Review of Surficial Geochemistry and Heavy Mineral Gold data from 2006, 2008 and 2009 on the Thorne Lake Property, NW Ontario NTS 53J05, 53J12.

By Steven van Haaften for Northern Superior Resources Inc. March 2, 2010.

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Appendix 2: Heavy mineral grain data used in the Thorne Lake project, with summary statistics. Provided as a a pdf file on the computer disk that accompanies the printed report.

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Map 11: Thorne Lake Project NW Ontario Areas with Surficial Samples that are Anomalous in Gold.

Maps are also provided for individual elements from the geochemistry, one map per element. The following elements have been mapped: Ag, Ba, Co, Cr, Mo, Ni, Te and W.

Review of Surficial Geochemistry and Heavy Mineral Gold data from 2006, 2008 and 2009 on the Thorne Lake Property, NW Ontario.

Summary:

Northern Superior Resources Inc. and its predecessor company, Superior Diamonds Inc. sampled surficial materials, primarily till, in the Thorne Lake area, northwestern Ontario in 2006, 2008 and 2009. The sampling yielded a dataset of results for 365 samples that were processed to extract gold grains, and 354 samples that were analyzed by soil geochemistry methods.

A review of the surficial sample analysis results has identified target areas A to F (Figure S1) for exploration follow-up, based on gold results. Results for other elements, such as Co, Cr and Mo, suggest additional exploration targets.

Finally, it is recommended to fill in some of the gaps in sampling to provide even coverage of the claims. This would yield a more complete view of the surficial geochemistry and gold grains in till.

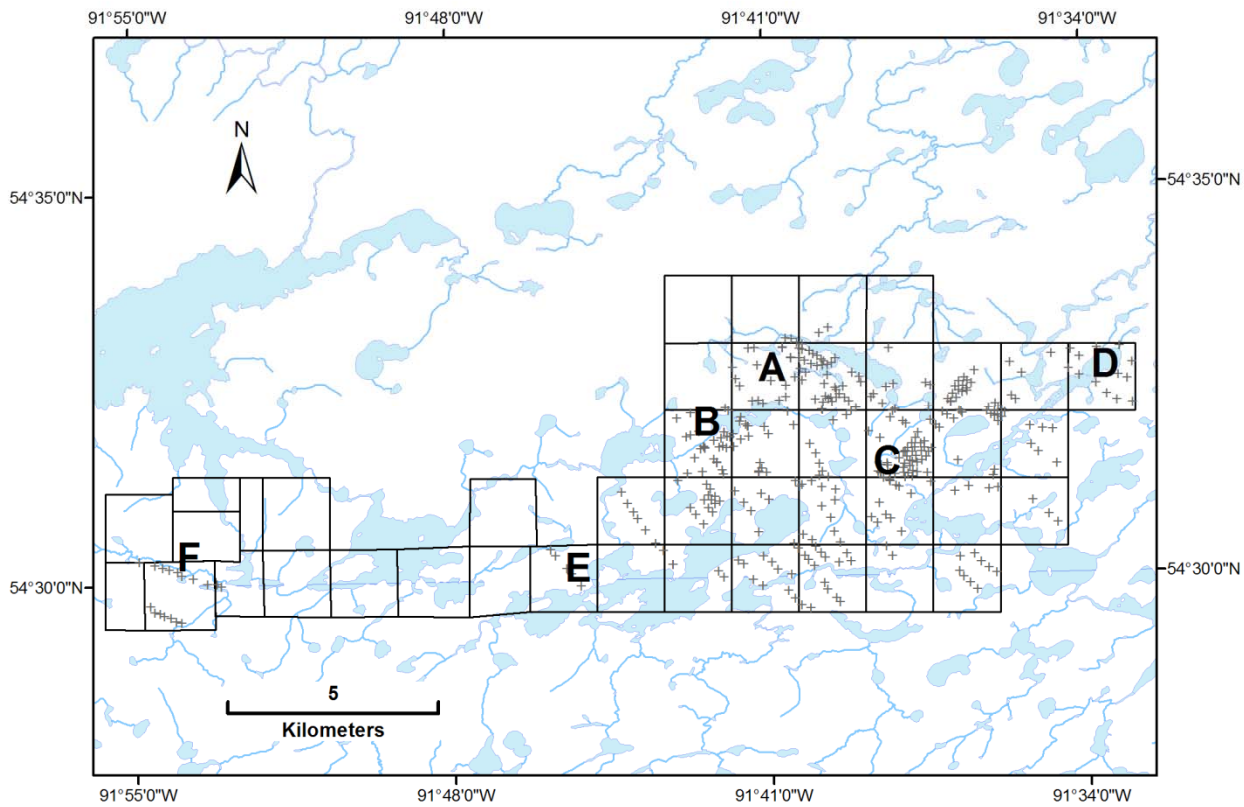

Figure S1: Thorne Lake Project area with claims, sample locations as crosses, and exploration target areas labeled A to F.

Introduction, property location and description:

The author was requested by Northern Superior Resources Inc. to review surficial geochemistry and heavy mineral gold data from the company's sampling programs on the Thorne Lake Property, northwestern Ontario. This report describes and interprets the results of surficial samples from the property. The data used in this review is shown in Appendix 1 and Appendix 2, and the laboratory certificates were previously filed with the Ontario government for assessment credit (Sooley 2009, Sooley and Hart, 2009 and Stephenson 2007).

The Thorne Lake Property is located approximately 720 km northwest of Thunder Bay, Ontario (Fig. 1). The property is located within the traditional area of the First Nations community of Sachigo Lake which is situated about 80 km southwest of the Property on the northwest shore of Sachigo Lake. The property extends for about 20 km east to west, and it is centered at approximately latitude 54 degrees 42 minutes north and longitude 91 degrees 40 minutes west, crossing the boundary between NTS areas 3J12 and 53J05.

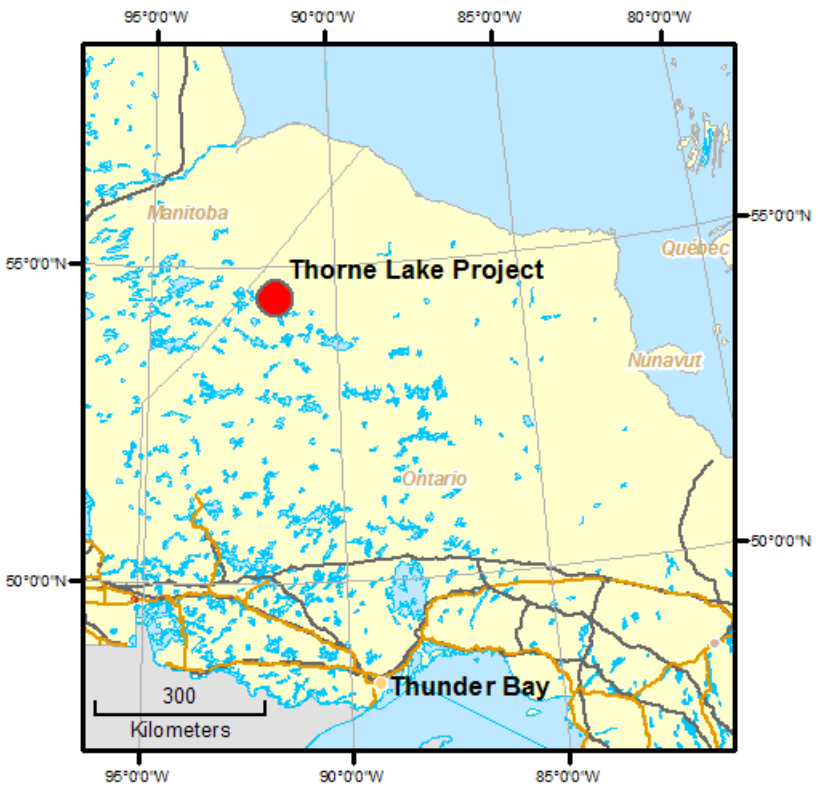

Figure 1: Thorne Lake project regional location map.

The Thorne Lake Property consists of 44 mining claims totaling 10 736 hectares (Map 1 and Table 1). These unsurveyed mining claims are located in the unsurveyed mining areas of Thorne Lake, Ellard Lake, Gummer Lake, and Lacey Creek, Red Lake Mining Division.

Hart (2010) reported that the Thorne Lake property topography is primarily controlled by glacial sediments that cover > 95% of the property, with most of the property having < 1% bedrock exposure. Topographic relief is relatively low and flat, generally varying only 20m.

Table 1: List of Mining Claims

	Claim Map	Township/ Area	Claim Number	Area (Ha)	Recording Date	Expiry Date
1	G-2026	ELLARD LAKE	4208817	253	2005-Jun-17	2011-Jul-09
2	G-2026	ELLARD LAKE	4208818	279	2005-Jun-17	2011-Jul-09
3	G-2026	ELLARD LAKE	4208822	254	2005-Jun-17	2011-Jul-09
4	G-2026	ELLARD LAKE	4208823	254	2005-Jun-17	2011-Jul-09
5	G-2026	ELLARD LAKE	4208824	272	2005-Jun-17	2011-Jul-09
6	G-2026	ELLARD LAKE	4221699	190	2007-Nov-23	2010-Nov-23
7	G-2234	THORNE LAKE	4221701	256	2007-Nov-23	2010-Nov-23
8	G-2234	THORNE LAKE	4221702	256	2007-Nov-23	2010-Nov-23
9	G-2234	THORNE LAKE	4221703	256	2007-Nov-23	2010-Nov-23
10	G-2234	THORNE LAKE	4221704	256	2007-Nov-23	2010-Nov-23
11	G-2234	THORNE LAKE	4221705	256	2007-Nov-23	2010-Nov-23
12	G-2234	THORNE LAKE	4221706	256	2007-Nov-23	2010-Nov-23
13	G-2234	THORNE LAKE	4221707	251	2007-Nov-23	2010-Nov-23
14	G-2234	THORNE LAKE	4221708	256	2007-Nov-23	2010-Nov-23
15	G-2234	THORNE LAKE	4221709	256	2007-Nov-23	2010-Nov-23
16	G-2234	THORNE LAKE	4221710	256	2007-Nov-23	2010-Nov-23
17	G-2234	THORNE LAKE	4221711	256	2007-Nov-23	2010-Nov-23
18	G-2234	THORNE LAKE	4221712	256	2007-Nov-23	2010-Nov-23
19	G-2234	THORNE LAKE	4221713	256	2007-Nov-23	2010-Nov-23
20	G-2234	THORNE LAKE	4221714	256	2007-Nov-23	2010-Nov-23
21	G-2234	THORNE LAKE	4221715	256	2007-Nov-23	2010-Nov-23
22	G-2234	THORNE LAKE	4221716	256	2007-Nov-23	2010-Nov-23
23	G-2234	THORNE LAKE	4221717	256	2007-Nov-23	2011-Nov-23
24	G-2234	THORNE LAKE	4221718	256	2007-Nov-23	2011-Nov-23
25	G-2234	THORNE LAKE	4221719	256	2007-Nov-23	2011-Nov-23
26	G-2234	THORNE LAKE	4221720	256	2007-Nov-23	2011-Nov-23
27	G-2234	THORNE LAKE	4221721	256	2007-Nov-23	2011-Nov-23
28	G-2234	THORNE LAKE	4221722	256	2007-Nov-23	2011-Nov-23
29	G-2234	THORNE LAKE	4221723	256	2007-Nov-23	2011-Nov-23
30	G-2234	THORNE LAKE	4221724	256	2007-Nov-23	2010-Nov-23
31	G-2234	THORNE LAKE	4221725	256	2007-Nov-23	2010-Nov-23
32	G-2234	THORNE LAKE	4221726	256	2007-Nov-23	2010-Nov-23
33	G-2261	THORNE LAKE	4250066	256	2009-Jul-14	2012-Jul-14
34	G-2261	THORNE LAKE	4250067	257	2009-Jul-14	2011-Jul-14
35	G-2261	THORNE LAKE	4250068	257	2009-Jul-14	2011-Jul-14

	Claim Map	Township/ Area	Claim Number	Area (Ha)	Recording Date	Expiry Date
36	G-2261	THORNE LAKE	4250069	257	2009-Jul-14	2011-Jul-14
37	G-2261	THORNE LAKE	4250070	256	2009-Jul-14	2011-Jul-14
38	G-2026	ELLARD LAKE	4250071	232	2009-Jul-27	2011-Jul-27
39	G-2026	ELLARD LAKE	4250072	275	2009-Jul-14	2011-Jul-14
40	G-2026	ELLARD LAKE	4250073	94	2009-Jul-14	2011-Jul-14
41	G-2026	ELLARD LAKE	4250879	165	2009-Jul-14	2011-Jul-14
42	G-2026	ELLARD LAKE	4250880	128	2009-Jul-14	2011-Jul-14
43	G-2026	ELLARD LAKE	4250881	257	2009-Jul-14	2011-Jul-14
44	G-2026	ELLARD LAKE	4250882	149	2009-Jul-14	2011-Jul-14

Surficial sampling and analysis:

Surficial material samples, targeting till, were collected from the property by Northern Superior Resources staff in 2008 and 2009. However, the company had additional data from sampling done by predecessor company Superior Diamonds Inc. in 2006, and those data have also been incorporated in this review. Table 2 shows the number of samples that are included in this report from each sample collection survey. Figure 2 shows an overview of the claims and all the sample locations.

Table 2: Number of samples included in this report, by survey dataset.

dataset	Number of Geochemistry samples	Number of Gold HM samples
NW2006	17	17
TL2008	130	132
TL2009	216 includes 9 duplicate analyses	216
totals	363 (or 354 samples without counting duplicates)	365 samples

In 2008 and 2009 heavy mineral samples for gold grain analysis were taken, and a geochemical sample was collected from each site at the same time as the heavy mineral samples. The year 2006 work by Superior Diamonds Inc. collected samples for heavy mineral processing; however archived portions of the year 2006 samples were later submitted for geochemical analysis. All sampling was performed from pits that were manually dug with a shovel, and samples were of c-horizon soil material where possible. Further details of sampling can be found in Sooley (2009) and Sooley and Hart (2009). Stephenson (2007) described the surficial sampling that was conducted in 2006. Heavy mineral sampling in 2006 collected samples of about 15Kg in weight, but the 2008 and 2009 samples weighed about 10 kg. Therefore heavy mineral plots (interpretations) use grain counts that were normalized to a 10 Kg tabling

weight as follows: 10 kg. x grain count / tabling weight in kg. Map 1 shows the locations of surficial samples from each year.

The heavy mineral samples were processed and analyzed for their heavy mineral gold content by Overburden Drilling Management Ltd. (ODM) of Nepean, Ontario. ODM provided counts for reshaped, modified, pristine and total gold grains from each sample, and related information. Archived "character split" material from the heavy mineral samples resides at ODM. In December 2008 - 63 micron fraction subsamples from the year 2006 heavy mineral sample character splits were sent to the ALS Chemex (ALS) laboratory in North Vancouver for geochemical analysis. In the 2008 and 2009 field programs, 500g samples from the field were submitted to ALS, who processed the samples to a -63 micron fraction. The -63 micron fraction of the 2006, 2008 and 2009 samples was analyzed by the 51-element aqua regia ICPMS method "ME-MS41", and also by the method "Au-ICP21", in which 30g subsamples were analyzed for gold using fire assay with an ICP-AES finish.

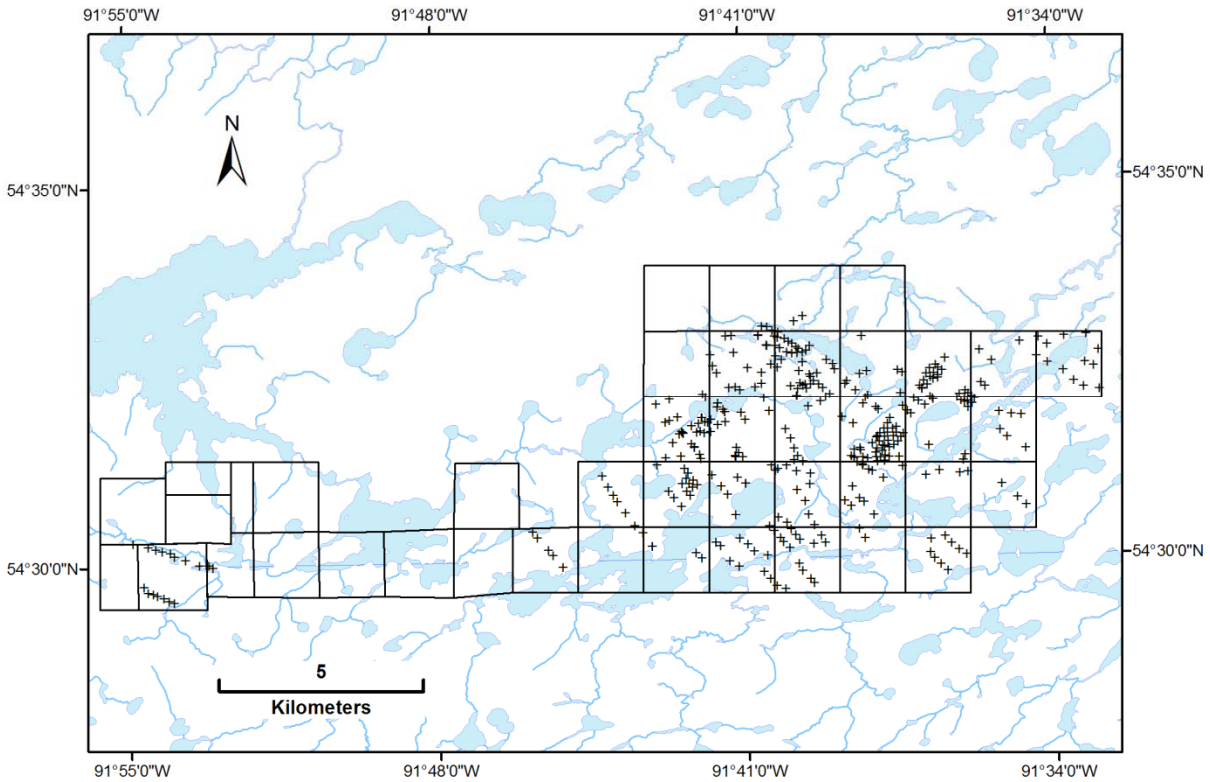

Figure 2: Overview of the Thorne Lake project surficial sample locations and claims.

Materials sampled:

The materials targeted for sampling were (glacial) till veneer or till blanket, and the material sampled was described in the field as material type. Till veneer is generally 0.1 to 2m thick with bedrock outcrops commonly occurring, whereas "till blanket" describes thicker, continuous till cover that may form

drumlinoid ridges. Table 3 shows the number of samples in each field material classification, and it can be seen that the majority of samples was classified in the field as till (veneer or blanket).

Map 2 shows surficial samples as till veneer/ till blanket versus other, non-till material classes including "unspecified" based on the field classification. Map 3 shows till veneer versus till blanket samples (field classification), and in subsequent maps it will be seen that many of the surficial gold anomalies occur in the relatively thin drift/ till veneer area in the north-central part of the claim group.

Another way to classify tills is by their limestone content. Limestone-rich "carbonate till" is sometimes considered to have a greater component of distal material from the Hudson Bay Lowland than "non-carbonate till" (Thorleifsson and Kristjansson, 1990). ODM estimates the limestone content of the >2mm clasts in the samples, and Map 4 shows the till (veneer and blanket) samples classified as non-carbonate till (<=10% limestone from the ODM estimate) and carbonate till (> 10% limestone). Comparing Maps 3 and 4 it can be seen that there is a spatial correspondence between till veneer (field classification) and non-carbonate till, i.e. till veneer is commonly <= 10% limestone in the Thorne Lake area. In fact the majority of samples are >= 10% limestone, probably because of the proximity of limestone bedrock. The Thorne Lake claims are only 40 to 60 km southwest of sedimentary rocks of the Hudson Bay Lowland (Ontario Geological Survey, 2006).

Table 3: Field material classification of samples.

Field material classification	Number of samples
beach	4
glaciofluvial	13
lacustrine	3
till blanket	236
till flow	1
till stratified	7
till veneer	77
till washed	5
unspecified	19

ODM classifies the sample materials independently of the field descriptions, and in Table 4 it can be seen that ODM classified virtually all the samples as till. This suggests that perhaps it is fair to treat all the samples as being from a single sample medium, and that is what has been done in the maps which follow.

Table 4: ODM material classification of samples.

ODM material classification	Number of samples
SAND + GRAVEL	4
SAND + SILT	5
SILT + CLAY	2
TILL	354

Quality control:

Sample collection, handling and processing were done in a controlled, standard manner as described in Sooley (2009) and Sooley and Hart (2009). The ALS laboratory used internal quality control processes including standard reference materials and duplicates. In the 2008 sampling, 6 standard reference materials were submitted from the field to ALS, using material from 2 different bulk samples of surficial material from near Lansdowne House, Ontario. In the 2009 sampling, 9 specifically requested re-analyses of material were done for geochemistry, resulting in 9 duplicate pairs.

Gold in all samples:

Some statistics for the gold results are shown in Tables 5 and 6. Based on the mean grain counts, 71% of the recovered gold grains have a pristine or modified character and 29% of the grains are reshaped. This implies that most gold grains have not been abraded much or transported far since being plucked from bedrock by glaciation. Classification and interpretation of gold grains from till is discussed by Dilabio (1991).

Table 5: Statistical information about the raw (not normalized) gold grain counts of 365 heavy mineral surficial samples.

Statistical parameter	reshaped	modified	pristine	Total gold grains
98th percentile	13.44	19.72	45	67.72
95th percentile	10	12.8	15.8	40
90th percentile	7	6	7	17.6
75th percentile	4	2	2	8
50th percentile	2	1	0	4
minimum value	0	0	0	0
maximum value	25	55	454	476
mean	3.147945205	2.523287671	5.336986	11.00822
standard deviation	3.452985235	6.167767165	29.35429	34.166

Table 6: Statistical information about gold in 363 surficial geochemistry samples.

Statistical parameter	ppm Au by FA-ICPMS
98th percentile	0.0478
95th percentile	0.019
90th percentile	0.013
75th percentile	0.007
50th percentile	0.003
minimum value	0.0005
maximum value	0.243
mean	0.007487535
standard deviation	0.019052719

Gold geochemical anomalies in surficial material are expected to reflect anomalous gold grain content, even though the heavy mineral processing may not always recover all the gold grains from a sample. Therefore geochemical gold anomalies may also be interpreted to imply nearby sources of gold in bedrock.

Map 5 shows gold geochemistry of all the surficial samples, and Map 6 shows total gold grains recovered from the heavy mineral samples, normalized to 10 kg table feed weight. Gold geochemistry and gold total grains both highlight gold-rich till in the north-central part of the claims. However the gold geochemistry and gold grain results complement each other in that each technique may detect gold "highs" that the other has missed.

Map 7 shows the number of pristine gold grains recovered from each sample, and the pattern of anomalies is similar to Map 6, total gold grains.

Areas anomalous in gold:

Map 8 shows the bedrock geology drawn by Hart (2009) from field mapping, company geophysics and government geology maps. The map also shows collar locations of the 6 diamond drill holes that were drilled on the property in 2009.

Map 9 shows grab and channel samples with >= 0.50 ppm Au, from the early 2009 field program. Five of the drill holes targeted the surface showings identified by grab and channel sampling locations, and hole TL09-003 targeted a gold grains in till anomaly (T.R. Hart, 2010). Map 9 shows that all bedrock assays >=0.50 ppm Au are at or nearby drill holes, except for one sample located on claim 4221720.

Map 10 shows the drill core samples >= 0.50 ppm Au. Five out of the 6 holes drilled in 2009 encountered more than 0.50 ppm Au.

Map 11 shows gold geochemistry and normalized total gold grain results for all surficial samples, together with the bedrock geology. The eye is naturally drawn toward the red and blue circles, respectively representing samples with > 98th and > 95th percentile gold geochemistry, and toward the dark and medium grey circles that represent samples with anomalous total gold grains. The high-gold locations represented by these symbols define gold anomalies in the surficial data. Single gold anomalies and, especially, areas with a group of gold anomalies are potential targets for further exploration work. Anomalous gold areas are labeled "A", "B" to "F" on Map 11, and they are described in Table 7. Pucker Lake, named by T.R. Hart (personal communication), is labeled in Map 11 because it is referred to with respect to gold anomalies. Glacial ice-flow direction is assumed to be from the northeast.

Table 7: Areas anomalous in gold from surficial sample data.

Gold-Anomalous Area	Description
Area A	This area has a good number of surficial samples highly anomalous in gold, and it also contains the successful 2009 surface bedrock sampling and drillholes. Three highly anomalous surficial gold locations along Pucker Lake and the sample at TL09-006 give the impression that surficial (and bedrock?) gold may be associated with gabbro/ diorite sills within the volcanics.
Area B	There are surficial gold anomalies on the peninsula in Pucker Lake, and there are other anomalies within the area of volcanics. Of particular interest is the grouping of strong surficial gold anomalies SW of Pucker Lake, in an area mapped as a sanukitoid pluton. Ductility contrast of the plutonic and volcanic rocks could have led to fracturing and a place for mineralizing fluids to accumulate. Also, the sanukitoid rock type may have a gold association (Hart 2010).
Area C	The red >98th percentile gold geochemistry location in SW corner claim 4221717 could be a target ("main location"). It shows in the heavy mineral data too, but the 2 blue > 95th percentile gold geochemistry locations SW of the location do not show in the heavy mineral data, and they suggest a geochemical data "train" validating the "main location". The orange > 90th percentile gold geochemistry location SE of the "main location" may possibly result from the same mineralized bedrock structure.
Area D	The orange >90th percentile gold geochemistry location in the northern part of claim 4221726 may indicate bedrock gold nearby. Other samples on this claim also appear elevated in gold (> 75th percentile). The bedrock in this area is mapped as hornblende tonalite.
Area E	A SE-trending line of samples in claim 4221707 has geochemical gold > 98th, > 95th and > 90th percentile, and the samples have gold grain results > 75th and > 90th percentile (Map 6). Similar to Area B, these results are suggesting gold mineralization within the margin area of the sanukitoid pluton.
Area F	Geochemical analysis of heavy mineral samples from 2006 indicates geochemical gold >75th percentile over the volcanic-sedimentary belt rocks. Follow-up surficial sampling and prospecting is required to assess the results, because there are no samples up-ice of the anomalies.

Geochemistry of other elements:

The samples were analyzed for 49 elements besides gold, and gold was reported both by fire assay (Au_ppm_FA) and by ICP-MS (Au_ppm). Table 8 (supplemental pdf file) shows a correlation matrix of the geochemical parameters, created using the Microsoft Excel Analysis Toolpak.

Geochemical maps were plotted for elements having a correlation >= 0.3845 with Au_ppm_FA, and these elements are shown in Table 9, with observations about the related maps.

Table 9: Correlation coefficients of surficial geochemical elements with respect to fire assay gold, and descriptions of geochemical maps.

Element	Correlation with Au_ppm_FA	Geochemical Map Description
Au_ppm_FA	1	Au by fire assay/ ICP, referred to below as fire assay gold or simply gold or Au. It was plotted as Map 5.
Te_ppm	0.780926694	High tellurium results were obtained in the north-central claims area, claims 4221721 and 4221722, and one surficial high-Te location is at drillhole TL09-006 (Map 8). There is also a high-Te location on claim 4221711 that align with gold results, and on claim 4221712, where it is part of favourable target area C (Map 11). Claim 420824 (Area F) has Te at > 90th percentile.
W_ppm	0.772121047	High anomalous tungsten locations plot similarly to gold, with two small surprises in the NE part of claims over tonalite bedrock. On claim 4221724 > 90th percentile W is spatially associated with gold at the 75th percentile, and in claim 4221726 (Area D Map 11) > 90th percentile W is with mostly > 75th percentile gold. Claim 420824 (Area F) has W at > 90th percentile.
Mo_ppm	0.718256442	Mo plots similarly to gold in the central areas “A” and “B”, but in other high-Au areas Mo is not notably high. > 90th percentile Mo on claim 4221704 in the south and > 95th percentile Mo on claim 4221714 in the east may point, together with other elements, to (gold or other) mineralization.
Au_ppm	0.676758389	Gold by ICP-MS: detection limit is high so correlation with FA gold is < 1. No map was plotted for this parameter.
Ba_ppm	0.50218053	Ba was high in the central claims area of anomalous gold, and also in the western Area “F” (claim 4208824). There’s also > 98th percentile Ba in the NW corner of claim 4221711.
Co_ppm	0.454670131	Cobalt results are generally high in the areas of higher gold, but in Areas F and A the high-Co results go a bit farther “afield” than the high gold results. Also similar to Mo, there are high Co anomalies in the south on claims 4221704 and 4221703.
Cr_ppm	0.425922621	Chromium results are generally high in the areas of higher gold but similar to Mo and Co , there are high Cr anomalies in the southern part of the claims: claims 4221704 and 4221703. There’s also > 90th percentile Cr in the east, on claim 4221714.
Ni_ppm	0.403783991	The distribution of nickel anomalies is much like gold. High Ni anomalies also exist in the southern part of the claims: claims 4221704 and 4221703, and there is > 90th percentile Ni in the east on claim 4221714, similar to Mo, Co and Cr.

Element	Correlation with Au_ppm_FA	Geochemical Map Description
Ag_ppm	0.384510847	High silver anomalies occur in the central claims area and area F in the west, but the distribution of anomalies is quite different from gold.

Conclusions and recommendations:

Significance of the gold results:

Gold in bedrock may be expected to occur nearby or up-ice of anomalous surficial gold locations or groups of anomalies. Anomalous surficial gold can occur as gold grains from heavy mineral analysis, and/ or soil geochemical gold. Ice direction is assumed to be from the northeast , parallel to the trend of some lakes**.**

Map 9 shows high-Au bedrock grab and channel samples, and Map 11 shows surficial gold results. By comparing these maps it can be seen that surficial gold anomalies are very close to bedrock gold anomalies (showings) at DDH TL-09-006 and TL09-001. Therefore it would seem reasonable to perform follow-up prospecting work and possible drilling, at some of the highly anomalous gold locations.

Areas A to F on Map 11 are suitable targets for further exploration, based on the gold results from surficial sampling.

Elements additional to gold:

Several elements (Co, Cr and Mo) showed anomalous locations around the south margin of the volcanic rocks, in claims 4221703 and 4221704. Map 16 shows gold above the 75th percentile around these locations and that is not highly anomalous; however the sampling density is low. Because other, possibly gold-related elements are strong here, claims 4221703 and 4221704 are suggested for follow-up by surficial sampling and prospecting, as applicable.

Similarly claim 4221714, in the southeast, has gold only at > 75th percentile. However other elements are very anomalous there (Co, Cr, Mo and Ni). Because sampling density is low there, follow-up surficial sampling and prospecting seem warranted on claim 4221714.

Future surficial sampling:

Ideally, we would have evenly-spaced samples all over the property. However, as a result of terrain conditions and because some surficial sampling was done together with bedrock prospecting of certain areas, there are gaps in the sampling and entire claims remain unsampled. It is recommended that future exploration programs should fill in the gaps in sampling, as much as possible.

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Statement of Qualifications:

I, Steven van Haaften, hereby certify that:

1. I am a Professional Geoscientist (P.Geo. Ontario) residing at 1826 Marie Avenue, Sudbury Ontario P3E 2X8.
2. I graduated with a B.A. (Geography and History) degree in 1974 and an Honours B.Sc. (Geology) degree in 1978 from Carleton University, Ottawa.
3. I have been active in geology work since 1978 with the Ontario Ministry of Natural Resources, the Ontario Ministry of Northern Development and Mines, Superior Diamonds Inc. and Northern Superior Resources Inc.

Date_____ Signature _____

Table 8: Correlation matrix of the Thorne Lake surficial geochemistry

	Ag_ppm	Al_perc	As_ppm	Au_ppm	B_ppm	Ba_ppm	Be_ppm	Bi_ppm	Ca_perc	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Ge_ppm	Hf_ppm	Hg_ppm	In_ppm	K_perc	La_ppm	Li_ppm	Mg_perc	Mn_ppm	Mo_ppm	Na_perc	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	Re_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Te_ppm	Th_ppm	Ti_perc	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm	Au_ppm_FA
Ag_ppm	1																																																				
Al_perc	-0.10244	1																																																			
As_ppm	0.163863	0.432324	1																																																		
Au_ppm	0.450841	0.118896	0.162094	1																																																	
B_ppm	0.116388	-0.17373	0.02987	-0.04726	1																																																
Ba_ppm	0.38313	0.565211	0.347052	0.367175	-0.0078	1																																															
Be_ppm	0.080158	0.814421	0.462017	0.1075	-0.10094	0.669097	1																																														
Bi_ppm	0.079069	0.821954	0.413312	0.146682	-0.09253	0.602332	0.720603	1																																													
Ca_perc	0.182459	-0.77603	-0.2589	-0.0752	0.334113	-0.35981	-0.60164	-0.58127	1																																												
Cd_ppm	0.472029	0.016358	0.137819	0.00956	0.163795	0.183745	0.121014	0.111744	0.114007	1																																											
Ce_ppm	0.194431	0.409425	0.404561	0.164652	-0.01289	0.498607	0.719818	0.362762	-0.37498	0.159656	1																																											
Co_ppm	0.140648	0.827746	0.545953	0.261175	-0.11964	0.67431	0.780191	0.685977	-0.60994	0.165167	0.529816	1																																										
Cr_ppm	0.032764	0.886562	0.493536	0.171901	-0.14132	0.598267	0.719858	0.775762	-0.72277	0.081748	0.458413	0.872177	1																																									
Cs_ppm	0.06226	0.859758	0.485996	0.09022	-0.06933	0.664733	0.735061	0.85298	-0.60878	0.077051	0.396278	0.787481	0.86853	1																																								
Cu_ppm	0.19534	0.493104	0.549527	0.057818	-0.04138	0.358134	0.433809	0.424754	-0.33961	0.196848	0.284928	0.625365	0.525485	0.52387	1																																							
Fe_perc	-0.01552	0.942792	0.476314	0.147221	-0.15741	0.568518	0.725126	0.810997	-0.74335	0.076848	0.34676	0.825265	0.91736	0.869252	0.509992	1																																							
Ga_ppm	-0.09766	0.881534	0.359343	0.115571	-0.18164	0.497262	0.599575	0.750199	-0.73019	-0.00433	0.210379	0.674456	0.841349	0.819415	0.382514	0.941565	1																																							
Ge_ppm	0.221629	0.337877	0.352264	0.136555	-0.08288	0.419749	0.489194	0.365453	-0.24621	0.168818	0.486855	0.451566	0.387417	0.419095	0.318375	0.374863	0.335627	1																																						
Hf_ppm	0.223697	0.398872	0.331468	0.096395	0.08888	0.548722	0.589859	0.460584	-0.09398	0.134171	0.366037	0.425464	0.34916	0.46687	0.160481	0.397583	0.329547	0.36635	1																																					
Hg_ppm	0.25281	0.287937	0.151174	0.146578	-0.0066	0.202594	0.251883	0.304885	-0.18546	0.401755	0.176212	0.225173	0.250759	0.254299	0.231238	0.295544	0.271833	0.141605	0.027516	1																																				
In_ppm	0.010913	0.818749	0.441414	0.074028	-0.09878	0.594359	0.85962	0.746019	-0.60954	0.097657	0.482835	0.743623	0.713768	0.751718	0.44114	0.770217	0.679816	0.40927	0.556451	0.174245	1																																		
K_perc	0.518227	0.296589	0.297882	0.193197	0.2387	0.69968	0.522735	0.454799	0.00716	0.331155	0.37086	0.394751	0.326731	0.510152	0.228141	0.319203	0.245234	0.356475	0.68508	0.137467	0.470402	1																																	
La_ppm	0.222124	0.368421	0.394169	0.168203	-0.02194	0.502529	0.666865	0.336915	-0.34104	0.133908	0.961479	0.494586	0.438022	0.38888	0.299361	0.314135	0.191177	0.480308	0.307866	0.216401	0.427148	0.353294	1																																	
Li_ppm	-0.00525	0.938488	0.463329	0.103688	-0.10478	0.62846	0.80319	0.823089	-0.70321	0.106877	0.431266	0.870179	0.906976	0.912045	0.513726	0.92474	0.848727	0.410731	0.424956	0.31038	0.812436	0.408906	0.403529	1																															
Mg_perc	0.252362	-0.78726	-0.27479	-0.04648	0.397325	-0.34932	-0.61275	-0.57141	0.939066	0.101231	-0.35604	-0.58703	-0.6937	-0.58737	-0.31676	-0.74409	-0.74292	-0.22982	-0.14087	-0.21091	-0.61174	0.028081	-0.31281	-0.68614	1																														
Mn_ppm	0.495444	0.16943	0.427604	0.18975	0.217672	0.578059	0.446647	0.27968	0.136874	0.431392	0.520033	0.440959	0.279551	0.347534	0.274855	0.206027	0.069803	0.403746	0.492632	0.154775	0.311418	0.710354	0.497246	0.311608	0.114223	1																													
Mo_ppm	0.079709	0.430975	0.219095	0.501238	-0.08236	0.367525	0.248678	0.392766	-0.32594	-0.02142	0.147772	0.403845	0.442819	0.342343	0.144191	0.452415	0.476932	0.171387	0.095064	0.27773	0.303119	0.056044	0.161363	0.416992	-0.33793	0.09807	1																												
Na_perc	0.123382	-0.05562	-0.08811	-0.02288	-0.04732	0.082356	-0.01417	0.070422	0.196521	0.072296	-0.04067	-0.05822	-0.06343	0.001456	-0.0642	-0.06114	-0.05613	0.129425	0.018048	0.25742	-0.1939	0.156633	0.001316	-0.00971	0.169039	0.101463	-0.07239	1																											
Nb_ppm	-0.19869	0.742544	0.22474	-0.02402	-0.15517	0.358466	0.511883	0.616584	-0.64346	-0.01064	0.140814	0.516515	0.678945	0.67164	0.235064	0.796924	0.856992	0.306517	0.282672	0.194236	0.585779	0.160817	0.101043	0.725516	-0.64951	-0.02358	0.37465	0.014582	1																										
Ni_ppm	0.094472	0.844465	0.504552	0.186445	-0.10985	0.653428	0.74953	0.71928	-0.66628	0.139243	0.520823	0.943719	0.930269	0.844118	0.62337	0.851434	0.727683	0.414608	0.372919	0.246992	0.726516	0.384001	0.498695	0.905275	-0.6324	0.374822	0.398839	-0.0623	0.56962	1																									
P_ppm	0.488775	-0.50338	-0.04212	0.042203	0.269909	-0.05857	-0.262	-0.3321	0.442415	0.347428	0.131879	-0.2429	-0.32256	-0.30842	-0.08357	-0.42909	-0.52488	0.051095	-0.11513	0.026415	-0.35919	0.227052	0.156191	-0.36289	0.561364	0.309533	-0.24787	0.15098	-0.50129	-0.22879	1																								
Pb_ppm	-0.03206	0.916652	0.506716	0.096946	-0.10058	0.578501	0.83528	0.859134	-0.69354	0.144868	0.479048	0.805806	0.847752	0.833861	0.464224	0.893391	0.811821	0.39946	0.454971	0.318201	0.828548	0.379416	0.422631	0.889983	-0.71596	0.298007	0.379979	0.007372	0.698201	0.814992	-0.40027	1																							
Rb_ppm	0.434953	0.386695	0.278332	0.132994	0.157451	0.718387	0.611515	0.564438	-0.10264	0.289663	0.395656	0.441113	0.385377	0.603307	0.271844	0.379397	0.319546	0.442938	0.631871	0.200807	0.548171	0.92121	0.384788	0.507547	-0.07484	0.651651	0.072828	0.208342	0.260207	0.440966	0.149629	0.468543	1																						
Re_ppm	0.008498	0.018699	0.049115	-0.01749	0.161803	0.037891	0.039805	0.042732	0.052858	0.094261	0.042178	0.040319	0.014724	0.014131	0.09982	0.027739	0.006403	0.00396	0.013862	0.125216	0.067642	0.061031	0.044478	0.038716	0.052057	0.118182	0.159936	0.046588	0.002915	0.023858	0.04149	0.080486	0.069311	1																				
S_perc	0.117409	0.100311	0.045972	0.031386	0.087926	0.17401	0.123981	0.105647	1.29E-05	0.211943	0.096551	0.063514	0.108878	0.120607	0.012627	0.112583	0.092601	0.082569	0.067564	0.241083	0.010081	0.211059	0.1078	0.128925	-0.01809	0.186051	0.0764	0.32051	0.162679	0.090164	0.099281	0.134495	0.172654	0.047228	1																			
Sb_ppm	-0.00575	0.64008	0.458366	0.031621	0.083999	0.346235	0.501853	0.573106	-0.40426	0.195427	0.241211	0.505947	0.570514	0.636475	0.338891	0.680237	0.676734	0.345658	0.439251	0.205349	0.565198	0.371079	0.201701	0.627329	-0.45931	0.26409	0.271405	-0.13997	0.582722	0.529668	-0.28823	0.658829	0.359777	0.06624	0.11865	1																			
Sc_ppm	0.199559	0.698096	0.506276	0.110825	-0.07184	0.670902	0.807018	0.614788	-0.4853	0.142887	0.7145	0.740069	0.657548	0.672786	0.454935	0.649266	0.533664	0.553016	0.619796	0.203632	0.791972	0.603024	0.685504	0.715292	-0.47626	0.558192	0.16066	0.041142	0.423058	0.687949	-0.12766	0.716636	0.659719	0.057298	0.081294	0.500789	1																			
Se_ppm	0.255411	0.297541	0.232521	0.100967	-0.12445	0.297893	0.337412	0.297306	-0.21803	0.436651	0.293998	0.354498	0.299726	0.273412	0.359262	0.320221	0.29203	0.643507	0.147973	0.382937	0.345068	0.1847	0.300298	0.345393	-0.24933	0.288212	0.207999	0.088806	0.262211	0.316368	0.004796	0.332843	0.270435	0.04745	0.086654	0.292926	0.397855	1																		
Sn_ppm	-0.027	0.86276	0.357558	0.060083	-0.09167	0.624077	0.762276	0.83139	-0.65602	0.050142	0.329206	0.633811	0.729873	0.829997	0.357802	0.830043	0.841639	0.29933	0.512516	0.29552	0.783379	0.461561	0.295346	0.820977	-0.68266	0.190022	0.341969	-0.00182	0.742398	0.673364	-0.47186	0.845189	0.560924	0.012404	0.140188	0.649937	0.652546	0.241148	1																	
Sr_ppm	0.210745	-0.64939	-0.15444	-0.0425	0.382964	-0.20776	-0.44823	-0.44903	0.960178	0.173088	-0.26353	-0.48796	-0.60756	-0.46952	-0.28399	-0.62446	-0.6244	-0.15648	0.052535	-0.1437	-0.46559	0.154808	-0.24047	-0.56457	0.860736	0.277693	-0.26054	0.229583	-0.56037	-0.54627	0.402226	-0.54444	0.042458	0.098857	0.059759	-0.26878	-0.3426	-0.14842	-0.51425	1																	
Ta_ppm	-0.21142	0.592308	0.262944	0.024454	-0.19768	0.04448	0.413782	0.34307	-0.53251	0.032204	0.207787	0.407471	0.457166	0.302125	0.265282	0.577992	0.546633	0.138399	0.070905	0.179744	0.427467	-0.15867	0.148006	0.426185	-0.58001	-0.13911	0.350725	-0.13649	0.472488	0.354375	-0.39247	0.537704	-0.14061	0.036907	-0.00033	0.390872	0.315476	0.229921	0.390121	-0.49944	1															
Te_ppm	0.487129	0.445663	0.320842	0.73491	-0.00554	0.536292	0.32649	0.473237	-0.26401	0.116735	0.226087	0.552758	0.502393	0.426295	0.323954	0.512803	0.437853	0.256605	0.244538	0.255151	0.355677	0.348075	0.230416	0.441412	-0.22962	0.292897	0.600732	-0.01719	0.226865	0.493841	-0.08235	0.420338	0.278183	0.083607	0.098846	0.322599	0.324351	0.243516	0.336814	-0.18128	0.224609	1													
Th_ppm	0.079849	0.560865	0.398293	0.065806	-0.0685	0.556147	0.806664	0.548088	-0.3999	0.003583	0.693204	0.588868	0.496003	0.544608	0.291743	0.490928	0.367764	0.507796	0.715664	0.067375	0.664132	0.510599	0.630526	0.538781	-0.41369	0.413821	0.084643	-0.01054	0.359465	0.535685	-0.15907	0.624371	0.571424	-0.0061	-0.00229	0.38655	0.791994	0.186757	0.570874	-0.28346	0.224278	0.197086	1											
Ti_perc	-0.04875	0.816398	0.360984	0.148335	-0.13295	0.506318	0.556423	0.680807	-0.66869	-0.01016	0.234252	0.679956	0.844841	0.807165	0.335563	0.903365	0.942749	0.338531	0.385911	0.200852	0.598818	0.303068	0.210941	0.819237	-0.6583	0.133492	0.440724	-0.06787	0.833093	0.73379	-0.41735	0.737229	0.33922	-0.0069	0.11533	0.659536	0.511226	0.19053	0.756264	-0.56633	0.454906	0.448047	0.398327	1										
Tl_ppm	0.29855	0.529863	0.36236	0.158134	0.093986	0.738385	0.667713	0.701725	-0.206	0.223887	0.490914	0.567415	0.52185	0.73393	0.390965	0.504271	0.427492	0.429842	0.559999	0.232575	0.589843	0.76241	0.485767	0.63721	-0.1946	0.602933	0.185192	0.205297	0.356161	0.589996	0.012511	0.607003	0.873157	0.056757	0.169505	0.396522	0.664284	0.28754	0.629322	-0.05258	-0.03811	0.33193	0.594076	0.425922	1									
U_ppm	0.199824	0.253774	0.163398	0.06309	-0.02442	0.292367	0.308087	0.241886	-0.21829	0.504198	0.426274	0.283477	0.289035	0.23205	0.211699	0.256659	0.188933	0.299381	0.158598	0.370116	0.262074	0.140853	0.430194	0.278457	-0.22831	0.193214	0.133633	-0.01265	0.138532	0.319896	0.114632	0.293664	0.156524	0.032505	0.143352	0.154599	0.277854	0.41325	0.215064	-0.14831	0.147503	0.13186	0.300423	0.179421	0.234991	1							
V_ppm	-0.09765	0.853953	0.379138	0.107561	-0.15697	0.427201	0.541485	0.71858	-0.70468	0.001898	0.178756	0.672941	0.837107	0.790882	0.401065	0.949354	0.974191	0.292535	0.2964	0.249314	0.629602	0.206014	0.158169	0.821874	-0.70896	0.066258	0.427059	-0.08087	0.833006	0.723537	-0.48311	0.783593	0.252516	0.00716	0.096828	0.682588	0.487146	0.241924	0.772934	-0.61453	0.552397	0.453475	0.324775	0.947527	0.362376	0.15927	1						
W_ppm	0.30523	0.44424	0.237006	0.52089	-0.09013	0.457832	0.245749	0.391702	-0.33162	-0.00546	0.175568	0.504841	0.568928	0.45648	0.195521	0.523083	0.524178	0.219629	0.150058	0.179488	0.277121	0.209666	0.165869	0.47143	-0.28838	0.184178	0.631658	-0.04606	0.376699	0.502715	-0.12672	0.38226	0.152561	0.001618	0.047129	0.27773	0.246949	0.161769	0.322872	-0.27977	0.207304	0.740225	0.124511	0.566827	0.240347	0.088087	0.512077	1					
Y_ppm	0.353843	0.204593	0.255455	0.064757	0.106142	0.31643	0.405035	0.043052	0.110852	0.20534	0.747534	0.175836	0.022321	0.058254	0.146099	-0.08269	-0.20238	0.44119	0.276829	0.122094	0.159993	0.398273	0.793061	0.038427	0.147181	0.565817	-0.10538	0.180677	-0.17638	0.127193	0.433824	0.071865	0.418221	0.05431	0.08208	-0.00596	0.559226	0.271857	-0.01499	0.170544	-0.13337	0.021762	0.474878	-0.16557	0.392645	0.203953	-0.2307	-0.06564	1				
Zn_ppm	0.374802	0.66765	0.539739	0.180963	0.060061	0.744344	0.692813	0.673388	-0.42766	0.392758	0.473559	0.764299	0.734214	0.802234	0.538601	0.712287	0.609904	0.477983	0.545268	0.288542	0.676369	0.72804	0.470461	0.783713	-0.38313	0.601097	0.231646	0.003147	0.455523	0.784702	0.024992	0.689663	0.751876	0.053634	0.169931	0.566773	0.725628	0.378876	0.658204	-0.27948	0.121074	0.450985	0.53869	0.648337	0.741504	0.390405	0.596236	0.357421	0.252051	1			
Zr_ppm	0.302707	0.31167	0.288687	0.188073	0.098971	0.566367	0.492872	0.405333	0.01914	0.144285	0.280432	0.374548	0.275113	0.395048	0.119788	0.323576	0.266303	0.351215	0.96169	0.00135	0.464731	0.711587	0.226123	0.335117	-0.03371	0.506326	0.087398	0.079353	0.208933	0.297826	-0.06995	0.371126	0.640432	0.020732	0.058622	0.383248	0.5518	0.128437	0.440787	0.161331	0.009332	0.303741	0.655379	0.33772	0.547993	0.122328	0.231308	0.188699	0.255085	0.50692	1		
Au_ppm_FA	0.384511	0.364485	0.190248	0.676758	-0.00324	0.502181	0.262711	0.371801	-0.23851	0.001893	0.246543	0.45467	0.425923	0.331296	0.136428	0.372121	0.350873	0.193007	0.161581	0.161038	0.228858	0.223585	0.250574	0.365025	-0.19907	0.222505	0.718256	0.004349	0.186658	0.403784	-0.03613	0.298708	0.186416	0.087198	0.048864	0.175129	0.228692	0.105196	0.267145	-0.16396	0.169628	0.780927	0.160231	0.381525	0.24126	0.123949	0.318906	0.772121	0.062573	0.28175	0.219534		1
	Ag_ppm	Al_perc	As_ppm	Au_ppm	B_ppm	Ba_ppm	Be_ppm	Bi_ppm	Ca_perc	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Ge_ppm	Hf_ppm	Hg_ppm	In_ppm	K_perc	La_ppm	Li_ppm	Mg_perc	Mn_ppm	Mo_ppm	Na_perc	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	Re_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Te_ppm	Th_ppm	Ti_perc	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm	Au_ppm_FA

Appendix 1: Surficial geochemistry data used in the Thorne Lake Project, with summary statistics and data from standard reference materials. Note: below-detection values have generally been set to 1/2 the detection limit.

dataset	cert_num	GCsample#s	HMUsampl_no	utm_east83	utm_north83	Ag_ppm	Al_perc	As_ppm	Au_ppm	B_ppm	Ba_ppm	Be_ppm	Bi_ppm	Ca_perc	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Ge_ppm	Hf_ppm	Hg_ppm	In_ppm	K_perc	La_ppm	Li_ppm	Mg_perc	Mn_ppm	Mo_ppm	Na_perc	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	Re_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Te_ppm	Th_ppm	Ti_perc	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm	Au_ppm_FA	field material type	field_texture	comments	date	matrl std desc	percent LS	IODM material class
NW2006	SO8817831	NW06-0276	NW06-0276	571261	6338840	0.04	1.09	1.5	0.0005	5	50	0.4	0.09	7.37	0.11	49.9	6.3	28	1.24	16.9	1.54	4.02	0.09	0.17	0.03	0.017	0.17	25.5	18.7	2.53	308	0.15	0.03	2.01	16.8	560	5.2	20.5	0.0005	0.05	0.09	3.9	0.6	0.4	61.6	0.005	0.03	5.1	0.078	0.13	0.77	28	0.17	9.46	32	6.9	0.002	glac lac	silty clay w some sand		2006	lacustrine	0.5	TILL
NW2006	SO8817832	NW06-0277	NW06-0277	571134	6338873	0.03	1.31	1.7	0.0005	5	50	0.45	0.1	5.83	0.07	51.9	6.7	31	1.42	16.3	1.75	4.64	0.08	0.23	0.02	0.018	0.17	26	21.5	2.36	262	0.25	0.03	1.46	18.7	510	5.9	21	0.0005	0.03	0.07	4.4	0.4	0.5	50.7	0.005	0.02	6.5	0.092	0.13	0.58	32	0.19	9.6	33	9.9	0.004	Till veneer	sandy clayey silt w subangular pebbles		2006	till veneer	10	TILL
NW2006	SO8817833	NW06-0278	NW06-0278	571011	6338954	0.04	1.91	2.5	0.0005	5	80	0.73	0.19	1.4	0.11	67.2	10	44	1.85	19.5	2.43	6.77	0.09	0.21	0.04	0.025	0.2	34.3	30.8	1.04	351	0.33	0.03	2.34	27.5	520	8.7	30	0.0005	0.04	0.09	5.8	0.5	0.8	29.4	0.005	0.02	8.3	0.109	0.18	0.72	42	0.21	11.5	46	8.3	0.007	glac lac fluvial	sandy silty clay w coarse sand lenses		2006	beach	10	TILL
NW2006	SO8817832	NW06-0279	NW06-0279	570848	6339002	0.02	0.82	1.1	0.0005	5	40	0.28	0.06	7.26	0.07	40.9	5.3	26	0.82	12.8	1.2	2.95	0.06	0.13	0.02	0.011	0.09	20.6	13.3	1.27	253	0.14	0.02	1.53	13.8	530	4.1	11.1	0.0005	0.02	0.04	3.3	0.3	0.3	57.8	0.005	0.02	4.2	0.073	0.08	0.28	25	0.14	7.48	21	7.3	0.003	Till veneer	silty fine sand		2006	till veneer	10	TILL
NW2006	SO8817832	NW06-0280	NW06-0280	570752	6339053	0.05	1.58	2.2	0.0005	10	70	0.66	0.15	7.83	0.11	62.8	8.1	35	1.78	19.8	2.09	5.71	0.09	0.44	0.02	0.024	0.28	31.9	26.7	2.29	348	0.28	0.03	2.21	22	510	7.5	31.6	0.0005	0.04	0.1	5.2	0.5	0.8	72.7	0.005	0.03	8.5	0.099	0.18	1.22	37	0.18	11.35	44	17	0.002	glac lac	sandy silty clay		2006	lacustrine	15	SILT + CLAY
NW2006	SO8817832	NW06-0281	NW06-0281	570621	6339081	0.03	1.07	2.5	0.0005	5	40	0.29	0.07	3.37	0.05	54.1	8.3	45	1.24	20.7	1.68	3.86	0.07	0.08	0.02	0.012	0.09	28.7	16.9	1.73	253	0.15	0.02	1.5	23.4	580	5.2	13	0.0005	0.09	0.06	3.7	0.4	0.3	32.6	0.005	0.01	4.6	0.089	0.09	0.56	33	0.15	7.97	26	3.2	0.003	glac fluvial	coarse silty sand w rounded pebbles		2006	glaciofluvial	0.5	TILL
NW2006	SO8817832	NW06-0282	NW06-0282	570525	6339225	0.03	1.86	2.4	0.0005	5	70	0.66	0.14	0.59	0.04	56.6	8.9	39	1.68	13.5	2.37	6.53	0.08	0.16	0.02	0.023	0.18	26.4	27.2	0.63	299	0.19	0.02	2.01	26	510	8.2	26	0.0005	0.06	0.08	5.1	0.3	0.7	24.9	0.005	0.02	7.9	0.105	0.17	0.74	40	0.17	8.63	39	6.7	0.002	glac lac	silty clay w some sand		2006	lacustrine	0.5	SAND + SILT
NW2006	SO8817833	NW06-0350	NW06-0350	571169	6340043	0.05	1.1	17.4	0.0005	5	40	0.27	0.09	4.47	0.09	53.9	14.2	51	1.98	116	2.06	4.44	0.11	0.11	0.02	0.012	0.09	31.8	18.9	2.22	327	0.26	0.005	1.33	34.3	660	5.5	10.1	0.0005	0.05	0.08	4.6	0.5	0.3	34.3	0.01	0.03	6.5	0.086	0.09	0.68	37	0.3	11.25	52	3.7	0.005	Till veneer	coarse to med sand w angular pebbles		2006	till veneer	20	TILL
NW2006	SO8817833	NW06-0357	NW06-0357	571267	6339958	0.02	0.55	4	0.0005	5	30	0.23	0.05	10.6	0.05	30.6	3.9	15	0.61	8.3	0.88	2.19	0.07	0.1	0.01	0.01	0.05	17	8.8	2.93	210	0.12	0.005	0.96	7.1	450	3.4	6.7	0.0005	0.05	0.06	2.2	0.4	0.3	77.6	0.005	0.02	4.2	0.086	0.06	0.56	19	0.14	8.98	15	4.2	0.011	glac fluvial	pebbles		2006	glaciofluvial	30	SAND + SILT
NW2006	SO8817833	NW06-0358	NW06-0358	571532	6339879	0.01	1.93	3.2	0.0005	5	60	0.69	0.13	0.4	0.04	99	12.4	47	2.02	22.1	2.48	6.89	0.15	0.21	0.02	0.02	0.1	53.8	26.5	0.7	282	0.26	0.005	1.34	29.4	370	6.9	16.7	0.0005	0.05	0.08	5.4	0.5	0.5	18	0.01	0.03	10.3	0.109	0.14	0.99	47	0.25	13.45	37	7.2	0.01	Till veneer	pebbly sandy silt w large clasts		2006	till veneer	10	TILL
NW2006	SO8817833	NW06-0359	NW06-0359	571881	6339746	0.03	0.99	4	0.0005	10	50	0.41	0.11	11	0.08	44.7	6.6	22	1.25	12.6	1.42	3.78	0.08	0.28	0.02	0.016	0.14	22.4	16.1	2.58	321	0.12	0.01	1.25	16.4	610	4.1	13.3	0.0005	0.05	0.09	3.6	0.5	0.5	86.8	0.005	0.03	7	0.069	0.11	0.63	28	0.25	9.32	28	11.6	0.002	glac fluvial	silty clay w fine subrounded pebbles		2006	glaciofluvial	SAND + SILT
NW2006	SO8817833	NW06-0360	NW06-0360	572109	6339751	0.02	0.84	3.4	0.0005	5	30	0.22	0.07	7.88	0.06	35.9	10.9	32	1.17	24.5	1.63	3.18	0.08	0.08	0.01	0.013	0.08	17.3	11.8	2.63	291	0.19	0.005	0.98	20.1	620	4.7	11	0.0005	0.05	0.07	2.9	0.5	0.2	58.3	0.005	0.03	4.3	0.07	0.09	0.61	33	0.41	6.49	29	2.8	0.009	till blanket	subrounded pebble		2006	till blanket	20	TILL
NW2006	SO8817833	NW06-0361	NW06-0361	572208	6339693	0.02	0.73	2	0.0005	5	30	0.22	0.08	11.3	0.07	35.3	4.7	18	0.9	23.5	1.08	2.76	0.05	0.12	0.01	0.012	0.08	18.8	11.2	2.76	237	0.13	0.01	1.13	17.3	450	4.2	10.8	0.0005	0.05	0.07	2.7	0.4	0.4	81.1	0.005	0.01	4.8	0.055	0.1	0.57	22	0.26	7.97	19	4.9	0.002	Till veneer	silty sandy clay w angular pebbles		2006	till veneer	SAND + SILT
NW2006	SO8817833	NW06-0401	NW06-0401	570964	6340088	0.02	0.62	0.05	0.0005	5	30	0.27	0.06	11.05	0.05	36.1	4.9	16	0.76	10.6	1.02	2.42	0.07	0.19	0.02	0.011	0.07	20	11.3	3.09	259	0.17	0.005	0.85	9.2	450	4.6	9.5	0.0005	0.05	0.07	2.7	0.4	0.3	82.4	0.005	0.01	5.5	0.058	0.09	0.59	21	0.14	7.92	18	7.6	0.0005	till blanket	pebbly silty fine sand		2006	till blanket	60	TILL
NW2006	SO8817833	NW06-0402	NW06-0402	570807	6340137	0.04	0.88	3.8	0.0005	10	30	0.31	0.07	8.08	0.06	38.6	7.9	31	0.93	27	1.35	3.21	0.08	0.02	0.014	0.08	19.9	14.9	2.45	281	0.21	0.005	1.32	20.3	520	5.2	13.3	0.0005	0.05	0.07	3.2	0.7	0.3	60.3	0.005	0.01	4.1	0.054	0.09	0.67	25	0.14	8.15	26	2.7	0.003	Till veneer	silty fine sand w subangular pebbles		2006	till veneer	30	TILL
NW2006	SO8817833	NW06-0403	NW06-0403	570615	6340195	0.02	0.81	1.6	0.0005	10	30	0.33	0.08	9.5	0.06	37.5	5.3	21	0.9	12.6	1.2	3.05	0.08	0.17	0.03	0.013	0.1	18.8	12.6	2.66	255	0.15	0.005	1.29	11.6	440	4.5	13.4	0.0005	0.05	0.06	3	0.6	0.4	72.7	0.005	0.02	5.5	0.06	0.08	0.56	24	0.14	7.96	22	6.6	0.001	glac fluvial	sand lite w subrounded to rounded pebbles		2006	glaciofluvial	30	SAND + SILT
NW2006	SO8817833	NW06-0404	NW06-0404	570244	6340277	0.01	2.34	3.2	0.0005	5	60	0.59	0.1	0.38	0.05	74.6	17	69	2.59	25.8	2.67	7.03	0.13	0.17	0.02	0.019	0.1	36.9	32.1	0.87	282	0.3	0.005	1.56	42.8	430	7.7	15.8	0.0005	0.05	0.06	5	0.6	0.5	19.7	0.01	0.02	8.2	0.143	0.11	0.83	50	0.26	8.45	41	5.9	0.012	till blanket	med grained sand w angular pebbles	2006	till blanket	10	TILL
TL2008	SO8817911	E240316	NW06-0001	587197	6340330	0.02	0.61	0.8	0.0005	10	30	0.18	0.05	9.94	0.05	34.6	4.5	22	0.76	17.5	0.95	2.18	0.05	0.08	0.02	0.009	0.06	18.5	9.5	2.96	173	0.16	0.005	1.14	13.7	510	3.3	9.9	0.0005	0.02	0.06	2.5	0.3	0.2	68.2	0.005	0.01	3.4	0.057	0.09	0.56	20	0.24	7.16	17	3.3	0.009	till blanket	pebbly-sandy-silt	2006	till blanket	50	TILL
TL2008	SO8817911	E240317	TL08-0002	587095	6340503	0.01	0.88	1.3	0.0005	10	30	0.24	0.07	6.36	0.04	35	4.9	22	0.84	11	1.13	3.01	0.05	0.06	0.03	0.012	0.05	21.4	12.8	2.34	154	0.12	0.005	1.36	13.9	450	3.9	9.3	0.0005	0.01	0.06	2.7	0.1	0.4	42.1	0.005	0.01	5.4	0.064	0.09	0.61	23	0.12	7.41	18	2.9	0.006	till-blanket	pebbly-sandy-silt	L stone bearing -fissile	9/30/2008	till blanket	30	TILL
TL2008	SO8817911	E240318	TL08-0003	588531	6340768	0.02	0.76	1.2	0.0005	10	30	0.23	0.05	8.54	0.05	38.6	4.6	19	0.81	13.8	0.99	2.74	0.05	0.09	0.02	0.009	0.06	19.9	11.4	2.73	176	0.13	0.005	1.18	11.5	500	3.8	8.3	0.0005	0.02	0.05	2.3	0.3	0.3	50.6	0.005	0.01	4	0.09	0.09	0.54	18	0.12	7.28	17	2.4	0.006	till-blanket	pebbly-sandy-silt	L stone bearing -Drumlin	9/30/2008	till blanket	30	TILL
TL2008	SO8817911	E240319	TL08-0004	586791	6341028	0.02	0.64	1.1	0.0005	10	20	0.21	0.05	7.63	0.04	34.8	4	20	0.71	12.1	0.93	2.21	0.05	0.09	0.01	0.011	0.07	18.9	10.1	2.94	158	0.17	0.005	1.27	13.9	550	3	9	0.0005	0.02	0.05	2.3	0.1	0.3	46.7	0.005	0.01	4.7	0.06	0.09	0.56	18	0.11	7.06	17	3.6	0.004	till-blanket	pebbly-sandy-silt	L stone Bearing -Drumlin	9/30/2008	till blanket	50	TILL
TL2008	SO8817911	E240320	TL08-0005	586795	6341355	0.01	0.43	0.7	0.0005	10	20	0.15	0.04	9.38	0.03	28.3	3.6	20	0.61	10.6	0.81	1.67	0.05	0.08	0.01	0.009	0.05	14.7	7.2	3.21	151	0.13	0.005	1.04	11.8	540	2.6	6.1	0.0005	0.01	0.05	1.9	0.1	0.2	51.4	0.005	0.01	3.9	0.052	0.08	0.52	17	0.13	5.76	14	4.4	0.003	till-blanket	pebbly-sandy-silt	L stone bearing	9/30/2008	till blanket	30	TILL
TL2008	SO8817911	E240321	TL08-0006	586494	6341622	0.01	0.51	1.3	0.0005	5	20	0.17	0.04	9.38	0.07	35.4	4.6	17	0.42	7.4	0.82	1.49	0.05	0.07	0.005	0.008	0.03	16.9	7.2	2.67	189	0.14	0.005	0.99	13.2	490	3.6	4	0.0005	0.02	0.06	1	0.2	0.2	52.7	0.005	0.01	4.2	0.043	0.06	0.59	16	0.11	9.14	13	2.9	0.009	till-stratified?	pebbly-sandy-silt	L stone bearing	9/30/2008	till stratified	40	TILL
TL2008	SO8817911	E240322	TL08-0007	588170	6340452	0.02	0.59	1.1	0.0005	10	20	0.22	0.05	7.26	0.05	37.5	4.1	18	0.84	8.5	0.9	2.12	0.05	0.08	0.01	0.009	0.05	22.5	9.6	3.27	148	0.13	0.005	1.26	11.4	590	3.8	7.3	0.0005	0.02	0.06	2.3	0.1	0.2	47.2	0.005	0.01	4.1	0.055	0.07	0.61	20	0.11	7.59	15	2.5	0.005	till-stratified	pebbly-sandy-silt	L stone bearing -fissile	9/30/2008	till stratified	30	TILL
TL2008	SO8817911	E240323	TL08-0008	588031	6340610	0.01	0.43	0.7	0.0005	10	20	0.15	0.04	9.38	0.03	31.6	3.8	19	0.64	10.8	0.78	1.61	0.05	0.06	0.01	0.009	0.05	17.7	7.2	3.01	151	0.12	0.005	0.96	10.8	510	2.9	5.1	0.0005	0.01	0.05	1.9	0.1	0.2	46.6	0.005	0.01	3.9	0.052	0.07	0.52	17	0.13	5.78	14	4.4	0.003	till-blanket	pebbly-sandy-silt	L stone bearing	9/30/2008	till blanket	30	TILL
TL2008	SO8817911	E240324	TL08-0009	587824	6341241	0.01	0.73	1	0.0005	10	30	0.22	0.05	6.64	0.07	36.2	4.7	21	0.69	11.6	0.99	2.47	0.05	0.06	0.01	0.011	0.05	21.1	10.8	2.65	151	0.13	0.005	1.19	13.1	520	3.5	8.4	0.0005	0.02	0.06	2.6	0.2	0.3	41.6	0.005	0.01	3.7	0.053	0.07	0.57	20	0.08	7.11	19	2.2	0.01	till-blanket	pebbly-sandy-silt	L stone till	1/10/2008	till blanket	30	TILL
TL2008	SO8817911	E240325	TL08-0010	587572	6341370	0.01	0.44	0.4	0.0005	10	10	0.14	0.04	8.69	0.03	31.2	3.9	14	0.44	8.8	0.69	1.41	0.05	0.05	0.01	0.008	0.04	16.9	7.3	2.67	132	0.12	0.005	0.84	9.2	530	2.5	5.5	0.0005	0.01	0.05	1.8	0.1	0.2	52.2	0.005	0.01	3.4	0.05	0.06	0.57	14	0.15	6.67	12	2.1	0.01	till-blanket	pebbly-sandy-silt	L stone till - fissile	1/10/2008	till blanket	30	TILL
TL2008	SO8817911	E240327	TL08-0011	586808	6341770	0.04	1.92	6	0.0005	10	60	0.42	0.15	3.75	0.1	94.3	12.4	37	3.02	6.51	0.07	0.07	0.02	0.018	0.18	0.42	0.38	92.9	38.3	2.3	416	0.38	0.005	1.22	62.4	680	9.3	15.2	0.0005	0.03	0.1	4.4	0.3	0.3	31.6	0.005	0.07	5.1	0.129	0.2	0.79	57	0.37	11.2	44	2.7	0.035	S&G	No obvious feature - L stone and Volcanic rich Angular Clasts and cobble	1/10/2008	glaciofluvial	20	TILL
TL2008	SO8817911	E240328	TL08-0012	586823	6342026	0.02	0.61	0.7	0.0005	10	20	0.2	0.06	8	0.05	34.9	4.1	19	0.69	9.3	0.88	2.17	0.05	0.07	0.01	0.01	0.06	18.5	11	2.84	166	0.16	0.005	1.19	12.3	490	3.2	8.3	0.0005	0.02	0.05	2.3	0.2	0.3	52.7	0.005	0.01	4	0.054	0.07	0.61	18	0.13	7.01	17	2.9	0.003	till-blanket	pebbly-silty-f.sand	1/10/2008	till blanket	30	TILL
TL2008	SO8817911	E240329	TL08-0013	586648	6342215	0.01	0.76	1.7	0.0005	10	30	0.23	0.06	2.92	0.05	38.9	3.8	23	0.3	30.7	1.14	2.69	0.06	0.12	0.01	0.008	0.04	23.5	13.2	1.41	211	0.1	0.005	0.9	14.2	680	4.4	10.1	0.0005	0.03	0.05	2.1	0.3	0.3	47.8	0.005	0.01	4.6	0.08	0.08	0.72	21	0.17	8.31	17	2.7	0.005	till-stratified	pebbly-sandy-silt	L stone till - fissile	1/10/2008	till stratified	30	TILL
TL2008	SO8817911	E240330	TL08-0014	586510	6342448	0.02	1.24	1.6	0.0005	5	70	0.35	0.08	1.68	0.09	61.2	9.6	33	1.27	21.8	1.64	4.35	0.05	0.09	0.02	0.015	0.08	34.5	21	1	202	0.24	0.005	1.53	31.6	720	4.8	13.7	0.0005	0.02	0.06	3.2	0.3	0.4	25.0	0.005	0.01	5.2	0.102	0.12	1.04	32	0.12	9.23	34	3.3	0.008	till-washed	pebbly-sandy-silt	L stone - Massive	2/10/2008	till washed	40	TILL
TL2008	SO8817911	E240331	TL08-0015	586243	6342220	0.02	0.64	0.9	0.0005	5	30	0.26	0.05	3.2	0.06	49	6.8	28	0.8	15.3	0.9	2.22	0.05	0.08	0.01	0.015	0.06	28.8	13	2.86	186	0.16	0.005	1.08	25.4	870	4.8	21.1	0.0005	0.03	0.06	2.1	0.3	0.3	46.8	0.005	0.01	4.1	0.062	0.08	0.52	18	0.12	8.44	22	12.4	0.012	till-washed	pebbly-sandy-silt	L stone	2/10/2008	till washed	30	TILL
TL2008	SO8817911	E240332	TL08-0016	586024	6342140	0.01	0.41	0.6	0.0005	10	20	0.14	0.07	9.43	0.06	31.4	3.8	15	0.48	11.2	0.65	1.5	0.05	0.08	0.01	0.008	0.04	17	7.6	2.98	171	0.09	0.005	1.05	10	500	3.2	5.7	0.0005	0.02	0.05	1.8	0.1	0.2	61.4	0.005	0.01	4	0.046	0.07	0.59	14	0.08	6.32	13	4	0.003	Flow till	pebbly-sandy-silt	L stone till lens above massive clay	2/10/2008	till flow	50	TILL
TL2008	SO8817911	E240333	TL08-0017	586436	6342344	0.005	2.1	1.7	0.0005	5	30	0.29	0.11	0.18	0.03	27.8	10.4	58	1.52	25.5	2.55	8.27	0.025	0.1	0.01	0.02	0.04	148.3	0.59	117	0.61	0.005	2.5	35.7	240	6	6.4	0.0005	0.02	0.11	3.2	0.2	0.5	12	0.01	0.03	3.5	0.169	0.08	0.57	61	0.24	4.45	27	4.2	0.004	diamict	pebbly-silty-f.sand	till/unsorted) material overlaying till with evidence of seasonal deposition	3/10/2008	till blanket	30	TILL
TL2008	SO8817911	E240334	TL08-0018	586490	6342075	0.01	0.47	0.4	0.0005	5	20	0.13	0.04	8.94	0.05	32.9	3.2	15	0.62	8.2	0.75	1.7	0.05	0.06	0.01	0.008	0.05	18	8.4	2.92	161	0.12	0.005	1.11	9	530	3.1	7.4	0.0005	0.01	0.05	1.8	0.1	0.2	61.2	0.005	0.01	4.1	0.053	0.08	0.6	15	0.16	6.58	13	3	0.003	gravel	gravelly sand	pocket of gravelly sand in bedrock cavity nothing else but organics	3/10/2008	glaciofluvial	20	TILL
TL2008	SO8817911	E240335	TL08-0019	581726	6341947	0.01	0.49	0.6	0.0005	5	20	0.18	0.04	4.15	0.05	30.6	3.3	16	0.37	5.6	0.72	1.83	0.05	0.05	0.01	0.007	0.02	16.5	7.8	1.84	99	0.1	0.005	1.1	9.6	350	3.1	3.7	0.0005	0.02	0.05	1.7	0.1	0.2	26.9	0.005	0.005	3.3	0.046	0.05	0.48	15	0.09	5.86	9	1.7	0.004	till-blanket	pebbly-silty-sand	L stone	4/10/2008	till blanket	30	TILL
TL2008	SO8817911	E240336	TL08-0020	581873	6341679	0.01	0.61	1	0.0005	5	20	0.2	0.05	6.21	0.03	35.2	3.9	20	0.61	9.2	0.88	2.15	0.05	0.07	0.01	0.01	0.06	19.7	9.5	2.4	173	0.13	0.005	1.1	12.1	500	3.3	8.7	0.0005	0.02	0.05	2.1	0.3	0.3	56.7	0.005	0.01	4.3	0.057	0.08	0.53	19	0.13	6.88	22	2.5	0.007	Paleo Beach	pebbly-sand-minor silt	L stone bearing - Massive	4/10/2008	beach	40	TILL
TL2008	SO8817911	E240337	TL08-0021	582009	6341476	0.01	0.26	0.9	0.0005	5	10	0.12	0.03	9.63	0.04	25.1	2.6	10	0.3	5.6	0.57	1.1	0.05	0.09	0.01	0.006	0.03	12.9	4.6	2.89	152	0.1	0.005	0.8	5.8	460	2.9	2.7	0.0005	0.01	0.05	1.3	0.1	0.1	61.1	0.005	0.01	3.2	0.039	0.05	0.49	11	0.42	5.14	7	3.3	0.004	till-lacustrine?	pebbly-silty-sand	Unsorted massive - no fissility	4/10/2008	till washed	10	TILL
TL2008	SO8817911	E240338	TL08-0022	582109	6341320	0.01	2.9	0.3	0.0005	5	10	0.1	0.03	9.61	0.04	25	2.9	11	0.32	7	0.58	1.1	0.05	0.06	0.01	0.006	0.03	13	5.3	2.63	159	0.11	0.005	0.86	7.3	440	2.5	3	0.0005	0.02	0.05	1.4	0.1	0.2	64.6	0.005	0.01	3	0.038	0.06	0.47	11	0.07	5.36	10	2.8	0.007	glaciofluvial	pebbly-sand	Crevasse infill or small GF failure (40mx10mx3.5m) orientation	4/10/2008	till blanket	50	TILL
TL2008	SO8817911	E240339	TL08-0023	582301	6340747	0.02	0.76	1.8	0.0005	5	30	0.28	0.08	6.21	0.05	37.9	5.4	19	0.74	8.6	0.97	2.24	0.05	0.08	0.01	0.01	0.06	21.5	12.9	2.6	166	0.15	0.005	1.12	12.7	530	3.2	6.2	0.0005	0.02	0.05	2.2	0.3	0.3	46.8	0.005	0.01	4.1	0.056	0.09	0.58	19	0.13	7.51	20	3.4	0.003	till-blanket	pebbly-sandy-silt	L stone - compact	4/10/2008	till blanket	50	TILL
TL2008	SO8817911	E240340	TL08

Appendix 1: Sufficial geochemistry data used in the Thorne Lake Project, with summary statistics and data from standard reference materials. Note: below-detection values have generally been set to 1/2 the detection limit.

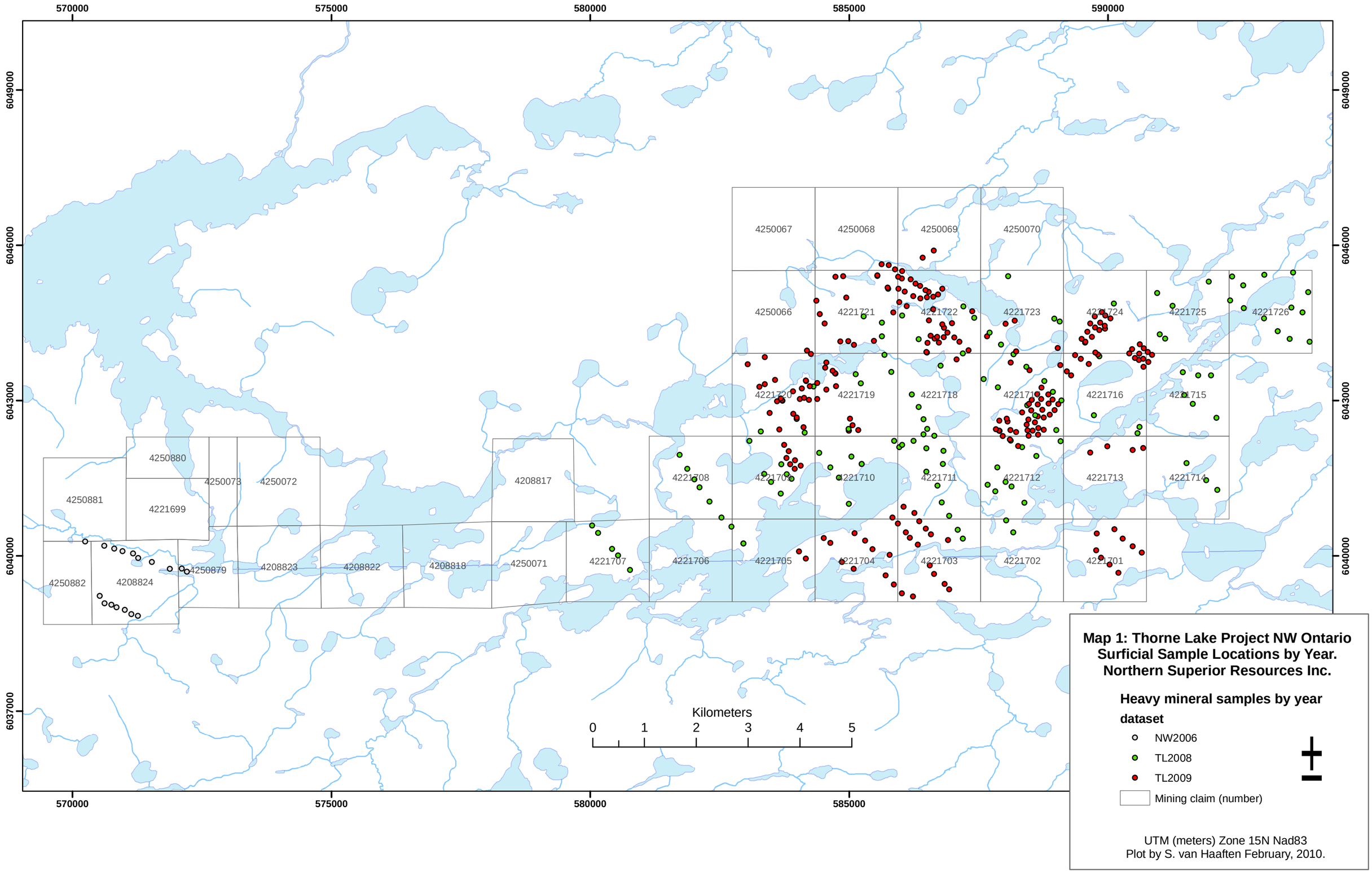
dataset	cert_num	GCsampleno	HMsampl_no	utm_east83	utm_north83	Ag_ppm	Al_perc	As_ppm	Au_ppm	B_ppm	Ba_ppm	Be_ppm	Bi_ppm	Ca_perc	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm	Cs_ppm	Cu_ppm	Fe_perc	Ga_ppm	Ge_ppm	Hf_ppm	Hg_ppm	In_ppm	K_perc	La_ppm	Li_ppm	Mg_perc	Mn_ppm	Mo_ppm	Na_perc	Nb_ppm	Ni_ppm	P_ppm	Pb_ppm	Rb_ppm	Re_ppm	S_perc	Sb_ppm	Sc_ppm	Se_ppm	Sn_ppm	Sr_ppm	Ta_ppm	Te_ppm	Th_ppm	Ti_perc	Tl_ppm	U_ppm	V_ppm	W_ppm	Y_ppm	Zn_ppm	Zr_ppm	Au_ppm_FA	field material type	field_texture	comments	date	matrl std desc	percent LS	ODM material class
TL2009	SD09082755	H753077	TL09-0077	585491	6049933	0.005	2.22	1.1	0.0005	5	30	0.23	0.06	7.63	0.05	34.2	4.8	19	0.71	10.7	2.99	9.2	0.11	0.3	0.09	0.05	0.12	0.012	0.02	7.6	21	0.47	84	0.61	0.11	1.33	12.6	460	3.6	9.5	0.0005	0.05	0.12	2.6	0.3	0.4	5.3	0.02	0.03	2.8	0.105	0.05	0.37	67	0.15	2.09	21	1.6	0.006	Tilt-Veneer	silty-sand	reworked till	7/13/2009	till veneer	0	TILL
TL2009	SD09117280	H753077 dup	TL09-0077	585491	6049933	0.01	2.21	1.1	0.0005	5	10	0.22	0.07	7.51	0.03	15.9	8.1	25	0.92	31.7	2.59	8.05	0.05	0.06	0.02	0.013	0.02	8.8	22.7	0.5	82	0.72	0.01	1.14	17	140	5.8	3.2	0.0005	0.01	0.07	2.9	0.4	0.4	5.7	0.02	0.04	3.1	0.1	0.04	0.39	64	0.16	2.52	19	2.2	0.012	Tilt-Veneer	silty-sand	reworked till	7/13/2009	till veneer	0	TILL
TL2009	SD09082755	H753078	TL09-0078	586514	6044111	0.03	1.34	2	0.0005	10	40	0.38	0.2	5.87	0.1	54.2	9	42	1.43	18.1	1.84	4.86	0.08	0.24	0.03	0.018	0.19	26.2	21.2	2.63	281	0.75	0.02	1.51	26.5	550	6.9	27	0.0005	0.05	0.11	4.2	0.5	0.5	41.6	0.005	0.04	8.2	0.095	0.15	0.71	34	0.46	9.65	40	10.5	0.022	Tilt-Blanket	clayey-silty v.f.g	L.stone bearing	7/13/2009	till blanket	40	TILL
TL2009	SD09082755	H753078 dup	TL09-0078	586514	6044111	0.05	1.22	2	0.0005	5	70	0.41	0.19	5.26	0.09	49	9.2	37	1.54	19.4	1.74	4.85	0.09	0.25	0.02	0.016	0.17	26	18.9	2.79	267	0.44	0.02	1.92	25.9	550	7.7	28.5	0.0005	0.05	0.14	4.5	0.5	0.5	45	0.005	0.04	8.6	0.088	0.18	0.74	30	0.16	10.05	38	12.5	0.019	Tilt-Blanket	clayey-silty v.f.g	L.stone bearing	7/13/2009	till blanket	40	TILL
TL2009	SD09082755	H753079	TL09-0079	586650	6044192	0.02	0.95	1.7	0.0005	10	30	0.34	0.11	3.7	0.06	44.6	5.3	30	1.06	17	1.32	3.53	0.07	0.14	0.02	0.013	0.13	23.2	15.8	2.51	194	0.54	0.02	1.21	18.8	510	4.9	18.2	0.0005	0.05	0.08	3.3	0.4	0.4	59.1	0.005	0.04	5.2	0.08	0.12	0.53	28	0.13	8.96	28	3.2	0.005	Tilt-Veneer	clayey-silt	L.stone bearing	7/13/2009	till veneer	0	TILL
TL2009	SD09082755	H753080	TL09-0080	586573	6044247	0.02	0.85	2.6	0.0005	5	5	0.28	0.07	5.1	0.03	46.4	5.5	34	1.04	19.1	1.22	3.24	0.08	0.2	0.02	0.011	0.06	28.9	15.5	2.01	140	0.24	0.01	1.05	20.8	650	4.1	12.3	0.0005	0.05	0.11	3	0.3	0.3	37.3	0.005	0.01	5.5	0.067	0.1	0.61	23	0.14	8.57	19	2.9	0.005	Tilt-Veneer	clayey-silty	L.stone bearing - winnowed	7/13/2009	till veneer	20	TILL
TL2009	SD09082755	H753081	TL09-0081	586732	6044116	0.03	0.62	0.9	0.0005	10	10	0.2	0.08	8.24	0.12	33.6	6	26	0.8	19.8	0.94	2.41	0.05	0.09	0.02	0.014	0.06	16.7	11.5	2.53	227	0.23	0.01	0.97	17.5	500	4	8.5	0.0005	0.01	0.08	2.4	0.6	0.2	56.2	0.01	0.02	3.5	0.052	0.08	0.77	19	0.1	8.79	19	4	0.004	Tilt-Blanket	clayey-silt till	taken up-ice of outcrop - L.stone bearing	7/14/2009	till blanket	30	TILL
TL2009	SD09082755	H753082	TL09-0082	586831	6044404	0.005	2.96	1.9	0.0005	5	5	0.42	0.17	0.12	0.04	31.4	7.3	38	1.86	39.9	2.13	6.2	0.06	0.1	0.04	0.026	0.07	16.7	31	0.42	117	0.43	0.005	2.05	20.9	270	8	12.4	0.0005	0.01	0.09	4.1	0.9	0.5	10.5	0.01	0.03	6.5	0.078	0.13	0.87	36	0.67	4.05	26	3.4	0.005	Tilt-Veneer	silty-sand till	reworked till - some L.stone pebbles	7/14/2009	till veneer	0	TILL
TL2009	SD09082755	H753083	TL09-0083	586800	6044468	0.02	1.36	2.6	0.0005	5	40	0.47	0.16	1.38	0.05	19.6	4.1	27	0.57	17.1	1.28	3.6	0.05	0.1	0.02	0.011	0.05	35.3	24.7	0.54	71	0.31	0.02	0.84	16.7	720	7.3	21.1	0.0005	0.05	0.09	3.5	0.4	0.4	26.1	0.005	0.02	4.6	0.054	0.12	0.59	27	0.14	9.79	24	2.5	0.005	Tilt-Blanket	silty-sand till	reworked till	7/14/2009	till blanket	30	TILL
TL2009	SD09082755	H753084	TL09-0084	586701	6044226	0.01	0.58	0.8	0.0005	5	5	0.2	0.06	8.01	0.06	36.1	4.6	18	0.57	12.8	0.83	2.25	0.05	0.09	0.02	0.009	0.04	17.8	11.3	1.57	180	0.14	0.01	0.98	12.4	480	3.5	9	0.0005	0.05	0.06	2.2	0.4	0.2	53.7	0.005	0.01	4.2	0.051	0.06	0.5	17	0.16	7.11	14	3.5	0.002	Tilt-Blanket	silty-sand till	taken up-ice of outcrop	7/14/2009	till blanket	30	TILL
TL2009	SD09082755	H753085	TL09-0085	586624	6044299	0.05	1.7	1.7	0.0005	5	5	0.42	0.11	0.06	0.04	79.6	11.5	29	0.6	8.2	1.43	3.25	0.07	0.1	0.02	0.009	0.03	33.2	15.7	0.73	51	0.15	0.01	1.38	10.7	290	5.7	4.9	0.0005	0.05	0.12	1.6	0.3	0.2	48.6	0.005	0.01	3.5	0.041	0.05	0.65	17	0.16	7.65	12	2.4	0.002	Tilt-Blanket	silty-sand till	base of gap 3m high outcrop	7/14/2009	till blanket	30	TILL
TL2009	SD09082755	H753086	TL09-0086	587031	6044216	0.03	0.35	0.7	0.0005	5	5	0.13	0.05	7.48	0.04	33.7	2.8	13	0.5	9.7	1.53	0.05	0.07	0.01	0.01	0.008	0.03	17.1	8.6	2.57	139	0.11	0.01	0.89	7.5	590	2.5	4.6	0.0005	0.05	0.05	1.6	0.3	0.2	48.6	0.005	0.01	3.5	0.041	0.05	0.65	14	0.07	6.15	13	2.6	0.003	Tilt-Blanket	silty-sand till	L.stone bearing - winnowed	7/17/2009	till blanket	10	TILL
TL2009	SD09082755	H753087	TL09-0087	587127	6044331	0.02	1.3	1.1	0.0005	5	60	0.24	0.08	6.55	0.05	45.9	8.2	19	0.87	8.1	1.34	3.2	0.06	0.1	0.02	0.011	0.04	13	13.6	2.8	161	0.12	0.01	1.38	12.5	580	4.1	12.7	0.0005	0.05	0.08	2.1	0.4	0.3	43.2	0.005	0.01	3.5	0.048	0.06	0.61	17	0.15	7.86	13	2.3	0.003	Tilt-Blanket	silty-sand till	L.stone bearing - winnowed	7/17/2009	till blanket	20	TILL
TL2009	SD09082755	H753088	TL09-0088	588828	6044221	0.02	1.02	1.3	0.0005	10	30	0.34	0.12	6.18	0.1	48.3	8.6	27	1.34	20.1	1.57	3.7	0.08	0.18	0.03	0.018	0.12	23.8	20.8	2.41	243	0.34	0.01	1.53	23.6	500	6.1	20.6	0.001	0.05	0.07	3.4	0.6	0.4	49.6	0.005	0.02	6.8	0.075	0.12	0.7	29	0.13	8.92	27	7.4	0.005	Tilt-Blanket	silty-sand till	L.stone rich	7/17/2009	till blanket	20	TILL
TL2009	SD09082755	H753089	TL09-0089	588898	6044303	0.02	0.75	0.9	0.0005	5	10	0.29	0.06	6.75	0.07	54.6	5.4	22	0.83	21.6	1.04	2.9	0.07	0.2	0.02	0.012	0.04	22.5	13.5	1.83	267	0.18	0.01	1.08	17.8	520	3.9	7.2	0.0005	0.05	0.08	2.8	0.5	0.3	57.1	0.005	0.01	4.1	0.06	0.12	0.57	23	0.13	8.57	20	2.3	0.005	Tilt-Blanket	silty-sand till	transition between till 20cm of bedrock - abundant LS	7/17/2009	till blanket	30	TILL
TL2009	SD09082755	H753090	TL09-0090	588988	6044493	0.005	2.17	2.1	0.0005	5	90	0.56	0.19	0.07	0.03	45.1	9.1	40	1.89	16.5	2.32	7.22	0.05	0.32	0.02	0.024	0.09	20.6	32	0.49	160	0.27	0.01	1.75	27.6	80	8.9	15.4	0.0005	0.05	0.08	4	0.2	0.7	17.3	0.005	0.03	9.1	0.092	0.14	0.78	41	0.15	4.58	27	10.9	0.01	Tilt-Blanket	clayey-silt till	L.stone bearing	7/17/2009	till blanket	20	TILL
TL2009	SD09082755	H753091	TL09-0091	587375	6044719	0.02	1.28	2.4	0.0005	5	30	0.54	0.19	0.04	0.04	56.9	5.8	38	1.44	20.4	1.64	3.9	0.08	0.2	0.02	0.012	0.05	30.2	18.8	2.29	132	0.28	0.01	1.4	22.8	440	6.1	20.5	0.0005	0.05	0.08	2.9	0.6	0.4	55.6	0.005	0.02	6.1	0.081	0.12	0.83	38	0.16	8.21	23	2.5	0.006	Tilt-Blanket	clayey-silt till	L.stone bearing - winnowed	7/18/2009	till blanket	30	TILL
TL2009	SD09082755	H753092	TL09-0092	587495	6044546	0.005	1.96	2.6	0.0005	5	5	0.5	0.13	0.15	0.05	37.2	10.6	39	1.21	30.6	2.15	5.4	0.06	0.1	0.03	0.022	0.03	18.4	33	0.33	131	0.07	0.01	1.52	26.3	290	8.6	4.9	0.0005	0.05	0.07	3.2	0.6	0.4	32.3	0.005	0.02	4.3	0.12	0.08	0.72	32	0.14	9.32	39	21	0.01	Tilt-Blanket	silty-sand till	ubundant pebbles	7/18/2009	till veneer	0	TILL
TL2009	SD09113348	H753093	TL09-0093	585926	6046012	0.02	0.51	0.05	0.0005	5	20	0.18	0.06	10.55	0.04	31.8	4.4	14	0.61	12.3	0.89	2.05	0.06	0.1	0.03	0.022	0.03	15.8	9.2	3.01	205	0.11	0.01	0.78	10.3	440	3.9	9.9	0.0005	0.05	0.05	2.4	0.4	0.3	76.7	0.005	0.01	3.9	0.06	0.1	0.54	21	0.12	7.33	14	8.3	0.005	Tilt-Blanket	clayey-silty till	L.stone bearing	7/20/2009	till blanket	20	TILL
TL2009	SD09113348	H753094	TL09-0094	586463	6046268	0.02	0.66	0.9	0.0005	5	30	0.28	0.08	5.8	0.03	37	5.1	17	0.8	18.4	0.93	2.35	0.05	0.09	0.02	0.011	0.03	17.1	12.8	2.6	191	0.09	0.01	1.23	12.8	460	4.3	9.4	0.0005	0.05	0.06	1.6	0.4	0.3	56.5	0.005	0.01	4.3	0.047	0.08	0.59	16	0.1	7.71	15	3	0.005	Tilt-Blanket	clayey-silty till	L.stone bearing - winnowed	7/20/2009	till blanket	30	TILL
TL2009	SD09113348	H753095	TL09-0095	588120	6043731	0.02	0.54	0.7	0.0005	5	30	0.2	0.06	8.51	0.06	34.4	4.3	15	0.63	14.9	0.8	2.07	0.05	0.06	0.02	0.008	0.05	17	10	2.6	195	0.11	0.01	1.05	10.9	490	3.7	9.7	0.0005	0.05	0.06	2	0.6	0.3	60.2	0.005	0.005	3.2	0.041	0.1	0.96	14	0.1	7.12	15	2.6	0.01	Tilt-Blanket	clayey-silty till	L.stone bearing	7/20/2009	till blanket	40	TILL
TL2009	SD09113348	H753096	TL09-0096	588298	6042418	0.02	0.78	1.7	0.0005	10	40	0.23	0.06	8.17	0.1	38.3	7.8	22	0.78	21.3	0.62	2.08	0.07	0.1	0.02	0.009	0.07	19.5	13	2.59	202	0.12	0.01	0.9	16.7	540	4.3	11.4	0.0005	0.05	0.07	2.6	0.6	0.3	51.5	0.005	0.01	4.6	0.056	0.11	1	19	0.11	7.91	17	5.3	0.005	Tilt-Blanket	clayey-silt till	L.stone bearing	7/20/2009	till blanket	30	TILL
TL2009	SD09113348	H753099	TL09-0099	584995	6042418	0.04	0.73	2.1	0.0005	10	60	0.28	0.07	7.29	0.16	43.1	6.8	23	0.88	21.6	1.31	2.86	0.07	0.08	0.04	0.01	0.07	21.9	13.9	2.2	300	0.62	0.01	1.18	18.4	570	4.7	12.2	0.0005	0.03	0.08	2.5	0.8	0.3	57.8	0.005	0.01	3.5	0.053	0.12	1.42	20	0.12	8.2	48	4.3	0.001	Tilt-Blanket	clayey-silty till	duplicate of sample TL09-0098	7/20/2009	till blanket	50	TILL
TL2009	SD09113348	H753099 dup	TL09-0099	584995	6042418	0.04	0.71	1.7	0.0005	5	60	0.24	0.07	6.9	0.17	41.8	6.6	24	0.86	20.9	1.23	2.8	0.06	0.09	0.03	0.01	0.07	21.9	13.9	2.31	300	0.59	0.01	1.38	18.4	570	4.7	11.4	0.0005	0.05	0.07	2.6	0.6	0.3	57.1	0.005	0.01	3.5	0.054	0.12	1.52	20	0.12	8.77	49	4.3	0.001	Tilt-Blanket	clayey-silty till	duplicate of sample TL09-0098	7/20/2009	till blanket	50	TILL
TL2009	SD09113348	H753100	TL09-0100	585015	6042645	0.04	1.3	2.2	0.0005	5	50	0.33	0.09	2.27	0.22	86.6	9.1	49	0.99	28.9	2.23	5.73	0.1	0.13	0.06	0.015	0.05	46	21.1	1.1	183	0.38	0.01	1.31	32.1	770	6.1	6.8	0.0005	0.04	0.06	3.7	1	0.4	27.2	0.01	0.02	7.2	0.1	0.08	6.86	37	0.21	8.34	51	5.2	0.005	Tilt-Blanket	gravelly-clayey-silt	L.stone bearing - winnowed	7/20/2009	till blanket	15	TILL
TL2009	SD09117280	H753100 dup	TL09-0100	585015	6042645	0.03	1.3	2.1	0.0005	5	20	0.18	0.06	6.09	0.11	42.1	4.8	20	0.6	13.8	0.84	2.33	0.05	0.09	0.03	0.01	0.05	24.3	10.4	0.49	139	0.13	0.01	0.61	13.6	500	3.3	5.1	0.0005	0.04	0.05	2.4	0.4	0.3	38.8	0.005	0.01	3.5	0.054	0.09	0.73	27	0.14	7.97	23	3.7	0.003	Tilt-Blanket	gravelly-clayey-silt	L.stone bearing - winnowed	7/20/2009	till blanket	15	TILL
TL2009	SD09113348	H753101	TL09-0101	588261	6042219	0.03	0.75	2.3	0.0005	10	30	0.21	0.11	8.72	0.09	42.1	8.7	28	0.79	21.1	1.54	2.92	0.07	0.1	0.02	0.009	0.05	22	12.1	2.84	186	0.13	0.02	1.51	10.6	510	3.7	10.5	0.0005	0.02	0.05	2.8	0.5	0.3	47.9	0.005	0.005	5.3	0.062	0.09	0.69	18	0.12	8.35	15	3.1	0.0005	Tilt-Blanket	Pebbly-silty-sand	L.stone Bearing	7/19/2009	till blanket	30	TILL
TL2009	SD09113348	H753102	TL09-0102	588101	6042245	0.02	0.71	1.2	0.0005	5	30	0.21	0.06	7.12	0.05	35.2	5.1	17	0.7	15.7	0.9	2.27	0.06	0.1	0.02	0.009	0.04	18.5	12.9	2.21	188	0.13	0.01	1.08	12.4	530	5.5	6.1	0.0005	0.05	0.06	2.1	0.4	0.3	35.7	0.005	0.01	4.1	0.06	0.1	0.65	25	0.15	8.76	23	2.5	0.005	Tilt-Blanket	pebbly-silty-sand	L.stone bearing	7/19/2009	till blanket	60	TILL
TL2009	SD09113348	H753103	TL09-0103	587834	6042443	0.02	0.57	1	0.0005	5	20	0.21	0.05	3.75	0.08	40.8	5.1	17	0.56	14.9	0.9	2.12	0.05	0.07	0.02	0.009	0.03	20	10.4	2.03	140	0.11	0.01	1.09	11.9	590	4.2	4.7	0.0005	0.02	0.06	2.3	0.4	0.3	25	0.01	0.01	4	0.05	0.1	0.61	19	0.23	7.94	14	3.1	0.002	pebbly-silty-sand	loamy-pebbly-sand	washed - L.stone bearing	7/19/2009	till blanket	15	TILL
TL2009	SD09113348	H753104	TL09-0104	587902	6042609	0.02	0.43	0.7	0.0005	10	20	0.18	0.05	6.8	0.07	31.2	4.3	16	0.48	10.5	0.8	1.63	0.05	0.07	0.02	0.008	0.04	17.4	8.3	1.92	171	0.06	0.01	0.82	9.4	510	2.9	4.4	0.0005	0.02	0.05	1.9	0.3	0.3	54.1	0.005	0.01	3.2	0.04	0.1	0.46	16	0.1	7.59	15	2.7	0.005	Tilt-Blanket	silty-pebbly-sand	washed	7/19/2009	till blanket	20	TILL
TL2009	SD09113348	H753105	TL09-0105	587967	6042312	0.005	2.44	1.9	0.0005	5	50	0.42	0.15	0.18	0.04	39.3	12.1	37	3.23	22.6	2.42	8.23	0.06	0.2	0.02	0.025	0.08	18.9	31.4	0.54	150	0.43	0.01	2.41	32.7	150	7.2	11.7	0.0005	0.01	0.14	4.2	0.4	0.7	11.3	0.01	0.02	6	0.116	0.11	0.61	51	0.44	5.89	37	8.9	0.001	Tilt-Veneer	pebbly-silty-sand	small crevice in bedrock	7/3/2009	till veneer	0	TILL
TL2009	SD09113348	H753106	TL09-0106	588428	6042529	0.02	0.37	0.5	0.0005	10	10	0.11	0.04	8.23	0.05	27.8	3.3	13	0.3	9.4	0.66	1.33	0.05	0.07	0.02	0.006	0.03	14.2	6.8	2.9	143	0.15	0.01	0.91	9.1	490	3.5	4.3	0.0005	0.01	0.06	2	0.3	0.2	52.1	0.005	0.01	3.5	0.04	0.05	0.49	13	0.08	6.22	15	3.5	0.005	Tilt-Blanket	pebbly-silty-sand	L.stone bearing	7/4/2009	till blanket	45	TILL
TL2009	SD09113348	H753107	TL09-0107	588636	6042630	0.01	0.57	0.8	0.0005	10	20	0.19	0.05	6.06	0.06	36.1	4.2	16	0.53	10.2	0.86	1.78	0.05	0.08	0.02	0.008	0.05	17.8	12.3	2.8	172	0.16	0.01	1.11	10.7	490	3.8	8.8	0.0005	0.02	0.06	2.1	0.4	0.3	48.8	0.005	0.01	3.5	0.05	0.09	0.76	19	0.1	7.38	22	2.7	0.005	Tilt-Blanket	pebbly-sandy-silt minor clay	L.stone bearing	7/4/2009	till blanket	30	TILL
TL2009	SD09113348	H753108	TL09-0108	588338	6042769	0.02	0.43	0.6	0.0005	5	20	0.15	0.05	9.32	0.04	32.7	3.7	13	0.49	9.1	0.74	1.66	0.05	0.11	0.03	0.007	0.05	16.8	8.2	2.81	207	0.18	0.01	1.02	9.5	460	3.3	8.3	0.0005	0.01	0.05	2	0.3	0.2	62.6	0.005	0.005	4.5	0.047	0.08	0.6	14	0.09	6.49	13	5.6	0.0005	Tilt-Blanket	pebbly-silty-sand	L.stone bearing	7/4/2009	till blanket	25	TILL
TL2009	SD09113348	H753109	TL09-0109	588474	6042884	0.02	0.97	1.4	0.0005	5	40	0.32	0.09	6.93	0.05	40.5	6.2	25	0.98	9.7	1.33	3.94	0.08	0.09	0.02	0.015	0.07	20.5	14.8	2.13	190	0.13	0.02	1.62	14.7	390	5.2	12	0.0005	0.02	0.06	3.5	0.5	0.4	48.3	0.005	0.005	5.9	0.066	0.09	0.59	25	0.12	8.09	21	4.2	0.0005	Tilt-Veneer	pebbly-silty-sand	polished Feldsp. Intrusive bedrock - no strae	7/20/2009	till veneer	20	TILL
TL2009	SD09113348	H753110	TL09-0110	588519	6042807	0.02	0.51	0.7	0.0005	5	20	0.18	0.04	8.62	0.05	29.2	3.4	15	0.45	10.7	0.78	1.81	0.05	0.06	0.01	0.007	0.04	15.6	8.5	2.81	138	0.11	0.01	1.07	9.4	460	2.7	6.4	0.0005	0.01	0.05	2.3	0.3	0.2	57	0.005	0.01	3.7	0.045	0.07	0.51	15	0.08	6.59	13	3	0.0005	Tilt-Blanket	pebbly-clayey-silty-sand	limestone bearing sandy till	7/4/2009	till blanket	30	TILL
TL2009	SD09113348	H753111	TL09-0111	588541	6042927	0.02	0.56	0.6	0.0005	5	30	0.19	0.06	6.97	0.06	36.7	4.6	17	0.49	10.8	0.86	1.78	0.05	0.08	0.02	0.009	0.04	16.2	9.9	2.58	175	0.12	0.01	1.05	10.2	490	3.3	7.8	0.0005	0.01	0.05	2.2	0.3	0.2	48.6	0.005	0.01	3.5	0.047	0.07	0.57	16	0.09	6.74	14	3.2	0.003	Tilt-Blanket	pebbly-clayey-silty till	limestone sandy till	7/4/2009	till blanket	30	TILL
TL2009	SD09113348	H753112	TL09-0112	588731	6042817	0.02	0.8	1	0.0005	5	30	0.26	0.07	6.92	0.07	38.4	5.1	21	0.72	12.3	1.12	2.74	0.05	0.08	0.02	0.011	0.07	18.8	12.9	2.5	258	0.11	0.01	1.18	13.7	440	4.3	12.3	0.0005	0.01	0.05	2.9	0.3	0.4	49.7	0.005	0.01	5	0.057	0.09	0.57	20	0.1	7.63	20	3.8	0.0005	Tilt-Blanket	pebbly-clayey-sandy-silt	limestone with clay	7/4/2009	till blanket	30	TILL
TL2009	SD09113348	H753113	TL09-0113	588849	6042920	0.02	0.61	0.6	0.0005	5	20	0.19	0.05	7.2	0.06	37.1	5.1	17	0.57	11.1	0.9	2.12	0.05	0.08	0.02	0.009	0.04	16	10.1	2.67	155	0.09	0.01	1.02	10.8	510	3.9	6.6	0.0005	0.01	0.05	2.3	0.3	0.2	53.2	0.005	0.01	3.8	0.042	0.07	0.54	14	0.09	6.52	14	2	0.0005	Tilt-Blanket	pebbly-silty-sand	L.stone bearing	7/6/2009	till blanket	30	TILL
TL2009	SD09113348	H753114	TL09-0114	588529	6043008	0.02	0.51	0.6	0.0005	5	20	0.18	0.04	7.75	0.05	30.5	3.6	15	0.5	10.8	0.77	1.8	0.05	0.07	0.02	0.008	0.04

Appendix 2: Heavy mineral grain data used in the Thorne Lake Project, with summary statistics.

dataset	sample_number	UTM_east83	UTM_north83	field material type	field_texture	comments	matrl std desc	reshaped	reshaped_norm10kg	modified	modified_norm10kg	pristine	pristine_norm10kg	totalGR	totalGR_norm10kg	table_feedKG	percent LS	ODM material class
NW2006	NW06-0276	571261	6038840	glac lac	silty clay w some sand		lacustrine	0	0	0	0	0	0	0	0	14.3	0.5	TILL
NW2006	NW06-0277	571134	6038873	Till veneer	sandy clayey silt w subangular pebbles		till veneer	1	0.699300699	0	0	0	0	1	0.699300699	14.3	10	TILL
NW2006	NW06-0278	571011	6038954	glac lac glac fluvial	sandy silty clay w coarse sand lenses		beach	0	0	0	0	0	0	0	0	14.8	10	TILL
NW2006	NW06-0279	570848	6039002	Till veneer	silty fine sand		till veneer	1	0.746268657	0	0	0	0	1	0.746268657	13.4	20	TILL
NW2006	NW06-0280	570752	6039053	glac lac	sandy silty clay		lacustrine	2	1.290322581	0	0	0	0	2	1.290322581	15.5	15	SILT + CLAY
NW2006	NW06-0281	570621	6039081	glac fluvial	coarse silty sand w rounded pebbles		glaciofluvial	1	0.729927007	0	0	0	0	1	0.729927007	13.7	0.5	TILL
NW2006	NW06-0282	570525	6039225	glac lac	silty clay w some sand		lacustrine	2	1.282051282	0	0	0	0	2	1.282051282	15.6	0.5	SAND + SILT
NW2006	NW06-0350	571169	6040043	Till veneer	coarse to med sand w angular pebbles		till veneer	4	3.448275862	0	0	1	0.862068966	5	4.310344828	11.6	20	TILL
NW2006	NW06-0357	571267	6039958	glac fluvial	pebbly clayey silt w subrounded pebbles		glaciofluvial	0	0	0	0	0	0	0	0	16	30	SAND + SILT
NW2006	NW06-0358	571532	6039879	Till veneer	pebbly sandy silt w large clasts		till veneer	1	0.704225352	1	0.704225352	0	0	2	1.408450704	14.2	10	TILL
NW2006	NW06-0359	571881	6039746	glac fluvial	silty sandy clay w few subrounded pebbles		glaciofluvial	1	0.613496933	0	0	0	0	1	0.613496933	16.3		SAND + SILT
NW2006	NW06-0360	572109	6039751	till blanket	sand silty w a lot of angular to subrounded pebble		till blanket	3	2.272727273	0	0	1	0.757575758	4	3.03030303	13.2	20	TILL
NW2006	NW06-0361	572208	6039693	Till veneer	silty sandy clay w angular pebbles		till veneer	1	0.64516129	0	0	0	0	1	0.64516129	15.5		SAND + SILT
NW2006	NW06-0401	570964	6040088	till blanket	pebbly silty fine sand		till blanket	1	0.709219858	0	0	0	0	1	0.709219858	14.1	60	TILL
NW2006	NW06-0402	570807	6040137	Till veneer	silty fine sand w subangular pebbles		till veneer	3	2.142857143	1	0.714285714	2	1.428571429	6	4.285714286	14	30	TILL
NW2006	NW06-0403	570615	6040195	glac fluvial	sand silt w subrounded to rounded pebbles		glaciofluvial	0	0	0	0	0	0	0	0	14.4	30	SAND + SILT
NW2006	NW06-0404	570244	6040277	till blanket	med grained sand w angular pebbles		till blanket	2	1.666666667	0	0	2	1.666666667	4	3.333333333	12	10	TILL
TL2008	TL08-0001	587197	6040330	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	6	6.25	3	3.125	0	0	9	9.375	9.6	40	TILL
TL2008	TL08-0002	587095	6040503	till-blanket	pebbly-sandy-silt	L.stone bearing -fissile	till blanket	4	3.883495146	0	0	0	0	4	3.883495146	10.3	30	TILL
TL2008	TL08-0003	586933	6040768	till-blanket	pebbly-sandy-silt	L.stone Bearing -Drumlin	till blanket	1	0.917431193	0	0	0	0	1	0.917431193	10.9	30	TILL
TL2008	TL08-0004	586791	6041028	till-blanket	pebbly-sandy-silt	L.stone Bearing -Drumlin	till blanket	2	1.960784314	0	0	0	0	2	1.960784314	10.2	50	TILL
TL2008	TL08-0005	586705	6041355	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	1	1.052631579	2	2.105263158	0	0	3	3.157894737	9.5	30	TILL
TL2008	TL08-0006	586494	6041622	till-stratified?	pebbly-silty-sand	L.stone bearing	till stratified	0	0	2	1.904761905	8	7.619047619	10	9.523809524	10.5	40	TILL
TL2008	TL08-0007	588170	6040452	till-stratified	pebbly-silty-f.sand	till over semi sorted sands	till stratified	10	9.708737864	0	0	0	0	10	9.708737864	10.3	40	TILL
TL2008	TL08-0008	588031	6040681	till-blanket	pebbly-silty-f.sand	L.stone till - fissile	till blanket	1	1.020408163	0	0	0	0	1	1.020408163	9.8	30	TILL
TL2008	TL08-0009	587824	6041241	till-blanket	pebbly-silty-f.sand	L.stone till	till blanket	0	0	1	0.980392157	0	0	1	0.980392157	10.2	30	TILL
TL2008	TL08-0010	587672	6041370	till-blanket	pebbly-sandy-silt	L.stone till - fissile	till blanket	4	3.738317757	1	0.934579439	0	0	5	4.672897196	10.7	30	TILL
TL2008	TL08-0011	586808	6041770	S&G	S&G	No obvious feature - L.stone and Volcanic rich Angular Clasts and cobble	glaciofluvial	1	1.315789474	4	5.263157895	1	1.315789474	6	7.894736842	7.6	20	TILL
TL2008	TL08-0012	586823	6042026	till-blanket	pebbly-silty-f.sand		till blanket	0	0	0	0	1	1.030927835	1	1.030927835	9.7	30	TILL
TL2008	TL08-0013	586648	6042315	till-veneer	pebbly-sandy-silt	L.stone till - fissile	till veneer	0	0	0	0	1	1.030927835	1	1.030927835	9.7	20	TILL
TL2008	TL08-0014	586510	6042448	till-washed	pebbly-silty-sand	L.stone - Massive	till washed	4	3.846153846	2	1.923076923	0	0	6	5.769230769	10.4	40	TILL
TL2008	TL08-0015	586243	6042220	till-blanket	pebbly-sandy-silt		till blanket	2	2.02020202	0	0	0	0	2	2.02020202	9.9	10	TILL
TL2008	TL08-0016	586024	6042140	Flow till	pebbly-sandy-silt	L.stone till lens above massive clay	till flow	2	2.127659574	0	0	0	0	2	2.127659574	9.4	50	TILL
TL2008	TL08-0017	586436	6042344	diamict	pebbly-silty-f.sand	till(unsorted) material overlaying silt with evidence of seasonal deposition	till blanket	3	2.752293578	2	1.834862385	0	0	5	4.587155963	10.9	30	TILL
TL2008	TL08-0018	586490	6042075	gravel	gravelly sand	pocket of gravelly sand in bedrock cavity nothing else but organics	glaciofluvial	2	2.43902439	0	0	1	1.219512195	3	3.658536585	8.2	20	TILL
TL2008	TL08-0019	581726	6041947	till-blanket	pebbly-silty-sand	L.stone	till blanket	3	2.830188679	1	0.943396226	1	0.943396226	5	4.716981132	10.6	30	TILL
TL2008	TL08-0020	581873	6041679	Paleo Beach	pebbly-sand-minor silt	L.stone bearing	beach	7	6.730769231	3	2.884615385	2	1.923076923	12	11.53846154	10.4	40	TILL
TL2008	TL08-0021	582009	6041476	till-lacustrine?	pebbly-silty-sand	Unsorted massive - no fissility	till washed	3	3.125	1	1.041666667	1	1.041666667	5	5.208333333	9.6	10	TILL
TL2008	TL08-0022	582109	6041320	glaciofluvial	pebbly-sand	Crevasse infill or small GF fature (40mx10mx3.5m) orientation 233- pebbles subangular	glaciofluvial	5	5.154639175	1	1.030927835	0	0	6	6.18556701	9.7	40	TILL
TL2008	TL08-0023	582301	6041047	till-blanket	pebbly-sand-minor silt	L.stone - very compact	till blanket	0	0	1	0.952380952	1	0.952380952	2	1.904761905	10.5	30	TILL
TL2008	TL08-0024	582537	6040736	till-blanket	pebbly-silty-sand	L.stone - compact massive	till blanket	4	3.773584906	1	0.943396226	1	0.943396226	6	5.660377358	10.6	50	TILL
TL2008	TL08-0025	582728	6040564	till-blanket	pebbly-sandy-silt	Drumlin - L.stone strong fissility	till blanket	6	5.607476636	1	0.934579439	0	0	7	6.542056075	10.7	30	TILL
TL2008	TL08-0026	582957	6040235	till-blanket	pebbly-sandy-silt	L.stone - more clastic than the other tills here with few cobbles still matrix supported	till blanket	0	0	1	0.943396226	0	0	1	0.943396226	10.6	30	TILL
TL2008	TL08-0027	582957	6040235	till-blanket	pebbly-sandy-silt	Heavy mineral duplicate of TL08-0026	till blanket	11	10.89108911	0	0	0	0	11	10.89108911	10.1	30	TILL
TL2008	TL08-0028	583071	6042216	till-blanket	pebbly-sandy-silt	L.stone bearing - fissile	till blanket	11	10.37735849	0	0	0	0	11	10.37735849	10.6	30	TILL
TL2008	TL08-0029	583293	6042398	till-blanket	pebbly-sandy-silt	L.stone bearing - fissile	till blanket	5	5.050505051	6	6.060606061	3	3.03030303	14	14.14141414	9.9	30	TILL
TL2008	TL08-0030	583692	6041764	till-blanket	pebbly-sandy-silt	L.stone bearing - Massive	till blanket	7	5.982905983	1	0.854700855	1	0.854700855	9	7.692307692	11.7	30	TILL
TL2008	TL08-0031	583797	6041573	till-blanket	pebbly-sandy-silt minor clay	L.stone Bearing	till blanket	4	3.846153846	5	4.807692308	5	4.807692308	14	13.46153846	10.4	30	TILL
TL2008	TL08-0032	583887	6041485	till-blanket	pebbly-sandy-silt	L.stone bearing - Drumlin	till blanket	0	0	0	0	2	2	2	2	10	30	TILL
TL2008	TL08-0033	583678	6041200	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	2	1.869158879	0	0	0	0	2	1.869158879	10.7	40	TILL
TL2008	TL08-0034	583492	6041425	till-blanket	pebbly-silty-sand		till blanket	7	6.930693069	1	0.99009901	1	0.99009901	9	8.910891089	10.1	40	TILL
TL2008	TL08-0035	583358	6041581	till-blanket	pebbly-sandy-silt	L.stone bearing - fissile	till blanket	4	3.603603604	1	0.900900901	1	0.900900901	6	5.405405405	11.1	20	TILL
TL2008	TL08-0036	580033	6040585	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	0	0	1	0.99009901	0	0	1	0.99009901	10.1	30	TILL
TL2008	TL08-0037	580149	6040439	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	4	4.12371134	8	8.24742268	2	2.06185567	14	14.43298969	9.7	20	TILL
TL2008	TL08-0038	580420	6040134	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	4	3.883495146	1	0.970873786	1	0.970873786	6	5.825242718	10.3	20	TILL
TL2008	TL08-0039	580538	6040005	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	4	3.603603604	2	1.801801802	2	1.801801802	8	7.207207207	11.1	20	TILL
TL2008	TL08-0040	580768	6039723	Paleo Beach	pebbly-sand minor silt	collected sample to compare against local till for gold content	beach	11	10	1	0.909090909	1	0.909090909	13	11.81818182	11	50	TILL
TL2008	TL08-0041	593891	6044133	till-veneer	pebbly-silty-f.sand	L.stone bearing	till veneer	5	4.716981132	0	0	0	0	5	4.716981132	10.6	50	TILL
TL2008	TL08-0042	593509	6044190	till-blanket	pebbly-silty-f.sand	L.stone bearing	till blanket	0	0	1	0.925925926	0	0	1	0.925925926	10.8	30	TILL
TL2008	TL08-0043	593276	6044335	till-blanket	pebbly-sandy-silt	L.stone bearing	till blanket	3	2.97029703	0	0	0	0	3	2.97029703	10.1	30	TILL
TL2008	TL08-0044	593015	6044587	Paleo Beach	pebbly-sand	some L.stone	beach	2	1.904761905	0	0	0	0	2	1.904761905	10.5	40	TILL
TL2008	TL08-0045	593539	6044795	washed till	pebbly-sand minor silt		till washed	1	1	0	0	0	0	1	1	10	40	TILL
TL2008	TL08-0046	593755	6044699	S&G	gravelly sand minor silt	L.stone gravel	glaciofluvial	0	0	1	1.136363636	0	0	1	1.136363636	8.8	40	TILL
TL2008	TL08-0051	585966	6042096	till-blanket	silty-pebbly-sand	L.stone bearing	till blanket	3	3.03030303	1	1.01010101	0	0	4	4.04040404	9.9	40	TILL
TL2008	TL08-0052	585868	6042220	till-blanket	pebbly-clayey-silty-sand		till blanket	4	4.395604396	2	2.197802198	2	2.197802198	8	8.791208791	9.1	40	TILL
TL2008	TL08-0053	585227	6043330	till-blanket	silty-pebbly-sand	compact - v. little silt	till blanket	3	3.333333333	3	3.333333333	0	0	6	6.666666667	9	20	TILL
TL2008	TL08-0054	585125	6043503	till-blanket	silty-pebbly-sand		till blanket	7	7.070707071	1	1.01010101	2	2.02020202	10	10.1010101	9.9	40	TILL
TL2008	TL08-0055	584734	6043515	till-veneer	silty-pebbly-sand	some very oxidized sections	till veneer	11	12.08791209	2	2.197802198	1	1.098901099	14	15.38461538	9.1	20	TILL
TL2008	TL08-0056	585281	6044623	till-blanket	peebly-silty-sandy-clay		till blanket	0	0	2	2.325581395	0	0	2	2.325581395	8.6	20	TILL
TL2008	TL08-0057	585631	6044504	till-blanket	peebly-silty-sandy-clay		till blanket	3	3.03030303	0	0	4	4.04040404	7	7.070707071	9.9	30	TILL
TL2008	TL08-0058	585631	6044240	till-blanket	pebbly-silty-sand		till blanket	1	1.098901099	0	0	1	1.098901099	2	2.197802198	9.1	40	TILL
TL2008	TL08-0059	585681	6043879	till-veneer	pebbly-silty-sand		till veneer	1	1.282051282	1	1.282051282	0	0	2	2.564102564	7.8	20	TILL
TL2008	TL08-0060	585816	6043547	till-blanket	sandy-pebbly-silt		till blanket	1	1.25	0	0	0	0	1	1.25	8	50	TILL
TL2008	TL08-0061	586212	6043113	till-blanket	clayey-sandy-pebbly-silt	compact - C. horizon	till blanket	3	3.260869565	0	0	0	0	3	3.260869565	9.2	70	TILL
TL2008	TL08-0062	586345	6042875	till-veneer	sandy-pebbly-silt		till veneer	1	1.086956522	0	0	0	0	1	1.086956522	9.2	40	TILL
TL2008	TL08-0063	586436	6042635	till-veneer	pebbly-sandy-silt		till veneer	0	0	0	0	0	0	0	0	9.6	30	TILL
TL2008	TL08-0064	585546	6045402	till-blanket	pebbly-silty-sand		till blanket	1	1.111111111	0	0	0	0	1	1.111111111	9	40	TILL
TL2008	TL08-0065	585752	6045159	till-veneer	sandy-pebbly-silt	variety of pebbles	till veneer	10	11.11111111	16	17.77777778	14	15.55555556	40	44.44444444	9	0	TILL
TL2008	TL08-0066	586022	6044640	till-veneer	pebbly-sandy-silt		till veneer	2	2.298850575	1	1.149425287	2	2.298850575	5	5.747126437	8.7	0	TILL
TL2008	TL08-0067	586340	6044180	till-blanket	pebbly-sandy-silt		till blanket	0	0	1	1.219512195	0	0	1	1.219512195	8.2	40	TILL
TL2008	TL08-0068	586503	6043925	till-veneer	pebbly-sandy-silt		till veneer	20	20.6185567	1	1.030927835	2	2.06185567	23	23.71134021	9.7	0	TILL
TL2008	TL08-0069	587194	6043608	till-blanket	pebbly-silty-sand		till blanket	6	6.593406593	0	0	0	0	6	6.593406593	9.1	50	TILL
TL2008	TL08-0070	586768	6043670	till-veneer	pebbly-silty-sand	L.stone	till veneer	1	0.952380952	1	0.952380952	0	0	2	1.904761905	10.5	50	TILL
TL2008	TL08-0071	587600	6043410	till-blanket	pebbly-silty-sand		till blanket	0	0	0	0	0	0	0	0	10.1	30	TILL
TL2008	TL08-0072	587874	6043251	till-blanket	pebbly-silty-sand	very sandy minor silt	till blanket	5	4.95049505	1	0.99009901	0	0	6	5.940594059	10.1	30	TILL
TL2008	TL08-0073	588438	6042907	till-blanket	pebbly-silty-sand	mostly small pebbles	till blanket	2	2.083333333	1	1.041666667	0	0	3	3.125	9.6	50	TILL
TL2008	TL08-0074	588593	6042712	till-blanket	pebbly-silty-sand		till blanket	4	4.301075269	0	0	0	0	4	4.301075269	9.3	5	TILL
TL2008	TL08-0075	588999	6042428	till-blanket	pebbly-silty-sand		till blanket	6	6.315789474	0	0	1	1.052631579	7	7.368421053	9.5	30	TILL
TL2008	TL08-0076	589085	6042210	till-veneer	pebbly-sandy-silt	minor clay	till veneer	1	1.204819277	2	2.409638554	0	0	3	3.614457831	8.3	0	TILL
TL2008	TL08-0077	589730	6042715	till-blanket	pebbly-silty-sand		till blanket	4	4.347826087	0	0	0	0	4	4.347826087	9.2	50	TILL
TL2008	TL08-0078	589101	6043000	till-blanket	pebbly-silty-sand	L.stone	till blanket	3	2.830188679	0	0	0	0	3	2.830188679	10.6	40	TILL
TL2008	TL08-0079	588935	6043166	till-blanket	pebbly-silty-sand	mostly small pebbles 1cm to 1.5cm	till blanket	0	0	0	0	0	0	0	0	8.7	50	TILL
TL2008	TL08-0080	588770	6043373	till-blanket	cobbly-pebbly-silty-sand		till blanket	2	2.197802198	0	0	0	0	2	2.197802198	9.1	30	TILL
TL2008	TL08-0081	588422	6043647	till-blanket	pebbly-silty-sand	volcanic and L.stone	till blanket	1	1.020408163	0	0	0	0	1	1.020408163	9.8	20	TILL
TL2008	TL08-0082	588177	6043890	till-veneer	pebbly-silty-sand		till veneer	0	0	1	0.952380952	0	0	1	0.952380952	10.5	20	TILL
TL2008	TL08-0083	587931	6044080	till-blanket	cobbly-pebbly-silty-sand		till blanket	0	0	0	0	0	0	0	0	9.2	50	TILL
TL2008	TL08-0084	587715	6044311	till-blanket	cobbly-pebbly-silty-sand	Larger cobbles than other tills in area	till blanket	4	4	2	2	0	0	6	6	10	50	TILL
TL2008	TL08-0085	587416	6044593	till-veneer	cobbly-pebbly-silty-sand		till veneer	4	3.278688525	0	0	0	0	4	3.278688525	12.2	40	TILL
TL2008	TL08-0086	587209	6044818	till-blanket	cobbly-pebbly-silty-sand		till blanket	2	2.06185567	0	0	0	0	2	2.06185567	9.7	40	TILL
TL2008	TL08-0087	583712	6042995	till-veneer	cobbly-pebbly-silty-sand		till veneer	6	6.741573034	20	22.47191011	39	43.82022472	65	73.03370787	8.9	0	TILL
TL2008	TL08-0088	583988	6042644	till-blanket	cobbly-pebbly-silty-sand		till blanket	4	3.773584906	9	8.490566038	4	3.773584906	17	16.03773585	10.6	60	TILL
TL2008	TL08-0089	584144	6042375	till-blanket	cobbly-pebbly-silty-sand		till blanket	3	3.448275862	4	4.597701149	0	0	7	8.045977011	8.7	60	TILL
TL2008	TL08-0090	584420	6041984	till-blanket	sandy-clayey-pebbly-silt		till blanket	1	1	0	0	0	0	1	1	10	70	TILL
TL2008	TL08-0091	584637	6041707	till-blanket	cobbly-pebbly-silty-sand		till blanket	1	0.980392157	0	0	1	0.980392157	2	1.960784314	10.2	50	TILL
TL2008	TL08-0092	584804	6041506	till-stratified?	cobbly-pebbly-sandy-silt	coarser sands minor pebbles under till	till stratified	1	1	1	1	1	1	3	3	10	0	TILL
TL2008	TL08-0093	584996	6041002	till-blanket	pebbly-sandy-silt		till blanket	3	3.06122449	4	4.081632653	8	8.163265306	15	15.30612245	9.8	35	TILL
TL2008	TL08-0094	584169	6043376	recessional	pebbly-cobbly-silty-sand		till stratified	4	4.494382022	8	8.988764045	7	7.865168539	19	21.34831461	8.9	0	TILL
TL2008	TL08-0095	584314	6043269	till-veneer	pebbly-silty-sand		till veneer	2	2.105263158	5	5.263157895	1	1.052631579	8	8.421052632	9.5	0	TILL
TL2008	TL08-0096	584991	6042447	till-blanket	silty-pebbly-sand		till blanket	1	1.041666667	2	2.083333333	13	13.54166667	16	16.66666667	9.6	40	TILL
TL2008	TL08-0097	585240	6041773	till-blanket	pebbly-silty-sand	L.stone bearing	till blanket	3	2.884615385	1	0.961538462	1	0.961538462	5	4.807692308	10.4	40	TILL
TL2008	TL08-0098	585240	6041773	till-blanket	pebbly-silty-sand	Heavy mineral duplicate of TL08-0097	till blanket	1	1.01010101	0	0	1	1.01010101	2	2.02020202	9.9	40	TILL
TL2008	TL08-0099	585046	6041916	S&G	silty-cobbly-pebbly-sand	Likely a limestone bearing till highly washed	glaciofluvial	3	2.260869565	7	7.608695652	1	1.086956522	11	11.95652174	9.2	40	TILL
TL2008	TL08-0100	592620	6044780	till-blanket	cobbly-sandy-pebbly-silt	some clay component	till blanket	2	2.197802198	0	0	1	1.098901099	3	3.296703297	9.1	0	TILL
TL2008	TL08-0101	588387	6041026	till-blanket	pebbly-silty-sand		till blanket	3	3.092783505	2	2.06185567	0	0	5	5.154639175	9.7	45	TILL
TL2008	TL08-0102	588137	6041338	till-blanket	pebbly-sandy-silt	L.stone	till blanket	3	2.912621359	4	3.883495146	1	0.970873786	8	7.766990291	10.3	50	TILL
TL2008	TL08-0103	588022	6041428	till-blanket	sandy-pebbly-silt	L.stone	till blanket	0	0	0	0	1	1.075268817	1	1.075268817	9.3	40	TILL
TL2008	TL08-0104	587862	6041706	till-blanket	sandy-pebbly-silt	L.stone	till blanket	2	2.222222222	0	0	0	0	2	2.222222222	9	40	TILL
TL2008	TL08-0105	588614	6041924	till-blanket	pebbly-silty-sand	L.stone	till blanket	2	2.06185567	0	0	0	0	2	2.06185567	9.7	35	TILL
TL2008	TL08-0106	588339	6042096	S&G	pebbly-sand	L.stone	glaciofluvial	0	0	0	0	0	0	0	0	8.5	45	SAND + GRAVEL
TL2008	TL08-0107	588120	6042226			angular stones	unspecified	2	2.380952381	2	2.380952381	0	0	4	4.761904762	8.4	0	SAND + GRAVEL
TL2008	TL08-0108	587904	6042411		pebbly-silty-clay	L.stone	unspecified	3	2.830188679	19	17.9245283	454	428.3018868	476	449.0566038	10.6	30	TILL
TL2008	TL08-0109	589832	6043850	till-blanket	bouldery-silty-sand	L.stone	till blanket	6	5.714285714	4	3.80952381	12	11.42857143	22	20.95238095	10.5	60	TILL
TL2008	TL08-0110	589559	6044116	till-blanket	bouldery-sandy-silt	L.stone	till blanket	0	0	4	3.883495146	5	4.854368932	9	8.737864078	10.3	35	TILL
TL2008	TL08-0111	589069	6044523		bouldery-silty-sand		unspecified	2	1.785714286	0	0	2	1.785714286	4	3.571428571	11.2	40	TILL
TL2008	TL08-0112	588963	6044580		pebbly-sandy-silt	L.stone	unspecified	0	0	0	0	0	0	0	0	12.7	40	TILL
TL2008	TL08-0113	588070	6045398		silty-pebbly		unspecified	1	0.81300813	3	2.43902439	4	3.25203252	8	6.504065041	12.3	75	TILL
TL2008	TL08-0114	592110	6041271	till-blanket	bouldery-silty-sand	L.stone	till blanket	4	3.278688525	2	1.639344262	0	0	6	4.918032787	12.2	10	TILL
TL2008	TL08-0115	591894	6041461	till-blanket	sand-boulders-silt	high ridge sloping to the south and west - very fine sand	till blanket	5	5.102040816	2	2.040816327	0	0	7	7.142857143	9.8	20	TILL
TL2008	TL08-0116	591517	6041789		bouldery-silty-sand	L.stone near the top silty area	unspecified	2	1.869158879	1	0.934579439	1	0.934579439	4	3.738317757	10.7	40	TILL
TL2008	TL08-0117	590568	6042369		bouldery-pebbly-silt	angular stones	unspecified	4	3.738317757	0	0	0	0	4	3.738317757	10.7	30	TILL
TL2008	TL08-0118	590607	6042489		sandy-pebbly-silt	lake 75m NW - angular stones - limestone near surface	unspecified	0	0	2	1.923076923	0	0	2	1.923076923	10.4	70	TILL
TL2008	TL08-0119	591987	6043481		bouldery-silty-sand	L.stone bearing - bedrock all around	unspecified	1	0.892857143	1	0.892857143	0	0	2	1.785714286	11.2	30	TILL
TL2008	TL08-0120	591743	6043485		silt-sand-pebbly		unspecified	2	1.754385965	0	0	0	0	2	1.754385965	11.4	50	TILL
TL2008	TL08-0121	591444	6043545		boulders-sand-silty	L.stone bearing	unspecified	3	2.884615385	0	0	0	0	3	2.884615385	10.4	40	TILL
TL2008	TL08-0122	591474	6043103		pebbly-sand-silt	L.stone bearing	unspecified	2	1.851851852	0	0	0	0	2	1.851851852	10.8	40	TILL
TL2008	TL08-0123	591637	6042936		sand-silt-pebbles	L.stone bearing	unspecified	1	0.900900901	0	0	0	0	1	0.900900901	11.1	60	TILL
TL2008	TL08-0124	592092	6042666		pebbles-silt-sand	hardly any clasts	unspecified	5	4.545454545	0	0	0	0	5	4.545454545	11	60	SILT + CLAY
TL2008	TL08-0125	591249	6044826		pebbles-sand-silt	L.stone bearing	unspecified	1	0.787401575	0	0	1	0.787401575	2	1.57480315	12.7	75	TILL
TL2008	TL08-0126	590951	6045074		boulders-silty-sand	L.stone bearing	unspecified	3	3.06122449	0	0	0	0	3	3.06122449	9.8	75	TILL
TL2008	TL08-0127	590112	6044873		boulders-silty-sand	L.stone bearing	unspecified	1	1.052631579	0	0	0	0	1	1.052631579	9.5	40	TILL
TL2008	TL08-0128	590999	6044278		pebbly

Appendix 2: Heavy mineral grain data used in the Thorne Lake Project, with summary statistics.

dataset	sample_number	UTM_east83	UTM_north83	field material type	field_texture	comments	matrl std desc	reshaped	reshaped_norm10kg	modified	modified_norm10kg	pristine	pristine_norm10kg	totalGR	totalGR_norm10kg	table_feedKG	percent LS	ODM material class
TL2009	TL09-0081	586732	6044116	Till-Blanket	clayey-silt till	taken up-ice of outcrop - L.stone bearing	till blanket	1	0.952380952	2	1.904761905	3	2.857142857	6	5.714285714	10.5	30	TILL
TL2009	TL09-0082	586831	6044404	Till-Veneer	silty-sand till	reworked till - some L.stone pebbles	till veneer	3	2.941176471	1	0.980392157	1	0.980392157	5	4.901960784	10.2	0	TILL
TL2009	TL09-0083	586800	6044469	Till-Blanket	silty-sand till	reworked till	till blanket	6	4.580152672	0	0	0	0	6	4.580152672	13.1	0	TILL
TL2009	TL09-0084	586701	6044226	Till-Blanket	silty-sand	fairly well sorted	till blanket	5	4.310344828	0	0	0	0	5	4.310344828	11.6	40	TILL
TL2009	TL09-0085	586624	6044759	Till-Blanket	silty-sand till	base of large 3m high outcrop	till blanket	1	1.111111111	0	0	0	0	1	1.111111111	9	10	TILL
TL2009	TL09-0086	587031	6044216	Till-Blanket	silty-sand till	l.stone bearing - winnowed	till blanket	7	7.368421053	2	2.105263158	0	0	9	9.473684211	9.5	10	TILL
TL2009	TL09-0087	587127	6044133	Till-Blanket	silty-sand till	l.stone bearing - winnowed	till blanket	2	2	0	0	0	0	2	2	10	30	TILL
TL2009	TL09-0088	586828	6044221	Till-Blanket	clayey till	L.stone rich	till blanket	0	0	2	2.040816327	0	0	2	2.040816327	9.8	20	TILL
TL2009	TL09-0089	586898	6044310	Till-Veneer	clayey-silt till	transition tosandier till 20cm of bedrock - abundant LS	till veneer	0	0	1	0.917431193	0	0	1	0.917431193	10.9	50	TILL
TL2009	TL09-0090	586988	6044493	Till-Blanket	clayey-silt till		till blanket	7	6.25	1	0.892857143	0	0	8	7.142857143	11.2	0	TILL
TL2009	TL09-0091	587375	6044719	Till-Blanket	clayey-silt till	l.stone bearing - winnowed	till blanket	0	0	0	0	0	0	0	0	8	0	TILL
TL2009	TL09-0092	586541	6044546	Till-Veneer	silty-sand till	ubundant pebbles	till veneer	0	0	0	0	0	0	0	0	7.1	0	TILL
TL2009	TL09-0093	588226	6043944	Till-Veneer	clayey-silty till	upice of highly sheared Mafic volcanic	till veneer	0	0	1	1.219512195	0	0	1	1.219512195	8.2	0	SAND + GRAVEL
TL2009	TL09-0094	588226	6043944	Till-Blanket	silty-clayey till	sample taken off bedrock - L.stone bearing	till blanket	3	3.370786517	1	1.123595506	3	3.370786517	7	7.865168539	8.9	5	TILL
TL2009	TL09-0095	589026	6044012	Till-Blanket	clayey-silty till	L.stone bearing	till blanket	0	0	1	1.052631579	0	0	1	1.052631579	9.5	20	TILL
TL2009	TL09-0096	588483	6043585	Till-Blanket	clayey-silty till	L.stone bearing	till blanket	0	0	1	1.086956522	0	0	1	1.086956522	9.2	40	TILL
TL2009	TL09-0097	588120	6043731	Till-Blanket	clayey-silty till	L.stone bearing	till blanket	1	1.063829787	1	1.063829787	0	0	2	2.127659574	9.4	40	TILL
TL2009	TL09-0098	584995	6042418	Till-Blanket	clayey-silt till	L.stone bearing	till blanket	6	6.060606061	2	2.02020202	3	3.03030303	11	11.11111111	9.9	45	TILL
TL2009	TL09-0099	584995	6042418	Till-Blanket	clayey-silt till	duplicate of sample TL09-0098	till blanket	2	1.801801802	0	0	0	0	2	1.801801802	11.1	50	TILL
TL2009	TL09-0100	585015	6042645	till-blanket	gravely-clayey-silt	L.stone bearing - winnowed	till blanket	3	2.752293578	1	0.917431193	1	0.917431193	5	4.587155963	10.9	15	TILL
TL2009	TL09-0101	588261	6042119	Till-Blanket	pebbly-silty-sand	washed - L.stone bearing	till blanket	4	3.539823009	2	1.769911504	0	0	6	5.309734513	11.3	60	TILL
TL2009	TL09-0102	588101	6042245	Till-Veneer	pebbly-sand	washed	till veneer	4	4	1	1	0	0	5	5	10	40	TILL
TL2009	TL09-0103	587834	6042443	pebbly-sand	loamy-pebbly-sand	washed	till blanket	1	0.970873786	4	3.883495146	3	2.912621359	8	7.766990291	10.3	15	TILL
TL2009	TL09-0104	587902	6042609	Till-Blanket	silty-pebbly-sand	washed	till blanket	0	0	0	0	9	8.333333333	9	8.333333333	10.8	30	TILL
TL2009	TL09-0105	587967	6042312	Till-Veneer	pebbly-silty-sand	small crevice in bedrock	till veneer	0	0	0	0	0	0	0	0	10.3	0	TILL
TL2009	TL09-0106	588428	6042529	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	1	0.952380952	0	0	0	0	1	0.952380952	10.5	45	TILL
TL2009	TL09-0107	588463	6042630	Till-Blanket	pebbly-sandy-silt minor clay		till blanket	6	6	2	2	0	0	8	8	10	30	TILL
TL2009	TL09-0108	588338	6042769	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	0	0	0	0	0	0	0	0	9.9	25	TILL
TL2009	TL09-0109	588474	6042932	Till-Blanket	pebbly-clayey-silty-sand	limestone bearing f.sand matrix	till blanket	2	1.941747573	1	0.970873786	0	0	3	2.912621359	10.3	40	TILL
TL2009	TL09-0110	588519	6042807	Till-Blanket	pebbly-clayey-silty-sand	limestone bearing sub angular pebbles	till blanket	3	2.97029703	0	0	0	0	3	2.97029703	10.1	40	TILL
TL2009	TL09-0111	588641	6042693	Till-Blanket	pebbly-clayey-silty-sand	limestone some cobbles	till blanket	1	0.621118012	0	0	1	0.621118012	2	1.242236025	16.1	50	TILL
TL2009	TL09-0112	588731	6042817	Till-Blanket	pebbly-clayey-sandy-silt	limestone with clay	till blanket	1	1.010101010	0	0	0	0	1	1.010101010	9.9	30	TILL
TL2009	TL09-0113	588641	6042920	Till-Blanket	cobbly-sand- silt with pebbles	L.stone bearing	till blanket	6	6.060606061	0	0	0	0	6	6.060606061	9.9	40	TILL
TL2009	TL09-0114	588529	6043008	Till-Blanket	cobbly-sand- silt with pebbles	L.stone bearing	till blanket	2	1.639344262	1	0.819672131	0	0	3	2.459016393	12.2	30	TILL
TL2009	TL09-0115	588715	6043245	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	5	4	0	0	0	0	5	4	12.5	25	TILL
TL2009	TL09-0116	588631	6043119	Till-Blanket	cobbly-silty-sand with pebbles	L.stone bearing	till blanket	0	0	1	1.063829787	0	0	1	1.063829787	9.4	50	TILL
TL2009	TL09-0117	588709	6043024	Till-Blanket	cobbly-sand- silt with pebbles	L.stone bearing	till blanket	0	0	0	0	0	0	0	0	12.9	45	TILL
TL2009	TL09-0118	588846	6043115	Till-Blanket	cobbly-sand- silt with pebbles	L.stone bearing	till blanket	1	1.020408163	1	1.020408163	0	0	2	2.040816327	9.8	20	TILL
TL2009	TL09-0119	588227	6042390	Till-Veneer	pebbly-silty-fine sand	reworked - fine sand matrix	till veneer	16	12.8	2	1.6	2	1.6	20	16	12.5	0	TILL
TL2009	TL09-0120	584539	6043634	Till-Veneer	pebbly-cobbly-sand	washed at Bedrock surface	till veneer	4	3.921568627	2	1.960784314	4	3.921568627	10	9.803921569	10.2	0	TILL
TL2009	TL09-0121	584562	6043731	Till-Veneer	pebbly-cobbly-silty-sand	washed-crevice between outcrops	till veneer	2	2.083333333	10	10.41666667	15	15.625	27	28.125	9.6	0	TILL
TL2009	TL09-0122	584683	6043570	Till-Veneer	pebbly-cobbly-silty-sand		till veneer	3	2.941176471	6	5.882352941	3	2.941176471	12	11.76470588	10.2	0	TILL
TL2009	TL09-0123	584745	6043277	Till-Blanket	silty-sand and gravel	washed-l.stone bearing very little silt	till blanket	2	1.818181818	4	3.636363636	9	8.181818182	15	13.63636364	11	30	TILL
TL2009	TL09-0124	584562	6043209	Till-Veneer	cobbly-pebbly-silty-sand		till veneer	2	1.818181818	4	3.636363636	3	2.727272727	9	8.181818182	11	0	TILL
TL2009	TL09-0125	586624	6045003	Till-Veneer	pebbly-sandy-silt	slightly loamy but best material around	till veneer	1	1.041666667	5	5.208333333	1	1.041666667	7	7.291666667	9.6	0	TILL
TL2009	TL09-0126	584724	6043526	Till-Veneer	cobbly-pebbly-silty-sand	Resample of TL08-0162	till veneer	9	9.278350515	11	11.34020619	7	7.216494845	27	27.83505155	9.7	0	TILL
TL2009	TL09-0127	584161	6043384	Till-Veneer	pebbly-silty-sand	Resample of TL08-0094	till veneer	7	7.216494845	6	6.18556701	8	8.24742268	21	21.64948454	9.7	0	TILL
TL2009	TL09-0128	584240	6043277	Till-Veneer	gravely-silty-sand	slightly washed	till veneer	9	11.11111111	11	13.58024691	13	16.04938272	33	40.74074074	8.1	0	TILL
TL2009	TL09-0129	584384	6043334	Till-Veneer	silty-pebbly-sand	Loamy-L.stone bearing	till veneer	12	15.38461538	11	14.1025641	7	8.974358974	30	38.46153846	7.8	0	TILL
TL2009	TL09-0130	584223	6043012	S&G	pebbly-cobbly-sand	L.stone bearing	glaciofluvial	6	6.741573034	12	13.48314607	14	15.73033708	32	35.95505618	8.9	25	TILL
TL2009	TL09-0131	583919	6042740	Till-Blanket	pebbly-sandy-silt	L.stone bearing	till blanket	5	4.95049505	15	14.85148515	13	12.87128713	33	32.67326733	10.1	20	TILL
TL2009	TL09-0132	584117	6042484	Till-Blanket	pebbly-silty-sand	L.stone till - coarser than usual	till blanket	6	6.451612903	1	1.075268817	3	3.225806452	10	10.75268817	9.3	15	TILL
TL2009	TL09-0133	584386	6043029	Till-Blanket	pebbly-silty-sand	washed - L.stone till	till blanket	9	7.627118644	19	16.10169492	6	5.084745763	34	28.81355932	11.8	20	TILL
TL2009	TL09-0134	583987	6042670	Till-Blanket	pebbly-silty-sand	smaller pebbles than up-ice sample Proximal to TL08-0088	till blanket	4	3.846153846	1	0.961538462	2	1.923076923	7	6.730769231	10.4	10	TILL
TL2009	TL09-0135	590848	6043879	Till-Blanket	pebbly-silty-sand	L.stone - small rounded pebbles	till blanket	0	0	1	0.862068966	1	0.862068966	2	1.724137931	11.6	40	TILL
TL2009	TL09-0136	590768	6043934	Till-Blanket	pebbly-silty-sand	L.stone	till blanket	0	0	0	0	0	0	0	0	11.9	40	TILL
TL2009	TL09-0137	590691	6044008	Till-Blanket	pebbly-silty-sand	L.stone cobble at surface - slightly washed C	till blanket	3	2.479338843	0	0	0	0	3	2.479338843	12.1	40	TILL
TL2009	TL09-0138	590616	6044084	Till-Blanket	pebbly-silty-sand	L.stone	till blanket	1	0.862068966	0	0	0	0	1	0.862068966	11.6	35	TILL
TL2009	TL09-0139	590045	6044582	Till-Blanket	pebbly-silty-sand	Boulder armour - L.stone	till blanket	4	3.361344538	0	0	0	0	4	3.361344538	11.9	40	TILL
TL2009	TL09-0140	589947	6044638	Till-Blanket	pebbly-silty-sand	small clay fraction	till blanket	0	0	1	0.869565217	0	0	1	0.869565217	11.5	45	TILL
TL2009	TL09-0141	589880	6044706	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	3	2.586206897	1	0.862068966	0	0	4	3.448275862	11.6	40	TILL
TL2009	TL09-0142	589743	6044623	Till-Blanket	pebbly-silty-sand		till blanket	0	0	1	0.869565217	0	0	1	0.869565217	11.5	40	TILL
TL2009	TL09-0143	589846	6044503	Till-Blanket	pebbly-silty-sand	sub-rounded pebbles	till blanket	2	1.739130435	3	2.608695652	0	0	5	4.347826087	11.5	40	TILL
TL2009	TL09-0144	589936	6044442	Till-Blanket	pebbly-silty-sand	L.stone - small clast dominated	till blanket	2	1.739130435	1	0.869565217	0	0	3	2.608695652	11.5	40	TILL
TL2009	TL09-0145	589942	6044387	Till-Blanket	pebbly-sandy-silt minor clay	L.stone bearing	till blanket	1	0.943396226	0	0	0	0	1	0.943396226	10.6	40	TILL
TL2009	TL09-0146	589830	6044359	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	3	3.06122449	0	0	0	0	3	3.06122449	9.8	40	TILL
TL2009	TL09-0147	589751	6044408	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	6	5.660377358	0	0	0	0	6	5.660377358	10.6	40	TILL
TL2009	TL09-0148	589656	6044485	Till-Blanket	pebbly-silty-sand		till blanket	10	8.928571429	0	0	0	0	10	8.928571429	11.2	30	TILL
TL2009	TL09-0149	589600	6044323	Till-Blanket	pebbly-silty-sand	L.stone Bearing	till blanket	2	1.941747573	1	0.970873786	0	0	3	2.912621359	10.3	40	TILL
TL2009	TL09-0150	586716	6045048	Till-Veneer	pebbly-silty-sand	slight loamy texture	till veneer	6	6.593406593	1	1.098901099	0	0	7	7.692307692	9.1	0	TILL
TL2009	TL09-0151	590465	6043990	Till-Blanket	cobbly-pebbly-sandy-silt	L.stone bearing - very cobbly	till blanket	3	2.702702703	0	0	0	0	3	2.702702703	11.1	30	TILL
TL2009	TL09-0152	590602	6043901	Till-Blanket	pebbly-sandy-silt	mostly subrounded pebbles	till blanket	4	3.669724771	2	1.834862385	1	0.917431193	7	6.422018349	10.9	40	TILL
TL2009	TL09-0153	590677	6043800	Till-Blanket	pebbly-sandy-silt	L.stone-bearing - dominated by subrounded pebbles	till blanket	2	1.851851852	1	0.925925926	0	0	3	2.777777778	10.8	30	TILL
TL2009	TL09-0154	590779	6043743	Till-Veneer	pebbly-sandy-silt	little to no L.stone	till veneer	5	4.273504274	1	0.854700855	0	0	6	5.128205128	11.7	0	TILL
TL2009	TL09-0155	590687	6043650	Till-Blanket	pebbly-silty-sand	dominated by small L.stone clasts	till blanket	5	4.716981132	2	1.886792453	3	2.830188679	10	9.433962264	10.6	30	TILL
TL2009	TL09-0156	590597	6043783	Till-Blanket	pebbly-silty-sand	l.stone bearing - winnowed	till blanket	0	0	0	0	0	0	0	0	12.5	40	TILL
TL2009	TL09-0157	590518	6043817	Till-Blanket	pebbly-silty-sand	lots of 1 to 2cm L.stone pebbles	till blanket	3	2.542372881	3	2.542372881	0	0	6	5.084745763	11.8	30	TILL
TL2009	TL09-0158	590410	6043908	Till-Blanket	pebbly-silty-sand	l.stone bearing - winnowed	till blanket	7	6.25	0	0	0	0	7	6.25	11.2	40	TILL
TL2009	TL09-0159	586910	6040301	Till-Veneer	pebbly-sandy-clayey-silt	reworked - possibly some lacustrine mix	till veneer	2	1.886792453	1	0.943396226	3	2.830188679	6	5.660377358	10.6	0	TILL
TL2009	TL09-0160	586577	6040410	Till-Blanket	pebbly-sandy-silt	L.stone Bearing	till blanket	5	4.95049505	0	0	0	0	5	4.95049505	10.1	5	TILL
TL2009	TL09-0161	586478	6040520	Till-Blanket	pebbly-sandy-silt	L.stone Bearing	till blanket	5	4.95049505	0	0	3	2.97029703	8	7.920792079	10.1	20	TILL
TL2009	TL09-0162	586353	6040667	Till-Blanket	Pebbly-silty-sand	L.stone Bearing	till blanket	1	0.970873786	0	0	0	0	1	0.970873786	10.3	30	TILL
TL2009	TL09-0163	586050	6040946	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	4	3.773584906	0	0	1	0.943396226	5	4.716981132	10.6	30	TILL
TL2009	TL09-0164	586259	6040825	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	4	4.04040404	0	0	1	1.01010101	5	5.050505051	9.9	30	TILL
TL2009	TL09-0165	585835	6040738	Till-Blanket	pebbly-silty-sand	L.stone Bearing	till blanket	0	0	0	0	0	0	0	0	9.7	30	TILL
TL2009	TL09-0166	585939	6040623	Till-Blanket	pebbly-silty-sand	L.stone Bearing	till blanket	2	1.785714286	2	1.785714286	2	1.785714286	6	5.357142857	11.2	25	TILL
TL2009	TL09-0167	586097	6040451	Till-Blanket	pebbly-sandy-silt	L.stone Bearing	till blanket	0	0	3	2.857142857	4	3.80952381	7	6.666666667	10.5	35	TILL
TL2009	TL09-0168	586170	6040347	Till-Blanket	pebbly-sandy-silt	less than 2cm pebbles	till blanket	3	2.702702703	3	2.702702703	3	2.702702703	9	8.108108108	11.1	35	TILL
TL2009	TL09-0169	586326	6040212	Till-Blanket	pebbly-sandy-silt		till blanket	6	5.263157895	1	0.877192982	1	0.877192982	8	7.01754386	11.4	40	TILL
TL2009	TL09-0170	586929	6039349	Till-Blanket	pebbly-silty-sand	L.stone Bearing	till blanket	1	0.884955752	6	5.309734513	2	1.769911504	9	7.96460177	11.3	35	TILL
TL2009	TL09-0171	586845	6039455	Till-Blanket	pebbly-sandy-silt		till blanket	2	1.851851852	1	0.925925926	2	1.851851852	5	4.62962963	10.8	25	TILL
TL2009	TL09-0172	586640	6039649	Till-Blanket	pebbly-silty-sand	limited L.stone clasts	till blanket	2	1.785714286	2	1.785714286	0	0	4	3.571428571	11.2	0	TILL
TL2009	TL09-0173	586557	6039815	Till-Blanket	pebbly-sandy-silt	L.stone bearing	till blanket	2	1.298701299	1	0.649350649	2	1.298701299	5	3.246753247	15.4	30	TILL
TL2009	TL09-0174	590680	6042080	Till-Blanket	Pebbly-sandy-silt	L.stone bearing	till blanket	1	0.961538462	0	0	0	0	1	0.961538462	10.4	25	TILL
TL2009	TL09-0175	590478	6042044	Till-Blanket	Pebbly-sandy-silt	ubundant felsic intrusive pebbles	till blanket	1	0.99009901	0	0	0	0	1	0.99009901	10.1	50	TILL
TL2009	TL09-0176	589985	6042113	Till-Veneer	Pebbly-silty-sand	sub-angular pebbles very little L.stone	till veneer	8	9.523809524	3	3.571428571	1	1.19047619	12	14.28571429	8.4	10	TILL
TL2009	TL09-0177	589656	6041990	Till-Veneer	Pebbly-sandy-silt	L.stone bearing till in Bedrock crevice	till veneer	4	4.04040404	0	0	0	0	4	4.04040404	9.9	30	TILL
TL2009	TL09-0178	583831	6042019	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	2	1.923076923	0	0	0	0	2	1.923076923	10.4	30	TILL
TL2009	TL09-0179	583790	6041885	Till-Blanket	pebbly-sandy-silt	L.stone bearing	till blanket	10	9.708737864	2	1.941747573	2	1.941747573	14	13.59223301	10.3	35	TILL
TL2009	TL09-0180	583863	6041766	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	6	6.18556701	2	2.06185567	0	0	8	8.24742268	9.7	30	TILL
TL2009	TL09-0181	583950	6041676	Till-Blanket	pebbly-silty-sand	L.stone bearing - good variety of pebbles	till blanket	3	2.830188679	2	1.886792453	9	8.490566038	14	13.20754717	10.6	30	TILL
TL2009	TL09-0182	584064	6041739	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	2	1.785714286	5	4.464285714	6	5.357142857	13	11.60714286	11.2	30	TILL
TL2009	TL09-0183	583952	6041845	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	3	2.884615385	1	0.961538462	0	0	4	3.846153846	10.4	35	TILL
TL2009	TL09-0184	583746	6042141	Till-Blanket	pebbly-sandy-silt	L.stone bearing	till blanket	8	7.272727273	8	7.272727273	8	7.272727273	24	21.81818182	11	20	TILL
TL2009	TL09-0185	583653	6042438	Till-Blanket	silty-pebbly-sand	cobble clad surface below humus - L.stone bearing	till blanket	5	4.672897196	2	1.869158879	2	1.869158879	9	8.411214953	10.7	30	TILL
TL2009	TL09-0186	583463	6042758	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	10	10.75268817	5	5.376344086	5	5.376344086	20	21.50537634	9.3	40	TILL
TL2009	TL09-0187	586801	6045156	Till-Veneer	pebbly-clayey-sandy-silt	limestone bearing	till veneer	1	0.909090909	0	0	0	0	1	0.909090909	11	20	TILL
TL2009	TL09-0188	586533	6045094	Till-Veneer	cobbly-pebbly-sandy-silt	no visible limestone	till veneer	7	7.692307692	1	1.098901099	2	2.197802198	10	10.98901099	9.1	0	TILL
TL2009	TL09-0189	586504	6044991	Till-Veneer	pebbly-silty-sand	trace limestone pebs	till veneer	5	4.424778761	0	0	0	0	5	4.424778761	11.3	0	TILL
TL2009	TL09-0190	586110	6044818	Till-Veneer	pebbly-silty-sand	fissil texture	till veneer	4	3.389830508	4	3.389830508	5	4.237288136	13	11.01694915	11.8	0	TILL
TL2009	TL09-0191	586282	6045258	Till-Veneer	pebbly-silty-sand	loamy	till veneer	1	1.063829787	2	2.127659574	3	3.191489362	6	6.382978723	9.4	10	TILL
TL2009	TL09-0192	586472	6045129	Till-Veneer	pebbly-sandy-silt	no limestone	till veneer	2	1.818181818	2	1.818181818	2	1.818181818	6	5.454545455	11	0	TILL
TL2009	TL09-0193	586371	6045214	Till-Veneer	pebbly-silty-sand	washed by lake level	till veneer	0	0	1	1.01010101	2	2.02020202	3	3.03030303	9.9	0	TILL
TL2009	TL09-0194	586238	6045012	Till-Veneer	pebbly-silty-sand	slightly loamy	till veneer	3	2.380952381	1	0.793650794	0	0	4	3.174603175	12.6	0	TILL
TL2009	TL09-0195	585852	6044701	Till-Veneer	silty-pebbly-sand	limestone bearing	till veneer	14	11.96581197	15	12.82051282	18	15.38461538	47	40.17094017	11.7	10	TILL
TL2009	TL09-0196	586374	6044972	Till-Blanket	clayey-pebbly-silty-sand	still frozen	till blanket	1	0.99009901	0	0	4	3.96039604	5	4.95049505	10.1	10	TILL
TL2009	TL09-0201	589866	6039961	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	2	1.739130435	4	3.47826087	1	0.869565217	7	6.086956522	11.5	20	TILL
TL2009	TL09-0202	589771	6040102	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	6	5.555555556	5	4.62962963	2	1.851851852	13	12.03703704	10.8	30	TILL
TL2009	TL09-0203	589785	6040431	Till-Veneer	Pebbly-sandy-silt	Bedrock foliated mafic	till veneer	7	6.034482759	4	3.448275862	4	3.448275862	15	12.93103448	11.6	0	TILL
TL2009	TL09-0204	590125	6040509	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	1	0.877192982	1	0.877192982	0	0	2	1.754385965	11.4	30	TILL
TL2009	TL09-0205	590282	6040329	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	0	0	2	1.818181818	0	0	2	1.818181818	11	15	TILL
TL2009	TL09-0206	590477	6040179	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	2	1.801801802	0	0	0	0	2	1.801801802	11.1	25	TILL
TL2009	TL09-0207	590651	6040063	Till-Blanket	Pebbly-sandy-silt	L.stone Bearing	till blanket	2	1.818181818	0	0	1	0.909090909	3	2.727272727	11	25	TILL
TL2009	TL09-0208	585089	6039744	Till-blanket	pebbly-sandy-silt	boulder armour - Felsic Intrusive	till blanket	5	5.050505051	1	1.01010101	1	1.01010101	7	7.070707071	9.9	30	TILL
TL2009	TL09-0209	584862	6039880	Till-Blanket	pebbly-silty-sand	good variety of clasts	till blanket	1	0.961538462	0	0	0	0	1	0.961538462	10.4	25	TILL
TL2009	TL09-0210	584636	6040249	Till-Blanket	pebbly-sandy-clayey-silt	L.stone bearing	till blanket	2	1.923076923	0	0	0	0	2	1.923076923	10.4	40	TILL
TL2009	TL09-0211	584510	6040342	Till-Blanket	pebbly-silty-sand	L.stone bearing	till blanket	0	0	0	0	1	1.098901099	1	1.098901099	9.1	25	TILL
TL2009	TL09-0212	584033	6040084	Till-Veneer	pebbly-silty-sand	polished Felsic Intrusive bedrock - no straie	till veneer	0	0	0	0	1	0.952380952	1	0.952380952	10.5	20	TILL
TL2009	TL09-0213	584166	6039944	Till-Blanket	pebbly-sandy-silt minor clay	some L.stone	till blanket	2	1.941747573	0	0	1	0.970873786	3	2.912621359	10.3	30	TILL
TL2009	TL09-0251	585066	6042520	Till-Blanket	S&G minor silt	boulder clad surface - winnowed	till blanket	6	5.504587156	0	0	0	0	6	5.504587156	10.9	20	TILL
TL2009	TL09-0252	585174	6042426	Till-Blanket	clayey-silt till	L.stone bearing	till blanket	0	0	0	0	0	0	0	0	10.3	25	TILL
TL2009	TL09-0253	588195	6044541	Till-Blanket	clayey-pebbly-silt	abundance of clasts(ls)	till blanket	1	1.030927835	0	0	0	0	1	1.030927835	9.7	20	TILL
TL2009	TL09-0254	588022	6044481	Till-Blanket	clayey-pebbly-silt	abundant LS pebs	till blanket	3	2.678571429	0	0	0	0	3	2.678571429	11.2	20	TILL
TL2009	TL09-0255	587665	6044239	Till-Blanket	pebbly-clayey-silt	sample take on nose of drumlin	till blanket	2	2.150537634	0	0	0	0



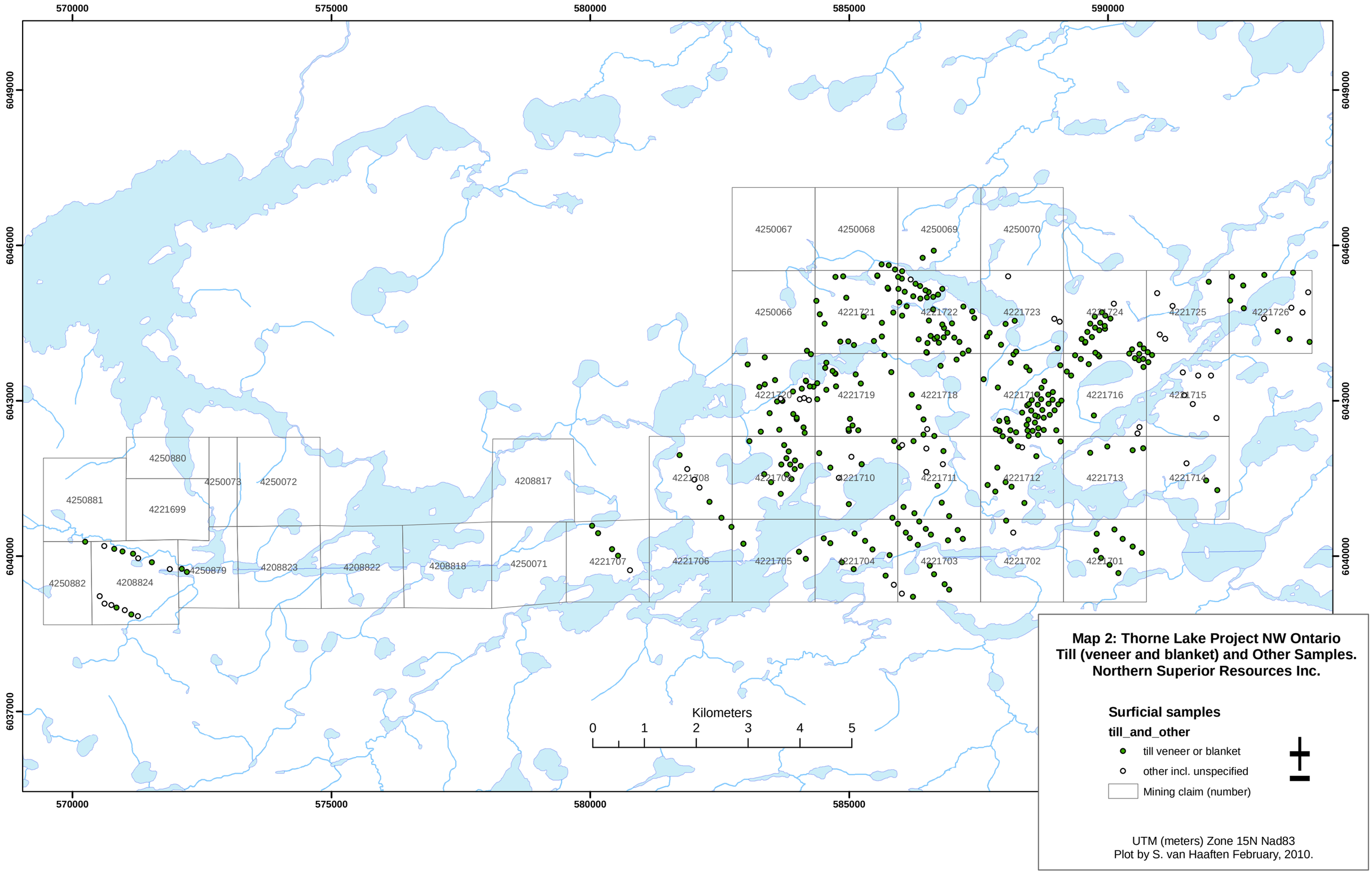
Map 1: Thorne Lake Project NW Ontario Surficial Sample Locations by Year. Northern Superior Resources Inc.

Heavy mineral samples by year

dataset

- NW2006
- TL2008
- TL2009
- Mining claim (number)

UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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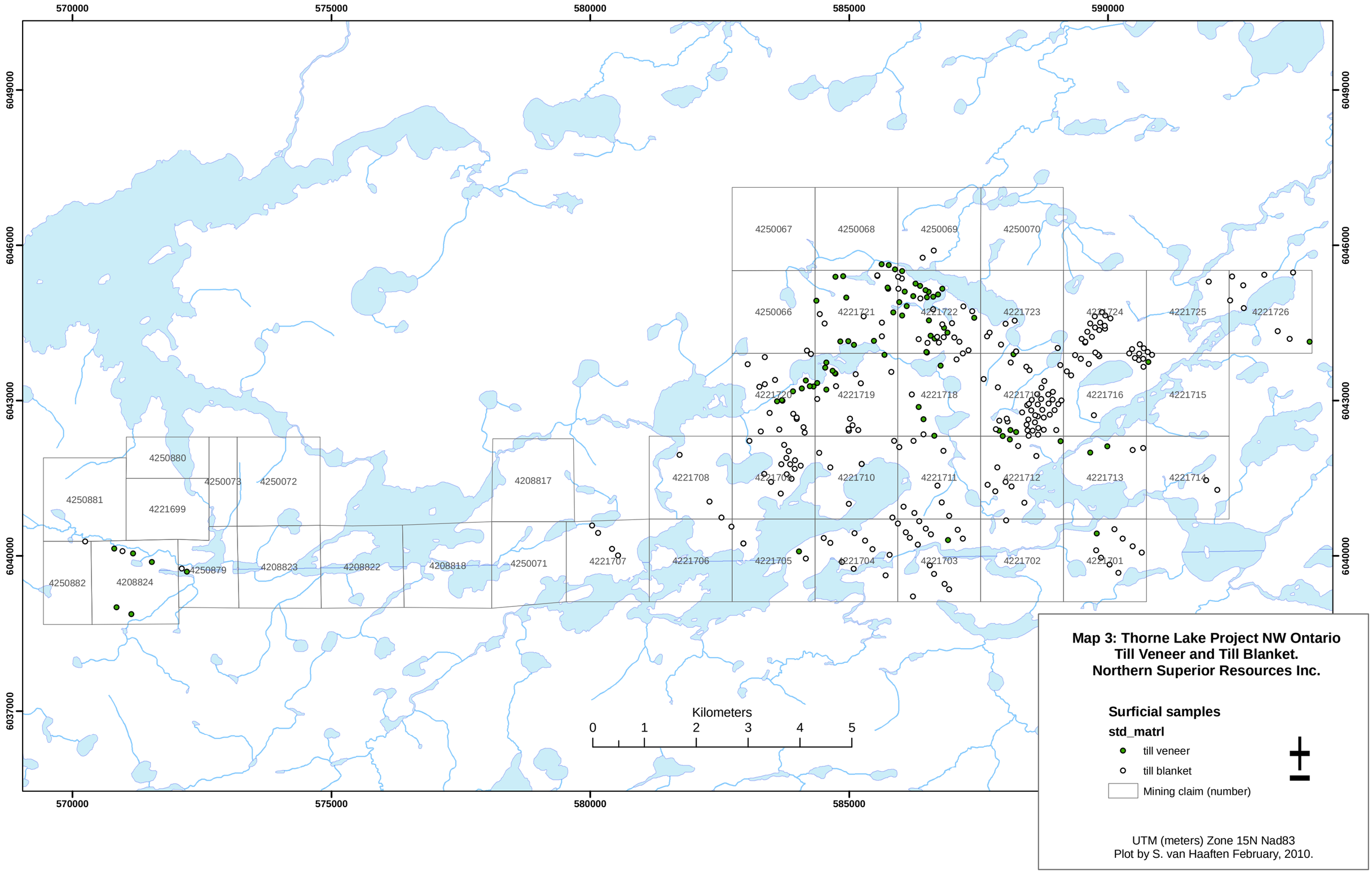
Map 2: Thorne Lake Project NW Ontario
Till (veneer and blanket) and Other Samples.
Northern Superior Resources Inc.
Surficial samples
till_and_other
till veneer or blanket
other incl. unspecified
Mining claim (number)
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.



Map 3: Thorne Lake Project NW Ontario
Till Veneer and Till Blanket.
Northern Superior Resources Inc.

Surficial samples

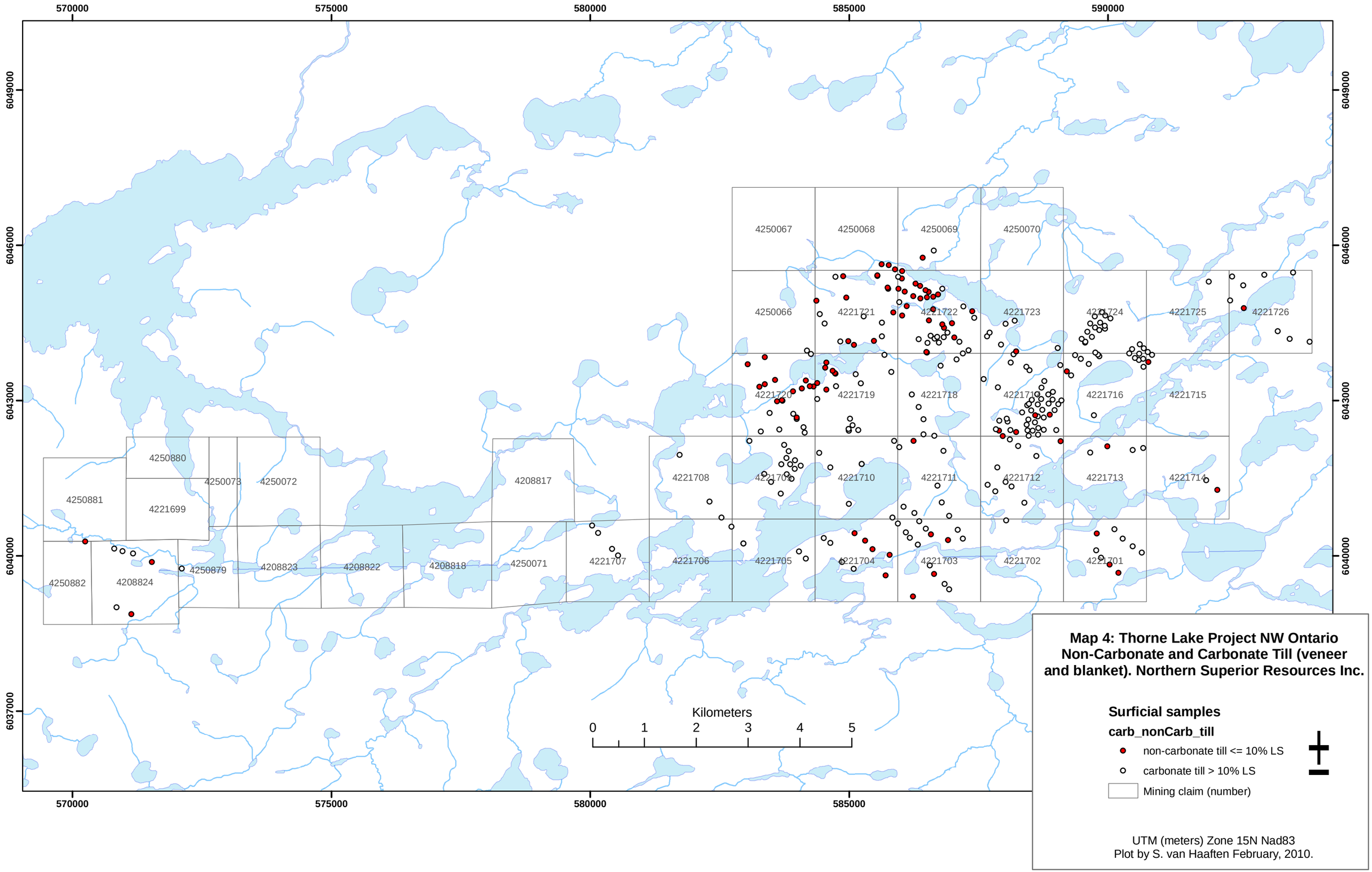
std_matrl

till veneer

till blanket

Mining claim (number)

UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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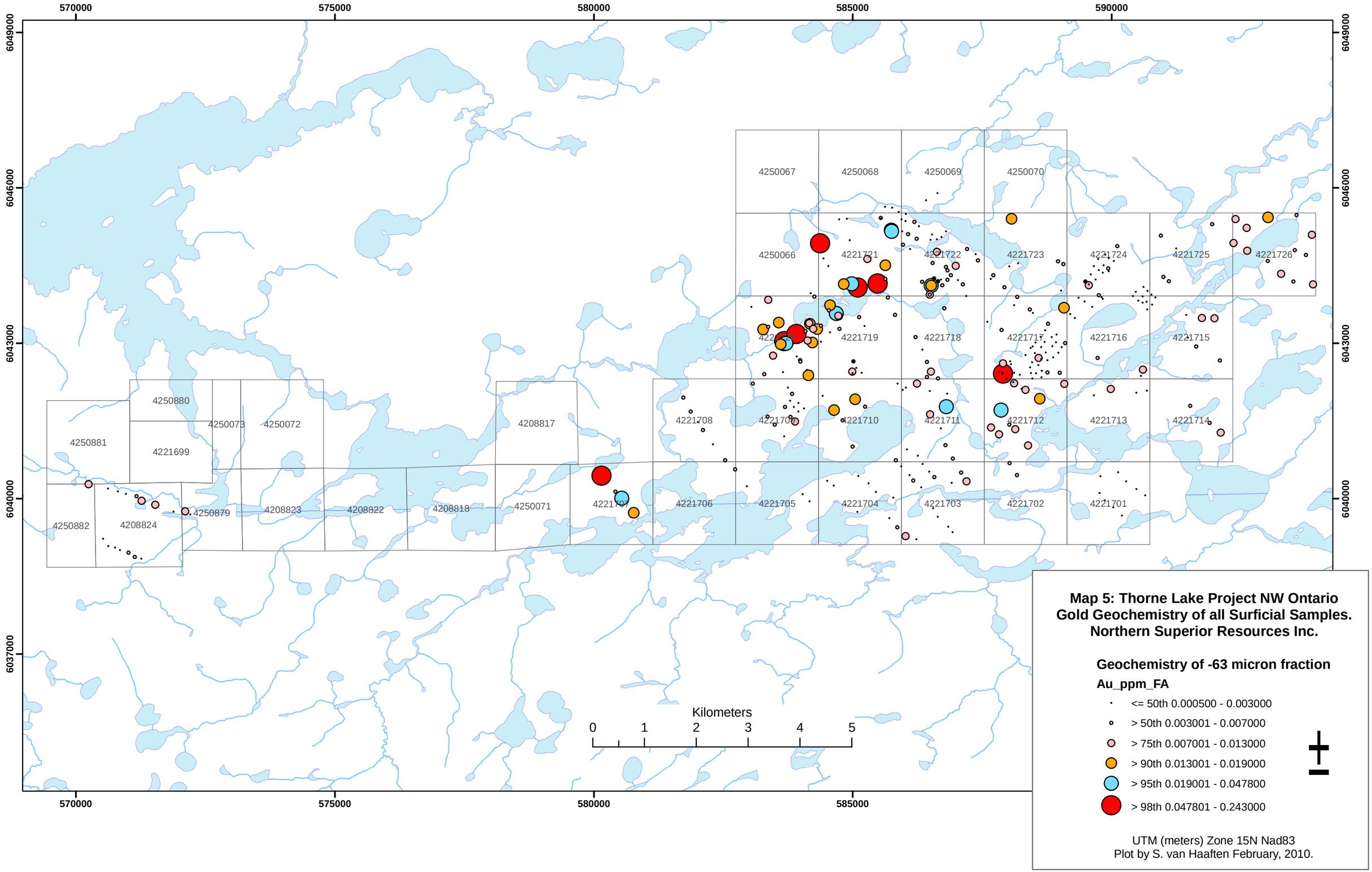
Map 4: Thorne Lake Project NW Ontario Non-Carbonate and Carbonate Till (veneer and blanket). Northern Superior Resources Inc.
Surficial samples
carb_nonCarb_till
non-carbonate till <= 10% LS
carbonate till > 10% LS
Mining claim (number)
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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4250071
4221706
4221705
4221704
4221703
4221702
4221701
Kilometers
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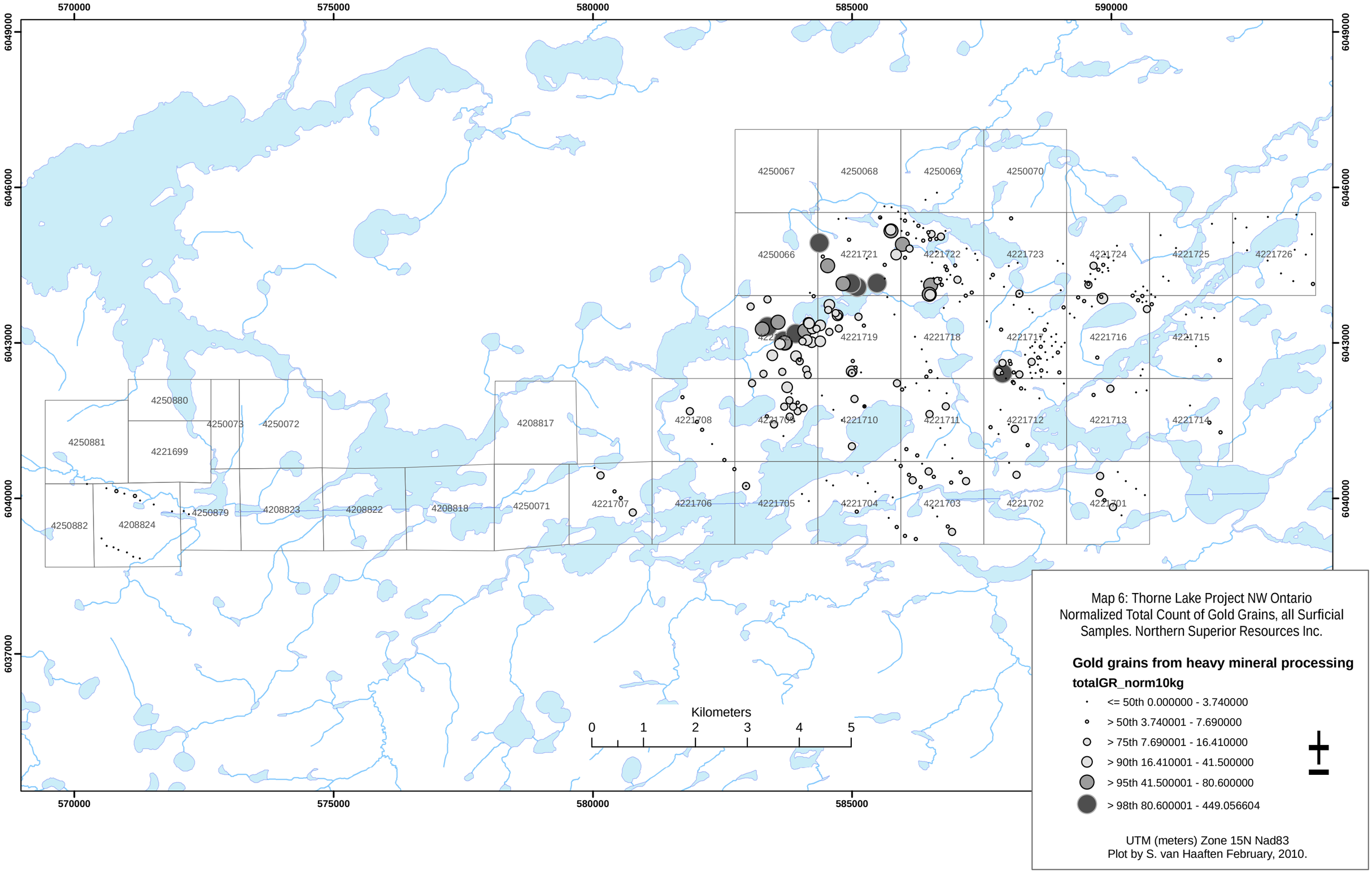
2
3
4
5
Map 5: Thorne Lake Project NW Ontario
Gold Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Au_ppm_FA
<= 50th 0.000500 - 0.003000
> 50th 0.003001 - 0.007000
> 75th 0.007001 - 0.013000
> 90th 0.013001 - 0.019000
> 95th 0.019001 - 0.047800
> 98th 0.047801 - 0.243000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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4221707
4221706
4221705
4221704
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4221702
4221701
Kilometers
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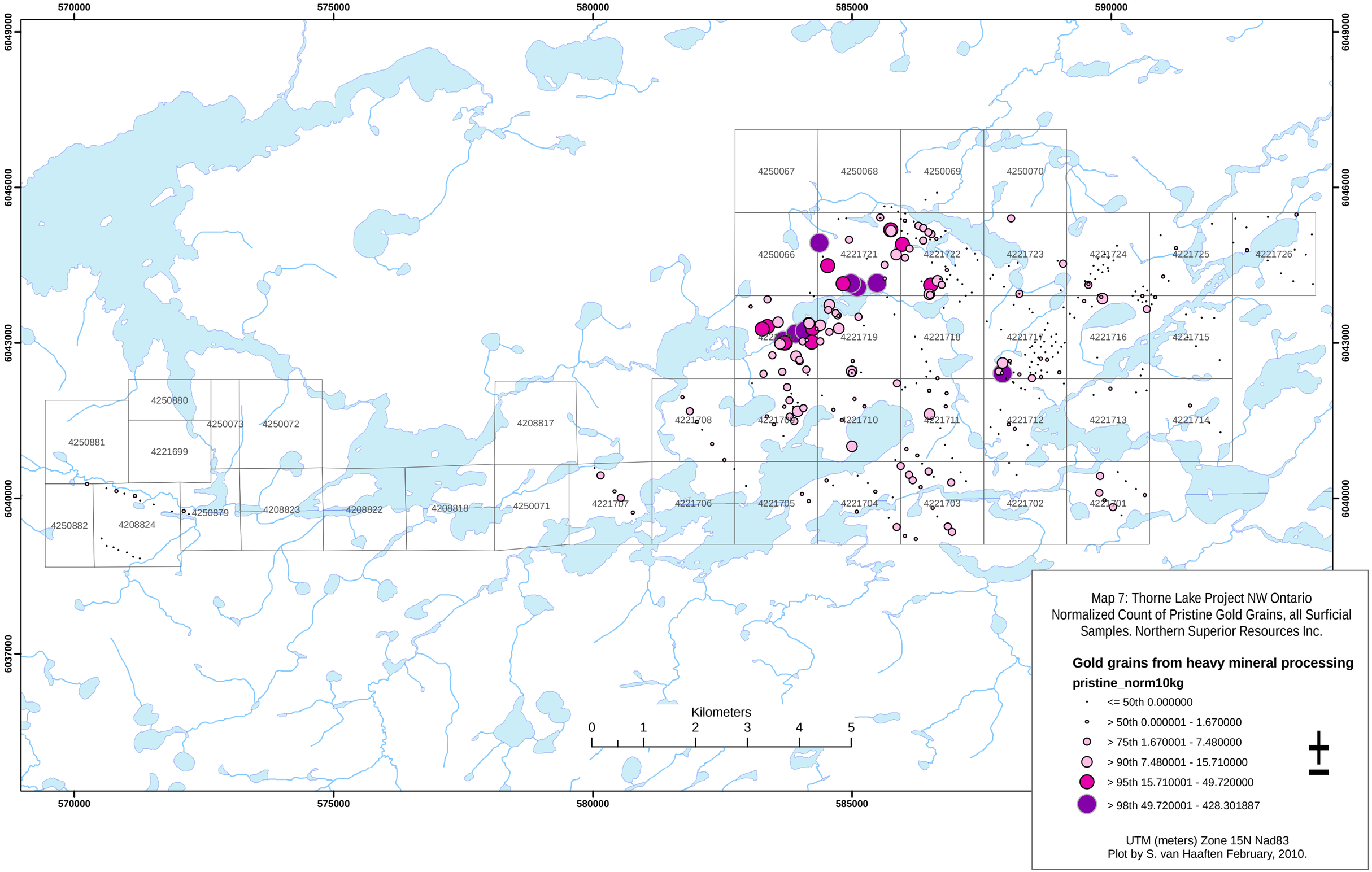
5
Map 6: Thorne Lake Project NW Ontario
Normalized Total Count of Gold Grains, all Surficial Samples. Northern Superior Resources Inc.
Gold grains from heavy mineral processing
totalGR_norm10kg
<= 50th 0.000000 - 3.740000
> 50th 3.740001 - 7.690000
> 75th 7.690001 - 16.410000
> 90th 16.410001 - 41.500000
> 95th 41.500001 - 80.600000
> 98th 80.600001 - 449.056604
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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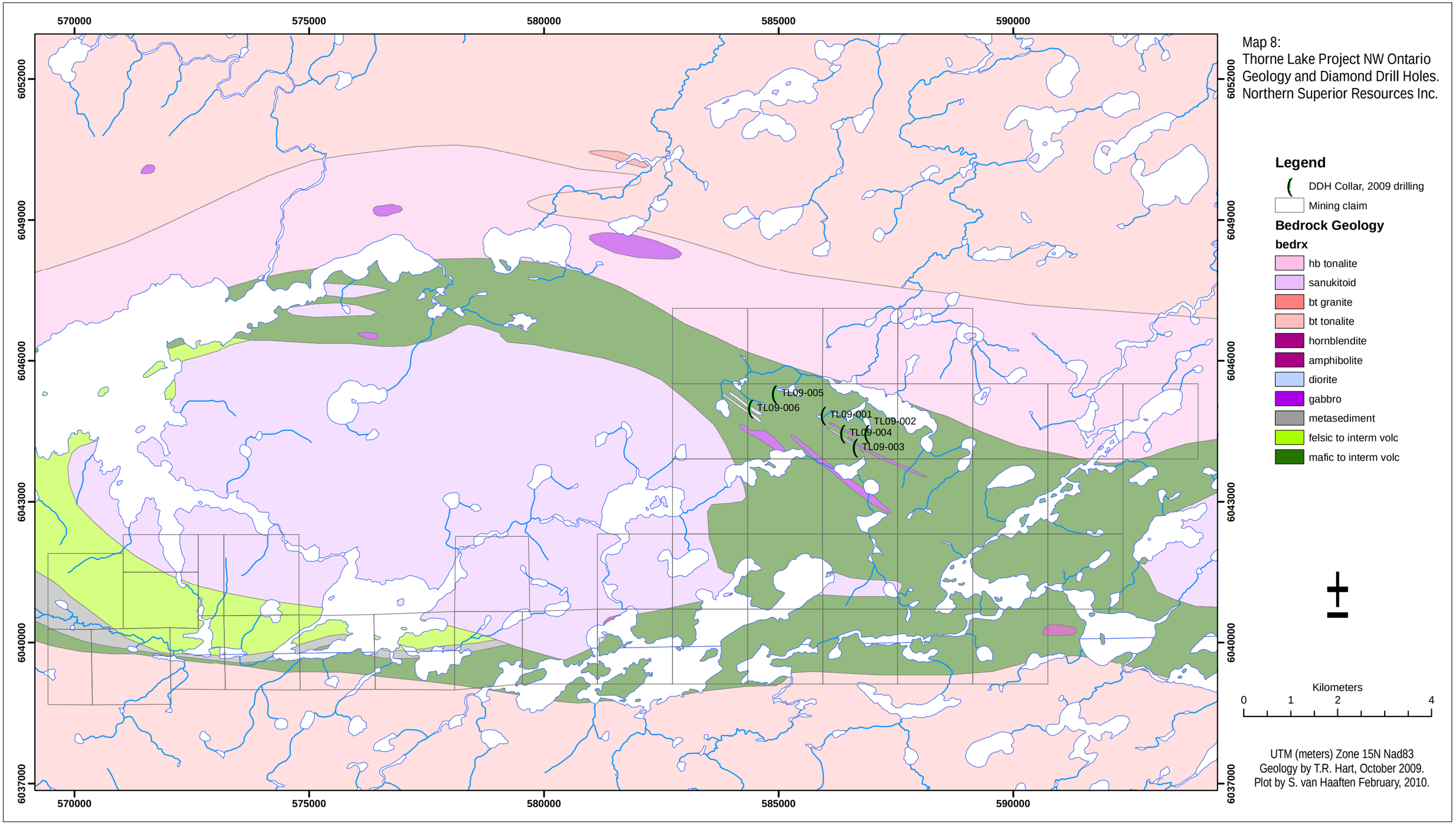
Map 7: Thorne Lake Project NW Ontario
Normalized Count of Pristine Gold Grains, all Surficial Samples. Northern Superior Resources Inc.
Gold grains from heavy mineral processing
pristine_norm10kg
<= 50th 0.000000
> 50th 0.000001 - 1.670000
> 75th 1.670001 - 7.480000
> 90th 7.480001 - 15.710000
> 95th 15.710001 - 49.720000
> 98th 49.720001 - 428.301887
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.


Map 8:
Thorne Lake Project NW Ontario
Geology and Diamond Drill Holes.
Northern Superior Resources Inc.
Legend
DDH Collar, 2009 drilling
Mining claim
Bedrock Geology
bedrx
hb tonalite
sanukitoid
bt granite
bt tonalite
hornblendite
amphibolite
diorite
gabbro
metasediment
felsic to interm volc
mafic to interm volc
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Kilometers
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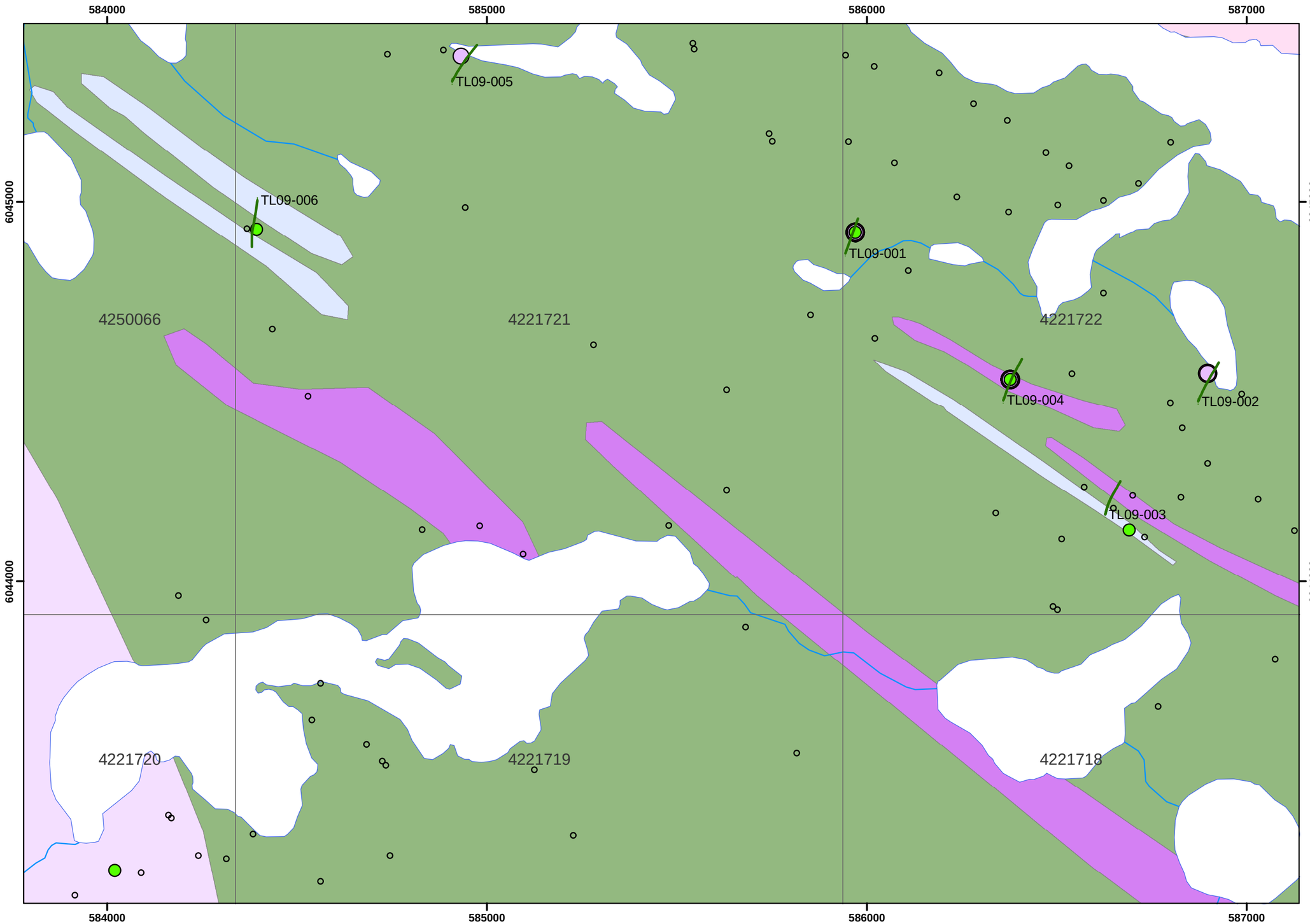
UTM (meters) Zone 15N Nad83
Geology by T.R. Hart, October 2009.
Plot by S. van Haaften February, 2010.



Map 9:
Thorne Lake Project NW Ontario
Locations of High-Au Bedrock Samples (> 0.50 ppm Au) from Grab and Channel Sampling.
Northern Superior Resources Inc.

Legend

- DDH Collar, 2009 drilling
- DDH Trace

Grabs & channels >= 0.50 ppm Au

Au_ppm

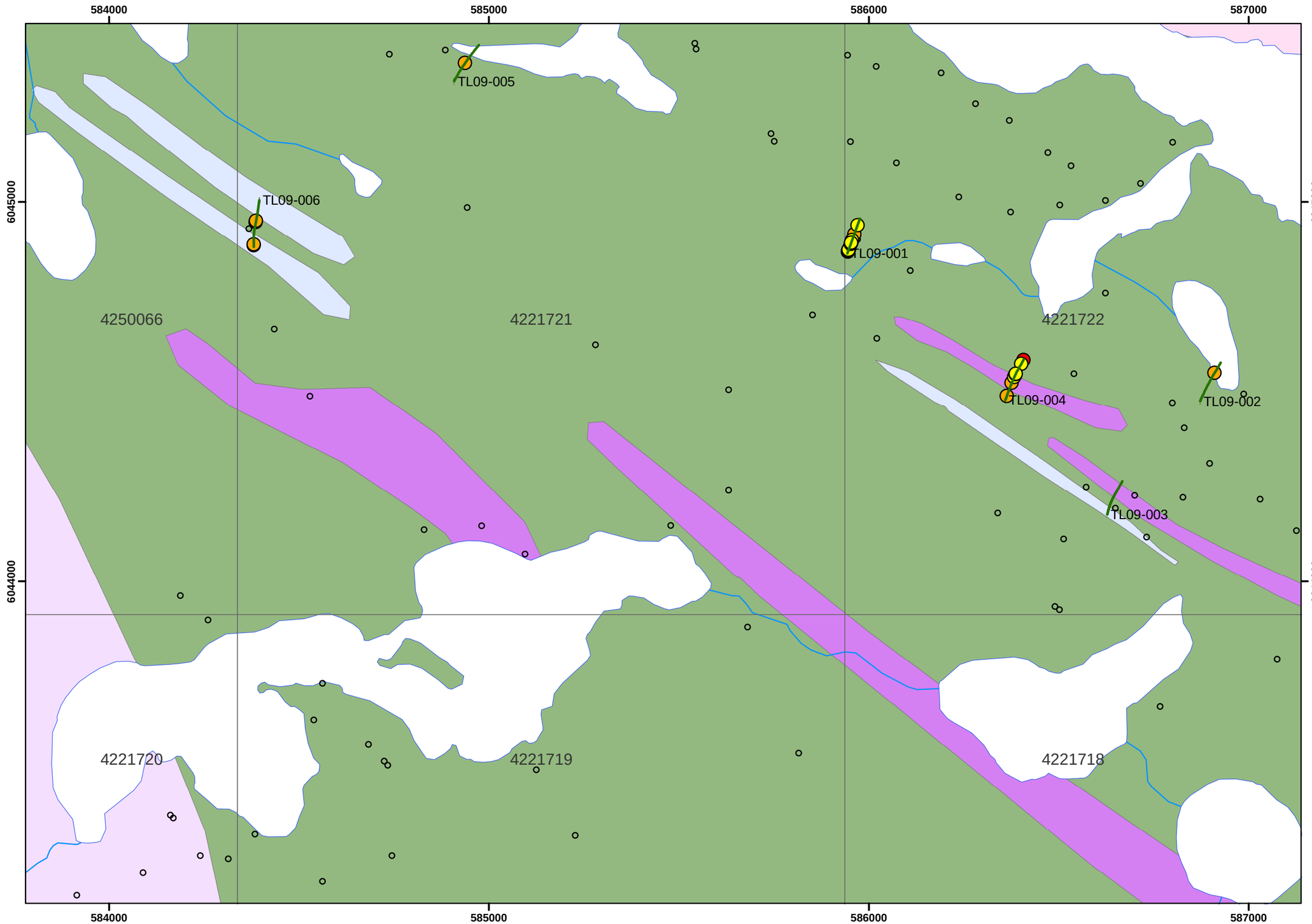
- 0.522000 - 1.000000
- 1.000001 - 2.000000
- 2.000001 - 10.000000
- surficial samples
- Mining claim (number)

Bedrock Geology

bedrx

- hb tonalite
- sanukitoid
- bt granite
- bt tonalite
- hornblendite
- amphibolite
- diorite
- gabbro
- metasediment
- felsic to interm volc
- mafic to interm volc

UTM (meters) Zone 15N Nad83
Geology by T.R. Hart, October 2009.
Plot by S. van Haaften February, 2010.



Map 10:
Thorne Lake Project NW Ontario
Locations of High-Au Samples
(> 0.50 ppm Au) from Drill Core.
Northern Superior Resources Inc.

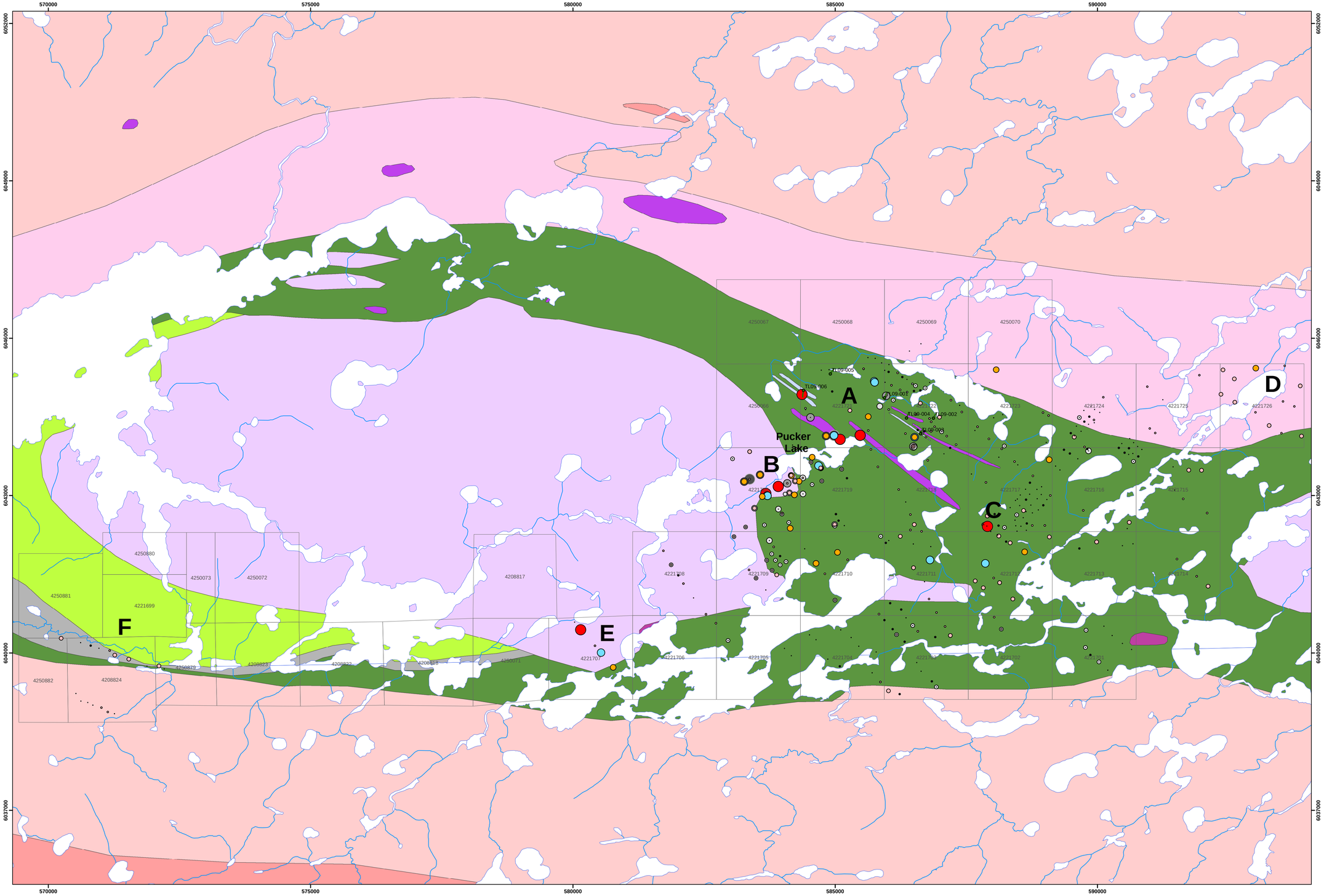
Legend

Core samples >= 0.50 ppm Au
Au_ppm
- 0.56200 - 1.00000
- 1.00001 - 2.00000
- 2.00001 - 3.31000

Mining claim (number)
DDH Collar, 2009 drilling
Surficial material sample
DDH Trace

Bedrock Geology
bedrx
- hb tonalite
- sanukitoid
- bt granite
- bt tonalite
- hornblendite
- amphibolite
- diorite
- gabbro
- metasediment
- felsic to interm volc
- mafic to interm volc

UTM (meters) Zone 15N Nad83
Geology by T.R. Hart, October 2009.
Plot by S. van Haaften February, 2010.



Map 11:
Thorne Lake Project NW Ontario
Areas with Surficial Samples that are Anomalous in Gold.
Northern Superior Resources Inc.

Legend:

Au target areas (anomalies) are labeled A, B, C to F.

- DH Collar (number)
- DH Trace

Surficial Au Geochemistry

Au_ppm_FA

- <= 50th 0.000500 - 0.003000
- > 50th 0.003001 - 0.007000
- > 75th 0.007001 - 0.013000
- > 90th 0.013001 - 0.019000
- > 95th 0.019001 - 0.047800
- > 98th 0.047801 - 0.243000

Gold grains from HM processing

totalGR_norm10kg

- <= 50th 0.000000 - 3.740000
- > 50th 3.740001 - 7.690000
- > 75th 7.690001 - 16.410000
- > 90th 16.410001 - 41.500000
- > 95th 41.500001 - 80.600000
- > 98th 80.600001 - 449.056604

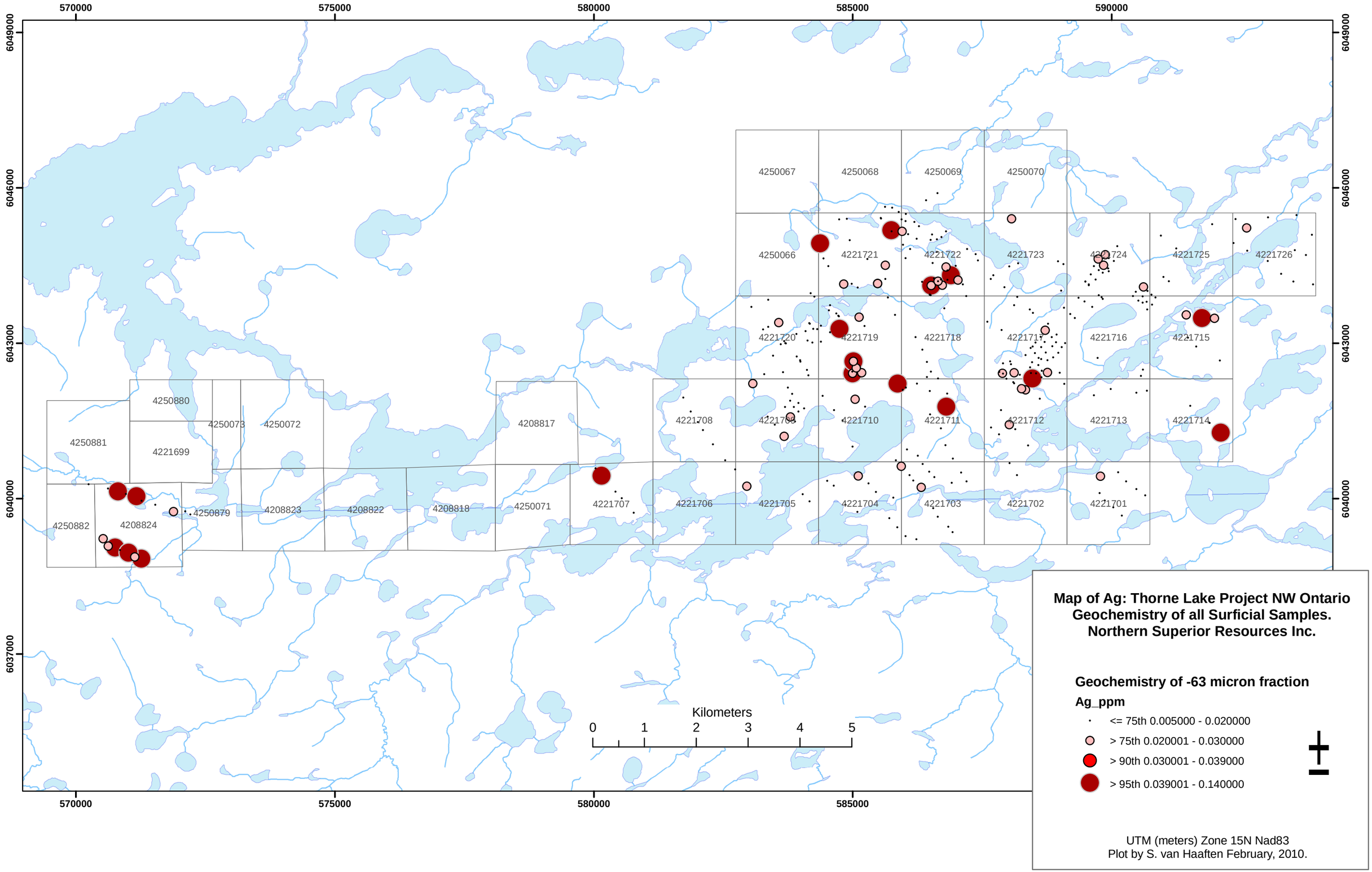
Bedrock Geology

bedrx

- hb tonalite
- sanukitoid
- bt granite
- bt tonalite
- hornblendite
- amphibolite
- diorite
- gabbro
- metasediment
- felsic to interm volc
- mafic to interm volc

Kilometers
0 0.5 1 1.5 2

UTM (meters) Zone 15N Nad83
Geology by T.R. Hart, October 2009.
Plot by S. van Haaften February, 2010.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Kilometers
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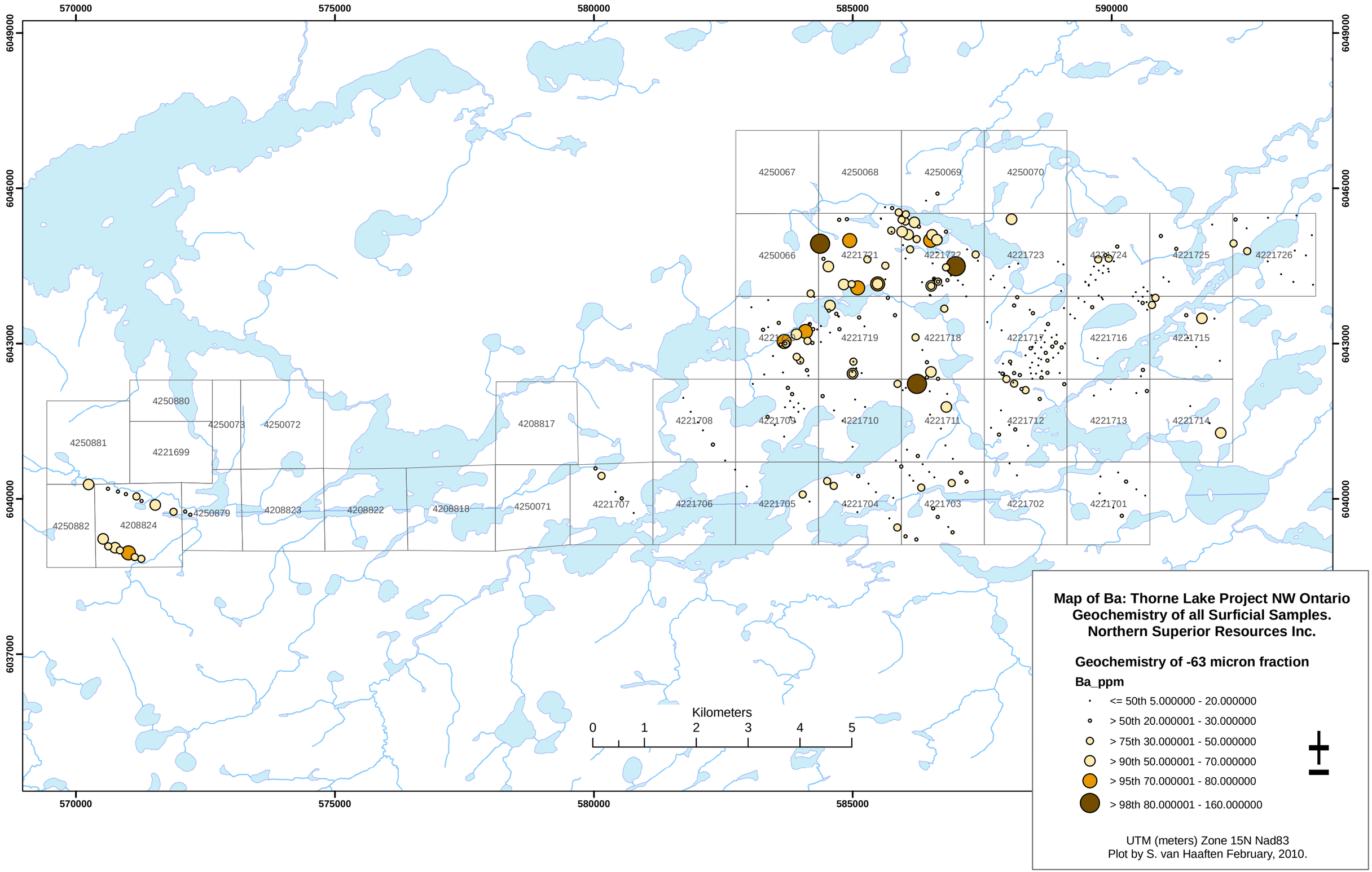
Map of Ag: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Ag_ppm
<= 75th 0.005000 - 0.020000
> 75th 0.020001 - 0.030000
> 90th 0.030001 - 0.039000
> 95th 0.039001 - 0.140000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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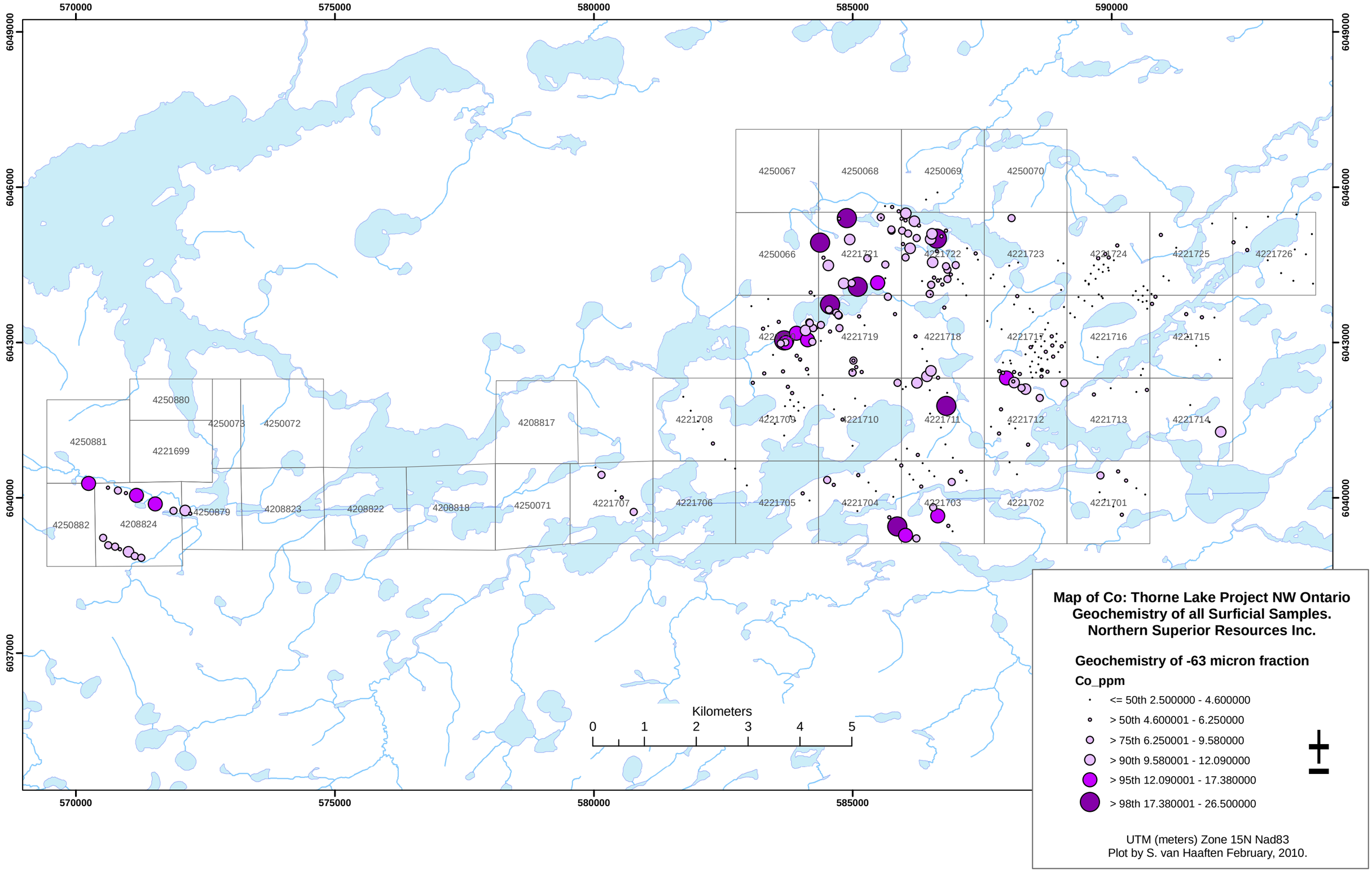
Map of Ba: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Ba_ppm
<= 50th 5.000000 - 20.000000
> 50th 20.000001 - 30.000000
> 75th 30.000001 - 50.000000
> 90th 50.000001 - 70.000000
> 95th 70.000001 - 80.000000
> 98th 80.000001 - 160.000000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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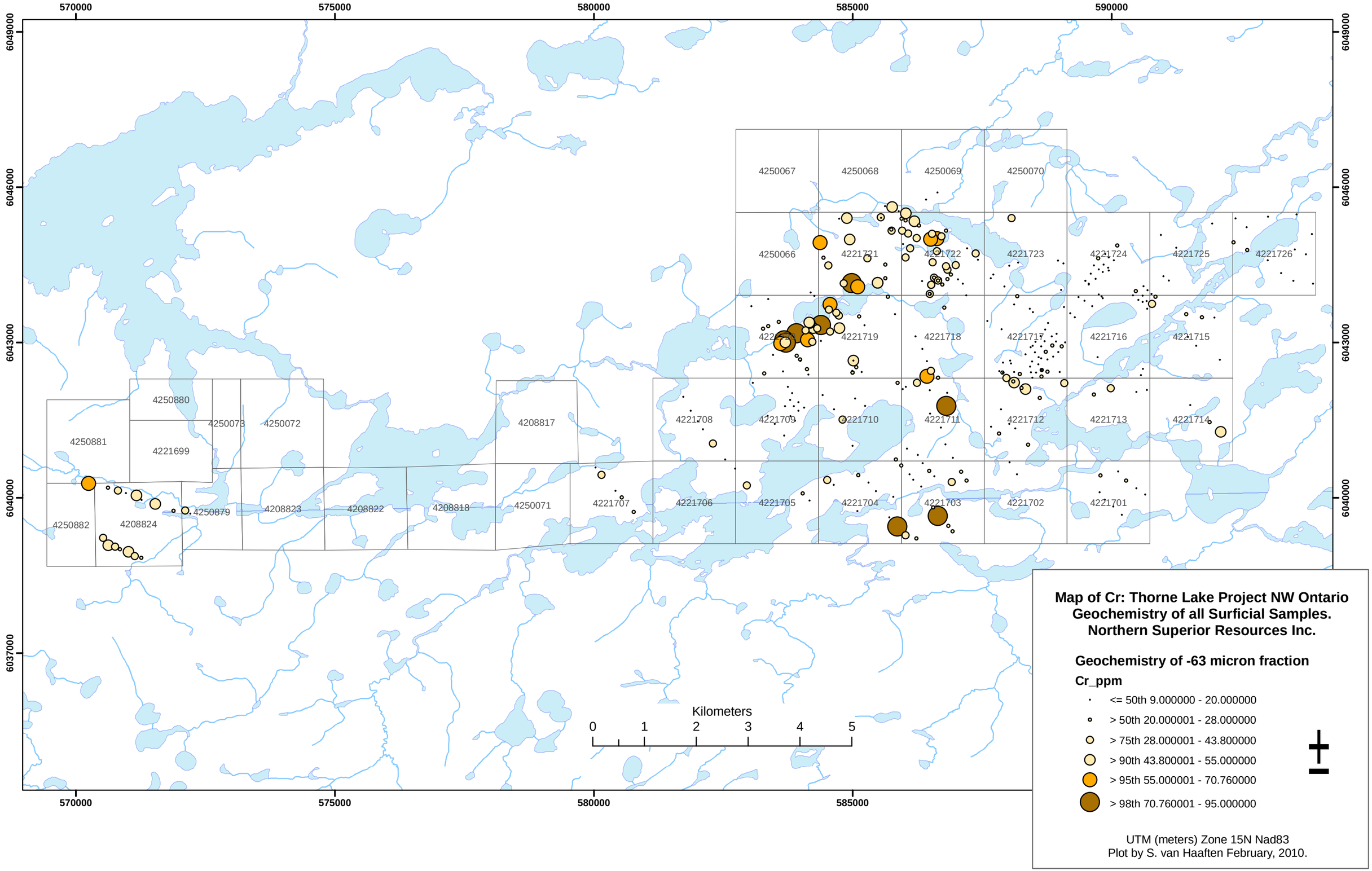
Map of Co: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Co_ppm
<= 50th 2.500000 - 4.600000
> 50th 4.600001 - 6.250000
> 75th 6.250001 - 9.580000
> 90th 9.580001 - 12.090000
> 95th 12.090001 - 17.380000
> 98th 17.380001 - 26.500000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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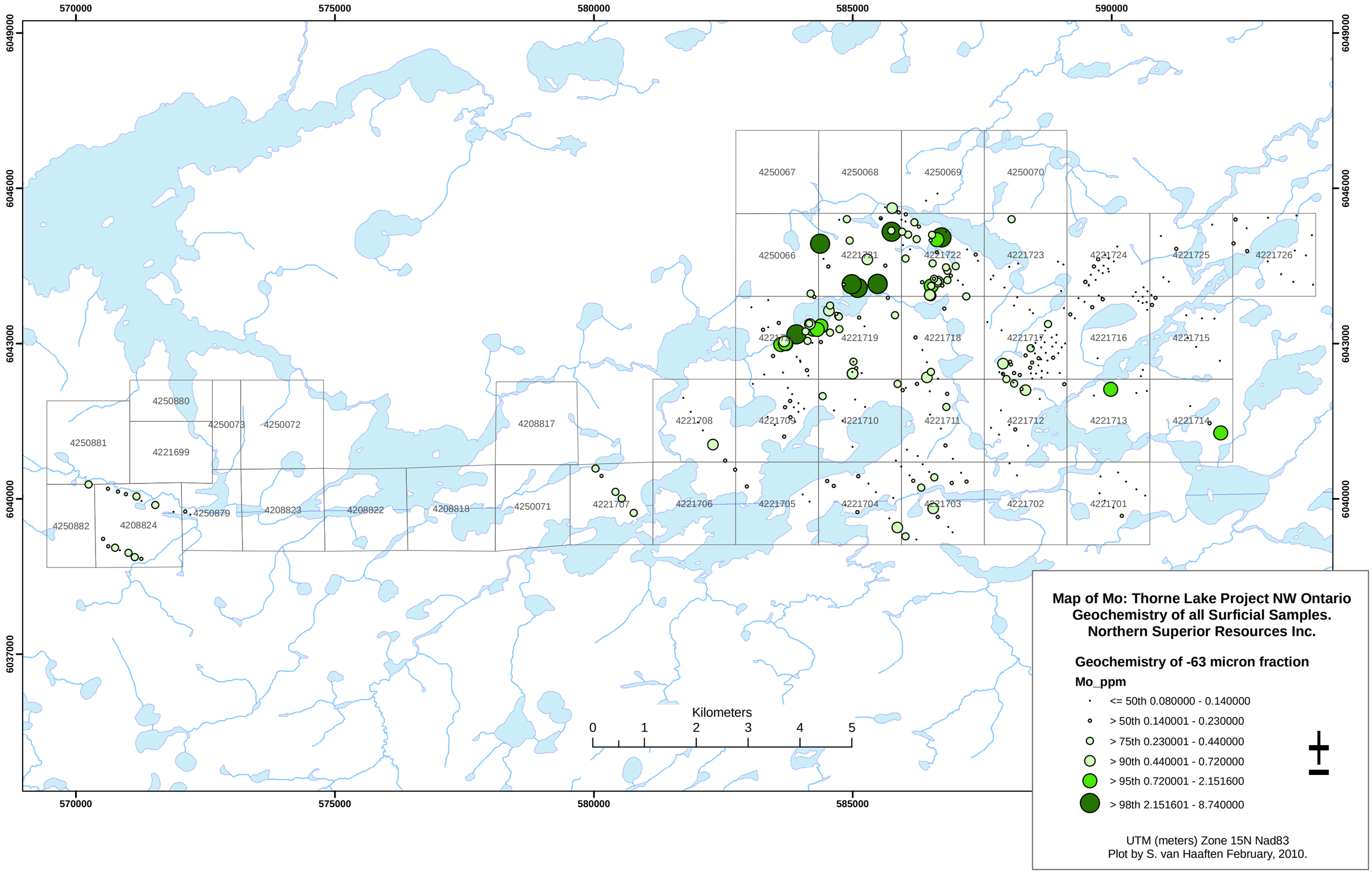
Map of Cr: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Cr_ppm
<= 50th 9.000000 - 20.000000
> 50th 20.000001 - 28.000000
> 75th 28.000001 - 43.800000
> 90th 43.800001 - 55.000000
> 95th 55.000001 - 70.760000
> 98th 70.760001 - 95.000000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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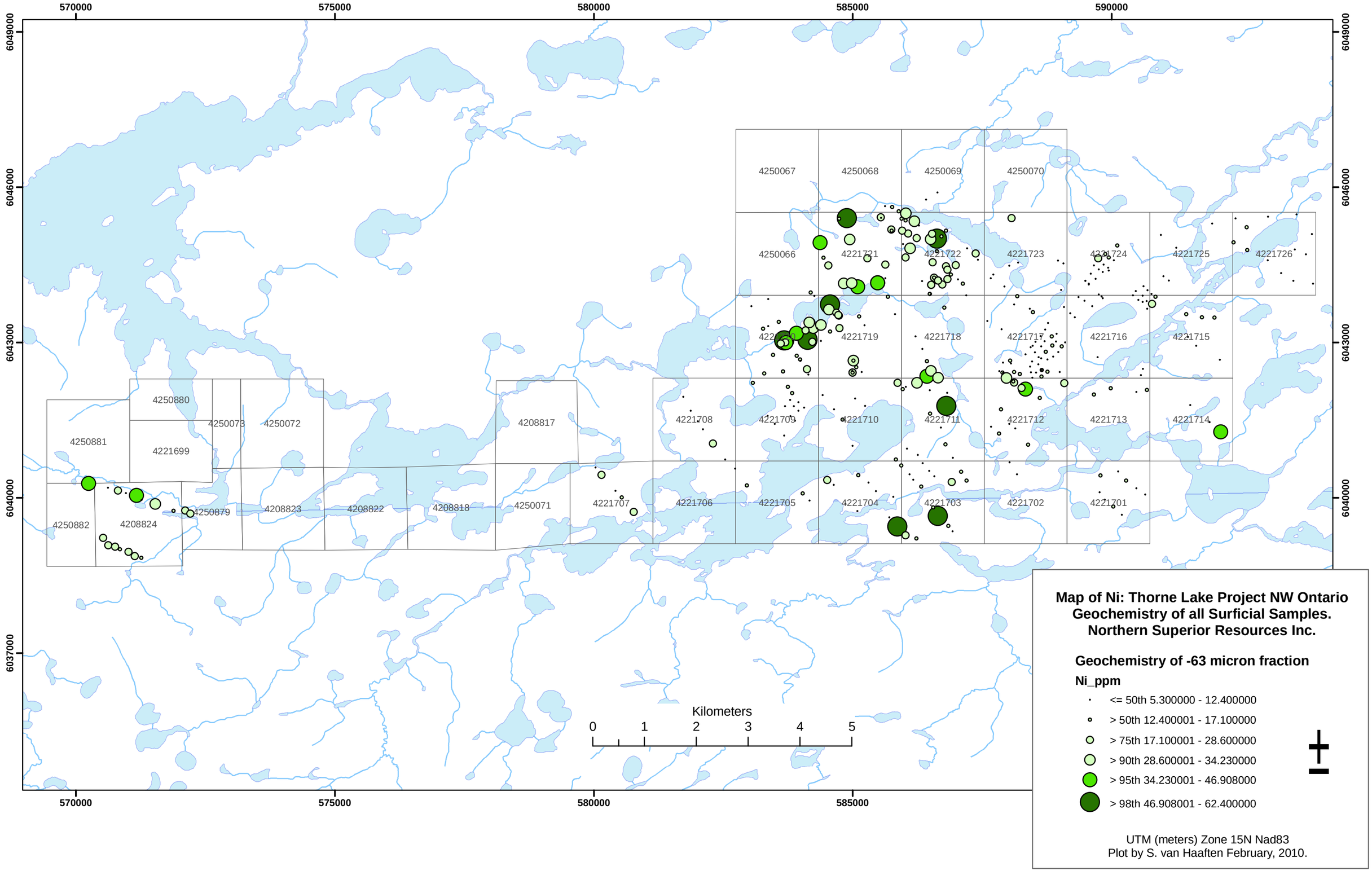
Map of Mo: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Mo_ppm
<= 50th 0.080000 - 0.140000
> 50th 0.140001 - 0.230000
> 75th 0.230001 - 0.440000
> 90th 0.440001 - 0.720000
> 95th 0.720001 - 2.151600
> 98th 2.151601 - 8.740000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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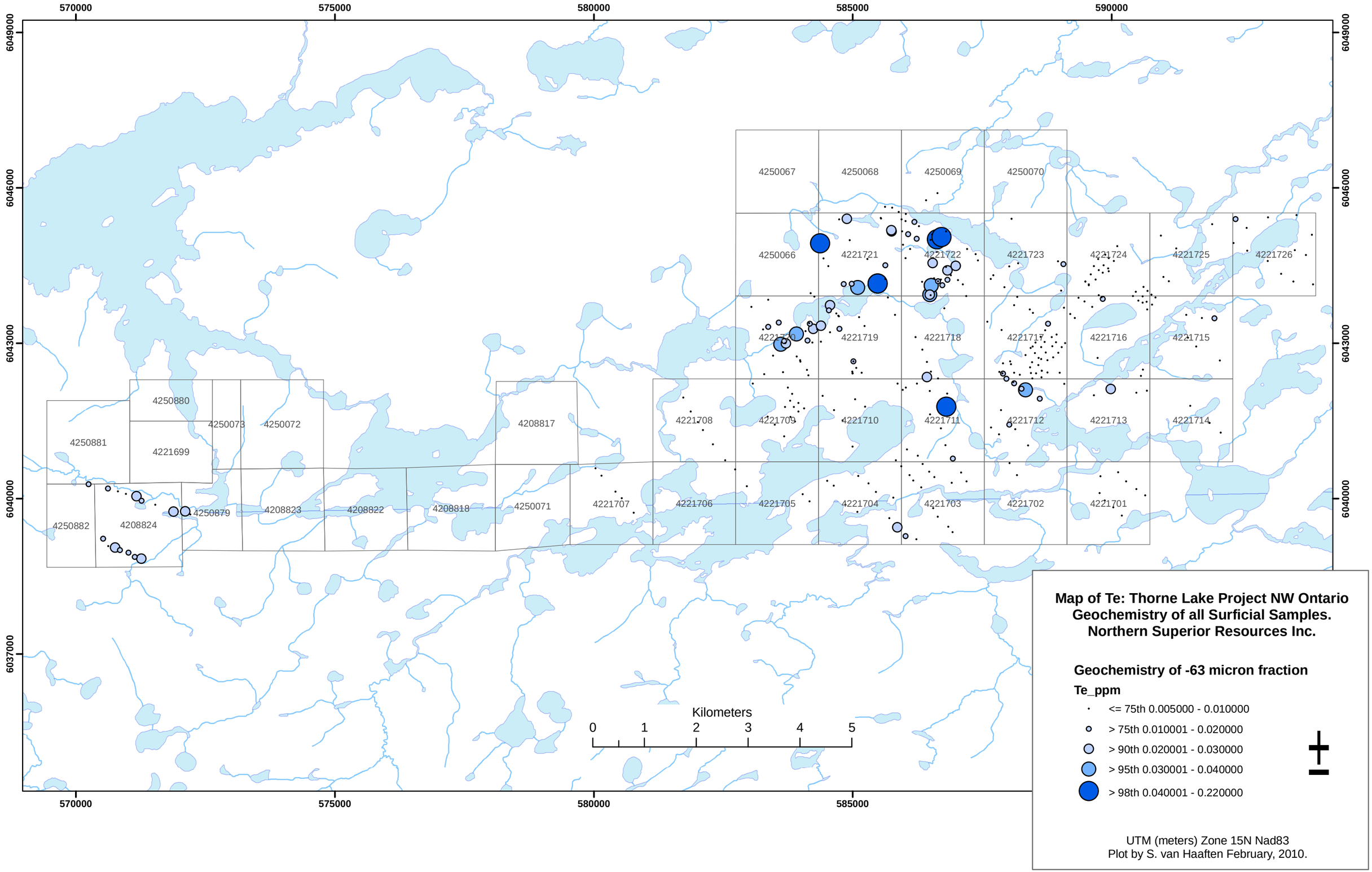
Map of Ni: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Ni_ppm
<= 50th 5.300000 - 12.400000
> 50th 12.400001 - 17.100000
> 75th 17.100001 - 28.600000
> 90th 28.600001 - 34.230000
> 95th 34.230001 - 46.908000
> 98th 46.908001 - 62.400000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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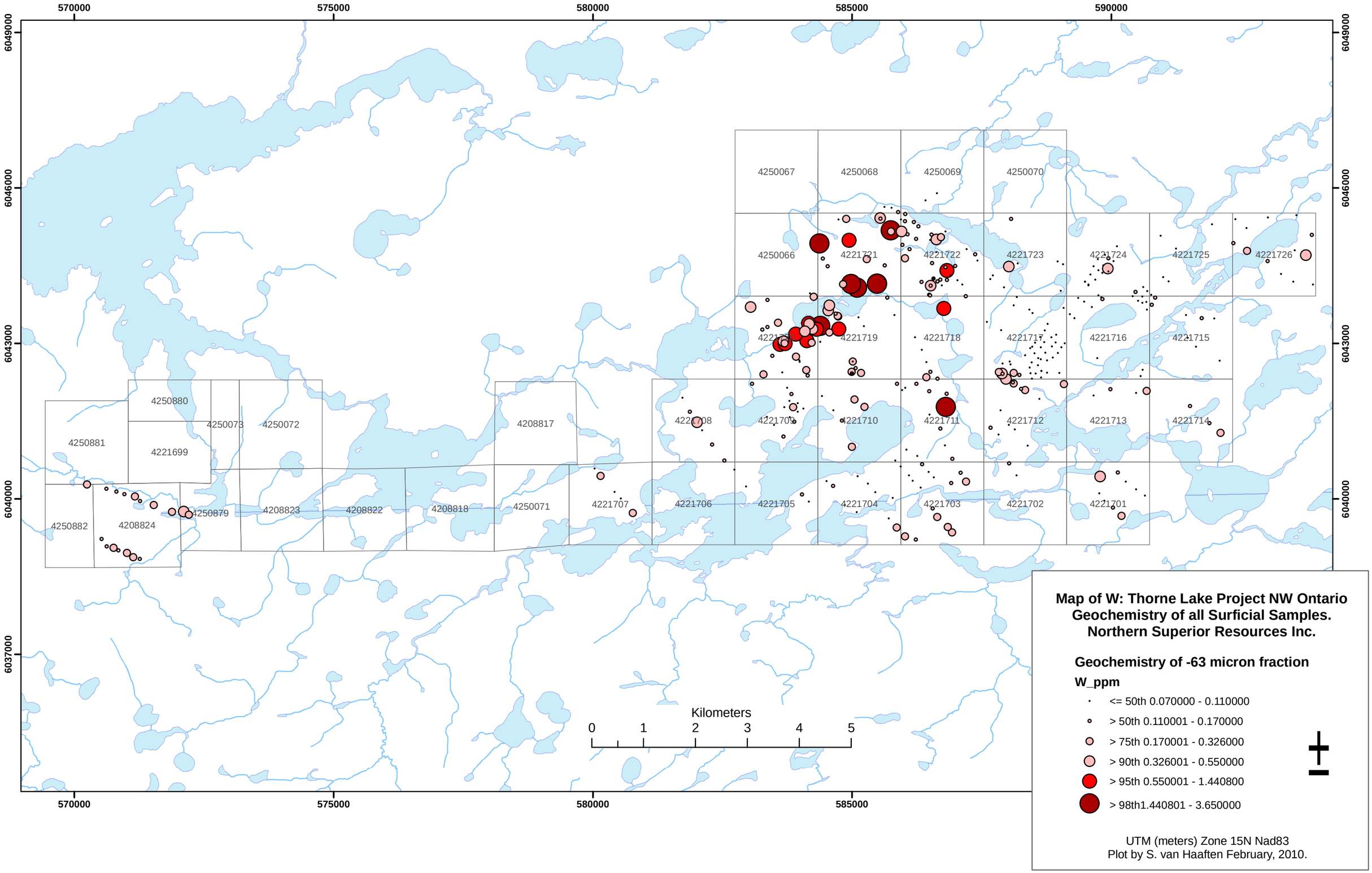
Map of Te: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
Te_ppm
<= 75th 0.005000 - 0.010000
> 75th 0.010001 - 0.020000
> 90th 0.020001 - 0.030000
> 95th 0.030001 - 0.040000
> 98th 0.040001 - 0.220000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.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Kilometers
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Map of W: Thorne Lake Project NW Ontario
Geochemistry of all Surficial Samples.
Northern Superior Resources Inc.
Geochemistry of -63 micron fraction
W_ppm
<= 50th 0.070000 - 0.110000
> 50th 0.110001 - 0.170000
> 75th 0.170001 - 0.326000
> 90th 0.326001 - 0.550000
> 95th 0.550001 - 1.440800
> 98th1.440801 - 3.650000
UTM (meters) Zone 15N Nad83
Plot by S. van Haaften February, 2010.