Geological and Mineralogical Field Examination of the Lackner Lake Alkalic Complex, Lackner and McNaught Townships, Chapleau area of North-Central Ontario

Porcupine Mining District

NTS Reference Chapleau 41 O/14

Report for Gold Crossing Limited

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Sudbury, Ontario, June 25, 2014

TABLE OF CONTENTS

INTRODUCTION

This report encompasses the preliminary results of a June 5 to 19, 2014 field examination of the Lackner Lake alkalic silicate rock-carbonatite complex that is situated 40 km by road from Chapleau, Ontario. The purpose of this report is to further evaluate the rare earth element, yttrium and rock phosphate potential of the complex and to more comprehensively define the mineralogy associated with known areas of mineralization initially defined in the 1950's by numerous mineral exploration companies and individuals (Sage 1988).

Previous work by Vale Exploration Canada Ltd. (2008) and Breaks (2009 and 2013) indicated elevated total rare earth oxides (TREO) values, up to 9.6 wt.%, that are the highest yet reported in Ontario to the author's knowledge. Detailed mineralogical examination by Breaks (2013) was limited to two samples from the Pole Lake REE-Nb-Th-Ba showing that verified the presence of britholite-La, a britholite-like mineral, monazite, barite, and Y-rich fluorapatite in altered nepheline syenite.

The present study involved 125 localities, 215 spectrometer spectral assays, and 71 grab samples submitted to Acme Labs. Rock samples destined for assay were cleaned of dirt and moss and a reference hand specimen was retained for each sample. Results of the rock assays are pending. Furthermore, apatite concentrates from four localities have been prepared from binocular microscope-aided grain selection and will be submitted for analysis by a commercial laboratory to assess TREO contents.

Location data for all sample sites are provided using Universal Transverse Mercator (UTM) co-ordinates for Zone 17T in North American Datum 1983 (NAD83) that utilized a Garmin 62S GPS device (Appendix 1).

Uranium and thorium spectral data were processed with the Geochemical Data Toolkit (GCD kit) that is petrogenetic software freely available at http://www.gla.ac.uk/gcdkit/ (Janousek, Farrow and Erban 2006).

PROPERTY DESCRIPTION AND LOCATION

The Lackner Lake property comprises 13 patented claims (85 units) and 9 unpatented claims (17 units), respectively in Lackner and McNaught townships. These contiguous claims cover an area of 1623 hectares. Figure 1 presents location of the claims with respect to a digital elevation model.

Access to the southwestern part of the complex is gained by the Serviss Lake Road that is a maintained logging road. However, vehicle access by the Lackner Lake and Camp Lake roads over the complex is hampered by beaver dam flooding of the former road and bushed-in sections of both roads by dense sections of alder. Access by all terrain vehicles, however, is feasible to the Camp Lake area and former fire tower site near the Pole Lake REE-Nb-Th-Ba showing. Much of the property is unfortunately covered with old blow-down and dense secondary tree growth of poplar and alder that makes access by walking

difficult. Areas that are dominated by coniferous trees, as in the higher parts of the complex, have less blow-down and easier access via the old fire tower road.

Maximum relief of the Lackner Lake complex is 150 m in the northeastern part that is marked by two gorges that were likely produced by Pleistocene outwash activity (G. Gao, OGS, personal communication 2014). Southern parts of the complex are generally of lower relief and covered by sand and gravel outwash deposits. At higher elevations above the 440m topographic contour, basal till with abundant boulders of nepheline syenite is a dominant surficial deposit. Nepheline syenite boulders and numerous outcrops exhibit spheroidal weathering and related talus are obvious along the Lackner Lake Road as dull grey gravel with a pinkish tinge.

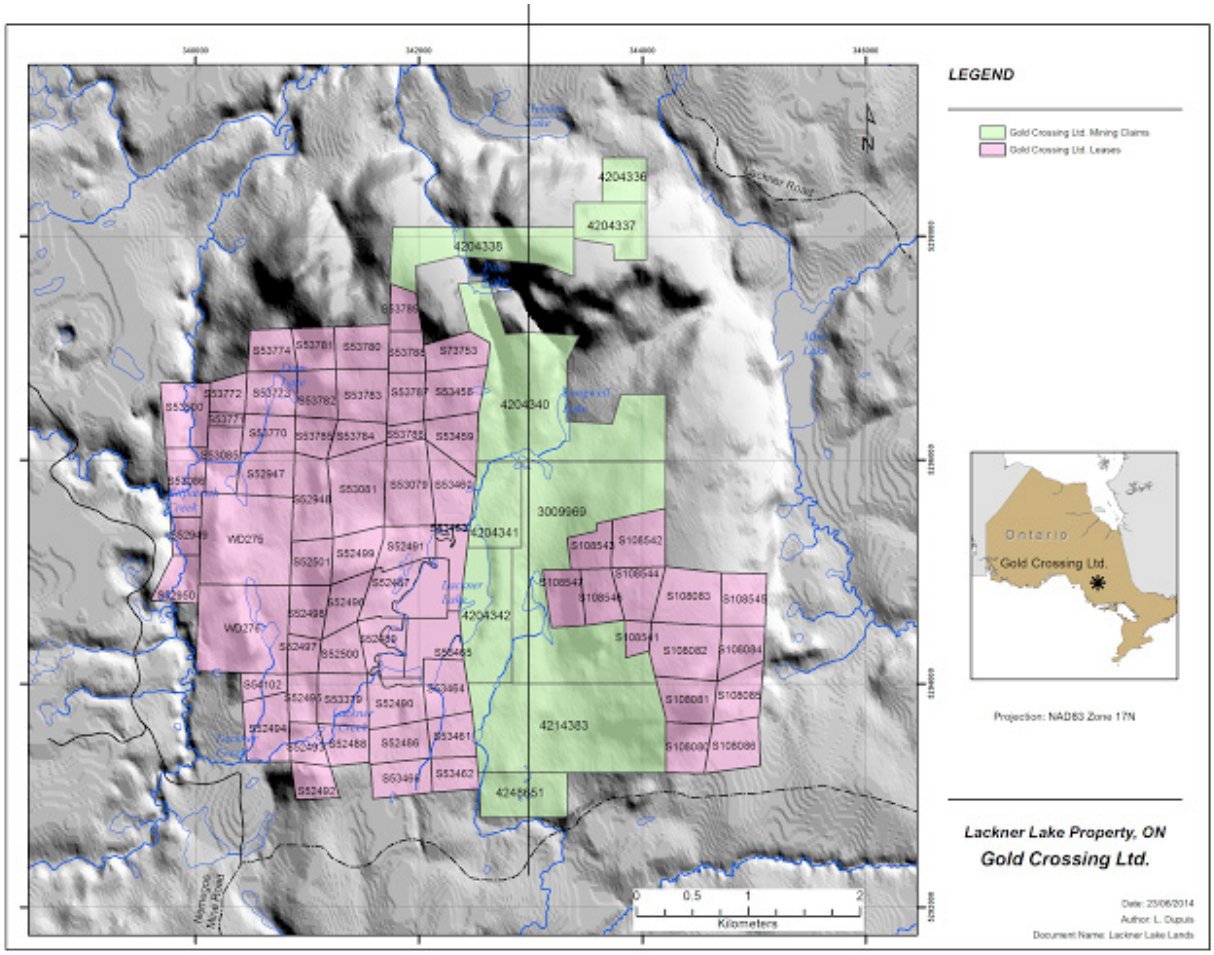

Figure 1. Claim distribution of Gold Crossing Ltd in relation to a digital elevation model for the Lackner Lake alkalic complex and surrounding terrain.

Photo 1. Spheroidal weathering along fractures in nepheline syenite host rocks at Zone 6 apatite-magnetite deposit near Camp Lake, former property of Multi-Minerals Ltd.

PROPERTY GEOLOGY

The Lackner Lake alkalic complex is hosted by tonalite to granodiorite gneiss of the Kapuskasing Structural Zone and appears as a prominent ovoid anomaly in the first vertical derivative magnetic field (Figure 2 extracted from GSC 2001). The complex consists of alkalic silicate units (nepheline syenite, ijolite, malignite and ijolite breccia) intruded by late carbonatite dykes and apatite-magnetite veins. Minor units include mafic and ultramafic alkalic enclaves in nepheline syenite and glimmerite, a phlogopite-rich rock considered to represent a metasomatic derivative as at the Araxa alkalic complex in Brazil (Traversa et al. 2001). Urtite is relatively rare (Photo 2) and is gradational into nepheline syenite and hence may represent cumulate layers and pods. Magnetite-rich veins, commonly with green apatite, represent the youngest intrusive unit in the complex and cross-cut all units (Photo 3).

Mineral exploration conducted to 1988 has been comprehensively documented by Sage (1988) and was also summarized by Vale Exploration Canada Limited (2008). A total of 40,101 m of drilling was amassed on various properties in the complex prior to the early 1970's (Sage 1988, p.39).

Minerals identified by Hodder (1961) and Sage (1988) include pyrochlore, perovskite, cerianite, magnetite, ilmenite, aegirine-augite, olivine, melanite variety of garnet, zircon, cancrinite, sodalite, pseudoleucite, chlorite, orthoclase, albite, wollastonite and riebeckite. Sulphide minerals pyrite, chalcopyrite, pyrrhotite and sphalerite were also verified by this past work.

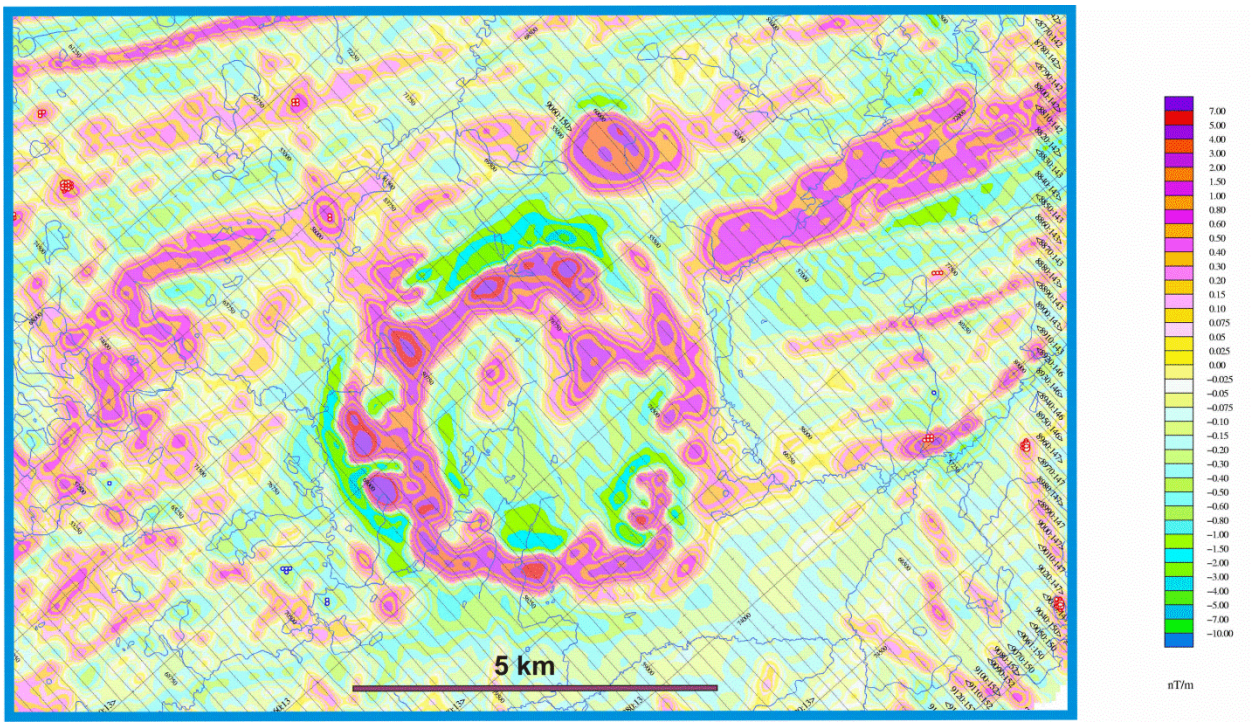

Figure 2. Lackner alkalic complex as extracted from the Chapleau 41O/14 first derivative of the magnetic field with Keating coefficients (GSC 2001). Values in nT/m.

Photo 2. Massive coarse-grained urtite from west side of Beaver Pond that reveals abundance of pink recessive weathered nepheline associated with minor K-feldspar and aegirine.

Photo 3. Magnetite-rich vein near McVittie pit that cross-cuts nepheline syenite.

Photo 4. Pile of magnetite-rich concentrate situated near test pit at Zone 6 apatite-magnetite deposit, former Multi-Minerals property near test pits on Beaver Pond.

Exploration mainly conducted in the 1950's focused upon niobium, apatite, and titaniferous magnetite. Historic resource estimates on these commodities were listed by Parsons (1961b):

- Zone 1: 2 million tons @18.91 % Fe and 3.7 % P
- Zone 2 : 0.5 million tons @22.3 % Fe and 2.9 % P
- Zones 3 and 4 : 37 million tons @21.3 % apatite and 0.17 % Nb2O5
- Zone 6: 5 million tons @69.6% magnetite and 21.9 % apatite
- Zone 8: 80 million tons @0.25 % Nb2O5

In 1970, Fetio Industrial Developments optioned the Zone 6 property from Multi-Minerals Ltd and shipped a 1500 ton concentrate for evaluation of iron, titanium and phosphate potential (Sage 1988, p. 47). The material shipped is quite likely similar to that contained in the concentrate pile encountered in the present work (Photo 4).

Little economic focus was given to the rare-earth elements and yttrium, prior to the present work. However, an analysis of rare earth elements was undertaken in an apatite concentrate (90% apatite) by Multi-Minerals Ltd that returned a TREO value of 2.75 wt%, 8 wt.% Th2O and 5 wt.% Y2O3 (Sage 1988, p. 40). Semi-quantitative analyses of pyrochlore-group minerals from Zones 6 and 8 registered maximum values of La2O3+Ce2O3+Dy2O3 (1.7 wt. %), U3O8 (12.6 wt.%), Th2O (4.7 wt.%) and Ta2O5 (2.8 wt.%) as reported by Nickel (1955a,b) and Hodder (1961). However, the preceding historical data are not National Instrument 43-101 compliant and therefore cannot be relied upon. Cerianite [$(Ce^{4+},Th)O_2$] was the only rare-earth mineral documented in the historical literature (Sage 1988, p. 38) and apparently restricted to the east side of the Lackner lake complex (Graham 1955).

Nepheline syenite is the most abundant rock type on the property and encloses earlier foliated ijolite and malignite and massive ijolite breccia. Parsons (1961a, b) also includes leucocratic nepheline syenite within the ijolite-dominant map unit. Layering marked by grain size differences and trachytoidal textures are evident by preferred orientation of potassium feldspar laths (Photo 5). Nepheline is readily identifiable in these rocks but virtue of recessive weathering and a dull appearance that may acquire stains in various colours (faint pink, light orange, blue).

Ijolite and malignite compose the earliest unit (Parsons 1961), and is evident within massive and foliated, fine- to medium-grained, black rocks mainly distributed within a partial arcuate ring, 0.5 to 1.5 km in width, that has a strike length of 8 km. All known mineralized zones on the property are importantly associated with ijolite to malignite host rocks.

In the east to southeast part of complex, ijolite and malignite occur as a series of enclaves in nepheline syenite as mapped by Parsons (1961b). Foliation is locally quite penetrative as near the Pole Lake showing and indicates intense strain due to tight folding of layering and mafic enclaves (Photo 7).

Similar sheared rocks occur near Zone 6 REE-apatite-magnetite deposit in the Camp Lake area at UTM 340663E, 5294706N. Sheared veinlets, rich in an unknown brick-orange mineral, were encountered at this locality and possibly consist of pyrochlore (Photo 8).

Photo 5. Leucocratic nepheline syenite on west side of Camp that reveals a trachytic texture defined by oriented K-feldspar laths.

Orange stained nepheline forms interstitial recessive weathered mineral between K-feldspar laths.

Apatite-Magnetite Veins and Masses

These intriguing rocks proliferate in the area around Zone 6 deposit on Beaver Pond. The veins, 2 to 1 m in width, appear to spatially emanate from dense masses rich in magnetite at the 3 old test pits on Beaver Pond and adjacent to old pits found by the present survey just east of Camp Lake Road (*see* Photo 13). The magnetite-rich veins are the youngest unit of the Lackner Lake complex and shapely cut ijolite, malignite and nepheline syenite (Photos 3, 11 and 12) but appear coeval with carbonatite (Photo 9).

Magnetite is the dominant mineral in the veins with subordinate green apatite, and several unknown white and orange minerals (Photo 6) that could contain rare-earth elements. Zones rich in apatite are layered within massive magnetite-rich rock at Beaver Pond (Photo 14). These veins and its ijolite-malignite host rocks are generally radioactive.

Photo 6. Abundant orange mineral that occupies the interstices of magnetite-rich rock from boulder near largest test pit on Beaver Pond. Spectrometer measurement on large block: 2.7%K, 74.4 ppm U and 359.2 Th.

Carbonatite

Carbonatite units are only sparsely evident on surface (3 known localities: Sage 1988) but were encountered in significant intervals by drilling programs of Multi-Minerals Ltd. (Sage 1988: 150 m length, widths up to 30 m). A carbonatite dyke in an angular boulder of ijolite was observed near the Pole Lake showing (Photo 9). Carbonatite dykes in ijolite were also encountered in the 2012 drilling of 6070205 Canada Inc. and 6378366 Canada Inc. in the south-central part of the Lackner Lake complex (Corstorphine 2012). Breaks (2009) found pods asilico-carbonatite dykes near the Pole Lake showing on angular boulder in a talus pile (Photo 19).

Sage (1988) inferred that the apatite-magnetite dykes are related to late carbonatitic magmatism and this hypothesis is supported by observations by the author at old pits found near Camp Lake. Here, magnetite-rich rock grades into isolate pods of calcio-carbonatite segregations with no evidence of cross-cutting relations.

Photo 7. Folding of mafic enclave and adjacent felsic layering in strongly deformed ijolite near Pole Lake REE-Nb-Th-Ba showing.

Photo 8. Subparallel veins that contain abundant unknown, fine-grained orange mineral (?pyrochlore) hosted in strongly deformed ijolite, 450 m north of Zone 6 test pit of Multi-Minerals Ltd (Sage 1988).

Photo 9. Silico-carbonatite pod that intrudes foliated ijolite in boulder near Pole Lake showing. Note brown reaction halo in the ijolite host due to fenitization.

Photo 10: Magnetite-rich rock from old test pit that shows gradation into calcio-carbonatite segregations.

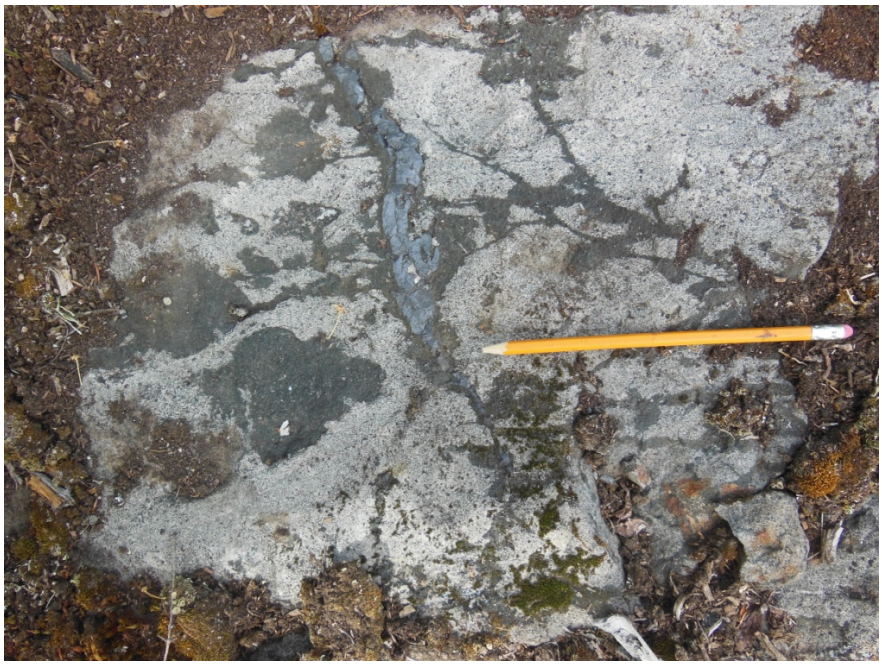

Photo 11. Nepheline syenite with dark green-black ijolite enclaves that is cut by a magnetite-rich vein with attendant dark green alteration veinlets as above pencil.

Photo 12. Magnetite veins associated with deep green possible aegirine-augite and masses of faint blue nepheline in alteration selvedge that has jagged contacts with fine-to medium-grained, pink nepheline syenite host on Camp Lake Road.

Photo 13. Large piece of subtly layered, magnetite-rich material from old pits near Camp Lake Road at UTM 340773E, 5294697N. Dark brown area is rich in magnetite and disseminated white fine- to medium-grained minerals may consist of REE phases, barite and nepheline. Spectrometer measurement on sample: 2.0 %K, 0.0 ppm U and 383.3 ppm Th.

Rock Phosphate Potential

The Lackner alkalic complex contains substantial historic resources of apatite-rich rock that have potential use of phosphorus for the fertilizer industry. The sole source of apatite in Ontario has been the Cargill Mine of Agrium Inc. near Kapuskasing, however, this deposit was closed in 2013:

http://www.northernontariobusiness.com/Industry-News/mining/Agrium-prepares-to-pack-up-in-Kap.aspx

http://www.kapuskasing.ca/Documents/Businesses/Mineral_Processing_Facility_Opportunity.pdf

Zones 3 and 4, situated about 0.8 km southeast of Camp Lake, contain a historic resource of 37 million tons of 21.9% phosphorus (approx. 9.2 wt.% P2O5) to a 500 foot depth according to Parsons (1961b). This commodity will possibly become in short supply according to a presentation of Arianne Resources, who are developing a lower grade and higher tonnage igneous apatite deposit (Lac a Paul Quebec) with 462 mT @ 6.2% P2O5.

Apatite-rich zones associated with massive magnetite-rich mineralization are exposed on the test pit wall at Beaver Pond (Photo 14). Here, highly friable, apatite-rich layering is noted to be flat-lying (310/25E) and spectral analysis on the layer surface gave the following values: 0.9 %K, 16.8 ppm U and 567.4 ppm Th.

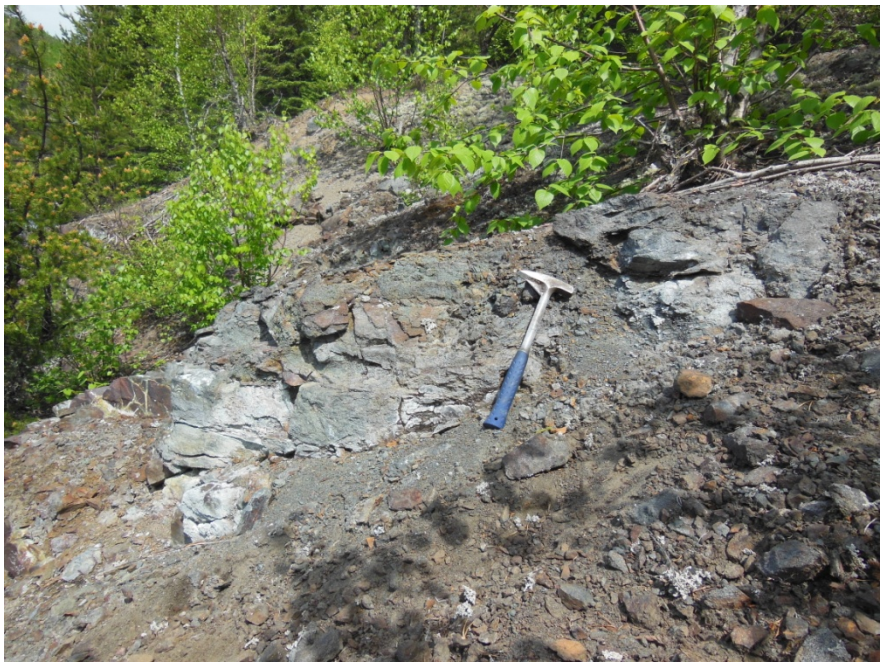

Photo 14. Dark green apatite-rich layer, marked by hammer head, with apatite sand below formed from disintegration of the material, at test pit wall, Beaver Pond.

http://beta.arianne-inc.com/wp-content/uploads/2014/06/DAN-V-Investor-Presentation-June-19-2014.pdf

RADIOMETRIC SURVEY

Spectral data, as %K, U (ppm) and Th (ppm), were acquired with a Terraplus RS-125 spectrometer from 225 bedrock and soil exposures. All data collected with the spectrometer including locations are given in Appendix 1. Measurements in assay mode were taken on flat horizontal surfaces wherever possible with counting times of 2 minutes. Variation of uranium vs thorium and Th/U ratios are presented in Figures 3 and 4.

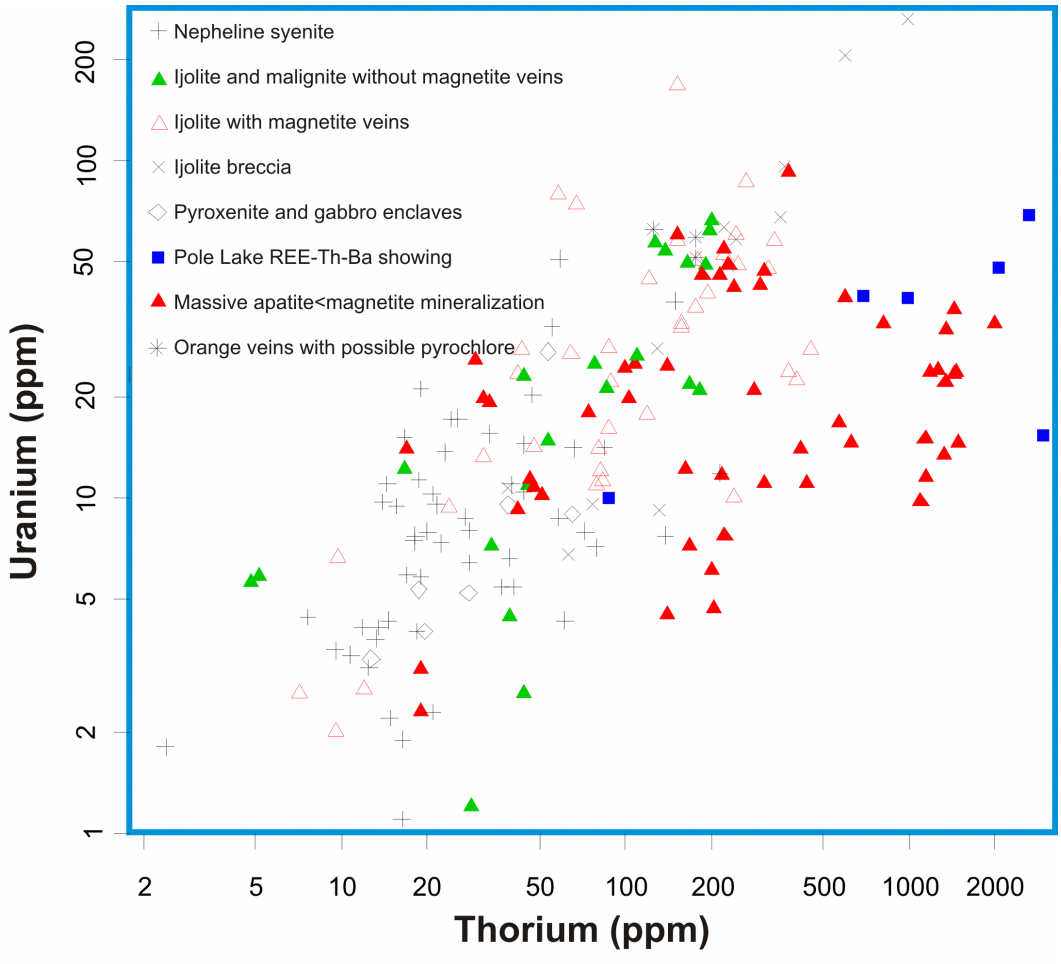

Figure 3. Uranium vs thorium for bedrock lithologies and mineralized localities in the Lackner Lake alkalic-carbonatite complex.

Several zones of elevated radioactivity above 7000 cps (K+U+Th) were located with the spectrometer, as for example, over heavily obscured pits that likely date from the 1950's in the Camp Lake area (UTM: 340773E, 5294697N), over the area of test pits on Beaver Pond and also at the Pole Lake REE-Nb-Th-Ba showing. In general the radioactivity is mainly due to thorium. Rare earth element values generally correlate with thorium (Breaks 2013) that is probably due to monazite and britholite.

Elevated radioactivity, due to elevated thorium levels, are characteristic of ijolite and malignite that contain magnetite veins, as in the area that surrounds the Zone 6 deposit on Beaver Pond. Variable amounts of unknown orange and white minerals occur within the veins and masses and may consist of pyrochlore and other REE-bearing minerals. Thorium contents are consistently elevated compared with uranium (Figure 3) with a range in Th/U ratios between 25 and 103 and indicate extreme magmatic fractionation compared with the mean upper continental crust value of 3.8 (Figure 4 and Appendix 1).

Uranium values are generally below 50 ppm but numerous anomalous levels were found within and adjacent to the Zone 6 deposit at Beaver Pond (maximum: 265 ppm U) that includes the old test pits located by the present work near Camp Lake Road. The uranium mineral is likely uran-pyrochlore but full verification will have to await electron microprobe and LA-ICP-MS analysis.

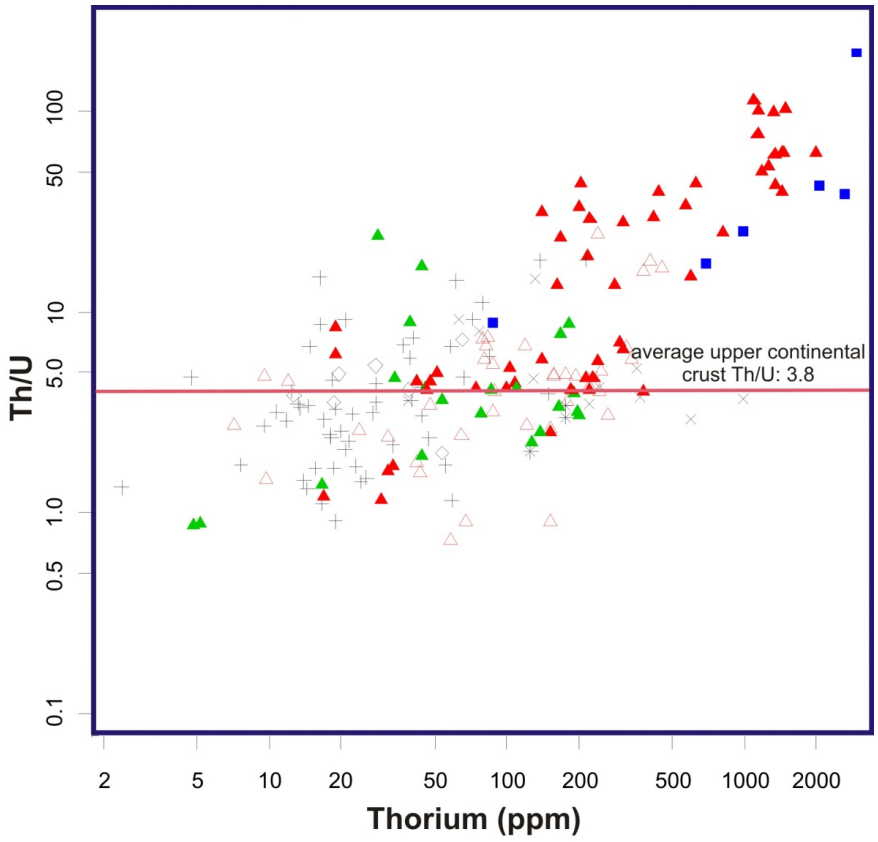

Figure 4. Th/U ratios vs thorium compared with average upper continental crust Th/U ratio of 3.8 (after Taylor and McLennan 1985).

The highest thorium value (mean = 1575 ppm; 88 to 2987 ppm) in this work was measured at the Pole Lake REE-Nb-Th-Ba showing on a strongly radioactive, angular boulder near the actual showing on the cliff face. This fine-to medium-grained rock consists of a gneissic felsic rock with seams of phlogopite-rich glimmerite (Photo 15) that dominantly comprises nepheline and phlogopite accompanied by dark green aegirine and green apatite. Monazite and britholite are likely sources of the strong radioactivity.

The Camp Lake area blast pits located in this work gave mean values of 2.7%K, 33.0 ppm U and 1078 ppm Th from 13 spectral analyses. Thorium, responsible for most the radioactivity lies in a range of 592 to 2010 ppm. Uranium has a more restricted range of 14.5 to 39.2 ppm.

Massive magnetite rock with zones rich in green apatite from the largest test pit of Multi-Minerals Ltd on Beaver Pond also gave the third highest mean value of thorium (mean = 1113 ppm; range = 567 to 1358 ppm).

Photo 15. Strongly radioactive gneissic felsic rock with glimmerite pod marked by pencil in large angular boulder near cliff at Pole Lake REE-Nb-Th-Ba showing.

CONCLUSIONS AND RECOMMENDATIONS

The gamma ray spectrometer is useful exploration tool in locating REE mineralization associated with radioactivity. The present work focused upon the Camp Lake and Pole Lake areas as these are the most accessible zones with REE mineralization. Old blast pits in the Camp Lake area near Zone 6 apatite-magnetite not likely sampled since the 1950's were located with the spectrometer. Further work should be undertaken elsewhere in the complex over the magnetic highs associated with apatite-magnetite mineralization to investigate possible zones of rare earth element mineralization. However, much of the complex is covered with thick bush and old blow-down (e.g., Daer Lake) making walking difficult. For these areas, it is recommended that access trails be cut and, as an example, a north-south trail between the McVittie pit and Daer Lake to facilitate geological examination. The rock phosphate potential of the complex also merits further investigation. Apatite from the Pole Lake showing contains 3.56 wt.% TREO+Y2O3 in a high purity mineral concentrate (Breaks 2013, p.18). Such levels of TREO+Y2O3 would enhance the value of apatite mineralization if a method of REE separation could coincide with extraction of phosphorus

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APPENDIX 1. Spectrometer Data (K, U and Th) and Locations for Lackner Lake Alkalic Complex Survey

Field ID	Assay #	Geologic Unit	Zone	Easting	Northing	Sample Description	Spectrometer Site	Air absorbed dose nGy/hr	Air absorbed dose µGy/hr	%K	U ppm	Th ppm
812		Ijolite breccia cut by apatite-magnetite veins	17	340250	5295166	Nice outcrop of ijolite, massive, fg, black about 50 cm from apatite-magnetite veins. Exposure on west part of Camp Lake Road.	Ijolite	319.6		2.8	11.1	82.6
						Apatite-magnetite vein about 30 cm width	Apatite-magnetite vein	512.4		1.4	7.2	168.9
						nepheline syenite enclave in massive ijolite	Nepheline syenite	236.2		3.0	14.4	43.8
						area of highest radioactivity - ijolite crosscut by delicate veinlets near apatite-magnetite vein (1100 cps)	Ijolite	732.6		1.8	10.0	243.0
						Ijolite, massive, fg, second spot near apatite-magnetite vein	Ijolite	357.0		2.6	16.0	87.5
						Ijolite, massive, fg-mg about 3 m from apatite-magnetite vein	Ijolite	79.4		2.5	2.7	12.1
825	**1634501**	Nepheline syenite	17	340757	5294389	Massive, light pink (FS, cg to locally pegmatitic with radioactive zone up to 1 m width. Minerals = nepheline, kspar, aegirine. Outcrop on west side of Camp Lake.	Nepheline syenite	511.9		5.7	51.3	58.7
							Nepheline syenite	181.8		5.3	10.2	20.9
							Nepheline syenite	291.7		4.2	20.2	47.2
826	**1634502**	Nepheline syenite	17	340718	3294393	Small outcrop on east shore Camp Lake. Leucocratic nepheline syenite cg that grades into pegmatite patches. Small patches contain enrichment in phlogopite. Sparse sulphides. CI = 5	Nepheline syenite	262.3		7.6	17.2	25.7
827		Nepheline syenite	17	340817	5294810	Small outcrop in sand pit along Camp Lake Road. Grey fg massive to vaguely foliated nepheline syenite	Nepheline syenite	292.2		4.2	7.9	72.3
							Nepheline syenite	246.4		4.4	4.3	61.3
828		Ijolite	17	340824	5294817	Massive, fg-mg, black on CWS, that are sharpely cut by magnetite-rich 1-5 cm wide veins and pods.Outcrop on nearby road contains high % randomly oriented and delicate Kspar laths in layers 20 cm width that appears to have segregated from enclosing ijolite	Ijolite	367.9		0.9	21.9	88.2
							Ijolite			2.9	50.6	179.4
	1643503	Feldspar-rich rock	17	340824	5294817	Small smooth outcrop on south side of Camp Lake Road.	Feldspar-rich rock	492.6		3.9	25.2	113.2
829		Nepheline syenite	17	340745	5294874	Massive mg-cg, with pods of coarser material	Nepheline syenite	135.9		6.2	1.9	16.4
830	**1634504**	Nepheline syenite	17	340704	5294885	Leucocratic syenite with CI approx 5, white porcellanous appearance on WS, looks altered with thin en-echelon fg black veins with host veins	Altered nepheline syenite	251		7.1	17.1	24.3
831		Ijolite	17	340665	5294935	Small smooth outcrop of massive, fg-mg ijolite cut by thin calcite veinlets	Ijolite	166.3		2.8	7.2	33.7
832	**1634505**	Ijolite	17	340677	5295003	Smooth outcrop of ijolite in sand pit. Rock is fg-mg, Kspar porphyritic. RA up to 1700 cpm locally	Ijolite	931		4.7	62.1	197.7
							Ijolite	954.2		3.3	66.9	203.0
833	**1634506**	Ijolite breccia	17	340680	5295014	Massive black porphyritic ijolite with sparse enclaves of nepheline syenite. Nice texture on clean surface showing nepheline, aeirine and Kspar. Enclaves onlv	Ijolite	843.7		4.4	49.3	192.4
834	**1634507**	Magnetite-rich rock	17	340773	5294697	Series of old blast pits that appear to have been untouched since 1960's. Very heavy moss but spectometer values up to 7500 cps. Assay sample consists of sulfide stained pieces from bottom of pit.	Magnetite-rich rock		4.1		23.7	1465.0
						Note highest thorium value thus far from this pit.	Magnetite-rich rock		5.6	3.4	32.7	**2010.0**
							Magnetite-rich rock		2.4		33.0	817.2
	1634508					Assay sample taken under this reading	Magnetite-rich rock				36.2	1434.0
							Magnetite-rich rock					
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Old test pit completely grown over. Rust stained magnetite-rich rock at bottom	Magnetite-rich rock		4.0	0.0	23.2	1447
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Olds test pit 2X3X1m with exposed bedrock. Maximum 5270 cps	Magnetite-rich rock		3.6	3	23.9	1258
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Old test 2X4X2m pit grown over with exposed bedrock	Magnetite-rich rock		4.1	2.1	14.5	1496
838	**1634512**	Magnetite-rich rock	17	340763	5294687		Magnetite-rich rock		1.8	2.8	39.2	592.5
839	**1643513**	Ijolite	17	340761	5294682	Massive, mg, black on CWS, homogeneous	Ijolite	211.2		1.5	10.2	50.7
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Test pit #2 (3 X 4 X 1.5m) and heavily overgrown. Several pieces of sulfide stained material obtained from bottom of pit	Magnetite-rich rock		3.8	3.8	22.1	**1339.0**
						Reading over sample area	Magnetite-rich rock, reading over assay sample site		4.0	0.0	23.2	**1447.0**
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Test pit #3, with outcrop along sides. 5270 cps max RA	Magnetite-rich rock		3.6	3.0	23.9	**1258.0**
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Test pit #4 (2 by 2 by 4 m). Bedrock exposed along south side	Magnetite-rich rock		4.1	2.1	14.5	**1496.0**

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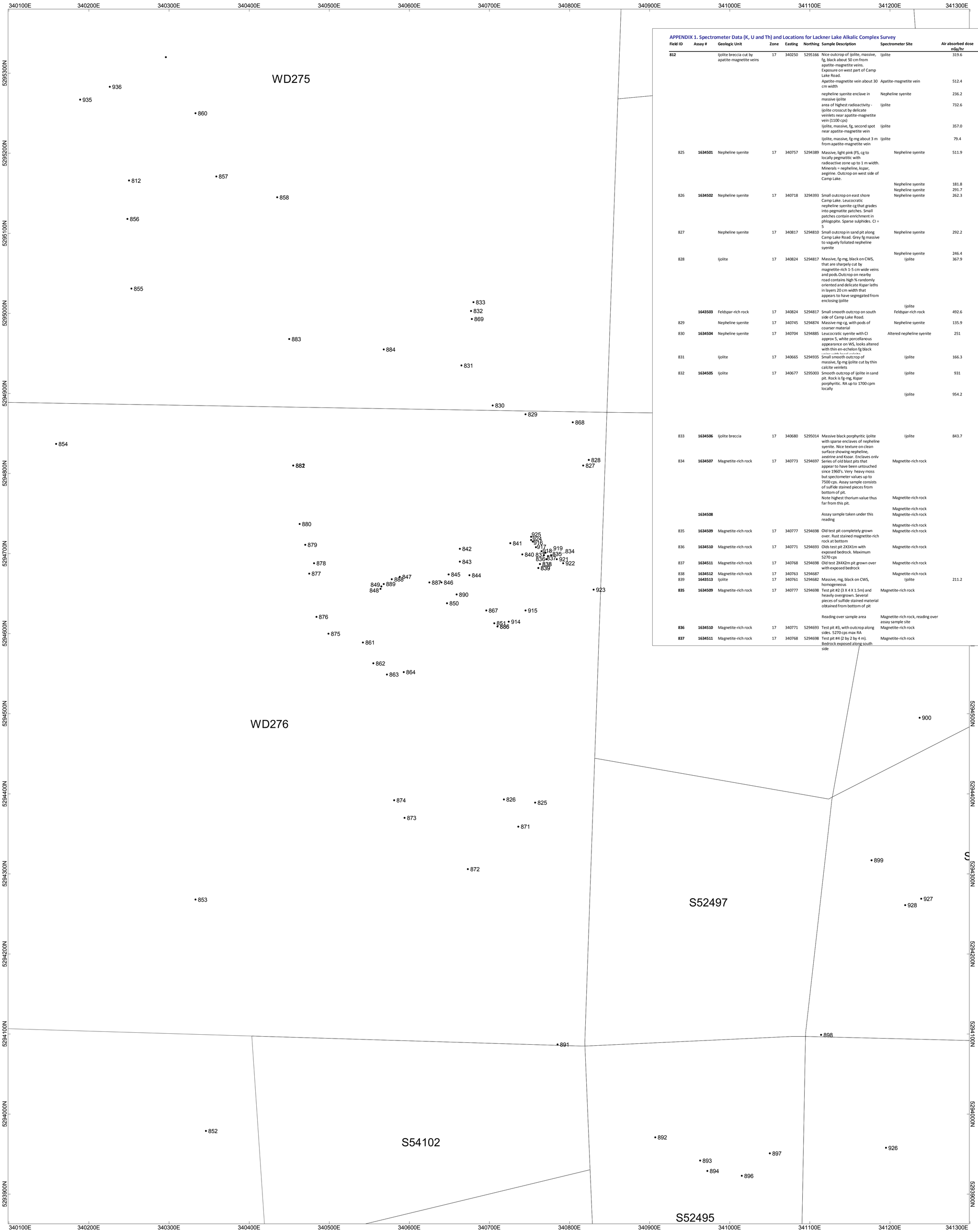
LACKNER LAKE PROJECT
SAMPLE NUMBERS AND LOCATIONS
MAIN MAP 1

LACKNER TOWNSHIP
PROCUPINE MINING DIVISION
NAD 83 ZONE 17

SAMPLED BY: FREDERICK W BREAKS



APPENDIX 1. Spectrometer Data (K, U and Th) and Locations for Lackner Lake Alkalic Complex Survey

Field ID	Assay #	Geologic Unit	Zone	Easting	Northing	Sample Description	Spectrometer Site	Air absorbed dose nGy/hr	Air absorbed dose nGy/hr	%K	U ppm	Th ppm
812		Ijolite breccia cut by apatite-magnetite veins	17	340250	5295166	Nice outcrop of ijolite, massive, fg, black about 50 cm from apatite-magnetite veins. Exposure on west part of Camp Lake Road.	Ijolite	319.6		2.8	11.1	82.6
						Apatite-magnetite vein about 30 cm width	Apatite-magnetite vein	512.4		1.4	7.2	168.9
						nepheline syenite enclave in massive ijolite	Nepheline syenite	236.2		3.0	14.4	43.8
						area of highest radioactivity - ijolite crosscut by delicate veinlets near apatite-magnetite vein (1100 cps)	Ijolite	732.6		1.8	10.0	243.0
						Ijolite, massive, fg, second spot near apatite-magnetite vein	Ijolite	357.0		2.6	16.0	87.5
						Ijolite, massive, fg-mg about 3 m from apatite-magnetite vein	Ijolite	79.4		2.5	2.7	12.1
825	**1634501**	Nepheline syenite	17	340757	5294389	Massive, light pink (FS, cg to locally pegmatitic with radioactive zone up to 1 m width. Minerals = nepheline, kspar, aegirine. Outcrop on west side of Camp Lake.	Nepheline syenite	511.9		5.7	51.3	58.7
							Nepheline syenite	181.8		5.3	10.2	20.9
							Nepheline syenite	291.7		4.2	20.2	47.2
826	**1634502**	Nepheline syenite	17	340718	3294393	Small outcrop on east shore Camp Lake. Leucocratic nepheline syenite cg that grades into pegmatite patches. Small patches contain enrichment in phlogopite. Sparse sulphides. CI = 5	Nepheline syenite	262.3		7.6	17.2	25.7
827		Nepheline syenite	17	340817	5294810	Small outcrop in sand pit along Camp Lake Road. Grey fg massive to vaguely foliated nepheline syenite	Nepheline syenite	292.2		4.2	7.9	72.3
							Nepheline syenite	246.4		4.4	4.3	61.3
828		Ijolite	17	340824	5294817	Massive, fg-mg, black on CWS, that are sharpely cut by magnetite-rich 1-5 cm wide veins and pods.Outcrop on nearby road contains high % randomly oriented and delicate Kspar laths in layers 20 cm width that appears to have segregated from enclosing ijolite	Ijolite	367.9		0.9	21.9	88.2
							Ijolite			2.9	50.6	179.4
	1643503	Feldspar-rich rock	17	340824	5294817	Small smooth outcrop on south side of Camp Lake Road.	Feldspar-rich rock	492.6		3.9	25.2	113.2
829		Nepheline syenite	17	340745	5294874	Massive mg-cg, with pods of coarser material	Nepheline syenite	135.9		6.2	1.9	16.4
830	**1634504**	Nepheline syenite	17	340704	5294885	Leucocratic syenite with CI approx 5, white porcellanous appearance on WS, looks altered with thin en-echelon fg black veins with local calcite	Altered nepheline syenite	251		7.1	17.1	24.3
831		Ijolite	17	340665	5294935	Small smooth outcrop of massive, fg-mg ijolite cut by thin calcite veinlets	Ijolite	166.3		2.8	7.2	33.7
832	**1634505**	Ijolite	17	340677	5295003	Smooth outcrop of ijolite in sand pit. Rock is fg-mg, Kspar porphyritic. RA up to 1700 cpm locally	Ijolite	931		4.7	62.1	197.7
							Ijolite	954.2		3.3	66.9	203.0
833	**1634506**	Ijolite breccia	17	340680	5295014	Massive black porphyritic ijolite with sparse enclaves of nepheline syenite. Nice texture on clean surface showing nepheline, aegirine and Kspar. Enclaves onlv	Ijolite	843.7		4.4	49.3	192.4
834	**1634507**	Magnetite-rich rock	17	340773	5294697	Series of old blast pits that appear to have been untouched since 1960's. Very heavy moss but spectometer values up to 7500 cps. Assay sample consists of sulfide stained pieces from bottom of pit.	Magnetite-rich rock		4.1		23.7	1465.0
						Note highest thorium value thus far from this pit.	Magnetite-rich rock		5.6	3.4	32.7	**2010.0**
							Magnetite-rich rock		2.4		33.0	817.2
	1634508					Assay sample taken under this reading	Magnetite-rich rock				36.2	1434.0
							Magnetite-rich rock					
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Old test pit completely grown over. Rust stained magnetite-rich rock at bottom	Magnetite-rich rock		4.0	0.0	23.2	1447
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Olds test pit 2X3X1m with exposed bedrock. Maximum 5270 cps	Magnetite-rich rock		3.6	3	23.9	1258
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Old test 2X4X2m pit grown over with exposed bedrock	Magnetite-rich rock		4.1	2.1	14.5	1496
838	**1634512**	Magnetite-rich rock	17	340763	5294687		Magnetite-rich rock		1.8	2.8	39.2	592.5
839	**1643513**	Ijolite	17	340761	5294682	Massive, mg, black on CWS, homogeneous	Ijolite	211.2		1.5	10.2	50.7
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Test pit #2 (3 X 4 X 1.5m) and heavily overgrown. Several pieces of sulfide stained material obtained from bottom of pit	Magnetite-rich rock		3.8	3.8	22.1	**1339.0**
						Reading over sample area	Magnetite-rich rock, reading over assay sample site		4.0	0.0	23.2	**1447.0**
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Test pit #3, with outcrop along sides. 5270 cps max RA	Magnetite-rich rock		3.6	3.0	23.9	**1258.0**
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Test pit #4 (2 by 2 by 4 m). Bedrock exposed along south side	Magnetite-rich rock		4.1	2.1	14.5	**1496.0**

Scale 1:2000

25 0 25 50 75 100 125 150

(meters)

NAD83 / UTM zone 17N

INTERNATIONAL EXPLORERS AND PROSPECTORS LTD

LACKNER LAKE PROJECT
SAMPLE NUMBERS AND LOCATIONS
INSET MAP 2

LACKNER TOWNSHIP
PROCUPINE MINING DIVISION
NAD 83 ZONE 17

SAMPLED BY: FREDERICK W BREAKS

APPENDIX 1. Spectrometer Data (K, U and Th) and Locations for Lackner Lake Alkalic Complex Survey

Field ID	Assay #	Geologic Unit	Zone	Easting	Northing	Sample Description	Spectrometer Site	Air absorbed dose nGy/hr	Air absorbed dose ᵤGy/hr	%K	U ppm	Th ppm
812		Ijolite breccia cut by apatite-magnetite veins	17	340250	5295166	Nice outcrop of ijolite, massive, fg, black about 50 cm from apatite-magnetite veins. Exposure on west part of Camp Lake Road.	Ijolite	319.6		2.8	11.1	82.6
						Apatite-magnetite vein about 30 cm width	Apatite-magnetite vein	512.4		1.4	7.2	168.9
						nepheline syenite enclave in massive ijolite	Nepheline syenite	236.2		3.0	14.4	43.8
						area of highest radioactivity - ijolite crosscut by delicate veinlets near apatite-magnetite	Ijolite	732.6		1.8	10.0	243.0
						Ijolite, massive, fg, second spot near apatite-magnetite vein	Ijolite	357.0		2.6	16.0	87.5
						Ijolite, massive, fg-mg about 3 m from apatite-magnetite vein	Ijolite	79.4		2.5	2.7	12.1
825	**1634501**	Nepheline syenite	17	340757	5294389	Massive, light pink (FS, cg to locally pegmatitic with radioactive zone up to 1 m width. Minerals = nepheline, kspar, aegirine. Outcrop on west side of Camp Lake.	Nepheline syenite	511.9		5.7	51.3	58.7
							Nepheline syenite	181.8		5.3	10.2	20.9
							Nepheline syenite	291.7		4.2	20.2	47.2
826	**1634502**	Nepheline syenite	17	340718	3294393	Small outcrop on east shore Camp Lake. Leucocratic nepheline syenite cg that grades into pegmatite patches. Small patches contain enrichment in phlogopite. Sparse	Nepheline syenite	262.3		7.6	17.2	25.7
827		Nepheline syenite	17	340817	5294810	Small outcrop in sand pit along Camp Lake Road. Grey fg massive to vaguely foliated	Nepheline syenite	292.2		4.2	7.9	72.3
							Nepheline syenite	246.4		4.4	4.3	61.3
828		Ijolite	17	340824	5294817	Massive, fg-mg, black on CWS, that are sharpely cut by magnetite-rich 1-5 cm wide veins and pods.Outcrop on nearby road contains high % randomly oriented and delicate Kspar laths in layers 20 cm width that appears to have segregated from enclosing ijolite	Ijolite	367.9		0.9	21.9	88.2
							Ijolite			2.9	50.6	179.4
	1643503	Feldspar-rich rock	17	340824	5294817	Small smooth outcrop on south side of Camp Lake Road.	Feldspar-rich rock	492.6		3.9	25.2	113.2
829		Nepheline syenite	17	340745	5294874	Massive mg-cg, with pods of coarser material	Nepheline syenite	135.9		6.2	1.9	16.4
830	**1634504**	Nepheline syenite	17	340704	5294885	Leucocratic syenite with CI approx 5, white porcellanous appearance on WS, looks altered with thin en-echelon fg black veins with local calcite	Altered nepheline syenite	251		7.1	17.1	24.3
831		Ijolite	17	340665	5294935	Small smooth outcrop of massive, fg-mg ijolite cut by thin calcite veinlets	Ijolite	166.3		2.8	7.2	33.7
832	**1634505**	Ijolite	17	340677	5295003	Smooth outcrop of ijolite in sand pit. Rock is fg-mg, Kspar porphyritic. RA up to 1700 cpm	Ijolite	931		4.7	62.1	197.7
							Ijolite	954.2		3.3	66.9	203.0
833	**1634506**	Ijolite breccia	17	340680	5295014	Massive black porphyritic ijolite with sparse enclaves of nepheline syenite. Nice texture on clean surface showing nepheline, aegirine and Kspar. Enclaves only 2-3 % and include	Ijolite	843.7		4.4	49.3	192.4
834	**1634507**	Magnetite-rich rock	17	340773	5294697	Series of old blast pits that appear to have been untouched since 1960's. Very heavy moss but spectometer values up to 7500 cps. Assay sample consists of sulfide stained	Magnetite-rich rock		4.1		23.7	1465.0
						Note highest thorium value thus far from this pit.	Magnetite-rich rock		5.6	3.4	32.7	**2010.0**
							Magnetite-rich rock		2.4		33.0	817.2
	1634508					Assay sample taken under this reading	Magnetite-rich rock				36.2	1434.0
							Magnetite-rich rock					
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Old test pit completely grown over. Rust stained magnetite-rich rock at bottom	Magnetite-rich rock		4.0	0.0	23.2	1447
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Olds test pit 2X3X1m with exposed bedrock. Maximum 5270 cps	Magnetite-rich rock		3.6	3	23.9	1258
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Old test 2X4X2m pit grown over with exposed bedrock	Magnetite-rich rock		4.1	2.1	14.5	1496
838	**1634512**	Magnetite-rich rock	17	340763	5294687		Magnetite-rich rock		1.8	2.8	39.2	592.5
839	**1643513**	Ijolite	17	340761	5294682	Massive, mg, black on CWS, homogeneous	Ijolite	211.2		1.5	10.2	50.7
835	**1634509**	Magnetite-rich rock	17	340777	5294698	Test pit #2 (3 X 4 X 1.5m) and heavily overgrown. Several pieces of sulfide stained material obtained from bottom of pit	Magnetite-rich rock		3.8	3.8	22.1	**1339.0**
						Reading over sample area	Magnetite-rich rock, reading over assay sample site		4.0	0.0	23.2	**1447.0**
836	**1634510**	Magnetite-rich rock	17	340771	5294693	Test pit #3, with outcrop along sides. 5270 cps max RA	Magnetite-rich rock		3.6	3.0	23.9	**1258.0**
837	**1634511**	Magnetite-rich rock	17	340768	5294698	Test pit #4 (2 by 2 by 4 m). Bedrock exposed along south side	Magnetite-rich rock		4.1	2.1	14.5	**1496.0**
838	**1634512**	Magnetite-rich rock	17	340763	5294687	Material obscured by moss Max RA = 4000 cps	Magnetite-rich rock		1.8	2.8	39.2	592.5
839	**1634513**	Ijolite	17	340761	5294682	Massive, mg, no magnetite-rich pods or veins	Magnetite-rich rock	211.2		1.5	10.2	50.7

840	**1643514**	Ijolite	17	340741	5294699	Massive, mg, black on CWS, homogeneous.	Ijolite	245.5		2.4	14.7	53.4
841	**1643515**	Magnetite-rich rock	17	340726	5294713	Small outcrop of magnetite-rich rock with increased RA = 1500 cpm. Vaguely foliated with 15 degree dip	Magnetite-rich rock	764.4		1.8	60.7	152.6
842		Ijolite	17	340663	5294706	Large outcrop area at southern end of "Beaverpond" on Parsons map. Pile of blasted magnetite-rich rock. No sample. Mainly black massive mg ijolite	Ijolite	711.5		2.7	36.6	177.7
843		Apatite-magnetite rock	17	340663	5294690	Apatite-magnetite assemblage in black ijolite host. Sulfide staining. No sample taken.	Ijolite	681.0		1.9	11.6	220.4
844		Ijolite	17	340675	5294673	Flat outcrop near lake with 2500 cps. No sample.	Ijolite			1.5	17.7	118.7
845		Massive magnetite rich zone	17	340649	5294674	Blasted pile of magnetite rich material at old test pit that forms a SE bay of lake due to beaver dam flooding. Zones 30-50 cm thick are rust stained with fg pyrite and tarnish due to trace copper minerals.	Magnetite-rich rock		1.8	0.2	14.5	626.8
						Second reading on rust stained layer	Magnetite-rich rock		1.2	0.5	11.0	433.3
	1643517	Massive magnetite rich zone	17	340649	5294674	Magnetite-rich zone adjacent to rust stained sulfide layer.	Magnetite-rich rock		1.2	0.9	14.0	413.2
846		Ijolite breccia and nepheline syenite	17	340640	5294664	Host to west of magnetite-rich zone that consists of 3m wide ijolite breccia This unit grades into nepheline syenite.Two readings on nepheline syenite but no sample taken.	Nepheline syenite			6.0	7.7	138.4
							Nepheline syenite			3.0	11.8	215.4
847		Ijolite	17	340588	5294671	Kspar-porphyritic ijolite near lake. Small flat exposure. No sample taken.	Ijolite	312.1		3.0	10.8	79.3
848	**1643518**	Ijolite breccia	17	340564	5294656	Large pile of blasted rock with abundant ijolite breccia characterized by fg grey leucocratic fragments. Magnetite, apatite and unidentified white and orange minerals occur in breccia matrix. Variable RA. Sample of apatite-rich material with abundant orange minerals from boulderwith highest RA to help follow-up mineralogical identification work. Highest uranium value thus far at 205.7 ppm	Ijolite		2.8	3.3	**205.7**	598.3
	1643519	Nepheline syenite				Syenite, fg-mg, felt-like texture due to thin laths of pink Kspar that is dominant mineral. However %K is relatively low at 3.9 % so check needed for possible cleavelandite form of albite. This unit occurs as patches in magnetite-rich rock and similar to layers found in ijolite on road north of Multi Minerals former facilities	Nepheline syenite			3.9	38.3	149.2
849	**1643520**	Ijolite breccia	17	340565	5294659	Massive, fg, holo-leucocratic breccia fragments in small piece from ijolite breccia	Ijolite breccia			2.4	96.0	360.7
						Second analysis site over fg breccia fragment	Ijolite breccia	961.6		1.2	63.7	222.6
850		Ijolite cut by magnetite veins	17	340647	5294638	Small smooth outcrop patch on road.Massive mg black ijolite cut by 2 cm wide magnetite vein.No sample taken.	Ijolite	625.3		2.2	32.2	156.7
851	**1643521**	Magnetite-rich material in pile of blasted boulders	17	340706	5294613	Massive, coarse magnetite-rich rock with brown-black colouration on blast surfaces. Assay sample from spectrometer site.	Magnetite-rich rock	439.7		0.9	24.8	108.9
852		Nepheline syenite	17	340346	5293979	Small glacially smoothed outcrop on road. Massive to vaguely flow foliated syenite. 45% nepheline, 40% kspar, 15 % aegirine. No sample taken.	Nepheline syenite	133.1		5.7	4.1	13.6
853	**1634523**	Nepheline syenite and ijolite	17	340333	5294268	Massive cg ijolite with nepheline syenite enclaves up to 5 by 15 cm. Ijolite grades into ultramafic patches.	Nepheline syenite	138.2		4.2	5.8	19.1
						Second spectrometer assay site in nepheline syenite	Nepheline syenite	137.2		3.7	7.4	18
854		Nepheline syenite	17	340159	5294837	Massive cg syenite with kspar laths up to 0.5 by 3 cm. Aegirine 10 to 15%, minor phlogopite.	Nepheline syenite	189.9		5.3	8.7	27.2
						second spectrometer assay site on nepheline syenite	Nepheline syenite	167.8		5.7	9.4	15.7
855	**1634524**	Ijolite breccia	17	340253	5295031	Massive cg, slightly RA at 1000 cps. 60% aegirine and 40% nepheline that has bluish cast on CWS. Contains 40% enclaves of pink nepheline syenite that typically have diffuse contacts with host.	Ijolite	536.9		3	27.7	128.7
						Nepheline syenite enclave	Nepheline syenite	181.9		4.8	8	28.2
856		Nepheline syenite breccia	17	340248	5295118	Pink fg syenite with trachytic texture. Contains 20-30% enclaves of ijolite that have elevated RA. Spectrometer assay on ijolite.	Ijolite	314.4		3.7	27.4	43.5

						Second spectrometer on ijolite next to magnetite-rich vein that cuts breccia.	Ijolite	302.9		4.9	23.4	41.5
	1634525					Assay sample from fg nepheline syenite matrix						
812		Ijolite breccia				Revisit of station 812. Ijolite breccia, RA, cut by apatite-pink unknown mineral-magnetite veins. Two surfaces of fracture filling						
857	**1634526**	Ijolite	17	340359	5295171	Small outcrop of ijolite cut by magnetite veins (5%). RA with up to 1500 cpm. Individual blebs and veins of magnetite. Assay sample consists of magnetite-rich ijolite	Ijolite		1.4	2.7	**168.9**	152.2
										2.4	74.3	67.3
858	**1634527**	Ijolite	17	340435	5295145	Massive black ijolite with magnetite-rich veins. Assay on magnetite-rich ijolite	Ijolite			1.9	80.0	58.3
							Ijolite		1.3	3.4	57.7	335.3
							Ijolite	907.4		1.6	52.7	223.0
							Ijolite	637.9		2.4	33.1	158.5
859	**1634528**					West side of extensive beaver dam system that obliterates road. Black fg ijolite cut by 1 cm thick fracture-filled veins of cg white and light orange minerals	Ijolite	549.9		2.7	24.6	141.2
						Massive fg-mg ijolite with no enclaves	Ijolite	596.9		2.1	21.7	167.5
							Cross-cutting late stage possible hydrothermal vein. Surface that exposes unknown white and light orange minerals	707.5		2.0	63.0	126.0
						Magnetite-rich ijolite that contains magnetite veins and individual crystals not connected to veins that suggest metasomatic development	Ijolite			2.2	86.7	265.4
							Ijolite in area where unknown orange mineral is abundant	618.6		4.0	44.6	120.6
860	**1634529**	Magnetite-rich veins in nepheline syenite	17	340333	5295250	Initial search for McVittie pit in area of bad bush. Located several old trenches up to 10 m in length. Magnetite-rich veins up to 1 m width in cg nepheline syenite. RA relatively low at 200 - 500 cps	Magnetite-rich mass	91.8		1.8	3.1	19
							Magnetite-rich vein	88.3		1.8	2.3	19.1
	1634530						Nepheline syenite host			4.2	9.5	21.6
861		Ijolite breccia cut by magnetite-rich veins	17	340542	5294589	Massive black (CWS) ijolite cut by magnetite-rich vein, 1-2 cm thick. Enclaves of fg-mg nepheline syenite occur in ijolite. Hand specimen taken but no assay sample.	Ijolite	62.7		2.0	2.0	9.5
							Nepheline syenite enclave	151.8		4.1	11.0	14.5
							Ijolite with cluster of magnetite veins	86.4		1.9	6.6	9.7
862		Nepheline syenite breccia	17	340555	5294563	Small outcrop just below beaver dam. Mostly nepheline syenite with ijolite enclaves all cut by sparse (1%) 1-2 cm wide magnetite veins. No samples taken.	Nepheline syenite	158.2		4.5	7.3	22.5
863		Ijolite breccia and nepheline syenite	17	340572	5294549	Outcrop along creek. Approx 50% of each unit but outcrop is highly obscured by moss and deadfall. Nepheline syenite shows well developed trachytic texture (see photos).Magnetite veins cut all units and clusters of euhedral to subhedral magnetite crystals appear to have developed by metasomatism.	Ijolite with cluster of metasomatic magnetite (no mag veinlets)	62.8		2.3	2.6	7.1
							Nepheline syenite adjacent to magnetite veins.	154.6		4.9	9.7	14.0
864	**1634531**	Nepheline syenite with ijolite enclaves	17	340593	5294552	Mostly mg-cg, light pink nepheline syenite. 20% nepheline, 70% Kspar, 10% aegirine+phlogopite. Assay sample of nepheline syenite.	Ijolite clast	193.1		4.0	6.6	39.0
							Nepheline syenite	128.7		6.4	3.5	9.5
865						This waypoint used by Denver						

866	**1634532**	Magnetite-apatite-rich zone				Same locality as in Photo of Vale 2008 report. Rust stained friable exposure on top of small cliff and adjacent to Multi Minerals test pit. Note flat dip of primary layering [310/25].Assay sample taken directly under spectrometer reading. Large test pit largely submerged due to beaver dams at south end of lake.	Magnetite-apatite-rich rock, friable material		1.6	0.9	16.8	567.4
	1634533	Magnetite-apatite-rich zone					Magnetite-apatite-rich rock on vertical face near 1634532. Also quite friable.		3.2	0.0	11.5	**1150.0**
		Magnetite-apatite-rich zone					Magnetite-apatite-rich rock, relatively unweathered		3.6	0.2	13.3	**1323.0**
	1634534	Magnetite-apatite-rich zone					Loose apatite-magnetite sand on slope below unit. One intact piece of green apatite material for assay.			0.3	9.7	**1099.0**
	1634535	Magnetite-apatite-rich zone					Vertical face heavily rust stained of relatively intact rock near shoreline at base of cliff. Wispy veins of apatite-magnetite are hosted in rust stained magnetite-rich host.		3.3	0.0	23.7	**1181.0**
	1634536	Magnetite-apatite-rich zone					Wispy band of apatite-magnetite in massive magnetite-rich host		3.0	0.0	31.5	**1358.0**
										0.2	17.8	**1113.1**
	1634537	Nepheline syenite host of magnetite-apatite zone				Cg, massive, leucocratic (CI = 5) nepheline syenite host about 2m above mineralized zone. Note spheroidal weathering along fractures in nepheline syenite on cliff face.	Nepheline syenite	324.1		5.6	7.1	78.6
		Nepheline-apatite-magnetite				Top of cliff where fg-mg nepheline-apatite-magnetite rock occurs. Massive unweathered compared to rock in the cliff face.	Nepheline-apatite-magnetite		3.2	2.3	14.9	**1136.0**
867		Ijolite breccia	17	340696	5294629	Small smooth outcrop behind milled ore pile. 5% nepheline syenite enclaves	Ijolite	269.5		4.8	6.8	62.9
868		Ijolite	17	340804	5294864	Small outcrop on road. Black fg-mg ijolite. No sample taken.	Ijolite	377.1		2.6	24.9	77.4
869	**1643438**	Ijolite	17	340678	5294993	Massive black (CWS) ijolite with sploches and veins of sulfide staining	Ijolite	707.9		4.6	56.9	126.5
870	**1634539**	Nepheline syenite	17	341075	5291964	Large outcrop area on hill. Strongly foliated nepheline syenite with sparse, flattened ultramafic enclaves. 40-50% nepheline uo to 4 by 5 mm with bluish cast on CWS. One 10 by 50 cm enclave of a light coloured 50:50 Kspar+nepheline rock shows evidence of flattening as well due to plastic flow.	Nepheline syenite	204.2		5.6	23.2	1.8
	1634540					Assay of ultramafic enclaves	Nepheline syenite	81.2		5.0	1.8	2.4
							Nepheline syenite			5.1	1.0	4.7
871		Nepheline syenite	17	340736	5294359	Pink cg nepheline syenite that shows good flow foliation re parallel alignment of Kspar laths. Kspar up to 0.5 by 3 cm. No assay sample taken but nice slab with weathered surface selected for display	Nepheline syenite	139.5		4.7	5.9	17.1
872		Nepheline syenite	17	340673	5294306	Similar to 871. Lovely cg nepheline syenite with Kspar laths up to 2 by 6 cm. Rock has 60% Kspar, 30% nepheline and 10% aegirine. No sample taken	Nepheline syenite	147.5		4.3	7.7	18.2
							Nepheline syenite	110.3		4.6	3.1	12.5
873	**1634541**	Nepheline syenite with alkalic gabbro enclaves	17	340594	5294370	Large boulder from adjacent cliff. Massive cg nepheline syenite with sparse mafic enclaves up to 1 by 2m. Gabbro is black to green-black, mg, massive with diffuse patches rich in Kspar. One miarolitic cavity 3 cm diameter lined with Kspar occurs in the gabbro. Assay sample of gabbro taken.	Gabbro enclave			3.3	4.0	19.6
874		Nepheline syenite with ultramafic enclaves	17	340581	5294392	Nepheline syenite similar to 873 with enclaves of biotite-bearing ultramafic rock up top 1 by 1 by 2 m	Alkalic ultramafic enclave			4.7	5.3	18.8

875	**1634542**	Nepheline syenite and urtite	17	340499	5294600	Angular boulders of nepheline syenite and urtite near cliff. Significant: cg crystals of primary magnetite (2 by 3 cm) occur in the nepheline syenite. No vein concentrations of magnetite observed. Sample of urtite taken for assay.	Urtite				
876	**1634543**	Nepheline syenite and mafic to ultramafic enclaves	17	340484	5294621	Massive, fg alkalic ultramafic enclave in nepheline syenite and ijolite in large angular boulder from nearby cliff. Assay sample from ultramafic enclave	Ultramafic enclave	167.0	4.8	5.2	28.0
							Ijolite	289.8	3.7	22.8	43.8
877		Ijolite breccia	17	340475	5294675	Outcrop on small point into Beaverdam lake on west side. No sample taken.		203.8	3.1	10.7	38.5
878	**1634544**	Ijolite breccia	17	340481	5294688	Ijolite cut by magnetite-rich veins. Elevated radioactivity at 500-700 cps in veins. Assay sample of ijolite	Ijolite	249.2	2.4	25.5	29.6
879	**1634545**	Ijolite breccia and syenite	17	340470	5294711	Ijolite breccia and pink syenite breccia cut by magnetite-rich veins. Note also 30 by 50 cm ovoid cluster of coarse magnetite crystals with no apparent linkage with the cross-cutting veins. Ijolite is Kspar-porphyritic and encloses nepheline syenite and fg pink syenite rock types. The pink syenite is identical to that found in large test pit area on opposite shore of Beaverdam Lake. Assay sample of pink syenite taken.	Pink syenite	238.8	5.8	15.4	33.3
880	**1634546**	Ijolite breccia and apatite-magnetite veins	17	340463	5294737	Assay sample of ijolite taken.					
881		Nepheline syenite cut by late Kspar-rich zoned veins	17	340455	5294810	Well foliated syenite, fg, only sparse nepheline observed cut by late stage veins, 5-10 cm wide, rich in cg euhedral Kspar (80%). Centre of zoned vein contains yellow stained carbonate. Relatively higher RA over veins.	Nepheline syenite	220.6	7.0	5.4	36.8
							Kspar-rich vein	307.0	6.5	21.4	39.4
882	**1634547**	Nepheline syenite and enclaves of glimmerite	17	34055	5294810	Nepheline syenite, cg identical to stops 871 and 872. Enclaves, 20 by 30 cm, of black fg alkalic ultramafic rock, possibly a glimmerite, with mg phlogopite are present and assay sample taken of this rock.	Nepheline syenite	123.7	5.2	3.8	13.2
							Phlogopite alkalic ultramafic rock	115.5	4.8	3.3	12.7
883		Porphyritic ijolite	17	340450	5294968	Massive to flow banded. Mg-cg, Kspar-porphyritic. Very nice exposure showing Kspar megacrysts up to 2 cm diameter. Ovoid enclaves of the distinctive pink trachytoidal syenite are present and up to 6 by 12 cm.	Porphyritic ijolite	156.8	3.5	12.2	16.8
884	**1634548 and 1634549**	Ijolite	17	340568	5294955	Outcrop on east shore line of Beaverdam Lake. Strongly deformed ijolite with flattened enclaves of ultramafic rock. Steep dip of foliation to the east (70-80 degrees). Elevated RA particularly over thin, brick-orange, branching shears. Width of veins 1 to 10 cm and can clearly be seen on dip surfaces of host. Assay samples selected for ijolite host and brick-orange vein. A careful hand-picked concentrate was produced for assay 1634549 of the brick-orange vein material.	Ijolite host	810.0	6.4	58.3	152.1
							Spectrometer positioned over two closely spaced orange veins		5.1	51.6	175.6
							Ijolite host	792.2	5.8	49.6	166.2
							5 cm thick brick orange vein	866.3	5.3	59.2	176.4
							Ijolite host 30 cm from brick-orange veins	709.2	3.4	54.4	137.4
885	**1634551**	Pile of Fe-rich concentrate, near test pit	17	340710	5294609	Dark grey pile of milled concentrate approx. 10 cm mesh. Sample taken under spectrometer assay site.			1.0	24.2	100.3
886	**1634552**	Boulder pile near hopper. high RA	17	340710	5294609	Several boulders were selected for slab work as have high RA and thus possible elevated REE.	Boulder #1 - black rock rich in magnetite with orange mineral between cg magnetite	911.3	2.2	42.3	242.3

							Boulder #2 - black rock rich in magnetite with orange mineral between cg magnetite. Highest cpm at 3800		1.5	1.6	93.6	374.8
887	**1634553**	Ijolite breccia	17	340625	5294664	Outcrop near test pit on lake.	Light pink to white felsic unit			5.8	9.5	76.8
							Ijolite next to magnetite veins	614.9		2.8	6.1	202.3
							Ijolite in area of apatite-magnetite veins up to 10 cm width. Also note patches of nepheline-rich alteration cut by the veins. Distinct bluish cast on CWS of nepheline-rich masses.	407.5		1.9	19.6	102.3
888		Ijolite breccia	17	340578	5294668	Large 2 by 2.5 m blast piece from test pit. Several apatite-magnetite veins that cut across breccia	Ijolite breccia clast			1.9	58.5	247.2
							Ijolite breccia clast		1.4	3.1	67.8	352.9
							Ijolite breccia clast	440.4		2.7	9.1	132.0
							Magnetite-rich vein	900.4		1.0	54.8	221.8
889	**1634552**	Ijolite in boulder pile	17	340568	5294662	Distinctive dark grey (FS) fg unit that occurs as breccia fragments. Possible variant of ijolite but require lab analysis.	Ijolite, fg dark grey variant	928.1		2.9	49.1	231.6
							Magnetite-rich vein with 10% of unknown light orange mineral. Concentrate of orange mineral selected for analysis (1634552). Trace of copper stain poosibly from fg chalcopyrite.		1.1	2.9	49.1	231.6
							Ijolite, fg dark grey variant	782.5		2.2	45.9	187.2
890	**1634553**	Boulder pile near hopper	17	340659	5294649	Several boulders were selected for analysis and slab work.	Rust stained boulder #1.Possibly a fg ijolite with sparse sulfides (cpy and py + copper stain)		1.1	3.3	42.7	300.4
	1634554						Good sample of fg dark grey ijolite breccia and veins of magnetite and unknown RA orange mineral. High RA at 7000 cpm and highest uranium value to date.		4.2	6.0	**265.5**	981.8
							Rust stained boulder #2		1.1	2.1	47.3	309.8
							Rust stained boulder #3	854.6		1.6	46.1	216.3
891		Nepheline syenite with gabbro enclaves	17	340785	5294087	Nepheline syenite cg massive in small outcrop on north side of Lackner Lake Road. Possibly a boulder but with smooth surface by glacial smoothing. 35% nepheline, 50% Kspar, 15% mafic minerals	Nepheline syenite	202.2		5.0	13.6	23.2
							Nepheline syenite	162.7		5.0	7.9	20.1
892	**1634555**	Nepheline syenite	17	340907	5293971	Flat smooth outcrop on north side of road. Light pink (CWS) cg nepheline syenite. 40% nepheline, 40% Kspar, 20 mafics	Nepheline syenite	113.4		4.9	1.1	16.3
							Nepheline syenite	182.5		4.3	15.1	16.7

893	**1634556**	Ijolite cut by apatite-magnetite veins	17	340963	5293942	Ijolite is fg, weakly foliated with enclaves of gabbro and tonalite-diorite. Cut by fracture coatings of fg pink unknown mineral. The vivid green apatite-magnetite veins also contain an unknown orange mineral. Assay samples taken for ijolite (1634556). Large specimen selected for slab work and extraction of apatite concentrate for analysis of REEs	Spectrometer normal to pink mineral fracture surface	277.2	6.4	19.3	33.0
							Spectrometer normal to pink mineral fracture surface	211.5	6.9	14.0	17.0
							Spectrometer normal to surface of apatite-rich vein	358.6	4.7	17.8	74.4
							Ijolite	277.3	6.5	19.6	31.8
894		Ijolite		340972	5293929	Outcrop near 893. Location site 895 inadvertently entered for this site and thus not used. Complex assortment of rock types: nepheline syenite, with enclaves of country rock (foliated and gneissic tonalite layered with diorite), and also streaked white mg rock that has high %K (5.7%). These rock types are cut by fg ijolite dykes.	Nepheline syenite	182.2	5.4	11.3	18.8
							Mafic dyke, fg 20-40 cm width	114.3	3.4	4.0	15.4
							Streaked white granitic rock	137.9	5.7	4.7	14.1
895		Not used									
896		Nepheline syenite	17	341015	5293923	Massive, cg, equigranular. Absence of usual tabular Kspar crystals. Small smooth outcrop in sand pit and no sample taken.	Nepheline syenite	119.1	5.1	2.2	14.8
897		Ijolite	17	341050	5293951	Small outcrop in trees along south side of road. Appears blasted and has abundant rust spots. Elevated RA at 2200 cps.	Ijolite	958.8	1.6	48.9	249.7
							Ijolite	788.5	3.5	40.7	193.8
	1634557					Assay sample of ijolite	Ijolite		3.5	60.3	243.9
	1634558					Assay sample of green apatite-rich material for REE in concentrate					
898		Nepheline syenite	17	341114	5294099	Small outcrop on road and possibly a boulder	Nepheline syenite	122.6	4.1	2.3	20.9
899	**1634559**	Ijolite	17	341177	5294317	Outcrop near north side of road.Green black ijolite that has been invaded by numerous thin veins of white to faint orange felsic minerals. The pattern suggests vein flattening with sigmoidal forms on several generations of these veins. Possible REE-rich veins. Should be channel cut as outcrop is entirely glacially smoothed. Piece of ijolite with vein material was collected for mineral ID work.	Ijolite, absence of magnetite veins	159.1	2.3	4.4	39.1
							Ijolite in area of abundant felsic veins	210.5	2.8	10.9	45.7
900		Ijolite	17	341237	5294495	Small outcrop of fg black massive ijolite on road. No sample taken.		172.5	3.0	2.6	44.0
818		Syenite, inner core	17			Massive, mg-cg, nepheline syenite in glacially smoothed outcrop within foundation of old fire tower house. 20% mafics, 20% nepheline, 60% Kspar. Sparse mafic enclaves up to 20 by 40 cm occur within syenite.	syenite	331.0	6.0	14.0	65.8
							syenite	291.7	6.7	8.7	58.4
							syenite	262.0	6.7	10.4	43.9
							Mafic enclave		5.0	8.9	64.9
902		Ijolite	17	342349	5297558	Massive, fg, black (CWS), elevated RA. No sample taken.	ijolite	419.2	5.5	21.0	86.6
903		Ijolite	17	342454	5297567	Angular boulder from nearby cliff. Strongly foliated mg ijolite with tight folding of foliation. Note one of fold limbs has been sheared off. Possibly due to plastic deformation of ijolite by adjacent intrusion of later syenites of core zone of complex. No sample taken.		121.0	5.8	5.8	5.1
904		Ijolite	17	342449	5297552	Massive black ijolite cut by brick-red fractures	Ijolite	132.7	6.8	5.6	4.8
905	**1634560**	Ijolite	17	342461	5297529	Steep cliff of fg black ijolite		484.3	3.7	26.2	109.2
906	**1634561**	Radioactive pink banded felsic rock	17	342499	5297457	Gneissic felsic rock that contains white mineral (albite?), green apatite, aegirine, phlogopite		692.1	9.1	39.8	692.1

907	**1634562**	Radioactive pink banded felsic rock	17	342502	5297455	Small angular boulder 30 m from base of cliff. Gneissic felsic rock that contains white mineral (albite?), green apatite, aegirine, phlogopite. RA at 7000 cps.Highest Th value to date.				8.3	9.7	15.2	**2987.0**
908		Not used												
909	**1634563**		17	342499	5297450	Strongly foliated, fg-cg, rock mainly composed of light pink and white felsic minerals with seams rich in phlogopite. Green apatite and aegirine also present. High RA with up to 7000 cpm. Sample consists of phlogopite-rich seam 10 cm in thickness (glimmerite)	Glimmerite				5.7	48.4	**2058.0**
910	**1634564**	Nepheline syenite	17	342501	5297443	Cliff base where access ladder was found. Syenite approx 1.5 m from high RA zone. Contact with banded felsic RA rock is gradational. Approx 20 m south a bluish felsic rock occurs in the syenite and appears to be a fenite. Maximum RA on property at 10, 000 cps	syenite		382.1		7.0	10.0	87.7
	1634565					Chip sample over 70 cm of high radioactivity zone that shows evident of previous sampling.				7.6	6.4	69.0	**2637.0**
911-A		Nepheline syenite	17	342508	5297446	North side of high RA zone that is about 7 m thick. RA drops significantly to 500 cps. To the south the nepheline syenite grades into a possible malignite that contains 50% aegirine, 15% nepheline and 35% Kspar.	syenite			3.0	10.1	39.1	988.5
911-B	**1634580**	Possible fenite				Massive, fg-mg, bluish rock that contains 10% dark blue mineral (possible reibeckite). Rock has distinct ring when struck with hammer.					8.0	36.9	1575.1
912		Ijolite	17	342021	5296653	Small outcrop on Fire Tower Road. Massive, fg-mg black ijolite. No sample taken.				246.7	6.2	21.1	19.1
913	**1634566**	Nepheline syenite	17	342047	5295872	Massive pink mg-cg syenite on Fire Tower Road.			216.2		6.0	5.4	40.2
914		Ijolite	17	340724	5294615	Small outcrop on road with elevated RA. Massive black ijolite with disseminated magnetite. Unit is cut by dull white material probably mostly calcite.		Ijolite		1.2	3.4	48.1	320.5
915		Magnetite-rich rock	17	340745	5294629	Small blast pit that consists mainly of magnetite rock.		Magnetite-rich rock	522.2		1.2	12.1	163.7
								Magnetite-rich rock (boulder)	659.1		1.0	7.7	224.1
								Magnetite-rich rock	906.0		0.9	11.0	310.0
								Magnetite-rich rock	599.4		1.5	4.7	205.8
								Magnetite-rich rock	419.0		1.0	4.5	141.3
	Soil line oriented @ 250 degrees												
924	**1634577**		17	340752	5294717	Podsol with grey Ae horizon and deep brown B horizon on sandy parent material at 5 m W. Sample 3 m from ijolite and nepheline syenite outcrop (see 925)		Soil	138.2		2.7	8.7	20.4
916	**1634569**		17	340754	5294715	deep brown soil on sandy parent material at 0.0 m		Soil	80.2		1.3	2.2	19.2
917	**1634570**		17	340758	5294708	Deep brown soil on sandy parent material at 9.25 m E and near road		Soil	585.7		1.6	10.6	188.3
918	**1634575**		17	340765	5294703	Deep brown soil on sandy parent material at 14.3 m E		Soil		2.1	1.8	6.0	741.3
919	**1634571**		17	340770	5294701	Soil near old blast pit. Contains numerous fragments of magnetite-rich material @ 20.7 m E		Soil		4.2	2.1	32.7	1484.0
920	**1634576**		17			Grey sandy soil under overturnerd tree @ 34.7 m E		Soil	195.6		1.6	4.7	55.7
921	**1634573**		17	340784	5294693	Silt rich soil from low area saturated with water @ 41.5 m E		Soil	79.1		1.2	0.4	22.5
922	**1634574**		17	340792	5294688	Dark brown soil on sandy parent material @ 47.4 m E		Soil	55.0		1.3	1.1	11.9
923			17	340830	5294655	Small pit with nepheline syenite breccia with deformed 40% black enclaves if mg-cg gabbro oriented at 140 degrees		and	352.5		7.0	28.0	40.4
								Alkalic gabbro enclave	351.0		4.5	27.1	53.6
925			17	340752	5294721	Small outcrop that reveals contact relations between black ijolite and later massive cg nepheline syenite. Magnetite crystals, 1-2 cm diameter, and veins occur in the ijolite.		Nepheline syenite	402.3		7.4	14.1	84.9

							Ijolite		2.9	20.7	182.0
926			17	341195	5293958	Small outcrop of black ijolite in bad bush near area of Multi-Minerals zones 3-4	Ijolite	432.2	4.0	27.7	87.5
927	**1634578**		17	341239	5294269	Small outcrop in bad bush in area of very poor exposure re search for exposures over Zones 3-4. Gabbro is cut by 20-50 cm wide felsic dyke of syenite	Gabbro	226.8	5.4	9.5	38.8
							Syenite	433.5	8.4	32.1	55.2
928			17	341219	5294261		Ijolite in small outcrop	107.4	1.8	1.2	28.7
929		Tonalite host rocks	17	342323	5292384	Massive to weakly foliated fg-mg tonalite to granodiorite. Late veins of potassic pegmatite cut tonalite	Tonalite	25.6	1.0	0.2	4.2
							Potassic pegmatite	88.8	2.7	3.3	13.4
930-A		Fenitized diorite host rocks	17			Boulder, subrounded, 1 by 1 by 2 at entrance of long north trending logging road that ends at topographic highs in SE part of Lackner complex. Vivid blue riebeckite occur in veins and replacement in adjacent diorite. Best example of Na-K fenitization found to date for Lackner complex host rocks.	Fenite vein surface	37.5	1.2	0.7	6.9
							Fenite vein 1cm thick and adjacent biotite-rich alteration	58.6	1.9	0.9	10.7
930-B		Nepheline syenite	17	344808	5294140	Logging road into SE part of Lackner complex. Good for ATV to topographic high. Large angular boulder probably from upslope source. Massive cg nepheline syenite. Road travels over outwast sand and then boulder till at higher elevation.	Nepheline syenite	226.5	4.7	10.9	39.5
931	**1634579**	Nepheline syenite	17	344754	5294706	Massive, light pink on CWS, cg, very low mafics (2%). Small glacially smoothed outcrop in ditch along west side of road.	Nepheline syenite	159.7	8.8	4.4	7.6
							Nepheline syenite	160.1	8.6	3.4	10.8
							Nepheline syenite near assay sample site.	165.4	7.9	4.3	14.6
932, 933						Waypoints on logging road					
934						Intersection of logging road with main E-W road					
935		Nepheline syenite in outer ring of Lackner complex	17	340189	5295267	Massive to vaguely layered, cg, light pink (CWS) nepheline syenite 20% nepheline, 10% aegirine, Kspar 70%, sparse phologopite. Outcrop on small hill just west of McVittie Pit	Nepheline syenite	150.3	6.0	4.0	18.4
936		Nepheline syenite in outer ring of Lackner complex	17	340226	5295283	Similar to 935. No sample taken					
							Nepheline syenite	114.8	4.7	4.1	11.8
937: Samples from McVittie Pit		Magnetite-rich veins in ijolite	17	340296	529320	Old overgrown pit in ijolite, 3m depth, 3 to 7m width and 15 m length. Pit was cleaned out with a sandvik brush axe. Massive fg, light black (CWS) ijolite with numerous magnetite-rich veins, 2 cm to 30 cm width. Relatively low RA compared with other magnetite-rich veins exposures to the south-east in Number 3 zone.	Ijolite	168.1	4.1	9.3	23.9
							Ijolite near magnetite-rich vein	222.1	5.0	13.2	31.4
	1634581	Magnetite-rich veins in ijolite				Massive,ijolite from vertical face of north side of pit. Sample taken 1 m from 30 cm wide magnetite-rich vein	Magnetite-rich vein	197.3	2.7	9.2	41.5
							Magnetite-rich vein	220.6	2.6	11.4	46.2
							Ijolite near magnetite-rich vein	452	4.4	27.5	452.0
							Magnetite-rich vein	285.6	2.6	20.9	285.6

	1634582	Magnetite-rich veins in ijolite	Massive magnetite-rich mineralization, 1% unknown orange mineral and sparse sulfides. Assay sample contains mostly magnetite with 10% ijolite host rocks	Magnetite-rich vein	221.2	2.6	10.7	48.0
	1634582	Ijolite	Foliated fg ijolite in area of relatively higher RA at bottom of rock face on north side of trench	Ijolite	379.4	4.6	26.9	64.5
				Ijolite	374.1	4.9	23.7	374.1
				Ijolite	268.9	4.8	14.1	48.0
	1634583	Ijolite and magnetite-rich veins	Sample with sulfide staining in magnetite-rich vein. Sparse unknown orange mineral present. RA approx 1000 cps	Ijolite and magnetite-rich vein	403.3	3.9	22.4	403.3
	1634584	Magnetite-rich veins in ijolite	Magnetite vein in ijolite, rust stained and possible sparse chalcopyrite	Ijolite and magnetite-rich vein				
939		Ijolite	Massive, fg, light black on CWS. No Sample taken.		349.5	4.6	13.9	80.3
940		Ijolite, nepheline syenite cut by magnetite vein	Nepheline syenite, cg, massive intrudes ijolite but both cross-cut by magnetite vein. Nepheline in ijolite weathers a distinct bluish colour. Outcrop immediately south of McVittie pit.	Nepheline syenite	177.1	5.1	6.4	28.1
				Ijolite	322.2	2.8	12.0	81.9