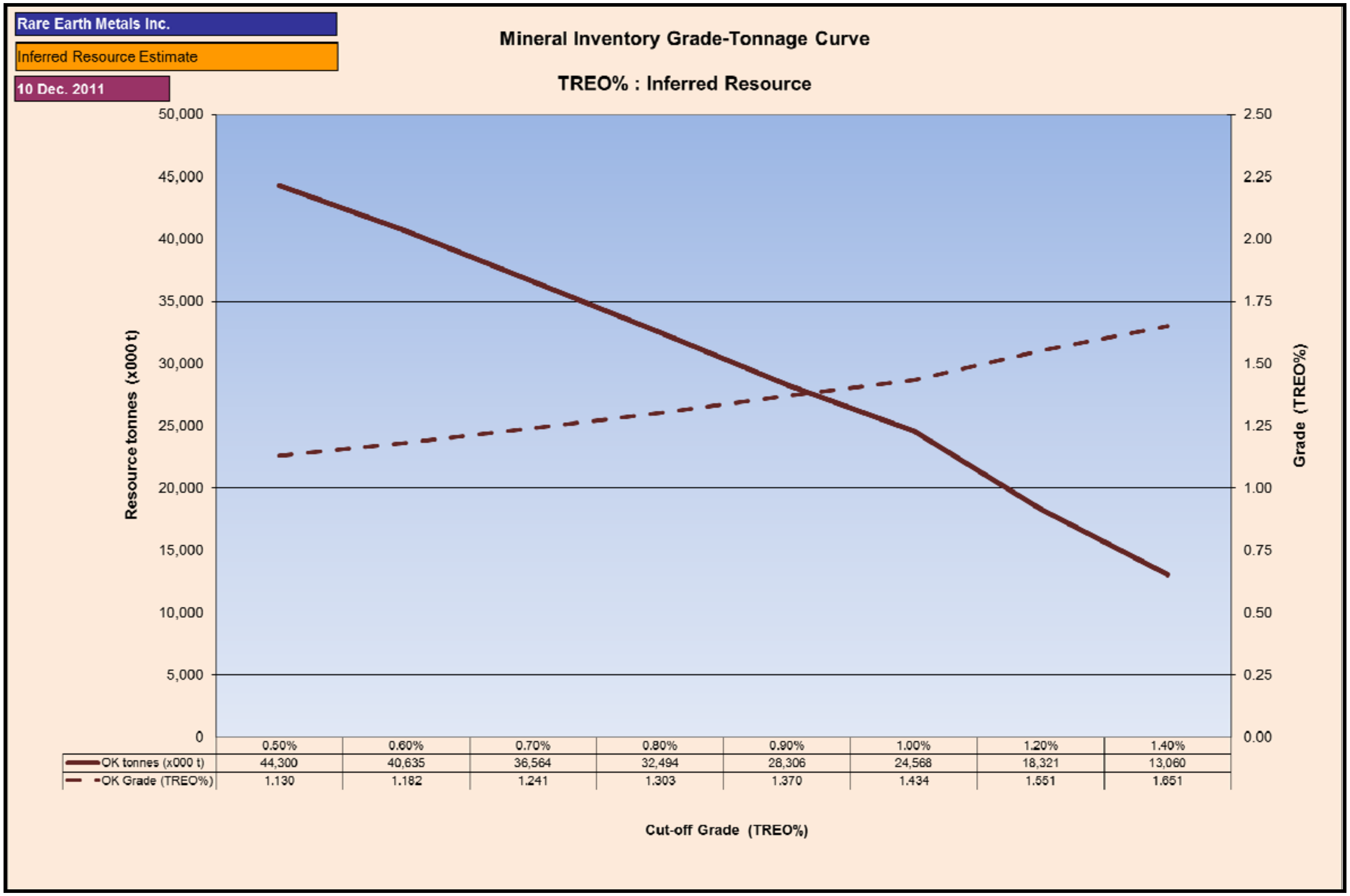
Table 14.21 Inferred Resource Estimate for the South Domain (4001) of the Two Tom Deposit

TREO% Cut-off	Tonnes (x 000)	Density	LREO%	HREO%	TREO%	HREO:TREO Ratio	Nb_2O_5%	BeO	ThO_2%
1.40%	6,644	2.91	1.518	0.096	1.614	6%	0.33	0.25	0.07
1.20%	10,097	2.89	1.414	0.091	1.505	6%	0.32	0.23	0.07
1.00%	14,759	2.87	1.289	0.085	1.374	6%	0.34	0.22	0.07
0.90%	17,626	2.86	1.223	0.081	1.304	6%	0.34	0.22	0.07
0.80%	21,108	2.85	1.151	0.078	1.229	6%	0.33	0.21	0.07
0.70%	24,274	2.84	1.092	0.075	1.167	6%	0.32	0.20	0.07
0.60%	**27,419**	**2.83**	**1.035**	**0.072**	**1.107**	**7%**	**0.31**	**0.19**	**0.07**
0.50%	30,399	2.83	0.983	0.070	1.053	7%	0.30	0.18	0.07

Table 14.22 Inferred Resource Estimate for the North Domain (4002) of the Two Tom Deposit

TREO% Cut-off	Tonnes (x 000)	Density	LREO%	HREO%	TREO%	HREO:TREO Ratio	Nb_2O_5%	BeO	ThO_2%
1.40%	6,416	2.91	1.595	0.095	1.690	6%	0.19	0.20	0.06
1.20%	8,225	2.90	1.515	0.092	1.607	6%	0.18	0.19	0.05
1.00%	9,809	2.89	1.437	0.088	1.525	6%	0.18	0.18	0.05
0.90%	10,680	2.89	1.392	0.086	1.478	6%	0.18	0.18	0.05
0.80%	11,386	2.88	1.355	0.085	1.439	6%	0.17	0.17	0.05
0.70%	12,290	2.88	1.306	0.082	1.388	6%	0.17	0.17	0.05
0.60%	**13,217**	**2.87**	**1.256**	**0.080**	**1.336**	**6%**	**0.17**	**0.16**	**0.04**
0.50%	13,902	2.86	1.220	0.078	1.298	6%	0.17	0.16	0.04

Figure 14.15 Grade-Tonnage Curves Showing Inferred Resources for TREO%



14.6 VALIDATION

14.6.1 MODEL VOLUME VALIDATION

The block model volumes were validated against the solid wireframe volumes and all differences were found to be within a tolerance of 0.003%. The result of the comparison is shown in Table 14.23.

Table 14.23 Volume Comparison between Wireframe Solid Models and Block Models

Wireframe	Wireframe Volume (m^3)	Block Model Volume (m^3)	Difference (%)
GS_N	5,868,180	5,686,976	0.003%
GS_S	12,449,545	12,449,949	0.003%

14.6.2 INTERPOLATION VALIDATION

A comparison was made of the estimated metal grades from the three interpolation methods as a further validation of the resource estimation. The comparison between these three values for each metal is shown in Table 14.24.

Table 14.24 Comparison of OK, ID2 and NN Average Grades

Interpolation Method	TREO%	Nb_2O_5%	BeO	ThO_2%
OK	0.995	0.245	0.158	0.055
ID2	0.948	0.244	0.155	0.054
NN	0.953	0.246	0.151	0.055
3 m Comps	1.030	0.245	0.160	0.054

14.6.3 SWATH PLOTS

Swath plots were created for each estimated capped TREO% grade by bench, by column (easting) and by row (northing) for each interpolation method as a visual comparison of the precision of the interpolation methods. Figure 14.16, Figure 14.17Table 14.18 and Figure 14.18illustrate the swath plots for TREO% by elevation, easting and northing, respectively. *The ID2 and OK grades resemble quite closely.* Variations in the NN grades, particularly at the ends of the graphs (i.e. the limits of the block model, denotes areas where sample populations used for estimation are no longer similar.

Figure 14.16 Swath Plots for TREO% by Easting

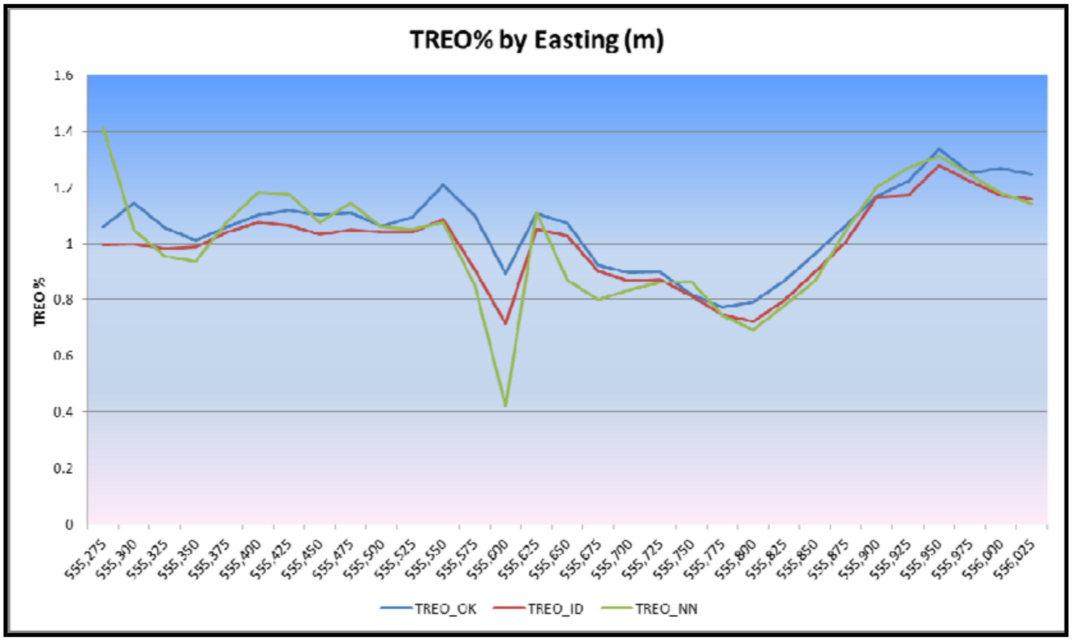


Figure 14.17 Swath Plots for TREO% by Northing

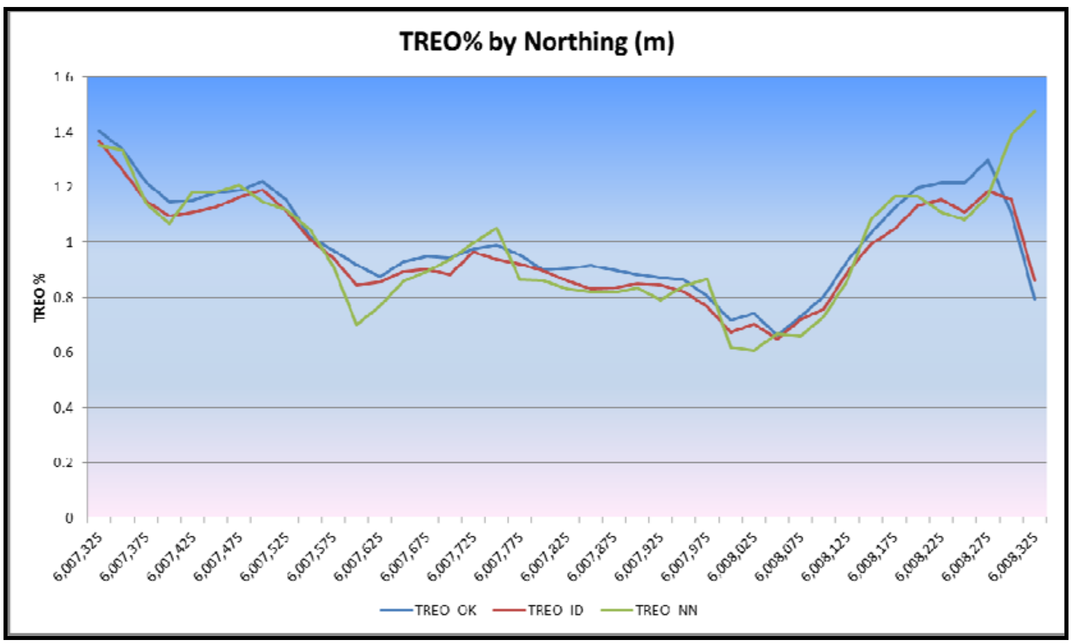
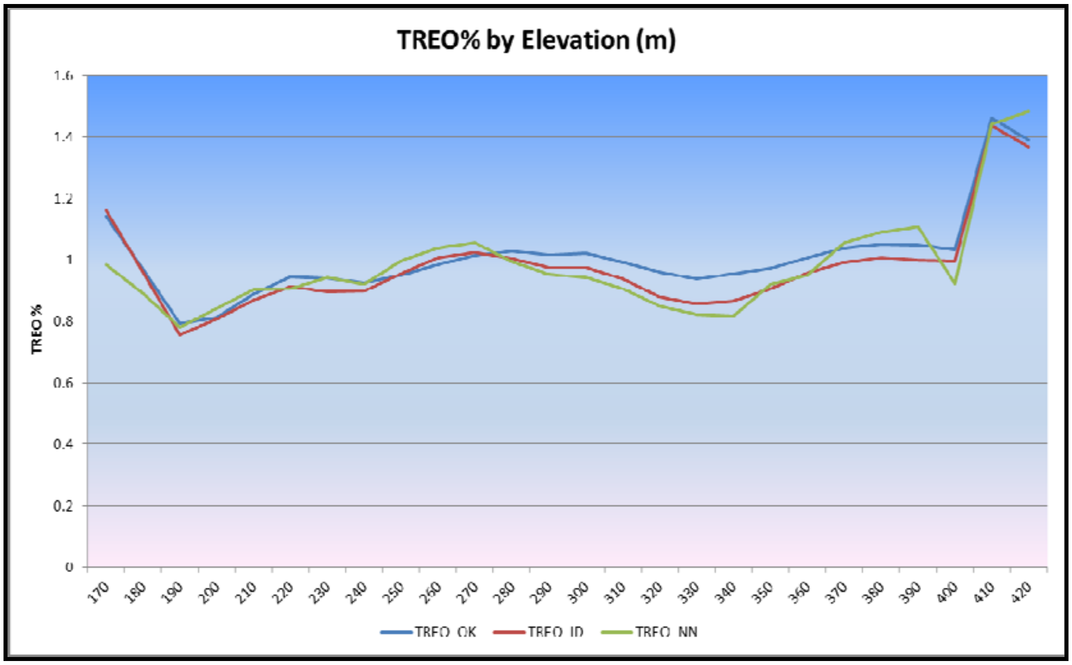


Figure 14.18 Swath Plots for TREO% by Elevation



15.0 ADJACENT PROPERTIES

Search Minerals Inc. holds the mineral rights to 301 claims comprising 7,525 ha of the Red Wine Complex, through its wholly-owned subsidiary company Alterra Resources Inc. (Alterra).

The claims are located to the south of the Dory Pond prospect (see Figure 4.3), and immediately adjacent to, and in between, the contiguous to REM's mineral licences that cover the Dory Pond, Green Arrow, Michelin #1, Mann #1 and Mann #2 prospects.

Alterra has completed preliminary work, including an airborne magnetic and radiometric survey, geological mapping, prospecting, trenching, and geochemical sampling, and drilling programs on this project (http://www.searchminerals.ca/redwine.php).

There are no NI 43-101 resource estimates for the Alterra Property.

16.0 OTHER RELEVANT DATA AND INFORMATION

There is no additional information or explanation necessary to make the technical report understandable and not misleading.

17.0 INTERPRETATION AND CONCLUSIONS

Tetra Tech has estimated a new mineral resource estimate for the Two Tom deposit in accordance with CIM Best Practices and disclosed in accordance with NI 43-101. The effective date of the Two Tom mineral resource estimate is December 10, 2011.

The block model and mineral resource for the Two Tom deposit is classified as having Inferred Mineral Resources based on drillhole spacing and sample data populations. The mineral resource estimate for the deposit, at 0.6 TREO% cut-off, is an Inferred Resource of 41Mt at 1.18% TREO, 0.26% Nb_20_5, 0.18% BeO and 0.06 ThO_2% with 5% of the TREO being made up of HREOs.

The mineral resource was estimated by the OK interpolation method on capped grades for all 15 REOs and three associated metal oxides, Nb_20_5, BeO and ThO_2. No recoveries have been applied to the interpolated estimates.

Table 17.1 and Table 17.2 summarize the Inferred Resource estimates for the Two Tom REE-Nb-Be deposit at various TREO% cut-offs between 0.5 and 1.4 TREO%.

Table 17.1 Inferred Resource Estimate for the Two Tom Deposit

TREO% Cut-off	Tonnes ('000)	Density	LREO%	HREO%**	TREO%***	HREO:TREO Ratio	Nb_2O_5%	BeO	ThO_2%
1.40%	13,060	2.91	1.556	0.095	1.651	6%	0.26	0.22	0.06
1.20%	18,321	2.90	1.459	0.091	1.551	6%	0.26	0.21	0.06
1.00%	24,568	2.88	1.348	0.086	1.434	6%	0.27	0.21	0.06
0.90%	28,306	2.87	1.287	0.083	1.370	6%	0.28	0.20	0.06
0.80%	32,494	2.86	1.223	0.080	1.303	6%	0.27	0.20	0.06
0.70%	36,564	2.85	1.164	0.078	1.241	6%	0.27	0.19	0.06
0.60%	40,635	2.84	1.107	0.075	1.182	6%	0.26	0.18	0.06
0.50%	44,300	2.84	1.058	0.072	1.130	6%	0.26	0.18	0.06

Note: ** Includes Y_2O_3
*** See Table 17.2

Table 17.2 Inferred Resource Estimate for the Two Tom Deposit by REOs

TREO Cut-off	Tonnes ('000)	La_2O_3%	Ce_2O_3%	Pr_2O_3%	Nd_2O_3%	Sm_2O_3%	Eu_2O_3%	Gd_2O_3%	Tb_2O_3%	Dy_2O_3%	Ho_2O_3%	Er_2O_3%	Tm_2O_3%	Yb_2O_3%	Lu_2O_3%	Y_2O_3%
1.40%	11,037	0.431	0.784	0.079	0.259	0.041	0.004	0.025	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.431
1.20%	16,667	0.401	0.732	0.074	0.244	0.039	0.004	0.024	0.002	0.010	0.001	0.003	0.000	0.001	0.000	0.401
1.00%	22,692	0.368	0.678	0.069	0.228	0.037	0.003	0.023	0.002	0.009	0.001	0.003	0.000	0.001	0.000	0.368
0.90%	26,367	0.349	0.647	0.066	0.219	0.036	0.003	0.022	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.349
0.80%	30,646	0.329	0.614	0.063	0.210	0.035	0.003	0.021	0.002	0.009	0.001	0.002	0.000	0.001	0.000	0.329
0.70%	34,832	0.311	0.584	0.060	0.200	0.034	0.003	0.020	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.311
0.60%	39,051	0.294	0.554	0.057	0.191	0.032	0.003	0.020	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.294
0.50%	43,229	0.278	0.526	0.054	0.182	0.031	0.003	0.019	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.278

18.0 RECOMMENDATIONS

Tetra Tech recommends that additional drilling is warranted to further investigate and develop the known Two Tom REE deposit. Additional drilling will determine, with greater confidence, both the continuity of the mineralized lithologies and the continuity of the REE, Nb_2O_5 and BeO grades. The recommended drilling includes step out drilling, either along strike or laterally, and in-fill drilling of the interpreted deposit.

Tetra Tech recommends a proposed drilling program with a minimum of 5,000 m in 19 drillholes. The locations of these drillholes are divided between the north and south domains and are designed to extend the known deposit along strike, to the northwest and southeast, and to better interpret the separation of the two domains. The budget for the proposed drill program is estimated at approximately $1.3 million.

A summary of the breakdown of costs for the proposed drill program is shown in Table 18.1.

Table 18.1 Estimated Cost Breakdown for Proposed Drill Program

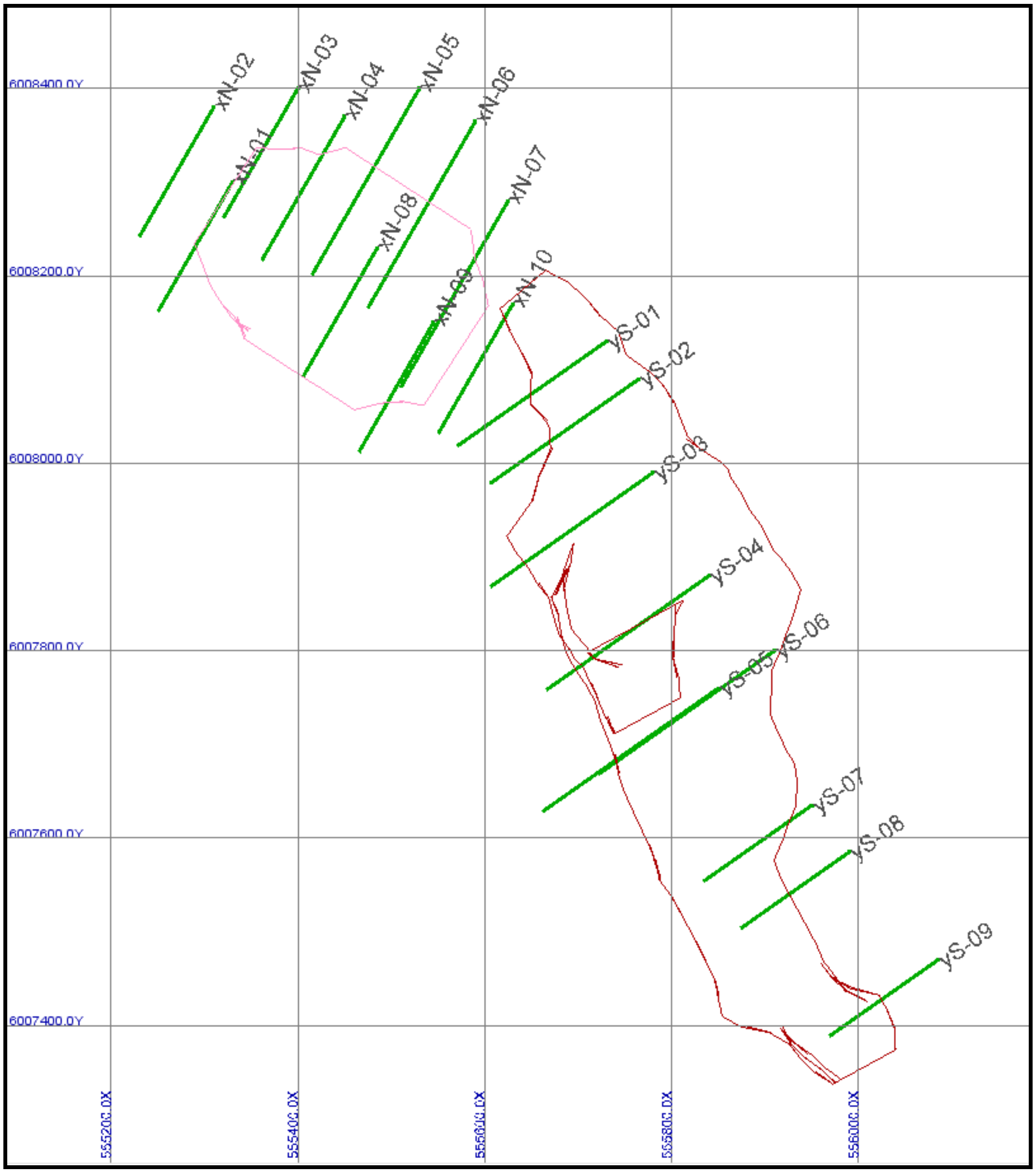
Description	Estimated Cost (Cdn$)
Drilling	
Drilling – Mobilization/Demobilization	30,000
Drilling – $130 / m x 5,000 m	650,000
Helicopter Support $1800/hour x 120 hours	216,000
REM Personnel – Geologists, Geotechnicians	160,000
Assaying (including transport)	240,000
Total	**1,296,000**

Table 18.2 presents a list of proposed drillholes for the Two Tom deposit and Figure 18.1 presents a location map of the proposed drillholes.

Table 18.2 Summary of Proposed Drillhole Locations

Drillhole	Easting (m)	Northing (m)	Length (m)	Bearing (°Az)	Dip (°)	Comments
N-01	555330	6008300	225	210	-45	extension northwest
N-02	555310	6008380	225	210	-45	extension northwest
N-03	555400	6008400	225	210	-45	extension northwest
N-04	555450	6008370	250	210	-45	infill
N-05	555530	6008400	325	210	-45	lateral northeast
N-06	555590	6008365	325	210	-45	lateral northeast
N-07	555625	6008280	325	210	-45	extension northeast
N-08	555485	6008230	225	210	-45	infill
N-09	555545	6008150	225	210	-45	extension southeast
N-10	555630	6008170	225	210	-45	extension southeast
S-01	555730	6008130	275	235	-45	extension northwest
S-02	555765	6008090	275	235	-45	extension northwest
S-03	555780	6007990	300	235	-45	extension northwest
S-04	555840	6007880	300	235	-45	infill; confirm bifurcation at depth
S-05	555850	6007760	325	235	-45	infill; confirm bifurcation at depth
S-06	555910	6007800	325	235	-45	infill; confirm bifurcation at depth
S-07	555950	6007635	225	235	-45	extension southeast
S-08	555990	6007585	200	235	-45	extension southeast
S-09	556085	6007470	200	235	-45	extension southeast
Total	-	-	**5,000**	-	-	-

Figure 18.1 Locations of Proposed Drillholes; Plan View



Note: Each square represents 200 m x 200 m

19.0 REFERENCES

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WEB SITES

Rare Earth Metals
http://www.rareearthmetals.ca/article/corporate-brochure-139.asp

Search Minerals
http://www.searchminerals.ca/redwine.php

REM PRESS RELEASES

Press release. November 17, 2011. Rare Earth Metals Announces $1.5 Million Flow-Through Financing. www.rareearthmetals.ca.

Press release. November 16, 2011. Two Tom In-Fill Drilling Completed. www.rareearthmetals.ca.

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20.0 CERTIFICATE OF QUALIFIED PERSON

I, Paul Daigle, P.Geo., of Toronto, Ontario, do hereby certify:

- I am a Senior Geologist with Tetra Tech WEI Inc. with a business address at 900-330 Bay Street, Toronto, Ontario, M5H 2S8.
- This certificate applies to the Technical Report entitled Resource Estimate and Technical Report for the Two Tom REE Deposit of the Red Wine Complex, Labrador, Canada, dated January 20, 2012 (the "Technical Report").
- I am a graduate of Concordia University, (B.Sc. Geology, 1989). I am a member in good standing of the Association of Professional Geoscientists of Ontario (Registration #1592) and the Association of Professional Engineers and Geoscientists of Saskatchewan (Registration #10665). My relevant experience includes over 21 years of experience in a wide variety of geological settings and, most recently, the completion of an NI 43-101 compliant resource estimate and technical report on the B zone REE deposit, Strange Lake Project, Québec; and the Clay-Howells Fe-REE deposit, Ontario. I am a "Qualified Person" for purposes of National Instrument 43-101 (the "Instrument").
- My most recent personal inspection of the Property was July 19, 2011 for one days.
- I am responsible for Sections 1 to 20 of the Technical Report.
- I am independent of Rare Earth Metals Inc. as defined by Section 1.5 of the Instrument.
- I have no prior involvement with the Property that is the subject of the Technical Report.
- I have read the Instrument and the technical has been prepared in compliance with the Instrument.
- As of the date of this certificate, to the best of my knowledge, information and belief, the technical contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed and dated this 20th day of January, 2012 at Toronto, Ontario

"Original document signed and sealed by Paul Daigle, P.Geo."

Paul Daigle, P.Geo.
Senior Geologist
Tetra Tech WEI Inc.

APPENDIX A

Mineral Licences

Mineral Rights Inquiry Report

Licence Number:	016277M
File Number:	775:0291
Original Holder:	Quinlan, Roland
Licence Holder:	Quinlan, Roland
Address:	P.O. Box 18 Birchy Bay, NL Canada, A0G 1E0
Licence Status:	Issued
Location:	Bessie Lake
Electoral Dist.:	01 Torngat Mountains
Recorded Date:	2009/05/26
Issuance Date:	2009/06/25
Renewal Date:	2014/06/25
Report Due Date:	2013/08/26
Org. No. Claims:	4.0000
Cur. No. Claims:	4.0000
Recording Fee:	$40.00
Receipt(s):	56667164 (2009/05/26) $40.00
Deposit Amount:	$0.00
Deposit:	No related security deposit receipt
Map Sheet No(s):	13L/01

Comments:

Reg 13; Genuine Prospector As per email from P.Nielsen 2010.08.24, first year work report is en route. Year 1 work report consists of prospecting and rock sampling. Reviewed and accepted 2010.08.25 (AM). Year 1 supplementary report consists of an airborne radiometric and magnetic survey (2010.11.22). Expenditures of $340 added 2010.11.29. Reviewed and accepted 2010.11.29 (AM). Year 2 work report consists of prospecting and rock sampling. Reviewed and accepted 2011.01.31 (AM). Year 2 supplementary report consists of diamond drilling. $440,621.29 added 2011.03.02. Reviewed and accepted 2011.03.15 (AM). Year 3 work report consists of diamond drilling. Reviewed and accepted 2011.12.20 (JL)

Mapped Claim Description:

Beginning at the Northeast corner of the herein described parcel of land, and said corner having UTM coordinates of 6 008 000 N, 556 500 E; of Zone 20; thence South 1,000 metres, thence West 1,000 metres, thence North 1,000 metres, thence East 1,000 metres to the point of beginning. All bearings are referred to the UTM grid, Zone 20. NAD27.

Land Claims (effective 2005/12/01):

LISA: 0.00% LIL: 0.00% VBP: 0.00% Crown: 100.00%

Extensions: None

Work Reports:

Year	Receive Date	Acceptance Date	Actual Expenditure	Claims	Security Deposit	C2 Status
1	2010/08/24	2010/08/25	$8,627.00	4.0000		
2	2011/01/20	2011/01/31	$528,185.37	4.0000		
3	2011/12/12	2011/12/20	$574,941.00	4.0000		

$3,600.00 to be expended on this license by 2022/06/25

Licence Transfers: None

Partial Surrenders: None

This Licence replaces Licence Number(s): None

This Licence is replaced by Licence Number(s): None

Work Report Descriptions: None

Detailed breakdown of projected required expenditure:

Actual Year	Actual Expenditure	Work Year	Excess Expenditure	Claims
1	$8,627.00			
		1	$7,827.00	4.0000
		2	$6,827.00	4.0000
		3	$5,627.00	4.0000
		4	$4,227.00	4.0000
		5	$2,627.00	4.0000
		6	$227.00	4.0000
2	$528,185.37			
		7	$526,012.37	4.0000

		8	$523,612.37	4.0000
		9	$521,212.37	4.0000
		10	$518,812.37	4.0000
		11	$515,212.37	4.0000
3	$574,941.00			
		12	$571,341.00	4.0000
		13	-$3,600.00	4.0000

Mineral Rights Inquiry Report

Licence Number:	016522M
File Number:	775:0426
Original Holder:	Lewis, Donna
Licence Holder:	Lewis, Donna
Address:	88 Harmsworth Drive Grand Falls-Windsor, NL Canada, A2A 2Y8
Licence Status:	Issued
Location:	Bessie Lake
Electoral Dist.:	01 Torngat Mountains
Recorded Date:	2009/09/11
Issuance Date:	2009/10/12
Renewal Date:	2014/10/12
Report Due Date:	2012/12/11
Org. No. Claims:	12.0000
Cur. No. Claims:	12.0000
Recording Fee:	$120.00
Receipt(s):	56744917 (2009/09/11) $120.00
Deposit Amount:	$0.00
Deposit:	No related security deposit receipt
Map Sheet No(s):	13L/01

Comments:

Reg 13; Genuine Prospector Year 1 work report consists of an airborne radiometric and magnetic survey. Reviewed and accepted 2010.11.29 (AM). Year 1 Supplementary Con 3 extension granted 2010.12.02 - report now due 2011.02.13. Year 1 supplementary report consists of prospecting and rock sampling. Expenditures of $80,344.38 added 2011.01.20. Reviewed and accepted 2011.01.31 (AM). Year 1 supplementary report consists of diamond drilling. $195,806.07 added 2011.03.02. Reviewed and accepted 2011.03.15 (AM). Year 2 work report consists of diamond drilling. Reviewed and accepted 2011.12.20 (JL)

Mapped Claim Description:

Beginning at the Northeast corner of the herein described parcel of land, and said corner having UTM coordinates of 6 008 500 N, 557 000 E; of Zone 20; thence South 2,000 metres, thence West 2,000 metres, thence North 2,000 metres, thence East 2,000 metres to the point of beginning Reserving nevertheless out of the above described area all of the land being part of: Beginning at the Northeast corner of the herein described parcel of land, and said corner having UTM coordinates of 6 008 000 N, 556 500 E; of Zone 20; thence South 1,000 metres, thence West 1,000 metres, thence North 1,000 metres, thence East 1,000 metres to the point of beginning. All bearings are referred to the UTM grid, Zone 20. NAD27.

Land Claims (effective 2005/12/01):

LISA: 0.00% LIL: 0.00% VBP: 0.00% Crown: 100.00%

Extensions: None

Work Reports:

Year	Receive Date	Acceptance Date	Actual Expenditure	Claims	Security Deposit	C2 Status
1	2010/11/22	2010/11/29	$277,171.45	12.0000		
2	2011/12/12	2011/12/20	$869,521.00	12.0000		

$10,800.00 to be expended on this license by 2021/10/12

Licence Transfers: None

Partial Surrenders: None

This Licence replaces Licence Number(s): None

This Licence is replaced by Licence Number(s): None

Work Report Descriptions: None

Detailed breakdown of projected required expenditure:

Actual Year	Actual Expenditure	Work Year	Excess Expenditure	Claims
1	$277,171.45			
		1	$274,771.45	12.0000
		2	$271,771.45	12.0000
		3	$268,171.45	12.0000
		4	$263,971.45	12.0000
		5	$259,171.45	12.0000
		6	$251,971.45	12.0000

		7	$244,771.45	12.0000
		8	$237,571.45	12.0000
		9	$230,371.45	12.0000
		10	$223,171.45	12.0000
2	$869,521.00			
		11	$858,721.00	12.0000
		12	-$10,800.00	12.0000

Only Natural Resources Search

Mineral Rights Inquiry Report

Licence Number:	016548M
File Number:	775:0440
Original Holder:	Quinlan, Marilyn
Licence Holder:	Quinlan, Marilyn
Address:	P.O. Box 18 Birchy Bay, NL Canada, A0G 1E0
Licence Status:	Issued
Location:	Bessie Lake
Electoral Dist.:	01 Torngat Mountains
Recorded Date:	2009/09/15
Issuance Date:	2009/10/15
Renewal Date:	2014/10/15
Report Due Date:	2012/12/14
Org. No. Claims:	30.0000
Cur. No. Claims:	30.0000
Recording Fee:	$300.00
Receipt(s):	56746302 (2009/09/15) $300.00
Deposit Amount:	$0.00
Deposit:	No related security deposit receipt
Map Sheet No(s):	13L/01

Comments:

Reg 13; Genuine Prospector Year 1 work report consists of an airborne radiometric and magnetic survey. Reviewed and accepted 2010.11.29 (AM). Year 1 Supplementary Con 3 extension granted 2010.12.02 - report now due 2011.02.14. Year 1 supplementary report consists of prospecting and rock sampling. Expenditures of $12,845.06 added 2011.01.20. Reviewed and accepted 2011.01.31 (AM). Year 2 work report consists of compilation, prospecting and rock sampling.

Mapped Claim Description:

Beginning at the Northeast corner of the herein described parcel of land, and said corner having UTM coordinates of 6 009 500 N, 558 000 E; of Zone 20; thence South 500 metres, thence West 1,000 metres, thence South 500 metres, thence West 2,000 metres, thence South 2,000 metres, thence East 2,000 metres, thence South 500 metres, thence West 2,500 metres, thence North 1,000 metres, thence West 500 metres, thence North 500 metres, thence West 500 metres, thence North 2,000 metres, thence East 4,500 metres to the point of beginning. All bearings are referred to the UTM grid, Zone 20. NAD27.

Land Claims (effective 2005/12/01):

LISA: 0.00% LIL: 0.00% VBP: 0.00% Crown: 100.00%

Extensions: None

Work Reports:

Year	Receive Date	Acceptance Date	Actual Expenditure	Claims	Security Deposit	C2 Status
1	2010/11/22	2010/11/29	$15,396.06	30.0000		
2	2012/01/03		$29,604.00	30.0000		

$17,999.94 to be expended on this license by 2015/10/15

Licence Transfers: None

Partial Surrenders: None

This Licence replaces Licence Number(s): None

This Licence is replaced by Licence Number(s): None

Work Report Descriptions: None

Detailed breakdown of projected required expenditure:

Actual Year	Actual Expenditure	Work Year	Excess Expenditure	Claims
1	$15,396.06			
		1	$9,396.06	30.0000
		2	$1,896.06	30.0000
2	$29,604.00			
		3	$22,500.06	30.0000
		4	$12,000.06	30.0000
		5	$0.06	30.0000
		6	-$17,999.94	30.0000

APPENDIX B

RAW DATA STATISTICS

Descriptive Statistics [Subset]

RAW Statistics (no zeroes) ALL DATA

	LENGTH	TREO	NB2O3	BEO	THO2	LA2O3	CE2O3	PR2O3	ND2O3	SM2O3	EU2O3	GD2O3	TB2O3	DY2O3	HO2O3	ER2O3	TM2O3	YB2O3	LU2O3	Y2O3
Valid cases	2647	2645	2647	2647	2645	2645	2645	2645	2645	2645	2644	2645	2645	2645	2645	2645	2645	2645	2644	2645
Mean	1.522	0.900	0.227	0.144	0.049	0.215	0.411	0.043	0.145	0.025	0.002	0.015	0.002	0.006	0.001	0.002	0.000	0.001	0.000	0.031
Variance	0.04	0.634	0.091	0.027	0.004	0.045	0.142	0.001	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.19	0.796	0.302	0.166	0.064	0.212	0.377	0.038	0.122	0.020	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.022
Variation Coefficient	0.12	0.885	1.333	1.154	1.301	0.988	0.917	0.881	0.841	0.783	0.754	0.747	0.717	0.703	0.698	0.695	0.710	0.706	0.721	0.699
Skew	7.52	0.845	3.970	3.298	7.978	1.208	0.934	0.825	0.691	0.824	0.777	0.614	0.527	0.560	0.857	1.305	2.024	2.393	2.595	0.720
Kurtosis	140.14	0.448	23.980	25.388	120.724	2.061	0.863	0.381	-0.113	1.443	1.266	0.307	-0.323	-0.446	0.937	4.467	11.193	13.581	13.141	0.354
Minimum	0.40	0.006	0.002	0.00083	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	6.00	6.450	3.804	2.507	1.423	1.959	3.209	0.296	0.837	0.159	0.013	0.077	0.007	0.026	0.005	0.013	0.002	0.009	0.001	0.169
Range	5.60	6.443	3.802	2.506	1.422	1.958	3.206	0.296	0.836	0.159	0.013	0.077	0.007	0.025	0.005	0.013	0.002	0.009	0.001	0.168
Sum	4027.56																			
1st percentile	1.00	0.023	0.004	0.001	0.001	0.005	0.009	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	1.50	0.031	0.013	0.003	0.002	0.006	0.012	0.001	0.005	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
10th percentile	1.50	0.056	0.026	0.007	0.003	0.010	0.022	0.003	0.010	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
25th percentile	1.50	0.056	0.026	0.007	0.003	0.010	0.022	0.003	0.010	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
Median	1.50	0.641	0.140	0.097	0.038	0.136	0.286	0.031	0.112	0.022	0.002	0.014	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.027
75th percentile	1.50	1.523	0.261	0.206	0.067	0.361	0.690	0.072	0.244	0.041	0.004	0.025	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.047
90th percentile	1.50	2.019	0.501	0.339	0.101	0.509	0.944	0.095	0.315	0.049	0.004	0.030	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.062
95th percentile	1.76	2.343	0.790	0.440	0.129	0.629	1.096	0.109	0.354	0.056	0.005	0.034	0.004	0.014	0.002	0.004	0.000	0.002	0.000	0.070
99th percentile	2.25	2.950	1.547	0.700	0.259	0.832	1.412	0.140	0.443	0.076	0.007	0.044	0.005	0.018	0.003	0.005	0.001	0.003	0.000	0.088

Descriptive Statistics [Subset]

RAW Statistics (no zeroes) Rock Codes 101, 102, 103, 104, 111, 112

	TREO	NB2O3	BEO	THO2	LA2O3	CE2O3	PR2O3	ND2O3	SM2O3	EU2O3	GD2O3	TB2O3	DY2O3	HO2O3	ER2O3	TM2O3	YB2O3	LU2O3	Y2O3
Valid cases	1772	1774	1774	1772	1772	1772	1772	1772	1772	1771	1772	1772	1772	1772	1772	1772	1772	1772	1772
Mean	0.657	0.218	0.116	0.045	0.150	0.298	0.032	0.109	0.020	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.024
Variance	0.517	0.107	0.026	0.005	0.036	0.116	0.001	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.719	0.327	0.162	0.073	0.190	0.340	0.034	0.112	0.019	0.002	0.011	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.019
Variation Coefficient	1.094	1.503	1.394	1.636	1.260	1.142	1.085	1.025	0.938	0.888	0.884	0.830	0.795	0.774	0.772	0.799	0.788	0.799	0.785
Skew	1.683	4.122	4.090	8.041	2.249	1.788	1.600	1.386	1.388	1.365	1.180	1.064	1.068	1.556	2.464	3.656	3.831	3.576	1.323
Kurtosis	3.784	24.488	35.765	108.103	7.717	4.617	3.265	1.959	3.158	3.097	1.893	1.166	1.079	5.215	15.776	31.052	30.549	22.967	3.281
Minimum	0.006	0.002	0.00083	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	6.450	3.804	2.507	1.423	1.959	3.209	0.296	0.837	0.159	0.013	0.077	0.007	0.026	0.005	0.013	0.002	0.009	0.001	0.169
Range	6.443	3.802	2.506	1.422	1.958	3.206	0.296	0.836	0.159	0.013	0.077	0.007	0.025	0.005	0.013	0.002	0.009	0.001	0.168
1st percentile	0.023	0.004	0.001	0.001	0.005	0.009	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	0.027	0.011	0.003	0.001	0.005	0.011	0.001	0.004	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
10th percentile	0.038	0.022	0.005	0.002	0.007	0.014	0.002	0.006	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
25th percentile	0.038	0.022	0.005	0.002	0.007	0.014	0.002	0.006	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
Median	0.379	0.109	0.054	0.026	0.077	0.162	0.018	0.067	0.014	0.001	0.009	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.020
75th percentile	0.949	0.247	0.161	0.060	0.205	0.431	0.046	0.163	0.032	0.003	0.019	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.034
90th percentile	1.746	0.479	0.311	0.098	0.414	0.800	0.085	0.286	0.047	0.004	0.028	0.003	0.011	0.001	0.003	0.000	0.002	0.000	0.050
95th percentile	2.198	0.828	0.411	0.133	0.571	1.032	0.104	0.340	0.055	0.005	0.032	0.003	0.012	0.002	0.003	0.000	0.002	0.000	0.060
99th percentile	2.887	1.756	0.692	0.301	0.816	1.370	0.131	0.427	0.075	0.007	0.043	0.004	0.016	0.002	0.005	0.001	0.003	0.000	0.076

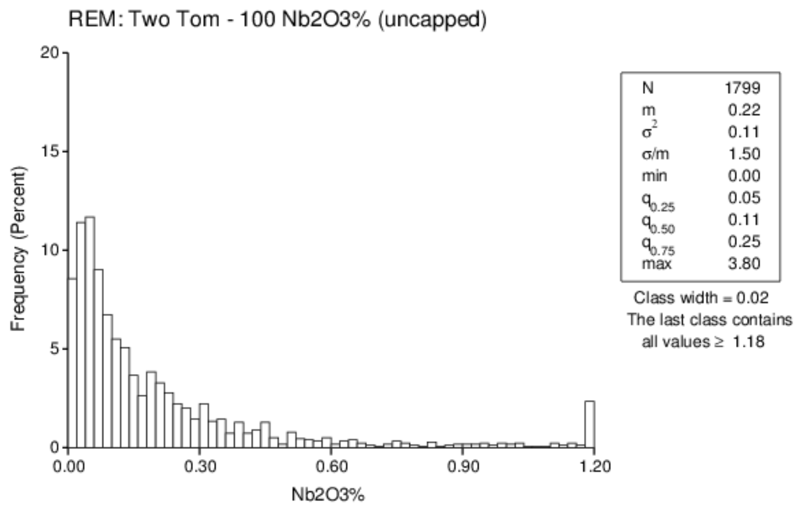
Descriptive Statistics [Subset]

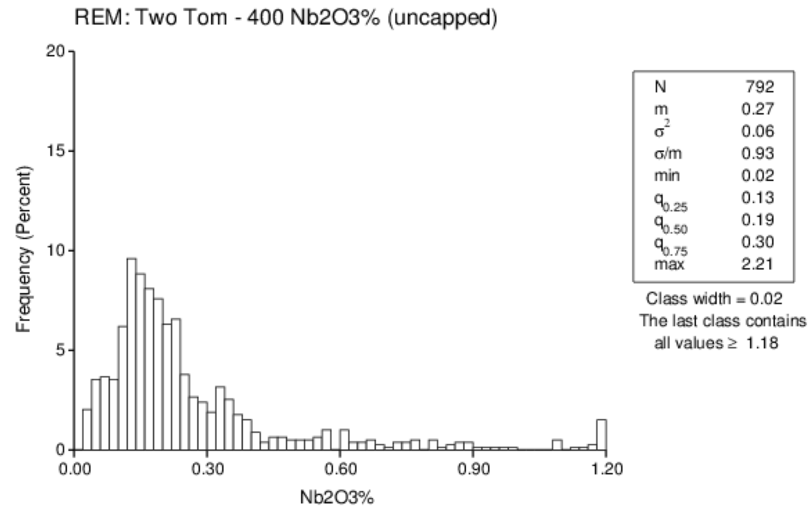
RAW Statistics (no zeroes) Rock Codes 401, 402, 403

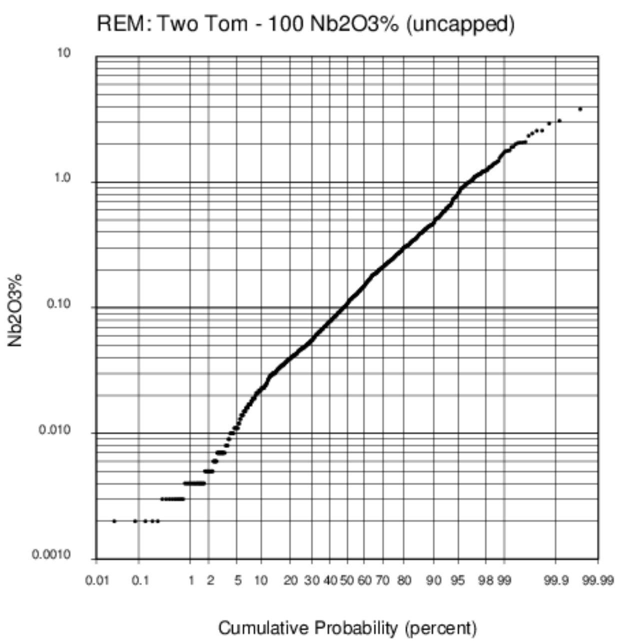
	TREO	NB2O3	BEO	THO2	LA2O3	CE2O3	PR2O3	ND2O3	SM2O3	EU2O3	GD2O3	TB2O3	DY2O3	HO2O3	ER2O3	TM2O3	YB2O3	LU2O3	Y2O3
Valid cases	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	791	792
Mean	1.517	0.266	0.217	0.064	0.378	0.698	0.071	0.236	0.039	0.004	0.024	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
Variance	0.392	0.061	0.024	0.001	0.031	0.091	0.001	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.626	0.246	0.155	0.037	0.176	0.302	0.030	0.094	0.015	0.001	0.009	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.019
Variation Coefficient	0.413	0.927	0.714	0.577	0.466	0.433	0.417	0.397	0.388	0.372	0.368	0.359	0.366	0.389	0.411	0.445	0.462	0.479	0.379
Skew	-0.066	2.981	2.809	2.749	0.333	0.083	0.006	-0.098	0.674	0.634	0.149	-0.096	-0.136	0.171	0.461	0.877	1.142	1.266	0.039
Kurtosis	0.175	12.036	17.143	22.477	0.495	0.182	0.279	0.507	4.743	4.522	2.090	0.620	-0.030	-0.032	0.407	1.557	2.811	3.306	0.001
Minimum	0.074	0.02	0.00666	0.004	0.015	0.029	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.006
Maximum	3.270	2.210	1.735	0.485	0.972	1.557	0.166	0.587	0.130	0.012	0.069	0.006	0.022	0.004	0.009	0.001	0.005	0.001	0.122
Range	3.195	2.190	1.728	0.480	0.958	1.528	0.163	0.574	0.128	0.012	0.067	0.006	0.021	0.003	0.008	0.001	0.005	0.001	0.115
1st percentile	0.152	0.030	0.016	0.007	0.028	0.064	0.008	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.009
5th percentile	0.304	0.057	0.034	0.017	0.063	0.134	0.014	0.053	0.010	0.001	0.007	0.001	0.003	0.000	0.001	0.000	0.001	0.000	0.017
10th percentile	0.592	0.083	0.069	0.026	0.130	0.266	0.028	0.097	0.018	0.002	0.011	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.023
25th percentile	0.592	0.083	0.069	0.026	0.130	0.266	0.028	0.097	0.018	0.002	0.011	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.023
Median	1.532	0.190	0.181	0.058	0.373	0.693	0.071	0.240	0.040	0.004	0.024	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
75th percentile	1.872	0.300	0.267	0.081	0.461	0.872	0.088	0.290	0.046	0.004	0.029	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.062
90th percentile	2.258	0.551	0.394	0.105	0.602	1.067	0.105	0.338	0.053	0.005	0.033	0.004	0.015	0.002	0.004	0.000	0.002	0.000	0.072
95th percentile	2.644	0.771	0.495	0.131	0.712	1.253	0.124	0.391	0.062	0.005	0.037	0.004	0.016	0.002	0.005	0.001	0.002	0.000	0.080
99th percentile	3.026	1.274	0.742	0.178	0.848	1.452	0.144	0.460	0.079	0.007	0.045	0.005	0.019	0.003	0.006	0.001	0.003	0.000	0.092

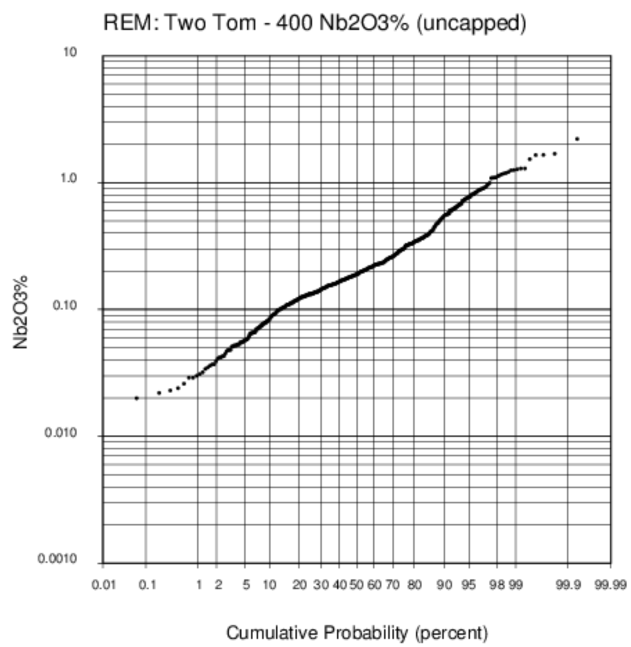
APPENDIX C

HISTOGRAMS

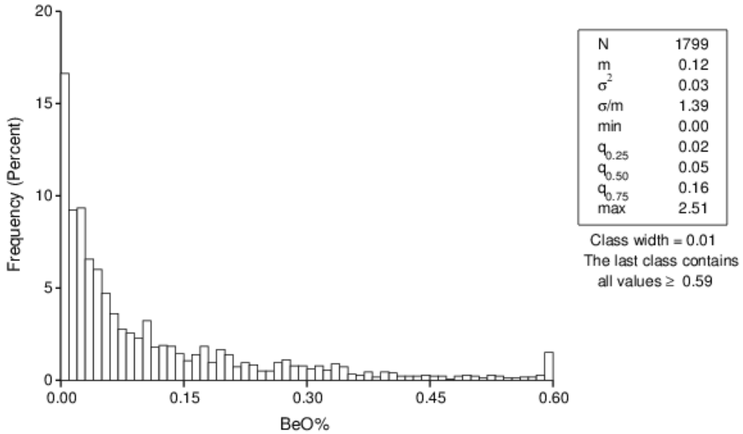

REM: Two Tom - 100 Nb2O3% (uncapped)
Frequency (Percent)
Nb2O3%
N 1799
m 0.22
σ2 0.11
σ/m 1.50
min 0.00
q0.25 0.05
q0.50 0.11
q0.75 0.25
max 3.80
Class width = 0.02
The last class contains
all values ≥ 1.18


REM: Two Tom - 400 Nb2O3% (uncapped)
Frequency (Percent)
Nb2O3%
N 792
m 0.27
σ2 0.06
σ/m 0.93
min 0.02
q0.25 0.13
q0.50 0.19
q0.75 0.30
max 2.21
Class width = 0.02
The last class contains
all values ≥ 1.18

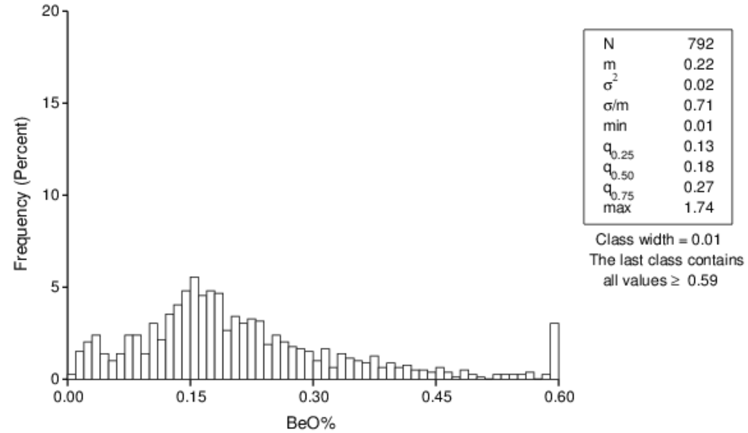

REM: Two Tom - 100 Nb2O3% (uncapped)
Nb2O3%
Cumulative Probability (percent)


REM: Two Tom - 400 Nb2O3% (uncapped)
Nb2O3%
Cumulative Probability (percent)

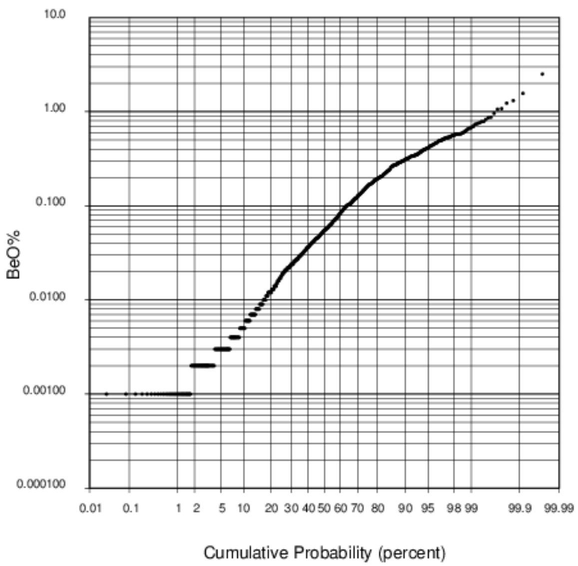
REM: Two Tom - 100 BeO% (uncapped)



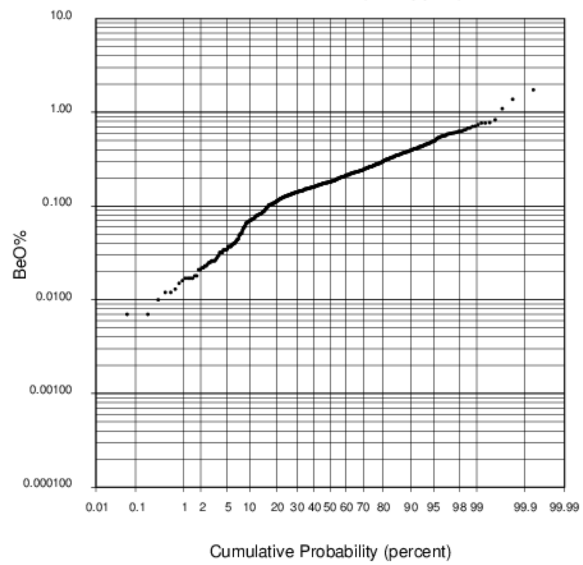
REM: Two Tom - 400 BeO% (uncapped)

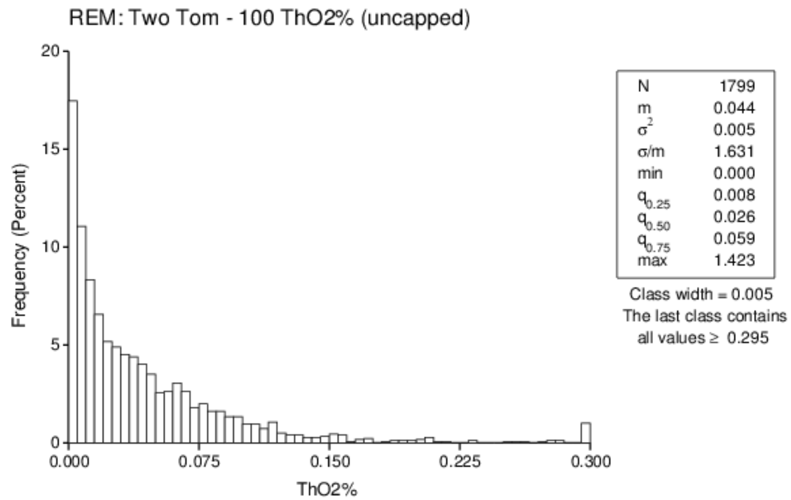


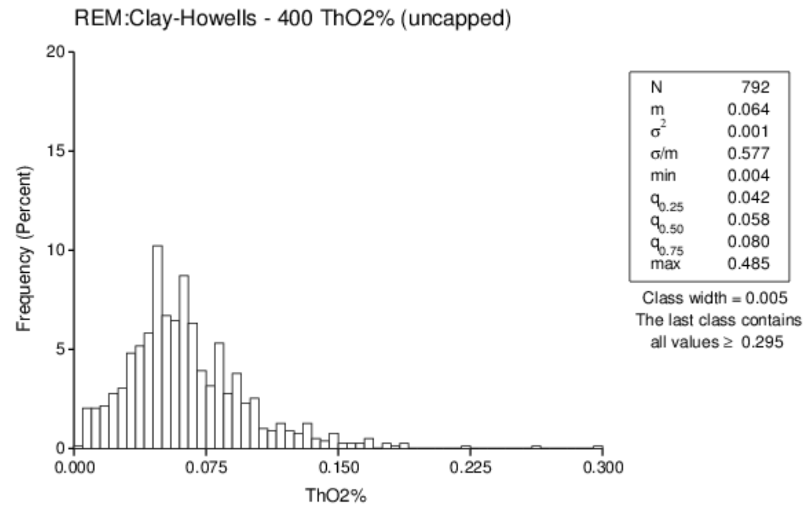
REM: Two Tom - 100 BeO% (uncapped)

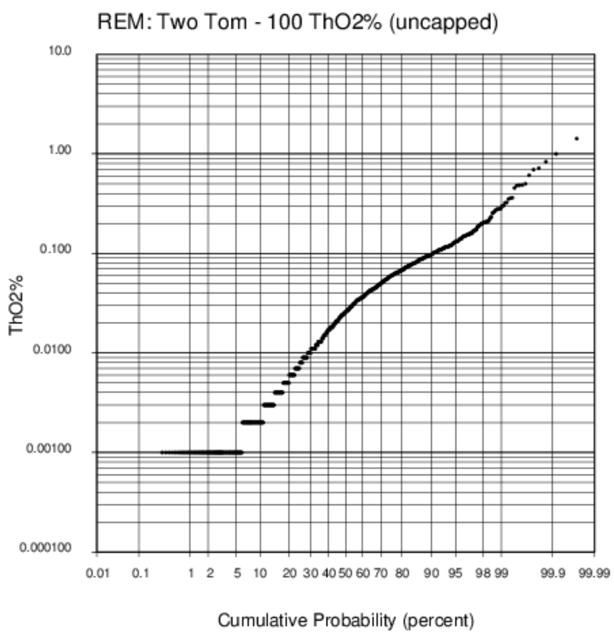


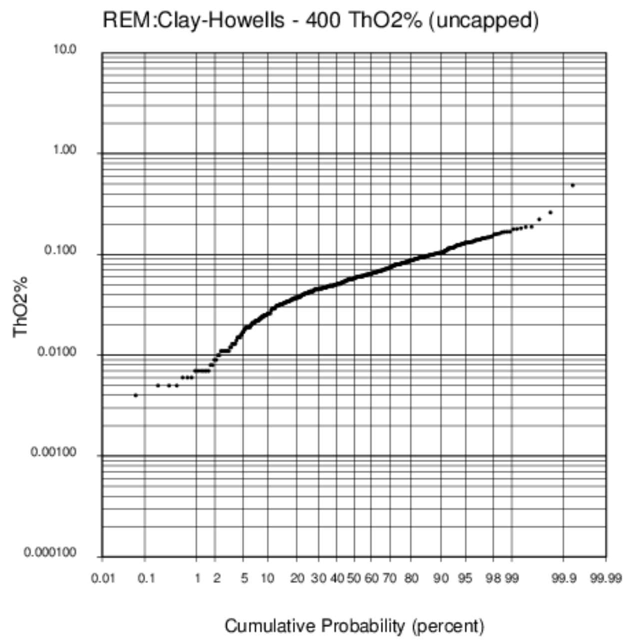
REM: Two Tom - 400 BeO% (uncapped)

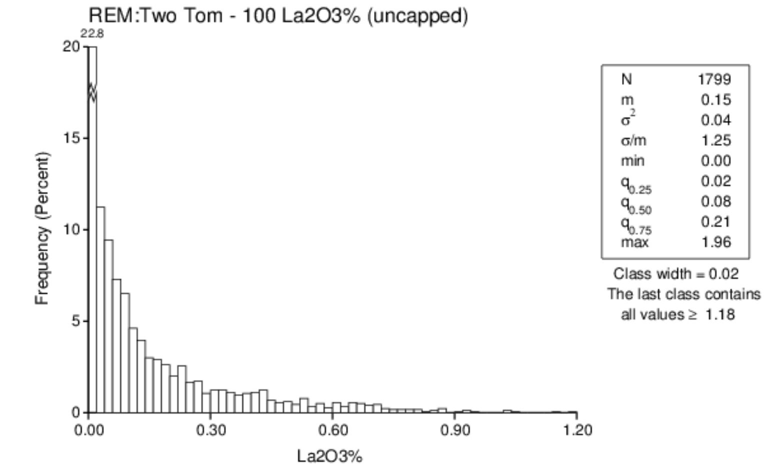


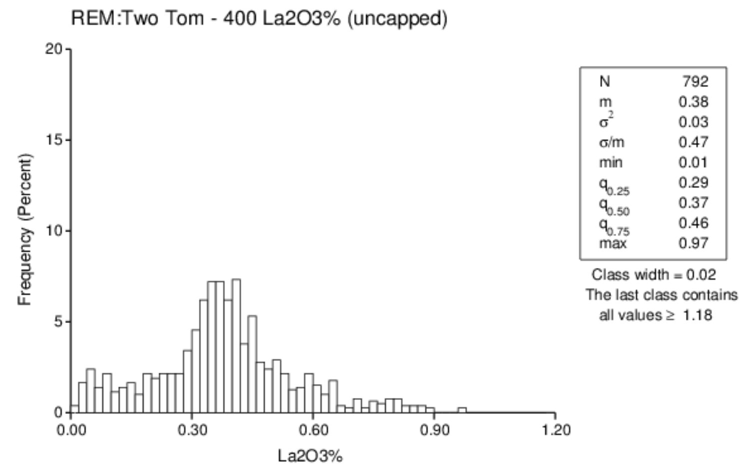

REM: Two Tom - 100 ThO2% (uncapped)
Frequency (Percent)
ThO2%
N 1799
m 0.044
σ2 0.005
σ/m 1.631
min 0.000
q0.25 0.008
q0.50 0.026
q0.75 0.059
max 1.423
Class width = 0.005
The last class contains
all values ≥ 0.295

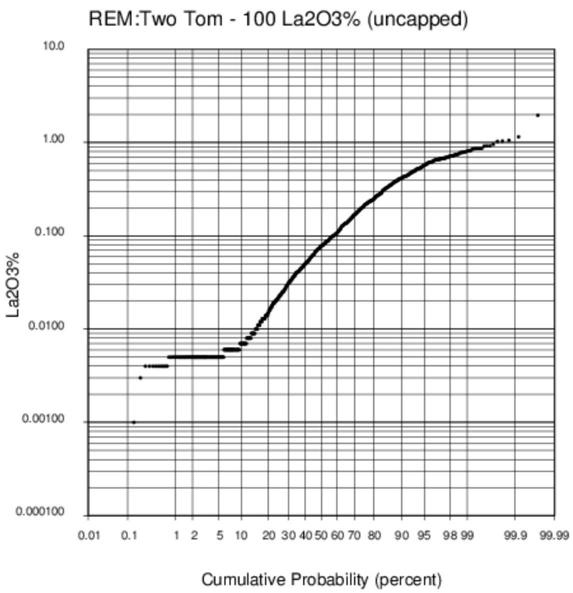

REM:Clay-Howells - 400 ThO2% (uncapped)
Frequency (Percent)
ThO2%
N 792
m 0.064
σ2 0.001
σ/m 0.577
min 0.004
q0.25 0.042
q0.50 0.058
q0.75 0.080
max 0.485
Class width = 0.005
The last class contains
all values ≥ 0.295

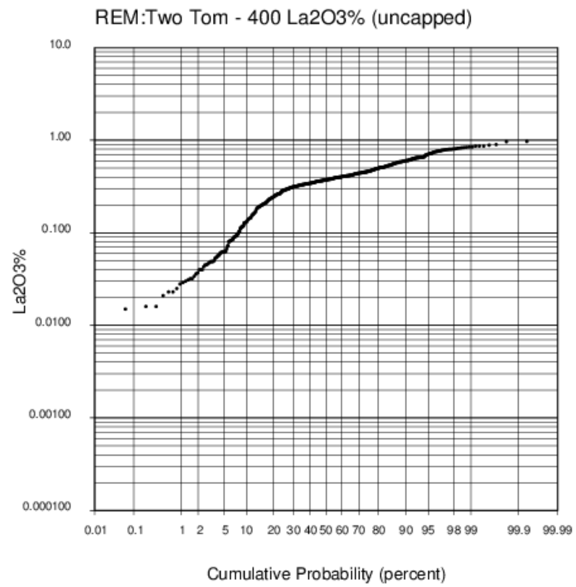

REM: Two Tom - 100 ThO2% (uncapped)
ThO2%
Cumulative Probability (percent)


REM:Clay-Howells - 400 ThO2% (uncapped)
ThO2%
Cumulative Probability (percent)

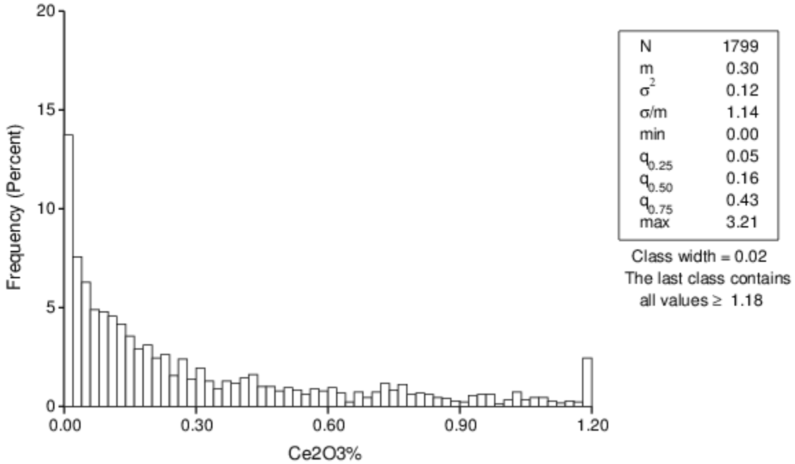

REM:Two Tom - 100 La2O3% (uncapped)
22.8
Frequency (Percent)
La2O3%
N 1799
m 0.15
σ^2 0.04
σ/m 1.25
min 0.00
$q_{0.25}$ 0.02
$q_{0.50}$ 0.08
$q_{0.75}$ 0.21
max 1.96
Class width = 0.02
The last class contains
all values ≥ 1.18


REM:Two Tom - 400 La2O3% (uncapped)
Frequency (Percent)
La2O3%
N 792
m 0.38
σ^2 0.03
σ/m 0.47
min 0.01
$q_{0.25}$ 0.29
$q_{0.50}$ 0.37
$q_{0.75}$ 0.46
max 0.97
Class width = 0.02
The last class contains
all values ≥ 1.18

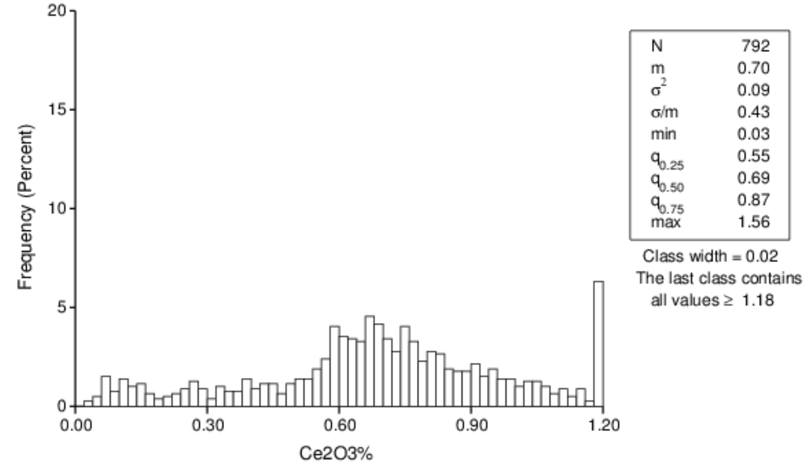

REM:Two Tom - 100 La2O3% (uncapped)
La2O3%
Cumulative Probability (percent)


REM:Two Tom - 400 La2O3% (uncapped)
La2O3%
Cumulative Probability (percent)

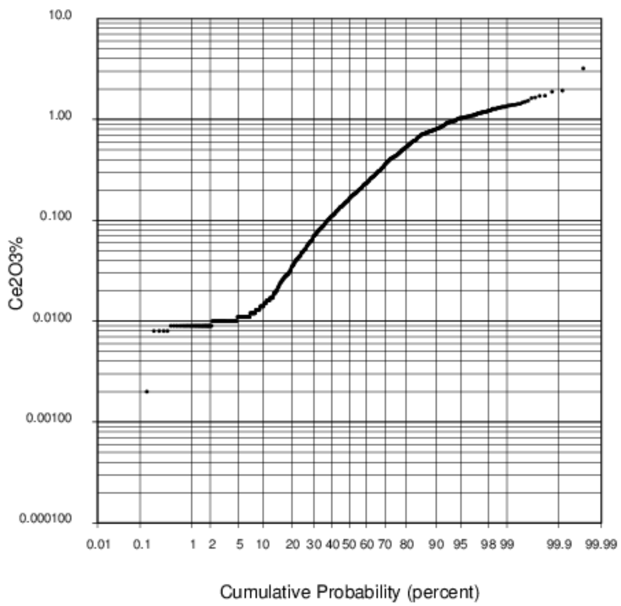
REM:Two Tom - 100 Ce2O3% (uncapped)



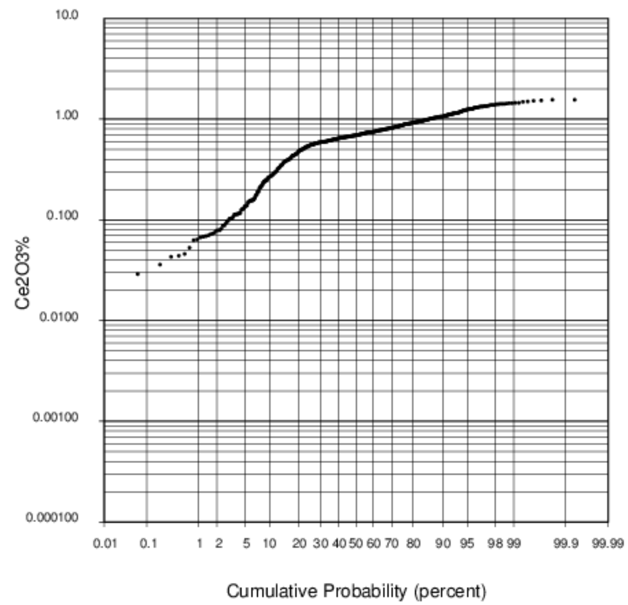
REM:Two Tom - 400 Ce2O3% (uncapped)



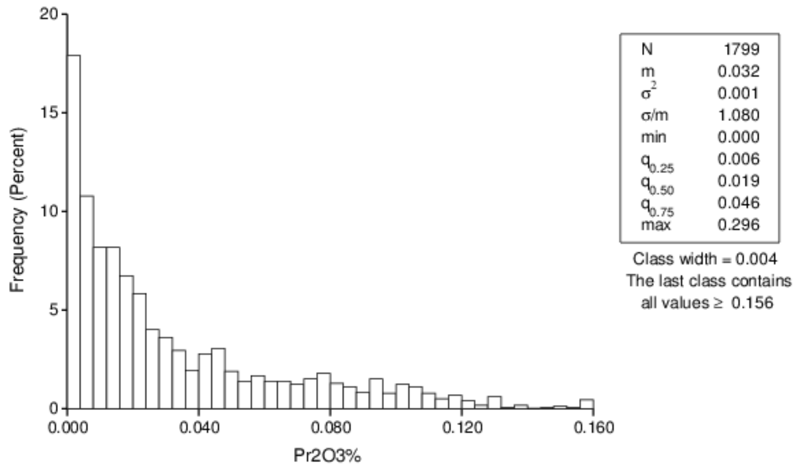
REM:Two Tom - 100 Ce2O3% (uncapped)



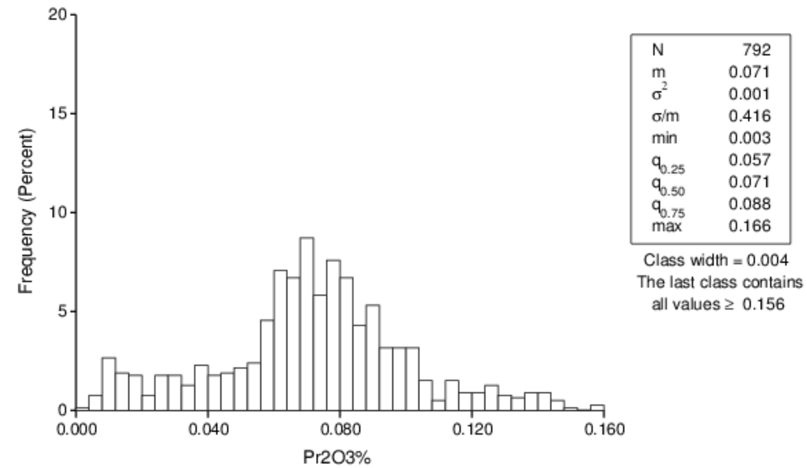
REM:Two Tom - 400 Ce2O3% (uncapped)



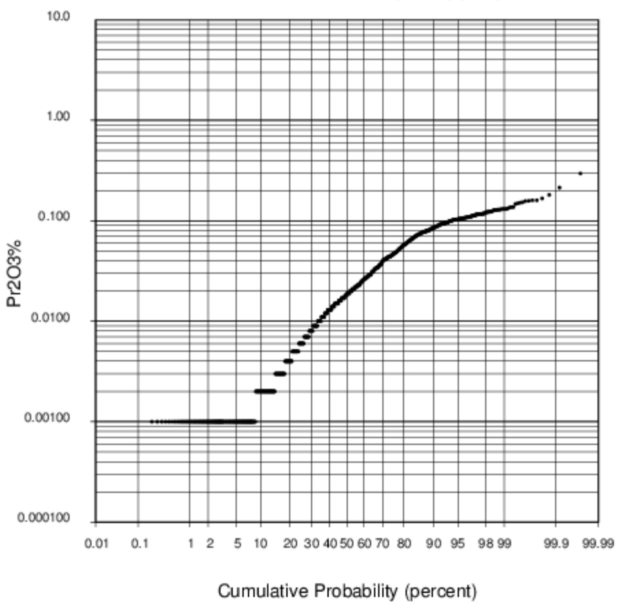
REM:Two Tom - 100 Pr2O3% (uncapped)



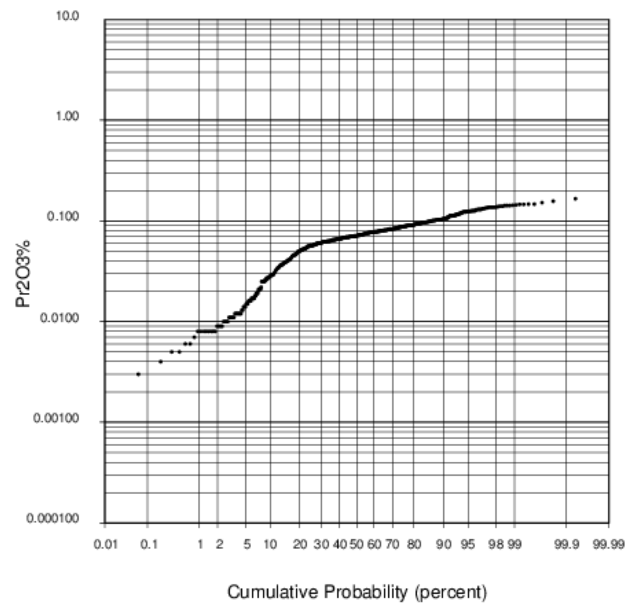
REM:Two Tom - 400 Pr2O3% (uncapped)



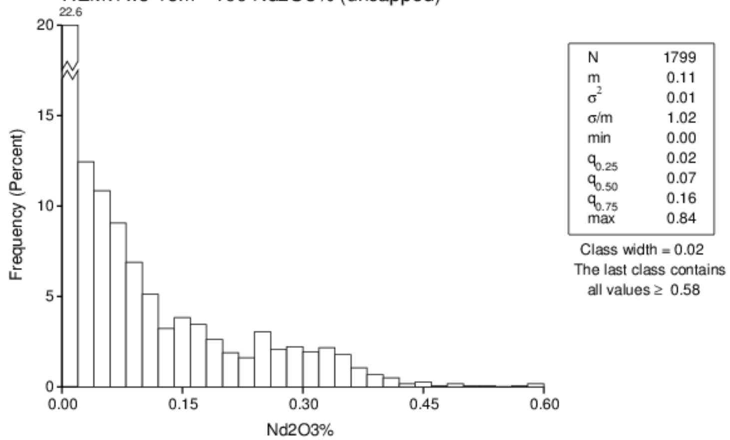
REM:Two Tom - 100 Pr2O3% (uncapped)



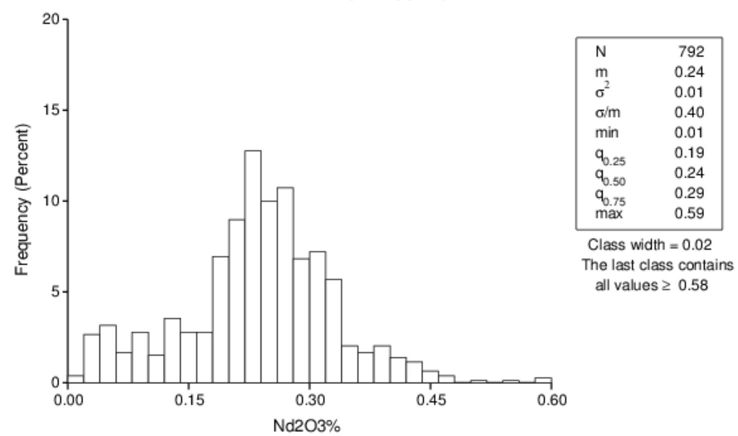
REM:Two Tom - 400 Pr2O3% (uncapped)



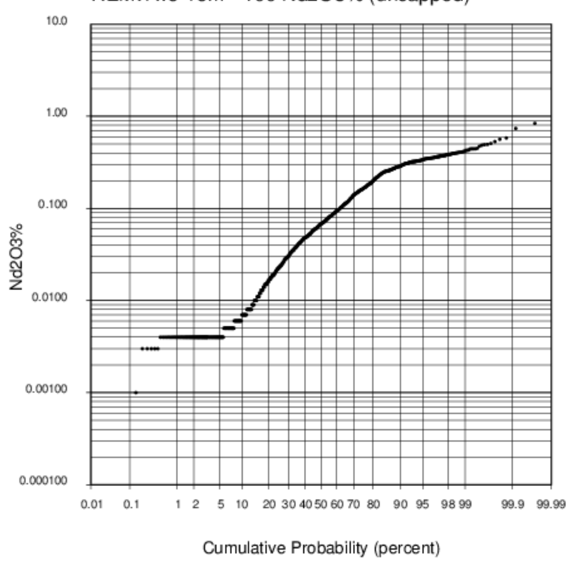
REM:Two Tom - 100 Nd2O3% (uncapped)



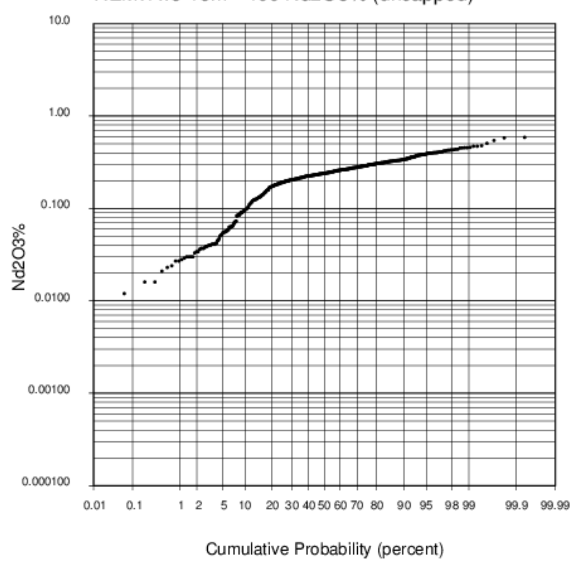
REM:Two Tom - 400 Nd2O3% (uncapped)

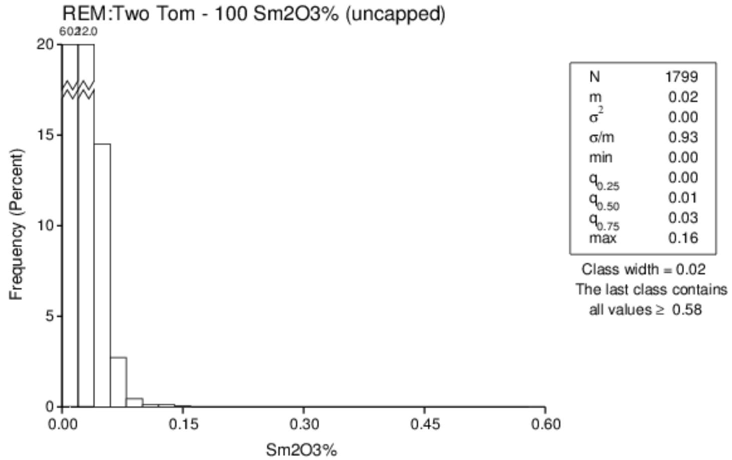


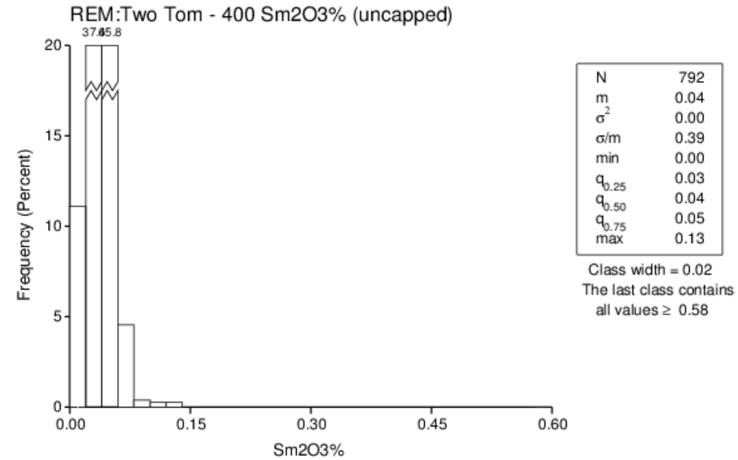
REM:Two Tom - 100 Nd2O3% (uncapped)

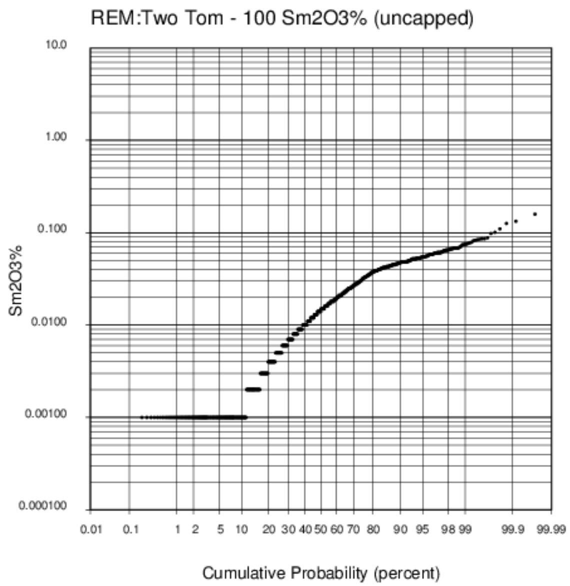


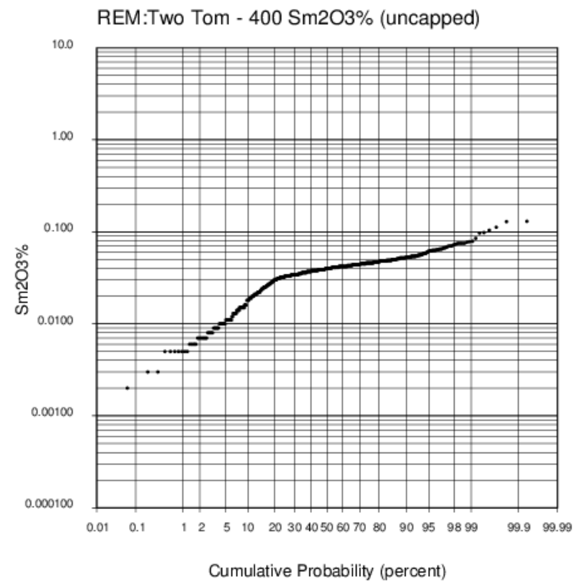
REM:Two Tom - 400 Nd2O3% (uncapped)

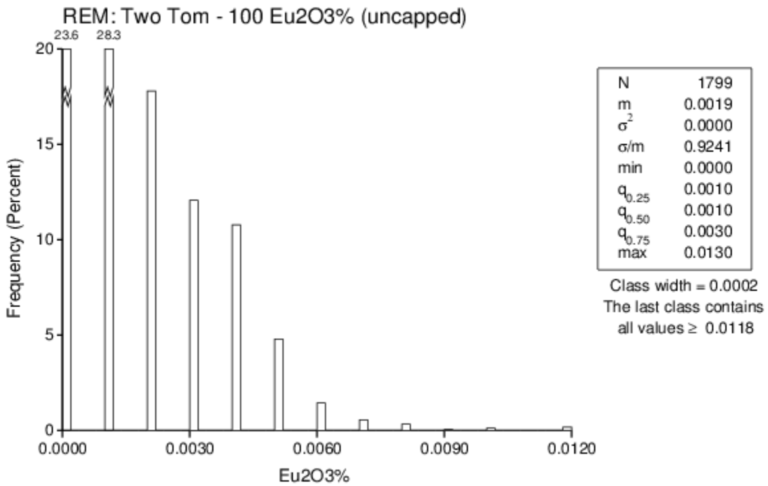


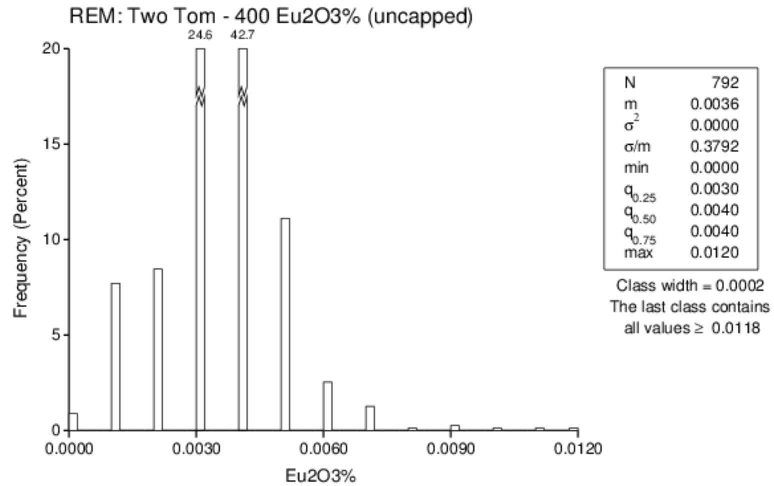

REM:Two Tom - 100 Sm2O3% (uncapped)
Frequency (Percent)
Sm2O3%
N 1799
m 0.02
σ² 0.00
σ/m 0.93
min 0.00
q0.25 0.00
q0.50 0.01
q0.75 0.03
max 0.16
Class width = 0.02
The last class contains
all values ≥ 0.58

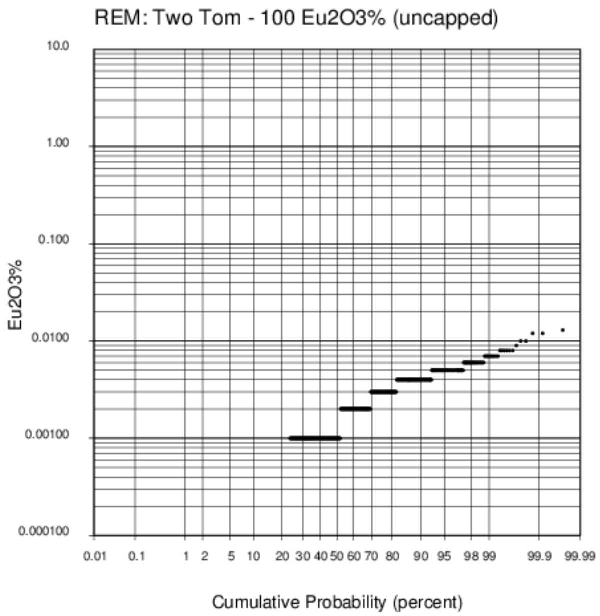

REM:Two Tom - 400 Sm2O3% (uncapped)
Frequency (Percent)
Sm2O3%
N 792
m 0.04
σ² 0.00
σ/m 0.39
min 0.00
q0.25 0.03
q0.50 0.04
q0.75 0.05
max 0.13
Class width = 0.02
The last class contains
all values ≥ 0.58

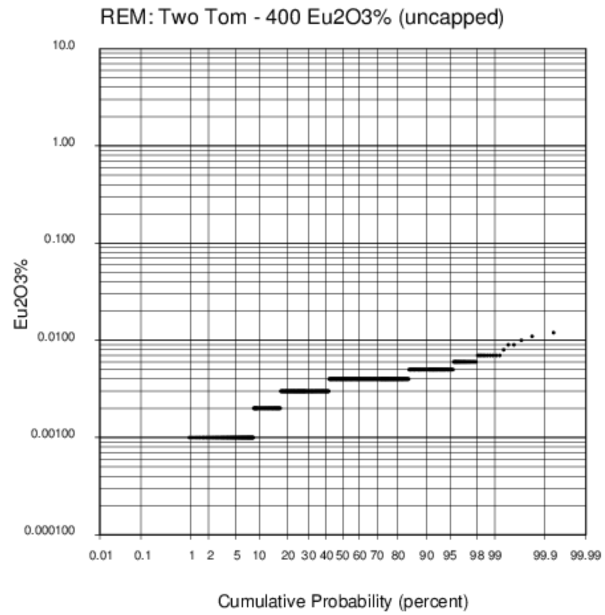

REM:Two Tom - 100 Sm2O3% (uncapped)
Sm2O3%
Cumulative Probability (percent)


REM:Two Tom - 400 Sm2O3% (uncapped)
Sm2O3%
Cumulative Probability (percent)

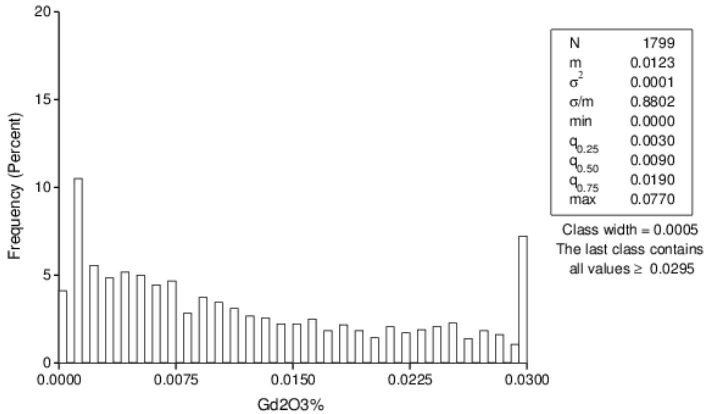

REM: Two Tom - 100 Eu2O3% (uncapped)
23.6
28.3
Frequency (Percent)
Eu2O3%
N 1799
m 0.0019
σ2 0.0000
σ/m 0.9241
min 0.0000
q0.25 0.0010
q0.50 0.0010
q0.75 0.0030
max 0.0130
Class width = 0.0002
The last class contains
all values ≥ 0.0118


REM: Two Tom - 400 Eu2O3% (uncapped)
24.6
42.7
Frequency (Percent)
Eu2O3%
N 792
m 0.0036
σ2 0.0000
σ/m 0.3792
min 0.0000
q0.25 0.0030
q0.50 0.0040
q0.75 0.0040
max 0.0120
Class width = 0.0002
The last class contains
all values ≥ 0.0118

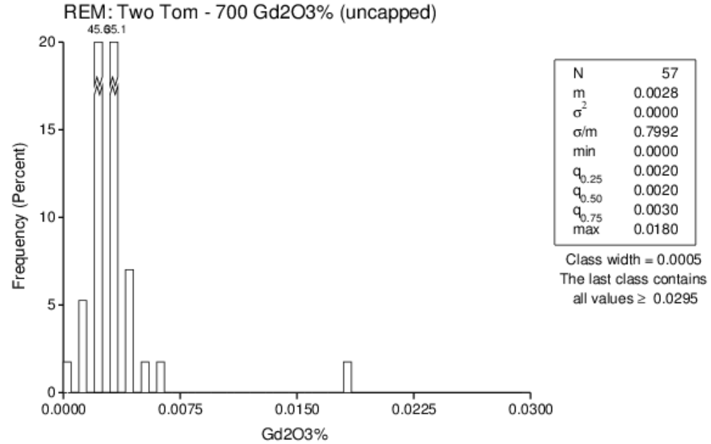

REM: Two Tom - 100 Eu2O3% (uncapped)
Eu2O3%
Cumulative Probability (percent)


REM: Two Tom - 400 Eu2O3% (uncapped)
Eu2O3%
Cumulative Probability (percent)

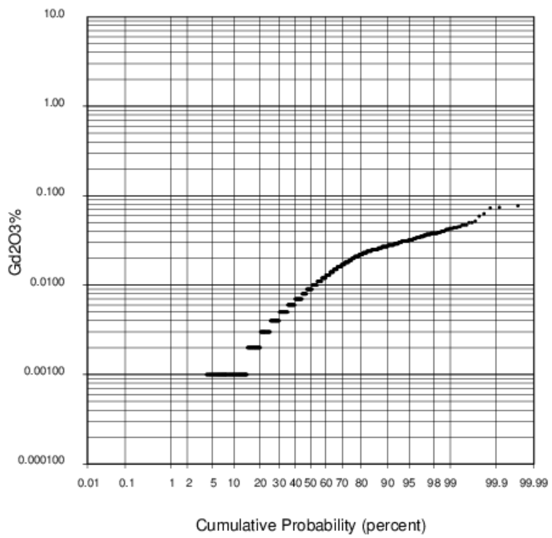
REM: Two Tom - 100 Gd2O3% (uncapped)



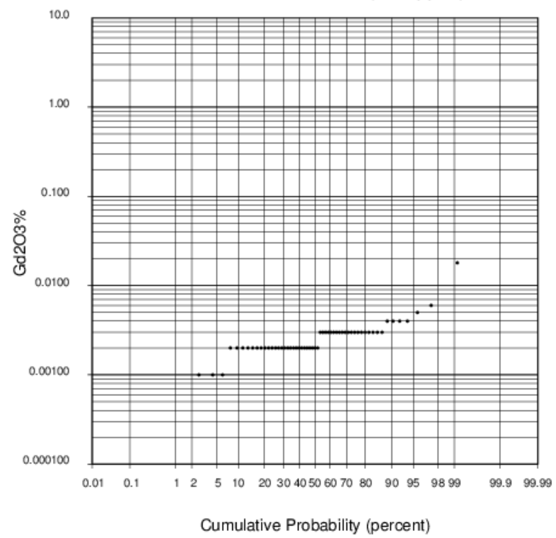
REM: Two Tom - 700 Gd2O3% (uncapped)

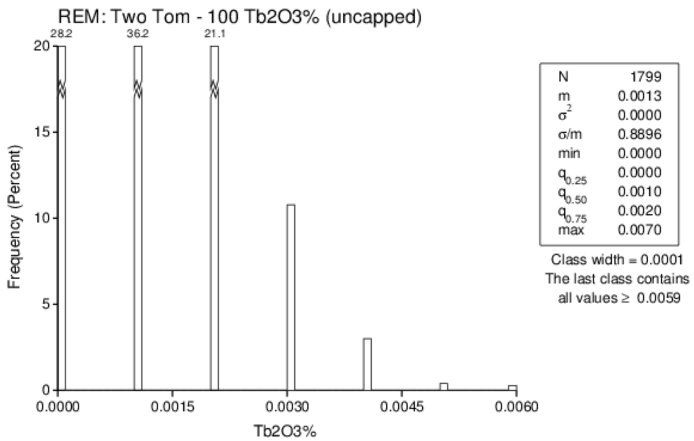


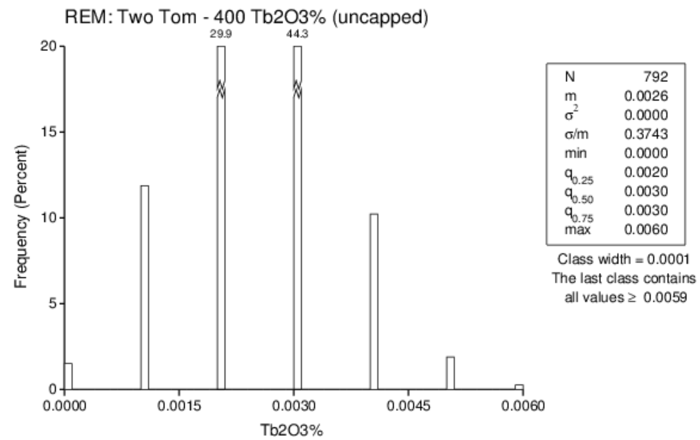
REM: Two Tom - 100 Gd2O3% (uncapped)

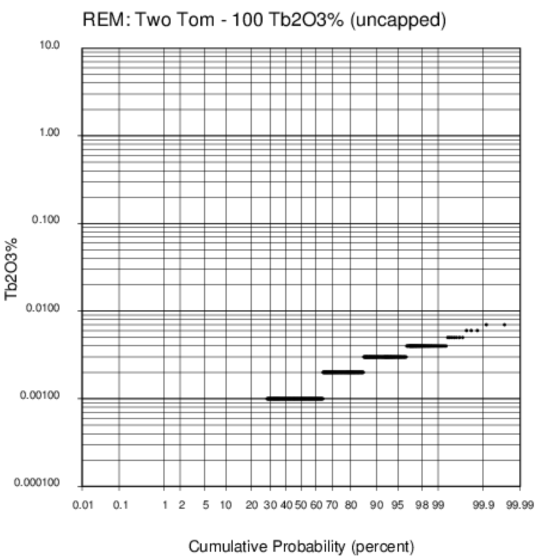


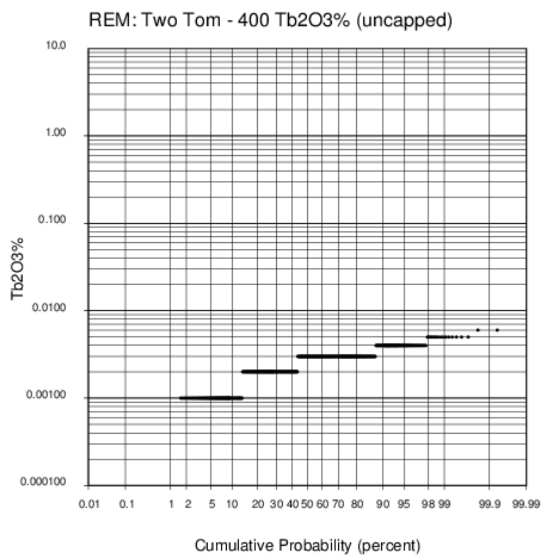
REM: Two Tom - 700 Gd2O3% (uncapped)

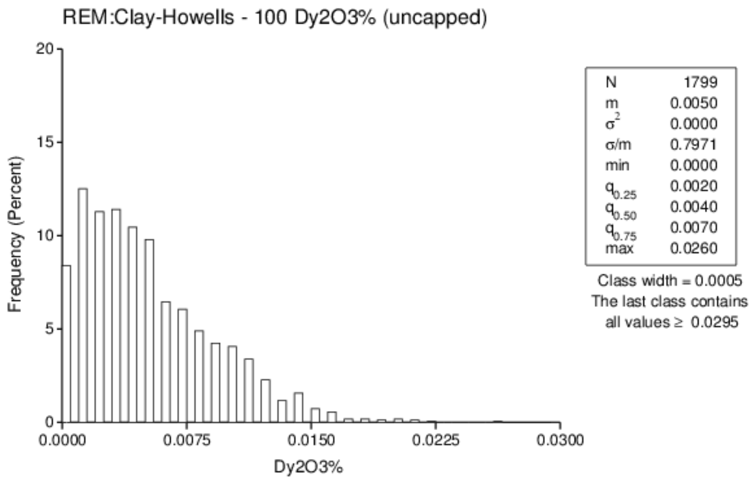


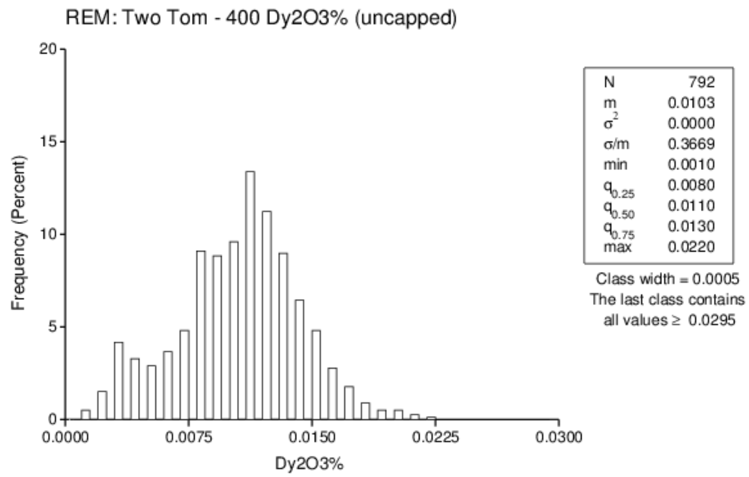

REM: Two Tom - 100 Tb2O3% (uncapped)
Frequency (Percent)
Tb2O3%
28.2
36.2
21.1
N 1799
m 0.0013
σ² 0.0000
σ/m 0.8896
min 0.0000
q0.25 0.0000
q0.50 0.0010
q0.75 0.0020
max 0.0070
Class width = 0.0001
The last class contains
all values ≥ 0.0059

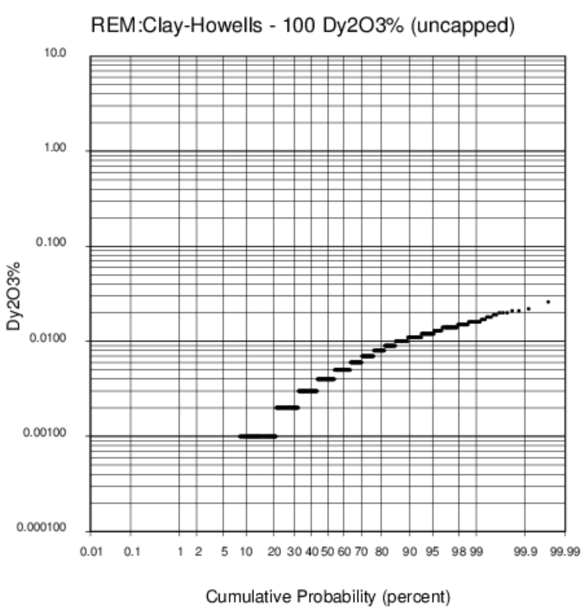

REM: Two Tom - 400 Tb2O3% (uncapped)
Frequency (Percent)
Tb2O3%
29.9
44.3
N 792
m 0.0026
σ² 0.0000
σ/m 0.3743
min 0.0000
q0.25 0.0020
q0.50 0.0030
q0.75 0.0030
max 0.0060
Class width = 0.0001
The last class contains
all values ≥ 0.0059

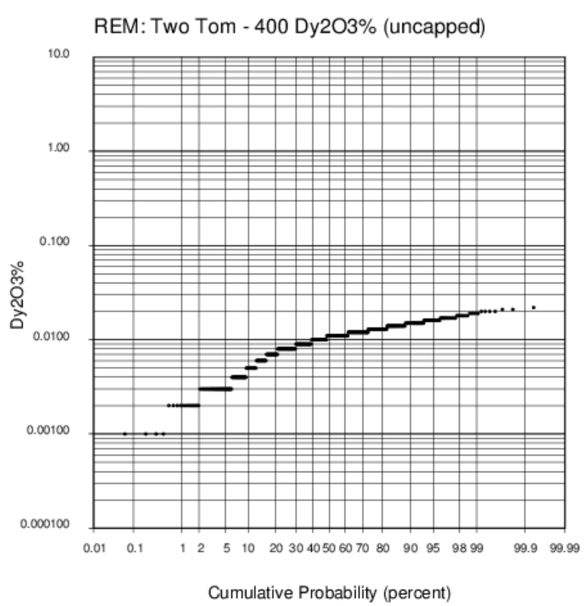

REM: Two Tom - 100 Tb2O3% (uncapped)
Tb2O3%
Cumulative Probability (percent)

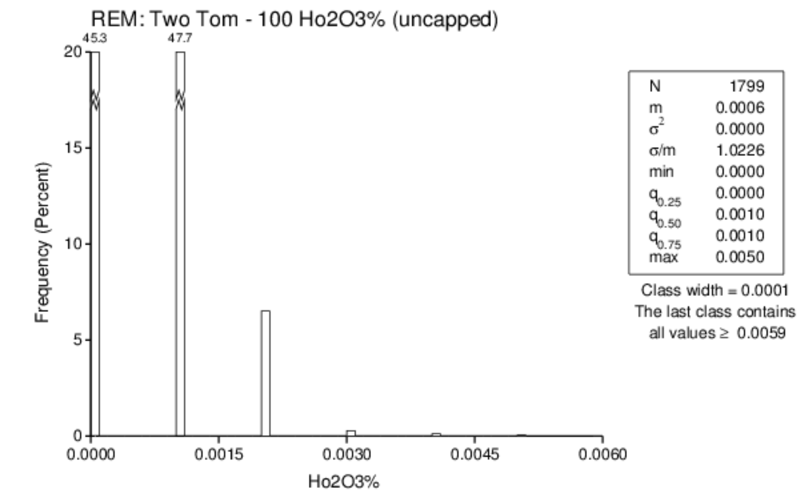

REM: Two Tom - 400 Tb2O3% (uncapped)
Tb2O3%
Cumulative Probability (percent)

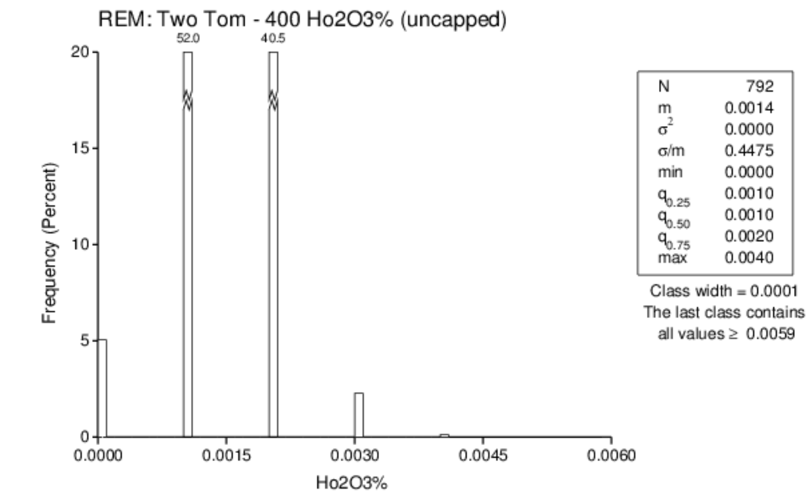

REM:Clay-Howells - 100 Dy2O3% (uncapped)
Frequency (Percent)
Dy2O3%
N 1799
m 0.0050
σ^2 0.0000
σ/m 0.7971
min 0.0000
$q_{0.25}$ 0.0020
$q_{0.50}$ 0.0040
$q_{0.75}$ 0.0070
max 0.0260
Class width = 0.0005
The last class contains
all values ≥ 0.0295

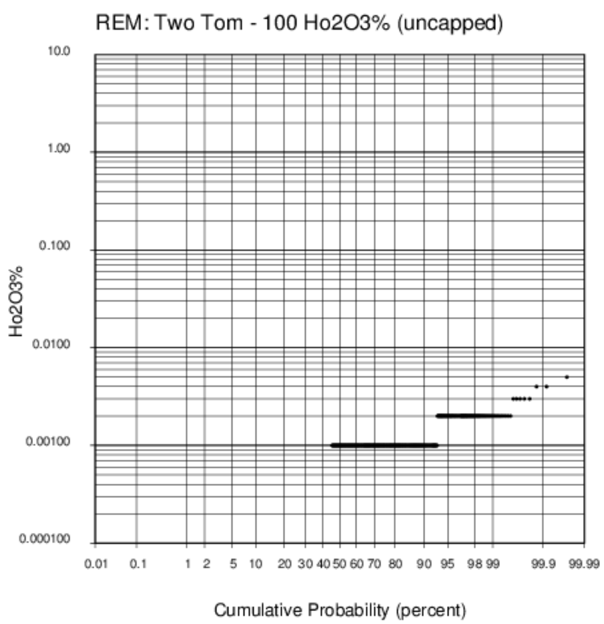

REM: Two Tom - 400 Dy2O3% (uncapped)
Frequency (Percent)
Dy2O3%
N 792
m 0.0103
σ^2 0.0000
σ/m 0.3669
min 0.0010
$q_{0.25}$ 0.0080
$q_{0.50}$ 0.0110
$q_{0.75}$ 0.0130
max 0.0220
Class width = 0.0005
The last class contains
all values ≥ 0.0295

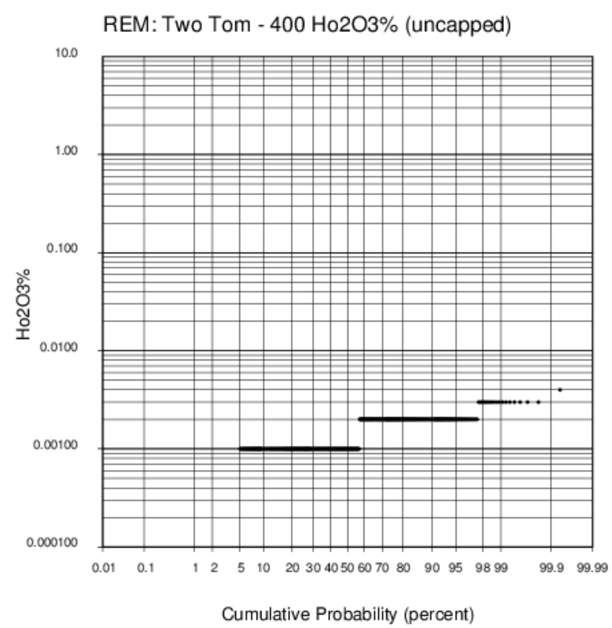

REM:Clay-Howells - 100 Dy2O3% (uncapped)
Dy2O3%
Cumulative Probability (percent)

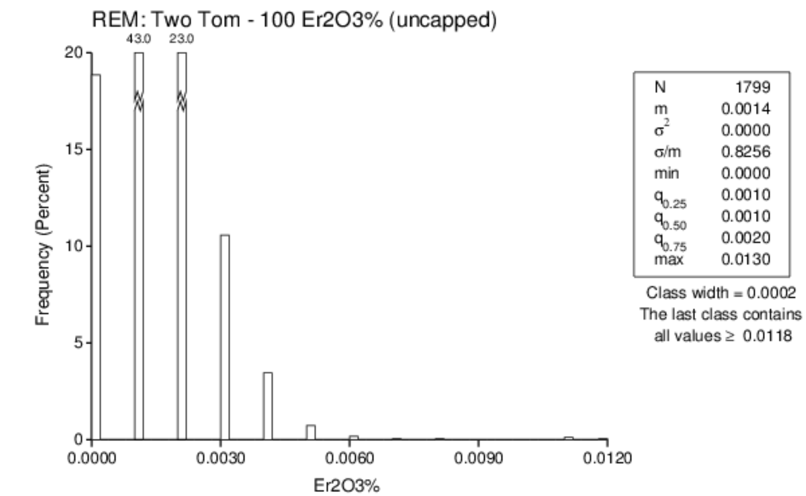

REM: Two Tom - 400 Dy2O3% (uncapped)
Dy2O3%
Cumulative Probability (percent)

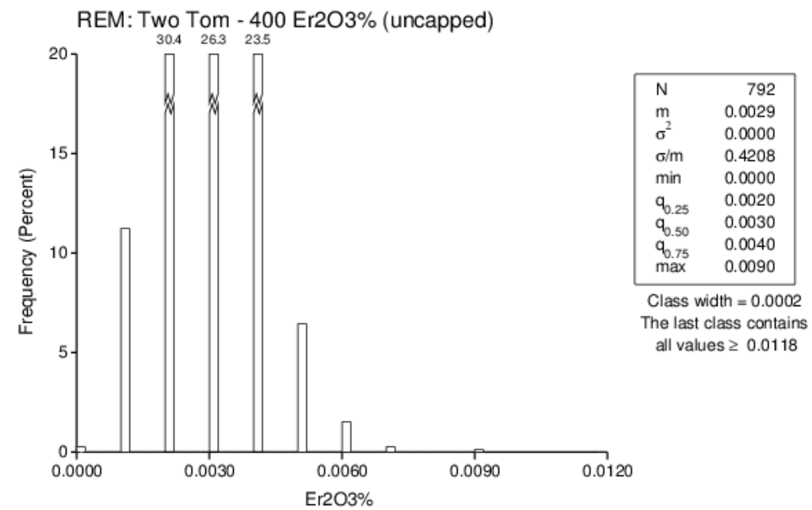

REM: Two Tom - 100 Ho2O3% (uncapped)
45.3
47.7
Frequency (Percent)
Ho2O3%
N 1799
m 0.0006
σ2 0.0000
σ/m 1.0226
min 0.0000
q0.25 0.0000
q0.50 0.0010
q0.75 0.0010
max 0.0050
Class width = 0.0001
The last class contains
all values ≥ 0.0059

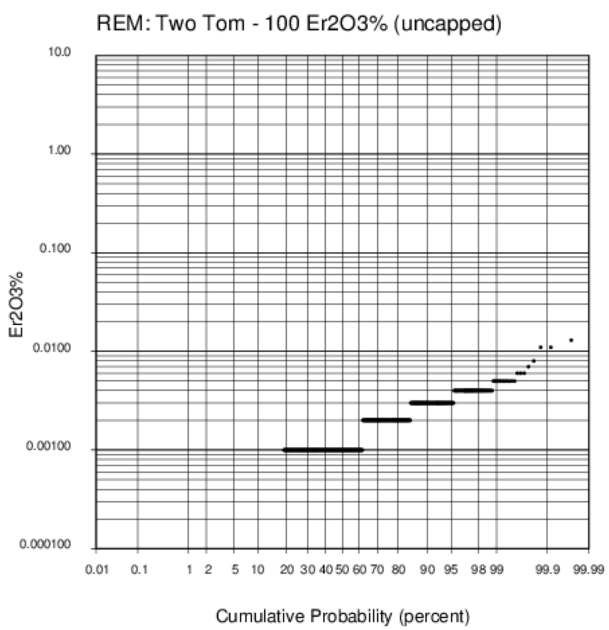

REM: Two Tom - 400 Ho2O3% (uncapped)
52.0
40.5
Frequency (Percent)
Ho2O3%
N 792
m 0.0014
σ2 0.0000
σ/m 0.4475
min 0.0000
q0.25 0.0010
q0.50 0.0010
q0.75 0.0020
max 0.0040
Class width = 0.0001
The last class contains
all values ≥ 0.0059

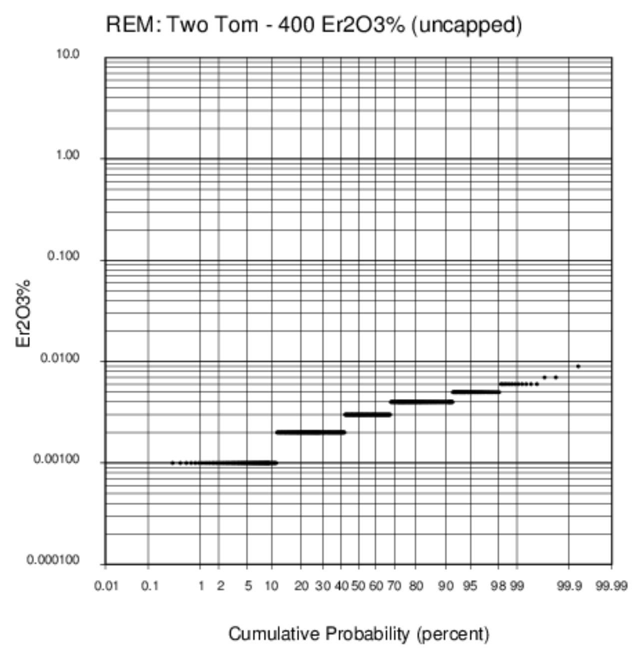

REM: Two Tom - 100 Ho2O3% (uncapped)
Ho2O3%
Cumulative Probability (percent)

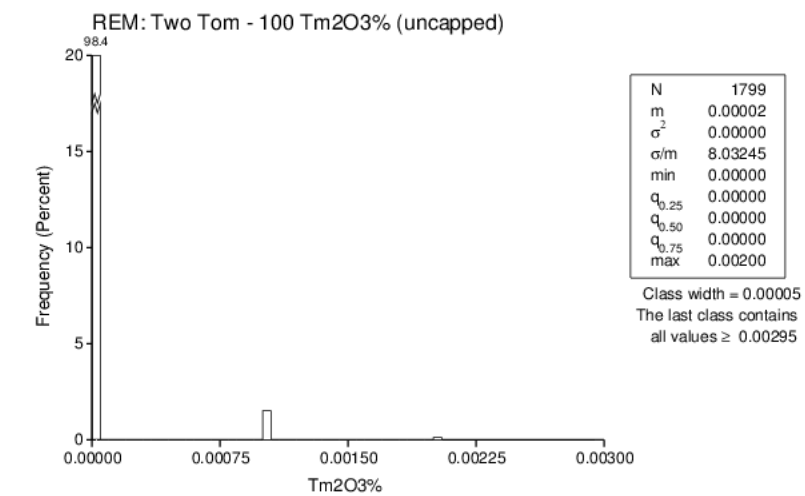

REM: Two Tom - 400 Ho2O3% (uncapped)
Ho2O3%
Cumulative Probability (percent)

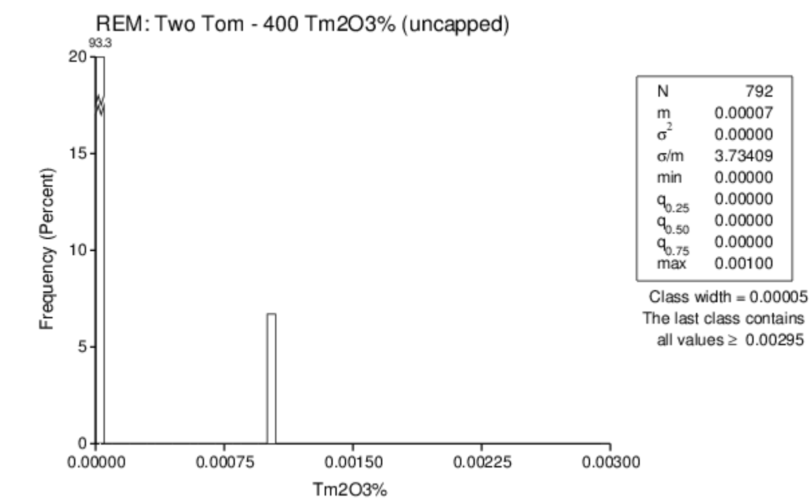

REM: Two Tom - 100 Er2O3% (uncapped)
43.0
23.0
Frequency (Percent)
Er2O3%
N 1799
m 0.0014
σ² 0.0000
σ/m 0.8256
min 0.0000
q0.25 0.0010
q0.50 0.0010
q0.75 0.0020
max 0.0130
Class width = 0.0002
The last class contains
all values ≥ 0.0118

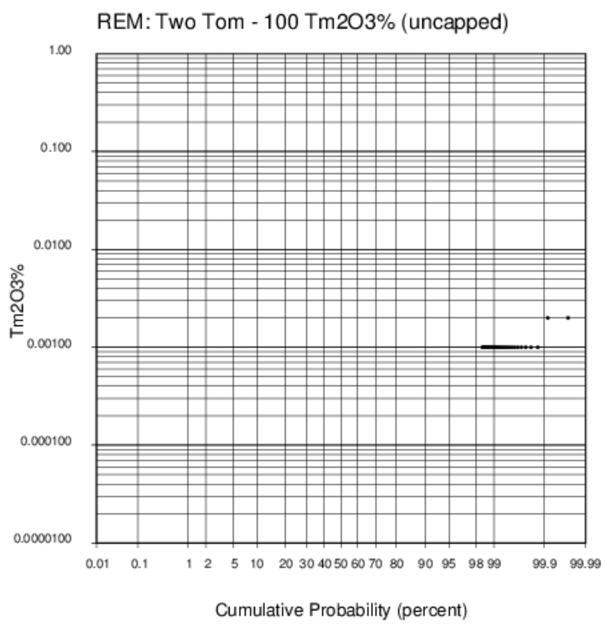

REM: Two Tom - 400 Er2O3% (uncapped)
30.4
26.3
23.5
Frequency (Percent)
Er2O3%
N 792
m 0.0029
σ² 0.0000
σ/m 0.4208
min 0.0000
q0.25 0.0020
q0.50 0.0030
q0.75 0.0040
max 0.0090
Class width = 0.0002
The last class contains
all values ≥ 0.0118

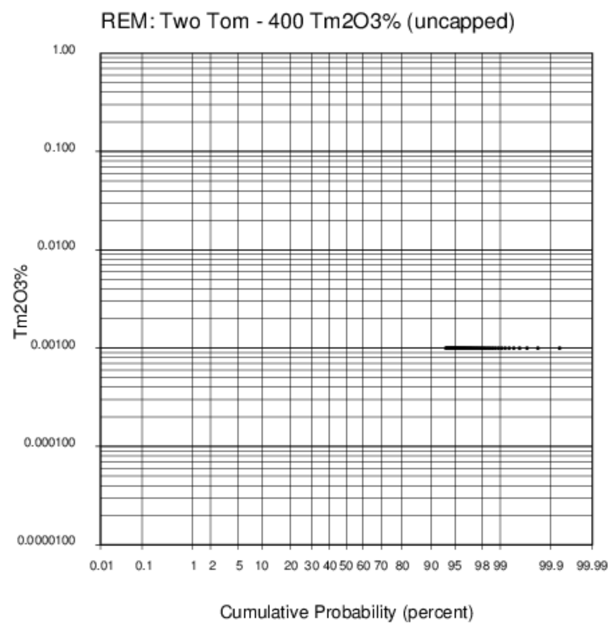

REM: Two Tom - 100 Er2O3% (uncapped)
Er2O3%
Cumulative Probability (percent)


REM: Two Tom - 400 Er2O3% (uncapped)
Er2O3%
Cumulative Probability (percent)

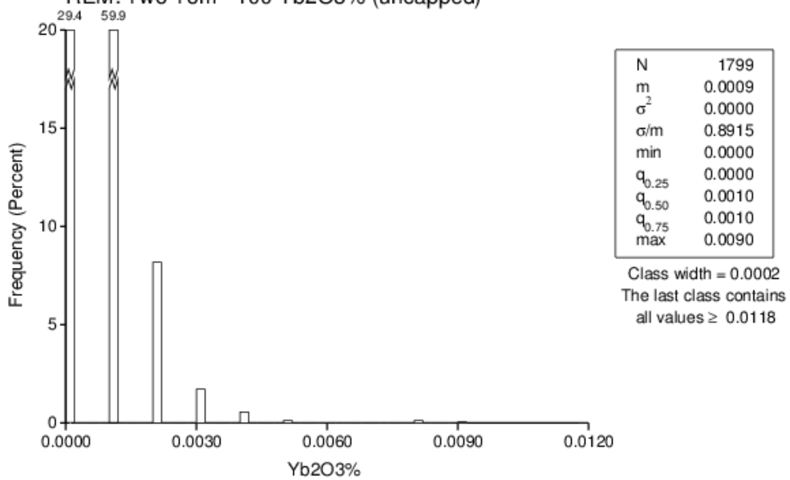

REM: Two Tom - 100 Tm2O3% (uncapped)
98.4
Frequency (Percent)
Tm2O3%
N 1799
m 0.00002
σ2 0.00000
σ/m 8.03245
min 0.00000
q0.25 0.00000
q0.50 0.00000
q0.75 0.00000
max 0.00200
Class width = 0.00005
The last class contains
all values ≥ 0.00295


REM: Two Tom - 400 Tm2O3% (uncapped)
93.3
Frequency (Percent)
Tm2O3%
N 792
m 0.00007
σ2 0.00000
σ/m 3.73409
min 0.00000
q0.25 0.00000
q0.50 0.00000
q0.75 0.00000
max 0.00100
Class width = 0.00005
The last class contains
all values ≥ 0.00295

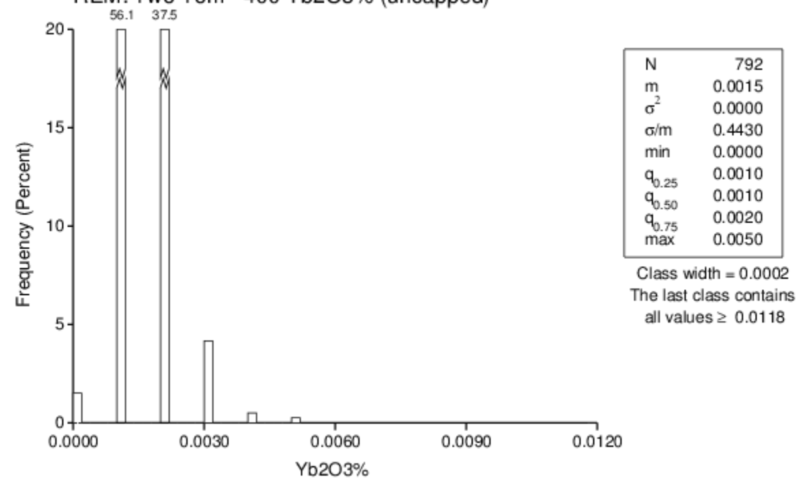

REM: Two Tom - 100 Tm2O3% (uncapped)
Tm2O3%
Cumulative Probability (percent)


REM: Two Tom - 400 Tm2O3% (uncapped)
Tm2O3%
Cumulative Probability (percent)

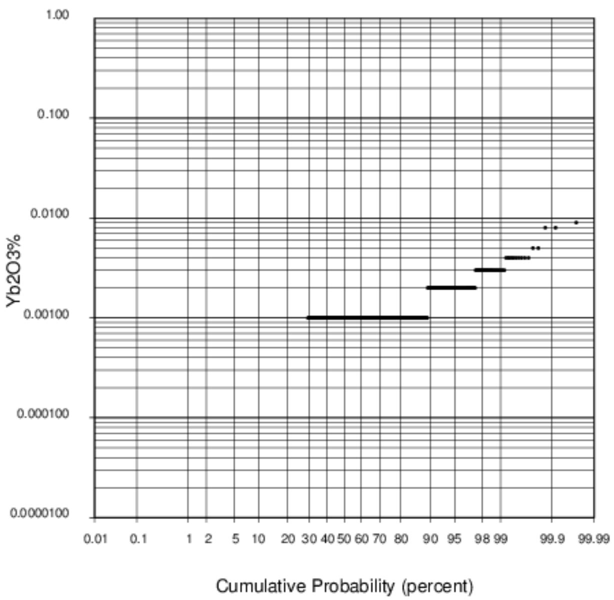
REM: Two Tom - 100 Yb2O3% (uncapped)



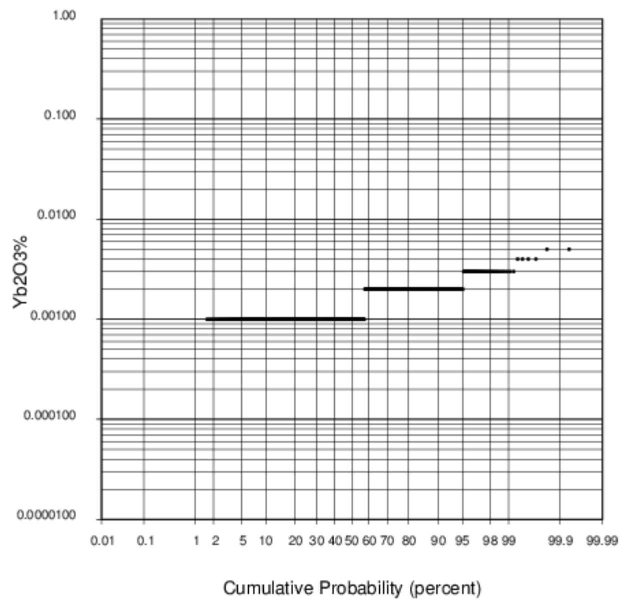
REM: Two Tom - 400 Yb2O3% (uncapped)



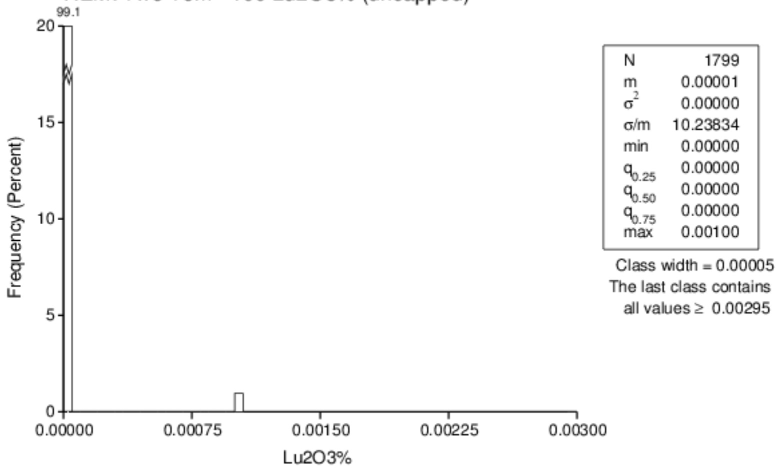
REM: Two Tom - 100 Yb2O3% (uncapped)



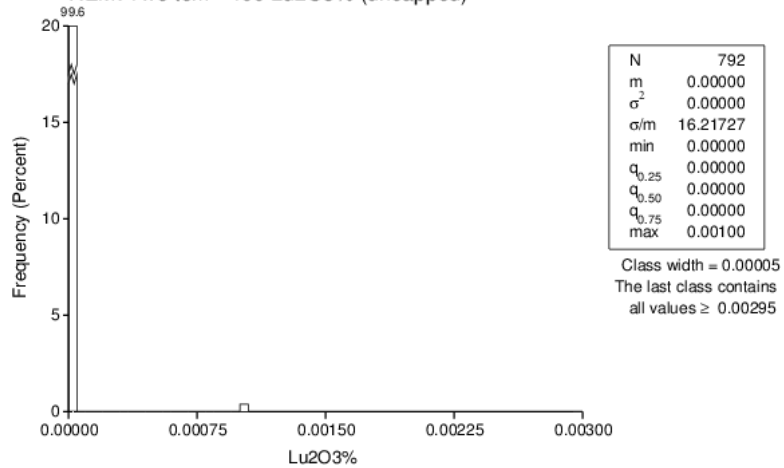
REM: Two Tom - 400 Yb2O3% (uncapped)



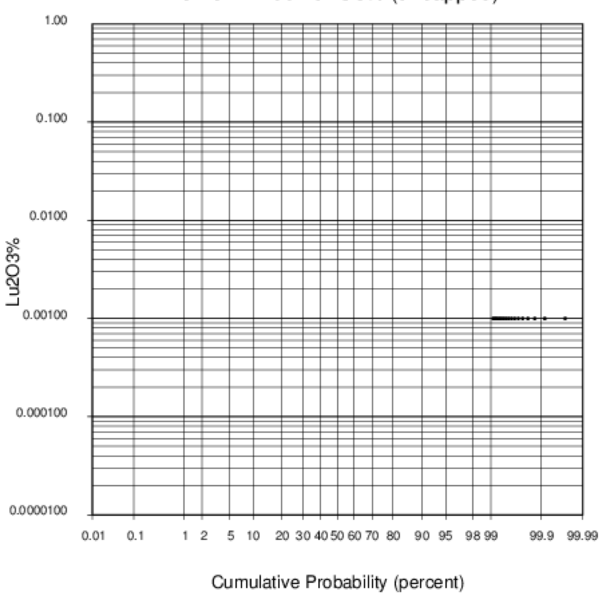
REM: Two Tom - 100 Lu2O3% (uncapped)



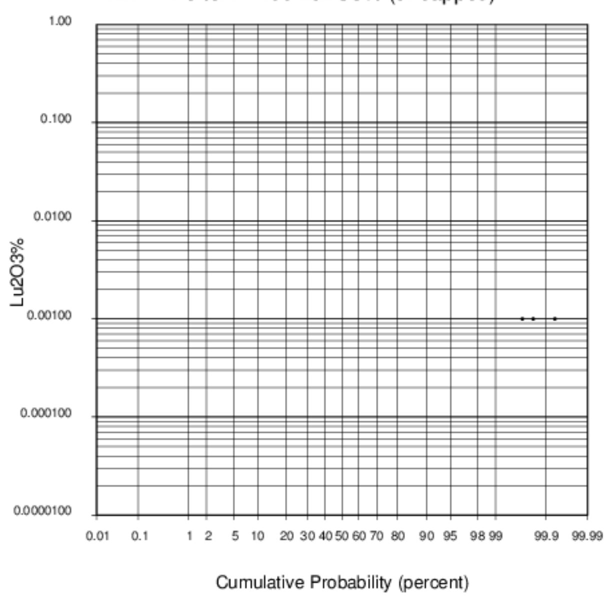
REM: Two tom - 400 Lu2O3% (uncapped)

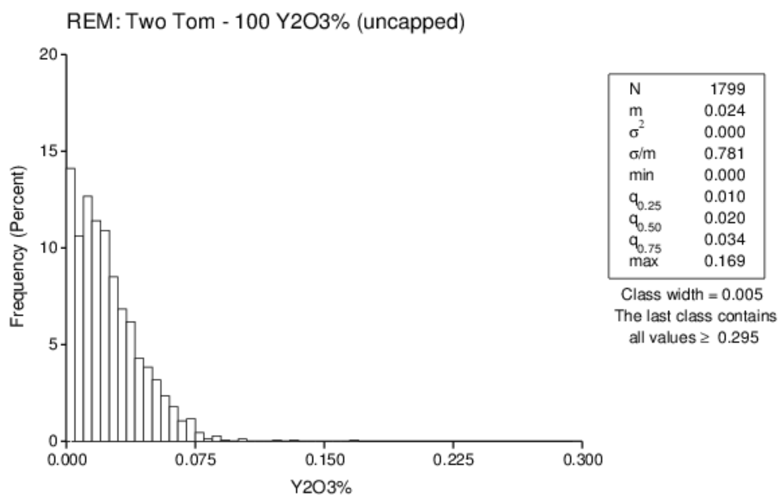


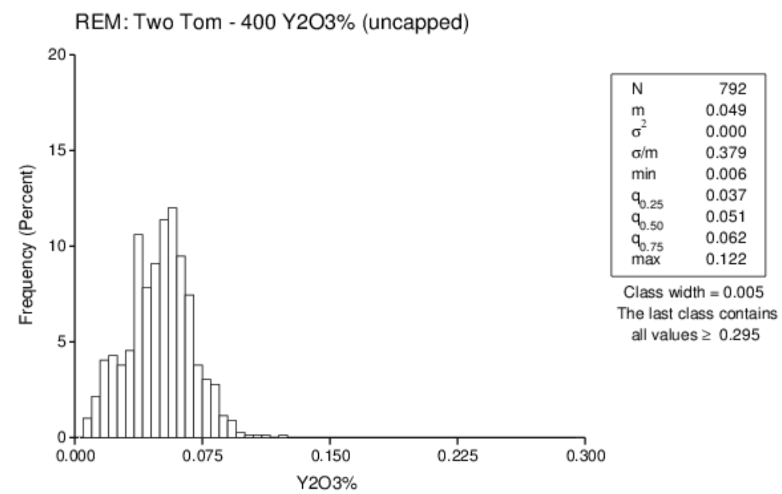
REM: Two Tom - 100 Lu2O3% (uncapped)

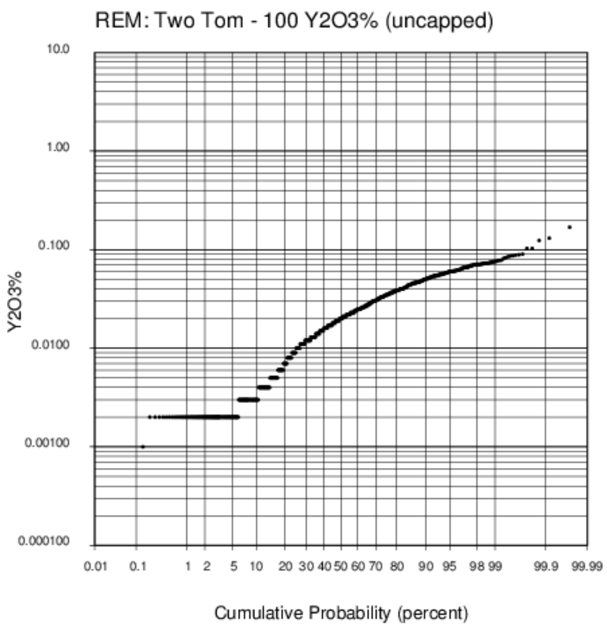


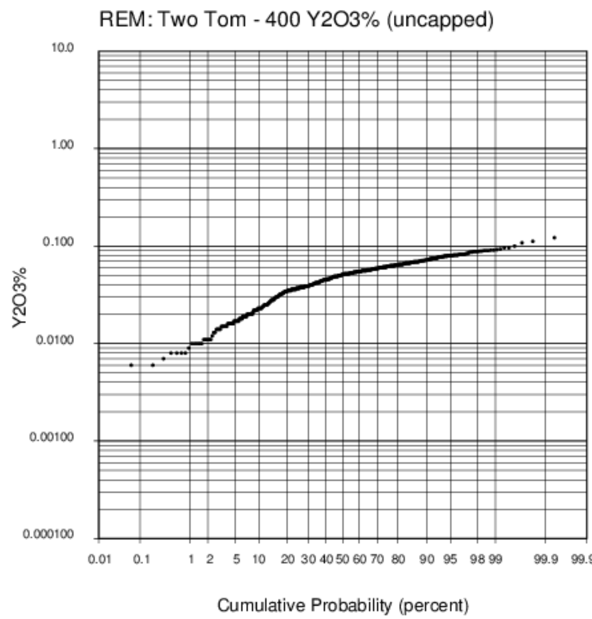
REM: Two tom - 400 Lu2O3% (uncapped)




REM: Two Tom - 100 Y2O3% (uncapped)
Frequency (Percent)
Y2O3%
N 1799
m 0.024
σ2 0.000
σ/m 0.781
min 0.000
q0.25 0.010
q0.50 0.020
q0.75 0.034
max 0.169
Class width = 0.005
The last class contains
all values ≥ 0.295


REM: Two Tom - 400 Y2O3% (uncapped)
Frequency (Percent)
Y2O3%
N 792
m 0.049
σ2 0.000
σ/m 0.379
min 0.006
q0.25 0.037
q0.50 0.051
q0.75 0.062
max 0.122
Class width = 0.005
The last class contains
all values ≥ 0.295


REM: Two Tom - 100 Y2O3% (uncapped)
Y2O3%
Cumulative Probability (percent)


REM: Two Tom - 400 Y2O3% (uncapped)
Y2O3%
Cumulative Probability (percent)

APPENDIX D

CAPPED DATA STATISTICS

Descriptive Statistics [Subset]

RAW Statistics (no zeroes) ALL DATA

Capped Data

	LENGTH	TREO_C	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	2647	2645	2647	2647	2645	2645	2645	2645	2645	2645	2644	2645	2645	2645	2645	2645	2645	2645	2644	2645
Mean	1.522	0.898	0.224	0.142	0.048	0.214	0.410	0.043	0.144	0.025	0.002	0.015	0.002	0.006	0.001	0.002	0.000	0.001	0.000	0.031
Variance	0.04	0.620	0.080	0.023	0.003	0.044	0.138	0.001	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.19	0.787	0.283	0.151	0.051	0.210	0.372	0.037	0.120	0.019	0.002	0.011	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.022
Variation Coefficient	0.12	0.877	1.263	1.067	1.063	0.978	0.908	0.874	0.834	0.766	0.741	0.736	0.717	0.702	0.698	0.677	0.710	0.706	0.721	0.690
Skew	7.52	0.724	3.187	1.758	3.192	1.034	0.789	0.718	0.593	0.539	0.544	0.437	0.527	0.538	0.857	0.885	2.024	2.393	2.595	0.583
Kurtosis	140.14	-0.450	13.162	3.882	18.127	0.436	-0.290	-0.412	-0.697	-0.382	-0.180	-0.664	-0.323	-0.548	0.937	0.633	11.193	13.581	13.141	-0.476
Minimum	0.40	0.006	0.002	0.00083	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	6.00	3.461	2.100	0.900	0.450	1.000	1.600	0.170	0.520	0.090	0.009	0.052	0.007	0.022	0.005	0.009	0.002	0.009	0.001	0.100
Range	5.60	3.454	2.098	0.899	0.450	0.999	1.598	0.170	0.519	0.090	0.009	0.052	0.007	0.022	0.005	0.008	0.002	0.009	0.001	0.099
Sum	4027.56																			
1st percentile	1.00	0.023	0.004	0.001	0.001	0.005	0.009	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	1.50	0.031	0.013	0.003	0.002	0.006	0.012	0.001	0.005	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
10th percentile	1.50	0.056	0.026	0.007	0.003	0.010	0.022	0.003	0.010	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
25th percentile	1.50	0.056	0.026	0.007	0.003	0.010	0.022	0.003	0.010	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
Median	1.50	0.641	0.140	0.097	0.038	0.136	0.286	0.031	0.112	0.022	0.002	0.014	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.027
75th percentile	1.50	1.523	0.261	0.206	0.067	0.361	0.690	0.072	0.244	0.041	0.004	0.025	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.047
90th percentile	1.50	2.019	0.501	0.339	0.101	0.509	0.944	0.095	0.315	0.049	0.004	0.030	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.062
95th percentile	1.76	2.343	0.790	0.440	0.129	0.629	1.096	0.109	0.354	0.056	0.005	0.034	0.004	0.014	0.002	0.004	0.000	0.002	0.000	0.070
99th percentile	2.25	2.937	1.407	0.700	0.244	0.832	1.412	0.140	0.443	0.076	0.007	0.044	0.005	0.018	0.003	0.005	0.001	0.003	0.000	0.088

Descriptive Statistics [Subset]

RAW Statistics (no zeroes) Rock Codes 101, 102, 103, 104, 111, 112

Capped Data

	TREO_C	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	1772	1774	1774	1772	1772	1772	1772	1772	1772	1771	1772	1772	1772	1772	1772	1772	1772	1772	1772
Mean	0.654	0.215	0.114	0.043	0.150	0.296	0.032	0.109	0.020	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.024
Variance	0.496	0.093	0.021	0.003	0.034	0.110	0.001	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.704	0.306	0.146	0.057	0.185	0.332	0.034	0.110	0.018	0.002	0.011	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.018
Variation Coefficient	1.077	1.424	1.278	1.313	1.235	1.121	1.071	1.013	0.917	0.872	0.870	0.830	0.791	0.774	0.727	0.799	0.788	0.799	0.766
Skew	1.446	3.320	2.234	3.582	1.899	1.498	1.397	1.226	1.074	1.121	0.966	1.064	1.011	1.556	1.328	3.656	3.831	3.576	1.000
Kurtosis	1.501	13.528	6.113	18.935	3.539	1.685	1.352	0.700	0.635	1.159	0.377	1.166	0.708	5.215	2.569	31.052	30.549	22.967	0.634
Minimum	0.006	0.002	0.00083	0.000	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	3.461	2.100	0.900	0.450	1.000	1.600	0.170	0.520	0.090	0.009	0.052	0.007	0.020	0.005	0.007	0.002	0.009	0.001	0.090
Range	3.454	2.098	0.899	0.450	0.999	1.598	0.170	0.519	0.090	0.009	0.052	0.007	0.020	0.005	0.006	0.002	0.009	0.001	0.089
1st percentile	0.023	0.004	0.001	0.001	0.005	0.009	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	0.027	0.011	0.003	0.001	0.005	0.011	0.001	0.004	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
10th percentile	0.038	0.022	0.005	0.002	0.007	0.014	0.002	0.006	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
25th percentile	0.038	0.022	0.005	0.002	0.007	0.014	0.002	0.006	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
Median	0.379	0.109	0.054	0.026	0.077	0.162	0.018	0.067	0.014	0.001	0.009	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.020
75th percentile	0.949	0.247	0.161	0.060	0.205	0.431	0.046	0.163	0.032	0.003	0.019	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.034
90th percentile	1.746	0.479	0.311	0.098	0.414	0.800	0.085	0.286	0.047	0.004	0.028	0.003	0.011	0.001	0.003	0.000	0.002	0.000	0.050
95th percentile	2.198	0.828	0.411	0.133	0.571	1.032	0.104	0.340	0.055	0.005	0.032	0.003	0.012	0.002	0.003	0.000	0.002	0.000	0.060
99th percentile	2.882	1.756	0.692	0.301	0.816	1.370	0.131	0.427	0.075	0.007	0.043	0.004	0.016	0.002	0.005	0.001	0.003	0.000	0.076

Descriptive Statistics [Subset]

RAW Statistics (no zeroes) Rock Codes 401, 402, 403

Capped Data

	TREO_C	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	792	791	792
Mean	1.516	0.263	0.215	0.063	0.378	0.698	0.071	0.236	0.038	0.004	0.024	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
Variance	0.389	0.053	0.020	0.001	0.031	0.091	0.001	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.624	0.231	0.140	0.034	0.175	0.302	0.029	0.093	0.014	0.001	0.008	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.019
Variation Coefficient	0.412	0.877	0.653	0.529	0.464	0.432	0.415	0.393	0.370	0.356	0.356	0.359	0.366	0.389	0.411	0.445	0.462	0.479	0.376
Skew	-0.088	2.421	1.467	1.060	0.309	0.069	-0.018	-0.185	0.047	0.035	-0.223	-0.096	-0.136	0.171	0.461	0.877	1.142	1.266	-0.037
Kurtosis	0.132	6.486	2.860	1.699	0.411	0.148	0.215	0.229	1.386	1.366	0.577	0.620	-0.030	-0.032	0.407	1.557	2.811	3.306	-0.261
Minimum	0.074	0.02	0.00666	0.004	0.015	0.029	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.006
Maximum	3.126	1.300	0.800	0.200	0.900	1.500	0.150	0.500	0.090	0.008	0.048	0.006	0.022	0.004	0.009	0.001	0.005	0.001	0.100
Range	3.051	1.280	0.793	0.196	0.885	1.471	0.147	0.488	0.088	0.008	0.046	0.006	0.021	0.003	0.008	0.001	0.005	0.001	0.094
1st percentile	0.152	0.030	0.016	0.007	0.028	0.064	0.008	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.009
5th percentile	0.304	0.057	0.034	0.017	0.063	0.134	0.014	0.053	0.010	0.001	0.007	0.001	0.003	0.000	0.001	0.000	0.001	0.000	0.017
10th percentile	0.592	0.083	0.069	0.026	0.130	0.266	0.028	0.097	0.018	0.002	0.011	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.023
25th percentile	0.592	0.083	0.069	0.026	0.130	0.266	0.028	0.097	0.018	0.002	0.011	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.023
Median	1.532	0.190	0.181	0.058	0.373	0.693	0.071	0.240	0.040	0.004	0.024	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
75th percentile	1.872	0.300	0.267	0.081	0.461	0.872	0.088	0.290	0.046	0.004	0.029	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.062
90th percentile	2.258	0.551	0.394	0.105	0.602	1.067	0.105	0.338	0.053	0.005	0.033	0.004	0.015	0.002	0.004	0.000	0.002	0.000	0.072
95th percentile	2.617	0.771	0.495	0.131	0.712	1.253	0.124	0.391	0.062	0.005	0.037	0.004	0.016	0.002	0.005	0.001	0.002	0.000	0.080
99th percentile	3.006	1.274	0.742	0.178	0.848	1.452	0.144	0.460	0.079	0.007	0.045	0.005	0.019	0.003	0.006	0.001	0.003	0.000	0.092

APPENDIX E

3 m Composite Statistics

Descriptive Statistics

3m Composite Statistics (no zeroes) ALL DATA

Raw Data

	LENGTH	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125
Mean	2.963	0.247	0.162	0.055	0.248	0.472	0.049	0.165	0.029	0.003	0.017	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.035
Variance	0.07	0.069	0.020	0.003	0.041	0.125	0.001	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.27	0.263	0.141	0.057	0.202	0.353	0.035	0.112	0.018	0.002	0.010	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.020
Variation Coefficient	0.09	1.064	0.867	1.027	0.815	0.749	0.716	0.681	0.629	0.607	0.602	0.580	0.578	0.588	0.596	0.619	0.619	0.637	0.582
Skew	-7.60	2.804	1.471	6.105	0.929	0.653	0.536	0.405	0.523	0.505	0.345	0.272	0.331	0.684	1.201	2.015	2.442	2.729	0.530
Kurtosis	62.50	11.010	2.990	65.893	0.784	-0.035	-0.356	-0.633	0.689	0.706	-0.100	-0.565	-0.658	0.733	4.629	12.675	16.427	16.733	0.197
Minimum	0.11	0.00471	0.00139	0.001	0.002	0.005	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	4.00	2.336	0.942	0.809	1.410	2.292	0.209	0.604	0.133	0.011	0.068	0.006	0.023	0.004	0.012	0.002	0.009	0.001	0.148
Range	3.89	2.332	0.941	0.808	1.408	2.287	0.209	0.602	0.133	0.011	0.068	0.006	0.022	0.004	0.012	0.002	0.009	0.001	0.147
Sum																			
1st percentile	1.19	0.009	0.003	0.002	0.005	0.010	0.001	0.004	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	3.00	0.026	0.009	0.004	0.012	0.026	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
10th percentile	3.00	0.042	0.020	0.007	0.027	0.064	0.007	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.010
25th percentile	3.00	0.042	0.020	0.007	0.027	0.064	0.007	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.010
Median	3.00	0.175	0.133	0.047	0.202	0.410	0.043	0.153	0.028	0.003	0.018	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.032
75th percentile	3.00	0.303	0.225	0.073	0.379	0.721	0.075	0.253	0.042	0.004	0.025	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
90th percentile	3.00	0.547	0.349	0.104	0.525	0.949	0.095	0.317	0.049	0.004	0.030	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.061
95th percentile	3.00	0.774	0.435	0.128	0.645	1.142	0.112	0.354	0.055	0.005	0.034	0.004	0.014	0.002	0.004	0.000	0.002	0.000	0.069
99th percentile	3.00	1.410	0.627	0.237	0.801	1.333	0.133	0.418	0.080	0.007	0.044	0.004	0.017	0.002	0.005	0.001	0.003	0.000	0.080

Descriptive Statistics

3m Composite Statistics (no zeroes) ALL DATA

Capped Data

	LENGTH	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125	1125
Mean	2.963	0.245	0.160	0.054	0.247	0.470	0.049	0.165	0.028	0.003	0.017	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.034
Variance	0.07	0.064	0.018	0.002	0.040	0.122	0.001	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.27	0.253	0.134	0.045	0.200	0.349	0.035	0.111	0.017	0.002	0.010	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.020
Variation Coefficient	0.09	1.034	0.838	0.845	0.807	0.742	0.711	0.676	0.615	0.596	0.593	0.580	0.577	0.588	0.580	0.619	0.619	0.637	0.574
Skew	-7.60	2.531	1.187	2.813	0.809	0.551	0.462	0.331	0.278	0.308	0.196	0.272	0.311	0.684	0.736	2.015	2.442	2.729	0.386
Kurtosis	62.50	8.288	1.317	16.760	-0.014	-0.597	-0.725	-0.939	-0.556	-0.250	-0.716	-0.565	-0.733	0.733	0.359	12.675	16.427	16.733	-0.632
Minimum	0.11	0.00471	0.00139	0.001	0.002	0.005	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	4.00	1.833	0.710	0.450	0.966	1.546	0.152	0.485	0.089	0.009	0.051	0.006	0.020	0.004	0.007	0.002	0.009	0.001	0.096
Range	3.89	1.828	0.709	0.449	0.963	1.541	0.151	0.482	0.088	0.009	0.050	0.006	0.020	0.004	0.007	0.002	0.009	0.001	0.094
Sum																			
1st percentile	1.19	0.009	0.003	0.002	0.005	0.010	0.001	0.004	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	3.00	0.026	0.009	0.004	0.012	0.026	0.003	0.011	0.002	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
10th percentile	3.00	0.042	0.020	0.007	0.027	0.064	0.007	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.010
25th percentile	3.00	0.042	0.020	0.007	0.027	0.064	0.007	0.027	0.005	0.001	0.004	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.010
Median	3.00	0.175	0.133	0.047	0.202	0.410	0.043	0.153	0.028	0.003	0.018	0.002	0.007	0.001	0.002	0.000	0.001	0.000	0.032
75th percentile	3.00	0.303	0.225	0.073	0.379	0.721	0.075	0.253	0.042	0.004	0.025	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
90th percentile	3.00	0.547	0.346	0.104	0.525	0.949	0.095	0.317	0.049	0.004	0.030	0.003	0.013	0.002	0.004	0.000	0.002	0.000	0.061
95th percentile	3.00	0.772	0.432	0.128	0.645	1.142	0.112	0.354	0.055	0.005	0.034	0.004	0.014	0.002	0.004	0.000	0.002	0.000	0.068
99th percentile	3.00	1.341	0.579	0.204	0.796	1.325	0.133	0.416	0.071	0.007	0.042	0.004	0.017	0.002	0.005	0.001	0.003	0.000	0.080

Descriptive Statistics [Subset]

3m Composite Statistics (no zeroes)

Rock Codes 101, 102, 103, 104, 111, 112

Raw Data

	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711
Mean	0.241	0.135	0.051	0.180	0.354	0.037	0.129	0.023	0.002	0.014	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.027
Variance	0.084	0.019	0.004	0.035	0.108	0.001	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.290	0.138	0.066	0.187	0.329	0.033	0.107	0.018	0.002	0.010	0.001	0.004	0.000	0.001	0.000	0.001	0.000	0.017
Variation Coefficient	1.206	1.020	1.294	1.041	0.931	0.883	0.832	0.759	0.722	0.716	0.668	0.643	0.637	0.648	0.691	0.695	0.726	0.641
Skew	2.871	1.726	6.009	1.903	1.463	1.280	1.088	1.131	1.145	0.952	0.830	0.823	1.375	2.501	4.051	4.438	4.212	1.130
Kurtosis	10.743	3.397	55.643	4.516	2.392	1.470	0.718	2.173	2.397	1.235	0.665	0.573	5.191	18.700	39.426	41.814	32.134	3.158
Minimum	0.00471	0.00139	0.001	0.002	0.005	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	2.336	0.800	0.809	1.410	2.292	0.209	0.604	0.133	0.011	0.068	0.006	0.023	0.004	0.012	0.002	0.009	0.001	0.148
Range	2.332	0.798	0.808	1.408	2.287	0.209	0.602	0.133	0.011	0.068	0.006	0.022	0.004	0.012	0.002	0.009	0.001	0.147
Sum																		
1st percentile	0.007	0.003	0.001	0.005	0.010	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	0.024	0.007	0.003	0.007	0.014	0.002	0.007	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
10th percentile	0.038	0.015	0.006	0.020	0.044	0.005	0.018	0.004	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007
25th percentile	0.038	0.015	0.006	0.020	0.044	0.005	0.018	0.004	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007
Median	0.145	0.083	0.035	0.118	0.245	0.027	0.097	0.019	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.024
75th percentile	0.298	0.191	0.067	0.231	0.511	0.054	0.193	0.036	0.003	0.021	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.036
90th percentile	0.577	0.332	0.108	0.437	0.832	0.088	0.298	0.048	0.004	0.028	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.052
95th percentile	0.808	0.417	0.134	0.622	1.065	0.107	0.341	0.054	0.005	0.032	0.003	0.012	0.002	0.003	0.000	0.002	0.000	0.059
99th percentile	1.447	0.655	0.290	0.808	1.331	0.131	0.420	0.078	0.008	0.046	0.004	0.016	0.002	0.005	0.001	0.003	0.000	0.071

Descriptive Statistics [Subset]

3m Composite Statistics (no zeroes)

Rock Codes 101, 102, 103, 104, 111, 112

Capped Data

	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711
Mean	0.239	0.133	0.049	0.179	0.352	0.037	0.128	0.023	0.002	0.014	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.027
Variance	0.079	0.017	0.003	0.033	0.103	0.001	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.281	0.132	0.052	0.183	0.322	0.032	0.105	0.017	0.002	0.010	0.001	0.004	0.000	0.001	0.000	0.001	0.000	0.017
Variation Coefficient	1.175	0.991	1.046	1.022	0.914	0.872	0.822	0.740	0.708	0.703	0.668	0.640	0.637	0.601	0.691	0.695	0.726	0.623
Skew	2.594	1.539	3.111	1.678	1.268	1.148	0.977	0.840	0.916	0.759	0.830	0.765	1.375	1.057	4.051	4.438	4.212	0.749
Kurtosis	7.979	2.287	16.330	2.542	0.968	0.596	0.073	0.221	0.873	0.128	0.665	0.256	5.191	1.697	39.426	41.814	32.134	0.114
Minimum	0.00471	0.00139	0.001	0.002	0.005	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Maximum	1.833	0.710	0.450	0.966	1.546	0.152	0.485	0.089	0.009	0.051	0.006	0.020	0.004	0.007	0.002	0.009	0.001	0.090
Range	1.828	0.709	0.449	0.963	1.541	0.151	0.482	0.088	0.009	0.050	0.006	0.020	0.004	0.006	0.002	0.009	0.001	0.089
Sum																		
1st percentile	0.007	0.003	0.001	0.005	0.010	0.001	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
5th percentile	0.024	0.007	0.003	0.007	0.014	0.002	0.007	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
10th percentile	0.038	0.015	0.006	0.020	0.044	0.005	0.018	0.004	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007
25th percentile	0.038	0.015	0.006	0.020	0.044	0.005	0.018	0.004	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007
Median	0.145	0.083	0.035	0.118	0.245	0.027	0.097	0.019	0.002	0.012	0.001	0.005	0.001	0.001	0.000	0.001	0.000	0.024
75th percentile	0.298	0.190	0.067	0.231	0.511	0.054	0.193	0.036	0.003	0.021	0.002	0.008	0.001	0.002	0.000	0.001	0.000	0.036
90th percentile	0.577	0.327	0.108	0.437	0.832	0.088	0.298	0.048	0.004	0.028	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
95th percentile	0.808	0.414	0.134	0.622	1.065	0.107	0.341	0.054	0.005	0.032	0.003	0.012	0.002	0.003	0.000	0.002	0.000	0.059
99th percentile	1.436	0.567	0.269	0.808	1.311	0.131	0.420	0.070	0.007	0.043	0.004	0.015	0.002	0.005	0.001	0.003	0.000	0.071

Descriptive Statistics [Subset]

3m Composite Statistics (no zeroes) — Rock Codes 401, 402, 403

Raw Data

	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398
Mean	0.266	0.217	0.064	0.378	0.699	0.071	0.236	0.039	0.004	0.024	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
Variance	0.042	0.017	0.001	0.026	0.076	0.001	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.206	0.131	0.031	0.161	0.275	0.027	0.084	0.013	0.001	0.008	0.001	0.003	0.000	0.001	0.000	0.001	0.000	0.017
Variation Coefficient	0.773	0.603	0.494	0.424	0.393	0.376	0.358	0.344	0.332	0.329	0.322	0.331	0.355	0.379	0.413	0.433	0.452	0.345
Skew	2.200	1.610	1.927	0.238	-0.024	-0.134	-0.279	0.145	0.151	-0.222	-0.315	-0.265	0.113	0.424	0.822	1.082	1.178	-0.046
Kurtosis	6.062	4.540	11.278	0.383	0.191	0.344	0.458	2.083	2.061	0.949	0.415	-0.023	-0.011	0.319	1.241	2.332	2.622	0.033
Minimum	0.022	0.00934	0.005	0.016	0.030	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.006
Maximum	1.421	0.942	0.322	0.862	1.475	0.155	0.513	0.093	0.009	0.052	0.005	0.019	0.003	0.007	0.001	0.004	0.001	0.106
Range	1.399	0.933	0.317	0.846	1.445	0.151	0.501	0.091	0.008	0.050	0.005	0.018	0.003	0.007	0.001	0.004	0.000	0.100
Sum																		
1st percentile	0.036	0.021	0.007	0.036	0.070	0.008	0.027	0.006	0.001	0.004	0.001	0.002	0.000	0.001	0.000	0.001	0.000	0.010
5th percentile	0.065	0.049	0.022	0.087	0.164	0.018	0.069	0.013	0.001	0.008	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.018
10th percentile	0.096	0.075	0.029	0.153	0.310	0.032	0.108	0.020	0.002	0.013	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.028
25th percentile	0.096	0.075	0.029	0.153	0.310	0.032	0.108	0.020	0.002	0.013	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.028
Median	0.203	0.191	0.059	0.372	0.694	0.072	0.239	0.040	0.004	0.024	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
75th percentile	0.311	0.272	0.080	0.444	0.845	0.085	0.286	0.045	0.004	0.028	0.003	0.012	0.002	0.004	0.000	0.002	0.000	0.060
90th percentile	0.528	0.375	0.101	0.603	1.070	0.109	0.347	0.052	0.005	0.032	0.003	0.014	0.002	0.004	0.000	0.002	0.000	0.070
95th percentile	0.727	0.489	0.115	0.677	1.189	0.117	0.368	0.057	0.005	0.035	0.004	0.015	0.002	0.005	0.001	0.002	0.000	0.076
99th percentile	1.078	0.634	0.154	0.801	1.341	0.137	0.419	0.081	0.007	0.044	0.005	0.018	0.003	0.006	0.001	0.004	0.000	0.091

Descriptive Statistics [Subset]

3m Composite Statistics (no zeroes) — Rock Codes 401, 402, 403

Capped Data

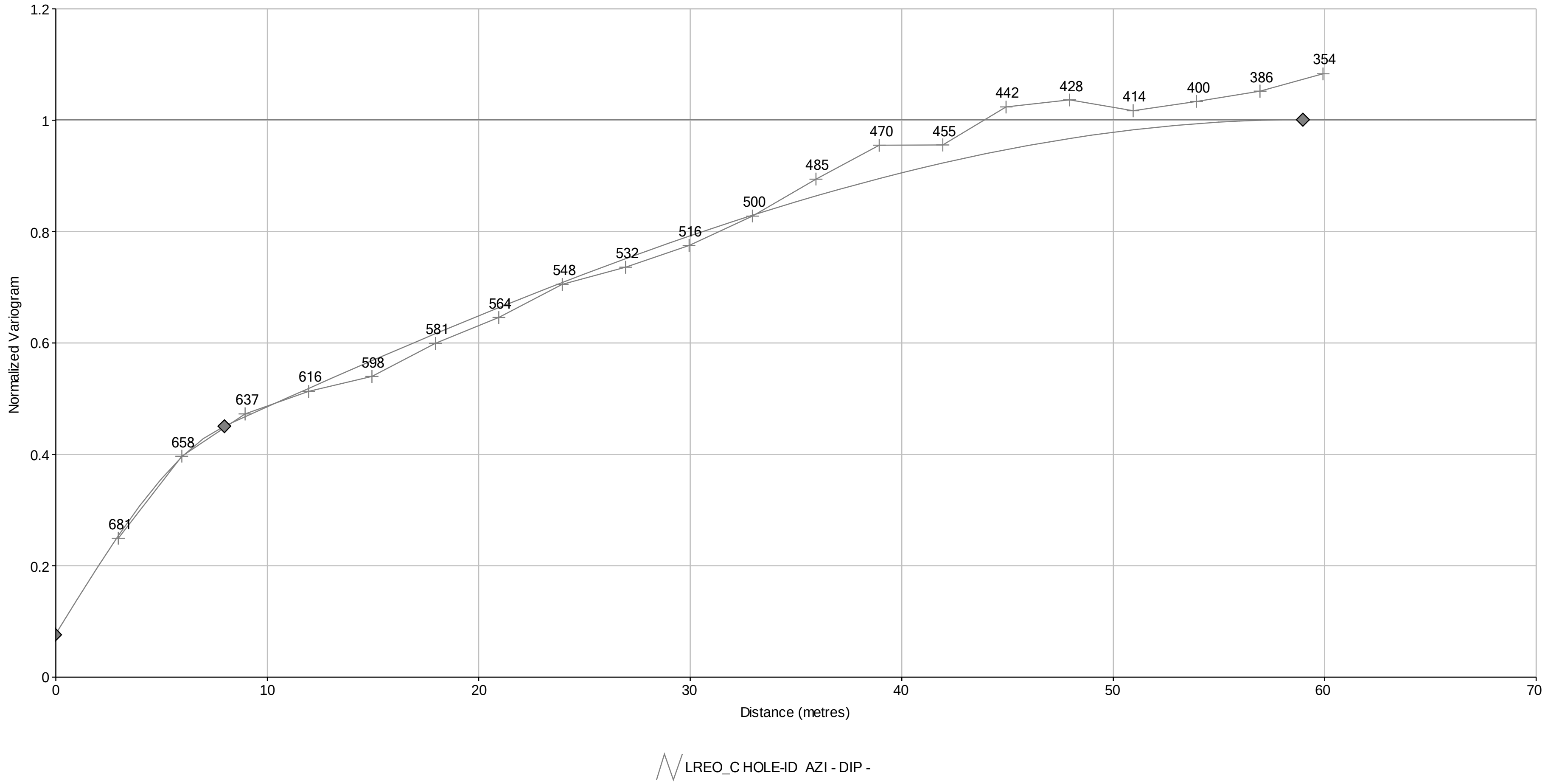
	NB2O3_C	BEO_C	THO2_C	LA2O3_C	CE2O3_C	PR203_C	ND2O3_C	SM2O3_C	EU2O3_C	GD2O3_C	TB2O3_C	DY2O3_C	HO2O3_C	ER2O3_C	TM2O3_C	YB2O3_C	LU2O3_C	Y2O3_C
Valid cases	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398	398
Mean	0.263	0.215	0.063	0.378	0.698	0.071	0.236	0.038	0.004	0.024	0.003	0.010	0.001	0.003	0.000	0.001	0.000	0.049
Variance	0.038	0.015	0.001	0.026	0.075	0.001	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Deviation	0.195	0.122	0.029	0.160	0.274	0.027	0.084	0.013	0.001	0.008	0.001	0.003	0.000	0.001	0.000	0.001	0.000	0.017
Variation Coefficient	0.740	0.568	0.458	0.424	0.393	0.375	0.355	0.332	0.320	0.322	0.322	0.331	0.355	0.379	0.413	0.433	0.452	0.342
Skew	1.916	1.094	0.814	0.224	-0.033	-0.159	-0.350	-0.228	-0.195	-0.430	-0.315	-0.265	0.113	0.424	0.822	1.082	1.178	-0.107
Kurtosis	4.148	1.360	1.224	0.358	0.177	0.283	0.298	0.978	1.062	0.546	0.415	-0.023	-0.011	0.319	1.241	2.332	2.622	-0.133
Minimum	0.022	0.00934	0.005	0.016	0.030	0.003	0.012	0.002	0.000	0.002	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.006
Maximum	1.246	0.670	0.190	0.862	1.458	0.147	0.476	0.077	0.007	0.043	0.005	0.019	0.003	0.007	0.001	0.004	0.001	0.096
Range	1.224	0.660	0.185	0.846	1.429	0.144	0.464	0.074	0.007	0.041	0.005	0.018	0.003	0.007	0.001	0.004	0.000	0.089
Sum																		
1st percentile	0.036	0.021	0.007	0.036	0.070	0.008	0.027	0.006	0.001	0.004	0.001	0.002	0.000	0.001	0.000	0.001	0.000	0.010
5th percentile	0.065	0.049	0.022	0.087	0.164	0.018	0.069	0.013	0.001	0.008	0.001	0.004	0.001	0.001	0.000	0.001	0.000	0.018
10th percentile	0.096	0.075	0.029	0.153	0.310	0.032	0.108	0.020	0.002	0.013	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.028
25th percentile	0.096	0.075	0.029	0.153	0.310	0.032	0.108	0.020	0.002	0.013	0.001	0.006	0.001	0.002	0.000	0.001	0.000	0.028
Median	0.203	0.191	0.059	0.372	0.694	0.072	0.239	0.040	0.004	0.024	0.003	0.011	0.001	0.003	0.000	0.001	0.000	0.051
75th percentile	0.311	0.272	0.080	0.444	0.845	0.085	0.286	0.045	0.004	0.028	0.003	0.012	0.002	0.004	0.000	0.002	0.000	0.060
90th percentile	0.528	0.375	0.101	0.603	1.070	0.109	0.347	0.052	0.005	0.032	0.003	0.014	0.002	0.004	0.000	0.002	0.000	0.070
95th percentile	0.727	0.473	0.115	0.677	1.175	0.117	0.368	0.057	0.005	0.035	0.004	0.015	0.002	0.005	0.001	0.002	0.000	0.075
99th percentile	1.005	0.593	0.152	0.799	1.341	0.135	0.415	0.074	0.007	0.042	0.005	0.018	0.003	0.006	0.001	0.004	0.000	0.090

APPENDIX F

VARIOGRAMS

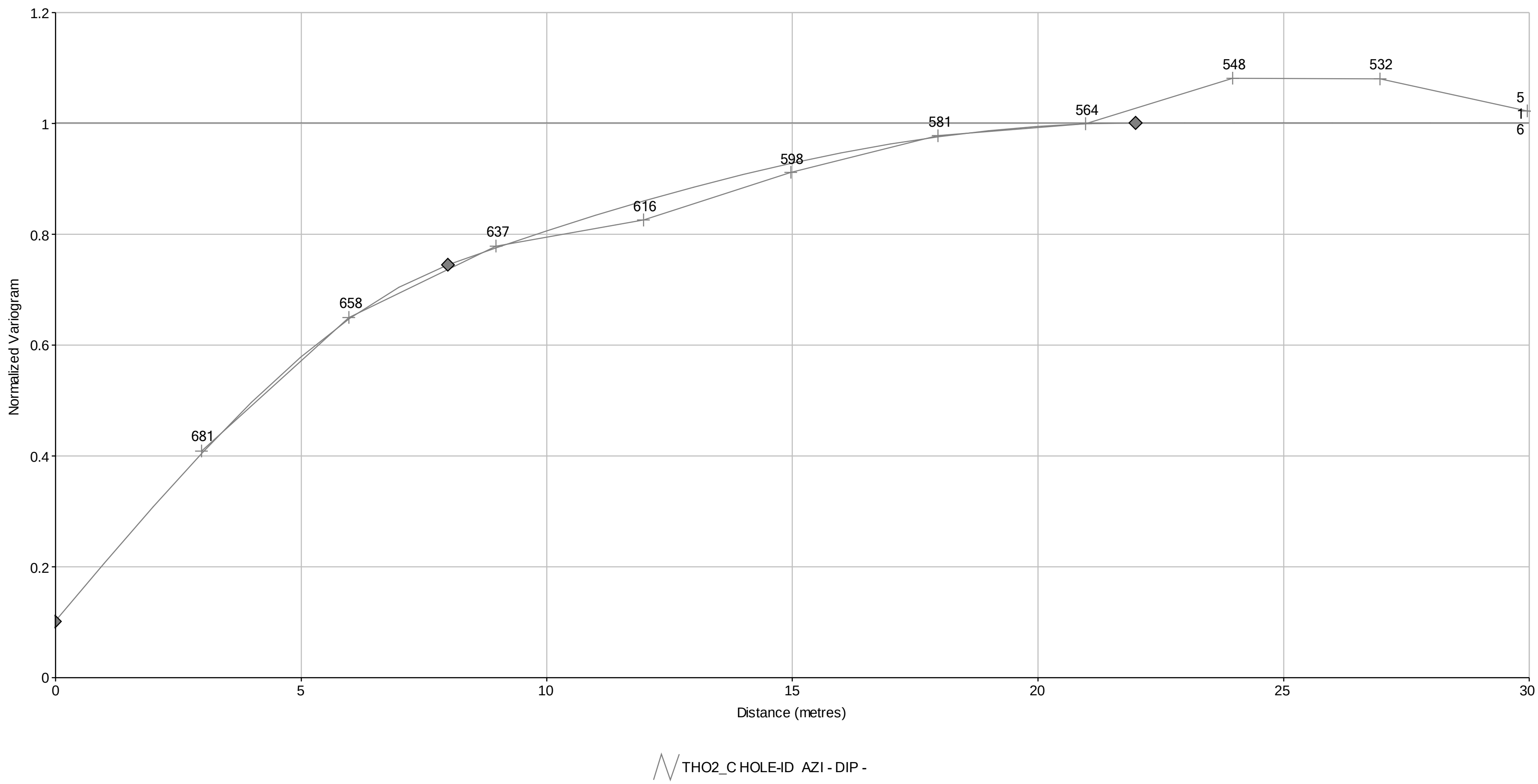
Variogram LREO Downhole Two Tom

Type	Variance	Range
Nugget	0.075	-
Spherical	0.235	8
Spherical	0.690	59



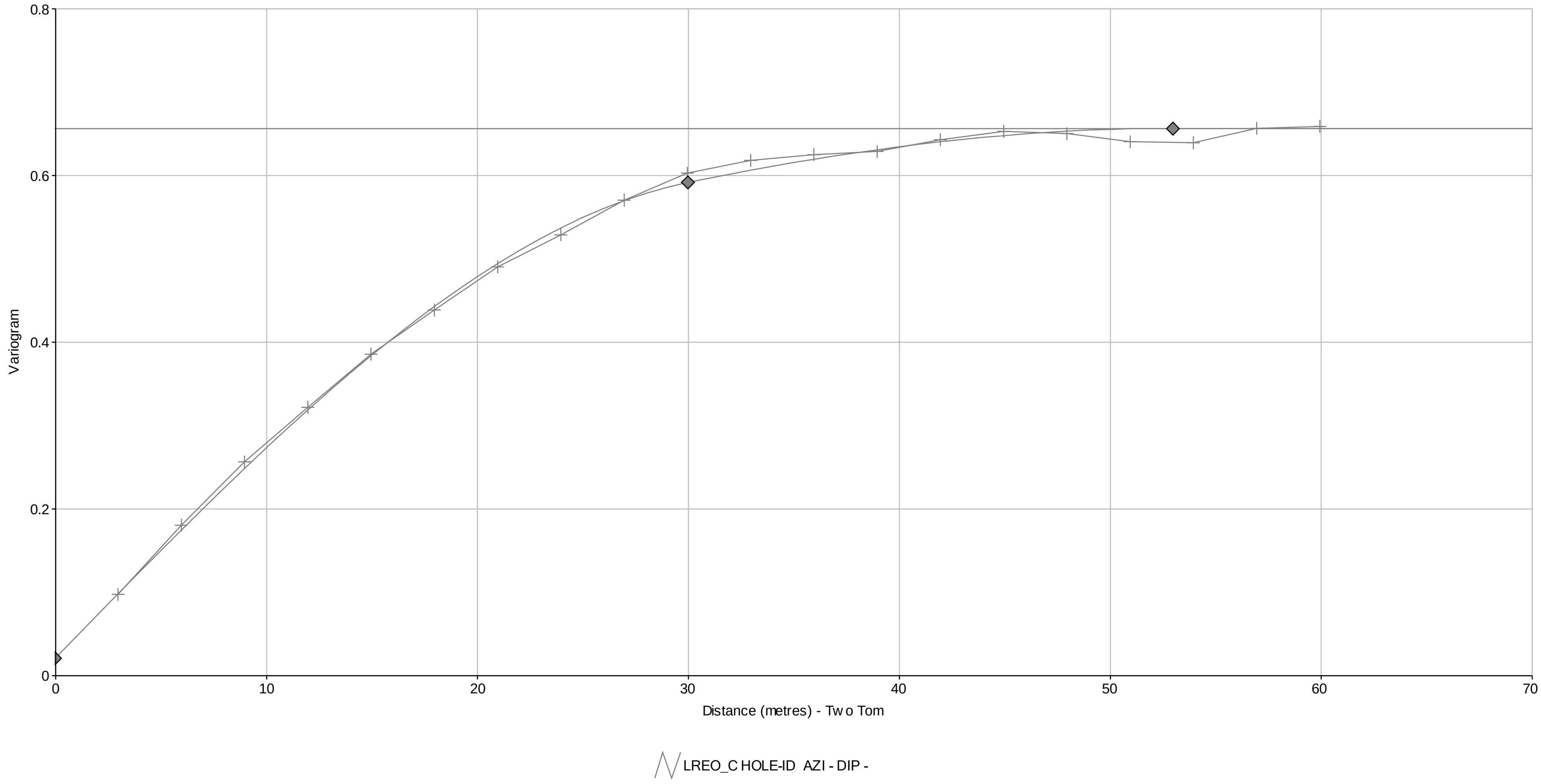
Variogram ThO2 Downhole Two Tom Domain 4001

Type	Variance	Range
Nugget	0.1	-
Spherical	0.365	8
Spherical	0.535	22



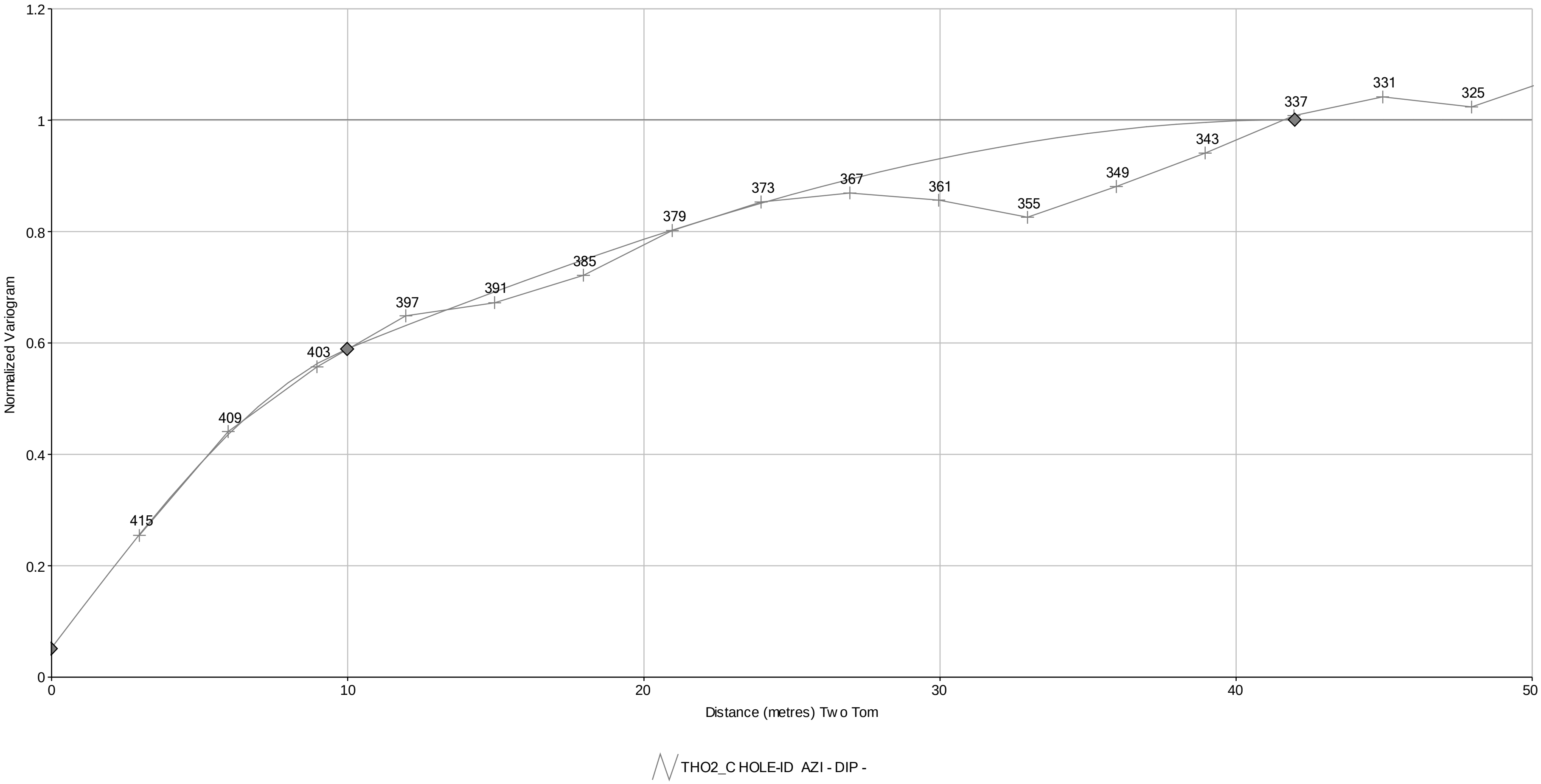
Variogram LREO Domain 4002 Downhole

Type	Variance	Range
Nugget	0.02	-
Spherical	0.367	30
Spherical	0.269	53



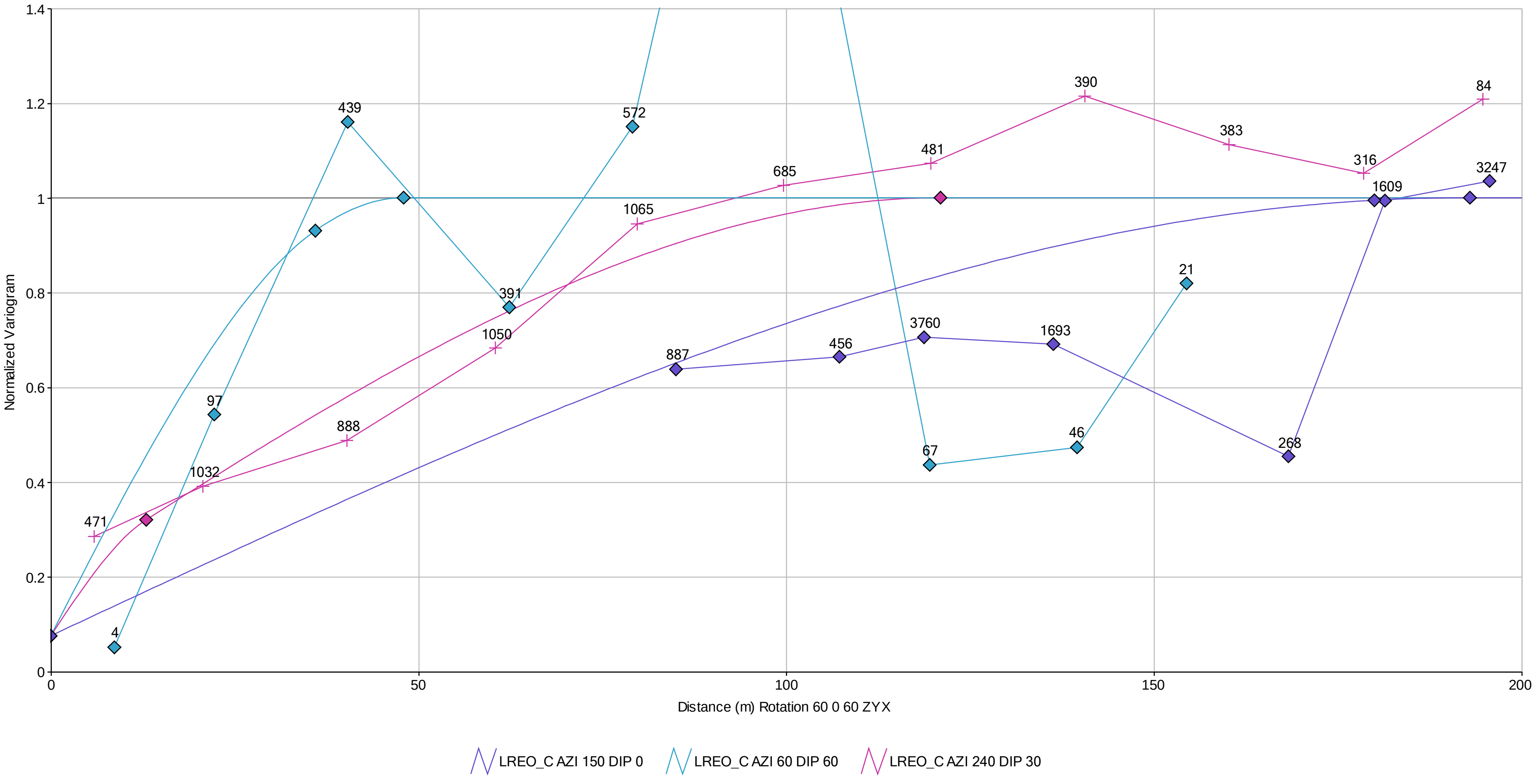
Variogram ThO2 Downhole Domain 4002

Type	Variance	Range
Nugget	0.05	-
Spherical	0.316	10
Spherical	0.634	42



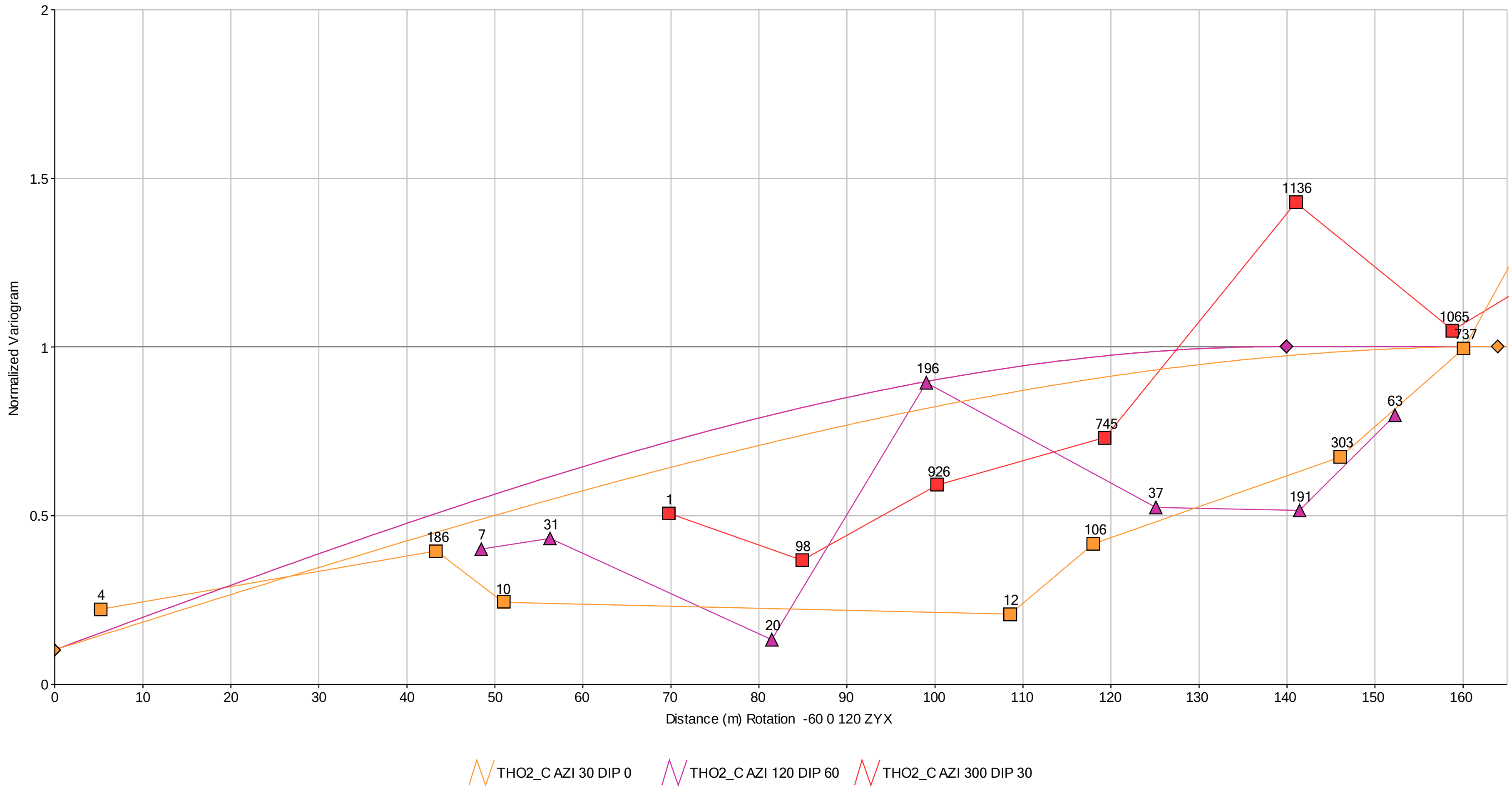
Variogram LREO Two Tom Domain 4001

Type	Variance	150/0	60/60	240/30
Nugget	0.075	-	-	-
Spherical	0.115	180	36	13
Spherical	0.810	193	48	121



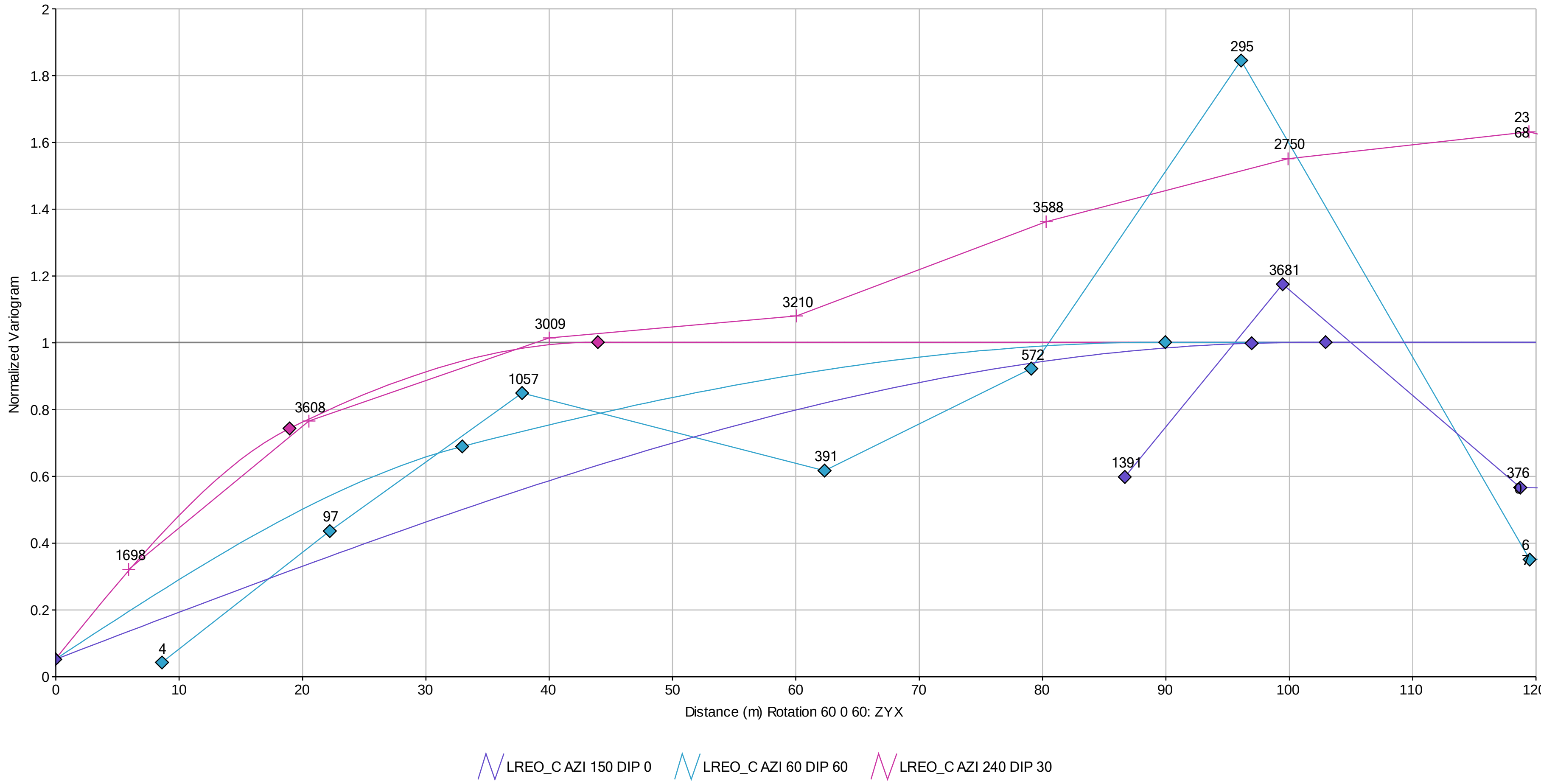
Variogram ThO2 Two Tom Domain 4001

Type	Variance	30/0	120/60	300/30
Nugget	0.1	-	-	-
Spherical	0.900	164	140	140



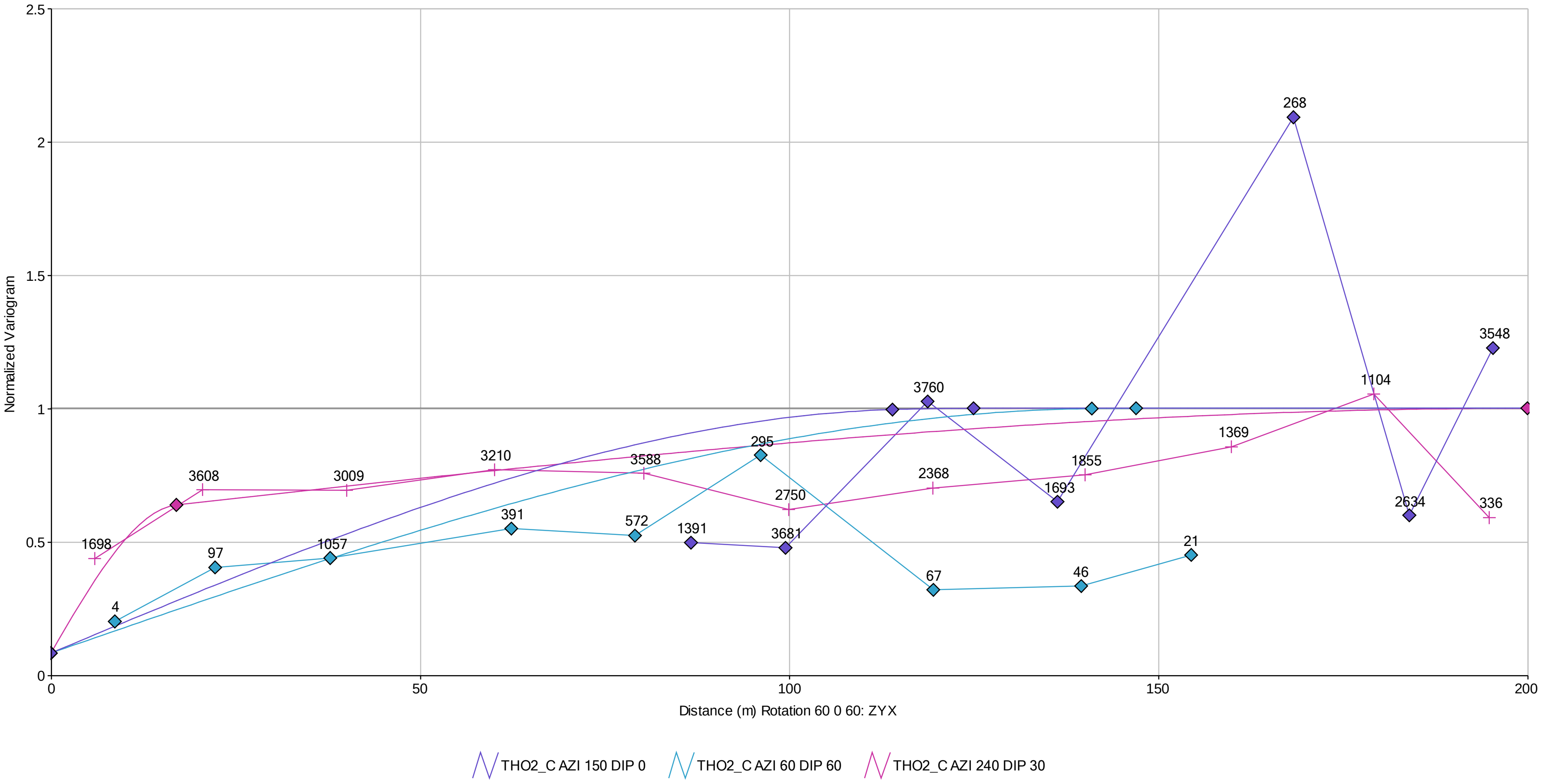
Variogram LREO Two Tom

Type	Variance	150/0	60/60	240/30
Nugget	0.05	-	-	-
Spherical	0.292	97	33	19
Spherical	0.658	103	90	44



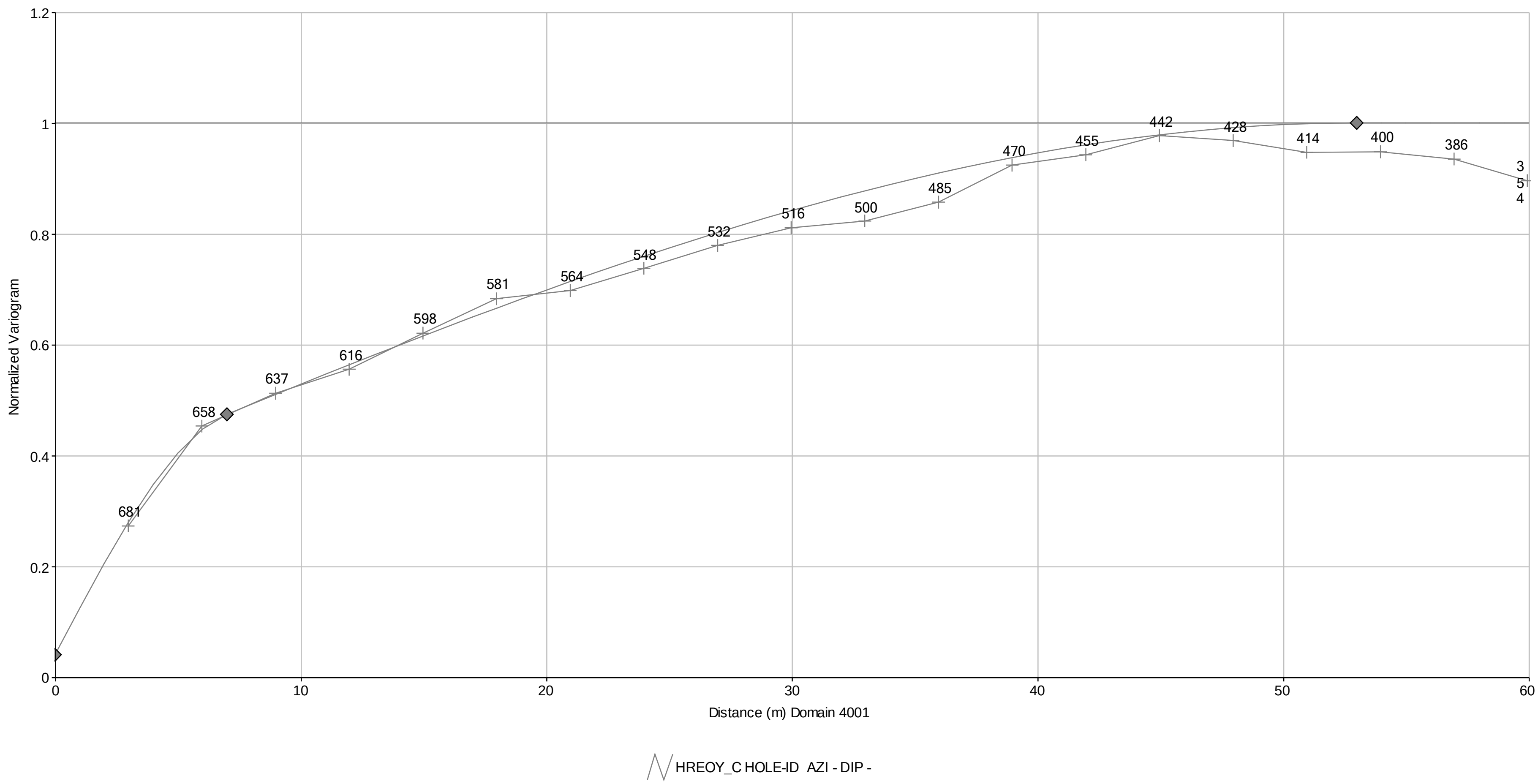
Variogram ThO2 Two Tom

Type	Variance	150/0	60/60	240/30
Nugget	0.082	-	-	-
Spherical	0.503	114	141	17
Spherical	0.415	125	147	200



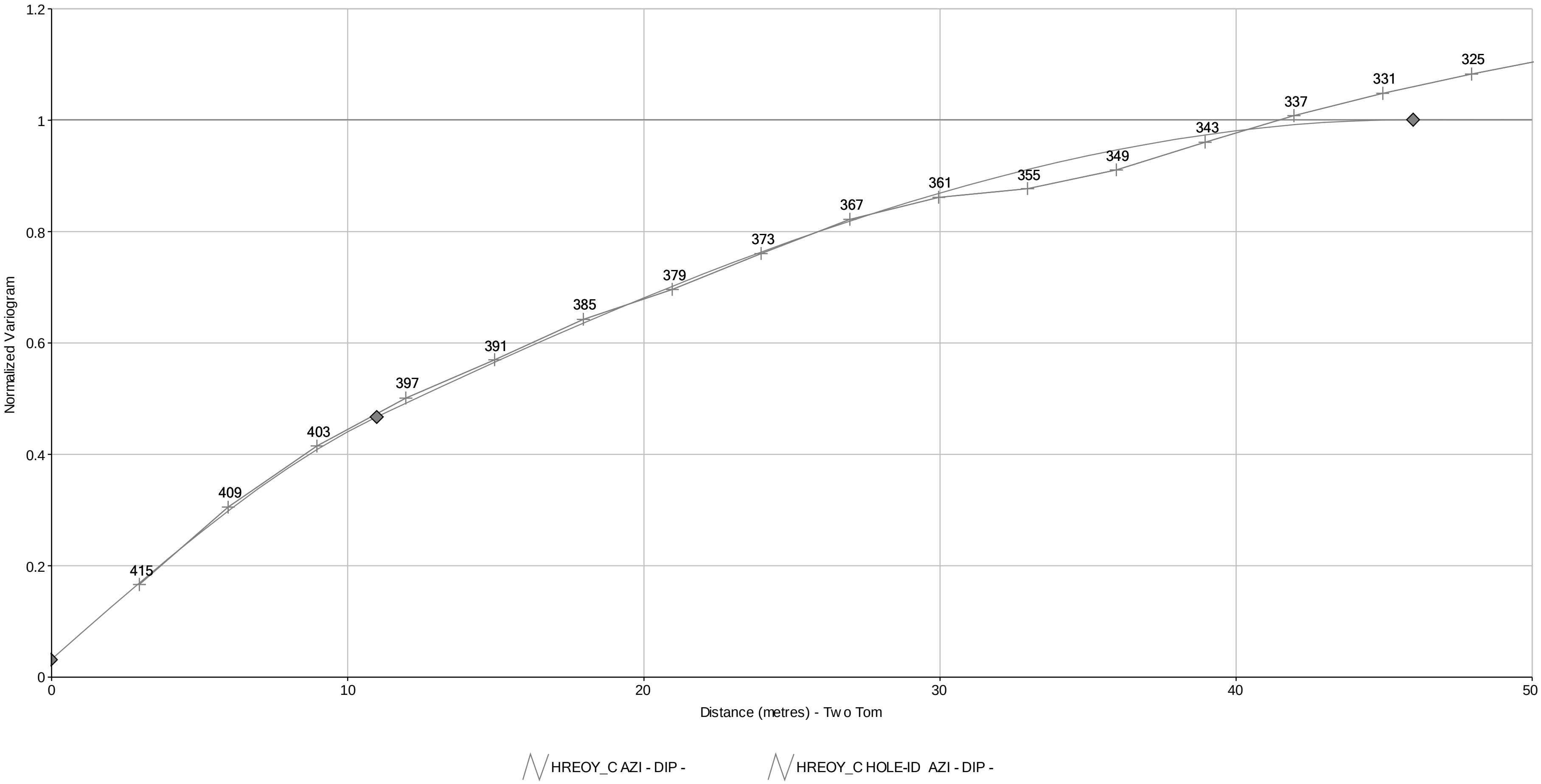
Variogram HREOY Downhole Two Tom

Type	Variance	Range
Nugget	0.04	-
Spherical	0.305	7
Spherical	0.655	53



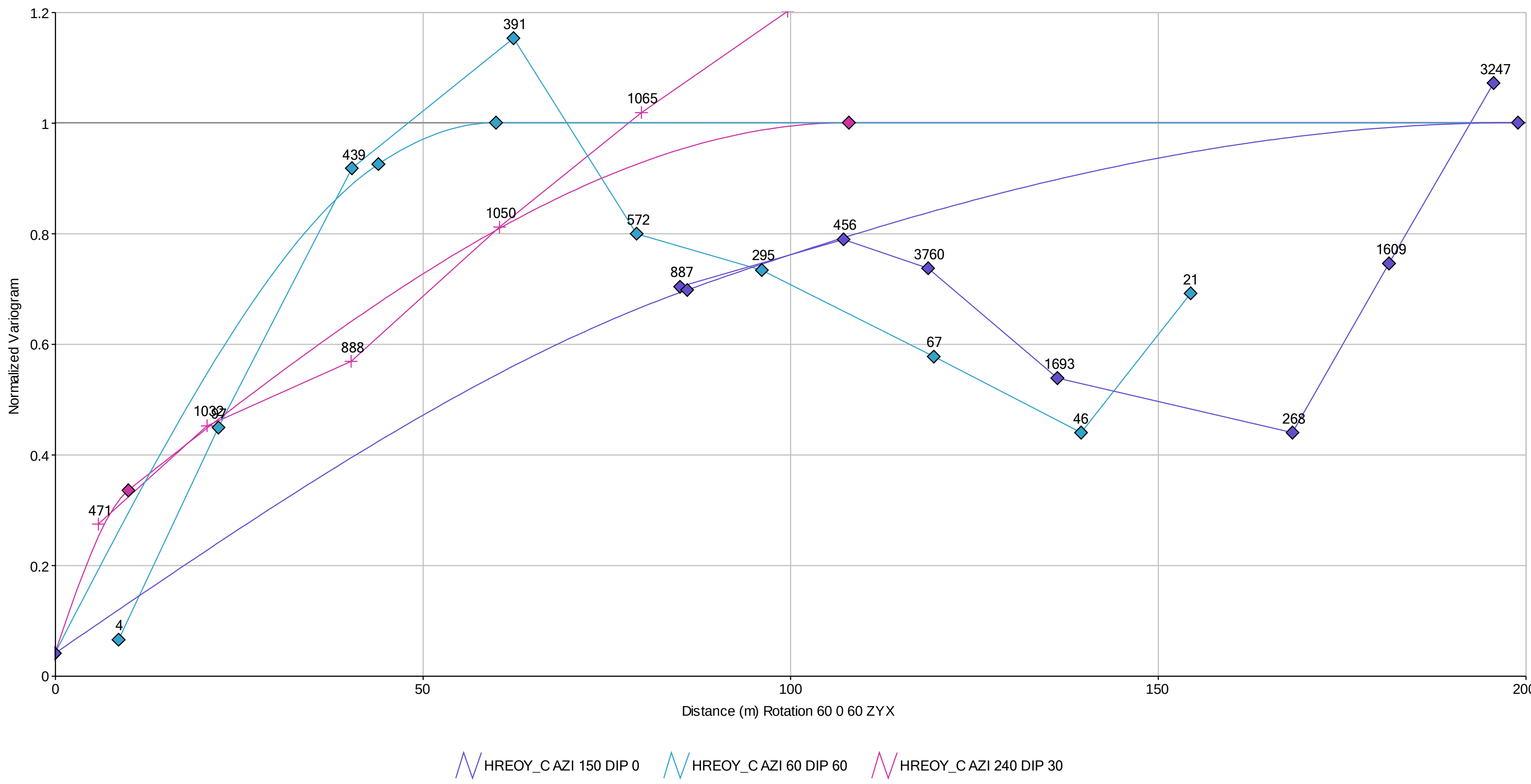
Variogram HREOY Domain 4002 Downhole

Type	Variance	Range
Nugget	0.03	-
Spherical	0.146	11
Spherical	0.824	46



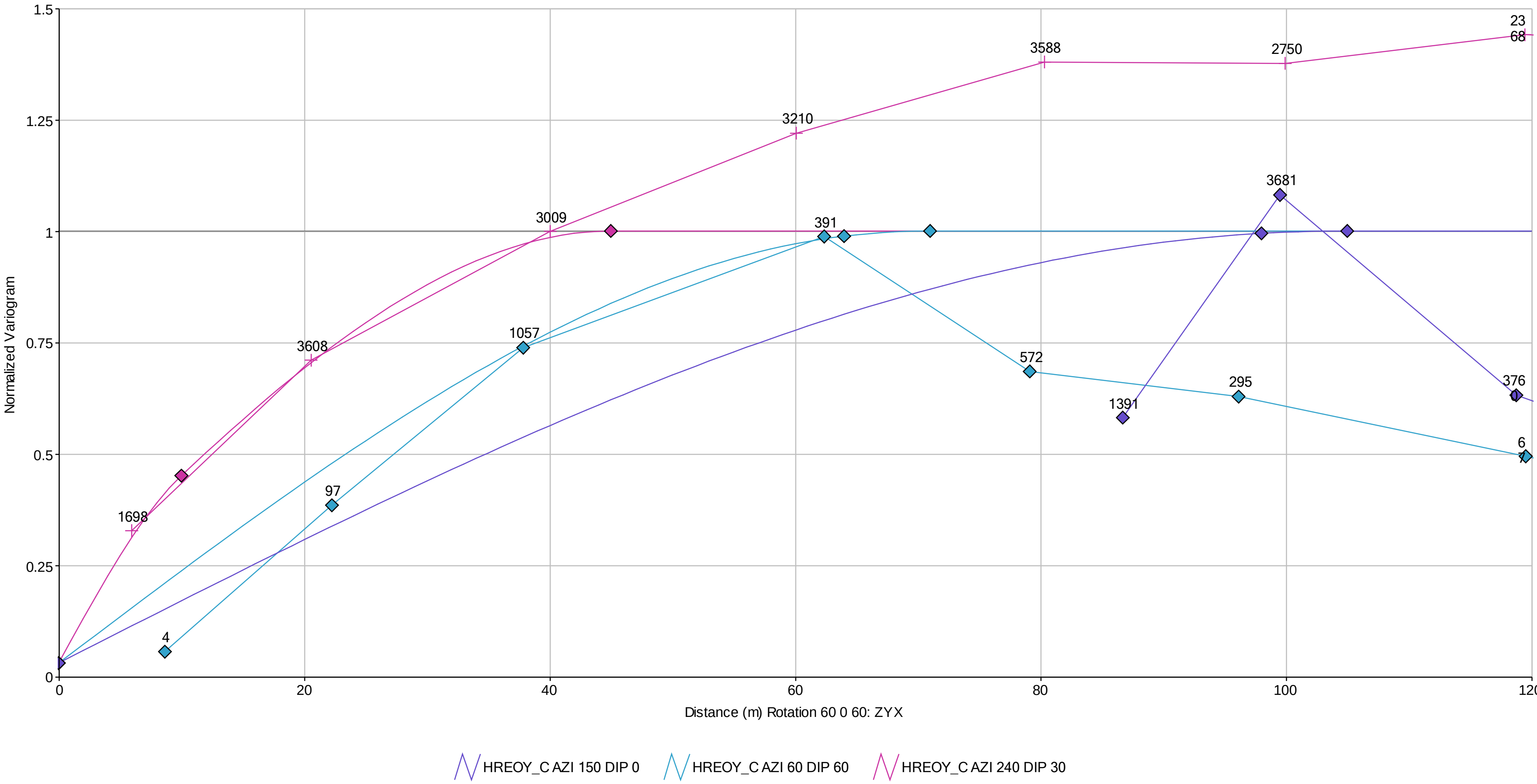
Variogram HREOY Two Tom Domain 4001

Type	Variance	150/0	60/60	240/30
Nugget	0.04	-	-	-
Spherical	0.188	86	44	10
Spherical	0.772	199	60	108



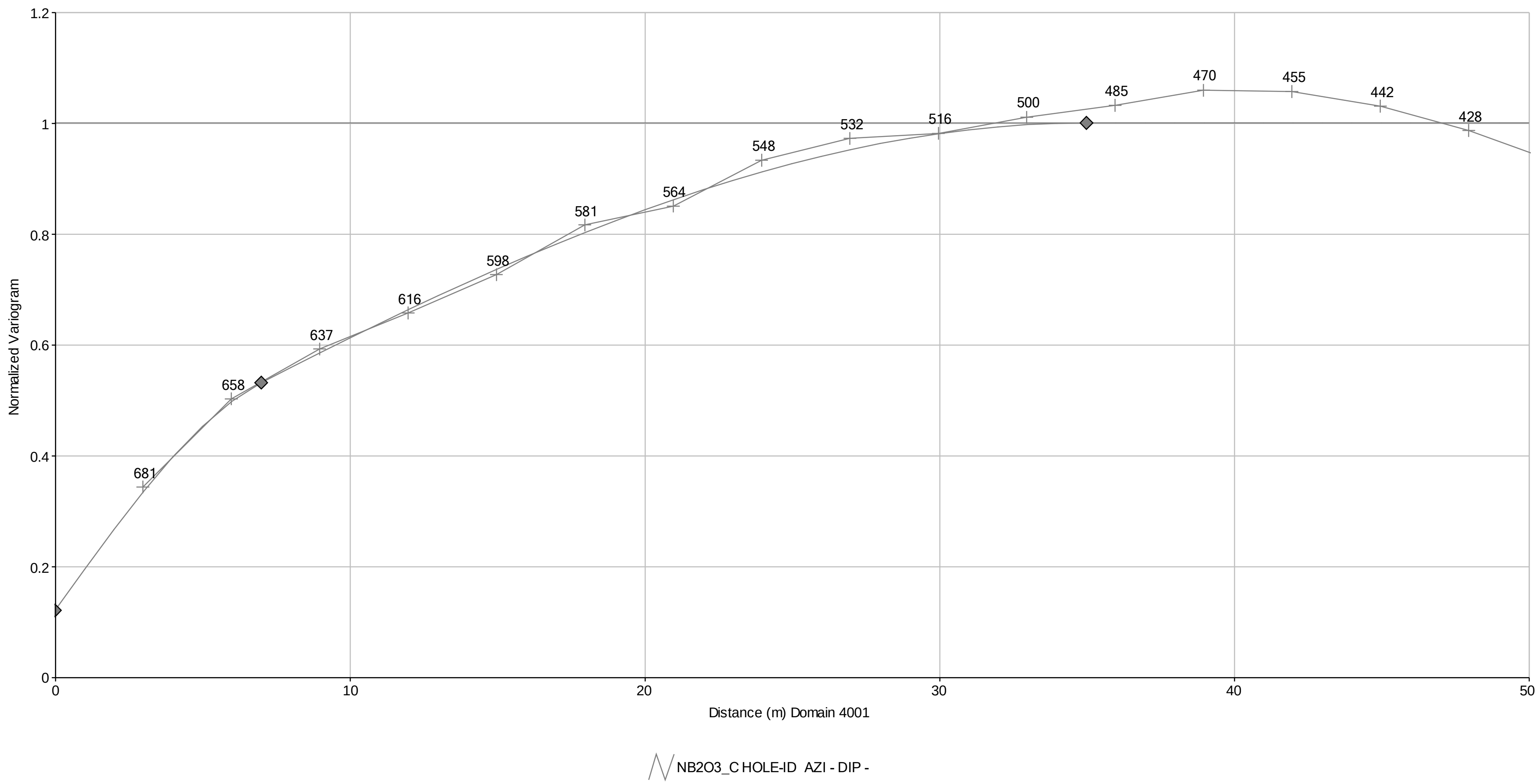
Variogram HREOY

Type	Variance	150/0	60/60	240/30
Nugget	0.03	-	-	-
Spherical	0.153	98	64	10
Spherical	0.817	105	71	45



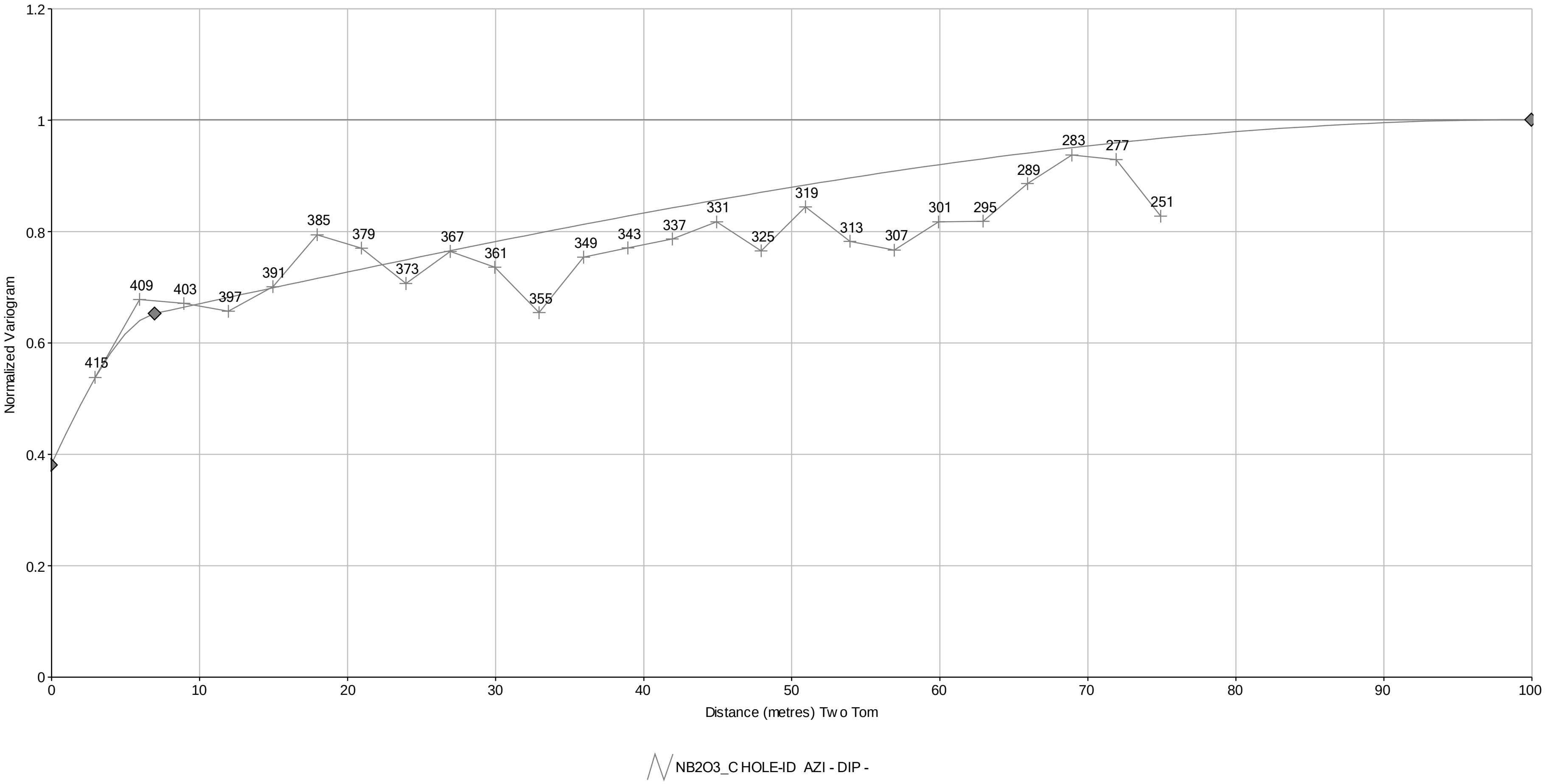
Variogram Nb2O5 Domain 4001 Two Tom

Type	Variance	Range
Nugget	0.12	-
Spherical	0.214	7
Spherical	0.666	35



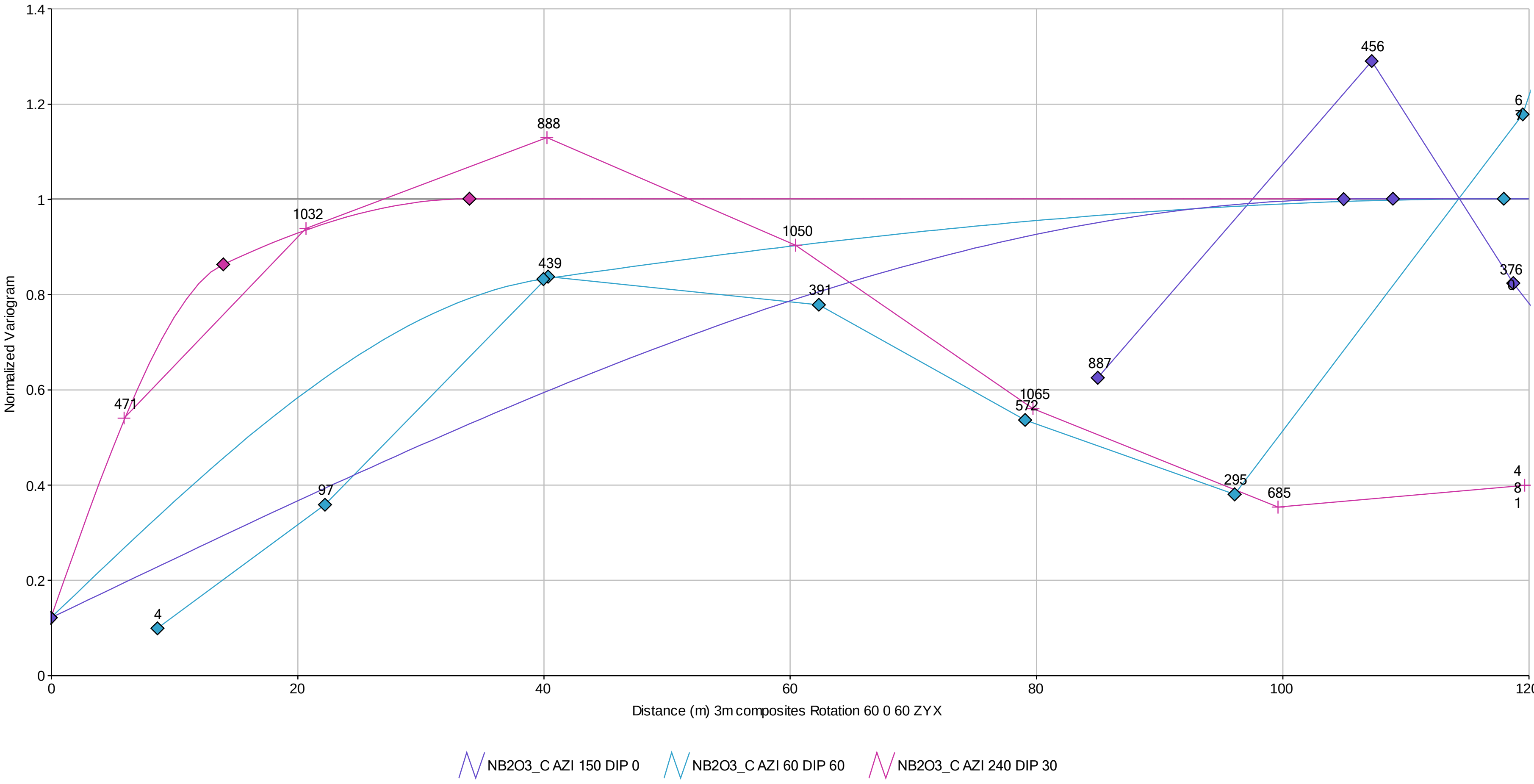
Variogram Nb2O5 Downhole Domain 4002

Type	Variance	Range
Nugget	0.38	-
Spherical	0.231	7
Spherical	0.389	100



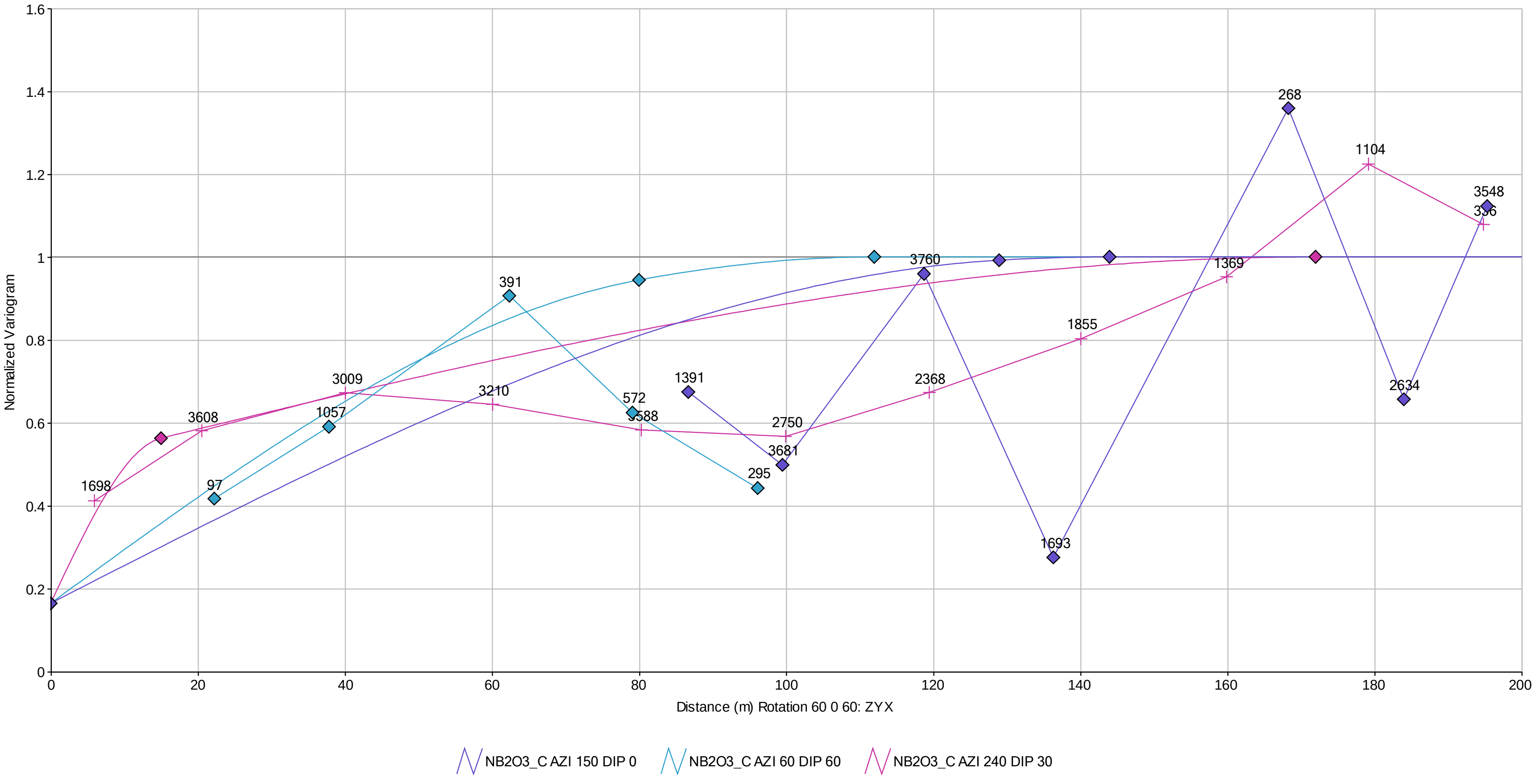
Variogram Nb2O5 Two Tom Domain 4001

Type	Variance	150/0	60/60	240/30
Nugget	0.12	-	-	-
Spherical	0.550	105	40	14
Spherical	0.330	109	118	34



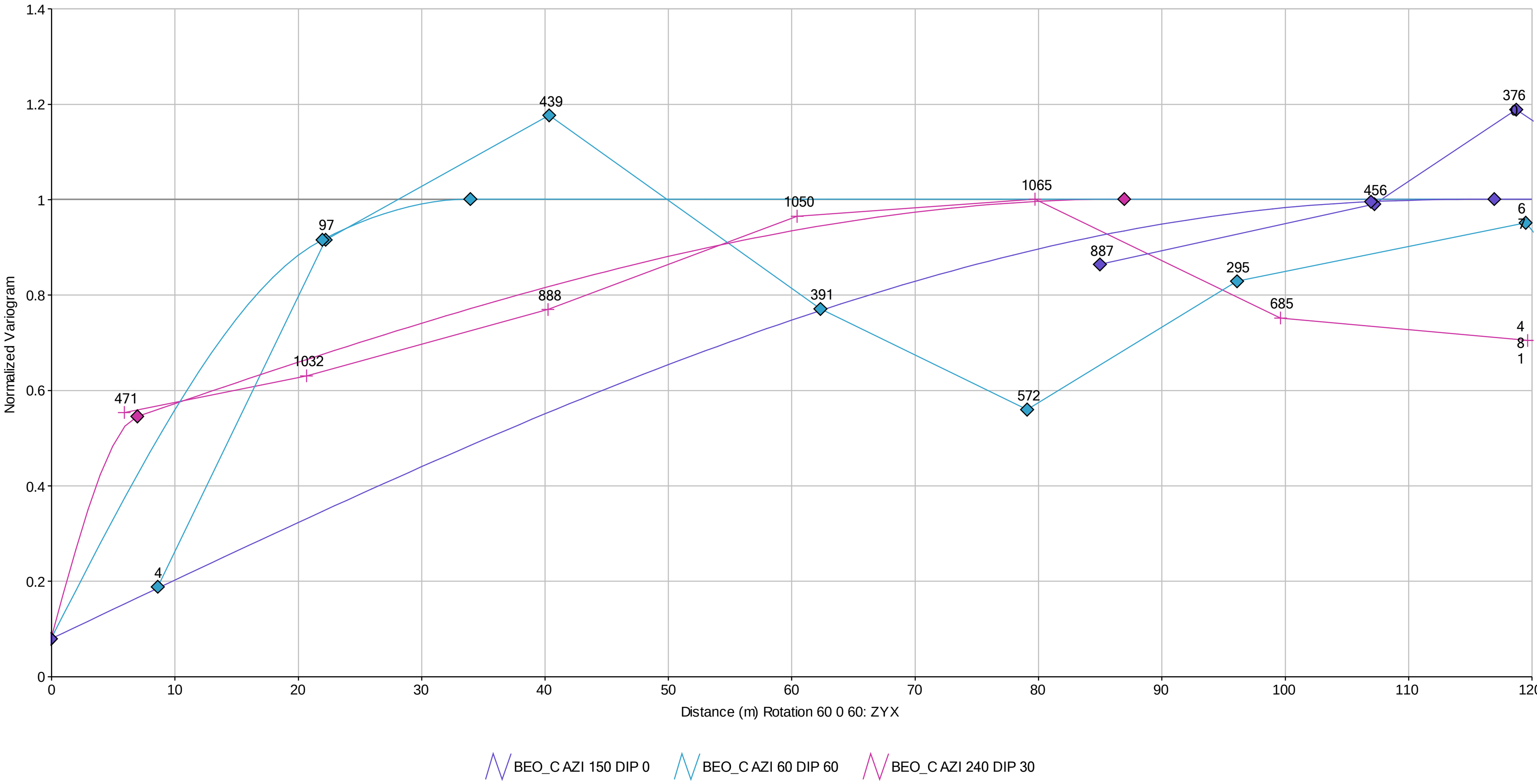
Variogram NbO5 Two Tom

Type	Variance	150/0	60/60	240/30
Nugget	0.164	-	-	-
Spherical	0.333	129	80	15
Spherical	0.503	144	112	172



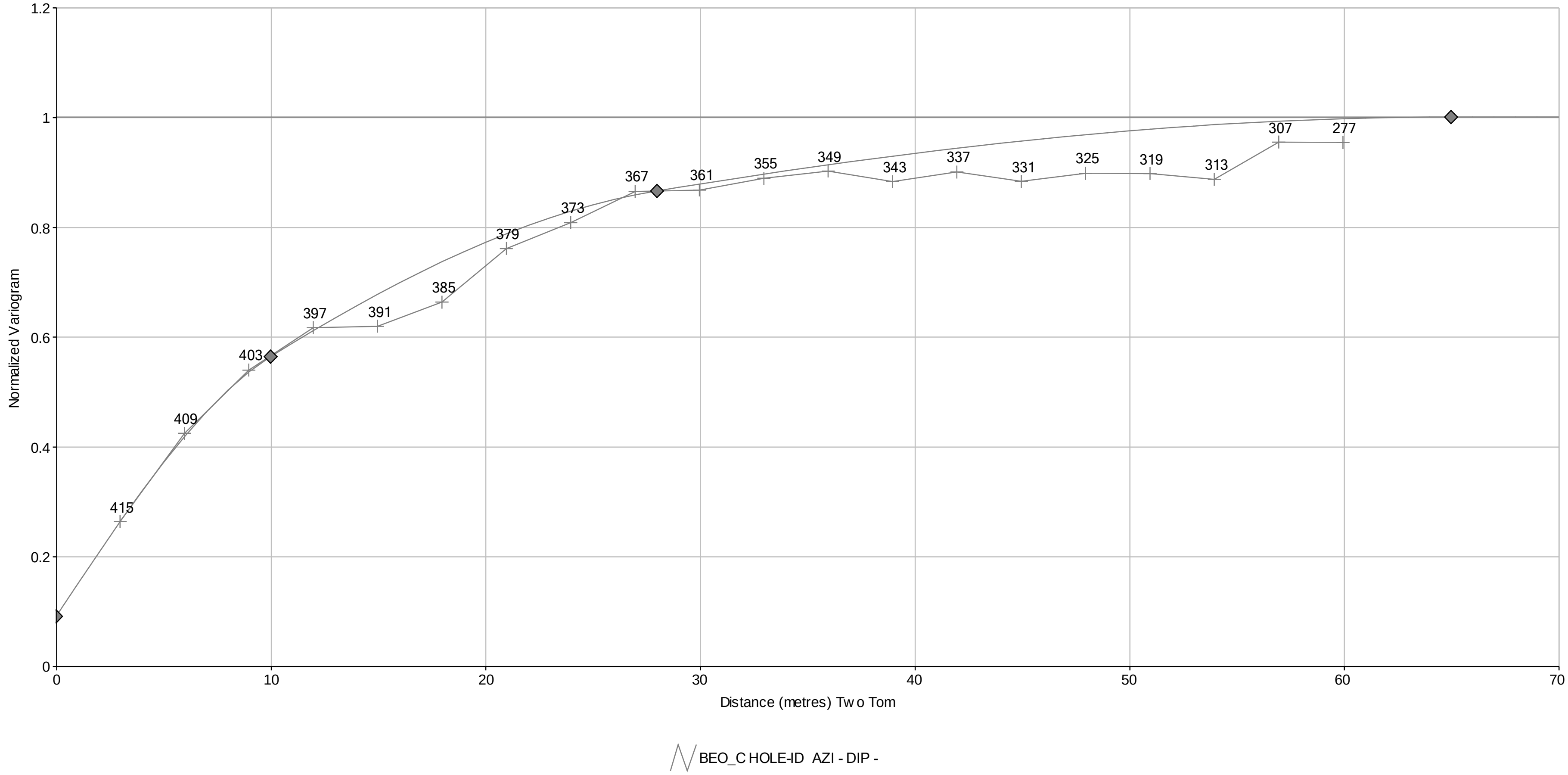
Variogram Beo Two Tom Domain 4001

Type	Variance	150/0	60/60	240/30
Nugget	0.078	-	-	-
Spherical	0.404	107	22	7
Spherical	0.518	117	34	87



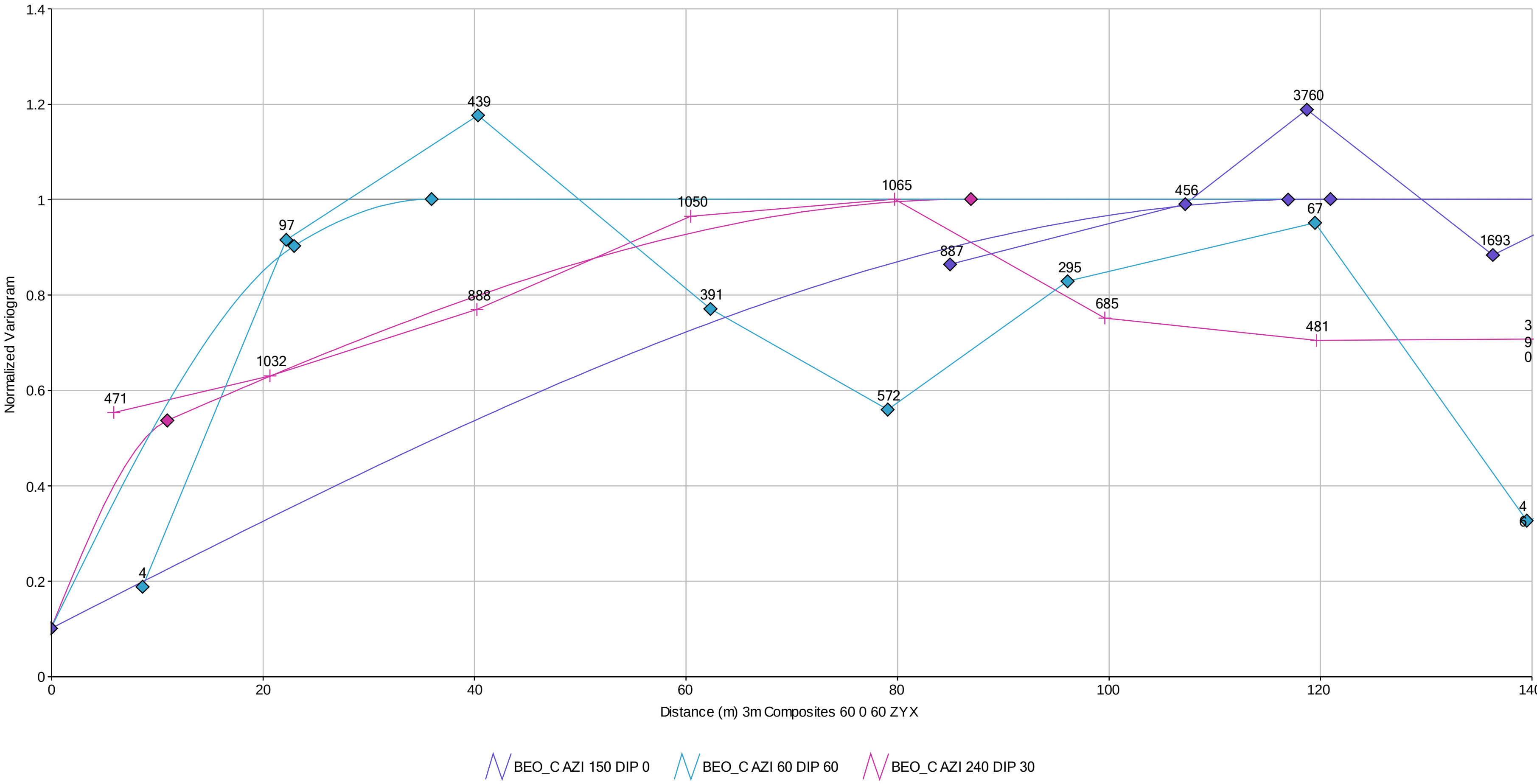
Variogram BeO Downhole Domain 4002

Type	Variance	Range
Nugget	0.09	-
Spherical	0.213	10
Spherical	0.355	28
Spherical	0.342	65



Variogram BeO Two Tom

Type	Variance	150/0	60/60	240/30
Nugget	0.1	-	-	-
Spherical	0.328	117	23	11
Spherical	0.572	121	36	87



Variogram BeO Two Tom

Type	Variance	150/0	60/60	240/30
Nugget	0.05	-	-	-
Spherical	0.386	115	21	11
Spherical	0.564	124	39	98