GM 72588

Assessment report on exploration activities, lac Ducharme property

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ASSESSMENT REPORT ON EXPLORATION ACTIVITIES, LAC DUCHARME PROPERTY – SEPTEMBER, 2021

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November 3, 2021

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1. Introduction

This report covers the exploration activities carried out on the Lac Ducharme Rare Earth Project, their results, and associated future recommendations. These activities were completed by Exploration Facilitation Unlimited Inc. ("EFU") on behalf of Tactical Resources Corp. (Tactical) in early September of 2021.

The Lac Ducharme Rare Earth Project covers a total area of 1257.44 hectares and is located within the Manicougan Regional Municipality County. The area has not been subdivided into townships, likely due to its location and the lack of residents, present and historic, in the area. The project is located 150km north of Baie-Comeau, the largest settlement within the Cote-Nord region of Eastern Quebec. The Lac Ducharme project is also 12km southwest of Manic-5, a very small settlement which services the Manicougan hydro-electric project. The 23 claims which make up the property were acquired through map designation.

From September 4th to 12th, 2021 Exploration Facilitation Unlimited (EFU Inc.) conducted exploration on the property for Tactical. After mobilization a prospecting and backpack drilling survey was carried out to develop greater knowledge of the property.

2. Geographic Setting

2.1 Location, Access and Infrastructure

The Lac Ducharme claims are located in the Cote-Nord region of Quebec in the Manicougan Regional Municipality County. The claims are not within a township as the area has not been subdivided into townships. The settlement of Maic-5, which services the Manicougan hydro-electric project, is 12km to the southwest. Manic-5 is mostly a gas station, restaurant, small motel, and minor buildings related to maintenance of the highway and the hydro-electric project. The claims are located on NTS mapsheet

22K/10. The Property's center point is located at UTM 510162mE and 5601234mN, UTM Zone 19U, Nad 83.

The claims are accessed via a logging road system which departs from Quebec Highway 389 at km 202 from Baie-Comeau. Highway 389 is very windy and it is a much greater distance by road from Baie-Comeau to the claims than the actual direct distance between the two. The highway is the only highway from Quebec to Labrador and runs from Baie-Comeau to Labrador City, Labrador, where it meets the Trans-Labrador Highway. The claims contain many logging roads. Very few are overgrown as logging occurred within the last fifteen years and the roads are regularly used by hunters. This road system allows excellent access to the claims by ATV, truck, foot, or by snowmobile in the winter.

It is a three hour drive to the Lac Ducharme claims from Baie-Comeau and a 25 minute drive from Manic-5. Baie-Comeau is a five hour drive from Montreal and includes a ferry ride across the Saguenay Fjord. The flight from Montreal to Baie-Comeau is about 75 minutes. There are daily flights from Montreal's St Hubert airport to/from Baie-Comeau. Baie-Comeau has a population of 22,000 and is a regional centre. Baie-Comeau services mining and mining exploration with normal amenities such as hotels, restaurants, supply, and rental companies available. Groceries, equipment, specialty gear, safety gear, and supplies are available in Baie-Comeau. Manic-5 has a restaurant in addition to a variety store (depanneur) and fuel. Baie-Comeau is oriented towards outdoor activities, mining, and forestry because of its location. Virtually all supplies necessary to maintain an exploration camp can be found in Baie-Comeau. Lodging and some food can be found at Manic-5.

Small portions of the property are swampy and Lac Ducharme is within the claims. Fieldwork in these areas such as ground magnetometer surveys are best completed in winter months when creeks, swamps, and lakes are frozen over and vegetation is less of an issue. At the same time, it is a preferred hunting area and work should be avoided from mid-September until mid-November, when there are many moose hunters hunting in the area.

2.2 Climate, Topography and Vegetation

Climate data for the immediate area to Lac Ducharme is unavailable. Day to day weather is measured at Lac Manouane East but there is no historic climate data available for Lac Manouane. The nearest station is Baie-Comeau but it lies in the Koppen Dfb zone while the Lac Ducharme claims lie in the Koppen Dfc zone, with much less oceanic influence. Wabush Lake Airport is the station used for the climate in Fermont Quebec, which is to the NE of Lac Ducharme and is about 320km away from the claims. Wabush Lake Airport lies within the Dfc zone and so, in all likelihood, the climate at Lac Ducharme is between the two places but closer to Wabush. The Koppen Dfc zone is characterized by brief, cool summers; long, bitter winters; the largest annual temperature ranges (lowest temperatures outside Antarctica); low precipitation; and permafrost is common.

July daily averages are likely similar/between Wabush at 13.8 degrees and Baie-Comeau's 15.6 degrees while winter daily averages during January are likely between the average of -22.2 at Wabush and -14.3 at Baie-Comeau. In both places the warmest month of the year is July and the coldest January. Total precipitation is likely between the 1001mm per year at Baie-Comeau and 840mm at Wabush with the breakdown probably close to 600mm of rain and 350cm of snow.

The Lac Ducharme property is very hilly terrain. Slopes vary from steep to gently rolling but there is only minor flat or near-flat areas and those are swamps and creeks. Elevation varies from 460m to 600m with many hills over the property.

The Lac Ducharme property is located in the Spruce-moss domain within the continuous boreal forest subzone, according to the Vegetation Zones and Bioclimatic Domains in Quebec (MERN). Forest cover is abundant on the property except in the few wettest areas, which are too wet for trees, and is dominated by black spruce in the lower areas with pine, balsam fir, and minor birch dominant on the higher ground. Hardwoods such as white birch, trembling aspen, and balsam poplar are seen throughout the property. Alders, willow and dwarfed spruce dominate the wettest areas.

3. Property

3.1 Mineral Claims

Claim Number	*Ownership*	*Size (ha.)*	*Acquired*	*Expires*
CDC2529388	Doctors Investment Group Ltd.	54.69	2019-01-08	2022-01-07
CDC2529389	Doctors Investment Group Ltd.	54.69	2019-01-08	2022-01-07
CDC2529390	Doctors Investment Group Ltd.	54.69	2019-01-08	2022-01-07
CDC2529391	Doctors Investment Group Ltd.	54.69	2019-01-08	2022-01-07
CDC2529392	Doctors Investment Group Ltd.	54.68	2019-01-08	2022-01-07
CDC2529393	Doctors Investment Group Ltd.	54.68	2019-01-08	2022-01-07
CDC2529394	Doctors Investment Group Ltd.	54.68	2019-01-08	2022-01-07
CDC2529395	Doctors Investment Group Ltd.	54.68	2019-01-08	2022-01-07
CDC2529397	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529398	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529399	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529400	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529401	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529402	Doctors Investment Group Ltd.	54.67	2019-01-08	2022-01-07
CDC2529403	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529404	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529405	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529406	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529407	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529408	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529409	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
CDC2529410	Doctors Investment Group Ltd.	54.66	2019-01-08	2022-01-07
	Total:	**1257.44**		

3.2 Exploration Expenditures

Expenditure Type	Expenditure Amount (CAD$)
Travel and Lodging	$1 890
Food and Perishable Supplies	$2 109
Fuel	$1 015
Rentals:	
Radio , Sat phone, chainsaw, backpack drill, scintillometers	$4 515
Truck	$1 560
Field Crew	$22 680
Assays	$6 755
Report (Assessment)	$2 152
Total	**$42 876**

3.3 History and Previous Exploration

There has been very little historic exploration work in the area and even less on the claims. The area was first mapped by the GSC in 1897 as part of a larger regional program. The first actual exploration work comes much later—in 1976.

In 1976 Gleeson and Associates completed a regional lake sediment sampling program. Lac Ducharme was within the bounds of this survey and a manganese anomaly was located in Lac Ducharme.

In 1976 and 1977 SOQUEM conducted multiple surveys at the regional scale in the area of the Ducharme claims. Lake sediment sampling was again carried out as was airborne radiometry and magnetics surveys that covered over 30 000km2 of the Manicougan region. SOQUEM followed these surveys up with groundwork including geologic mapping and an airborne resistivity survey over selected targets. Noteworthy findings with respect to the Ducharme claims from all this work was limited to Fe and Mo anomalies related to the lake sediments collected at Lac Ducharme.

At roughly the same time—1977 and 1978—MERN conducted in-office analysis of the region surrounding the Ducharme claims. MERN analyzed economic geology of the Grenville Province in order to create regional exploration proposals. None of their proposals centered on or involved the Ducharme claims. They also created maps that covered recent regional surveys. The area then sat essentially idle until 2004.

In 2004 Manicougan Exploration conducted regional exploration with the aim of finding Ni and PGE's related to peridotite bodies. None of their work pointed towards the Ducharme claims or immediate area.

From 2006 to 2013 MERN again revisited the Manicougan region. In 2006 they carried out an airborne magnetic survey over the Grenville Province. In 2009 MERN carried out a study on the uranium potential in the region. The study indicated that the property and area had a low to medium potential for a uranium deposit. In 2012 MERN carried out an airborne magnetometer survey over the Manicougan area. In 2013 MERN returned to the Manicougan area and conducted reconnaissance level mapping and prospecting over the terrain from Manicougan to Baie-Comeau. More than 6,000 km2 was covered by the program. During this program REE occurrences were discovered on the present claims.

After the REE discovery in 2013 the claims were staked by a local prospector from Baie-Comeau in 2014. The prospector, Guy Barrette, carried out a trenching and channel sampling program which was

within the present claims. Many significant REE values in outcrop were collected during the program. This program was focused at the Lucia occurrence, one of the two areas with elevated REE's identified in 2013.

4. Regional Geology

The Lac Ducharme Property is part of the Grenville Province. The Grenville runs along the southeastern edge of the Canadian Shield. It is the youngest part of the craton. The Grenville can be found in a belt that stretches from the southern Labrador coast, then follows the northern shore of the St Lawrence before carrying through to the eastern Lake Huron shore as its southern margin. The Grenville continues further to the south and southwest but is covered by later Paleozoic sedimentary units. It can be traced at depth as far as Texas.

The Grenville Province is an orogen of early to mid-Proterozoic age (approx. 1.6 Ga to 0.9 Ga). It is divided into a belt of highly deformed, migmatically formed rocks of its two neighbouring provinces, the older Superior and Southern Provinces, and a belt of gneiss, granitoids, and slightly younger gabbro and anorthosite complexes. These are interpreted to be an arc environment which was accreted onto the Shield. Subsequently mafic to felsic intrusives were emplaced along normal fault structures once there was subsidence of the orogenic plateau (Turlin et al 2017, Wellstead, 2021). There are major crustal-scale thrust faults which divide these bodies: the Grenville Front forms the margin of the Grenville parautochtonous belt from the older components of the Canadian Shield. The Allochthon Boundary Thrust represents the contact between the two belts of the Grenville Province itself. Gneisses of this allochthonous belt are dominant in the Lac Ducharme area. These gneissic bodies include the granitoid-derived gneisses of the Hulot Complex and the sediment derived gneisses of the Plus-Value Complex.

Separately there is the Manicouagan impact structure which lies 60 km north of the Lac Ducharme property. The impact structure is a 60 km-wide crater and is Triassic in age. The Manicougan Reservoir -shaped due to this impact structure.

5. Property and Local Geology

The Lac Ducharme property has been covered as part of several regional mapping programs. The REE showings were mapped in detail by Turlin et al in 2017.

The Property contains a regional-scale fault which striking northeast-southwest which cuts through the eastern side of the Property. The fault is found in a trough between two hilly areas and separates two granitic bodies. To the southeast of the fault is the Castoreum pluton comprised of magnetite-porphyritic granite/monzonite. The Bardoux pluton is found to the northwest of the fault and is comprised of granite with garnets and rapakivic feldspar phenocrysts. The plutons date to 1393±8 Ma and 1487.6±6.8 Ma respectively (Moukhsil et al 2014). In SIGEOM literature it is stated that pegmatitic dykes are found in both plutons.

A second and later fault is also found on the claims. This fault is a dextral fault and is found on the western edge of the claims. This fault displaces the contact between the aforementioned plutons.

The very southern edge of the property contains a wedge of gneisses of quartzite and marble of the Plus-Value Complex, the oldest rocks in the area of the claims. The northern parts of the claims contain a gabbro or gabbronorite lens which is part of a line of intrusive bodies oriented east-northeast named the Louis Suite.

Pegmatite dykes found at the previously identified mineralized zones are part of swarms with a steep southerly dip and are oriented roughly northwest=southeast, paralleling the major fault in the east of the claims. The dykes may have a fault-related structural control on their emplacement. The dykes are generally between 10 and 100 cm thick. They are mostly quartz, potassic feldspar, plagioclase, and biotite. The dykes exhibit localized grain size banding and zoning. varied texture of crystallization, magmatic brecciation and quartz chambers. Based on their distinctive geochemistry-- LREE enrichment with high Al/Na+Ca+K ratio-- they are believed to be derived from the partial melting of metasediments (Turlin et al 2017). Turlin et al (2019) also have suggested that pegmatites in the Lac Ducharme area could be derived from sedimentary units of the Parautochonous belt, which may be found below the Allochthonous belt.

6. 2021 Exploration

In September of 2021 an EFU crew of 5 workers prospected and backpack drilled at the Lac Ducharme claims.

6.1 Prospecting

A prospecting program of 29 rock samples was conducted and it covered the two previous showings on the claims, as well as ground around and between the two areas.

As an initial locator for samples collected two RS-120 scintillometers and an RS-125 spectrometer were utilized. The parallel between total REE's and thorium content was the qualifier for this. Areas were covered for total radioactivity with the highest scintillometer readings used to make a priority list. These locations were then tested with the spectrometer and the highest thorium assays among the highest radioactivity locations were considered as highest priority for sampling. The two known

showings and the ground in between were given the highest priority for investigation. The very highest locations were deemed prime targets for backpack drilling.

Rock samples were collected using rock hammers and chisels. The rock at Ducharme is glacially smoothed and very hard due to silica content so in some cases shallow (10cm or less) holes using backpack drills were made to allow samplers with hammers and chisels to break out more rock.

Rock samples were given a unique sample number and collected in a plastic ore bag. Coordinates were stored on a Garmin GPS and also recorded in a notebook for backup. A short description of the sample including rock type and alteration was also recorder in a notebook.

The 29 samples that were collected averaged 0.3489% total REE's. The highest rock sample assay was 1.1973% total REE's. Two rock samples assayed higher than 1% total REE's. The two highest assays come from the two separate areas previously identified. This validates the two areas as both being areas of interest. Thorium assays for the rock samples were between 5.4ppm and 1170ppm (0.117%).

6.2 Backpack Drilling

A backpack drilling program of ten drill holes with thirteen samples was conducted and it covered the two previous showings on the claims. Total meters drilled was 12.74m. Holes were drilled using a Shaw backpack drill with 25mm rods. Holes varied in depth from 41cm to 2.24m. Sample lengths varied from 35cm to 1.85m and averaged 0.91m. Four holes were drilled in one location/ area while six holes were drilled in the other area.

Backpack drill core was drilled, photographed, and quick logged in a notebook with coordinates stored on a Garmin GPS as well as in the notes.

The thirteen samples collected averaged 1317ppm total REE's. The highest assay was 3297ppm total REE's (0.33%). Four samples assayed higher than 0.2% total REE's. The two highest assays come from each of the two areas of interest indicating that both areas make good targets for further exploration and assessment.

7. Analysis, Results and Discussion

Sample locations and results for the prospecting (rock) and samples collected during the 2021 exploration program can be found in Figures 4 to 9 and descriptions including location/ depth of sample can be found in Appendix B. All samples collected were submitted to Activation Labs in Ancaster, Ontario for analysis. For the 2021 program rock and backpack drill samples collected in the field were described in basic detail. They were then sealed into plastic ore sample bags. UTM co-ordinates were recorded for each sample and this was done both in a notebook and stored on a GPS. Each sample was labelled with its unique sample number and this number was also recorded on the GPS and in the notes. Sample bags were sealed using plastic zap straps/ cable ties before being removed from the field.

All samples collected during the exploration program were stored under lock and key in a trailer onsite until the end of the program, when they were transported to London, Ontario (EFU head office). Samples were then transported by an EFU employee directly from EFU head office to the laboratory facilities in Ancaster, Ontario, where they were handed directly to lab employees for analysis. At no time were the samples in the possession of a third party. The samples were delivered in one single batch. The samples were delivered in one single batch. In addition to the lab's QA/QC program, as part of the submittal of samples to the lab two blanks and two standards were inserted into the sample stream. Two silica blanks and two OREAS 461 standards were used. They were inserted between collected samples in the sample stream.

7.1 Discussion of Results

The Lac Ducharme property is located within a barely explored geologic environment for REE's. There have been several unique individual samples taken with elevated REE's found within the Lac Manicougan area but there has been very little concerted effort to identify a potential deposit.

Of the total of 43 soil samples collected, 25 samples, or 58.1% of samples, assayed higher than 0.1% total REE's. All of these samples must be considered highly anomalous. The two samples that assayed

over 1% total REE's can be considered indicators of the potential of the claims. Assay values for REE's and thorium can be seen in Figures 4, 6, and 7 in Appendix A.

7.2 Recommendations

Elevated REE's in both rock and drill core samples indicate that geophysical and ground surveying is necessary to greater understand geology and REE mineralization in this area. A magnetometer survey should be completed through the bulk of the claims. Both showings could benefit from an increased density rock, and possibly soil sampling program (50m or 100m between samples). Any or all of these actions could help to better understand geology and mineralization on the claims.

8.0 References

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9.0 STATEMENT OF QUALIFICATIONS

I, Justin Rensby, P.Geo. do hereby certify that:

I am a part owner of Exploration Facilitation Unlimited, Inc. with both mine and the company's office located at my residence—145 Walnut St, London, Ont., N6H 1A5.

I am a graduate of the University of Western Ontario with a Bachelor of Sciences Degree in Earth Sciences, Geology.

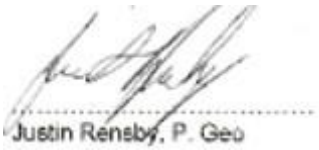
I am registered as a Professional Geologist (P.Geo/ Geo) in the Province of Quebec (#2137) with the Ordre de Geologues du Quebec. I am a "temporary" member as I have not yet passed a French proficiency exam.

I have practiced my profession as an exploration and mining geologist since 2005. I have worked on gold, base metal, and uranium projects in Quebec, Ontario, Manitoba, Saskatchewan, British Columbia, NWT, Nunavut, and Rwanda.

This report is for assessment purposes only and is not intended to be a 43-101 compliant report however it was prepared with due care entirely by me.

I both planned and supervised onsite the 2021 Lac Ducharme exploration program.

Justin Rensby



Exploration Facilitation Unlimited Inc.

Dated at London Ontario this 25th of November, 2021

APPENDIX A

Figures

Figure 1. Lac Ducharme Project Location

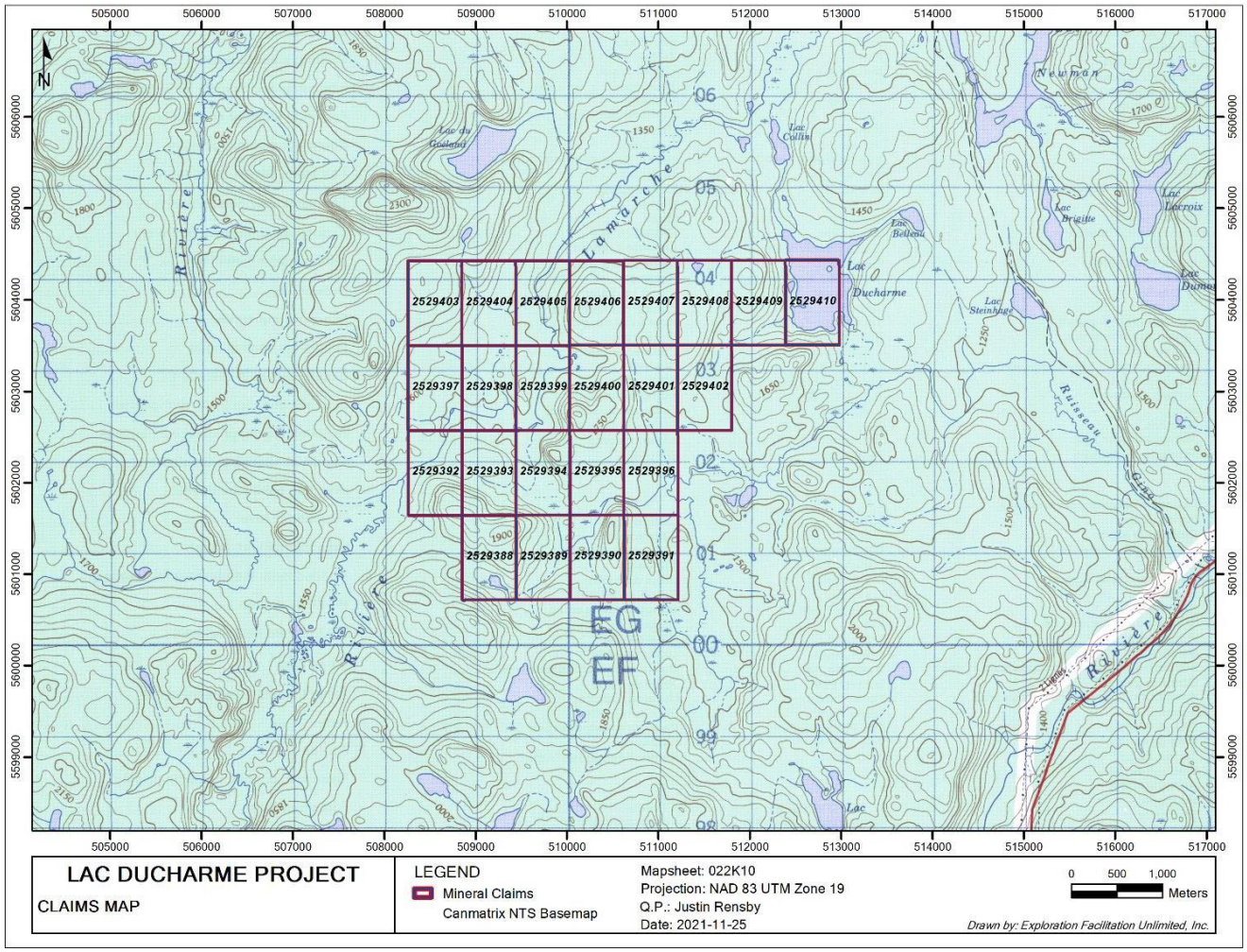


Figure 2. Lac Ducharme Claims

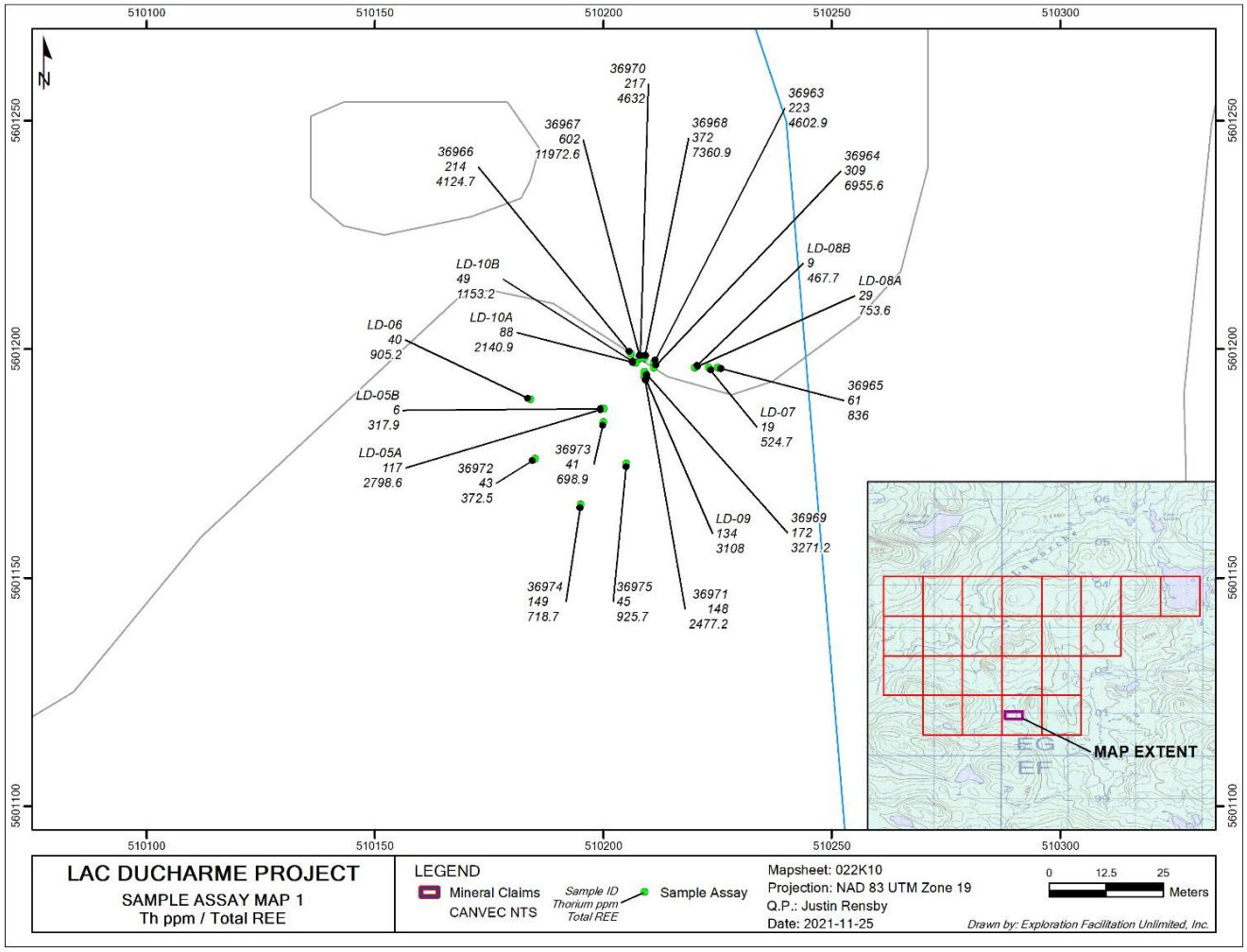


Figure 3. Lac Ducharme Southern Samples

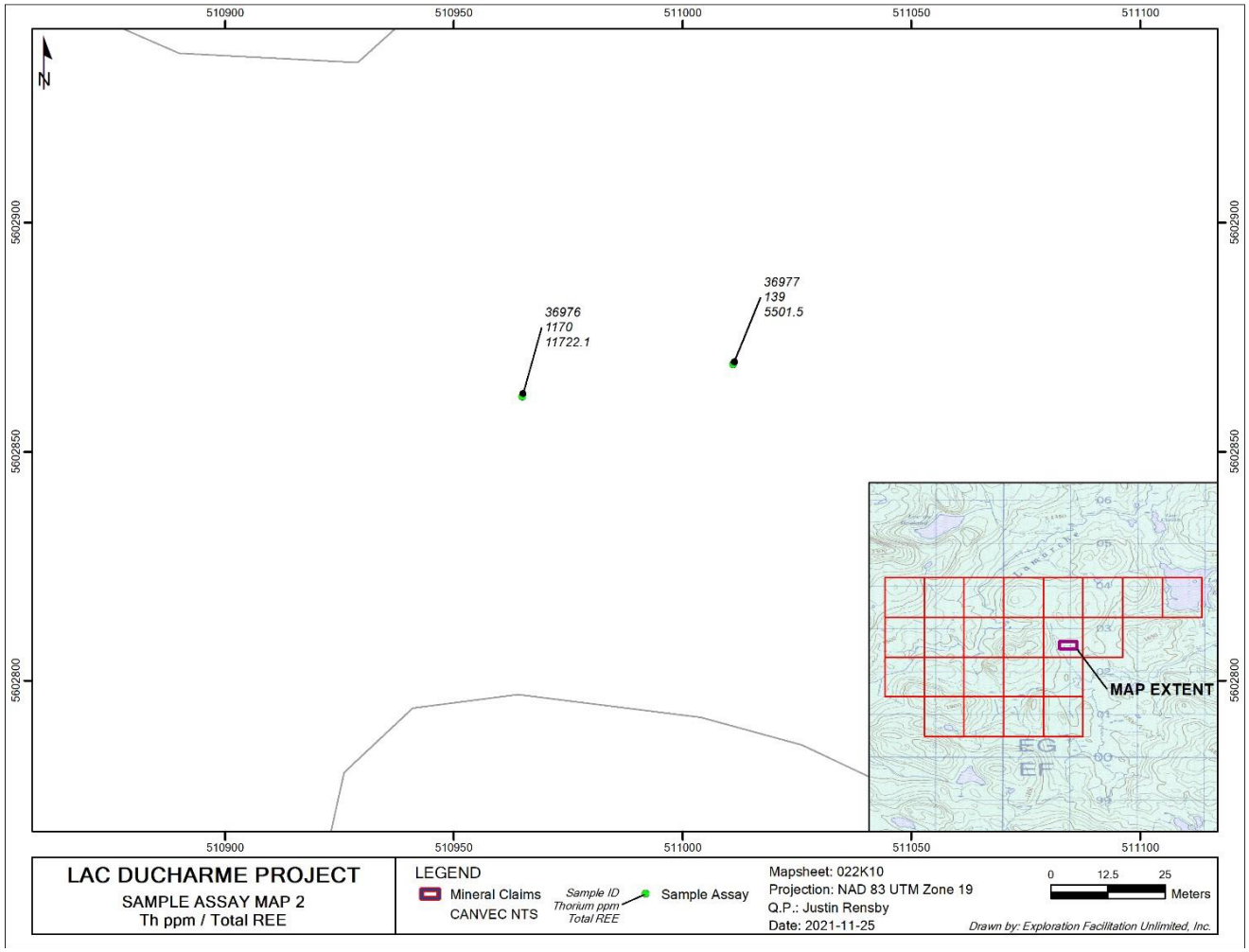


Figure 4. Lac Ducharme Eastern Prospecting Samples

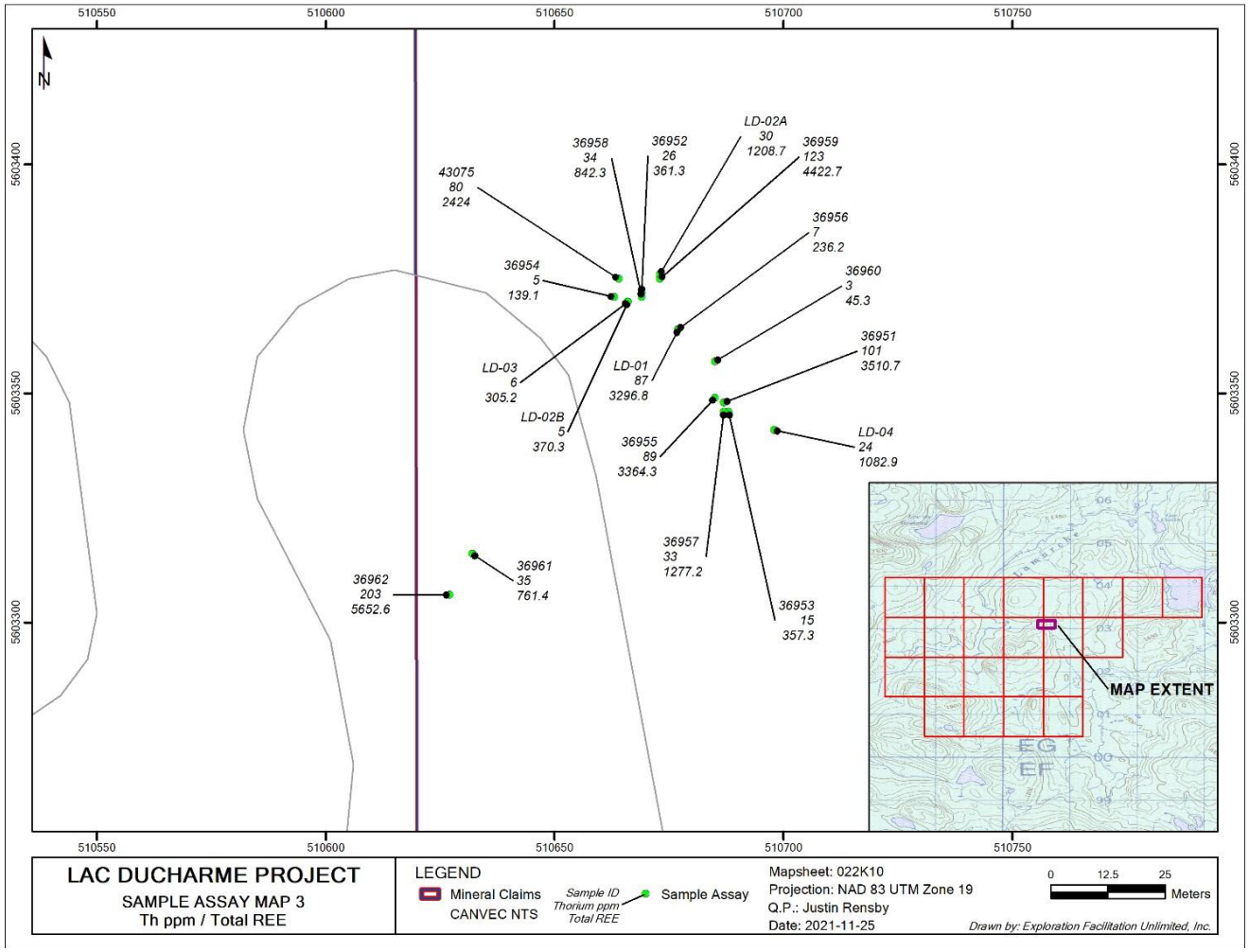


Figure 5. Lac Ducharme Northern Samples

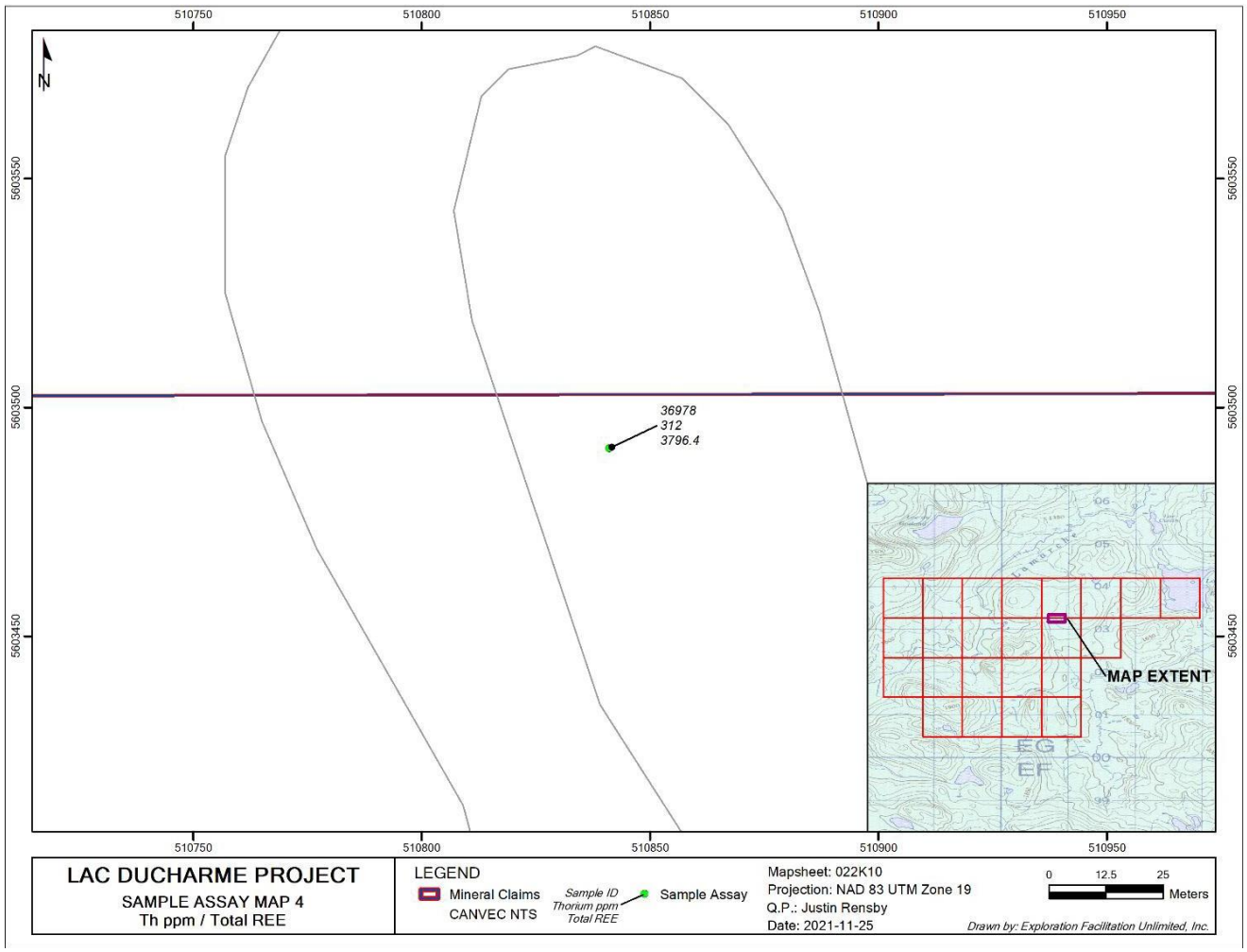


Figure 6. Lac Ducharme Northwestern Samples

APPENDIX B

Prospecting Sample Descriptions

Sample Number	Date	Sampled by	Easting	Northing	Device	CPS	Rock Description
43075	Sept 6	FR	510677	5603364	Scint	404	white amber black pegmatite dyke
36951	Sept 6	TG	510687	5683348	Scint	568	pink white black, pegmatite dyke
36952	Sept 6	KJ	510669	5603372	Scint	630	salmon white black pegmatite dyke
36953	Sept 6	KJ	510688	5603346	Scint	520	Amber white black pegmatite dyke
36954	Sept 6	FR	510663	5603371	Spec	411	white salmon black pegmatite dyke
36955	Sept 6	TG	510685	5603349	Scint	600	pink white black, pegmatite dyke
36956	Sept 6	KJ	510677	5603364	Scint	406	salmon white black pegmatite dyke
36957	Sept 6	FR	510687	5603346	Scint	400	salmon amber black pegmatite dyke
36958	Sept 7	TG	510669	5603371	Scint	370	salmon black white pegmatite dyke
36959	Sept 6	KJ	510673	5603375	Scint	794	orange amber black pegmatite dyke (taken from previous channel sample location)
36960	Sept 7	TG	510685	5603357	Scint	565	pink white black, pegmatite dyke
36961	Sept 7	TG	510632	5603315	Scint	580	pink white black, pegmatite dyke
36962	Sept 7	TG	510627	5603306	Scint	710	salmon white amber black, pegmatite dyke
36963	Sept 8	TG	510211	5601197	Scint	2450	salmon black white pegmatite dyke
36964	Sept 8	KJ	510211	5601196	Scint	2125	Amber salmon black pegmatite dyke
36965	Sept 7	FR	510225	5601196	Scint	697	salmon black white pegmatite dyke
36966	Sept 8	TG	510206	5601199	Scint	1133	pink white black, pegmatite dyke

36967	Sept 8	KJ	510208	5601198	Scint	2020	orange salmon black pegmatite dyke
36968	Sept 8	TG	510209	5601198	Scint	1816	pink white black, pegmatite dyke
36969	Sept 8	KJ	510209	5601195	Scint	1675	orange salmon black pegmatite dyke
36970	Sept 7	FR	510208	5601198	Spec	1401	salmon black white pegmatite dyke
36971	Sept 8	TG	510209	5601194	Scint	1189	salmon black white pegmatite dyke
36972	Sept 8	TG	510185	5601176	Scint	660	salmon amber black white pegmatite dyke
36973	Sept 9	KJ	510200	5601184	Spec		salmon black white pegmatite dyke
36974	Sept 9	FR	510195	5601166	Spec	1182	Amber salmon black pegmatite dyke
36975	Sept 9	TG	510205	5601175	Spec	418	salmon black white pegmatite dyke
36976	Sept 9	TG	510965	5602862	Spec	1115	salmon black white with white metalic vfg pegmatite dyke
36977	Sept 9	TG	511011	5602869	Spec	747	salmon black white pegmatite dyke
36978	Sept 9	TG	510841	5603491	Spec	1152	Amber white black pegmatite dyke

APPENDIX C

Backpack Drill Logs

Drill Hole	Easting	Northing	DOH (m)	Recovered	Sample(s)	Logged by	Notes
LD-001	510673	5603376	1.68	1.68	LD-01	JR	Salmon-semi-transparent-black mg to mostly cg pegmatite dyke. Minor local rubble. Gneissic banding at 45 TCA. Kspar 35%-Bt 30%-Qz 20%-Feld 10%. <<1% vfg specks of metallic silver brown.
LD-002	510666	5603370	1.76	1.72	LD-02A, LD-02B	JR	0.0-1.42m--Salmon-transparent-black vcg pegmatite dyke. Competent/ hard. Weak gneissosity at 40TCA. Weak foliation at 70 TCA. (Gp locally). Unidentified semi-transparent brown cg xtals and matrix 3%. **Sample LD-02A** 1.42-1.76m-- Hb-Feld-Gt gneiss. Gneissic banding at 40 TCA. Gt to 3mm. **Sample LD-02B**
LD-003	510664	5603375	1.28	1.28	LD-03	JR	Intersection of 3 dykes at surface. Light blue-green-black-pink, fg to cg metasediment. Feld 40%- Bt 25%-Gt 10%-Kspar 5%. Gt to 3mm. Weak gneissosity at 60 TCA. Qz stringers <2mm at 35 TCA. Local candy apple green specks to 2mm (2ndary Gt?).
LD-004	510698	5603342	0.53	0.53	LD-04	JR	Taken at the intersection of a vein and a pegmatite at surface. Salmon-transparent-black vcg granitic pegmatite. Kspar 35%-Qz 30%- Bt 30%. Grains fine with depth. Return lost at 0.53m

LD-005	510200	5601187	1.28	1.23	LD-05A, LD-05B	JR	0.0-0.88m-- Salmon- semi-transparent-beige, vcg pegmatite dyke. Kspar 35%-Qz 35%- Feld 25%- Bt 2% ?Ser? As semi-transparent beige blebs and fracture/ seam fill. (Py) as vfg disseminated xtals. **Sample LD-05A** 0.88-1.28m-- Black-white with a weak blue tint, mg to cg gneissic Hb-Feld gneiss. **Sample LD-05B**
LD-006	510184	5601189	0.99	0.87	LD-06	JR	Salmon-black-semi-transparent vcg pegmatite dyke. Kspar 40%-Qz 25%- Feld 15%- Bt 15%. Black interstitial mineral with red rims. Return lost at 0.99m
LD-007	510223	5601196	0.41	0.41	LD-07	JR	Salmon-grey-black, vcg pegmatite dyke. Kspar 30%-Feld 30 %-Qz 25%. Black interstitial mineralwith a red rim as blebs to 1cm and seam fill. Return lost at 0.41m.
LD-008	510220	5601196	0.98	0.98	LD-08A, LD-08B	JR	0.00-0.44m-- Salmon/ grey/ semi-transparent/ black vcg pegmatite dyke. Kspar 35%- Feld 25%- Bt 20%- Qz 15%. **Sample LD-08A.** 0.44-0.98m-- Black/ salmonfg to mg Sil 10% altered metapelite. Includes 20% vcg [egmatite dykes to 3cm in width. Foliation at 50 TCA with dykes subparallel to this. Bt 80%- Gt 10% to 1mm. **Sample LD-08B**
LD-009	510209	5601194	1.85	1.8	LD-09	JR	Salmon/ black/ white vcg pegmatite dyke. Kspar 30%-Feld 20%- Qz 20%- Bt 20%. 2% black mineral with a red rim.

LD-010	510207	5601197	2.24	2.24	LD-10A, LD-10B	JR	0.0-2.10m-- Salmon/ clear/ white/ black vcg pegmatite dyke. Kspar 35%- Qz 30%- Bt 15%. (vfg metallic champagne xtals). **Sample LD-10A 0.0-1.18m** 2.10-2.24m-- Black, fg to mg metapelite. Bt 85%. 15% pegmatite dykes to 15mm. **Sample LD-10B 1.18-2.24m**

APPENDIX D

Assay Certificates

Quality Analysis ... **Actlabs** *Innovative Technologies*

Report No.: A21-18542
Report Date: 26-Oct-21
Date Submitted: 04-Oct-21
Your Reference: Lac Ducharme

Tactical Resources
2288- 1177 West Hastings Street
Vancouver V6E 2K3
Canada

ATTN: Anna Hicken

CERTIFICATE OF ANALYSIS

47 Rock samples were submitted for analysis.

The following analytical package(s) were requested:		Testing Date:
8-REE Assay Package	QOP WRA/ QOP WRA 4B2 (Major/Trace Elements Fusion ICPOES/ICPMS)	2021-10-08 09:16:27

REPORT A21-18542

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

Notes:

Total includes all elements in % oxide to the left of total.

Footnote: Zr/Nb/Ta/Hf may be semi-quantitative for samples with P2O5 >0.3%.

SCC Accredited LAB
LAB Accrédité CCN
LabID: 266

CERTIFIED BY:

Emmanuel Eseme , Ph.D.
Quality Control Coordinator

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Results **Activation Laboratories Ltd.** **Report: A21-18542**

Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	LOI	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01		0.01	1	1	5	20	1	20	10	30	1	1	5
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	GRAV	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
LD-01	69.72	14.36	2.73	0.027	0.37	1.83	2.90	5.49	0.349	0.21	0.94	98.92	4	1	6	< 20	2	< 20	< 10	50	29	2	< 5
LD-02A	71.56	13.43	1.89	0.017	0.23	1.19	2.58	6.55	0.232	0.06	0.81	98.55	2	< 1	< 5	< 20	9	< 20	< 10	30	19	< 1	< 5
LD-02B	66.75	13.90	6.87	0.098	0.94	2.97	2.82	2.96	0.896	0.32	0.71	99.24	14	2	41	< 20	14	< 20	10	90	21	2	< 5
LD-03	66.58	14.33	4.85	0.052	0.67	2.54	2.77	5.19	0.734	0.30	0.57	98.58	7	2	34	< 20	7	< 20	< 10	90	21	1	< 5
LD-04	70.94	13.65	2.21	0.017	0.26	1.07	2.47	6.82	0.297	0.07	0.78	98.59	3	< 1	< 5	< 20	2	< 20	< 10	40	19	1	< 5
LD-05A	70.02	13.96	4.01	0.039	0.31	1.81	3.32	4.45	0.345	0.02	0.58	98.87	4	2	19	< 20	2	< 20	< 10	60	27	1	< 5
LD-05B	52.02	16.84	9.88	0.149	4.51	7.96	3.65	1.76	1.362	0.44	1.31	99.89	24	2	175	70	25	< 20	20	120	22	1	< 5
LD-06	71.03	13.98	2.16	0.018	0.18	0.81	2.70	6.56	0.127	< 0.01	0.83	98.40	2	3	< 5	< 20	6	< 20	30	40	21	1	< 5
36979	98.50	0.57	0.92	0.011	0.03	0.03	0.13	0.09	0.028	< 0.01	0.18	100.5	< 1	< 1	< 5	< 20	1	< 20	< 10	< 30	1	< 1	< 5
LD-07	65.00	14.73	8.09	0.058	0.09	2.02	3.93	3.95	0.681	0.01	0.26	98.82	3	4	30	< 20	4	< 20	< 10	130	33	1	< 5
LD-08A	66.40	13.70	7.06	0.047	0.26	1.71	3.13	5.03	0.641	0.28	0.46	98.71	3	3	29	< 20	5	< 20	20	70	28	1	< 5
LD-08B	57.95	14.00	10.34	0.133	2.02	4.48	2.88	4.13	2.011	1.19	1.06	100.2	13	4	87	< 20	15	< 20	< 10	170	26	1	< 5
LD-09	70.82	14.22	2.12	0.030	0.34	2.14	3.66	3.61	0.216	0.10	0.87	98.13	5	3	8	< 20	2	< 20	< 10	30	26	1	< 5
LD-10A	73.50	14.11	1.53	0.021	0.21	1.41	3.03	5.27	0.134	< 0.01	1.25	100.5	3	2	< 5	< 20	1	< 20	< 10	< 30	21	1	< 5
LD-10B	72.54	13.49	2.31	0.030	0.38	1.65	3.15	4.20	0.267	0.08	0.87	98.96	4	3	10	< 20	3	< 20	< 10	60	23	1	< 5
43075	66.93	15.64	2.98	0.034	0.28	2.07	3.21	5.89	0.310	0.27	0.87	98.48	4	3	7	< 20	2	< 20	< 10	80	27	< 1	< 5
36951	69.51	14.41	2.58	0.021	0.29	1.55	2.97	5.64	0.317	0.20	0.93	98.41	4	1	6	< 20	2	< 20	< 10	40	24	< 1	< 5
36952	73.73	11.99	2.27	0.015	0.23	0.73	1.78	6.27	0.373	0.04	1.23	98.66	2	< 1	5	< 20	1	< 20	< 10	40	18	< 1	< 5
36953	67.56	13.54	5.31	0.051	0.62	1.55	2.43	5.32	0.701	0.17	1.14	98.39	8	1	26	< 20	5	< 20	< 10	110	20	1	< 5
36980	31.30	11.29	46.12	0.093	1.71	1.78	0.23	0.28	2.989	0.80	1.63	98.21	43	2	403	580	12	50	50	190	44	2	36
36954	71.00	12.44	3.81	0.047	0.38	1.45	2.23	5.13	0.558	0.09	1.46	98.59	5	1	21	< 20	3	< 20	< 10	60	19	< 1	< 5
36955	70.74	14.57	2.19	0.023	0.24	1.74	3.17	4.80	0.265	0.10	0.84	98.66	3	1	7	< 20	2	< 20	< 10	30	31	2	< 5
36956	67.18	13.70	6.11	0.078	0.76	2.68	2.99	3.39	0.814	0.26	0.57	98.52	10	2	39	20	6	< 20	< 10	130	21	1	< 5
36957	71.10	14.16	2.13	0.017	0.23	0.83	2.52	6.70	0.271	0.05	0.55	98.57	2	< 1	< 5	< 20	14	< 20	< 10	40	20	< 1	< 5
36958	72.19	12.93	2.44	0.017	0.28	0.87	2.18	6.40	0.360	0.08	1.12	98.85	3	< 1	< 5	< 20	2	< 20	< 10	60	19	< 1	< 5
36959	68.78	14.34	2.98	0.022	0.38	1.64	2.71	5.89	0.424	0.21	0.92	98.29	5	< 1	6	< 20	2	< 20	< 10	50	27	< 1	< 5
36960	70.69	14.22	1.59	0.016	0.13	0.53	2.52	7.91	0.151	< 0.01	0.81	98.56	2	3	< 5	< 20	1	< 20	< 10	50	20	1	< 5
36961	72.64	12.40	1.85	0.018	0.16	0.69	1.99	6.89	0.233	0.07	3.53	100.5	2	< 1	< 5	< 20	27	< 20	10	370	20	1	< 5
36962	68.97	15.03	2.72	0.029	0.31	2.13	3.41	4.28	0.344	0.16	1.38	98.76	6	2	< 5	< 20	66	< 20	30	90	33	1	< 5
36963	71.79	14.12	2.56	0.035	0.34	2.27	3.68	2.79	0.237	< 0.01	1.06	98.88	6	3	10	< 20	2	< 20	< 10	40	31	1	< 5
36981	96.63	0.61	0.96	0.011	0.06	0.04	0.10	0.09	0.036	< 0.01	0.36	98.91	< 1	< 1	6	< 20	1	< 20	< 10	< 30	1	< 1	< 5
36964	67.07	15.47	5.26	0.065	0.72	2.79	4.34	1.84	0.609	< 0.01	1.20	99.37	11	3	20	< 20	10	< 20	30	100	40	1	< 5
36965	64.89	16.49	2.52	0.025	0.50	1.61	2.90	7.96	0.311	0.41	0.88	98.49	2	2	13	< 20	3	< 20	< 10	60	21	< 1	< 5
36966	70.66	15.97	2.04	0.031	0.29	3.17	4.76	1.19	0.164	0.05	1.01	99.32	5	4	10	< 20	192	< 20	710	50	30	1	< 5
36967	66.24	16.06	3.50	0.054	0.50	2.95	4.38	2.02	0.266	0.02	1.62	97.60	15	6	18	< 20	6	< 20	10	50	48	2	9
36968	67.46	14.65	4.65	0.058	0.72	2.72	3.85	1.75	0.542	0.03	1.65	98.08	12	3	20	< 20	73	< 20	270	90	39	1	< 5
36969	69.39	15.40	2.28	0.031	0.39	2.81	4.20	2.22	0.228	0.05	0.91	97.91	5	5	10	< 20	13	< 20	30	140	30	1	< 5
36970	71.29	13.88	2.77	0.035	0.39	2.20	3.56	2.55	0.247	0.02	1.24	98.18	6	3	10	< 20	68	< 20	250	50	30	1	< 5
36971	72.28	14.84	1.57	0.020	0.23	1.34	3.81	4.88	0.142	< 0.01	1.00	100.1	4	2	5	< 20	34	< 20	130	30	24	< 1	< 5
36972	71.75	12.35	4.27	0.037	0.20	1.17	2.73	4.69	0.407	0.01	1.13	98.76	3	3	20	< 20	3	< 20	< 10	40	25	1	< 5
36973	72.59	14.29	1.26	0.012	0.07	1.26	3.06	5.65	0.059	< 0.01	0.68	98.94	< 1	2	5	< 20	2	< 20	< 10	< 30	20	< 1	< 5
36982	30.88	11.09	47.72	0.093	1.69	1.79	0.22	0.28	2.967	0.80	1.59	99.12	42	2	400	600	13	40	60	160	45	2	38
36974	57.57	12.74	12.93	0.282	0.74	0.74	1.59	6.47	2.218	0.33	4.53	100.1	10	2	146	< 20	14	< 20	130	40	45	2	< 5
36975	69.19	13.70	5.09	0.035	0.99	0.95	3.12	5.11	0.551	0.20	1.67	100.6	5	2	22	< 20	5	< 20	10	340	24	2	< 5
36976	56.30	14.48	12.35	0.132	1.45	4.06	2.92	3.49	1.801	1.14	0.43	98.56	30	1	80	< 20	10	< 20	10	200	45	3	8
36977	56.30	17.91	12.15	0.291	0.58	4.30	3.21	3.86	0.887	0.19	-0.29	99.38	12	5	21	< 20	5	< 20	< 10	330	43	2	< 5
36978	68.46	14.33	2.87	0.025	0.23	1.29	2.13	6.87	0.475	0.04	1.34	98.06	5	< 1	44	< 20	2	< 20	< 10	40	26	1	< 5

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Results **Activation Laboratories Ltd.** **Report: A21-18542**

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1
Method Code	FUS-MS	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
LD-01	117	172	23	1176	8	4	< 0.5	< 0.2	1	< 0.5	< 0.5	622	< 0.4	887	1610	165	520	52.9	2.80	18.3	1.7	7.0	1.0
LD-02A	139	166	8	162	5	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	740	< 0.4	328	592	59.3	186	19.1	2.48	7.0	0.7	2.6	0.3
LD-02B	89	178	55	510	18	< 2	< 0.5	< 0.2	1	< 0.5	< 0.5	997	< 0.4	61.0	117	14.4	56.0	11.2	1.85	9.9	1.7	10.6	2.2
LD-03	127	218	24	271	12	2	< 0.5	< 0.2	< 1	< 0.5	0.5	1457	< 0.4	59.2	117	13.6	52.2	9.4	2.22	7.4	1.0	5.3	1.0
LD-04	143	160	7	250	5	3	< 0.5	< 0.2	< 1	< 0.5	< 0.5	806	< 0.4	293	532	53.3	164	17.4	2.61	6.2	0.6	2.2	0.3
LD-05A	110	252	30	477	5	< 2	< 0.5	< 0.2	1	< 0.5	0.5	477	< 0.4	689	1330	147	486	63.6	2.44	27.2	2.6	10.1	1.4
LD-05B	47	711	31	179	11	< 2	< 0.5	< 0.2	2	< 0.5	0.6	543	< 0.4	52.6	109	13.2	51.8	9.9	2.25	7.5	1.1	6.6	1.2
LD-06	212	205	24	191	9	< 2	< 0.5	< 0.2	< 1	< 0.5	2.2	631	< 0.4	229	412	44.7	149	19.9	1.50	10.1	1.2	5.9	1.0
36979	3	5	3	39	1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	25	< 0.4	3.6	6.1	0.71	2.6	0.5	0.08	0.5	< 0.1	0.5	0.1
LD-07	97	201	8	149	18	2	< 0.5	< 0.2	2	< 0.5	0.7	486	< 0.4	138	238	26.8	88.3	11.3	1.43	5.0	0.5	2.2	0.3
LD-08A	124	248	30	403	10	< 2	< 0.5	< 0.2	1	< 0.5	0.6	670	< 0.4	169	340	36.8	126	19.7	1.63	11.4	1.5	7.3	1.2
LD-08B	125	555	48	335	29	2	< 0.5	< 0.2	4	< 0.5	1.9	1959	< 0.4	73.2	164	21.3	88.7	17.8	3.94	13.6	1.9	10.4	1.8
LD-09	105	219	40	2190	9	< 2	< 0.5	< 0.2	< 1	< 0.5	0.8	417	< 0.4	777	1460	161	536	70.1	2.55	30.6	3.0	12.2	1.8
LD-10A	134	202	24	906	6	< 2	< 0.5	< 0.2	< 1	< 0.5	0.8	600	< 0.4	541	1020	110	361	45.8	2.17	19.3	1.8	7.2	1.0
LD-10B	134	183	22	680	11	< 2	< 0.5	< 0.2	1	< 0.5	1.4	447	< 0.4	277	539	58.4	198	27.3	1.59	12.8	1.3	5.8	0.9
43075	158	156	29	156	11	2	< 0.5	< 0.2	1	< 0.5	1.1	549	< 0.4	636	1170	121	385	42.8	2.33	17.9	1.8	7.9	1.2
36951	121	173	22	629	5	23	< 0.5	< 0.2	< 1	< 0.5	< 0.5	661	< 0.4	941	1720	178	552	56.5	3.06	20.2	1.9	7.3	1.0
36952	137	132	4	292	6	13	< 0.5	< 0.2	< 1	< 0.5	0.5	724	< 0.4	92.5	181	17.3	52.5	5.6	1.81	2.2	0.2	1.0	0.2
36953	135	175	26	277	11	5	< 0.5	< 0.2	< 1	< 0.5	< 0.5	1121	< 0.4	72.4	155	15.0	51.2	7.7	2.03	5.6	0.9	5.3	1.1
36980	13	557	82	524	1040	47	< 0.5	0.6	24	2.5	0.7	980	2.5	2710	3600	487	1660	223	47.7	93.2	9.1	35.4	4.5
36954	118	169	18	258	13	6	< 0.5	< 0.2	< 1	< 0.5	0.5	1231	< 0.4	26.2	49.2	5.13	18.1	3.2	1.80	2.9	0.5	3.5	0.7
36955	106	176	18	691	6	10	< 0.5	< 0.2	1	< 0.5	< 0.5	613	< 0.4	898	1670	167	522	54.1	2.87	17.5	1.5	6.3	0.8
36956	102	215	38	441	16	2	< 0.5	< 0.2	< 1	< 0.5	0.7	1199	< 0.4	32.9	72.5	8.77	36.6	8.1	2.00	7.6	1.2	7.4	1.5
36957	142	156	7	247	5	6	1.6	< 0.2	< 1	< 0.5	< 0.5	772	< 0.4	346	632	63.0	193	19.9	2.56	7.0	0.6	2.5	0.3
36958	142	148	7	264	7	19	< 0.5	< 0.2	< 1	< 0.5	0.5	710	< 0.4	220	420	40.8	127	13.4	2.07	5.0	0.5	2.0	0.3
36959	128	185	25	648	6	5	< 0.5	< 0.2	< 1	< 0.5	< 0.5	673	< 0.4	1180	2170	225	701	71.5	3.12	26.0	2.4	8.6	1.1
36960	214	117	5	21	7	< 2	< 0.5	< 0.2	1	< 0.5	2.4	678	< 0.4	10.0	16.5	1.55	4.8	0.7	1.72	0.6	0.1	0.8	0.2
36961	158	138	7	845	6	3	0.5	< 0.2	1	< 0.5	0.7	725	< 0.4	188	387	36.8	115	13.0	2.31	4.9	0.5	2.3	0.4
36962	104	191	37	781	7	16	4.8	< 0.2	1	< 0.5	0.6	470	< 0.4	1470	2800	287	897	93.9	3.61	34.3	3.1	12.5	1.6
36963	85	207	46	583	8	< 2	< 0.5	< 0.2	1	< 0.5	0.5	212	< 0.4	1100	2180	245	830	112	3.31	49.2	4.7	17.3	2.2
36981	3	4	5	43	1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	23	< 0.4	4.1	7.8	0.87	3.0	0.5	0.06	0.6	0.1	0.7	0.1
36964	90	229	58	1493	22	< 2	< 0.5	< 0.2	3	< 0.5	1.0	157	< 0.4	1710	3380	363	1180	150	4.17	60.1	5.7	21.1	2.7
36965	164	455	27	116	6	< 2	< 0.5	< 0.2	1	< 0.5	0.7	1912	< 0.4	196	384	40.9	138	21.0	2.10	11.8	1.4	6.5	1.0
36966	33	278	46	3144	6	< 2	< 0.5	< 0.2	68	< 0.5	< 0.5	162	< 0.4	1010	1980	216	705	91.4	3.15	38.3	3.8	14.1	2.0
36967	66	320	170	6804	13	< 2	< 0.5	0.2	2	< 0.5	0.6	176	< 0.4	2840	5680	624	2120	289	6.66	124	12.3	49.9	6.9
36968	77	254	75	2692	18	< 2	< 0.5	< 0.2	26	< 0.5	1.2	239	< 0.4	1770	3540	385	1280	173	4.40	71.6	6.9	26.2	3.4
36969	71	246	47	5114	11	< 2	< 0.5	< 0.2	3	< 0.5	0.8	276	< 0.4	808	1570	166	542	69.8	2.77	29.4	3.0	12.6	2.0
36970	81	217	41	4194	9	< 2	0.7	< 0.2	23	< 0.5	0.7	326	< 0.4	1150	2240	242	786	96.9	2.91	37.9	3.5	13.9	1.9
36971	103	214	27	1001	5	< 2	< 0.5	< 0.2	12	< 0.5	< 0.5	475	< 0.4	596	1200	128	423	56.4	2.08	23.3	2.3	9.1	1.1
36972	149	165	10	770	16	< 2	< 0.5	< 0.2	2	< 0.5	2.4	448	< 0.4	88.4	176	18.0	58.9	7.8	1.03	3.6	0.4	2.3	0.4
36973	141	191	8	232	2	10	< 0.5	< 0.2	< 1	< 0.5	0.5	616	< 0.4	174	341	35.4	114	14.5	1.45	5.8	0.6	2.4	0.3
36982	13	570	87	556	1070	48	< 0.5	0.6	26	2.7	0.7	984	2.7	2770	3670	506	1730	231	49.1	94.5	9.2	36.3	4.6
36974	160	186	45	1975	41	7	< 0.5	< 0.2	2	< 0.5	3.0	828	< 0.4	161	301	33.7	117	17.5	1.29	10.2	1.5	8.3	1.6
36975	125	206	26	644	16	< 2	< 0.5	< 0.2	2	< 0.5	0.5	993	< 0.4	211	432	45.7	156	22.0	2.44	11.1	1.4	6.8	1.1
36976	94	98	235	668	43	3	< 0.5	0.3	< 1	< 0.5	< 0.5	447	< 0.4	2670	5410	603	2210	287	2.52	150	14.9	63.0	9.2
36977	96	183	599	2286	192	22	< 0.5	0.5	1	< 0.5	< 0.5	1246	< 0.4	999	2030	251	962	179	8.80	142	22.7	132	24.6
36978	166	258	27	141	9	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	1986	< 0.4	984	1860	192	614	68.4	3.05	26.8	2.2	8.5	1.1

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Analyte Symbol	Er	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.1	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
LD-01	1.9	0.26	1.7	0.26	28.9	0.2	< 1	0.9	39	87.3	2.1
LD-02A	0.7	0.08	0.4	0.07	3.7	0.2	< 1	0.8	40	29.5	0.5
LD-02B	6.8	1.00	6.6	1.05	12.1	1.1	3	0.5	19	5.3	0.7
LD-03	2.6	0.38	2.5	0.40	6.3	1.1	< 1	0.6	27	5.8	0.6
LD-04	0.6	0.08	0.5	0.08	5.4	0.2	< 1	0.7	38	24.1	0.7
LD-05A	2.7	0.33	1.9	0.31	11.6	0.3	< 1	0.7	33	117	2.4
LD-05B	3.6	0.51	3.1	0.50	4.3	0.8	1	0.2	6	6.2	0.7
LD-06	2.4	0.30	1.9	0.31	5.1	0.8	< 1	1.4	56	39.9	2.2
36979	0.4	0.05	0.3	0.05	0.9	0.2	< 1	< 0.1	< 5	1.3	0.4
LD-07	0.8	0.11	0.8	0.13	3.7	1.4	< 1	0.4	36	19.0	2.7
LD-08A	3.1	0.38	2.2	0.35	10.1	0.7	< 1	0.6	31	29.4	1.4
LD-08B	4.7	0.67	4.1	0.60	3.8	2.1	< 1	0.6	20	9.1	2.2
LD-09	4.0	0.55	3.6	0.61	54.6	0.5	< 1	0.5	30	134	4.4
LD-10A	2.2	0.29	1.8	0.30	21.0	0.3	< 1	0.7	37	88.0	2.5
LD-10B	2.3	0.34	2.1	0.34	17.7	0.7	< 1	0.6	34	48.8	2.1
43075	2.6	0.32	1.9	0.29	3.7	0.6	< 1	0.8	41	79.7	2.1
36951	2.0	0.23	1.3	0.21	14.1	0.1	< 1	0.6	35	101	1.9
36952	0.5	0.06	0.4	0.06	6.9	0.2	< 1	0.6	33	26.2	0.5
36953	3.0	0.45	3.1	0.47	6.3	0.8	< 1	0.6	29	14.8	0.5
36980	8.4	0.88	4.1	0.58	10.7	21.6	3	< 0.1	107	211	4.8
36954	2.1	0.31	2.1	0.35	5.6	0.6	< 1	0.5	29	5.4	0.5
36955	1.5	0.20	1.3	0.22	16.9	0.2	< 1	0.4	34	89.1	1.8
36956	4.2	0.62	4.1	0.68	9.8	1.1	< 1	0.4	24	7.0	0.6
36957	0.7	0.09	0.5	0.09	5.6	0.2	< 1	0.6	39	32.8	0.9
36958	0.6	0.09	0.5	0.08	6.1	0.2	< 1	0.6	37	34.4	0.6
36959	2.1	0.24	1.4	0.22	14.2	0.2	< 1	0.5	33	123	1.9
36960	0.5	0.09	0.6	0.10	0.5	0.5	< 1	1.1	47	2.9	0.5
36961	0.9	0.15	1.0	0.18	23.0	0.2	< 1	0.7	46	34.9	1.4
36962	3.4	0.43	2.4	0.39	17.8	0.3	< 1	0.4	31	203	3.1
36963	4.0	0.45	2.4	0.37	14.8	0.3	< 1	0.3	23	223	3.0
36981	0.4	0.07	0.5	0.07	1.2	0.2	< 1	< 0.1	< 5	1.7	0.4
36964	5.2	0.62	3.5	0.56	37.5	0.6	< 1	0.3	20	309	4.6
36965	2.3	0.29	1.5	0.22	2.7	0.3	< 1	0.8	46	61.4	0.8
36966	4.5	0.64	4.1	0.69	76.2	0.3	< 1	< 0.1	21	214	6.3
36967	15.9	2.18	14.5	2.31	168	0.9	< 1	0.2	27	602	19.4
36968	6.8	0.87	4.9	0.79	66.9	0.5	< 1	0.3	19	372	6.9
36969	5.3	0.85	6.4	1.10	132	1.1	< 1	0.2	28	172	9.9
36970	4.2	0.64	4.4	0.75	110	0.4	< 1	0.2	28	217	6.6
36971	2.4	0.30	1.9	0.29	24.2	0.2	< 1	0.4	31	148	2.6
36972	1.1	0.17	1.2	0.21	18.8	1.4	< 1	0.7	36	42.8	1.8
36973	0.7	0.10	0.6	0.09	5.5	0.2	1	0.6	36	41.0	0.9
36982	8.1	0.87	4.6	0.59	11.5	22.0	3	< 0.1	112	219	5.0
36974	4.7	0.68	4.5	0.74	44.6	2.0	1	1.3	44	149	6.5
36975	2.5	0.31	2.0	0.33	16.1	0.6	< 1	0.7	30	45.3	1.8
36976	20.2	2.39	13.1	1.75	13.8	2.3	< 1	0.7	29	1170	16.4
36977	67.3	8.95	54.6	8.56	48.7	7.4	< 1	0.6	35	139	17.7
36978	2.2	0.27	1.6	0.26	3.1	0.5	< 1	0.8	24	312	1.9

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Analyte Symbol	SiO2	Al2O3	Fe2O3(T)	MnO	MgO	CaO	Na2O	K2O	TiO2	P2O5	Total	Sc	Be	V	Cr	Co	Ni	Cu	Zn	Ga	Ge	As	Rb
Unit Symbol	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	0.01	0.01	0.001	0.01	0.01	0.01	0.01	0.001	0.01	0.01	1	1	5	20	1	20	10	30	1	1	5	2
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas	11.27	1.89	0.73	0.010	0.35	43.31	0.88	0.55	0.120	30.25				1667									
NIST 694 Cert	11.2	1.80	0.790	0.0116	0.330	43.6	0.860	0.510	0.110	30.2				1740									
DNC-1 Meas	47.72	18.76	9.94	0.150	10.11	11.38	1.95	0.23	0.490	0.05		31		157									
DNC-1 Cert	47.15	18.34	9.97	0.150	10.13	11.49	1.890	0.234	0.480	0.070		31		148									
SY-4 Meas	50.35	20.70	6.22	0.110	0.51	8.01	7.02	1.69	0.290	0.13		< 1	3	7					80	35			55
SY-4 Cert	49.9	20.69	6.21	0.108	0.54	8.05	7.10	1.66	0.287	0.131		1.1	2.6	8.0					93	35			55.0
BIR-1a Meas	48.23	15.39	11.37	0.170	9.60	13.54	1.81	0.02	0.970	0.01		44	< 1	336	400	54	180	130	70	15			
BIR-1a Cert	47.96	15.50	11.30	0.175	9.700	13.30	1.82	0.030	0.96	0.021		44	0.58	310	370	52	170	125	70	16			
ZW-C Meas															60				1020	93			8410
ZW-C Cert															56.0				1050	99			8500
OREAS 101b (Fusion) Meas																45		420					
OREAS 101b (Fusion) Cert																47		420					
NCS DC86318 Meas																							382
NCS DC86318 Cert																							369.42
NCS DC86318 Meas																							382
NCS DC86318 Cert																							369.42
SARM 3 Meas																							
SARM 3 Cert																							
USZ 25-2006 Meas																34	70		640				
USZ 25-2006 Cert																32.5	70.8		600				
USZ 42-2006 Meas																4	< 20	20	440				
USZ 42-2006 Cert																7.89	13.18	27.37	469				
REE-1 Meas															290			80				128	1040
REE-1 Cert															277			79.7				124	1050
LD-10B Orig	72.57	13.65	2.33	0.031	0.39	1.64	3.20	4.28	0.271	0.08	99.32	4	3	10	< 20	3	< 20	< 10	70	23	1	< 5	136
LD-10B Dup	72.51	13.34	2.29	0.030	0.37	1.65	3.10	4.12	0.264	0.08	98.61	4	3	10	< 20	3	< 20	< 10	50	22	1	< 5	131
36964 Orig	66.66	15.73	5.26	0.065	0.73	2.75	4.47	1.89	0.615	< 0.01	99.36	12	3	20	< 20	11	< 20	30	90	39	1	< 5	88
36964 Dup	67.49	15.22	5.25	0.066	0.72	2.82	4.21	1.79	0.602	< 0.01	99.37	11	3	20	< 20	9	< 20	20	100	41	1	< 5	91
Method Blank	0.04	< 0.01	< 0.01	0.003	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01		< 1	< 1	< 5	< 20	< 1	< 20	< 10	< 30	< 1	< 1	< 5	< 2
Method Blank	0.01	< 0.01	< 0.01	0.003	< 0.01	0.02	< 0.01	< 0.01	< 0.001	< 0.01		< 1	< 1	< 5									
Method Blank	0.01	< 0.01	< 0.01	0.003	< 0.01	< 0.01	< 0.01	< 0.01	< 0.001	< 0.01		< 1	< 1	< 5									

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Analyte Symbol	Sr	Y	Zr	Nb	Mo	Ag	In	Sn	Sb	Cs	Ba	Bi	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	2	2	4	1	2	0.5	0.2	1	0.5	0.5	3	0.4	0.1	0.1	0.05	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1
Method Code	FUS-ICP	FUS-ICP	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-ICP	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas																							
NIST 694 Cert																							
DNC-1 Meas	147	15	34								108												
DNC-1 Cert	144.0	18.0	38								118												
SY-4 Meas	1200	114	531	14						1.5	350		59.4	126	14.7	57.6	13.3	1.95	14.0	2.7	19.0	4.3	14.0
SY-4 Cert	1191	119	517	13						1.5	340		58	122	15.0	57	12.7	2.00	14.0	2.6	18.2	4.3	14.2
BIR-1a Meas	107	13	14	< 1					0.5		8			1.9		2.4	1.1	0.57	1.8				
BIR-1a Cert	110	16	18	0.6					0.58		6			1.9		2.5	1.1	0.55	2.0				
ZW-C Meas				212				1290	4.4	263			30.4	102	9.50	24.9	6.8		4.5				
ZW-C Cert				198				1300	4.2	260			30.0	97	9.5	25.0	6.6		4.70				
OREAS 101b (Fusion) Meas					20								799	1320	125	376	48.0	7.64		5.1	30.9	6.1	18.1
OREAS 101b (Fusion) Cert					21								789	1331	127	378	48	7.77		5.37	32.1	6.34	18.7
NCS DC86318 Meas										11.4			1890	413	712	3180	1630	18.3	2120	476	3030	564	1680
NCS DC86318 Cert										11.88			1960	432	737	3429	1725	18.91	2168	468	3224	560	1750
NCS DC86318 Meas										11.4			1890	413	712	3180	1630	18.3	2120	476	3030	564	1680
NCS DC86318 Cert										11.88			1960	432	737	3429	1725	18.91	2168	468	3224	560	1750
SARM 3 Meas				1040																			
SARM 3 Cert				978																			
USZ 25-2006 Meas																							
USZ 25-2006 Cert																							
USZ 42-2006 Meas				35	36								20500	27500	2250	6270	504	85.0				7.5	
USZ 42-2006 Cert				31.00	34.40								21100	27600	2300	6500	539	87.22				7.86	
REE-1 Meas								499		1.1			1660	3920	440	1470	393	23.8	417	110	877	206	709
REE-1 Cert								498		1.07			1661	3960	435	1456	381	23.5	433	106	847	208	701
LD-10B Orig	187	22	719	11	< 2	< 0.5	< 0.2	1	< 0.5	1.4	454	< 0.4	283	551	60.0	202	27.9	1.61	13.0	1.3	5.9	0.9	2.3
LD-10B Dup	179	21	642	11	< 2	< 0.5	< 0.2	1	< 0.5	1.4	440	< 0.4	271	526	56.7	194	26.8	1.56	12.7	1.3	5.7	0.9	2.3
36964 Orig	234	58	1504	22	< 2	< 0.5	< 0.2	4	< 0.5	1.0	160	< 0.4	1680	3350	359	1160	146	4.15	59.0	5.7	20.5	2.6	5.2
36964 Dup	224	57	1482	23	< 2	< 0.5	< 0.2	2	< 0.5	1.1	154	< 0.4	1730	3420	368	1200	153	4.19	61.2	5.7	21.7	2.7	5.2
Method Blank	< 2	< 2	< 4	< 1	< 2	< 0.5	< 0.2	< 1	< 0.5	< 0.5	< 3	< 0.4	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Method Blank	< 2	< 2	< 4								< 3												
Method Blank	< 2	< 2	< 4								< 3												

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Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Tl	Pb	Th	U
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.05	0.1	0.04	0.2	0.1	1	0.1	5	0.1	0.1
Method Code	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS	FUS-MS
NIST 694 Meas										
NIST 694 Cert										
DNC-1 Meas										
DNC-1 Cert										
SY-4 Meas	2.23	14.9	2.21	10.2	0.8			12		0.7
SY-4 Cert	2.3	14.8	2.1	10.6	0.9			10		0.8
BIR-1a Meas		1.7		0.6				< 5		
BIR-1a Cert		1.7		0.60				3		
ZW-C Meas					82.6	327	33.8			19.2
ZW-C Cert					82	320	34			20.0
OREAS 101b (Fusion) Meas	2.63	17.0	2.55						36.0	400
OREAS 101b (Fusion) Cert	2.66	17.6	2.58						37.1	396
NCS DC86318 Meas	258	1710	244						65.2	
NCS DC86318 Cert	271	1844	264						67.0	
NCS DC86318 Meas	258	1710	244						65.2	
NCS DC86318 Cert	271	1844	264						67.0	
SARM 3 Meas										
SARM 3 Cert										
USZ 25-2006 Meas								994	< 0.1	
USZ 25-2006 Cert								1100	218	
USZ 42-2006 Meas		17.5						1520	927	
USZ 42-2006 Cert		17.85						1600	946	
REE-1 Meas	110	698		467					760	143
REE-1 Cert	106	678		479					719	137
LD-10B Orig	0.36	2.2	0.34	18.8	0.7	< 1	0.6	30	49.7	2.2
LD-10B Dup	0.32	2.1	0.34	16.7	0.7	< 1	0.6	37	47.9	2.0
36964 Orig	0.62	3.6	0.58	37.1	0.6	< 1	0.3	19	304	4.6
36964 Dup	0.62	3.5	0.53	37.9	0.6	< 1	0.4	20	314	4.6
Method Blank	< 0.05	< 0.1	< 0.04	< 0.2	< 0.1	< 1	< 0.1	< 5	< 0.1	< 0.1
Method Blank										
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