CAZALY TO ACQUIRE 100% OF LARGE CANADIAN RARE EARTHS PROJECT

On 27 April 2023, Cazaly Resources Limited (ASX:CAZ, "Cazaly" or "the Company") lodged an announcement entitled "Cazaly to Acquire 100% of Large Canadian Rare Earths Project".

The Company provides an updated version of that announcement ("Replacement Announcement") which now includes further references to historical reports, comments regarding the reporting of historical results and available historical drill assay data.

A copy of the Replacement Announcement is attached.

This announcement has been authorised for release by the Board of Directors of Cazaly Resources Ltd.

—— ENDS ——

For further information please contact:
Tara French (Managing Director) / **Mike Robbins** (Company Secretary)
Cazaly Resources Limited
ACN 101 049 334
Tel: +61 8 9322 6283 E: admin@cazalyresources.com.au Website: www.cazalyresources.com.au

CAZALY TO ACQUIRE 100% OF LARGE CANADIAN RARE EARTHS PROJECT

Highlights:

- **Cazaly secures agreement to acquire 100% of the Carb Lake Rare Earth Elements (REE) Project in Ontario**
- **Large carbonatite complex 2.5 to 3km in diameter**
- **Only drill tested by 4 shallow holes in 1968**
- **Samples returned >5% Ce, >1% La, 0.5% Nb**
- **No active exploration for over 10 years**

Cazaly Resources Limited (ASX: CAZ, Cazaly or the Company) is pleased to announce that it has entered into an exclusive agreement to acquire 100% of the Carb Lake Rare Earth project (the Project). The Project is located in the Red Lake District in Ontario, a well-known mining province in Canada and comprises 93 mineral claims covering a large carbonatite prospective for Rare Earth Elements (REE).

Carb Lake REE Project Geology

The Carb Lake REE project comprises a large, 2.5 to 3km diameter circular magnetic anomaly known as the Carb Lake Carbonatite Complex prospective for Rare Earth Elements and Niobium. The Project area is located in north-western Ontario, 10km from the Manitoba border. The Project hosts a mid-Proterozoic aged carbonatite which has been emplaced into tonalites within the Northern Superior Superterrane which represents the northernmost exposure of Archaean Rocks in Ontario. The Project is located between two major tectonic terrane boundaries along the North Kenyon Fault, a significant crustal scale fault providing ideal plumbing for mantle derived magma to intrude through to the upper crust. The carbonatite is not exposed at surface with shallow cover from 7 to 12m.

Figure 1. Location of Carb Lake Carbonatite Project in northwest Ontario.

Historic Exploration

The Carb Lake Carbonatite Complex has had very limited modern exploration. Following the recognition of a large circular aeromagnetic anomaly in 1967, Big Nama Creek Mines Ltd conducted airborne magnetic and radiometric surveys in search of niobium. This was followed by drill testing the southern, predominantly more magnetic zones of the intrusive complex. **Four diamond holes were completed for 564m, the only drilling ever completed over the Project** (Figure 2, Table 1)**.**

The major lithology described from drill core is sövite, a coarse grained carbonatite rock, alternating with layers of silico-carbonatite. Samples were analysed for niobium, but no values were reported by Big Nama Creek Mines.

Further work was conducted in 1969 by the Ontario Department of Mines, Geological Survey which analysed for two rare earth elements, lanthanum (La), and cerium (Ce), as well as niobium (Nb). No other rare earth elements were assayed (Table 2). Eighteen samples from DD003 and DD004 were analysed for trace elements and La, Ce, and Nb (Sage, 1987). Details of down hole sample locations were not reported. However, geochemical analysis of sövite returned up to 8% P_2O_5 probably associated with apatite and enriched in Nb up to 3000ppm and light REEs. The best results reported were from DD004, drilled into the centre of the carbonatite complex in an area of low magnetic intensity (Figure 2), with two samples reporting **>5% Ce and >1% La**.

Hole ID	UTM_EAST	UTM_NORTH	DIP	AZIMUTH	EOH DEPTH (m)	Cover (m)
DD001	563139	6069169	-50	10	125	6.7
DD002	563518	6068857	-50	10	150.91	12.2
DD003	563579	6069139	-50	10	138.41	9.15
DD004	563496	6069429	-50	10	149.39	11.89

Table 1 Big Nama Creek Mines Drillhole data. NAD83 / UTM zone 15N.

Table 2 SPECTROGRAPHIC ANALYSES OF CARBONATE PORTION OF ROCKS FROM CARB LAKE CARBONATITE
Analyses by Laboratory Branch, Ontario Department of Mines
Concentration in parts per million, except U_3O_8

Sample No.	Ba	Ce	La	Mn	Nb	Sr	Ta	Ti	Th	U	Y	Zr	U_3O_8 Equiv. Percent
H1-82	250	800	500	4000	150	3000	*	3000	*	*	80	150	0.01
H1-240	1800	2000	500	5000	5000	2500	*	250	*	1500	100	400	0.1
H1-321	300	1000	300	1500	80	2500	*	200	*	*	80	200	0.01
H2-213	1200	5000	1000	5000	200	7000	*	100	*	*	80	500	0.008
H2-218	500	*	100	4500	150	2500	*	150	*	*	10	300	*
H2-245	150	800	400	4000	200	2000	*	200	*	*	80	300	0.005
H2-265	650	1000	400	2500	3000	4000	*	100	*	*	100	100	0.008
H2-317	**1%	*	*	7000	1000	1200	*	150	*	*	*	50	*
H2-367	*	*	200	6000	*	2000	*	30	*	*	20	15	0.005
H3-200.5	1000	3000	800	2500	4000	2000	*	300	*	*	100	400	0.04
H4-44	**1%	**1%	2000	2000	200	4000	*	350	*	*	100	350	0.009
H4-168	1500	**5%	**1%	2000	50	**1%	*	200	*	*	100	*	0.02
H4-170	1500	**5%	**1%	3000	100	**1%	*	20	*	*	80	*	0.007
H4-75	500	1000	300	2000	70	·4000	*	350	*	*	100	60	0.007
H4-487	400	1000	400	4000	1000	4000	*	450	*	*	100	200	0.001
H2-408	150	2000	*	5000	200	2500	*	100	*	*	70	100	0.004
Lower Limits of Detection	150	500	100	10	40	5	1000	10	300	1500	10	10	

Table 2. Analytical results from drill core samples as reported by Bennet and Riley 1969.

In 1978 the Geological Survey recovered drill core from two of the holes (DD003 and DD004) and analysed a further 36 samples for major oxide and trace elements. Results returned up to 5,620ppm Ce with one sample returning a value of 7.1% Nb. All results available are reported in Appendix 1.

No other work was conducted until 2011 when South American Rare Earth Corporation (SAREC) conducted an airborne magnetic/radiometric survey (Barrie, 2011) (Figure 2). The aeromagnetic image shows the variability in magnetic response across the carbonatite complex. The highest magnetic response (magenta) is across the southern portion of the carbonatite. The magnetics show partial ring structures around the centre of the carbonatite complex shown as green magnetic lows possibly representing multiple intrusive phases.

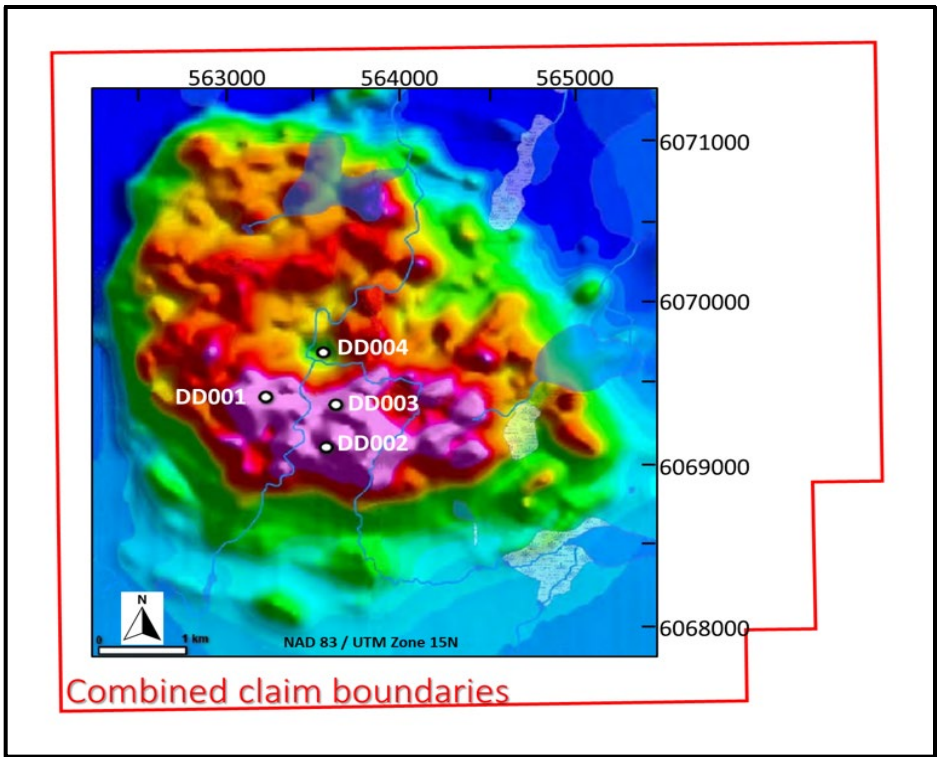

Figure 2. Aeromagnetic TMI of large circular carbonatite with variation in the magnetic response forming partial ring structures.

Discussion

The Carb Lake Carbonatite Complex represents a largely unexplored, large-scale target for REE mineralisation. The historical reporting of highly elevated grades of REE, Ce, La and Nb in limited drill samples from the carbonatite is very promising particularly for the presence of associated Rare Earth Elements. Zonation of the carbonatite is evident in magnetic images, a feature which is characteristic of other mineralised carbonatite complexes.

Carbonatite complexes are excellent targets for REE exploration. Much of the world's mined light REEs and niobium occurs from carbonatite mineralisation. A significant global example is California's Mountain Pass operations, which hosts one of the richest REE deposits in the world and has the only combined rare-earth mining and processing facility in North America.

Given that there has been very little modern exploration, and no active exploration since 2011 the Carb Lake Carbonatite Complex represents a unique opportunity for the exploration for Rare Earth Elements and associated mineralisation.

Terms of Agreement

Cazaly has agreed to the following terms on an option to acquire 100% of the Carb Lake Project:

1. Pay a non-refundable Option Fee of C$15,000 to the vendors for a 2-month exclusivity period for Cazaly to complete due diligence
2. Subject to satisfactory due diligence pay C$85,000 in cash to the vendors
3. Vendors receive a 2% net smelter royalty

Forward Plan

Historical data is currently being sourced and compiled into a format that can be readily utilised. Upon completion of due diligence, full assessment of all available data and Cazaly's decision to complete the acquisition, a field assessment will be conducted and follow up exploration activities will be prioritised.

Managing Director, Tara French said: "*We are extremely pleased to have acquired the Carb Lake Carbonatite Project. The carbonatite complex is of significant scale, situated below shallow cover and to date has flown under the radar and remains largely untested. This is despite excellent historical results which are certainly eye-catching in today's market.*

The Project provides Cazaly with a unique opportunity to conduct exploration across a large scale carbonatite complex. This will mark the first modern exploration on this excellent REE target in over a decade. We will be working closely with our in-country technical team and look forward to exploring for REE's which are some of the world's most critical minerals required for decarbonisation."

REE Market - UPDATE

The global push for decarbonisation is driving increased demand for renewable energy and electronic devices. Renewable technologies including wind turbines and electric vehicles depend on Rare Earth Elements. REEs have unique magnetic and electrical properties which are particularly valuable for the energy transition.

REE spot prices have increased 35% since 2021 and are likely to remain strong as they are an essential component for the energy transition. Individual REE have a variety of uses however neodymium, praseodymium, dysprosium, and terbium have the highest demand due to their application in permanent magnets. The production of permanent magnets has had the highest share in the market since 2020 (Figure 3) and this is expected to continue with the increased production required for use in wind turbines and the drive chain of most EVs.

REE have the greatest supply risk for key future technologies according to the European Commission Joint Research Centre 2022 (Figure 4). While China remains the dominant producer of REEs and manufacturer of rare earth magnets, continued investment in this sector globally across the entire supply chain must continue to reduce supply risk and meet future demands. We are starting to see this trending with Japan and Germany recently diversifying their demand requirements with deals in the USA and Australia.

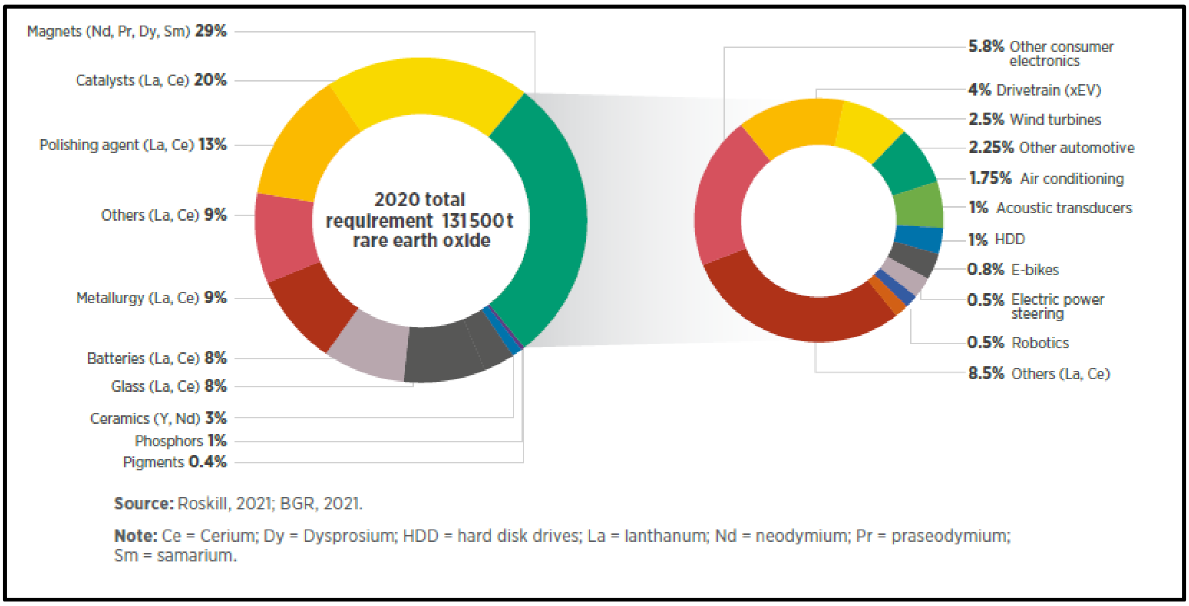

Figure 3. Rare Earth demand by sector and breakdown of magnet demand.
(Source: International Renewable Energy Agency, 2022)

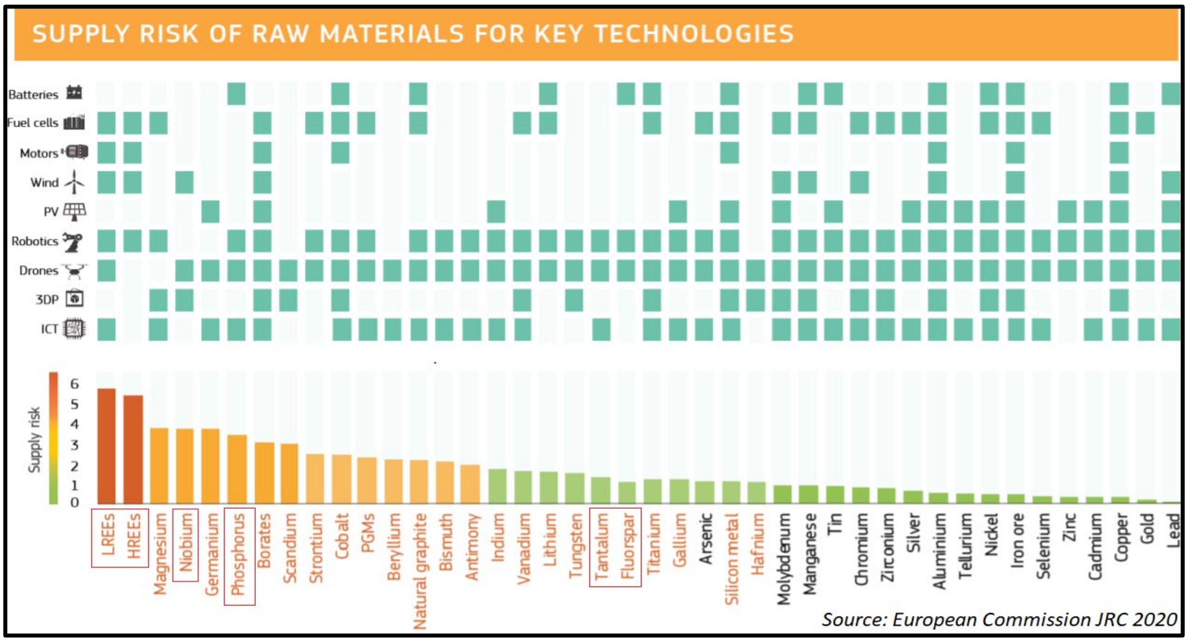

Figure 4. REE have the highest supply risk of raw materials for key technologies required for the energy transition.
(Source: European Commission Joint Research Centre 2022)

References

Bennett and Riley. 1969. Operation Lingman Lake. Ontario Department of Mines. MP 27.

Sage, R.P. 1987. Geology of Carbonatite – Alkalic Rock Complexes in Ontario “Carb” Lake Carbonatite Complex, District of Kenora. Ontario Geological Survey, Study 53, 42p.

Barrie, C. 2011. Terraquest Limited Operations Report for MPH Consulting Limited. High Resolution Magnetic, Radiometric & XDS VLF-EM Helicopter survey. Target 192 Project Northern Ontario.

Historical Reporting of Results

COMMENTS REGARDING THE REPORTING OF OTHER ENTITIES EXPLORATION RESULTS

- The exploration results reported herein have been sourced from public reports as listed in the References.
- Only selected drill core samples were reported in historical reports.
- No digital geophysical data has been acquired. Therefore the aeromagnetic images are copies and not digital data.
- The information in this announcement is an accurate representation of the available data for project that has been sourced to date.
- The historical exploration results were not reported in accordance with the JORC Code.

ENDS

For and on behalf of the Cazaly Board
For further information please contact:
Tara French (Managing Director) / Clive Jones (Chairman)
Cazaly Resources Limited ABN 23 101 049 334
Tel: +61 8 9322 6283 E: admin@cazalyresources.com.au Website: www.cazalyresources.com.au

Media Enquiries
David Tasker – Chapter One Advisors
dtasker@chapteroneadvisors.com.au
+61 433 112 936

Competent Persons Statement
The information contained herein that relates to Exploration Results is based upon information compiled or reviewed by Ms Tara French and Mr Don Horn, who are employees of the Company. Ms Tara French and Mr Horn are both Members of the Australasian Institute of Geoscientists and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Ms Tara French and Mr Horn both consent to the inclusion of their names in the matters based on the information in the form and context in which it appears.

Forward Looking Statement
This ASX announcement may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Cazaly's planned exploration program(s) and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward looking statements. Although Cazaly Resources believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements. The forward-looking statements in this announcement reflect views held only as at the date of this announcement.

TABLE A-2. MAJOR ELEMENT ANALYSES OF WHOLE-ROCK SAMPLES FROM THE CARB LAKE CARBONATITE COMPLEX

	Sovite						
Map No.	**1165**	**1183**	**1172**	**1173**	**1159**	**1161**	**1160**
SiO_2	1.7	9.82	2.0	0.3	2.2	4.1	1.2
Al_2O_3	0.20	1.40	0.60	0.10	0.40	0.60	0.20
Fe_2O_3	1.04	2.56	2.44	0.09	1.52	3.02	3.80
FeO	2.30	4.00	2.03	0.64	2.86	6.37	3.42
MgO	3.30	8.00	3.10	1.60	3.90	11.5	2.60
CaO	49.6	36.9	47.6	52.8	46.1	31.2	47.4
Na_2O	0.16	0.75	0.08	0.03	0.08	0.22	0.08
K_2O	0.02	1.47	0.27	0.01	0.14	0.51	0.05
TiO_2	0.10	1.50	0.10	0.10	0.20	0.10	0.10
P_2O_5	1.12	4.28	4.84	0.61	2.70	8.64	3.60
S	0.44	0.22	0.17	0.01	0.06	0.04	0.04
MnO	0.40	0.32	0.21	0.17	0.45	0.60	0.30
CO_2	39.7	27.5	35.2	42.1	38.3	31.1	37.11
H_2O^+	0.10	0.02	0.02	0.04	0.09	0.02	0.01
H_2O^-	0.27	0.20	0.29	0.29	0.15	0.29	0.26

	Sovite						
Map No.	**1181**	**1171**	**1179**	**1175**	**1174**	**1176**	**1177**
SiO_2	1.3	2.7	2.8	1.1	0.9	0.8	1.7
Al_2O_3	0.10	0.30	0.40	0.10	0.20	0.20	0.50
Fe_2O_3	1.42	2.39	3.19	1.51	3.71	0.26	0.29
FeO	2.86	1.99	2.71	6.02	2.42	1.48	1.63
MgO	7.70	4.50	3.80	14.9	2.00	2.10	2.40
CaO	43.2	45.6	47.5	30.2	48.2	52.6	52.0
Na_2O	0.11	0.27	0.16	0.03	0.08	0.03	0.03
K_2O	0.01	0.12	0.24	0.07	0.17	0.10	0.07
TiO_2	0.10	0.10	0.20	0.10	0.10	0.10	0.10
P_2O_5	2.22	4.00	4.76	2.50	3.18	2.05	0.70
S	0.26	0.11	0.28	0.27	0.17	0.14	0.15
MnO	0.55	0.26	0.31	0.45	0.21	0.29	0.31
CO_2	39.8	36.6	34.1	42.0	36.8	40.8	41.3
H_2O^+	0.01	0.02	0.02	0.01	0.03	0.01	0.04
H_2O^-	0.26	0.46	0.24	0.43	0.36	0.22	0.11

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1165	3-312-337D	1181	4-395 420A
1183	4-472 490A	1171	4-64 90A
1172	4-90 116A	1179	4-313 441B
1173	4-90 116B	1175	4-116 142B
1159	3-107 135C	1174	4-116 142A
1161	3-186 210C	1176	4-142 170A
1160	3-186 210B	1177	4-142 170B

TABLE A-2 Continued.

	SOVITE						
Map No.	**1164**	**1162**	**1155**	**1170**	**1182**	**1163**	**1169**
SiO_2	5.8	0.9	0.2	4.2	0.3	5.5	2.0
Al_2O_3	0.90	0.20	0.10	0.30	0.10	0.60	0.30
Fe_2O_3	0.90	0.34	0.54	1.07	1.41	2.64	3.77
FeO	5.31	2.30	4.64	1.56	4.67	4.37	2.82
MgO	14.1	2.80	16.3	4.50	16.1	5.70	3.70
CaO	30.6	49.6	32.5	46.6	30.6	41.4	46.4
Na_2O	0.30	0.03	0.05	0.19	0.01	0.27	0.03
K_2O	1.09	0.07	0.05	0.22	0.02	0.75	0.12
TiO_2	0.10	0.10	0.10	0.10	0.10	0.80	0.10
P_2O_5	7.32	3.68	1.92	4.56	2.70	2.60	2.94
S	0.01	0.08	0.01	0.07	0.10	0.24	0.17
MnO	0.51	0.38	0.77	0.21	0.61	0.35	0.24
CO_2	32.0	39.6	43.1	36.5	43.4	35.4	37.6
H_2O^+	0.01	0.07	0.01	0.14	0.01	0.71	0.26
H_2O^-	0.28	0.25	0.31	0.40	0.23	0.31	0.15

	SOVITE				
Map No.	**1184**	**1185**	**1187**	**1188**	**1189**
SiO_2	3.43	1.69	1.16	2.07	2.90
Al_2O_3	0.67	0.34	0.25	0.36	0.41
Fe_2O_3	6.40	0.55	0.77	5.65	1.55
FeO	5.72	1.13	3.38	5.23	2.42
MgO	14.48	1.33	14.33	2.87	3.61
CaO	28.40	50.60	34.40	42.20	47.00
Na_2O	0.33	0.57	0.23	0.67	0.71
K_2O	0.56	0.08	0.0	0.09	0.18
TiO_2	0.02	0.0	0.0	0.01	0.09
P_2O_5	2.72	1.68	0.07	2.76	2.82
S	0.05	0.09	0.01	0.21	0.13
MnO	0.48	0.16	0.72	0.29	0.22
CO_2	32.60	41.90	46.10	37.80	36.90
H_2O^+	0.0	0.0	0.0	0.0	0.0
H_2O^-	0.28	0.0	0.36	0.0	0.0

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1164	3-285 312C	1184	H2-99
1162	3-234 259A	1185	H2-283
1155	3-53 82A	1187	H2-367
1170	4-39 64B	1188	H3-160
1182	4-395 420B	1189	H4-44
1163	3-234 259B		
1169	4-39 64A		

TABLE A-2 Continued.

Map No.	SOVITE				
	1190	**1154**	**1167**	**1157**	**1158**
SiO_2	2.51	3.0	4.8	3.8	8.7
Al_2O_3	0.46	1.10	0.80	0.50	1.10
Fe_2O_3	1.23	41.7	35.4	42.9	43.6
FeO	2.25	16.6	19.2	14.7	14.8
MgO	2.39	3.80	6.40	2.80	5.40
CaO	48.00	15.9	12.9	18.3	9.50
Na_2O	0.58	0.30	0.27	0.27	0.81
K_2O	0.21	0.41	0.75	0.48	1.28
TiO_2	0.0	0.80	0.10	1.60	1.60
P_2O_5	2.00	7.92	1.40	11.9	3.23
S	0.09	0.06	0.03	0.02	1.30
MnO	0.18	0.21	0.40	0.13	0.22
CO_2	39.50	5.50	14.8	2.00	6.80
H_2O^+	0.0	0.91	0.05	0.41	0.17
H_2O^-	0.0	0.27	0.26	0.13	0.23

Map No.	SILICOCARBONATITE				
	1178	**1180**	**1168**	**1166**	**1186**
SiO_2	9.06	24.8	24.0	18.6	6.75
Al_2O_3	0.20	3.10	2.00	2.00	0.46
Fe_2O_3	32.1	9.44	10.1	8.71	46.06
FeO	13.8	9.86	9.04	9.26	19.30
MgO	8.30	14.2	15.2	14.9	5.53
CaO	16.1	13.8	13.0	15.8	7.95
Na_2O	1.21	1.86	2.43	1.56	1.47
K_2O	0.29	1.14	2.41	2.60	0.35
TiO_2	0.90	2.80	1.90	2.00	0.49
P_2O_5	4.06	0.38	0.30	0.98	0.03
S	2.46	0.46	1.00	0.09	0.03
MnO	0.31	0.36	0.42	0.54	0.44
CO_2	13.3	15.6	18.4	21.8	12.10
H_2O^+	0.12	0.16	0.57	0.60	0.0
H_2O^-	0.23	0.46	0.29	0.29	0.33

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No	Map No.	Sample No.
1190	H4-119	1178	4-313 441A
1154	3-53 82B	1180	4-341 369A
1167	3-414 439B	1168	3-439 454B
1157	3-82 107A	1166	3-363 395A
1158	3-107 135B	1186	H2-317

TABLE A-3. TRACE ELEMENT ANALYSES OF WHOLE-ROCK SAMPLES FROM THE CARB LAKE CARBONATITE COMPLEX

	SOVITE					
Map No.	**1165**	**1183**	**1172**	**1173**	**1159**	**1161**
Ag	<1	<1	<1	<1	<1	<1
Au						
As						
Ba	480	290	630	300	350	890
Be	<1	4	<1	<1	<1	3
Bi						
Co	10	10	10	<5	10	7
Cr	5	<5	<5	<5	20	5
Cu	6	20	20	<5	15	7
Ga	<3	10	3	<3	3	15
Hg						
Li	10	25	8	<3	20	20
Mn	3140	2490	1600	1340	3500	4650
Mo	<3	<3	<3	<3	<3	<3
Nb	>0.1%	200	70	<30	300	>0.1%
Ni	<5	<5	<5	6	7	<5
Pb	65	55	25	25	40	50
Rb	<10	60	20	<10	10	30
Sb						
Sc	20	35	20	6	20	30
Sn	<3	<3	<3	<3	6	6
Sr	3600	2800	3200	4720	2430	2700
Ti						
V	<10	45	35	<10	20	<10
Y	100	80	100	60	150	100
Zn	30	60	50	6	25	5
Zr	60	350	150	<10	150	200
La	300	350	450	250	350	400
Nd	<300	<300	300	<300	<300	<300
Ce	540	670	600	520	680	630

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1165	3-312-337D	1173	4-90 116B
1183	4-472 490A	1159	3-107 135C
1172	4-90 116A	1161	3-186 210C

TABLE A-3 Continued.

	SOVITE					
Map No.	**1160**	**1181**	**1171**	**1179**	**1175**	**1174**
Ag	<1	<1	<1	<1	<1	<1
Au						
As						
Ba	460	410	370	510	490	720
Be	4	<1	3	<1	<1	<1
Bi						
Co	<5	6	7	10	7	7
Cr	<5	<5	<5	5	10	5
Cu	7	5	20	6	<5	8
Ga	3	<3	<3	3	<3	<3
Hg						
Li	8	4	6	6	5	5
Mn	2300	4300	2000	2430	3500	1600
Mo	<3	<3	<3	<3	<3	<3
Nb	400	700	70	500	350	>7.1%
Ni	<5	<5	<5	<5	<5	<5
Pb	<10	50	20	75	35	70
Rb	<10	<10	10	20	<10	<10
Sb						
Sc	20	15	20	20	6	10
Sn	<3	<3	<3	<3	<3	<3
Sr	3800	4100	3000	4200	5000	3600
Ti						
V	<10	<10	50	70	30	25
Y	150	90	100	100	40	100
Zn	85	30	70	35	135	110
Zr	200	200	200	100	25	200
La	350	500	400	500		400
Nd	<300	300	<300	<300	<300	<300
Ce	480	750	670	630	5620	660

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1160	3-186 210B	1179	4-313 441B
1181	4-395 420A	1175	4-116 142B
1171	4-64 90A	1174	4-116 142A

TABLE A-3 Continued.

	SOVITE					
Map No.	**1176**	**1177**	**1164**	**1162**	**1155**	**1170**
Ag	<1	<1	<1	<1	<1	<1
Au						
As						
Ba	480	700	70	520	120	750
Be	<1	<1	8	<1	<1	4
Bi						
Co	7	10	9	<5	6	8
Cr	5	5	25	<5	5	<5
Cu	10	10	6	8	<5	25
Ga	<3	4	15	<3	<3	<3
Hg						
Li	4	4	30	5	4	9
Mn	2240	2420	3990	3000	5950	1650
Mo	<3	10	<3	<3	<3	<3
Nb	30	200	700	400	400	<30
Ni	<5	<5	5	<5	<5	<5
Pb	65	75	35	195	35	40
Rb	<10	20	40	<10	10	10
Sb						
Sc	10	6	20	5	3	25
Sn	<3	<3	<3	<3	<3	<3
Sr	4400	4200	2400	4130	2300	2300
Ti						
V	<10	<10	20	<10	<10	25
Y	100	100	150	100	20	100
Zn	145	125	40	160	25	15
Zr	10	25	50	100	25	200
La	400	500	300	400	250	400
Nd	<300	<300	<300	<300	<300	<300
Ce	590	670	350	550	330	530

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1176	4-142 170A	1162	3-234 259A
1177	4-142 170B	1155	3-53 82A
1164	3-285 312C	1170	4-39 64B

TABLE A-3 Continued.

	SOVITE					
Map No.	**1182**	**1163**	**1169**	**1184**	**1185**	**1187**
Ag	<1	<1	<1	<1	<1	<1
Au						
As						
Ba	100	280	730	150	970	110
Be	<1	4	2			
Bi						
Co	5	20	10	6	6	<5
Cr	7	15	7	5	5	<5
Cu	<5	35	70	8	10	8
Ga	9	<3	4	5	1	<1
Hg						
Li	4	40	10	7	<3	<3
Mn	4800	2760	1850			
Mo	<3	<3	<3	<1	3	<1
Nb	800	300	150	1500	1500	<30
Ni	<5	10	<5	<5	<5	<5
Pb	30	30	25	<10	29	<10
Rb	<10	30	10	30	<10	<10
Sb						
Sc	10	20	25	15	9	<5
Sn	<3	<3	<3	10	<3	<3
Sr	3000	2400	2500	2500	3000	900
Ti						
V	<10	70	100	20	<10	<10
Y	35	100	150	60	80	<10
Zn	25	100	70	104	202	18
Zr	35	200	150	3000	150	<10
La	250	400	450	150	250	100
Nd	<300	<300	<300	300	150	<100
Ce	170	700	590	370	370	140

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1182	4-395 420B	1184	H2-99
1163	3-234 259B	1185	H2-283
1169	4-39 64A	1187	H2-367

TABLE A-3 Continued.

	SOVITE					
Map No.	**1188**	**1189**	**1190**	**1154**	**1167**	**1157**
Ag	<1	<1	<1	<3	10	<3
Au						
As						
Ba	690	520	800	550	510	330
Be				<3	<3	<3
Bi						
Co	<5	8	13	15	10	10
Cr	11	9	<5	15	9	15
Cu	11	30	22	8	8	6
Ga	2	2	2	20	15	25
Hg						
Li	5	10	7	25	15	25
Mn				1660	3100	1080
Mo	<1	<1	<1	<3	<3	<3
Nb	1000	90	500	>0.1%	>0.1%	>0.1%
Ni	<5	<5	<5	9	9	<5
Pb	17	<10	41	105	40	50
Rb	<10	<10	10	20	20	20
Sb						
Sc	20	25	15	45	42	15
Sn	6	<3	<3	45	30	40
Sr	4000	3500	4000	2300	730	1900
Ti						
V	150	60	25	155	100	400
Y	100	90	100	70	45	80
Zn	90	37	54	40	50	55
Zr	150	450	100	900	1000	600
La	300	300	400	<300	<300	<300
Nd	250	200	250	<300	<300	<300
Ce	670	340	630	560	390	800

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No	Map No.	Sample No
1188	H3-160	1154	3-53 82B
1189	H4-44	1167	3-414 439B
1190	H4-119	1157	3-82 107A

TABLE A-3 Continued.

	SOVITE	SILICOCARBONATITE				
Map No.	**1158**	**1178**	**1180**	**1168**	**1166**	**1186**
Ag	<3	<3	<1	<1	<1	<1
Au						
As						
Ba	490	70	270	190	90	290
Be	10	<3	8	10	7	
Bi						
Co	55	80	40	60	40	23
Cr	15	30	310	480	400	9
Cu	40	60	140	125	110	8
Ga	30	6	15	15	8	7
Hg						
Li	55	8	115	65	120	6
Mn	1720	2390	2760	3260	4190	
Mo	<3	<3	<3	<3	<3	6
Nb		400	250	150	300	700
	>0.1%					
Ni	<5	6	125	320	440	<5
Pb	400	40	25	40	50	<10
Rb	40	<10	.110	60	110	<10
Sb						
Sc	35	70	70	100	70	25
Sn	50	20	<3	4	<3	20
Sr	890	1300	560	710	1100	400
Ti						
V	450	250	150	100	100	150
Y	45	45	15	<10	15	10
Zn	35	240	80	80	60	124
Zr	600	150	250	100	150	450
La	<300	<300	150	150	<100	<100
Nd	<300	<300	<300	<300	<300	<100
Ce	580	490	560	420	360	<50

Notes: For sample descriptions, see Table A-1. Analyses by Geoscience Laboratories, Ontario Geological Survey, Toronto.

Map No.	Sample No.	Map No.	Sample No.
1158	3-107 135B	1168	3-439 454B
1178	4-313 441A	1166	3-363 395A
1180	4-341 369A	1186	H2-317

TABLE A-4. NORMATIVE MINERALS (ALKALIC ROCKS) FOR WHOLE-ROCK SAMPLES FROM THE CARB LAKE CARBONATITE COMPLEX

	SOVITE					
Map No.	**1165**	**1183**	**1172**	**1173**	**1159**	**1161**
Quartz	0.0	0.0	0.12	0.0	0.70	0.0
Corundum	0.18	0.0	0.31	0.10	0.25	0.0
Orthoclase	0.0	5.54	1.59	0.0	0.83	0.0
Albite	0.0	0.0	0.0	0.0	0.0	0.0
Leucite	0.0	1.64	0.0	0.0	0.0	0.0
Kalsilite	0.07	0.0	0.0	0.0	0.0	1.67
Nepheline	0.0	0.0	0.0	0.0	0.0	0.17
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.0
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.0	0.0	0.0	0.0	0.0	0.0
Thenardite	0.37	1.72	0.18	0.07	0.18	0.44
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.0
Akermanite	0.72	0.0	0.0	0.45	0.0	4.67
Fe-Aker.	0.66	0.0	0.0	0.52	0.0	3.39
Wollastonite	−1.11	0.0	0.0	−0.78	0.0	−6.55
Enstatite	−0.53	0.0	0.0	−0.33	0.0	−3.42
Ferrosilite	−0.57	0.0	0.0	−0.45	0.0	−2.94
Forsterite	2.84	9.31	0.86	0.83	0.0	9.59
Fayalite	3.40	4.50	1.63	1.27	3.18	9.11
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	0.0	0.0	0.0	0.0	0.0	0.0
Magnetite	1.51	3.72	3.54	0.13	2.21	4.39
Sphene	0.0	0.0	0.0	0.0	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	0.0	0.0
Rutile	0.10	1.50	0.10	0.10	0.02	0.10
Apatite	2.65	9.94	11.46	1.44	6.39	1.51
Calcite	85.82	55.94	73.51	92.72	75.86	54.13
Magnesite	3.69	5.50	5.43	2.47	8.13	13.89
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	0.37	0.22	0.31	0.33	0.24	0.31
Sum	100.15	99.53	99.04	98.88	97.98	90.46

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No.	Map No.	Sample No.
1165	3-312-337D	1173	4-90 116B
1183	4-472 490A	1159	3-107 135C
1172	4-90 116A	1161	3-186 210C

TABLE A-4 Continued.

	SOVITE					
Map No.	**1160**	**1181**	**1171**	**1179**	**1175**	**1174**
Quartz	0.13	0.02	1.72	0.0	0.0	0.0
Corundum	0.15	0.10	0.17	0.14	0.02	0.0
Orthoclase	0.30	0.0	0.71	0.0	0.0	0.0
Albite	0.0	0.0	0.0	0.0	0.0	0.0
Leucite	0.0	0.0	0.0	0.0	0.0	0.0
Kalsilite	0.0	0.0	0.0	0.81	0.23	0.57
Nepheline	0.0	0.0	0.0	0.0	0.0	0.0
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.0
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.0	0.0	0.0	0.0	0.0	0.0
Thenardite	0.18	0.25	0.62	0.37	0.07	0.18
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.04
Akermanite	0.0	0.0	0.0	0.37	0.0	16.40
Fe-Aker.	0.0	0.0	0.0	0.27	4.83	13.49
Wollastonite	0.0	0.0	0.0	−0.52	−3.69	−14.56
Enstatite	0.0	0.0	0.0	−0.27	0.0	−7.22
Ferrosilite	0.0	0.0	0.0	−0.23	−4.20	−7.04
Forsterite	0.0	0.34	0.0	3.92	0.0	4.32
Fayalite	2.87	3.94	1.67	3.77	9.85	4.65
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	0.0	0.0	0.0	0.0	0.0	3.72
Magnetite	5.52	2.06	3.47	4.63	2.19	0.0
Sphene	0.0	0.0	0.0	0.0	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	0.0	0.17
Rutile	0.10	0.10	0.10	0.20	0.10	0.0
Apatite	8.52	5.25	9.47	11.27	5.92	7.53
Calcite	76.07	71.82	71.92	73.53	47.98	69.98
Magnesite	5.42	15.64	9.38	3.33	31.05	0.0
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	0.26	0.26	0.48	0.26	0.43	0.39
Sum	99.52	99.79	99.70	101.82	94.80	92.63

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No.	Map No.	Sample No.
1160	3-186 210B	1179	4-313 441B
1181	4-395 420A	1175	4-116 142B
1171	4-64 90A	1174	4-116 142A

TABLE A-4 Continued.

	SOVITE					
Map No.	**1176**	**1177**	**1164**	**1162**	**1155**	**1170**
Quartz	0.0	0.0	0.0	0.0	0.0	2.63
Corundum	0.09	0.21	0.0	0.12	0.03	0.06
Orthoclase	0.0	0.0	1.25	0.0	0.0	1.30
Albite	0.0	0.0	0.0	0.0	0.0	0.0
Leucite	0.0	0.0	2.87	0.0	0.0	0.0
Kalsilite	0.34	0.91	0.0	0.23	0.15	0.0
Nepheline	0.0	0.0	0.0	0.0	0.07	0.0
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.0
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.0	0.0	1.95	0.0	0.0	0.0
Thenardite	0.07	0.07	0.09	0.07	0.09	0.44
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.0
Akermanite	0.59	0.63	0.0	0.0	0.0	0.0
Fe-Aker.	1.02	0.55	0.0	0.80	6.92	0.0
Wollastonite	−1.28	−0.96	0.0	−0.61	−5.28	0.0
Enstatite	−0.43	−0.46	0.0	0.0	0.0	0.0
Ferrosilite	−0.88	−0.48	0.0	−0.70	−6.01	0.0
Forsterite	1.19	2.40	0.0	0.0	0.07	0.43
Fayalite	2.69	2.76	8.13	3.86	9.67	1.83
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	0.0	0.0	0.0	0.0	0.0	0.0
Magnetite	0.38	0.42	0.33	0.49	0.78	1.55
Sphene	0.0	0.0	0.0	0.0	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	0.0	0.0
Rutile	0.10	0.10	0.10	0.10	0.10	0.10
Apatite	4.85	1.66	17.33	8.71	2.41	10.79
Calcite	88.98	91.08	37.38	79.80	55.56	72.39
Magnesite	3.13	2.32	29.38	5.83	33.97	8.86
Fluorite	0.0	0.0	0.0	0.0	0.07	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	0.22	0.15	0.28	0.32	0.31	0.54
Sum	101.05	101.35	99.08	99.05	98.77	100.92

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No.	Map No.	Sample No.
1176	4-142 170A	1162	3-234 259A
1177	4-142 170B	1155	3-53 82A
1164	3-285 312C	1170	4-39 64B

TABLE A-4 Continued.

	SOVITE					
Map No.	**1182**	**1163**	**1169**	**1184**	**1185**	**1187**
Quartz	0.0	2.74	0.97	0.0	0.22	0.0
Corundum	0.08	0.0	0.17	0.0	0.05	0.0
Orthoclase	0.0	3.27	0.71	0.0	0.47	0.0
Albite	0.0	0.0	0.0	0.0	1.06	0.0
Leucite	0.0	0.0	0.0	0.0	0.0	0.0
Kalsilite	0.07	0.0	0.0	1.81	0.0	0.0
Nepheline	0.0	0.0	0.0	0.24	0.0	0.0
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.70
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.0	0.0	0.0	0.30	0.0	0.15
Thenardite	0.0	0.62	0.07	0.58	1.02	0.13
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.0
Akermanite	0.0	0.0	0.0	1.30	0.0	0.0
Fe-Aker.	5.54	0.0	0.0	1.11	0.0	2.68
Wollastonite	−4.22	0.0	0.0	−1.95	0.0	−2.05
Enstatite	0.0	0.0	0.0	−0.95	0.0	0.0
Ferrosilite	−4.81	0.0	0.0	−0.97	0.0	−2.33
Forsterite	0.0	1.00	0.0	4.60	0.0	0.0
Fayalite	8.46	0.60	1.94	5.16	1.48	6.27
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	0.0	0.0	0.0	0.0	0.0	0.0
Magnetite	2.05	3.84	5.48	9.15	0.80	1.04
Sphene	0.0	0.0	0.0	0.0	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	0.0	0.0
Rutile	0.10	0.80	0.10	0.02	0.0	0.0
Apatite	6.39	6.15	6.96	6.44	3.98	0.17
Calcite	48.22	67.72	75.84	44.25	86.28	61.18
Magnesite	33.55	10.68	7.71	25.05	2.77	29.86
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	0.23	1.02	0.41	0.28	0.0	0.36
Sum	95.66	98.44	100.35	96.43	98.13	98.17

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No.	Map No.	Sample No.
1182	4-395 420B	1184	H2-99
1163	3-234 259B	1185	H2-283
1169	4-39 64A	1187	H2-367

TABLE A-4 Continued.

	SOVITE					
Map No.	**1188**	**1189**	**1190**	**1157**	**1158**	**1167**
Quartz	0.0	0.29	0.13	0.0	0.0	0.0
Corundum	0.0	0.10	0.01	0.0	0.0	0.0
Orthoclase	0.06	1.06	1.24	0.0	0.0	0.92
Albite	0.01	0.61	1.14	0.0	0.0	0.0
Leucite	0.0	0.0	0.0	1.43	0.0	2.70
Kalsilite	0.0	0.0	0.0	0.51	3.41	0.0
Nepheline	0.99	0.0	0.0	0.0	0.0	0.0
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.0
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.63	0.0	0.0	1.29	0.0	1.00
Thenardite	0.93	1.46	1.02	0.22	1.86	0.31
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.0
Akermanite	0.0	0.0	0.0	0.0	6.95	0.0
Fe-Aker.	0.0	0.0	0.0	0.0	3.20	0.0
Wollastonite	0.0	0.0	0.0	0.0	−1.93	0.0
Enstatite	0.0	0.0	0.0	0.0	−1.18	0.0
Ferrosilite	0.0	0.0	0.0	0.0	−0.64	0.0
Forsterite	0.0	1.61	0.0	4.86	8.42	1.37
Fayalite	4.37	2.76	2.67	0.0	5.07	5.44
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	0.0	0.0	0.0	9.51	19.50	0.0
Magnetite	7.89	2.25	1.79	47.83	34.95	50.92
Sphene	0.0	0.0	0.0	0.28	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	2.72	0.0
Rutile	0.01	0.22	0.0	1.49	0.0	0.10
Apatite	6.53	6.68	4.73	28.17	7.65	3.31
Calcite	68.77	77.19	80.90	4.54	1.82	19.72
Magnesite	5.98	5.59	4.98	0.0	0.0	11.69
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	0.0	0.0	0.0	0.54	0.43	0.31
Sum	96.18	99.81	98.61	100.74	92.30	97.80

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No	Map No.	Sample No
1188	H3-160	1157	3-82 107A
1189	H4-44	1158	3-107 135B
1190	H4-119	1167	3-414 439B

TABLE A-4 Continued.

	SOVITE	SILICOCARBONATITE				
Map No.	**1154**	**1178**	**1180**	**1168**	**1166**	**1186**
Quartz	0.0	5.48	10.86	7.15	0.12	0.0
Corundum	0.64	0.0	1.87	0.0	0.0	0.0
Orthoclase	0.0	1.09	6.73	10.91	10.91	1.96
Albite	0.0	0.0	0.0	0.0	0.0	0.13
Leucite	1.63	0.0	0.0	0.0	0.0	0.0
Kalsilite	0.18	0.07	0.0	0.0	0.0	0.0
Nepheline	0.06	0.0	0.0	0.0	0.0	0.21
Carnegieite	0.0	0.0	0.0	0.0	0.0	0.0
Na_2SiO_3	0.0	0.0	0.0	0.0	0.0	0.0
Acmite	0.0	0.0	0.0	3.70	8.46	9.58
Thenardite	0.66	2.77	4.26	4.43	0.97	0.31
Gehlenite	0.0	0.0	0.0	0.0	0.0	0.0
Akermanite	0.0	0.0	0.0	0.0	0.0	0.0
Fe-Aker.	0.0	0.0	0.0	0.0	0.0	0.0
Wollastonite	0.0	0.0	0.0	0.0	0.0	0.0
Enstatite	0.0	0.0	0.0	0.0	0.0	0.0
Ferrosilite	0.0	0.0	0.0	0.0	0.0	0.0
Forsterite	4.68	6.68	16.45	12.86	9.31	0.23
Fayalite	0.0	0.0	8.49	7.87	10.23	0.73
Andradite	0.0	0.0	0.0	0.0	0.0	0.0
Hematite	4.68	0.63	0.0	0.0	0.0	0.0
Magnetite	53.80	45.57	13.71	12.67	8.41	62.10
Sphene	0.0	0.0	0.0	0.0	0.0	0.0
Perovskite	0.0	0.0	0.0	0.0	0.0	0.0
Rutile	0.80	0.90	2.80	1.90	2.00	0.49
Apatite	18.75	9.61	0.90	0.71	2.32	0.07
Calcite	9.75	19.18	23.72	22.48	25.87	14.11
Magnesite	2.30	9.28	9.85	16.24	19.88	11.25
Fluorite	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	0.0	0.0	0.0	0.0	0.0	0.0
Baddeleyite	0.0	0.0	0.0	0.0	0.0	0.0
H_2O	1.18	0.35	0.62	0.86	0.89	0.33
Sum	99.11	101.54	100.26	101.78	99.36	101.50

Notes: For sample descriptions, see Table A-1. Alkalic norms were calculated using the method of LeBas (1973).

Map No.	Sample No.	Map No.	Sample No.
1154	3-53 82B	1168	3-439 454B
1178	4-313 441A	1166	3-363 395A
1180	4-341 369A	1186	H2-317

TABLE A-5. AVERAGE CHEMICAL COMPOSITIONS OF LITHOLOGIC UNITS FOR THE CARB LAKE CARBONATITE COMPLEX

	SOVITE (N = 31)			
	MEAN	MINIMUM	STANDARD DEVIATION	MAXIMUM
SiO_2	25.4	1.16	12.9	38.7
Al_2O_3	0.45	0.10	0.32	1.40
Fe_2O_3	8.24	0.09	14.9	46.1
FeO	5.35	0.64	5.33	19.3
MgO	6.17	1.33	4.81	16.3
CaO	38.2	7.95	13.3	52.8
Na_2O	0.29	0.01	0.32	1.47
K_2O	0.33	0.01	0.38	1.47
H_2O^+	0.13	0.01	0.23	0.91
H_2O^-	0.27	0.11	0.08	0.46
CO_2	33.3	2.00	11.8	46.1
TiO_2	0.31	0.01	0.47	1.60
P_2O_5	3.30	0.03	2.37	9.99
S	0.16	0.01	0.23	1.30
MnO	0.36	0.13	0.17	0.77
Ag	1	1	2	10
Au				
As				
Ba	471	70	235	970
Be	2	1	2	10
Bi				
Co	10	5	9	55
Cr	8	5	5	25
Cu	14	5	14	70
Ga	7	1	7	30
Hg				
Li	12	3	12	55
Mn				
Mo	3	1	2	10
Nb	438	30	419	1500
Ni	6	5	1	10
Pb	55	10	72	400
Rb	17	10	12	60
Sb				
Sc	18	3	10	42
Sn	9	3	13	50
Sr				
Ti				
V	66	10	104	450
Y	85	10	38	150
Zn	69	6	48	202
Zr	314	10	549	3000
Ce	770	170	1020	5620
La	335	100	104	500
Nd	277	100	57	300

Notes: For complete listing of statistical parameters, see Open File Report 5399.

TABLE A-5 Continued.

	SILICOCARBONATITE (N = 5)			
	MEAN	MINIMUM	STANDARD DEVIATION	MAXIMUM
SiO_2	19.1	9.06	7.25	24.8
Al_2O_3	1.83	0.20	1.20	3.10
Fe_2O_3	15.1	8.71	11.3	32.1
FeO	10.5	9.04	2.24	13.8
MgO	13.2	8.30	3.26	15.2
CaO	14.7	13.0	1.51	16.1
Na_2O	1.77	1.21	0.52	2.43
K_2O	1.61	0.29	1.09	2.60
H_2O^+	0.36	0.12	0.26	0.60
H_2O^-	0.32	0.23	0.10	0.46
CO_2	17.3	13.3	13.7	21.8
TiO_2	1.90	0.90	0.78	2.80
P_2O_5	1.43	0.30	1.78	4.06
S	1.00	0.09	1.04	2.46
MnO	0.41	0.31	0.10	0.54
Ag	2	1	1	3
Au				
As				
Ba	155	70	93	270
Be	7	3	3	10
Bi				
Co	55	40	19	80
Cr	305	30	196	480
Cu	109	60	35	140
Ga	11	6	5	15
Hg				
Li	77	8	52	120
Mn				
Mo	3	3	0	3
Nb	275	150	104	400
Ni	223	6	194	440
Pb	39	25	10	50
Rb	73	10	48	110
Sb				
Sc	78	70	15	100
Sn	8	3	8	20
Sr				
Ti				
V	150	100	71	250
Y	21	10	16	45
Zn	115	60	84	240
Zr	163	100	63	250
Ce	458	360	87	560
La	175	100	87	300
Nd	300	300	0	300

Notes: For complete listing of statistical parameters, see Open File Report 5399.

APPENDIX 2

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	**The Carb Lake** project is located 425km north north-east of Red Lake in Ontario Canada and 10km from the Ontario-Manitoba border. 1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: The magnetic feature associated with the carbonatite was identified in 1967. Investigations discovered boulders of carbonatite and alkalic rocks on the shore of Carb Lake. An airborne magnetic survey was flown and four diamond drill holes were completed (564m). Drill logs reported pyrochlore (Nb oxide) in each hole. Core samples were analysed and indicated elevated La, Ce, and Nb. Two samples from Hole no. 4 reported >5% Ce and >1% La while another five samples reported > 0.1% Nb confirming the presence of REE mineralisation and this was supported by thin section studies. 2011 SAREC: Airborne magnetic, radiometric and VLF surveys. Area of 3.2km (E-W) x 3.6km (N-S). N-S survey lines 50m apart and 70m above ground, 64 lines for 234.2km with 7 tie lines total 259.4km. Bell 206, Jet Ranger III utilising a Scintrex CS-3 Cesium Vapour magnetometer, AGIS / IRIS 256 channel spectrometer and Terraquest Ltd: XDS VLF-EM system.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report was extracted from historical reports. This information was not provided in the historical reports. 2011 SAREC: Extensive tests and calibrations of all airborne geophysical equipment was completed by Terraquest during the survey including compensation calibrations to determine the magnetic influence of aircraft manoeuvres, magnetic lag, radar altimeter and radiometric calibrations.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: The magnetic feature associated with the carbonatite was identified in 1967. Investigations discovered boulders of carbonatite and alkalic rocks on the shore of Carb Lake. An airborne magnetic survey was flown and four diamond drill holes were completed (564m). Samples were analysed for Nb, Ce, La. Spectrographic analyses were completed for Ba, Ce, La, Mn, Nb, Sr, Ta, Ti, Th, U, Y & Zr. Synchysite (calcium-Ce La-Nd-Y carbonate) was identified petrographically from thin sections (15) made from drill core samples. Pyrochlore from 3 to 5% was noted in two thin sections. Ancylite (Ce hydroxyl) was identified in a thin section taken from a carbonatite boulder on the lake shore overlying the complex. Spectrographic analysis of a sample from this boulder returned 2% Ce and 1% La.

Criteria	JORC Code explanation	Commentary
	gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	1978 Ontario Geological Survey: Re-examined diamond core and re-analysed additional samples for Nb, Y, La, Nd & Ce. 2011 South American Rare Earth Corp (SAREC): Completed heli-borne high resolution aeromagnetic survey.
Drilling techniques	*Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit, or other type, whether core is oriented and if so, by what method, etc).*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: 4 diamond drill holes were completed for 564m.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical report.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: Diamond core was geologically logged at the time of drilling and later re-examined by other exploration companies. The drill logs were not included in the historical reports. Diamond core from two of the holes was retrieved from site by the Ontario Geological Survey in 1978 and is stored at the OGS core facility in Kenora.
	Whether logging is qualitative or quantitative in	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: Diamond core was logged in detail by geologists at the time of drilling noting

Criteria	JORC Code explanation	Commentary
	nature. Core (or costean, channel, etc) photography.	depth, colour, weathering, geology, mineralisation, alteration and structure. The drill logs were not included in the historical reports.
	The total length and percentage of the relevant intersections logged.	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All core was logged in detail. The drill logs were not included in the historical reports.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	All information reported in the body of this report and Appendix 1 was extracted from historical reports. Information on sample size selection or drill hole depth location was not provided in the historical reports.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	
	For all sample types, the nature, quality, and appropriateness of the sample preparation technique.	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report was extracted from historical reports. This information was not provided in the historical reports.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	All information reported in the body of this report and Appendix 1 was extracted from historical reports. Information on sample size selection or drill hole depth location was not provided in the historical reports.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times,	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>calibrations factors applied and their derivation, etc.</td><td>2011 SAREC: Terraquest completed necessary tests and calibrations of equipment while conducting an airborne survey over the Carb Lake carbonatite
<table>
<tr><td>Helicopter</td><td>Bell 206, Jet Ranger III</td></tr>
<tr><td>Equipment:</td><td></td></tr>
<tr><td>Magnetometer</td><td>Scintrex CS-3 Cesium Vapour</td></tr>
<tr><td>3-axis Magnetometer</td><td>Billingsley TFM100-LN</td></tr>
<tr><td>Gamma Ray Spectrometer</td><td>AGIS / IRIS 256 channel</td></tr>
<tr><td>Gamma Ray Detector Pack</td><td>1024 in^3 (16.8 litres) Downward 256 in^3 (4.2 litres) Upward</td></tr>
<tr><td>VLF-EM</td><td>Terraquest Ltd: XDS system</td></tr>
<tr><td>GPS Receiver</td><td>Hemisphere R120</td></tr>
<tr><td>Radar Altimeter</td><td>Free Flight Systems TRA3500</td></tr>
<tr><td>Barometric Altimeter</td><td>Sensym</td></tr>
<tr><td>Navigation & Data Acquisition</td><td>AGIS by PicoEnvirotec Inc.</td></tr>
<tr><td>Magnetic Specifications:</td><td></td></tr>
<tr><td>Nose Boom</td><td>7.3 metres</td></tr>
<tr><td>Output Sample Rate</td><td>10 Hz</td></tr>
<tr><td>4^{th} difference noise envelope</td><td>0.10 nT</td></tr>
<tr><td>FOM index</td><td><1.5 nT</td></tr>
<tr><td>Sensor Sensitivity</td><td>0.001 nT</td></tr>
</table></td></tr>
<tr><td></td><td>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</td><td>1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report was extracted from historical reports. This information was not provided in the historical reports.</td></tr>
<tr><td>Verification of sampling and assaying</td><td>The verification of significant intersections by either independent or alternative company personnel.</td><td>All information reported in the body of this report and Appendix 1 was extracted from historical reports.
This information was not provided in the historical reports.</td></tr>
<tr><td></td><td>The use of twinned holes.</td><td>No twinned holes were reported.</td></tr>
<tr><td></td><td>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</td><td>All information reported in the body of this report and Appendix 1 was extracted from historical reports.
This information was not provided in the historical reports.</td></tr>
<tr><td></td><td>Discuss any adjustment to assay data.</td><td>All information reported in the body of this report and Appendix 1 was extracted from historical reports.
This information was not provided in the historical reports.</td></tr>
<tr><td>Location of data points</td><td>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</td><td>1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: A local grid was established before drilling utilising topography and surveyed claim posts as control.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	Specification of the grid system used.	All co-ordinates plotted have been converted to UTM WGS84 – Zone 15N
	Quality and adequacy of topographic control.	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: Holes were drilled on various spacings and azimuths designed to test the most accessible portions of the magnetic target. 2011 SAREC: Airborne geophysics was collected at a 7-8m spacing along 50m flight lines.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	1967 drilling by Big Nama Creek Mines Ltd & Larandona Mines Ltd tested a small area in the southeastern portion of the carbonatite. The results are only representative of the area drilled tested. 2011 SAREC: airborne geophysical survey was of sufficient spacing to provide detailed geophysical data.
	Whether sample compositing has been applied.	No sample compositing was reported
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. There is not sufficient drilling to date or information provided in the historical reports to determine this. 2011 SAREC: Geophysical survey lines were on an appropriate orientation for the geological nature of the target
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	All information reported in the body of this report and Appendix 1 was extracted from historical reports. There is not sufficient drilling to date or information provided in the historical reports to determine this.
Sample security	*The measures taken to ensure sample security.*	1967-74 Big Nama Creek Mines Ltd & Laradona Mines Ltd: All information reported in the body of this report and Appendix 1 was extracted from historical reports. This information was not provided in the historical reports.

Criteria	JORC Code explanation	Commentary
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No audits or reviews have been undertaken by the competent persons.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Carb Lake Project is located on Mining Claims #688532 held by Steven Jeffrey Scott (50%) and David Prior (50%), #688533 to 688568, 688571 to 688626 and 688637 are held by Wade Kornik. Cazaly Resources Limited has binding term sheets with the owners of the above Mining Claims to acquire a 100% interest. The company is not aware of any impediments or material issues that would impact on the company operating in the area. Finalisation of the acquisition is subject to satisfactory outcomes of legal and other due diligence during the Option period. See body of announcement for details.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	**1967**: Ontario Department of Mines – Geological Survey of Canada. Airborne magnetic survey - circular magnetic anomaly detected. **1967**: M.J. Boylen Engineering Ltd. Boulders of carbonatite and alkalic rocks discovered on the shore of Carb Lake. **1967-1968**: Big Nama Creek Mines Limited and Larandona Mines Limited. Airborne magnetometer and gamma-ray spectrometer surveys. Diamond drilling (four holes totaling 564 m). **1969**: Ontario Department of Mines. Eighteen core samples analyzed for La, Ce and Nb. Samples returned values of up to ~5% Ce, ~1% La and 0.5% Nb. Up to 5% pyrochlore observed in thin sections. **1987**: Ontario Geological Survey Collection of core (the core is stored at the OGS core facility in Kenora). Thirty-six samples collected for major oxide and trace element analyses. REE analyses returned up 5,620 ppm Ce. One sample (# 1174) is listed as containing >7.1% Nb; two samples returned 1500 ppm Nb. Up to 1% pyrochlore observed in thin sections. **2011**: South American Rare Earth Corp. Airborne magnetic, radiometric and VLF surveys.
Geology	*Deposit type, geological setting, and style of mineralisation.*	Carbonatites occur mainly as intrusive bodies and to a lesser extent as volcanic flows. Carbonatite-associated deposits are mined for REEs, niobium, iron, copper, apatite (phosphorous), vermiculite and fluorite

Criteria	JORC Code explanation	Commentary
		(Richardson and Birkett, 1996). A significant portion of the world REE production is from carbonatite hosted deposits. Examples are the Bayan Obo, China orebody, the world's largest known REE deposit and the Mountain Pass deposit, a leading producer of REE concentrates. The Jacupiranga carbonatite in Brazil hosts a commercial phosphate deposit. REE deposits associated with carbonatites may be classified as follows (Mariano, 1989): • Primary (magmatic), from carbonatite melts • Hydrothermal • Supergene, developed in carbonatite-derived laterites The Carb Lake deposit is considered to be primarily a Magmatic deposit. These are formed through processes associated with the crystallization of carbonatites. Metasomatic deposits form by the reaction of fluids released during crystallization with pre-existing carbonatite or country rocks. These are late carbonatite phases and tend to host metasomatic or hydrothermal mineralization. It is not yet known if the Carb Lake Project hosts hydrothermal or supergene styles of mineralisation.
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	Listed in Table 1 in the body of this report.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	This information was not provided in the historical reports.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	This information was not provided in the historical reports.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	Refer to the body of this announcement.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be*	This information was not provided in the historical reports.

Criteria	JORC Code explanation	Commentary
	practiced to avoid misleading reporting of Exploration Results.	
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	This information was not provided in the historical reports.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Work is ongoing to acquire all available exploration data for the Project area. Upon receipt and interpretation of all available data appropriate exploration programs will be planned to begin assessing the economic potential of carbonatite complex.