

AR 2012-017

2011 Assessment Report for

Licenses 08997

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1.0 Summary

License 09887 is located in a mafic-felsic volcanic and plutonic suite of rocks in the Cobequid highlands. Recent discoveries of anomalous REE indicator minerals (Th, Zr, Y, Nb) in such rocks as well as the recent discovery of epithermal gold in the region (MacHattie, 2011) make this area a strong candidate for discovery of either type of deposit.

The 2011 work program focused on collecting spectrometer, rock and soil data. First pass work included completing a roadway spectrometer survey. Second phase work was to return to positive radiometric anomalies discovered in phase 1 and do more detailed work. This work included collecting soil samples as well as additional more detailed spectrometer data along lines in the anomaly areas.

Two anomalous areas from the spectrometer survey were selected for phase 2 work. Three traverses were completed in the two radiometric anomalous areas. Each traverse involved collecting soil samples and additional spectrometer data.

Additional spectrometer work confirmed the anomalies while soil sampling over the anomalies yielded some interesting results.

Strong Y anomalies (over 800 uncorrected ppm Y) were observed in only one of the 3 soil sample areas, but 3 of the 4 strong Y anomalies also showed high thorium values.

Au kicks (over 20ppm uncorrected ppm Au) were observed in 12 of the soil sample sites.

Rock samples showed some high readings for thorium but not for any other REE or Au indicators.

2.0 Introduction

Rare earth element (REE) mineralization has been discovered in the Cobequid Highlands (MacHattie, 2010a). As such, regional exploration of the Hart Lake-Byers Lake granite body and overlying Byers Brook Formation is warranted.

Epithermal gold mineralization has also recently been discovered in silicified basalts of the Diamond Brook Formation which overlies the Byers Brook Formation (MacHattie, 2011). As such, prospecting was completed for gold in the upper layers of the Byers Brook Formation and along the Diamond Brook Formation contact.

License 08997 is geology situated near the eastern extent of the Hart Lake-Byers Lake granite with the southern portion of the licence extending across the Rockland Brook Fault (see figure 2).

The 2011 work program included a full spectrometer survey of all roadways as well as collection of rock and soil samples. Upon completion of the spectrometer survey, soil samples and more detailed spectrometer data was collected over anomalies discovered as part of the roadway spectrometer survey.

Prospecting was greatly assisted by the use of two important tools, an Olympus Innovx portable DP-6000 X-ray fluorescence analyzer (XRF) and a Radiation Solutions RS-230 Spectrometer. The XRF was used to analyze rocks and soil samples for Au and REE indicators (See Table 2 below), while the spectrometer was used to look for elevated radiometrics (Thorium) which are known indicators of REE mineralization (MacHattie, 2010). XRF results at this point remain uncorrected due to the lack of a known set of assayed reference samples to analyze and generate XRF correction factors. Due to this, results must be evaluated for anomalies rather than assuming absolute values.

3.0 Location and Access

Best access to license 08997 is from the south via Upper Belmont Road which is accessed by taking Exit 13 off of Highway 104, proceeding north on McElmon Road for approximately 1 km, and veering right onto Plains Road. Follow Plains Road for several kilometers until the junction with Belmont Road, then turn left onto Belmont Road and proceed for several km's through the community of Belmont until you get to Upper Belmont Road. It will be a dirt road to the right in the community of Staples Brook. Several trails provided further access to the property.

License 08997 Location Map

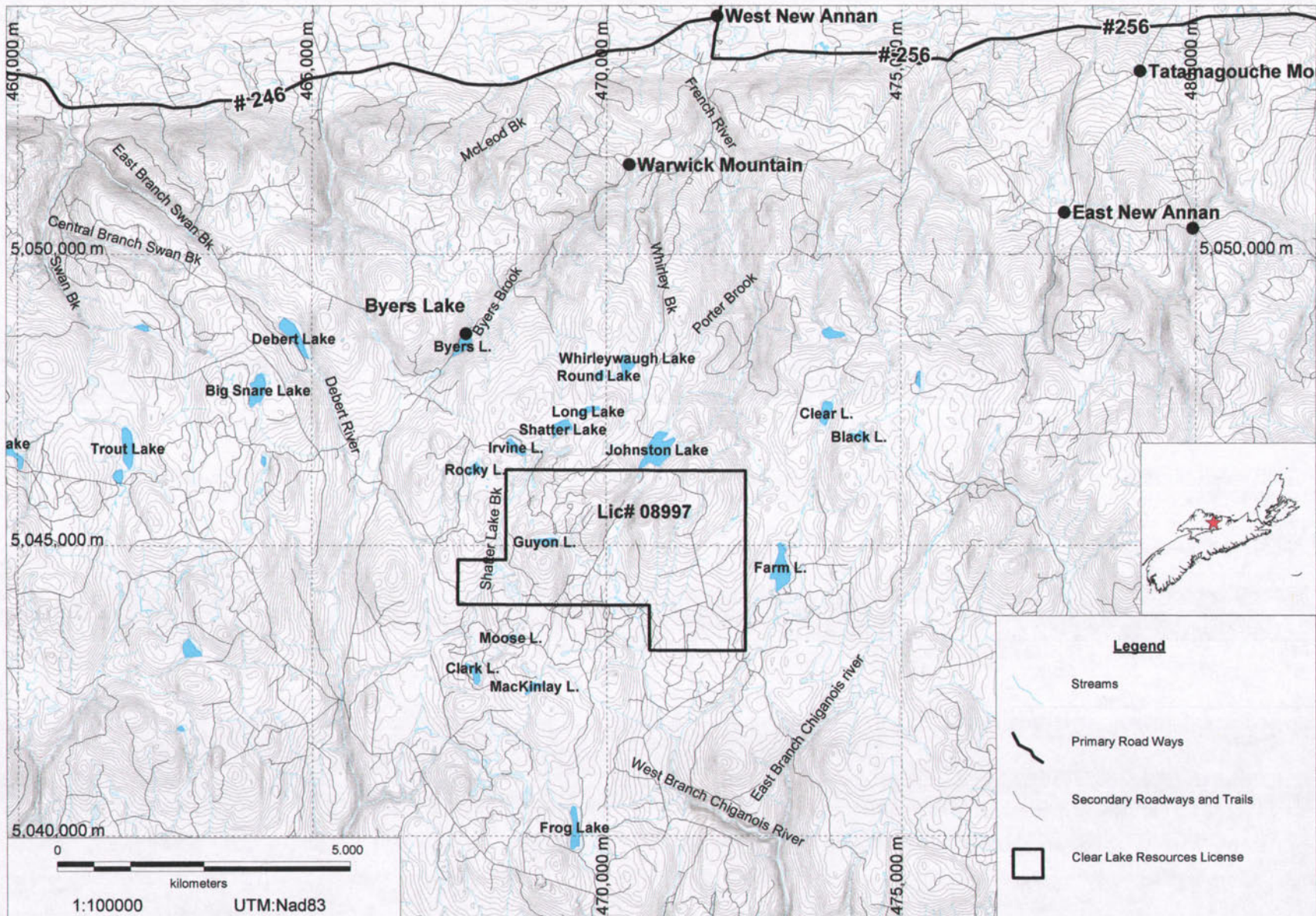


Figure 1

4.0 License Tabulation

License 08997 is composed of 72 claims. A detailed breakdown of the claims is listed in Table 1 below.

Table 1-Tabulation of Exploration License 08997 claims and tracts

License #	NTS Map Sheet	Tract	Claims	Date of issue
08997	11E/11B	41	JKLMNOPQ	02/02/2010
08997	11E/11B	42	JKLMNOPQ	02/02/2010
08997	11E/11B	43	ABCDEFGH JKLMNOPQ	02/02/2010
08997	11E/11B	54	ABCDEFGH JKLMNOPQ	02/02/2010
08997	11E/11B	55	ABCDEFGH JKLMNOPQ	02/02/2010
08997	11E/11B	56	ABGHJKPQ	02/02/2010

5.0 Previous Work

During the late 1970's and early 1980's Gulf Minerals Canada Ltd. carried out an extensive exploration program for Uranium in the Cobequid highlands. Gulf's program included geological mapping, soil and rock sampling, trenching, and drilling. Gulf also carried out ground and airborne gamma ray spectrometry surveys as well as a VLF-EM- magnetometer survey. Unfortunately, Gulf's work was focused to the west of licence 08997.

6.0 Local and Regional Geology

Regional geology of the area is dominated by four Late Devonian-Early Carboniferous mafic-felsic volcanic and plutonic units as shown in plate 1. This suite of rocks is bound to the north by unconformably overlying late Carboniferous rocks of the Cumberland Basin and to the south by the Rockland Brook fault (RBF) (MacHattie, 2010a). From east to west the units are: the Folly Lake gabbro-diorite (DCd), the Hart Lake-Byers Lake granite (Cg), the Byers Brook Formation (DCB) and the Diamond Brook Formation (DCD).

Locally, the RBF cuts the southern portion of the property. This section of the fault has been interpreted to be a ductile shear zone (Pe-Piper, 1989). The remainder of the property is composed of the Hart Lake-Byers Lake granite with a small window of Byers Brook Formation Rhyolite.

Licence 08997 Regional Geology

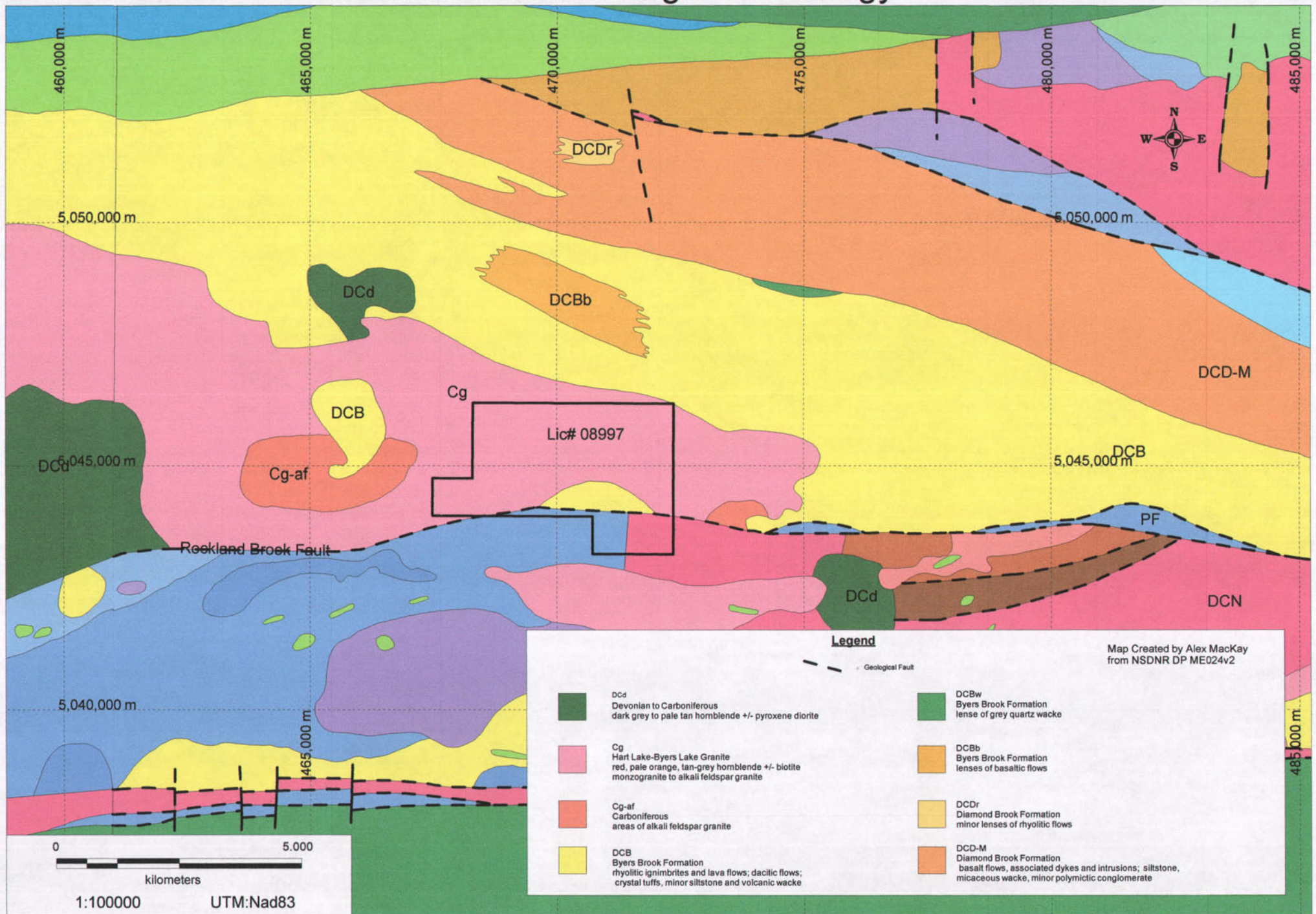


Figure 2

7.0 Work Performed

Work performed included Rare Earth Element and Au prospecting, a multiphase spectrometer survey as well as the collection of rock and soil samples. All analyses were completed in house using an Olympus Innovx DP-6000 portable XRF analyzer. As the analyzer is not capable of analyzing for rare earth elements, REE indicators must be used. A similar situation exists for gold, with the exception that gold is detectable by the analyzer provided the analyzer is pointed at a location of rock containing gold mineralization, therefore gold indicators were used. See Table 2 below for REE and Au indicators in the Cobequids.

Table 2-REE and Au indicator elements used

Commodity Sought	Indicator Elements	Reference
Rare Earth Elements	(Y, Th, Zr, Nb)	MacHattie, 2010b
Gold	(As, Sb, Pb, Zn)	MacHattie, 2011

The first phase of the project was to prospect and spectrometer survey all roads and trails. The spectrometer survey was completed using a Radiation Solutions RS-230 spectrometer in survey mode. The instrument was mounted at waist height (approximately 1m) on the side of the truck or an ATV. The instrument was connected via bluetooth to a Holux-M-241 wireless GPS logger. The instrument was set to record total counts per second readings every 1 sec and a GPS location every 5 seconds; therefore 5 readings were collected for every location. The five results were then downloaded to a computer, averaged and plotted on to a map (See Map 1 in Appendix D). The spectrometer survey was conducted to identify radiometric anomalies, specifically thorium, as it has been established as an indicator for rare earth mineralization (MacHattie, 2010).

Several field traverses and the collection of soil samples were also completed on the property, as well as additional spectrometer data. Traverse locations were selected based on thorium anomalies identified in the roadway spectrometer survey. Traverse spectrometer data was collected with the instrument carried via shoulder strap, at about 1m height above the ground, a similar height to the roadway survey.

Soil samples were collected at 25 meter intervals, or at 50 meter intervals over two lines separated by 50 meters. Samples were collected with a 1 ½" Swedish Auger. Locations were recorded with a Garmin 60CSx hand held GPS receiver. Approximately, ½ Kg samples were collected and put into plastic Ziploc bags. Samples were then brought back to the lab and dried in an enclosed air tight drying room with a dehumidifier. Samples generally took 3-4 days to dry completely. After drying, samples were sieved with a 1/16" sieve to remove pebbles and rock chips, as pebbles and chips can give false XRF anomalies in soil samples. Material coarser than 1/16" was discarded while finer material was put back in to the sample bag. Dry, screened samples were then XRF'd.

XRF scanning procedure included scanning the soil sample through the Ziploc bag with the analyzer set to 3 beam soil mode for 15 seconds. The machine was set to export ppm values for elements of interest

which were; REE indicators yttrium (Y), zirconium (Zr), niobium (Nb) and thorium (Th). Also of interest were the results for gold (Au) and gold indicators arsenic (As), antimony (Sb), lead (Pb) and zinc (Zn). Currently, the ppm values are considered to be uncorrected ppm values as no known samples are available to generate correction factors to produce absolute results.

Rock samples were collected where interesting features such as elevated CPS values, rusty gossan, sulfide or REE style mineralization, or atypical textures were observed. Ideally, this was outcrop but samples were also collected from boulders exhibiting such features. Approximately, 1-2 kg of material was collected from each site and is stored for future reference. Notes and GPS locations were recorded at the time of collection. GPS locations were recorded with a Garmin 60CSX GPS receiver (See Appendix B for rock locations and descriptions). Rocks were analyzed with the XRF analyzer by selecting a fresh face on the sample displaying the interesting feature sought on the sample. The XRF analyzer was set to the same settings as for the soil samples; 3 beam soil analysis mode for 15 seconds per beam exporting uncorrected ppm values for Y, Zr, Nb, Th, Au, As, Sb, Pb and Zn.

8.0 Results of Work

The spectrometer survey showed some elevated counts per second (CPS) areas. Two types of spectrometer positive anomalies were observed: the first is if an area shows a generally elevated background CPS; while the second is if a CPS spike is recorded at a particular location. Both types were observed and followed up with soil sampling and more detailed spectrometer work. Southeast of Johnston Lake is an area that shows an elevated spectrometer reading with two soil sampling grids being completed at that location. A spectrometer spike was observed along the road to the southwest of Johnston Lake, and a soil line was also completed here. See Map 1 in Appendix E for plotted spectrometer results and Appendix A for a tabulated list of spectrometer data with locations. See Map 2 for soil sample locations.

Soil results for REE indicators are plotted on Map 3 in Appendix E. Using a background value of 500 uncorrected ppm Y, and saying that a strong positive anomaly is anything over 800 uncorrected ppm: only 4 strong Y anomalies were observed. These were at soil locations CLS-600, 602, 607 and 626. With the exception of CLS-607, all of these sites also showed over 400 uncorrected ppm Th. Above 400 uncorrected parts Th was among the highest Th results observed.

Au kicks (over 20 uncorrected ppm Au) were surprisingly numerous in the soil results. 12 sites spread over all three sampling areas show Au values over 20 uncorrected ppm. See Map 4 for plotted results.

Five rock samples were collected as part of the program. Strong Th readings were observed at stations GL-04 and GL-05 at 876 and 996 uncorrected ppm Th respectively. Other than that, rock results were not very promising. See Map 5 for plotted results.

Analysis of results was limited to a brief review concentrating on strong positive outliers. Additional analysis work is required.

9.0 Conclusions and Recommendations

The 2011 work program produced some interesting results which warrant follow-up work in the 2012 work program.

Further analysis of the 2011 data should be completed.

10.0 References

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Pe-Piper, G., Murphy, J.B. and Turner, D.S. 1989: Petrology, geochemistry and tectonic setting of some Carboniferous plutons of the eastern Cobequid Hills; *Atlantic Geology*, v. 25, p. 37-49.

Pe-Piper, G., Piper, D.J.W 2002: A synopsis of the geology of the Cobequid Highlands, Nova Scotia; *Atlantic Geology*, v. 38, p.145-160.

11.0 Statement of Qualifications

I, S. Alex Mackay of Westville, Nova Scotia do hereby swear to be a qualified author for Nova Scotia exploration assessment reports. Qualifications stem from degrees obtained from Dalhousie University of Halifax, Nova Scotia Canada.

-BSc. Earth Science & Physics (2008)

-Dip. of Engineering (2003)

In addition to degree qualifications, I have 3+ years of professional work experience including report writing, as well as Au and REE exploration experience in Nova Scotia and abroad.

Alex MacKay (BSc.)

Appendix A
Raw Spectrometer Data
With Nad83 UTM Coordinates

Appendix B

Station Locations and uncorrected Rock XRF Results

Results as presented are uncorrected. Manufacturers of the XRF analyzer recommend testing known samples and generating correction factors for each element. Currently, such samples are unavailable so results can only be used to look for anomalous values rather than absolute ppm values. Negative values indicate values below detection limits.

Station	X	Y	Notes	Y	Y +/-	Nb	Nb +/-	Zr	Zr +/-	Th	Th +/-
GL-01	470311	5045775	pink-red med. granite outcrop	563	93	1792	333	93	9	339	184
GL-02	470410	5045924	pink-red coarse granite with mafic minerals boulder	1800	127	1888	419	102	12	425	226
GL-03	470398	5045899	purple veins(Flouride) in red granite...Breccia? Boulder	1861	150	2570	531	120	15	-30	244
GL-04	470385	5045899	sugary red granite boulder	851	73	3782	327	176	10	876	166
GL-05	470453	5045603	sugary pink granite with mafic minerals boulder	455	79	9136	548	107	8	996	195

Station	X	Y	Notes	Au	Au +/-	As	As +/-	Sb	Sb +/-	Pb	Pb +/-	Zn	Zn +/-
GL-01	470311	5045775	pink-red med. granite outcrop	17	22	7	5	7	40	16	7	31	8
GL-02	470410	5045924	pink-red coarse granite with mafic minerals boulder	-2	24	7	6	-26	50	4	8	51	11
GL-03	470398	5045899	purple veins(Flouride) in red granite...Breccia? Boulder	23	33	14	7	61	58	-2	11	30	11
GL-04	470385	5045899	sugary red granite boulder	10	16	4	5	-29	27	97	8	27	6
GL-05	470453	5045603	sugary pink granite with mafic minerals boulder	43	20	3	5	2	28	49	7	44	7

Appendix C

XRF Results on Dry Soil Samples

Results as presented are uncorrected. Manufacturers of the XRF analyzer recommend testing known samples and generating correction factors for each element. Currently, such samples are unavailable so results can only be used to look for anomalous values rather than absolute ppm values. As such, results presented are just values rather than having the ppm distinction. Negative values indicate values below detection limits.

Sample	X(Nad83)	Y(Nad83)	Y	Y +/-	Nb	Nb +/-	Zr	Zr +/-	Th	Th +/-	Au	Au +/-	As	As +/-	Sb	Sb +/-	Pb	Pb +/-	Zn	Zn +/-
CLS-371	471674	5045751	556	62	1260	223	377	18	245	142	4	17	-2	4	-13	27	45	6	125	10
CLS-372	471676	5045726	461	60	1721	253	413	21	-17	141	41	19	-2	4	-24	29	41	6	56	8
CLS-373	471675	5045700	247	54	2484	283	417	21	33	143	-7	16	5	4	-13	29	33	6	22	6
CLS-374	471675	5045675	378	56	1472	227	348	17	230	138	8	16	9	4	-1	25	36	6	52	7
CLS-375	471676	5045647	324	54	2045	239	442	20	-113	121	-9	15	7	4	18	24	27	5	36	6
CLS-376	471674	5045625	521	59	3467	333	725	32	483	177	-2	16	12	4	-25	29	20	5	18	5
CLS-377	471674	5045600	276	54	1884	245	200	11	429	143	19	17	4	4	5	25	44	6	42	7
CLS-378	471676	5045574	694	69	10428	574	442	20	609	182	-18	15	4	4	-23	25	38	6	26	6
CLS-379	471662	5045558	603	60	2252	262	437	20	395	150	48	18	2	4	-49	26	29	6	43	6
CLS-380	471676	5045526	469	58	2016	258	300	15	180	140	22	17	5	4	10	27	50	6	118	10
CLS-381	471676	5045500	357	57	2909	286	488	22	39	138	30	18	7	5	-17	26	46	6	38	7
CLS-382	471675	5045475	429	56	2340	272	370	18	484	157	15	17	5	4	-2	26	29	5	28	6
CLS-383	471675	5045444	272	56	1796	241	353	18	-117	124	8	17	7	4	-19	27	34	6	35	7
CLS-384	471675	5045425	294	52	1537	209	385	17	-137	112	8	16	5	4	-33	24	34	5	31	6
CLS-385a	471675	5045400	272	52	1261	215	358	17	13	128	14	16	7	4	-5	26	29	5	62	7
CLS-385b	471675	5045375	262	56	2322	271	378	19	142	143	30	19	1	4	-22	27	46	7	38	7
CLS-386	471675	5045350	411	57	2024	252	340	17	-13	130	-2	16	3	4	-4	26	39	6	40	7
CLS-387	471674	5045326	340	53	1569	229	368	18	11	130	-11	14	9	4	26	27	25	5	43	7
CLS-388	471676	5045300	365	56	2102	265	491	23	175	150	28	18	8	4	-17	27	30	5	35	6
CLS-389	471676	5045276	397	60	2183	279	475	23	305	160	15	18	-1	4	31	28	46	6	35	7
CLS-390	470275	5045949	350	61	2509	253	593	24	110	131	14	15	2	3	36	24	23	5	6	4
CLS-391	470276	5046000	693	58	2780	261	534	21	203	135	3	14	1	4	13	23	48	6	19	5
CLS-392	470282	5046048	489	59	3845	305	725	29	47	139	7	14	4	3	-43	23	30	5	30	5
CLS-393	470278	5046099	389	56	1821	236	366	17	55	128	8	16	4	4	41	24	47	6	60	8
CLS-394	470276	5046150	371	59	4169	340	709	30	187	156	-3	14	3	4	-7	27	32	5	24	5
CLS-395	470272	5046204	439	58	3417	291	787	32	-49	136	16	16	-6	4	5	25	37	5	19	5
CLS-396	470277	5046254	594	66	2782	309	595	28	210	162	27	19	5	5	26	28	64	7	45	7
CLS-397	470224	5046225	607	58	2926	279	826	33	2	142	-24	13	2	3	-28	25	25	5	26	6
CLS-398	470225	5046175	606	58	2489	268	382	18	245	141	17	17	6	4	-54	25	54	6	48	7
CLS-399	470226	5046125	316	55	2950	305	597	28	151	156	35	18	2	4	-30	29	48	6	30	6
CLS-400	470227	5046074	503	57	1873	242	458	21	-60	130	20	17	3	4	3	26	34	6	48	7

Sample	X(Nad83)	Y(Nad83)	Y	Y +/-	Nb	Nb +/-	Zr	Zr +/-	Th	Th +/-	Au	Au +/-	As	As +/-	Sb	Sb +/-	Pb	Pb +/-	Zn	Zn +/-
CLS-401	470226	5046025	371	58	1958	244	364	17	195	137	-12	15	3	4	10	24	37	6	34	7
CLS-402	470227	5045974	406	62	4529	344	820	33	184	154	17	16	1	4	0	24	44	6	31	6
CLS-600	470453	5045603	2768	90	4551	341	212	11	407	141	10	16	2	7	-7	22	208	10	55	7
CLS-601	470400	5045574	365	62	5701	394	344	16	511	161	-1	16	0	4	-5	25	58	6	30	6
CLS-602	470371	5045514	1859	83	4193	357	422	19	496	162	57	19	-3	4	-52	25	53	6	52	7
CLS-603	470354	5045448	194	61	4057	323	580	25	221	147	-14	14	9	4	-15	25	24	5	32	6
CLS-604	470188	5045499	441	63	3980	337	731	31	140	156	-1	15	9	4	-37	27	43	6	36	6
CLS-605	470188	5045525	459	59	3822	337	823	36	63	158	17	17	8	4	1	28	50	6	29	6
CLS-606	470179	5045551	375	61	3403	301	694	28	455	158	19	15	6	4	-33	25	26	5	49	6
CLS-607	470146	5045574	1016	70	1884	267	340	17	81	141	24	18	2	5	-1	27	64	7	121	10
CLS-608	470195	5045599	310	67	2909	295	755	32	445	165	30	17	3	4	-13	26	36	6	28	6
CLS-609	470188	5045624	472	61	3947	326	590	25	302	156	-10	16	1	5	-23	23	69	7	54	7
CLS-610	470290	5045650	704	66	2902	290	686	30	-72	139	-16	15	1	5	16	25	54	7	37	7
CLS-611	470304	5045676	492	61	2979	316	696	32	261	167	2	16	-3	5	34	28	58	7	62	8
CLS-612	470318	5045700	849	75	5623	431	1146	50	153	185	-2	18	7	5	16	28	47	7	47	8
CLS-613	470279	5045725	369	58	2810	278	696	30	-63	136	3	16	1	4	27	24	52	6	62	8
CLS-614	470305	5045751	499	65	2663	306	791	37	-130	154	11	18	4	5	9	29	77	8	54	8
CLS-615	470311	5045775	363	65	3295	304	570	25	436	158	15	16	-3	4	11	26	40	6	36	6
CLS-616	470343	5045800	256	56	3439	316	333	17	277	150	-20	15	-3	5	-10	26	67	7	59	8
CLS-617	470352	5045825	349	60	3477	297	678	28	154	143	-1	15	-5	3	-3	25	24	5	9	5
CLS-618	470353	5045850	173	69	4496	346	496	22	243	149	16	17	2	4	10	26	27	5	44	7
CLS-619	470369	5045875	166	60	4246	323	411	18	205	138	-6	14	-3	4	6	25	47	6	24	5
CLS-620	470398	5045899	194	68	2391	270	212	11	133	130	25	16	2	3	5	27	24	5	39	6
CLS-621	470410	5045924	365	59	4343	337	665	28	162	149	6	14	0	3	-5	26	33	5	24	5
CLS-622	470433	5045950	339	64	5428	381	466	21	491	161	1	15	-1	4	20	24	64	7	39	6
CLS-623	470448	5045975	643	62	2492	250	574	23	-111	123	25	17	1	5	7	23	77	7	38	6
CLS-624	470473	5046000	798	69	2945	276	526	22	-76	127	15	16	-7	5	3	24	72	7	35	6
CLS-625	470488	5046025	267	63	3053	283	456	20	146	137	5	14	-4	3	13	25	22	5	17	5
CLS-626	470498	5046050	1054	72	2801	290	362	17	443	154	-1	17	9	7	5	27	197	11	156	11

APPENDIX D

XRF Analyzer Specs and Theory

DELTA
Dynamic XRF



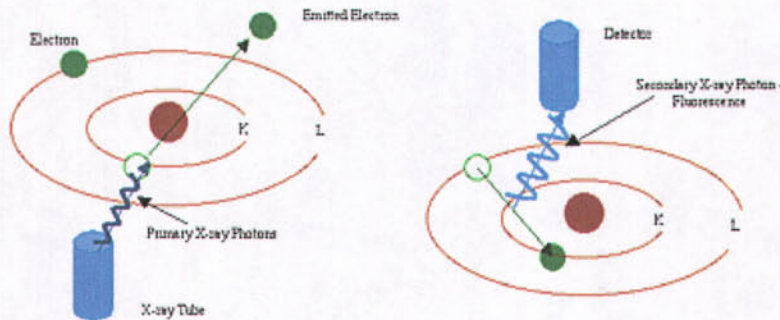
X-Ray Fluorescence (XRF) Spectrometry

BASIC THEORY

Although more popularly known for its diagnostic use in the medical field, the use of x-rays forms the basis of many other powerful measurement techniques, including X-ray Fluorescence (XRF) Spectrometry.

XRF Spectrometry is used to identify elements in a substance and quantify the amount of those elements present to ultimately determine the elemental composition of a material. An element is identified by its characteristic X-ray emission wavelength (λ) or energy (E). The amount of an element present is quantified by measuring the intensity (I) of its characteristic emission.

All atoms have a fixed number of electrons (negatively charged particles) arranged in orbitals around the nucleus. Energy Dispersive (ED) XRF and Wavelength Dispersive (WD) XRF Spectrometry typically utilize activity in the first three electron orbitals, the K, L, and M lines, where K is closest to the nucleus.



In XRF Spectrometry, high-energy primary X-ray photons are emitted from a source (X-ray tube) and strike the sample. The primary photons from the X-ray tube have enough energy to knock electrons out of the innermost, K or L, orbitals. When this occurs, the atoms become ions, which are unstable. An electron from an outer orbital, L or M, will move into the newly vacant space at the inner orbital to regain stability. As the electron from the outer orbital moves into the inner orbital space, it emits an energy known as a secondary X-ray photon. This phenomenon is called fluorescence. The secondary X-ray produced is characteristic of a specific element. The energy (E) of the emitted fluorescent X-ray photon is determined by the difference in energies between the initial and final orbitals of the individual transitions.

This is described by the formula

$$E=hc\lambda^{-1}$$

where h is Planck's constant; c is the velocity of light; and λ is the characteristic wavelength of the photon.

Energies are inversely proportional to the wavelengths; they are characteristic for each element. For example the $K\alpha$ energy for Iron (Fe) is about 6.4keV. Typical spectra for EDXRF Spectrometry appear as a plot of Energy (E) versus the Intensity (I).

Elemental Analysis

XRF Spectrometry is the choice of many analysts for elemental analysis. XRF Spectrometry easily and quickly identifies and quantifies elements over a wide dynamic concentration range, from PPM levels up to virtually 100% by weight. XRF Spectrometry does not destroy the sample and requires little, if any, sample preparation. It has a very fast overall analysis turnaround time. These factors lead to a significant reduction in the per sample analytical cost when compared to other elemental analysis techniques.

Aqueous elemental analysis instrument techniques typically require destructive and time-consuming specimen preparation, often using concentrated acids or other hazardous materials. Not only is the sample destroyed, waste streams are generated during the analysis process that need to be disposed of, many of which are hazardous. These aqueous elemental analysis techniques often take twenty minutes to several hours for sample preparation and analysis time. All of these factors lead to a relatively high cost per sample. However, if PPB and lower elemental concentrations are the primary measurement need, aqueous instrument elemental analysis techniques are necessary.

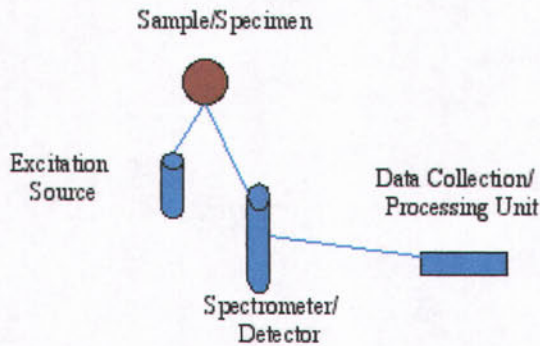
All elemental analysis techniques experience interferences, both chemical and physical in nature, and must be corrected or compensated for in order to achieve adequate analytical results. Most aqueous instrument techniques for elemental analysis suffer from interferences that are corrected for by extensive and complex sample preparation techniques, instrumentation modifications or enhancements, and by mathematical corrections in the system's software. In XRF Spectrometry, the primary interference is from other specific elements in a substance that can influence (matrix effects) the analysis of the element(s) of interest. However, these interferences are well known and documented; and, instrumentation advancements and mathematical corrections in the system's software easily and quickly correct for them. In certain cases, the geometry of the sample can affect XRF analysis, but this is easily compensated for by selecting the optimum sampling area, grinding or polishing the sample, or by pressing a pellet or making glass beads.

Quantitative elemental analysis for XRF Spectrometry is typically performed using Empirical Methods (calibration curves using standards similar in property to the unknown) or Fundamental Parameters (FP). FP is frequently preferred because it allows elemental analysis to be performed without standards or calibration curves. This enables the analyst to use the system immediately, without having to spend additional time setting up individual calibration curves for the various

elements and materials of interest. The capabilities of modern computers allow the use of this non-standard mathematical analysis, FP, accompanied by stored libraries of known materials, to determine not only the elemental composition of an unknown material quickly and easily, but even to identify the unknown material itself.

Spectrometers

Innov-X Systems utilizes the EDXRF Spectrometer technique for its mechanical simplicity and excellent adaptation to portable field use. An EDXRF system typically has three major components: an excitation source, a spectrometer/detector, and a data collection/processing unit. The ease of use, rapid analysis time, lower initial purchase price and substantially lower long-term maintenance costs of EDXRF Spectrometers have led to having more systems in use today worldwide than WDXRF Spectrometer systems. Handheld, field portable EDXRF units can be taken directly to the sample as opposed to bringing the sample to the analyzer and configuring it to fit in an analysis chamber. Innov-X Systems portable, handheld EDXRF units solve real 21 st century application problems: solving crimes, analyzing alloys, exposing pollution, preserving history, searching for WMD's, conserving art treasures, and a myriad of other elemental field-oriented analyses.



The Deltas' Cutting-edge features include:

- Exceptional speed and sample throughput due to state-of-the-art electronics, a floating point processor, and redesigned analytical geometry
- Ruggedized, weather and dustproof industrialized LEXAN housing – no PDA or movable screen – provides superior reliability
- Significant improvement in LODs and light element analysis resulting from the DELTA's unique 4W, 200 μ A (max) x-ray tube



- Advanced integrated technology including an accelerometer, barometer, true hot-swap battery capabilities, and other innovations
- Icon-driven UI via bright, Blanview™ color touchscreen
 - brightens in sunlight – easy to read in all environments
- Available with fully integrated camera and X-ray spot collimation
 - crisp accurate sample images that can be archived into memory
 - small spot collimation for focusing the beam to a 3mm diameter spot.

Innov-X has reinvented on-site analysis with the DELTA line; a new breed of handheld XRF. We've redesigned our analyzers from the ground up to create instruments that are both analytically superior AND rugged enough for virtually any environment. The DELTA analyzers feature the very latest in large area silicon drift detector technology, and unique 4W, 200 μ A (max) x-ray tubes for maximized accuracy and precision.

DELTA analyzers are also fully industrialized tools, and offer unsurpassed testing speed; yielding significantly increased productivity and throughput for operators. Take hundreds more tests per day with the DELTA analyzer. Smart on the inside. Tough on the outside. **No compromises.**

The DELTA line of analyzers feature our signature upgradeability. Customers may purchase a value-leading **Classic** model and upgrade to the analytically best **Premium** model at any time as analytical needs change - all with the same hardware platform and intuitive, friendly user interface.

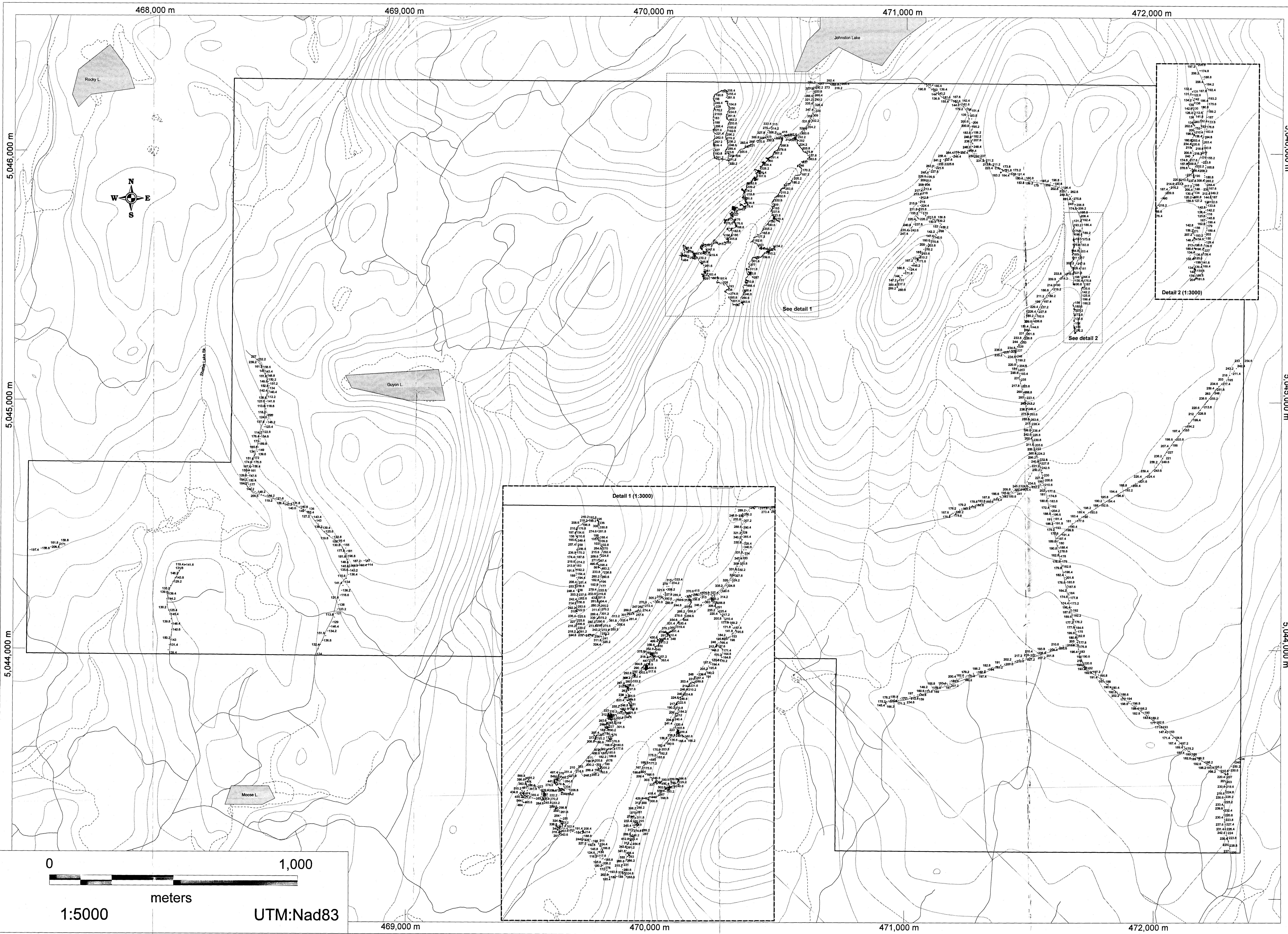
The Innov-X Handheld XRF for elemental analysis meets EPA Method 6200 for metals in soil, NIOSH Method 7702 for lead in air filters, and OSHA Methods OSSA1 and OSS1 for lead in air filters and dust wipes. The 8 RCRA Metals and Priority Pollutant Metals are easily monitored on-site with the Innov-X Handheld XRF.

The Innov-X Systems Materials Testing & Mining Analyzers include standard hardware and accessories. Capabilities available include Fundamental Parameters, Empirical Analysis, linear or quadratic calibration modes, LEAP for Light Element Analysis, and Single or Multi element analysis capability.

Appendix E

Maps

Map 1-License 08997 Spectrometer Survey Results



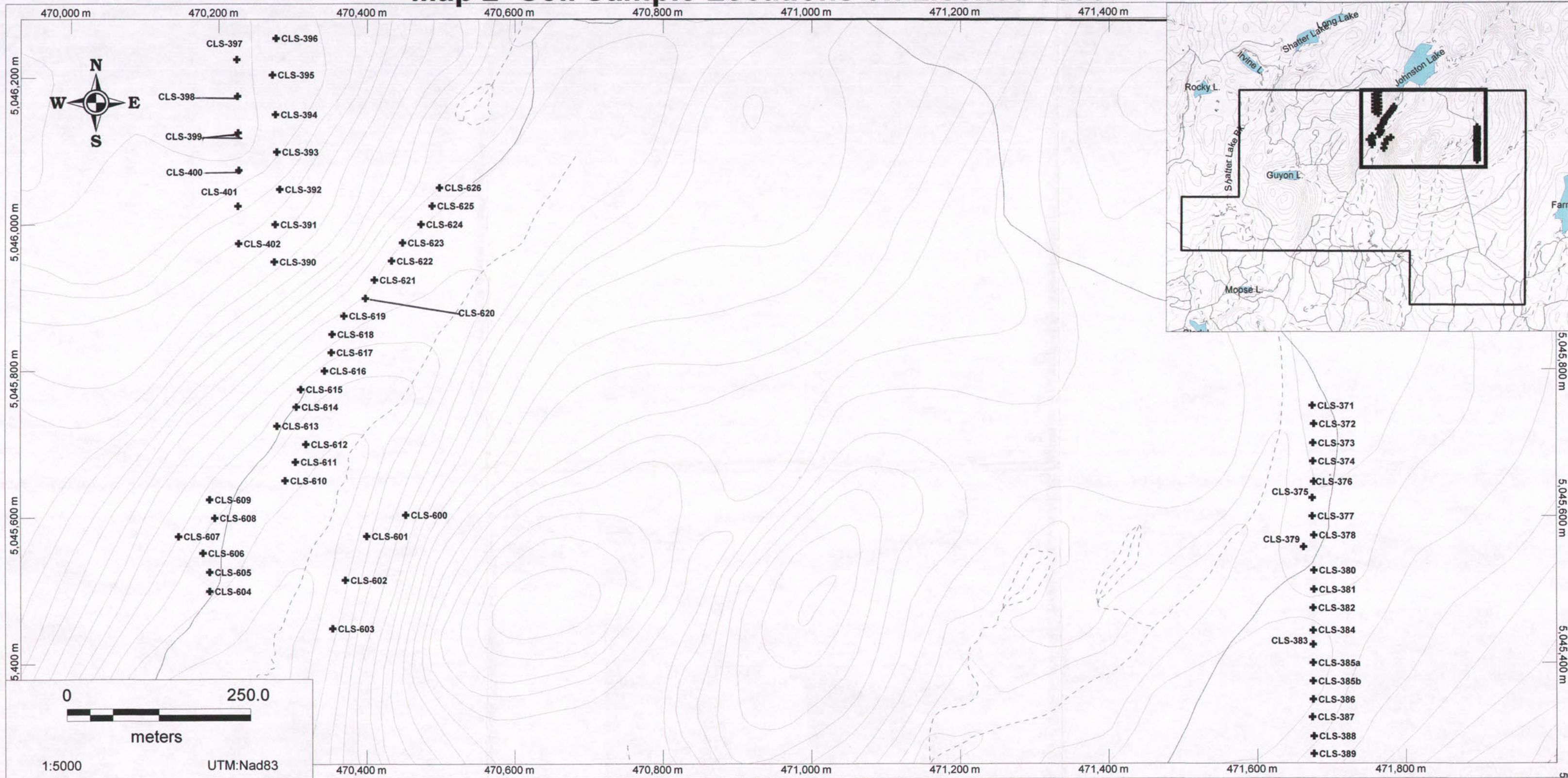
Legend

- Spectrometer Readings (Average Total Counts/sec)*
- Local Roads and Trails
- Contour Lines
- Streams
- License Boundary

*Only select data is plotted due to dense data points, a full list of readings is available in Appendix A

Map created by Alex MacKay
Base Layers from NSDNR

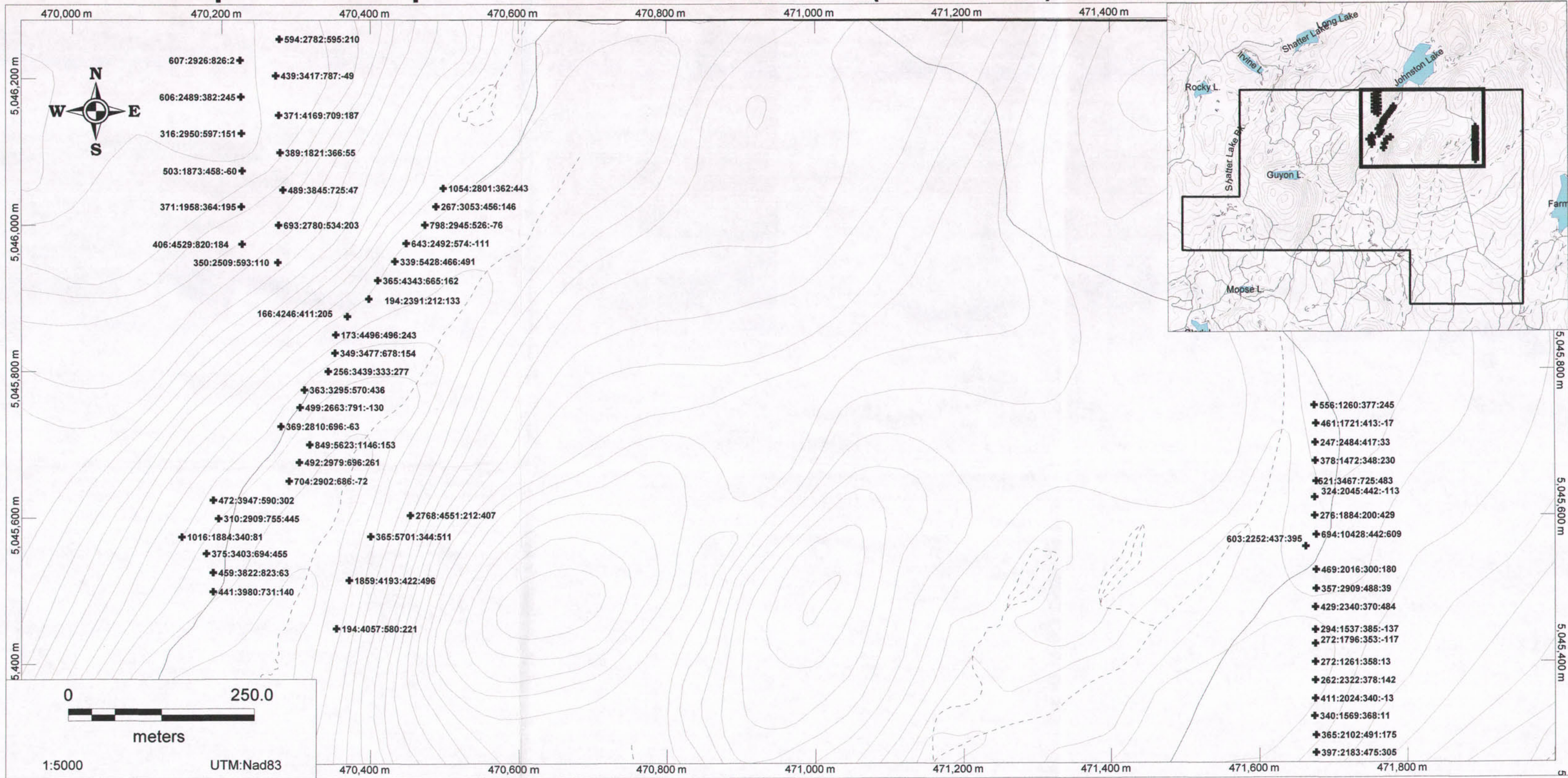
Map 2- Soil Sample Locations on Licence 08997



Legend

-  Soil Sample Location (with soil Sample #)
-  Local Roads and Trails
-  Contour Lines
-  Streams
-  License Boundary

Map 3- Soil Sample Results for REE Indicators (Y:Nb:Zr:Th) on Licence 08997



Legend



Soil Sample Location with
Uncorrected Dry XRF ppm Results
(Y:Nb:Zr:Th)*



License Boundary



Local Roads and Trails

Contour Lines

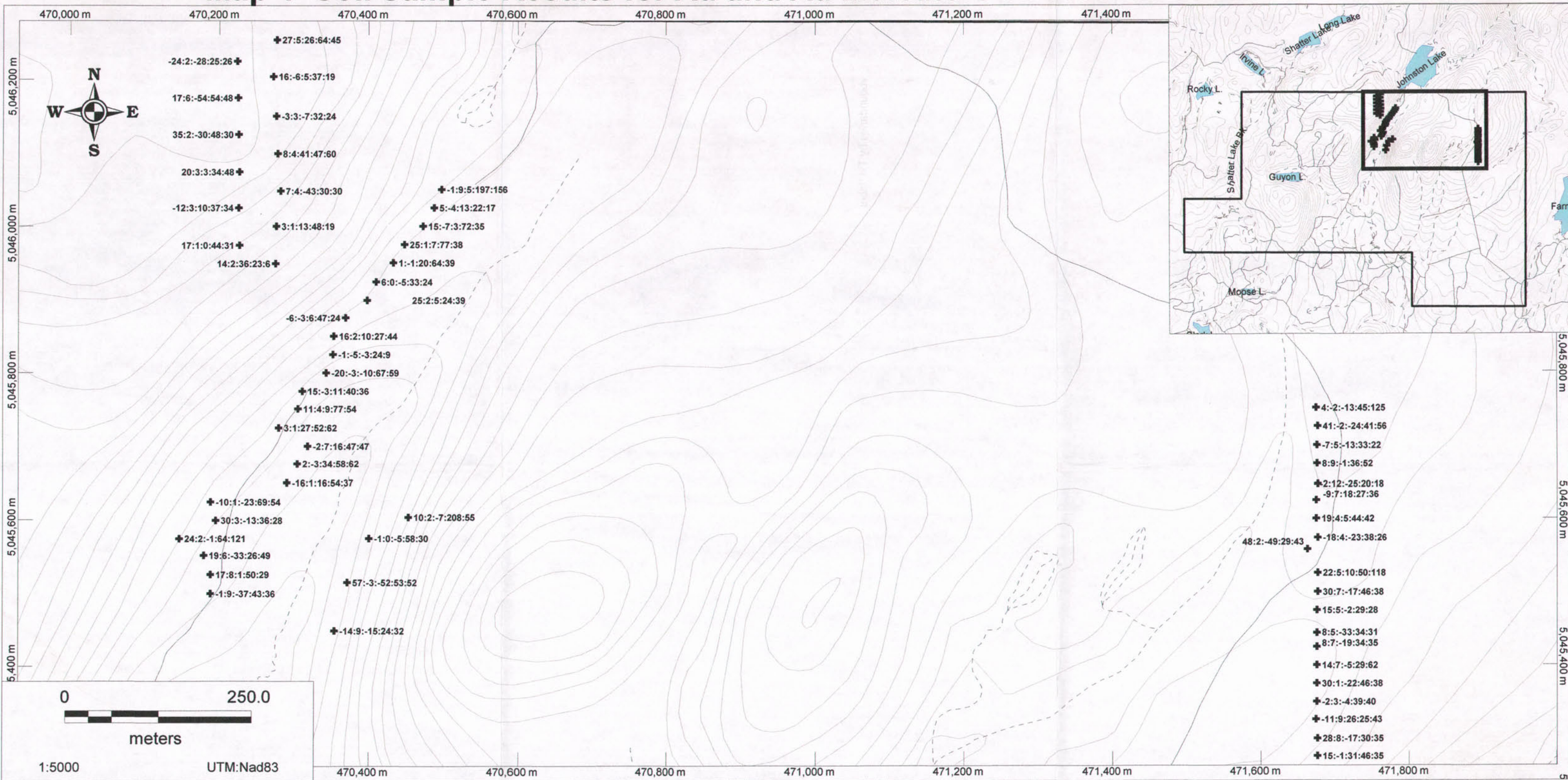
Streams

*negative numbers indicate below limit of detection

AR 2012-017

Map Created by Alex MacKay
base layers from NSDNR

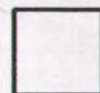
Map 4- Soil Sample Results for Au and Au Indicators on Licence 08997



Legend



Soil Sample Location with
Uncorrected Dry XRF ppm Results
(Au:As:Sb:Pb:Zn)*



License Boundary



Local Roads and Trails

Contour Lines

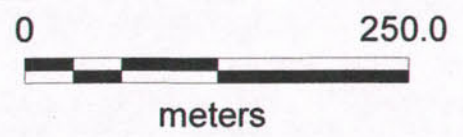
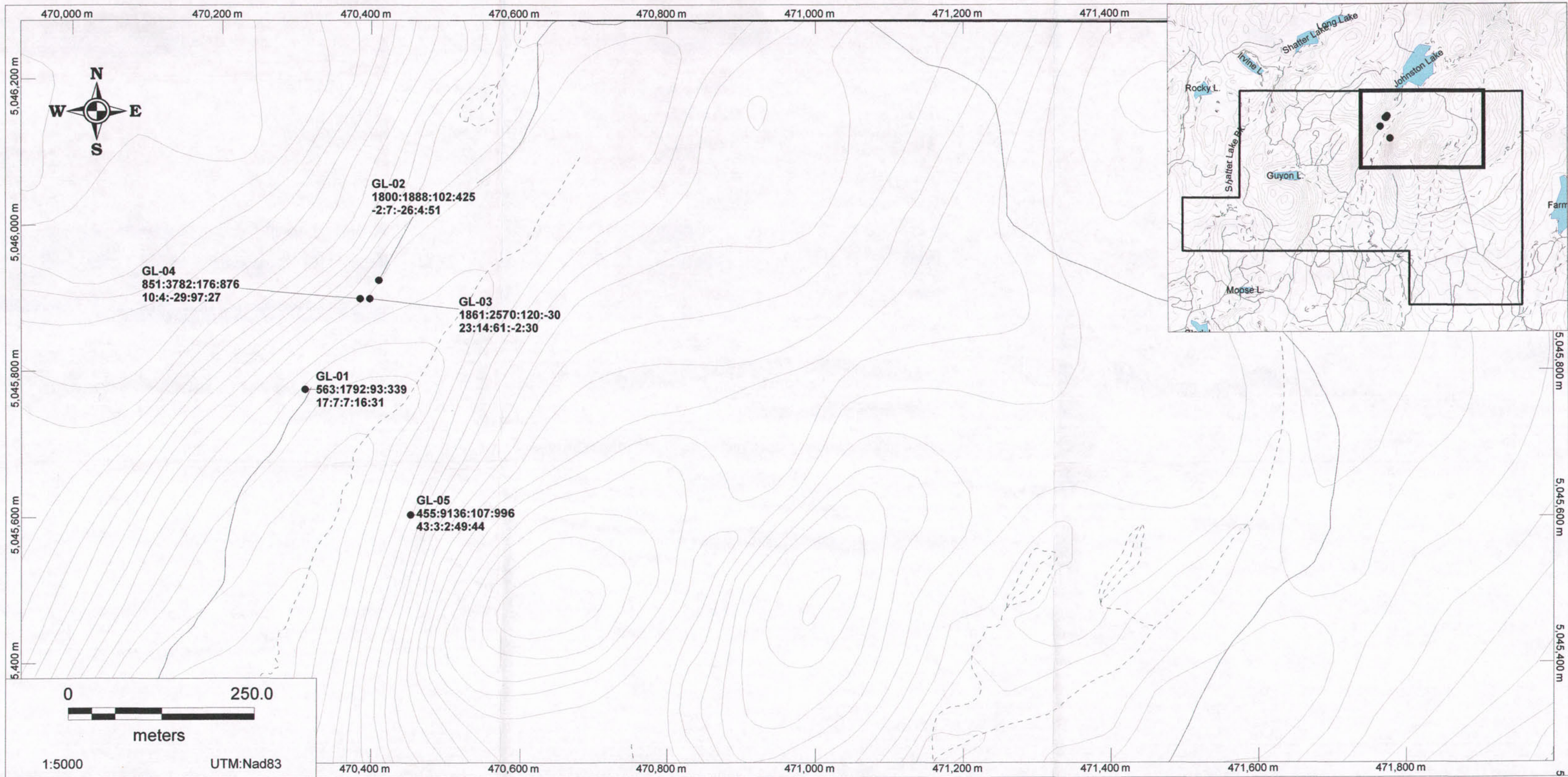
Streams

*negative numbers indicate below detection limit

AR2012-017

Map Created by Alex MacKay
base layers from NSDNR

Map 5- Station Locations and Rock XRF Results for Licence 08997



1:5000 UTM:Nad83

Legend

- Station Location with Rock XRF Results in uncorrected PPM (Y:Nb:Zr:Th) (Au:As:Sb:Pb:Zn)*
- License Boundary
- Local Roads and Trails
- Contour Lines
- - - Streams

*negative numbers indicate below detection limit

AR 2012-017

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base layers from NSDNR

Form 10 - Statement of Assessment Work Expenditure
(pursuant to the Mineral Resources Act, S.N.S. 1990, c. 18, s. 43(1))

PLEASE SEE
ATTACHED EXPENSES

(Complete as necessary to substantiate the total claimed.)
Re: Licence No. 08997 Date of issue FEB 2, 2010

Type of Work		Amount Spent
1. Prospecting	_____ days	
2. Geological mapping	_____ days	
3. Trenching/stripping/refilling	_____ m ² / _____ m ³	
4. Assaying & whole rock analysis	_____ #	
5. Other laboratory	_____ #	
6. Grid:		
(a) Line cutting	_____ km	
(b) Picket setting	_____ km	
(c) Flagging	_____ km	
7. Geophysical surveys		
Airborne:		
(a) EM/VLF	_____ km	
(b) Mag or Grad	_____ km	
(c) Radiometric	_____ km	
(d) Combination	_____ km	
(e) Other	_____ km	
8. Geophysical surveys		
Ground:		
(a) EM/VLF	_____ km	
(b) Seismic soundings	_____ #	
(c) Magnetic/telluric	_____ km	
(d) IP/resistivity	_____ km	
(e) Gravity	_____ km	
(f) Other	_____ km	
9. Geochemical surveys		
(a) Lake, stream, spring		
(i) Water	_____ samples	
(ii) Sediments	_____ samples	
(b) (i) Rock	_____ samples	
(ii) Core	_____ samples	
(iii) Chips	_____ samples	
(c) (i) Soil	_____ samples	
(ii) Overburden	_____ samples	
(d) Gas	_____ samples	
(e) Biogeochemistry	_____ samples	
(f) Sample collection	_____ samples	
(g) Other	_____ days	
10. Drilling:		
(a) Diamond (# holes/m)	_____ / _____ m	
(b) Percussion (# holes/m)	_____ / _____ m	
(c) Rotary (# holes/m)	_____ / _____ m	
(d) Auger (# holes/m)	_____ / _____ m	
(e) Reverse circulation (# holes/m)	_____ / _____ m	
(f) Logging, supervision, etc.	_____ days	
(g) Sealing (# holes)	_____ #	
11. Other (describe)		
Subtotal		15,215.00
Overhead costs 10% OVERHEAD		1,521.50
12. Secretarial services		
13. Drafting services		
14. Office expenses (rent, heat, light, etc.)		ONLY 22 14:40
15. Field supplies		
16. Compensation paid to landowners		
17. Legal fees		
18. Other (describe)		
Subtotal		
Grand total		16,736.50

