

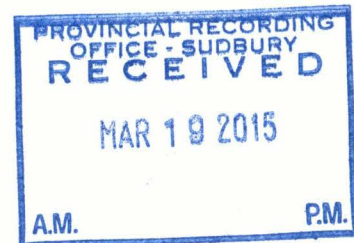
Copper-Sulfur Anomaly

in

Black Swamp Muck

2.55883

Northwest of Barlett Lake
Fripp Township
on staked mining claim
P 3015949



by Hermann Daxl, M.Sc.Minex, Claim Holder

15 March 2015

Date / Time of Issue: Thu Oct 30 16:14:21 EST 2014

TOWNSHIP / AREA
FRIPP

PLAN
M-0281

ADMINISTRATIVE DISTRICTS / DIVISIONS

Mining Division
Land Titles/Registry Division
Ministry of Natural Resources District

Porcupine
TIMISKAMING
TIMMINS

TOPOGRAPHIC

- Administrative Boundaries
- Township
- Concession Lot
- Provincial Park
- Indian Reserve
- CIR, P&I & P&O
- Contour
- Mine Shafts
- Mine Headframe
- Railway
- Road
- Trail
- Natural Gas Pipeline
- Utilities
- Tower

Land Tenure

- Freehold Patent
- Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only

- Leasehold Patent
- Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only

- Licence of Occupation
- Uses Not Specified
 - Surface And Mining Rights
 - Surface Rights Only
 - Mining Rights Only

- Land Use Permit
- Order In Council (Not open for staking)
 - Water Power Lease Agreement

BRISTOL	OSCEAN	BELORD	SMITH
THORNLOVE	PRICE	ADAMS	ELDRADO
MCKEOWN	FRIPP	MCARTHUR	DOUGLAS
DOYLE	MUSGRAVE	BARTLETT	GENIE
HASSARD	BEEMER	ENGLISH	JAVITZ

- Order In Council (Not open for staking)
- Mining Claim
 - Filed Only Mining Claims

LAND TENURE WITHDRAWALS

- Areas Withdrawn from Disposition
- Mining Acts Withdrawal Types
 - Surface And Mining Rights Withdrawn
 - Surface Rights Only Withdrawn
 - Mining Rights Only Withdrawn
 - Order In Council Withdrawal Types
 - Surface And Mining Rights Withdrawn
 - Surface Rights Only Withdrawn
 - Mining Rights Only Withdrawn

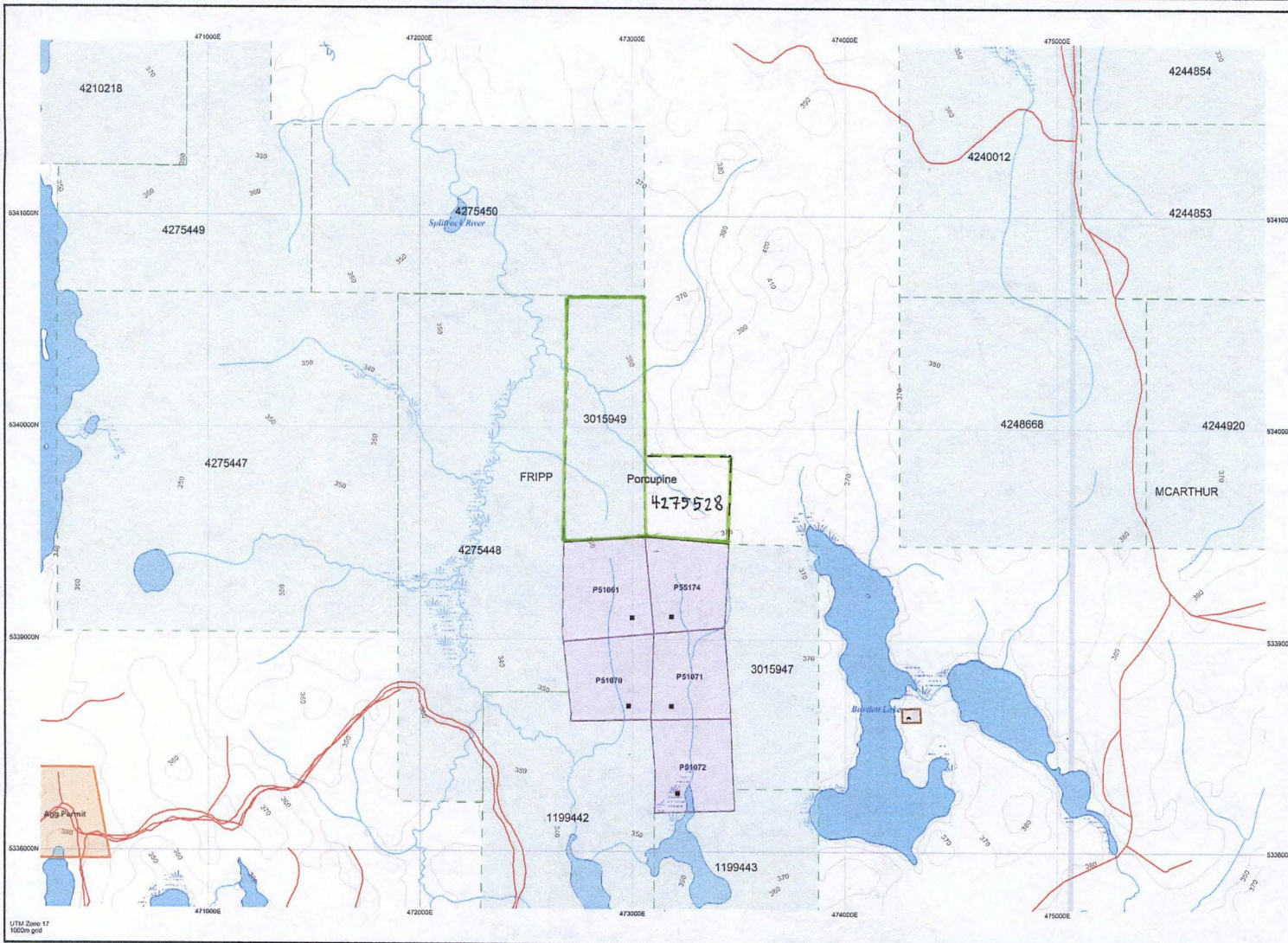
IMPORTANT NOTICES

LAND TENURE WITHDRAWAL DESCRIPTIONS (list may not be complete)

Identifier	Type	Date	Description
3856	Wsm	Jan 1, 2001	RY 223 (L.U.P. - PENDING APPLICATION UNDER THE PUBLIC LANDS ACT)
App's Permit	Wsm	Oct 7, 1994	AGGREGATE PERMIT OCT. 07/94 S.A.D. & GRAVEL
W-P 52/94	Wsm	May 2, 1994	M.R.A.S.R. WITHDRAWN FROM PROSPECTING, STAKING OUT SALE OR LEASE UNDER SECS 5 OF THE MINING ACT R.S.O. 1990 ORDER NO. W-P 52/94 NER DATED 04-MAY-02

1 cm ~ 310 m

Claimaps
Claim P3015949
H. Daxl, Nov. 2014



Those wishing to stake mining claims should consult with the Provincial Mining Records' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

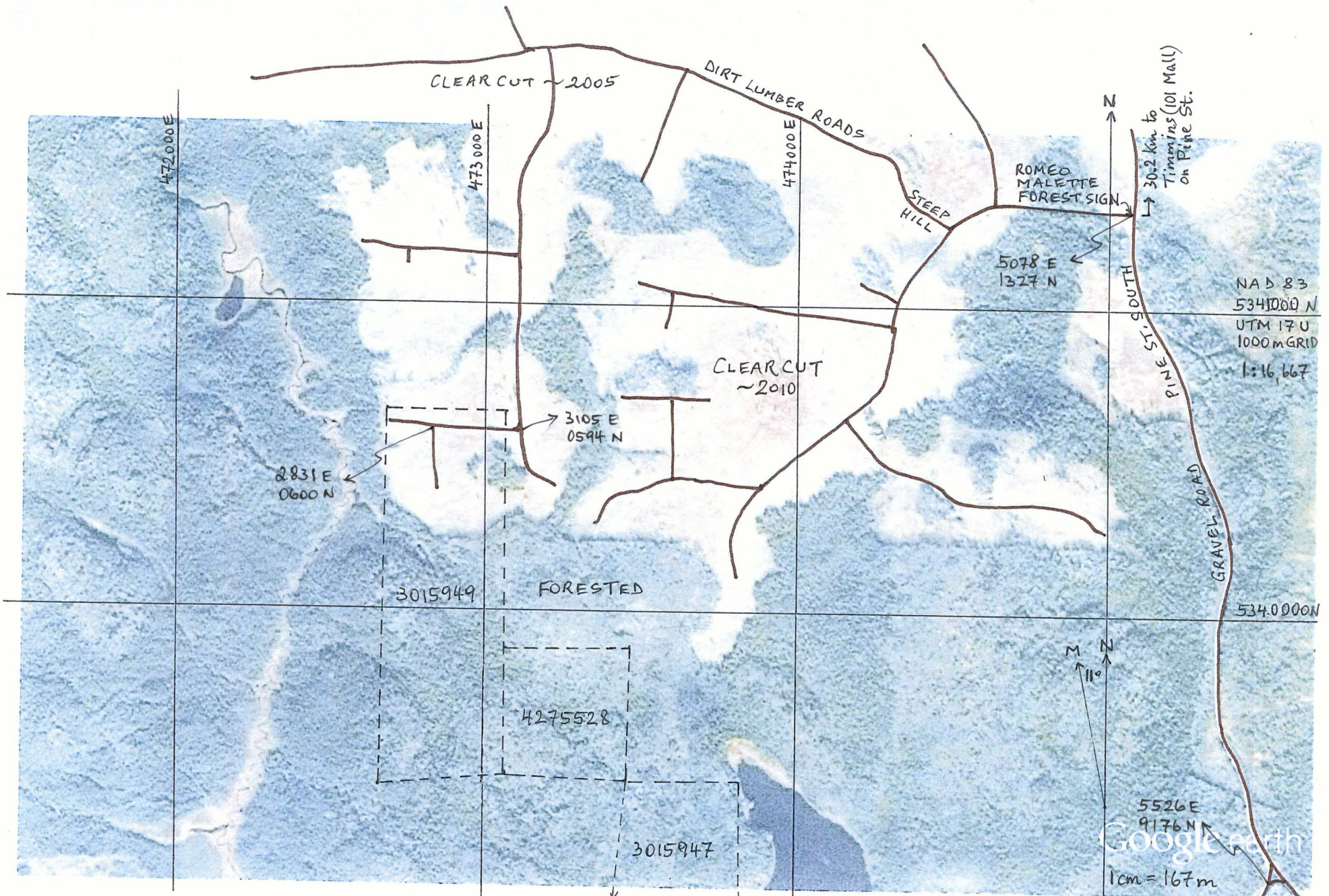
The information shown is derived from digital data available in the Provincial Mining Records' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations
Contact Information:
Provincial Mining Records' Office
Wildcat Green Mill Centre 933 Ramseye Lake Road
Sudbury ON P3E 0B5
Home Page: www.mrdm.gov.on.ca/MNDM/MINES/LANDS/mlm/mrpgpe.htm

Toll Free
Tel: 1 (888) 415-6845 ext 5749
Fax: 1 (877) 670-1444

Map Datum: NAD 83
Projection: UTM (8 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Records' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to staked mining claims may not be illustrated.



Location map on aerial photograph

My claims: P3015949, new P4275528, P3015947
in Fripp Township.

H. Daxl, November 2014





Topography in 3 D - West
NW of Bartlett Lake, Fripp Township

Google earth



Topography in 3 D - East
NW of Bartlett Lake, Fripp Township

Introduction

The present discovery of a copper-sulfur anomaly in black swamp muck on my staked 3-unit mining claim P3015949 in Fripp Township, Porcupine Division, resulted from my prospecting and soil sampling from 9 Sep to 22 Oct 2014. I took 3 rock samples and selected 41 soil samples from best suitable locations for analyses by Activation Laboratories. With GPS this is more efficient than systematic sampling along grid lines, and more effective because dubious soils are avoided.

The region's ultramafic intrusions are of interest because of the Hollinger Copper reserve (assessment file T-3806, AFRO 2.17762, best intersection in DDH MAC96-3). My previous comparable work on my southern claims revealed a copper-sulfur soil and lake sludge anomaly through Jules Lake (AFRO 2.54791 etc.; 2.51155; 2.48457, T-2689; 2.44900, T-6079; 2.40746, T-5850). Past work on the present claim seems to have been only airborne MAG and EM.

Access is easy as the lumber roads reach the northernmost unit. The area is 30.2km from downtown Timmins on Pine Street South to NAD83 17U 0475078E - 5341327N at the Romeo Malette Forest sign, from where it is about 3.3 km to near Post 1 near 2 high white pines, as shown on the attached claims map and detailed on the aerial photo location map.

10 Maps of sample location and element distribution, as well as annotated lab results, are also attached. A 3-dimensional view of the region is possible with the older aerial west and east photos in the pocket.

Overburden

The stereophotos show the outline of my claim over <30m high hills with few <5m cliffs, separated by two parallel shallow swamps trending northwest towards the Splitrock River valley.

The area has been draped by fine sand to silt from a glacial lake, often well sorted and densely packed, even on hill tops. Outcrop is quite sparse but bedrock on the hills is locally only covered by 10-20 cm humus, which otherwise is above <20 cm fine silty sand on bedrock, with a well developed 10 cm leached over 10-20 cm orange-brown enriched horizon. The black muck of swamps is underlain by the same fine sand and only in wide swamps is over 1m deep. The local coarser sand with granules has been concentrated by water flow. Small valleys are paved with <50cm boulders covered with black muck but with water flowing underneath. The northern third has been clear-cut recently, the rest is variably wooded.

Present Soil Sampling

A copper-sulfur anomaly in a fitting environment is evident.

The emphasis of the present soil sampling was on the swamps, because with the very thin overburden on the smooth hills a deposit there would have been found already and Beep Mat prospecting would be more effective there.

Of the 41 soil samples, I took 32 samples of black swamp muck (M) as deep as possible without dilution by the underlying fine sand, 3 samples of the <20 cm thick mixed interface (N) between that muck and clean sand below, and on higher ground 6 samples of the enriched B-Horizon (E) always in the fine sand found there under about 10 cm leached fine sand and 10-20 cm humus.

Where the higher ground was too wet to have developed E, I took the thin muck-like humus avoiding underlying sand, and called it also M, however, it seems that this should not be in the same population as the deeper swamp muck (M). For instance lead, but not zinc, is quite enriched at such shallow depths of about 10 cm, possibly from atmospheric pollution, whereas there is hardly any lead in deeper swamp muck. Therefore at such locations, and also where muck is well irrigated or shallow in swamps, the decayed vegetation (K), namely encrusted leaves, rootlets, mould, at 0 - 6 cm below the loose surface debris should be sampled instead. Decayed vegetation (K) over deeper swamps is not as suitable and is sparse and difficult to collect, whereas muck (M) can be collected even in winter.

This K would still be a separate population because of higher Pb, Zn, Mn collection in K than in M, but according to my previous work on my southern claims, background is comparable for other basemetals. Also K is especially suitable for gold, even over M. K samples on higher wooded ground are simpler to collect than E, even from multiple spots as is recommended.

The enriched E-horizon (E) does not seem to collect any of the desired metals other than iron. Apparently the enrichment comes only from the overlying leached sand, not from the overlying humus derived from the environment, nor from the rocks below. Also the unavoidable mineral sand content in E and N dilutes or affects values. Accordingly, N and the clean sand-silt (DT) below both E or M would also not be suitable, unless derived from a local outcrop and not of the regional glacial lacustrine origin. However DT may deserve more testing over known occurrences.

This simplifies the soil sampling to decayed vegetation (K) from 0 - 6 cm depth after brushing aside the loose debris on drier higher ground, and to black swamp muck (M) samples taken as deep as possible to reach the denser layers less rinsed by surface waters. Only for lead, zinc, manganese these must be used as

different populations, although anomalies of Cu, Ni, Cr, Ag show better in M than in K. For gold K is most reliable. Both are suitable for <250 micron sieving.

Please refer to the 10 maps 1: 5000 showing sample plots and values for S, Cu, Ni, Cr, Pb, Zn, Ag, Au, others, and to the lab results annotated for easy comparison.

Copper-Sulfur Anomaly

A fairly clear anomaly of copper and sulfur crosses the center of my claim P3015949 in a northwest direction through the swamp along the creek flowing into the Splitrock River west of my claim.

The valley is a fairly straight southeast (az. 135) continuation up from the Splitrock River valley and ends on my claim P4275528. According to a subtle NiCr-anomaly the valley is underlain by a 100m wide serpentinite offshoot into the diorite of the northeast margin of the Peterlong Lake Complex, only 100m from the parallel contact of this diorite to mafic basalt in the northeast. The two cliffs of aphanitic ultramafics (UM) would be the chilled margin, serpentinitized to H=3, in contact with diorite (Di), with diorite inclusions near M5841. Southward both hills are diorite, locally with a trace of blue quartz (Q). No magnetic rocks have been seen. A much larger 400m wide parallel serpentinite lies 800 m southwest.

This copper-sulfur anomaly is significant because the Hollinger Copper resource at 1.4 km south-southeast with grades of <20% copper as chalcopyrite grains in a serpentinitized groundmass lies in such a nonmagnetic otherwise barren serpentinite offshoot. The present Cu-S values here are higher, than in the same black swamp muck (M) there where bedrock is 10m below locally flowing <20cm deep water on surface. Here only the 1m wide creek is flowing and sand, gravel, or boulders often are only below 1 m muck.

The airborne surveys do not show a conductor here nor there, probably because the serpentinite groundmass limits a large-scale conductivity, although the Beep Mat shows ore-grade as a moderate conductor as the sulfides are very conductive from grain to grain only, but not to groundmass. Deep erosion topped with glacio-lacustrine sand and weakly conductive wide swamp muck could also mask an airborne conductor, but probably not a MaxMin, which is further recommended here for the possibly exact position with strike and dip.

According to steep slopes and cliffs the sand under the thin swamp muck may be very deep, as serpentinite especially with sulfides would have eroded easily. Another kind of sulfide-rich dikes in this region is of hard pyroxenite that does not erode more than the diorite. These dikes make good airborne conductors, are then easily located with a Beep Mat, but have no values (AFRO 2.38032, T-5683). Unfortunately instead of the swamps, they attracted all the drilling.

Other Anomalies

Nickel is quite evenly distributed but the 3 highest values agree with the copper anomaly and seem due to the serpentinite, not additional mineralization. In sand samples E and N the nickel, like chromium, probably comes from mafic minerals but at values similar to those in muck M background.

Chromium is higher in E and N samples and probably also comes from minerals in such sand. However I took M 5831 from 25 cm depth with the highest 48 ppm Cr below an ultramafic cliff, which probably is the chilled margin. Although the several other M values are lower than E and N, they suggest that ultramafic rocks underlie the swamp, which is confirmed by several Ni values. The Cu-S values indicate an occurrence that fits such geology.

Lead anomalies all are from shallow 10 cm depth, possibly from meteoric contamination. An occurrence of lead is ruled out also because these values are spread indiscriminately. Previously I had only trace values of lead in black swamp muck on my claims, but all samples were from deeper.

Zinc like lead does not seem to get concentrated in black swamp muck (M). However the few possibly anomalous zinc values seem to coincide with the Cu-S anomaly. Decayed surface vegetation (K) is a better medium to concentrate zinc, and probably also lead, whereas sand (E or N) seems not suitable for any soil survey.

Silver and gold values are probably too low to be called anomalous, which is also suggested by their indiscriminate distribution. Despite the small 0.5 g aliquots used, the 5 duplicate analyses for both Ag and Au are reasonably close, which looks more like background.

In previous sampling of black swamp muck on my southern claims sporadic high gold despite aliquots up to 15 g by neutron activation was assumed to be microbial concentrations, as is known for gold. Gold may also have been concentrated in the tube of mass spectrometry which is not recommended for gold. My other tests showed that decayed vegetation (K) from 0 - 6 cm depth is the simplest and most reliable medium for gold as a 25 m halo would return about 100 ppb Au, and 1 to 2 g/t Au 20 cm above a gold-bearing quartz vein would be repeatable, if done by neutron activation - Humus 2A enhanced - in a medium vial of 3 g of <250 micron sievings.

Others with mere statistic anomalies are combined on a map, showing some extreme values. Manganese, like lead and zinc, does not concentrate in stagnant deeper muck, as per my previous work.

Soil Sample Preparation

All samples represent a 10 cm long core at the marked depth from a single 5cm stainless steel auger hole, in muck (M) as deep or dense as possible. Most locations were therefore first augered deeper to probe for sand contamination or bedrock. I augered many holes to use the most suitable, and spotted it with GPS as plotted. The pH of the many tested was 7, but 6 for M 5820 - 22, all regardless of depths. After squeezing out clean water and drying, with and on paper towels, I crumbled and rubbed the entire sample with a glass bottle in a glass bowl. Using plastic sieves, I sieved samples with sand - silt (E and N) to <125 micron (N 5810 to 125-250 micron) as marked to reduce the mineral content, and all muck (M) to <250 micron. I homogenized each sieving by rolling it on paper and sent 2 - 4 g to Activation Laboratories for Ultratrace 2 analysis of 0.5 g aliquots by aqua regia ICP/MS.

Rock Samples

I took only three chip samples but none had values. 5331 - 33 of 1.5, 1.8, 1.8 kg, were from the 10 x 10 m outcrop of black hornblende-plagioclase gneiss at the northside of the end of road, about 50m south-southeast of claim post 4, at NAD 83 - 472706 E - 5340613 N. All were washed, nonmagnetic, without fizz, and had variable quartz-plagioclase veins <3 cm as described below.

Crushed to 2mm, 800 g were pulverized and analyzed by 30 g fire assay 1C-OES for Au-Pt-Pd, but none was detectable. The few somewhat enriched results for 37 other elements by 0.5 g aqua regia-1E3-ICP/OES are noted below. The certificate by Activation Laboratories from Timmins is attached.

5331 with 65% veins of quartz with minor white feldspar, a few brownish-olive books of nonresilient chlorite <15 mm, and similar resilient biotite.

5332 with 50% veins as in 5331 but with 5 % rust and trace pyrite-chalcocopyrite. 358 ppm Cu.

5333 with 30% veins as in 5331 but mostly feldspar. 5 % rust plating probably from hornblende. 197 ppm Cu, 139 ppm V.

Conclusions and Recommendations

A copper-sulfur anomaly in a serpentinite dike crossing the center of the claim southeastward in continuation from the Splitrock River valley is indicated by several anomalous values. Denser sampling and MaxMin is recommended before drilling. As the valley continues southeastward the sampling should be extended onto my claim P4275528.

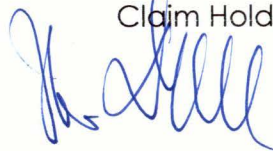
Where the black swamp muck (M) is shallower than 40 cm, the encrusted decayed vegetation (K) on surface should be sampled also or instead. The enriched B-horizon (E) or the interface (N) below muck to sand are not useful, unless the sand is local or preglacial. The same scale of values should be maintained per element, except for separate scales between K and M for Pb, Zn, Mn, which concentrate poorly in M.

Gold values may not be significant but any repeat sampling of M should also include K samples where suitable for comparison, all to be analyzed by neutron activation - Humus 2A but with double irradiation time and pressed into medium vials for 3g aliquots. For this a double handful is required of K and a 20 cm core of M.

Considering the open forest and thin overburden on the hills, dense prospecting with a Beep Mat could possibly locate further offshoots with sulfides to be dug up with hand tools.

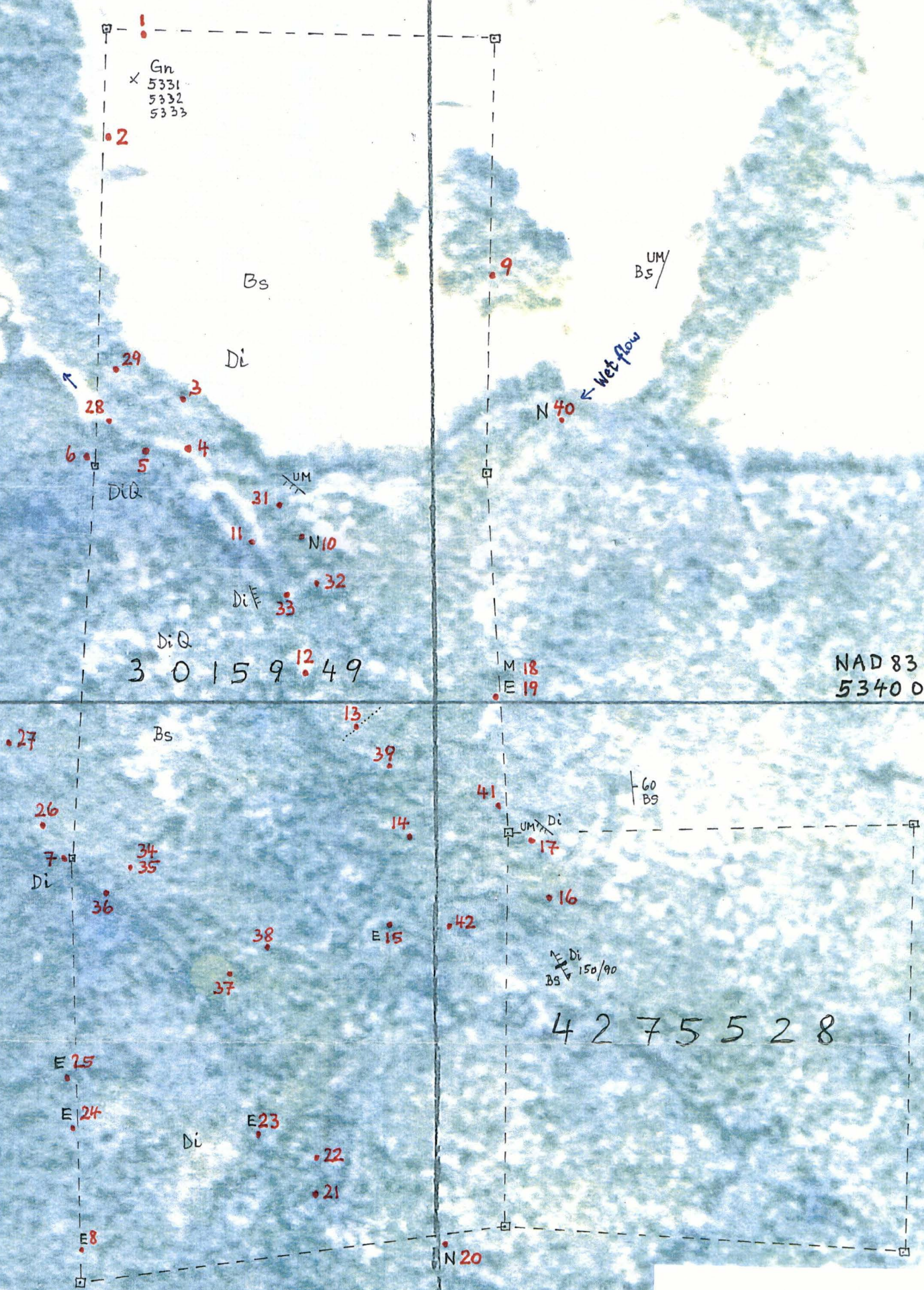
Respectfully submitted,

Hermann Daxl, M.Sc.Minex
Claim Holder



5341000 m N

473000 m E



NAD 83 - 17 U
5340 000 m N

2.55883

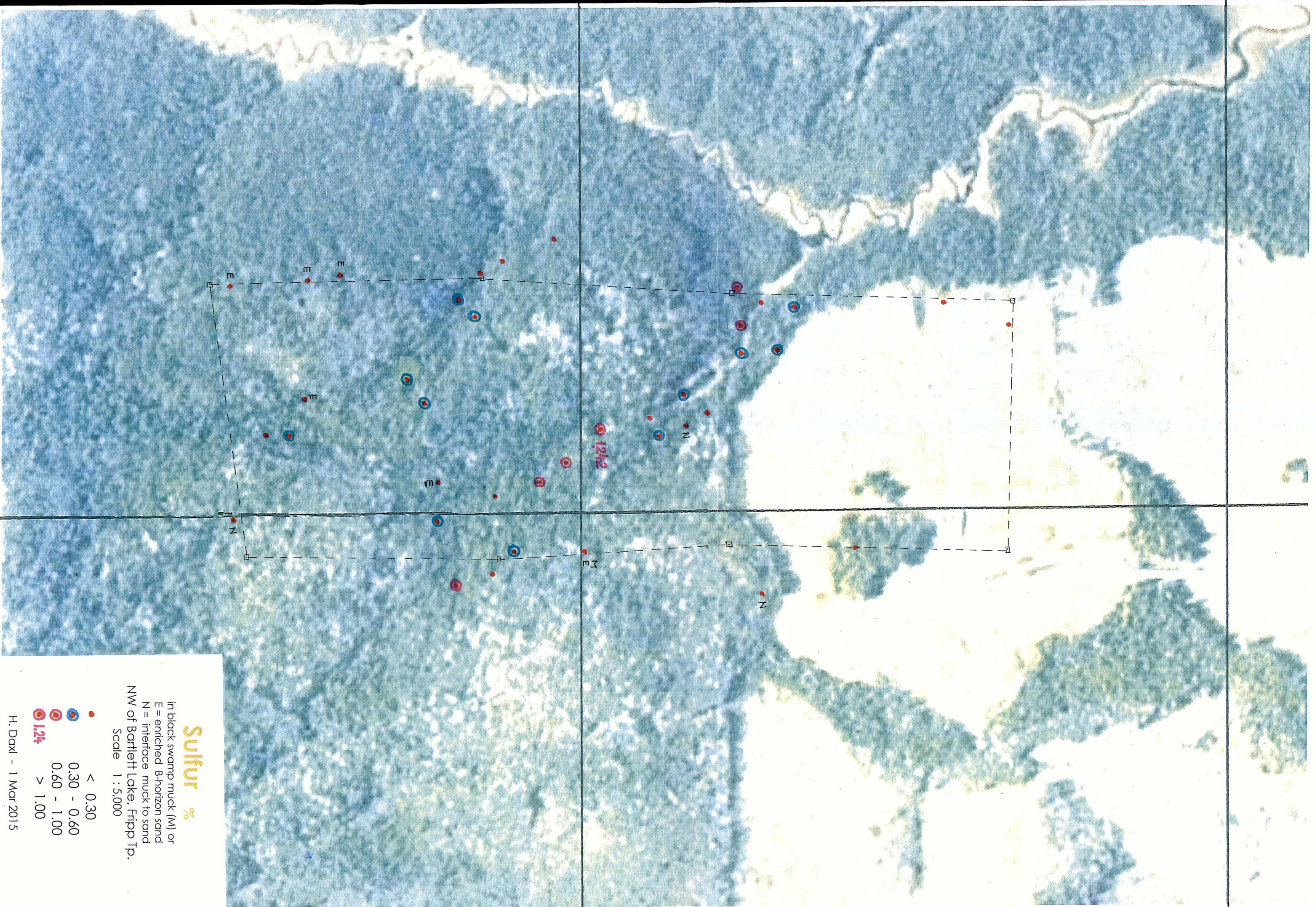
Sample Spots of Black Swamp Muck

(M) and a few
E = enriched B-horizon sand
N = interface of muck to sand

NW of Bartlett Lake
Fripp Township
Scale 1 : 5,000

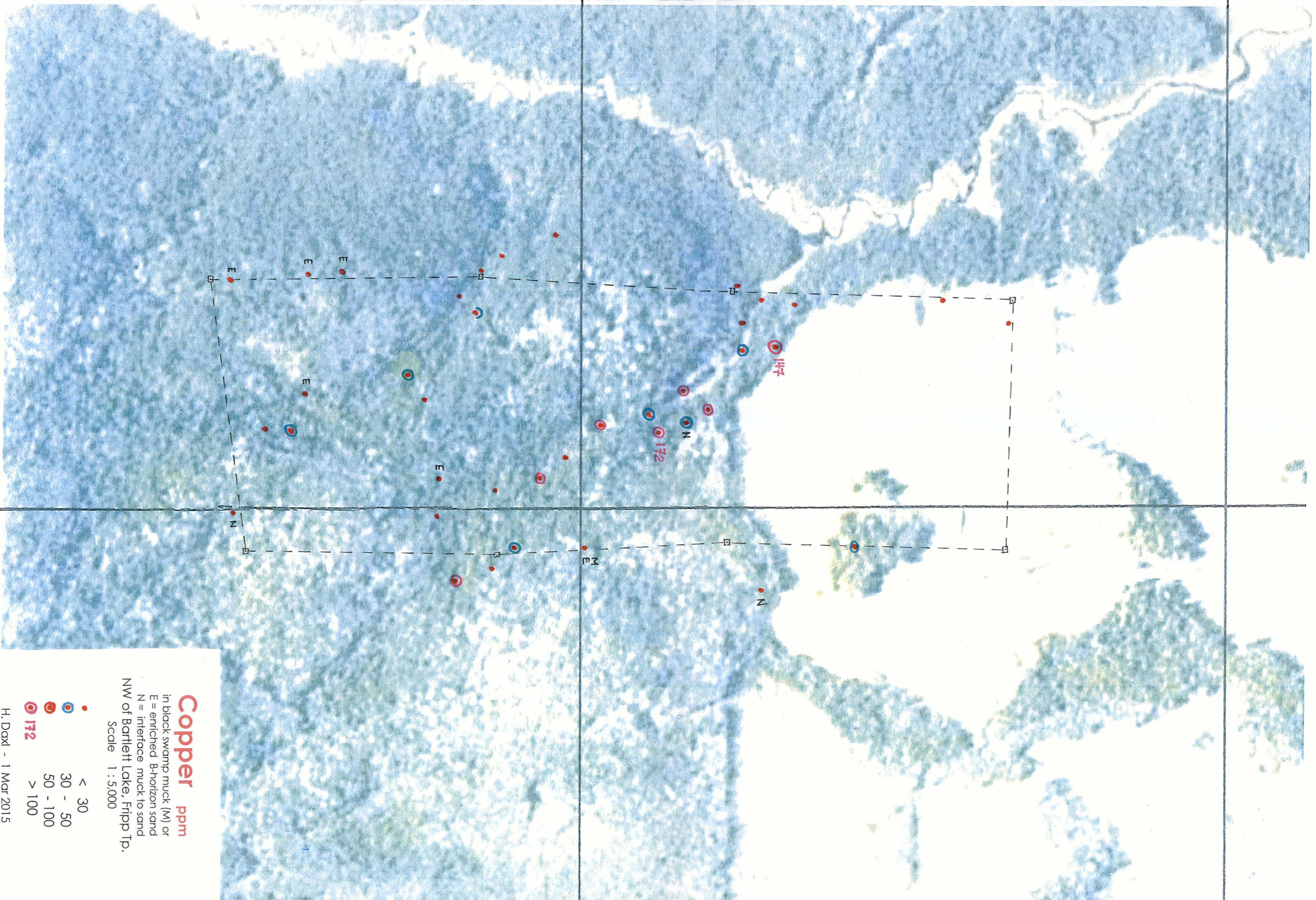
•42 Samples 5801 - 5842

H. Daxl - 1 March 2015



Sulfur %

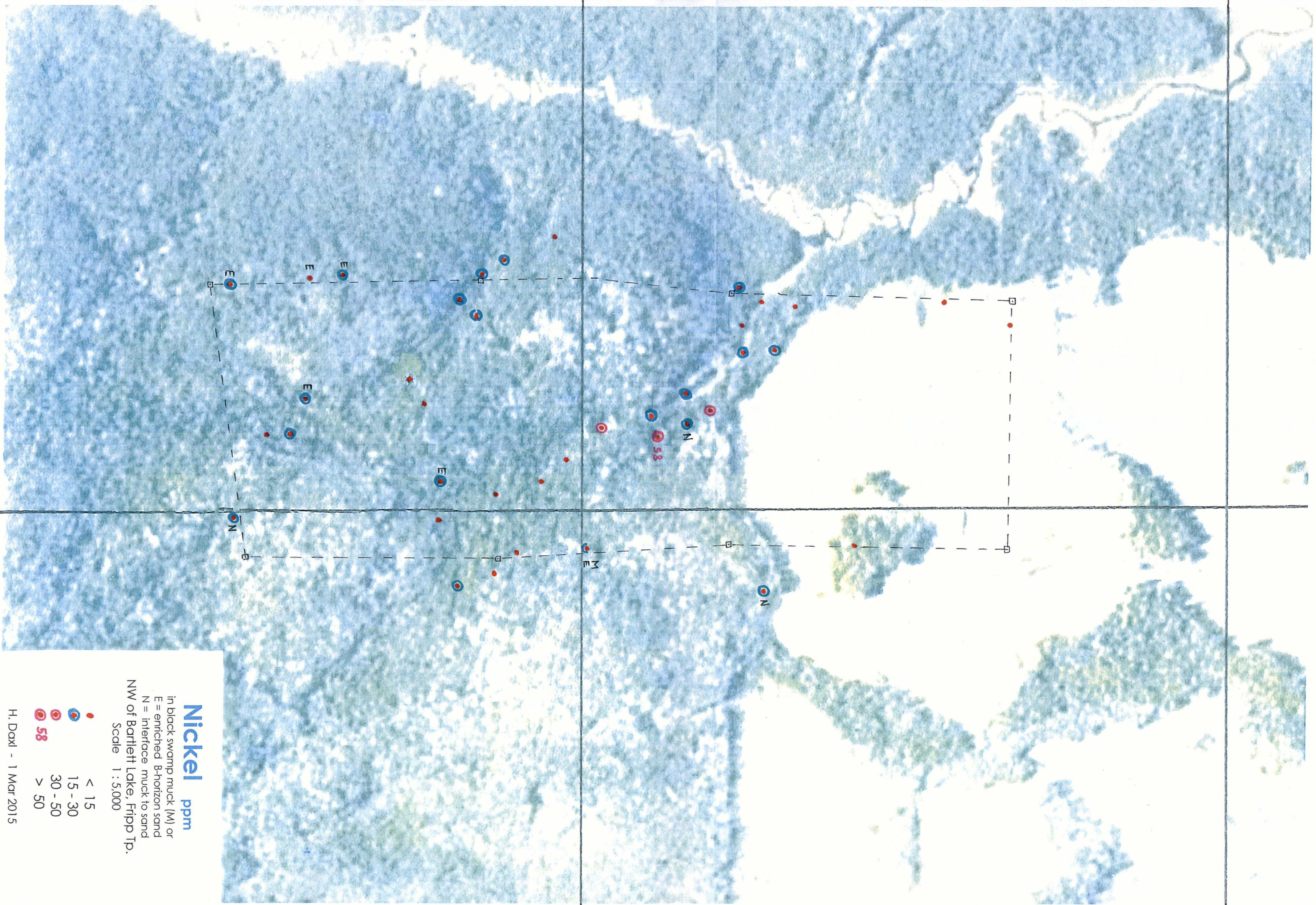
- in black swamp muck (M) or
- E = enriched B-horizon sand
- N = interface muck to sand
- NW of Bartlett Lake, Fripp Tp.
- Scale 1 : 5,000
- < 0.30
- 0.30 - 0.60
- 0.60 - 1.00
- 1.24 > 1.00



Copper ppm

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

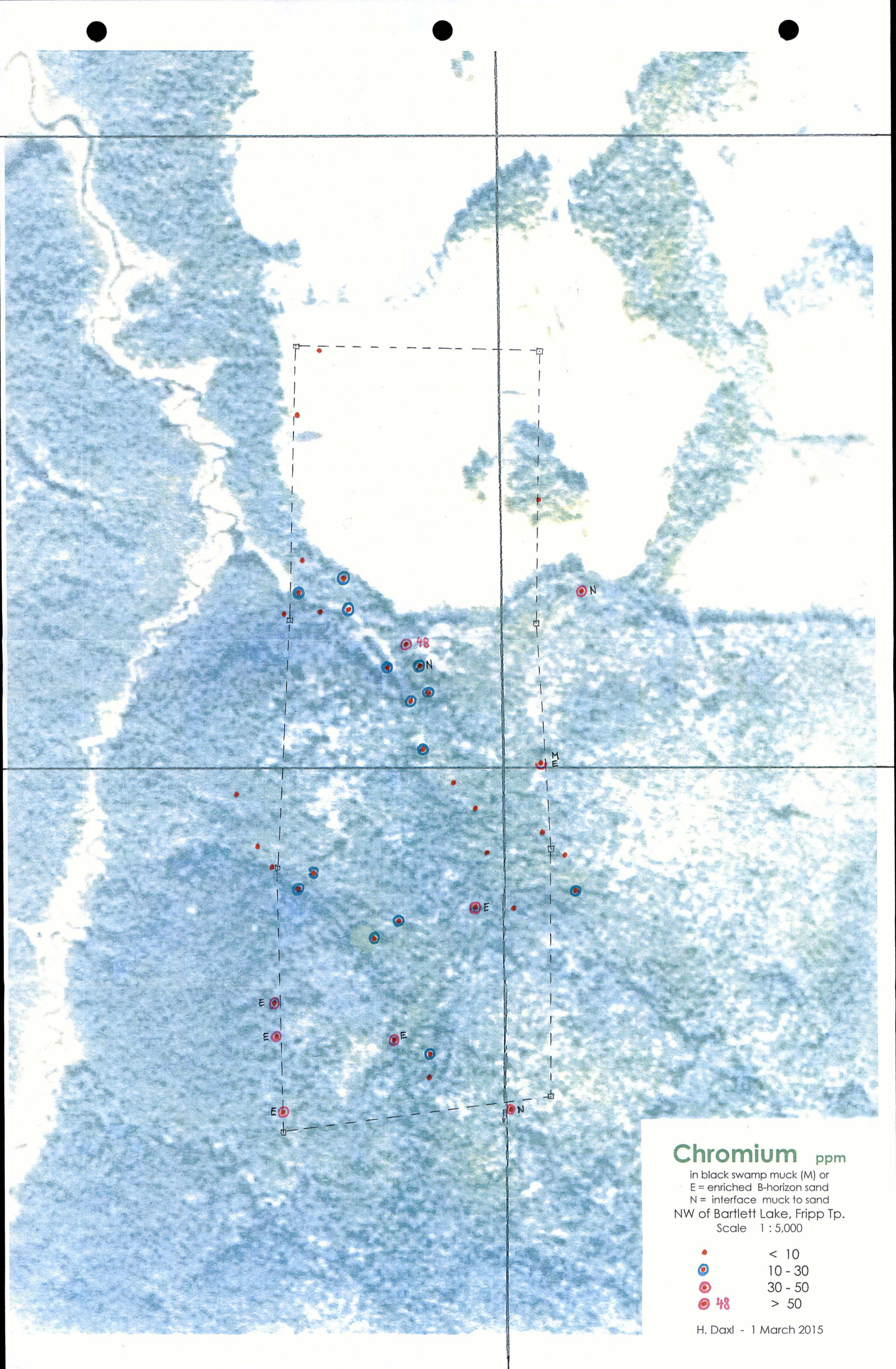
- < 30
- 30 - 50
- 50 - 100
- 172 > 100



Nickel ppm

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Frapp Tp.
 Scale 1 : 5,000

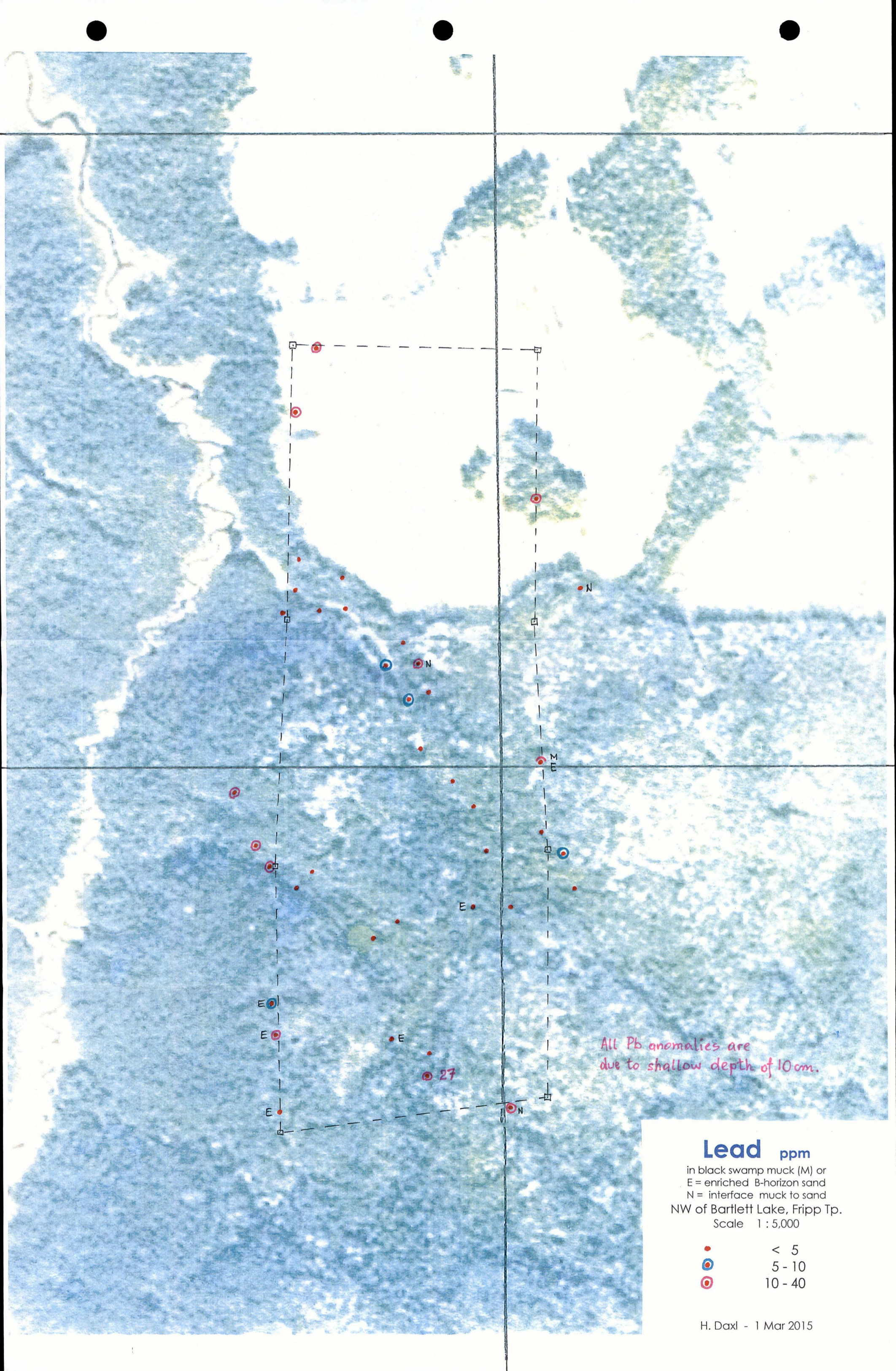
- < 15
- 15 - 30
- 30 - 50
- 58 > 50



Chromium ppm

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

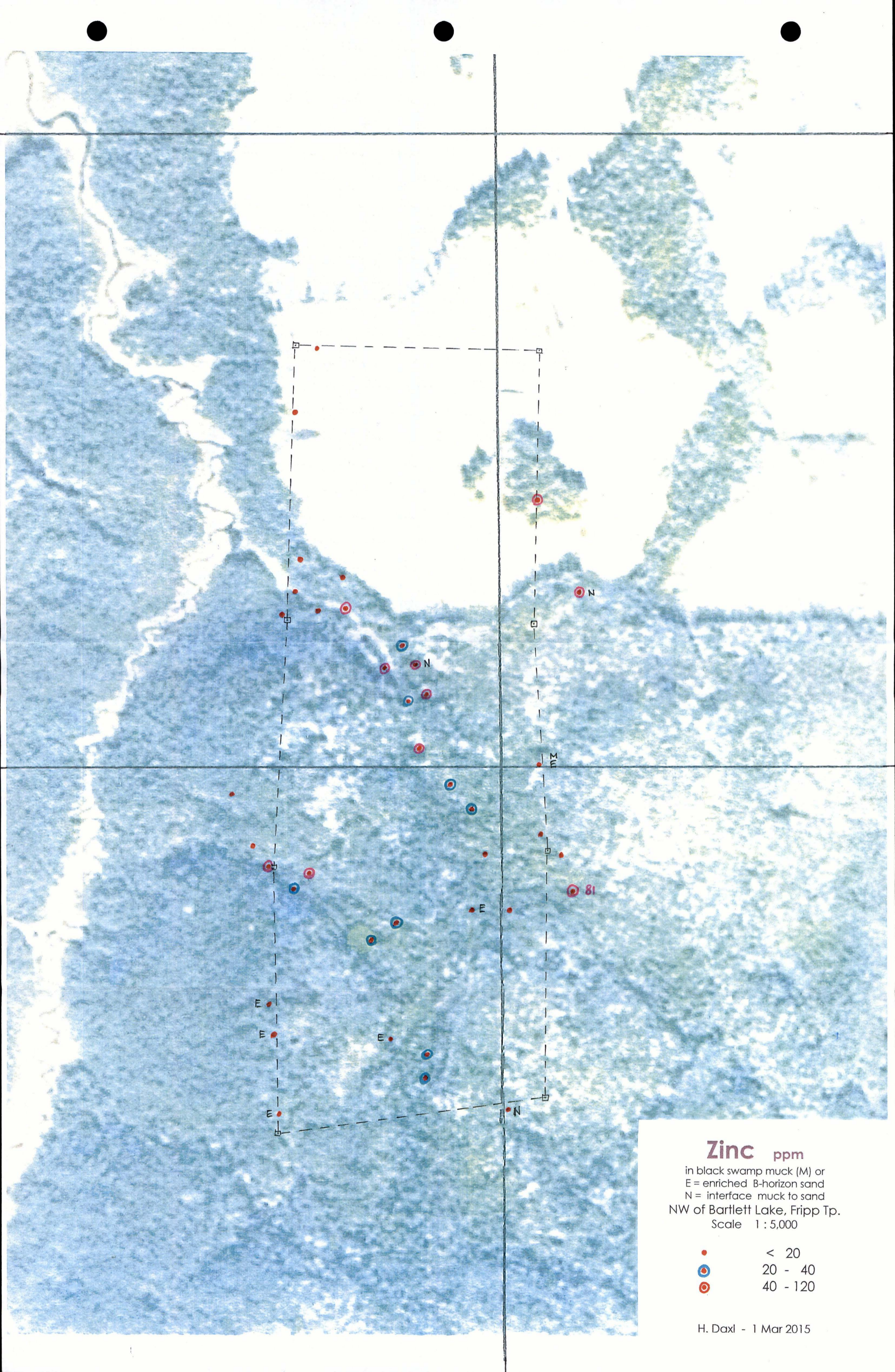
- < 10
- ⊙ 10 - 30
- ⊙ 30 - 50
- ⊙ 48 > 50



All Pb anomalies are due to shallow depth of 10cm.

Lead ppm
 in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

- < 5
- ⊙ 5 - 10
- ⊙ 10 - 40

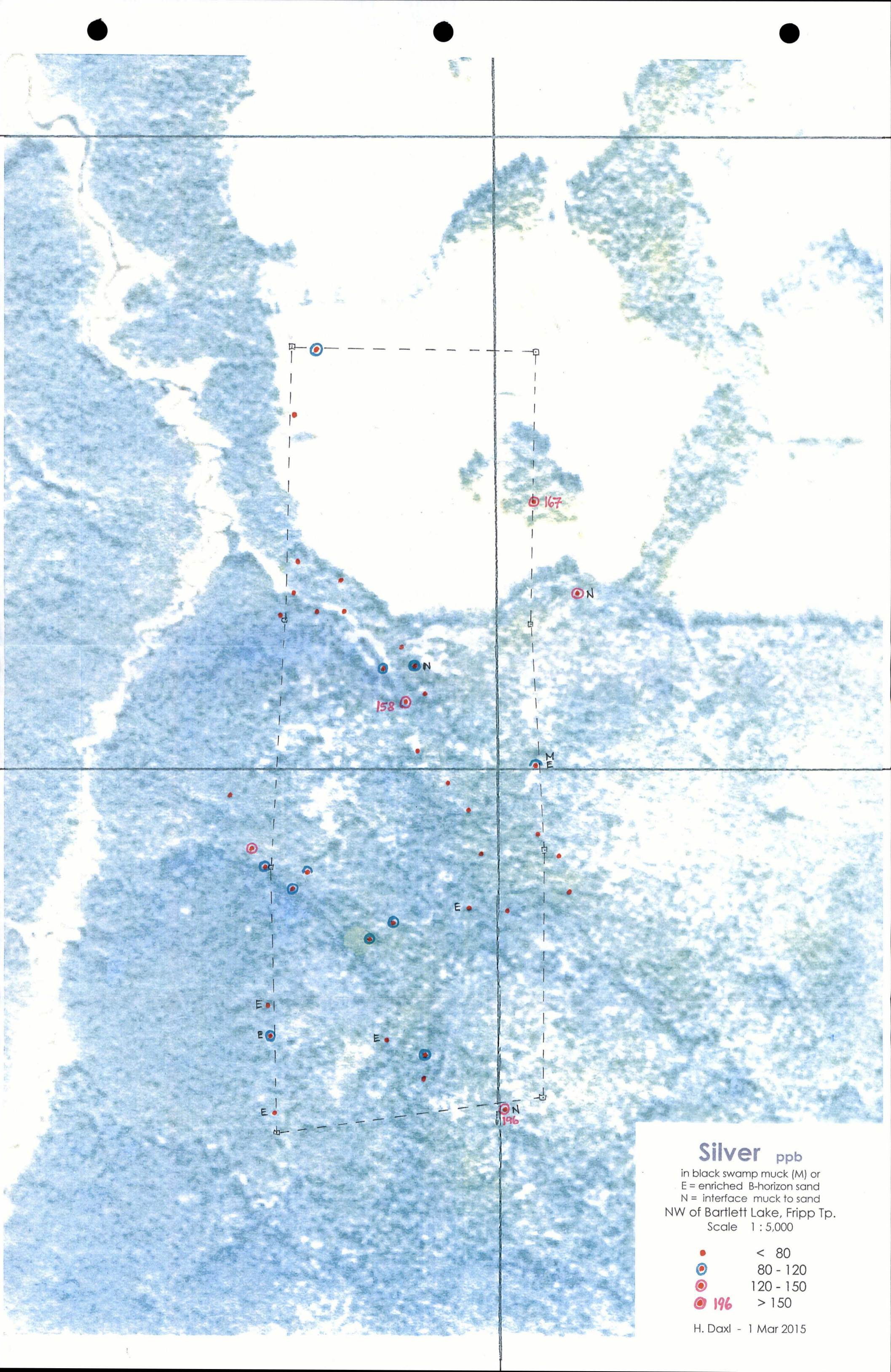


Zinc ppm

in black swamp muck (M) or
E = enriched B-horizon sand
N = interface muck to sand
NW of Bartlett Lake, Fripp Tp.
Scale 1 : 5,000

- < 20
- ⊙ 20 - 40
- ⊙ 40 - 120

H. Daxl - 1 Mar 2015

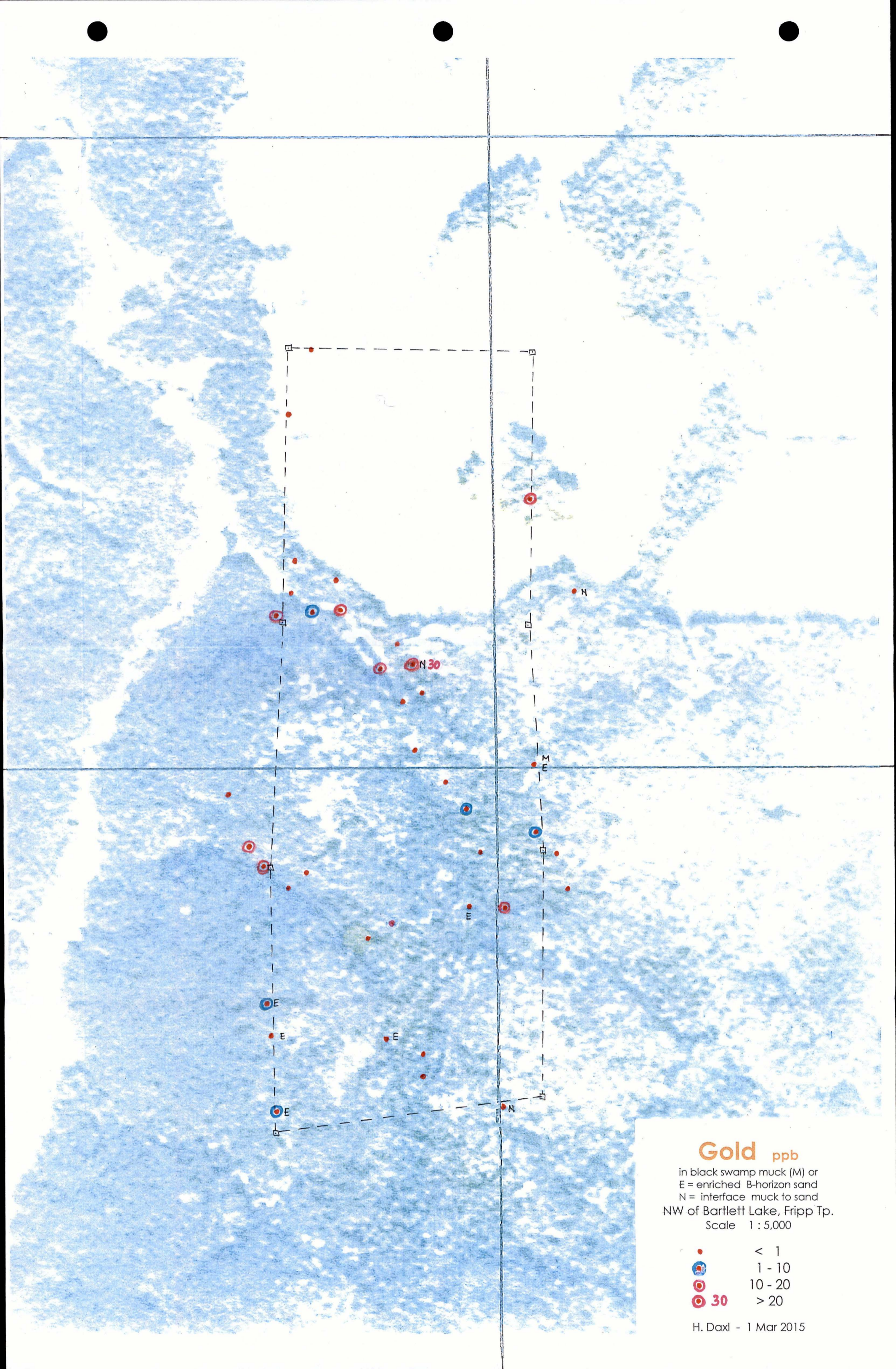


Silver ppb

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

- < 80
- 80 - 120
- 120 - 150
- 196 > 150

H. Daxl - 1 Mar 2015

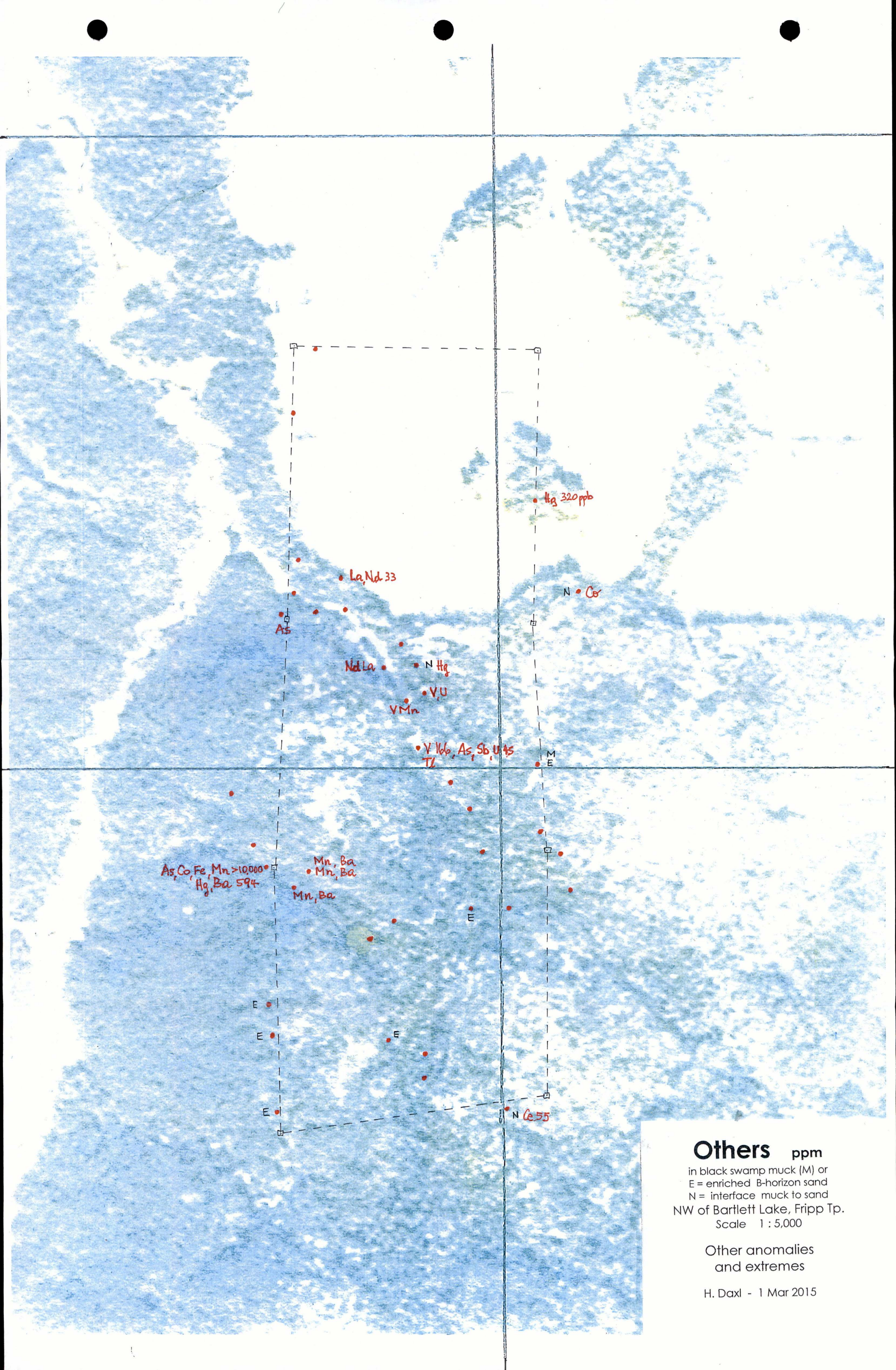


Gold ppb

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

- < 1
- 1 - 10
- ⊙ 10 - 20
- ⊙ 30 > 20

H. Daxl - 1 Mar 2015



Others ppm

in black swamp muck (M) or
 E = enriched B-horizon sand
 N = interface muck to sand
 NW of Bartlett Lake, Fripp Tp.
 Scale 1 : 5,000

Other anomalies
 and extremes

H. Daxl - 1 Mar 2015

Quality Analysis ...



Innovative Technologies

Date Submitted: 20-Nov-14
Invoice No.: A14-09095
Invoice Date: 28-Nov-14
Your Reference: FRPNORME-UT2

Hermann Daxl
39-630 Riverpark Road

Timmins Ontario P4P 1B4
Canada

ATTN: Hermann Daxl

2.55883

CERTIFICATE OF ANALYSIS

sievings of various soils 5801-5844
44 ~~Pu~~ samples were submitted for analysis.

The following analytical package was requested Code UT-2-0.5g Aqua Regia ICP-ICP/MS

REPORT **A14-09095**

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

Notes:

Assays are recommended for values >10,000 for Cu and Au. The Au from AR-MS is only semi-quantitative. For accurate Au data, fire assay is recommended.

CERTIFIED BY :

Emmanuel Esemé , Ph.D.
Quality Control

ACTIVATION LABORATORIES LTD.

1336 Sandhill Drive, Ancaster, Ontario Canada L9G 4V5 TELEPHONE +1.905.648.9611 or
+1.888.228.5227 FAX +1.905.648.9613
E-MAIL ancaster@actlabsint.com ACTLABS GROUP WEBSITE <http://www.actlabsint.com>

Various soils, sieved < 250 μm OR as marked

Activation Laboratories Ltd.

Report: A14-09095

Aqua regia - Ultratrace 2 - ICP/MS - 0.5 g

Analyte Symbol	Unit Symbol	at cm	Li	Be	B	Na	Mg	Al	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga
Detection Limit	ppm	ppm	ppm	%	%	%	%	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5801	M	10	1.6	0.9	7	0.014	0.30	0.41	0.061	0.135	0.03	3.20	7	9	0.01	273	0.38	2.3	12.2	23.70	17.9	1.12
5802	M	10	1.4	1.1	12	0.014	0.37	0.37	0.056	0.161	0.03	4.08	12	9	0.01	588	0.33	1.8	11.7	20.70	13.5	0.78
5803	M	60	0.5	1.1	7	0.018	0.31	0.82	0.069	0.388	0.02	4.46	21	25	<0.01	230	0.28	1.6	22.5	147.00	5.4	0.92
5804	M	100	5.9	1.4	3	0.008	0.33	0.61	0.062	0.471	0.02	1.96	17	20	0.07	204	0.53	3.6	20.8	35.40	42.6	1.71
5805	M	50	0.4	1.5	9	0.009	0.29	0.16	0.030	0.798	0.01	3.99	4	5	<0.01	24	0.23	1.3	9.4	7.04	5.2	0.24
5806	M	80	0.3	1.2	5	0.008	0.20	0.25	0.033	0.635	<0.01	2.92	18	10	<0.01	18	0.11	1.6	23.8	23.70	5.6	0.45
5807	M	10	0.8	1.8	4	0.008	0.18	0.56	0.115	0.183	0.02	2.57	14	11	<0.01	> 10000	3.01	15.8	26.1	16.50	57.0	<0.02
5808	E	15	6.5	1.5	1	0.009	0.24	1.10	0.031	0.013	0.03	0.29	24	31	0.10	103	1.19	4.1	18.7	4.67	14.3	3.34 <125
5809	M	10	2.6	1.7	7	0.006	0.30	0.56	0.125	0.192	0.04	2.44	10	10	0.02	1090	0.58	5.1	13.5	29.30	70.9	1.89
5810	N	15	11.3	1.9	3	0.009	0.31	1.01	0.065	0.085	0.04	1.04	25	28	0.08	1440	1.31	7.9	28.3	25.70	67.1	3.34 125-250
5811	M	15	5.4	1.6	6	0.008	0.28	0.81	0.096	0.314	0.02	2.20	21	23	0.04	409	0.75	7.5	28.0	50.90	52.8	1.50
5812	M	50	1.6	0.9	11	0.010	0.31	0.36	0.053	1.242	0.01	3.38	166	21	0.02	23	0.74	8.2	33.0	66.20	48.8	1.38
5813	M	50	0.5	0.6	20	0.012	0.32	0.41	0.091	0.842	0.01	4.23	6	11	<0.01	13	0.24	2.4	10.3	22.50	23.8	0.30
5814	M	80	0.2	0.6	8	0.014	0.24	0.25	0.036	0.254	<0.01	3.34	4	8	<0.01	467	0.24	1.8	8.0	12.00	17.2	<0.02
5815	E	20	7.1	0.6	2	0.014	0.19	1.92	0.045	0.031	0.03	0.25	30	43	0.11	85	1.57	4.2	17.9	6.96	13.8	3.44 <125
5816	M	50	0.9	0.5	6	0.010	0.28	0.81	0.065	0.642	0.01	3.70	15	15	<0.01	148	0.20	2.6	19.3	55.20	81.5	0.33
5817	M	15	0.3	1.0	24	0.006	0.28	0.16	0.058	0.162	0.02	4.23	7	5	<0.01	79	0.14	1.1	9.7	14.50	9.7	0.11
5818	M	10	0.2	0.7	1	0.010	0.16	0.18	0.050	0.141	0.02	1.15	3	4	<0.01	7	0.16	0.8	5.2	6.36	18.9	0.40
5819	E	40	7.9	0.9	<1	0.011	0.22	1.09	0.034	0.014	0.03	0.39	24	31	0.11	97	1.12	5.3	21.8	4.02	13.6	3.07 <125
5820	N	10	8.4	1.2	2	0.011	0.24	1.23	0.072	0.083	0.06	0.73	31	35	0.05	1500	1.26	9.3	24.1	18.30	20.6	3.57 <125
5821	M	10	0.2	1.0	<1	0.008	0.05	0.19	0.039	0.134	0.04	0.43	3	4	<0.01	15	0.12	2.3	11.2	11.90	35.6	<0.02
5822	M	100	0.8	1.2	5	0.014	0.22	0.87	0.129	0.502	0.01	3.05	11	26	<0.01	353	0.30	2.1	17.5	35.60	33.5	0.14
5823	E	20	4.9	0.5	<1	0.015	0.19	1.54	0.042	0.018	0.03	0.28	26	37	0.11	91	1.25	5.6	25.1	5.87	12.1	3.57 <125
5824	E	20	5.8	0.9	1	0.010	0.18	1.69	0.066	0.026	0.04	0.19	46	44	0.13	95	2.25	3.4	15.5	5.17	15.3	7.91 <125
5825	E	20	8.4	1.3	1	0.008	0.17	2.20	0.039	0.024	0.04	0.17	33	39	0.12	86	1.66	5.9	21.8	2.84	14.7	5.86 <125
5826	M	10	0.6	1.4	3	0.002	0.21	0.43	0.085	0.148	0.01	2.78	5	7	<0.01	569	0.38	1.8	18.1	19.90	6.8	0.28
5827	M	10	0.3	1.1	3	0.006	0.17	0.23	0.046	0.116	0.02	2.41	5	4	<0.01	23	0.16	0.8	9.2	15.20	6.1	0.10
5828	M	80	2.0	1.2	2	0.006	0.18	0.45	0.075	0.251	0.02	1.77	10	18	0.05	37	0.25	1.0	10.0	28.80	6.6	1.63
5829	M	60	0.2	1.0	6	0.008	0.28	0.39	0.045	0.586	0.01	3.73	12	8	<0.01	49	0.39	1.5	7.3	5.00	4.1	0.19
5830	OREAS	45P	7.0	1.3	11	0.014	0.13	4.08	0.032	0.024	0.09	0.24	127	850	0.28	1190	16.40	110.0	366.0	671.00	144.0	20.30

unusual sieved size μm

<125

125-250

<125

<125

<125

<125

<125

vs. 281

Analyte Symbol	Li	Be	B	Na	Mg	Al	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga
Unit Symbol	ppm	ppm	ppm	%	%	%	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	1	0.001	0.01	0.01	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5831 M 25	11.6	0.6	4	0.013	0.58	1.09	0.062	0.119	0.04	3.44	39	48	0.10	149	1.68	7.6	37.0	67.70	27.4	3.65
5832 M 50	0.3	<0.1	18	0.011	0.29	0.16	0.074	0.530	0.01	4.60	58	14	<0.01	17	0.07	1.1	58.1	172.00	59.5	0.64
5833 M 25	4.1	0.9	5	0.007	0.23	0.97	0.166	0.184	0.04	2.19	31	21	0.03	3190	1.61	8.9	24.6	37.20	23.7	2.14
5834 M 20	1.1	0.7	3	0.007	0.16	0.57	0.085	0.364	0.02	1.81	10	21	0.02	2740	1.50	6.5	20.2	29.90	54.6	<0.02
5835 M 50	2.3	0.9	4	0.009	0.21	0.65	0.084	0.307	0.02	1.88	15	21	0.03	2960	1.31	6.5	24.2	25.50	56.5	<0.02
5836 M 50	0.5	0.9	6	0.007	0.19	0.53	0.095	0.347	0.01	2.73	10	16	<0.01	3140	0.74	2.5	18.5	25.10	24.6	<0.02
5837 M 100	0.4	1.0	4	0.004	0.16	0.45	0.087	0.289	0.01	2.30	10	14	<0.01	295	0.35	1.9	12.3	32.90	23.2	<0.02
5838 M 100	0.4	1.1	3	0.005	0.12	0.62	0.082	0.301	<0.01	1.87	10	15	<0.01	720	0.73	3.9	16.5	27.30	27.2	<0.02
5839 M 110	0.3	1.0	8	0.002	0.19	0.27	0.050	0.646	<0.01	2.82	7	7	<0.01	125	0.17	1.3	13.8	58.30	27.4	0.05
5840 N 15	7.1	1.1	2	0.009	0.22	1.10	0.115	0.074	0.04	0.59	31	45	0.04	2330	1.47	11.7	21.3	14.70	55.5	<125
5841 M 35	0.3	1.0	5	0.005	0.20	0.12	0.050	0.283	0.01	3.67	32	6	<0.01	60	0.28	1.7	14.9	30.30	8.5	<0.02
5842 M 40	0.3	1.8	2	0.003	0.16	0.45	0.050	0.292	0.01	2.53	19	6	<0.01	42	0.18	3.1	16.5	27.60	7.2	<0.02
5843 = 5204	0.3	1.6	9	0.006	0.20	0.33	0.062	0.133	0.01	3.10	16	15	<0.01	928	0.76	5.4	42.0	18.00	5.7	<0.02
5844 = 5603	0.5	1.5	5	0.002	0.19	0.50	0.059	0.301	<0.01	3.34	4	19	<0.01	4	0.29	1.0	33.8	107.00	3.3	0.77

unusual sieved size μm

LEGEND:

E = Enriched under leached horizon in sand or silt

M = Black swampy muck (see depth)

N = Interface from muck to sand or silt.

Various soils, sieved < 250 μm OR as marked

Activation Laboratories Ltd.

Report: A14-09095

Aqua regia-Ultratrace 2-ICP/MS - 0.5 g

Analyte Symbol	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5801 M 10	0.1	3.0	0.6	2.2	41.6	3.50	1.1	0.2	2.1	0.9	0.7	0.1	0.3	<0.1	0.3	0.51	0.102	0.96	0.02	0.58
5802 M 10	0.2	3.4	0.3	2.3	47.8	2.99	1.0	0.3	1.6	0.8	0.5	<0.1	0.3	<0.1	0.2	0.51	0.054	0.71	<0.02	0.47
5803 M 60	0.1	1.9	1.9	1.2	45.0	19.10	4.3	1.0	9.3	4.6	3.2	0.6	1.7	0.2	0.3	1.25	0.078	0.42	<0.02	0.06
5804 M 100	<0.1	1.7	1.3	4.3	24.3	5.61	1.8	1.1	2.7	1.5	1.0	0.2	0.6	<0.1	0.9	1.01	0.055	0.33	<0.02	0.18
5805 M 50	<0.1	1.9	0.2	1.2	40.8	0.99	1.0	0.2	0.4	0.3	0.2	<0.1	0.1	<0.1	0.1	3.68	0.027	0.41	<0.02	<0.05
5806 M 80	0.2	21.4	2.1	1.0	45.9	1.94	1.4	0.3	0.8	0.5	0.4	<0.1	0.2	<0.1	0.1	3.78	0.048	0.50	<0.02	<0.05
5807 M 10	0.1	27.9	1.0	1.9	63.1	9.18	1.1	0.5	3.7	1.9	1.5	0.3	0.9	0.1	0.2	3.71	0.115	0.89	<0.02	0.40
5808 E 15	<0.1	1.8	<0.1	2.7	21.4	4.66	1.5	1.7	2.8	1.5	1.0	0.2	0.5	<0.1	1.9	0.21	0.045	0.11	<0.02	0.31 < 125
5809 M 10	0.1	5.3	1.1	5.5	36.5	4.53	0.6	0.4	2.5	1.3	0.9	0.2	0.5	<0.1	0.5	0.85	0.167	1.04	0.04	0.88
5810 N 15	0.1	5.0	0.5	6.3	25.8	7.34	0.2	1.1	4.1	2.2	1.5	0.3	0.8	0.1	1.0	0.53	0.110	0.49	0.02	0.49 125-250
5811 M 15	0.2	2.2	0.6	2.9	36.5	13.90	0.7	0.9	7.8	3.7	2.5	0.5	1.3	0.2	0.6	1.21	0.086	0.67	<0.02	0.16
5812 M 50	0.3	26.2	12.9	2.4	28.0	4.57	3.3	0.6	1.7	1.0	0.8	0.2	0.4	<0.1	0.3	4.07	0.056	0.83	<0.02	<0.05
5813 M 50	<0.1	2.0	0.2	1.9	30.5	3.05	1.7	0.5	1.2	0.7	0.6	0.1	0.3	<0.1	0.1	2.64	0.044	0.58	<0.02	<0.05
5814 M 80	<0.1	1.1	<0.1	0.8	43.1	2.27	0.8	0.4	0.7	0.4	0.4	<0.1	0.2	<0.1	<0.1	0.52	0.032	0.23	<0.02	<0.05
5815 E 20	<0.1	1.9	<0.1	3.7	12.8	4.60	2.2	2.0	3.2	1.6	1.0	0.2	0.4	<0.1	2.1	0.27	0.048	0.06	<0.02	0.29 < 125
5816 M 50	<0.1	3.0	0.5	1.3	35.1	9.14	1.5	0.7	4.4	2.3	1.6	0.3	0.9	0.1	0.2	1.67	0.072	0.64	<0.02	<0.05
5817 M 15	<0.1	2.1	0.4	1.4	47.9	0.99	0.7	<0.1	0.3	0.3	0.2	<0.1	0.1	<0.1	<0.1	0.52	0.055	0.64	<0.02	0.26
5818 M 10	<0.1	4.1	0.3	1.2	32.3	0.82	0.4	<0.1	0.3	0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.86	0.086	0.69	<0.02	0.33
5819 E 40	<0.1	1.7	<0.1	3.5	18.3	4.84	1.8	1.3	3.0	1.6	1.0	0.2	0.5	<0.1	2.0	0.24	0.042	0.07	<0.02	0.32 < 125
5820 N 10	<0.1	2.2	<0.1	7.2	22.9	10.30	<0.1	1.1	6.3	3.3	2.1	0.4	1.0	0.1	0.9	1.09	0.196	0.50	0.02	0.47 < 125
5821 M 10	<0.1	4.2	<0.1	1.8	54.8	0.89	<0.1	<0.1	0.3	0.2	0.2	<0.1	<0.1	<0.1	<0.1	0.30	0.009	0.89	0.02	0.45
5822 M 100	0.1	3.7	0.2	1.4	48.0	14.70	2.0	0.7	6.4	3.1	2.4	0.5	1.3	0.2	0.2	1.17	0.090	0.67	<0.02	0.08
5823 E 20	<0.1	2.1	<0.1	3.1	16.2	5.46	1.3	1.6	3.8	1.8	1.2	0.2	0.5	<0.1	1.9	0.29	0.067	0.09	<0.02	0.29 < 125
5824 E 20	<0.1	4.8	<0.1	5.2	12.3	3.63	1.9	1.9	2.9	1.2	0.8	0.1	0.3	<0.1	2.7	0.48	0.086	0.14	0.02	0.49 < 125
5825 E 20	<0.1	2.0	<0.1	5.8	13.7	4.12	1.9	2.1	2.8	1.3	0.9	0.2	0.4	<0.1	2.6	0.31	0.078	0.10	0.02	0.46 < 125
5826 M 10	0.1	3.8	3.4	1.7	56.3	5.59	0.8	0.2	2.8	1.4	1.0	0.2	0.5	<0.1	0.1	0.50	0.130	0.63	0.02	0.49
5827 M 10	0.2	2.9	<0.1	1.0	52.1	5.15	0.5	<0.1	1.9	1.1	0.8	0.2	0.4	<0.1	<0.1	0.75	0.070	0.94	<0.02	0.39
5828 M 80	<0.1	1.1	0.7	2.2	28.8	5.03	1.9	0.8	2.6	1.4	1.0	0.2	0.5	<0.1	0.8	0.31	0.050	0.36	<0.02	0.16
5829 M 60	<0.1	1.8	<0.1	1.0	54.8	1.88	0.6	0.3	0.5	0.4	0.3	<0.1	0.2	<0.1	<0.1	2.84	0.020	0.44	<0.02	0.07
5830 DREAS 45P	0.2	3.6	<0.1	12.9	17.7	10.50	26.5	52.1	4.5	3.1	2.6	0.5	1.3	0.2	0.5	1.46	0.209	0.11	0.69	1.71

unusual sieved size μm

vs. 0.30

Activation Laboratories Ltd.

Report: A14-09095

Analyte Symbol	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5831 M 25	<0.1	5.4	0.4	4.3	45.3	9.42	2.9	2.3	3.6	1.9	1.4	0.3	0.8	0.1	1.2	0.31	0.062	0.15	<0.02	0.33
5832 M 50	0.4	8.1	7.3	1.2	36.4	2.08	3.7	0.3	0.5	0.3	0.3	<0.1	0.2	<0.1	0.1	2.86	0.055	1.04	<0.02	<0.05
5833 M 25	<0.1	5.5	0.5	5.0	37.2	8.95	0.2	0.5	4.7	2.5	1.7	0.3	0.9	0.1	0.5	1.50	0.158	0.62	<0.02	0.26
5834 M 20	<0.1	6.0	0.8	2.8	36.7	7.90	2.9	1.2	2.9	1.7	1.3	0.3	0.7	0.1	0.4	2.56	0.088	0.45	<0.02	0.09
5835 M 50	0.1	3.8	0.7	3.2	35.8	7.40	2.3	1.0	2.8	1.6	1.2	0.2	0.7	<0.1	0.5	2.19	0.079	0.35	<0.02	0.09
5836 M 50	0.1	3.9	0.6	1.7	43.5	10.70	2.4	0.9	4.0	2.1	1.7	0.3	1.0	0.1	0.2	1.30	0.090	0.29	<0.02	<0.05
5837 M 100	0.1	1.6	0.8	1.5	36.4	12.40	2.7	1.0	6.2	2.8	2.1	0.4	1.2	0.2	0.2	0.54	0.118	0.55	<0.02	<0.05
5838 M 100	0.1	3.0	0.7	1.0	36.4	10.70	1.5	0.8	4.2	2.4	1.8	0.3	1.0	0.1	0.3	1.47	0.118	0.43	<0.02	<0.05
5839 M 110	0.1	1.7	1.1	1.1	36.6	5.27	2.1	0.2	2.0	1.1	0.9	0.2	0.5	<0.1	0.1	0.73	0.058	0.48	<0.02	<0.05
5840 N 15	<0.1	1.9	<0.1	5.7	24.4	8.03	<0.1	0.6	4.0	2.2	1.5	0.3	0.8	0.1	0.4	0.85	0.126	0.39	<0.02	0.30 < 125
5841 M 35	0.1	1.2	1.6	1.3	67.6	2.83	1.0	0.2	0.6	0.5	0.4	<0.1	0.3	<0.1	<0.1	0.49	0.062	0.36	<0.02	0.05
5842 M 40	0.3	1.5	0.8	1.5	76.3	6.38	1.4	0.5	2.3	1.3	0.9	0.2	0.6	<0.1	0.2	1.05	0.070	0.70	<0.02	0.06
5843 = 5204	<0.1	7.0	1.0	0.9	60.5	3.88	0.5	0.1	1.2	0.8	0.6	0.1	0.4	<0.1	0.1	0.34	0.115	0.64	<0.02	0.20
5844 = 5603	0.1	3.4	1.8	1.0	47.3	16.80	1.8	0.3	5.0	2.8	2.1	0.4	1.3	0.2	0.1	0.17	0.138	0.43	<0.02	0.06

unusual sieved size μm

Various soils, sieved <250µm OR as marked

Activation Laboratories Ltd.

Report: A14-09095

Aqua regia - Ultratrace 2 - ICP/MS - 0.5g

Analyte Symbol		Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Bi
Unit Symbol	atcm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
Detection Limit	↓	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.02
Analysis Method		AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5801	M 10	0.33	0.13	0.21	57.3	9.9	13.50	7.00	1.1	0.2	0.1	0.2	<0.1	<0.1	<0.05	<0.1	0.015	<0.5	0.07	24.60	0.23
5802	M 10	0.29	0.07	0.28	72.9	8.4	10.40	5.58	0.9	0.2	<0.1	0.2	<0.1	<0.1	<0.05	0.1	0.012	<0.5	0.10	18.20	0.19
5803	M 60	0.13	0.11	0.23	122.0	44.4	27.10	33.50	5.4	1.2	0.6	1.3	0.2	<0.1	<0.05	<0.1	0.016	<0.5	0.41	1.67	0.04
5804	M 100	0.06	0.28	0.65	49.0	11.1	19.10	10.10	1.7	0.4	0.2	0.5	<0.1	<0.1	<0.05	<0.1	0.030	17.6	0.15	2.06	0.04
5805	M 50	0.06	0.31	0.20	47.3	1.4	2.64	1.31	0.3	<0.1	<0.1	0.1	<0.1	<0.1	<0.05	0.2	0.027	7.0	0.08	0.93	0.03
5806	M 80	0.36	0.42	0.21	47.9	3.5	6.19	2.98	0.6	0.1	<0.1	0.2	<0.1	<0.1	<0.05	0.7	0.035	13.9	0.37	0.96	0.03
5807	M 10	0.28	0.50	0.40	594.0	14.3	14.80	13.10	2.3	0.5	0.3	0.7	0.1	<0.1	<0.05	<0.1	0.039	16.9	0.33	16.00	0.17
5808	E 15	0.08	0.38	0.37	30.3	11.4	32.90	9.93	1.8	0.3	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.024	8.2	0.06	4.99	0.07 <125
5809	M 10	0.36	0.45	0.80	78.9	10.9	22.20	8.85	1.5	0.3	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.029	13.1	0.15	23.70	0.32
5810	N 15	0.18	0.51	0.91	87.2	17.1	35.80	14.80	2.5	0.5	0.3	0.6	<0.1	<0.1	<0.05	<0.1	0.038	29.7	0.15	14.10	0.15 125-250
5811	M 15	0.09	0.37	0.69	111.0	30.3	38.10	27.90	4.5	1.0	0.4	1.0	0.2	<0.1	<0.05	<0.1	0.028	11.8	0.14	6.45	0.07
5812	M 50	1.15	0.14	0.32	38.6	7.1	8.68	6.20	1.1	0.2	0.1	0.3	<0.1	<0.1	<0.05	0.6	0.026	<0.5	1.94	1.02	0.03
5813	M 50	0.03	0.06	0.51	55.3	4.8	7.10	4.46	0.8	0.2	<0.1	0.3	<0.1	<0.1	<0.05	<0.1	0.005	<0.5	0.14	1.00	0.02
5814	M 80	0.05	0.17	0.16	99.6	3.0	3.53	2.65	0.5	<0.1	<0.1	0.2	<0.1	<0.1	<0.05	<0.1	0.004	<0.5	0.04	1.07	<0.02
5815	E 20	0.03	<0.02	0.50	22.6	13.3	27.80	11.10	2.0	0.3	0.2	0.3	<0.1	<0.1	<0.05	<0.1	<0.001	<0.5	0.04	5.17	0.05 <125
5816	M 50	0.05	<0.02	0.24	65.9	18.1	32.60	15.80	2.7	0.6	0.3	0.6	0.1	<0.1	<0.05	<0.1	0.001	<0.5	0.15	1.59	0.02
5817	M 15	0.26	0.19	0.28	86.6	1.4	2.52	1.30	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.05	<0.1	0.013	<0.5	0.13	9.65	0.11
5818	M 10	0.25	0.24	0.06	30.8	1.5	3.00	1.23	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	0.014	<0.5	0.03	15.10	0.13
5819	E 40	0.03	0.20	0.42	26.3	12.6	27.20	10.90	2.0	0.3	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.013	<0.5	0.05	4.04	0.06 <125
5820	N 10	0.20	0.17	1.38	93.1	25.1	54.90	22.80	3.9	0.8	0.4	0.7	0.1	<0.1	<0.05	<0.1	0.013	<0.5	0.18	13.00	0.16 <125
5821	M 10	0.27	<0.02	0.09	112.0	1.4	2.74	1.26	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	0.012	<0.5	0.03	26.70	0.22
5822	M 100	0.06	<0.02	0.34	137.0	26.2	32.90	22.30	3.7	0.8	0.4	1.1	0.2	<0.1	<0.05	<0.1	0.009	<0.5	0.07	2.92	0.05
5823	E 20	0.05	0.08	0.39	22.9	16.3	37.20	13.40	2.3	0.4	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.005	<0.5	0.04	5.19	0.06 <125
5824	E 20	0.14	<0.02	0.52	25.4	12.9	26.30	9.93	1.6	0.3	0.2	0.3	<0.1	<0.1	<0.05	<0.1	0.008	<0.5	0.07	13.20	0.14 <125
5825	E 20	0.07	0.12	0.67	41.1	12.8	24.00	9.56	1.7	0.3	0.2	0.3	<0.1	<0.1	<0.05	<0.1	0.023	1.2	0.07	6.94	0.09 <125
5826	M 10	0.22	0.34	0.19	117.0	12.8	19.10	9.86	1.6	0.3	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.035	14.0	0.10	18.60	0.21
5827	M 10	0.26	0.20	0.09	86.6	7.6	6.05	7.16	1.2	0.3	0.1	0.3	<0.1	<0.1	<0.05	<0.1	0.019	<0.5	0.07	20.00	0.16
5828	M 80	0.05	0.34	0.25	25.9	10.6	18.60	9.36	1.6	0.3	0.2	0.4	<0.1	<0.1	<0.05	<0.1	0.018	<0.5	0.07	2.51	0.04
5829	M 60	0.03	0.03	0.16	81.0	2.0	4.10	1.99	0.4	<0.1	<0.1	0.2	<0.1	<0.1	<0.05	0.3	0.017	<0.5	0.04	1.30	0.13
5830	DREAS 45P	0.55	0.09	1.58	205.0	19.2	39.00	15.90	3.3	0.9	0.5	1.0	0.1	0.5	<0.05	<0.1	0.007	19.6	0.14	18.50	0.17

vs. 49.0

unusual sieved size µm

Activation Laboratories Ltd.

Report: A14-09095

Analyte Symbol	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb	Bi
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm
Detection Limit	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5831 M 25	0.05	<0.02	0.64	107.0	15.4	20.00	12.60	2.2	0.5	0.2	0.7	0.1	<0.1	<0.05	<0.1	0.005	<0.5	0.39	3.84	0.05
5832 M 50	0.19	<0.02	0.33	47.9	2.3	3.16	2.00	0.3	<0.1	<0.1	0.2	<0.1	<0.1	<0.05	<0.1	<0.001	<0.5	0.61	0.65	<0.02
5833 M 25	0.12	0.14	1.21	152.0	18.6	31.00	17.10	2.9	0.6	0.3	0.7	0.1	<0.1	<0.05	<0.1	0.003	<0.5	0.29	6.73	0.10
5834 M 20	0.07	0.15	0.59	383.0	11.5	15.00	10.60	1.9	0.4	0.2	0.6	<0.1	<0.1	<0.05	<0.1	0.011	<0.5	0.19	2.63	0.05
5835 M 50	0.06	<0.02	0.59	358.0	11.3	16.60	10.30	1.8	0.4	0.2	0.6	<0.1	<0.1	<0.05	<0.1	0.009	<0.5	0.17	2.24	0.04
5836 M 50	0.04	<0.02	0.36	219.0	15.5	12.50	14.80	2.5	0.6	0.3	0.8	0.1	<0.1	<0.05	<0.1	0.006	<0.5	0.09	1.85	0.03
5837 M 100	0.05	0.23	0.33	129.0	24.1	29.90	21.00	3.4	0.7	0.4	0.9	0.2	<0.1	<0.05	<0.1	0.013	<0.5	0.09	1.18	0.03
5838 M 100	0.05	0.28	0.30	149.0	17.0	22.80	15.70	2.8	0.6	0.3	0.8	0.1	<0.1	<0.05	<0.1	0.021	<0.5	0.10	1.29	0.03
5839 M 110	0.07	0.32	0.29	62.4	8.4	9.68	7.38	1.3	0.3	0.1	0.4	<0.1	<0.1	<0.05	<0.1	0.028	1.9	0.11	1.00	0.03
5840 N 15	0.06	0.30	1.15	72.6	15.6	39.40	14.70	2.6	0.5	0.3	0.6	<0.1	<0.1	<0.05	<0.1	0.011	<0.5	0.16	5.14	0.12
5841 M 35	0.09	0.20	0.55	93.6	1.9	2.44	2.36	0.5	0.1	<0.1	0.3	<0.1	<0.1	<0.05	0.5	0.025	3.2	0.15	1.31	0.04
5842 M 40	0.10	0.62	0.41	114.0	9.4	13.90	8.29	1.4	0.3	0.2	0.5	<0.1	<0.1	<0.05	<0.1	0.029	12.1	0.07	1.53	0.04
5843 = 5204	0.16	0.48	0.32	97.5	5.3	6.58	4.42	0.8	0.2	0.1	0.3	<0.1	<0.1	<0.05	0.3	0.032	9.8	0.11	8.85	0.10
5844 = 5603	0.07	0.38	0.16	45.4	23.9	13.10	18.30	3.0	0.7	0.4	1.1	0.2	<0.1	<0.05	<0.1	0.036	13.8	0.08	2.02	0.06

unusual sieved size μm

< 125

Various soils, sieved < 250 μm OR as marked

Activation Laboratories Ltd.

Report: A14-09095

Aqua regia - Ultratrace 2 - ICP/MS - 0.5 g

Analyte Symbol	Th	U	Hg	unusual	Note per
Unit Symbol	atcm	ppm	ppm	sieved	whole 10 cm
Detection Limit	\downarrow	0.1	0.1	size μm	Sample
Analysis Method	AR-MS	AR-MS	AR-MS		
5801	M 10	1.1	0.5	< 10	- on rock
5802	M 10	0.6	0.5	< 10	- on boulders, water between them
5803	M 60	0.9	5.4	< 10	-
5804	M 100	0.7	1.8	40	- woody, sulfur odor
5805	M 50	0.3	0.3	< 10	- sulfur odor
5806	M 80	0.4	5.9	< 10	- woody, trace charcoal, sulfur odor
5807	M 10	0.4	0.5	190	- on boulders, flowing water locally.
5808	E 15	2.2	0.5	< 10	< 125 - silt, well sorted
5809	M 10	0.6	1.6	320	- on rock despite cedars
5810	N 15	0.5	1.2	170	125-250 - silt, gray-brown, sorted,
5811	M 15	0.4	3.5	100	- woody, on clay at 40 cm, then rock or boulders
5812	M 50	0.5	45.2	< 10	- woody, on sand at 100 cm below water level
5813	M 50	0.4	1.6	< 10	- clayey, trace charcoal, same to > 1 m.
5814	M 80	0.3	0.3	< 10	- woody, same to > 110 cm.
5815	E 20	3.1	0.6	< 10	< 125 - granules to silt, sandbank beyond > 50 cm
5816	M 50	1.0	1.9	< 10	- woody, same to > 100 cm
5817	M 15	0.4	0.3	< 10	- on gravel
5818	M 10	0.3	0.1	< 10	- humus above leached horizon, then 5819.
5819	E 40	1.7	0.5	< 10	< 125 - silt, 80% < 125 μm
5820	N 10	0.7	1.5	< 10	< 125 - fine sand, 50% < 125, trace charcoal, on gravel or rock
5821	M 10	0.3	< 0.1	< 10	- on 5 cm clay and rock.
5822	M 100	0.8	3.4	< 10	- woody (= chips not decayed)
5823	E 20	2.2	0.7	< 10	< 125 - fine sand with granules, 50% < 125 μm
5824	E 20	3.0	0.5	< 10	< 125 - fine sand to granules, not sorted, rock at 45 cm
5825	E 20	2.7	0.5	< 10	< 125 - fine sand to granules, not sorted but fine sorted below/beyond > 50 cm depth
5826	M 10	0.9	0.6	100	- trace charcoal, on fine sand, no enriched horizon to > 60 cm
5827	M 10	0.4	0.3	< 10	- trace charcoal, on gravel
5828	M 80	0.8	2.8	< 10	- bit clayey
5829	M 60	0.5	0.2	< 10	- woody, above packed sorted fine sand > 90 cm
5830	OREAS 45P	6.9	1.2	< 10	- Standard OREAS 45P

Analyte Symbol	Th	U	Hg	unusual sieved size μm	Note per whole 10 cm sample
Unit Symbol	ppm	ppm	ppb		
Detection Limit	0.1	0.1	10		
Analysis Method	AR-MS	AR-MS	AR-MS		
5831 M 25	1.2	5.7	< 10		- trace sand; on gravel at 40 cm, then fine sand
5832 M 50	0.5	21.8	< 10		- woody; on gravel with boulders at 1 m.
5833 M 25	0.4	3.4	< 10		- trace charcoal; on boulders and sand.
5834 M 20	1.0	2.2	< 10		- woody, sulfur odor } silt at 80 cm
5835 M 50	0.8	1.9	< 10		- sulfur odor }
5836 M 50	0.7	0.8	< 10		- sulfur odor, sand at 1 m
5837 M 100	1.0	1.1	< 10		- woody
5838 M 100	0.6	0.8	< 10		- woody
5839 M 110	0.5	3.6	< 10		- sulfur odor
5840 N 15	0.3	0.8	< 10	< 125	- silt to sand, gray, then clean fine sand-silt to > 1 m
5841 M 35	0.2	0.5	< 10		- woody, rock at 60 cm, no sand.
5842 M 40	0.4	0.6	70		- rock at 50 cm
5843 = 5204	0.4	0.4	150		
5844 = 5603	0.5	5.2	190		

QUALITY CONTROL

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Li	Be	B	Na	Mg	Al	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn
Unit Symbol	ppm	ppm	ppm	%	%	%	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	1	0.001	0.01	0.01	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	4.60	1.50	8.00	0.0370	0.130	0.37	0.0420	0.1970	0.030	0.880	80.0	5.0	< 0.01	846	21.30	7.60	39.40	0.0000	786.0
GXR-1 Cert	8.20	1.22	15.00	0.0520	0.217	3.52	0.0650	0.2570	0.050	0.960	80.0	12.0	0.036	852	23.60	8.20	41.01	10.0000	760.0
GXR-1 Meas	4.20	1.60	9.00	0.0370	0.120	0.37	0.0430	0.2020	0.030	0.890	82.0	7.0	< 0.01	910	23.90	8.20	41.80	0.0000	774.0
GXR-1 Cert	8.20	1.22	15.00	0.0520	0.217	3.52	0.0650	0.2570	0.050	0.960	80.0	12.0	0.036	852	23.60	8.20	41.01	10.0000	760.0
DH-1a Meas																			
DH-1a Cert																			
DH-1a Meas																			
DH-1a Cert																			
GXR-4 Meas	9.50	2.50	< 1	0.1440	1.510	2.85	0.1170	1.7680	1.770	0.910	85.0	57.0	0.150	135	2.56	13.80	41.93	40.0000	77.1
GXR-4 Cert	11.10	1.90	4.50	0.5640	1.660	7.20	0.1200	1.7700	4.010	1.010	87.0	64.0	0.290	155	3.09	14.60	42.05	20.0000	73.0
GXR-4 Meas	9.40	1.30	2.00	0.1700	1.670	3.43	0.1200	1.7840	2.170	1.110	94.0	68.0	0.150	163	3.29	16.60	46.96	40.0000	83.1
GXR-4 Cert	11.10	1.90	4.50	0.5640	1.660	7.20	0.1200	1.7700	4.010	1.010	87.0	64.0	0.290	155	3.09	14.60	42.05	20.0000	73.0
GXR-6 Meas	26.90	2.20	2.00	0.0650	0.400	7.87	0.0310	0.0150	1.320	0.160	183.0	88.0		1140	5.37	14.30	25.6	72.8000	137.0
GXR-6 Cert	32.00	1.40	9.80	0.1040	0.609	17.70	0.0350	0.0160	1.870	0.180	186.0	96.0		1010	5.58	13.80	27.0	66.0000	118.0
GXR-6 Meas	23.00	1.60	2.00	0.0640	0.380	7.59	0.0330	0.0140	1.270	0.160	175.0	85.0		1100	5.44	14.20	25.9	70.5000	132.0
GXR-6 Cert	32.00	1.40	9.80	0.1040	0.609	17.70	0.0350	0.0160	1.870	0.180	186.0	96.0		1010	5.58	13.80	27.0	66.0000	118.0
SAR-M (U.S.G.S.) Meas	13.40	2.10		0.0210	0.320	1.16	0.0640		0.300	0.310	35.0	83.0	0.070	4260	2.47	9.90	41.03	11.0000	918.0
SAR-M (U.S.G.S.) Cert	27.40	2.20		1.1400	0.500	6.30	0.0700		2.940	0.610	67.2	79.7	0.380	5220	2.99	10.70	41.53	31.0000	930.0
SAR-M (U.S.G.S.) Meas	13.30	1.30		0.0260	0.340	1.29			0.340	0.340	38.0	95.0		4920	2.84	11.20	45.53	34.0000	963.0
SAR-M (U.S.G.S.) Cert	27.40	2.20		1.1400	0.500	6.30			2.940	0.610	67.2	79.7		5220	2.99	10.70	41.53	31.0000	930.0
5806 Orig	0.30	1.10	5.00	0.0070	0.200	0.26	0.0340	0.6590	< 0.01	2.960	18.0	11.0	< 0.01	18	0.12	1.60	23.8	24.1000	5.4
5806 Dup	0.30	1.40	5.00	0.0080	0.200	0.25	0.0330	0.6120	< 0.01	2.880	17.0	9.0	< 0.01	17	0.11	1.60	23.9	23.3000	5.8
5807 Orig	0.90	2.30	4.00	0.0080	0.180	0.54	0.1160	0.1860	0.020	2.460	13.0	10.0	< 0.01	> 10000	2.92	15.40	25.2	15.8000	55.9
5807 Dup	0.80	1.30	5.00	0.0070	0.190	0.57	0.1130	0.1790	0.020	2.670	15.0	13.0	< 0.01	> 10000	3.09	16.30	27.0	17.1000	58.0
5814 Orig	0.30	0.60	8.00	0.0140	0.230	0.25	0.0360	0.2590	0.010	3.380	5.0	8.0	< 0.01	465	0.24	1.80	7.9	12.1000	17.4
5814 Dup	0.20	0.70	8.00	0.0140	0.240	0.25	0.0350	0.2480	< 0.01	3.310	4.0	8.0	< 0.01	469	0.24	1.70	8.1	11.9000	17.0
5821 Orig	0.20	1.10	< 1	0.0090	0.050	0.18	0.0390	0.1340	0.040	0.440	3.0	4.0	< 0.01	15	0.12	2.20	10.9	11.9000	34.9
5821 Dup	0.20	0.80	< 1	0.0070	0.050	0.19	0.0400	0.1340	0.040	0.430	3.0	4.0	< 0.01	15	0.12	2.30	11.5	11.9000	36.2
5840 Orig	7.30	1.20	2.00	0.0080	0.210	1.10	0.1170	0.0740	0.040	0.600	31.0	45.0	0.040	2300	1.46	11.70	21.4	14.9000	55.9

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Li	Be	B	Na	Mg	Al	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn
Unit Symbol	ppm	ppm	ppm	%	%	%	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	1	0.001	0.01	0.01	0.001	0.001	0.01	0.01	1	1	0.01	1	0.01	0.1	0.1	0.01	0.1
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5840 Dup	6.90	1.00	1.00	0.0090	0.220	1.10	0.1130	0.0730	0.040	0.580	31.0	45.0	0.040	2350	1.49	11.70	21.1	14.4000	55.1
Method Blank	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	< 1	< 1	< 0.01	< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1
Method Blank	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	< 1	< 1	< 0.01	< 1	< 0.01	< 0.1	< 0.1	0.0100	< 0.1
Method Blank	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01	< 0.001	< 0.001	< 0.01	< 0.01	< 1	< 1	< 0.01	< 1	< 0.01	< 0.1	< 0.1	0.0200	< 0.1
Method Blank	< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01			< 0.01	< 0.01	< 1	< 1		< 1	< 0.01	< 0.1	< 0.1	0.0200	< 0.1

QUALITY CONTROL

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas		386.0	14.100	2.4	191.0	28.70	10.4	1.00		3.60	4.80			0.4000	< 0.1	18.50	32.600	2.530	0.760
GXR-1 Cert		427.0	16.600	14.0	275.0	32.00	38.0	1.58		4.20	4.30			0.4300	0.800	18.00	31.000	3.300	0.770
GXR-1 Meas		391.0	14.900	2.5	197.0	29.20	10.2	1.10		3.60	4.60			0.4000	< 0.1	18.60	31.700	2.600	0.760
GXR-1 Cert		427.0	16.600	14.0	275.0	32.00	38.0	1.58		4.20	4.30			0.4300	0.800	18.00	31.000	3.300	0.770
DH-1a Meas																			
DH-1a Cert																			
DH-1a Meas																			
DH-1a Cert																			
GXR-4 Meas		99.2	4.800	103.0	76.5	13.50	11.2	6.70		4.60	2.90			0.2000	0.300	310.00	3.560	0.160	0.230
GXR-4 Cert		98.0	5.600	160.0	221.0	14.00	186.0	7.70		5.25	2.60			0.2100	10.000	310.00	4.000	0.860	0.270
GXR-4 Meas		103.0	4.900	104.0	80.0	13.50	10.9	8.00		4.60	2.80			0.2000	0.300	311.00	3.430	0.190	0.220
GXR-4 Cert		98.0	5.600	160.0	221.0	14.00	186.0	7.70		5.25	2.60			0.2100	10.000	310.00	4.000	0.860	0.270
GXR-6 Meas		236.0	< 0.1	73.0	31.2	7.61	19.0	25.00		2.00	1.70			0.1000	< 0.1	1.76	0.229	0.190	0.070
GXR-6 Cert		330.0	0.940	90.0	35.0	14.00	110.0	27.60		2.97	2.80			0.0320	7.500	2.40	1.300	1.000	0.260
GXR-6 Meas		233.0	< 0.1	73.9	32.0	7.69	19.1	24.60		2.00	1.70			0.1000	< 0.1	1.71	0.212	0.150	0.070
GXR-6 Cert		330.0	0.940	90.0	35.0	14.00	110.0	27.60		2.97	2.80			0.0320	7.500	2.40	1.300	1.000	0.260
SAR-M (U.S.G.S.) Meas		35.2	0.100	26.2	29.7	22.70		3.40							3.500	12.20	3.370	5.130	1.050
SAR-M (U.S.G.S.) Cert		38.8	0.390	146.0	151.0	28.00		7.83							29.900	13.10	3.640	5.270	1.080
SAR-M (U.S.G.S.) Meas		35.1	< 0.1	26.8	30.3	23.10		3.70							3.400	12.00	3.370	5.030	1.040
SAR-M (U.S.G.S.) Cert		38.8	0.390	146.0	151.0	28.00		7.83							29.900	13.10	3.640	5.270	1.080
5806 Orig	0.2	21.8	2.900	1.0	45.5	1.96	1.8	0.40	0.8	0.50	0.40	< 0.1	0.2	< 0.1	0.200	4.37	0.043	0.480	< 0.02
5806 Dup	0.1	21.0	1.300	0.9	46.3	1.93	0.9	0.30	0.8	0.50	0.40	< 0.1	0.2	< 0.1	0.100	3.18	0.053	0.530	< 0.02
5807 Orig	0.1	29.3	1.100	1.9	62.6	9.14	1.1	0.50	3.6	1.90	1.50	0.3	0.9	0.1000	0.200	3.72	0.104	0.910	0.020
5807 Dup	0.1	26.4	0.800	1.9	63.6	9.23	1.1	0.60	3.7	1.90	1.50	0.3	0.9	0.1000	0.200	3.69	0.126	0.880	< 0.02
5814 Orig	< 0.1	1.1	< 0.1	0.8	42.9	2.26	0.7	0.40	0.7	0.40	0.40	< 0.1	0.2	< 0.1	< 0.1	0.54	0.039	0.230	< 0.02
5814 Dup	< 0.1	1.0	< 0.1	0.7	43.3	2.29	0.8	0.40	0.7	0.40	0.40	< 0.1	0.2	< 0.1	< 0.1	0.51	0.024	0.230	< 0.02
5821 Orig	< 0.1	4.3	< 0.1	1.9	53.7	0.87	0.1	< 0.1	0.3	0.20	0.20	< 0.1	< 0.1	< 0.1	< 0.1	0.34	0.011	0.870	0.020
5821 Dup	< 0.1	4.2	< 0.1	1.8	55.9	0.91	< 0.1	< 0.1	0.3	0.20	0.20	< 0.1	< 0.1	< 0.1	< 0.1	0.25	0.006	0.900	0.020
5840 Orig	< 0.1	1.9	< 0.1	5.7	24.5	8.08	< 0.1	0.60	4.0	2.20	1.50	0.3	0.8	0.1000	0.400	0.86	0.133	0.390	< 0.02

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Ge	As	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	0.1	0.1	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5840 Dup	< 0.1	2.0	< 0.1	5.7	24.3	7.98	< 0.1	0.60	3.9	2.20	1.40	0.3	0.8	0.1000	0.400	0.85	0.119	0.380	< 0.02
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02
Method Blank	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01	< 0.02

QUALITY CONTROL

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm
Detection Limit	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	98.20	14.7000	2.79	284.0	5.80	11.60	6.59	2.50	0.500	0.700	1.90	0.300	0.100	< 0.05	156.00		3350.0	0.370	688.00
GXR-1 Cert	122.00	13.0000	3.00	750.0	7.50	17.00	18.00	2.70	0.690	0.830	1.90	0.280	0.960	0.175	164.00		3300.0	0.390	730.00
GXR-1 Meas	96.80	15.1000	2.82	286.0	6.00	11.50	6.67	2.40	0.500	0.700	2.00	0.300	0.100	< 0.05	161.00		3130.0	0.370	696.00
GXR-1 Cert	122.00	13.0000	3.00	750.0	7.50	17.00	18.00	2.70	0.690	0.830	1.90	0.280	0.960	0.175	164.00		3300.0	0.390	730.00
DH-1a Meas																			
DH-1a Cert																			
DH-1a Meas																			
DH-1a Cert																			
GXR-4 Meas	4.35	1.0700	2.58	33.3	53.50	99.20	40.30	6.30	1.400	0.500	0.90	0.100	0.300	< 0.05	13.20			3.050	48.40
GXR-4 Cert	4.80	0.9700	2.80	1640.0	64.50	102.00	45.00	6.60	1.630	0.360	1.60	0.170	6.300	0.790	30.80			3.200	52.00
GXR-4 Meas	4.12	0.8300	2.51	31.9	52.40	96.70	39.70	6.20	1.400	0.500	0.90	0.100	0.300	< 0.05	13.70			3.020	50.20
GXR-4 Cert	4.80	0.9700	2.80	1640.0	64.50	102.00	45.00	6.60	1.630	0.360	1.60	0.170	6.300	0.790	30.80			3.200	52.00
GXR-6 Meas	2.18	0.2400	3.87	927.0	12.40	34.30	12.00	2.40	0.600	0.300	0.80	0.100	0.300	< 0.05	< 0.1			2.050	107.00
GXR-6 Cert	3.60	0.0180	4.20	1300.0	13.90	36.00	13.00	2.67	0.760	0.415	2.40	0.330	4.300	0.485	1.90			2.200	101.00
GXR-6 Meas	2.26	0.1900	3.98	944.0	12.50	34.80	12.10	2.40	0.600	0.300	0.80	0.100	0.300	< 0.05	< 0.1			1.970	106.00
GXR-6 Cert	3.60	0.0180	4.20	1300.0	13.90	36.00	13.00	2.67	0.760	0.415	2.40	0.330	4.300	0.485	1.90			2.200	101.00
SAR-M (U.S.G.S.) Meas	4.42	0.9800		197.0	49.60	102.00									4.40			1.060	926.00
SAR-M (U.S.G.S.) Cert	6.00	0.9600		801.0	57.40	122.00									9.78			2.700	982.00
SAR-M (U.S.G.S.) Meas	4.37	0.6500		198.0	50.20	101.00									4.50			1.090	961.00
SAR-M (U.S.G.S.) Cert	6.00	0.9600		801.0	57.40	122.00									9.78			2.700	982.00
5806 Orig	0.37	0.4200	0.22	48.1	3.50	6.20	2.95	0.60	0.100	< 0.1	0.20	< 0.1	< 0.1	< 0.05	0.80	0.036	13.5	0.370	0.96
5806 Dup	0.36	0.4200	0.20	47.8	3.50	6.17	3.01	0.60	0.100	< 0.1	0.20	< 0.1	< 0.1	< 0.05	0.70	0.034	14.4	0.380	0.97
5807 Orig	0.27	0.6300	0.40	600.0	14.20	14.80	13.00	2.30	0.500	0.300	0.70	0.100	< 0.1	< 0.05	< 0.1	0.047	21.3	0.330	16.00
5807 Dup	0.29	0.3700	0.40	588.0	14.40	14.80	13.20	2.20	0.500	0.300	0.70	0.100	< 0.1	< 0.05	< 0.1	0.032	12.6	0.330	15.90
5814 Orig	0.05	0.2000	0.16	99.7	3.00	3.51	2.62	0.50	< 0.1	< 0.1	0.20	< 0.1	< 0.1	< 0.05	< 0.1	0.001	< 0.5	0.050	1.08
5814 Dup	0.05	0.1400	0.16	99.5	3.00	3.56	2.68	0.50	0.100	< 0.1	0.20	< 0.1	< 0.1	< 0.05	< 0.1	0.007	< 0.5	0.040	1.07
5821 Orig	0.32	< 0.02	0.09	109.0	1.40	2.74	1.25	0.20	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.013	< 0.5	0.030	26.20
5821 Dup	0.21	0.1700	0.09	115.0	1.40	2.73	1.26	0.20	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	0.10	0.010	< 0.5	0.030	27.30
5840 Orig	0.06	0.3100	1.15	73.5	15.80	39.70	14.90	2.60	0.500	0.300	0.60	< 0.1	< 0.1	< 0.05	< 0.1	0.013	< 0.5	0.170	5.26

Activation Laboratories Ltd.

Report: A14-09095

Quality Control																			
Analyte Symbol	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au	Tl	Pb
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	ppm	ppm
Detection Limit	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5	0.02	0.01
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
5840 Dup	0.06	0.2800	1.14	71.7	15.40	39.10	14.50	2.60	0.500	0.300	0.60	< 0.1	< 0.1	< 0.05	< 0.1	0.009	< 0.5	0.160	5.03
Method Blank	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.001	< 0.5	< 0.02	< 0.01
Method Blank	< 0.02	0.0200	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	0.001	< 0.5	< 0.02	< 0.01
Method Blank	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01
Method Blank	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01

Quality Control

Analyte Symbol	Th	U	Hg
Unit Symbol	ppm	ppm	ppb
Detection Limit	0.1	0.1	10
Analysis Method	AR-MS	AR-MS	AR-MS

GXR-1 Meas	2.10	30.40	4460
GXR-1 Cert	2.44	34.90	3900
GXR-1 Meas	2.10	31.50	4240
GXR-1 Cert	2.44	34.90	3900
DH-1a Meas	> 200	2400.00	
DH-1a Cert	910.00	2629.00	
DH-1a Meas	> 200	2440.00	
DH-1a Cert	910.00	2629.00	
GXR-4 Meas	18.70	5.10	
GXR-4 Cert	22.50	6.20	

GXR-4 Meas	19.60	5.30	
GXR-4 Cert	22.50	6.20	
GXR-6 Meas	4.50	0.90	
GXR-6 Cert	5.30	1.54	
GXR-6 Meas	4.50	0.90	
GXR-6 Cert	5.30	1.54	
SAR-M (U.S.G.S.) Meas	12.00	2.10	
SAR-M (U.S.G.S.) Cert	17.20	3.57	
SAR-M (U.S.G.S.) Meas	12.50	2.20	
SAR-M (U.S.G.S.) Cert	17.20	3.57	

5806 Orig	0.40	5.80	< 10
5806 Dup	0.40	5.90	30
5807 Orig	0.50	0.50	210
5807 Dup	0.40	0.50	170
5814 Orig	0.30	0.30	< 10
5814 Dup	0.30	0.30	< 10
5821 Orig	0.40	< 0.1	< 10
5821 Dup	0.30	< 0.1	< 10
5840 Orig	0.30	0.80	< 10

Quality Control

Analyte Symbol	Th	U	Hg
Unit Symbol	ppm	ppm	ppb
Detection Limit	0.1	0.1	10
Analysis Method	AR-MS	AR-MS	AR-MS

5840 Dup 0.30 0.80 < 10

Method Blank < 0.1 < 0.1 < 10

Method Blank < 0.1 < 0.1 < 10

Method Blank < 0.1 < 0.1 < 10

Method Blank < 0.1 < 0.1 < 10

Date Submitted: 02-Mar-15
Invoice No.: A15-01280
Invoice Date: 12-Mar-15
Your Reference: FRP-ROCKS

Hermann Daxl
39-630 Riverpark Road
Timmins Ontario P4P 1B4
Canada

ATTN: Hermann Daxl

CERTIFICATE OF ANALYSIS

7 Rock samples were submitted for analysis. *to be fine crushed < 2mm, then 800 g pulped (5337 is sand ~65g)*
The following analytical package was requested: Code 1C-OES-Timmins Fire Assay ICPOES - *30 g, for Au Pt Pd*
Code 1E3-Timmins Aqua Regia ICP(AQUAGEO) - *ICP/OES*

REPORT A15-01280

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

Notes:

Values which exceed the upper limit should be assayed for accurate numbers.

CERTIFIED BY:



Emmanuel Esemé, Ph.D.
Quality Control

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Activation Laboratories Ltd.

Report: A15-01280

Results 30 g F.A. - OES

IE3 - ICP/OES - AQUA REGIA - 0.5 g aliquots of 800 g PULPS (5337 is 65g sand)

Analyte Symbol	Au	Pd	Pt	Ag	Cd	Cu	Mn	Mo	Ni	Pb	Zn	Al	As	B	Ba	Be	Bi	Ca	Co	Cr	Fe	Ga	Hg
Unit Symbol	ppb	ppb	ppb	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm
Lower Limit	2	5	5	0.2	0.5	1	5	1	1	2	2	0.01	2	10	10	0.5	2	0.01	1	1	0.01	10	1
Method Code	FA-ICP	FA-ICP	FA-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
5331	< 2	< 5	< 5	< 0.2	< 0.5	29	195	< 1	9	7	20	1.06	< 2	< 10	27	< 0.5	< 2	1.26	7	14	1.49	< 10	< 1
5332	< 2	< 5	< 5	0.2	< 0.5	358	297	< 1	19	4	29	1.45	< 2	< 10	18	< 0.5	< 2	1.38	18	14	3.41	< 10	< 1
5333	< 2	< 5	< 5	< 0.2	< 0.5	197	542	< 1	36	< 2	46	2.02	< 2	< 10	21	< 0.5	< 2	2.25	25	26	4.46	< 10	< 1
5334	2	< 5	< 5	< 0.2	< 0.5	42	777	< 1	35	3	64	1.85	< 2	< 10	59	< 0.5	< 2	2.92	15	52	2.80	< 10	< 1
5335	< 2	7	9	< 0.2	< 0.5	71	1460	< 1	310	< 2	11	1.30	< 2	< 10	56	< 0.5	< 2	5.58	17	648	2.04	< 10	< 1
5336	< 2	< 5	< 5	0.2	< 0.5	82	328	56	5	5	34	0.97	< 2	< 10	46	< 0.5	< 2	0.09	2	33	2.91	< 10	< 1
5337	6	9	8	0.2	< 0.5	90	1730	< 1	892	< 2	27	2.49	< 2	< 10	78	< 0.5	2	1.12	48	1450	4.74	< 10	< 1

Activation Laboratories Ltd.

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Results

Analyte Symbol	K	La	Mg	Na	P	S	Sb	Sc	Sr	Ti	Te	Tl	U	V	W	Y	Zr
Unit Symbol	%	ppm	%	%	%	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Lower Limit	0.01	10	0.01	0.001	0.001	0.01	2	1	1	0.01	1	2	10	1	10	1	1
Method Code	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP	AR-ICP
5331 1500 g	0.09	< 10	0.31	0.104	0.011	0.04	< 2	4	6	0.09	< 1	< 2	< 10	41	< 10	3	12
5332 1800 g	0.08	< 10	0.60	0.139	0.033	0.21	< 2	7	6	0.16	2	< 2	< 10	70	< 10	5	9
5333 1800 g	0.13	< 10	1.09	0.302	0.043	0.18	2	15	12	0.19	1	< 2	< 10	139	< 10	11	6
5334	0.12	< 10	1.12	0.058	0.046	0.10	< 2	7	63	0.28	1	< 2	< 10	73	< 10	5	8
5335 2080 g	0.17	< 10	0.45	0.056	0.040	0.01	9	6	34	0.09	3	< 2	< 10	46	< 10	5	5
5336 1550 g	0.30	< 10	0.76	0.060	0.007	0.50	< 2	2	4	0.07	< 1	< 2	< 10	60	< 10	2	26
5337 65g sand	0.19	< 10	1.80	0.163	0.012	< 0.01	10	8	10	0.09	2	< 2	< 10	83	< 10	5	3



Topography in 3 D - West
NW of Bartlett Lake, Fripp Township



Topography in 3 D - East
NW of Bartlett Lake, Fripp Township