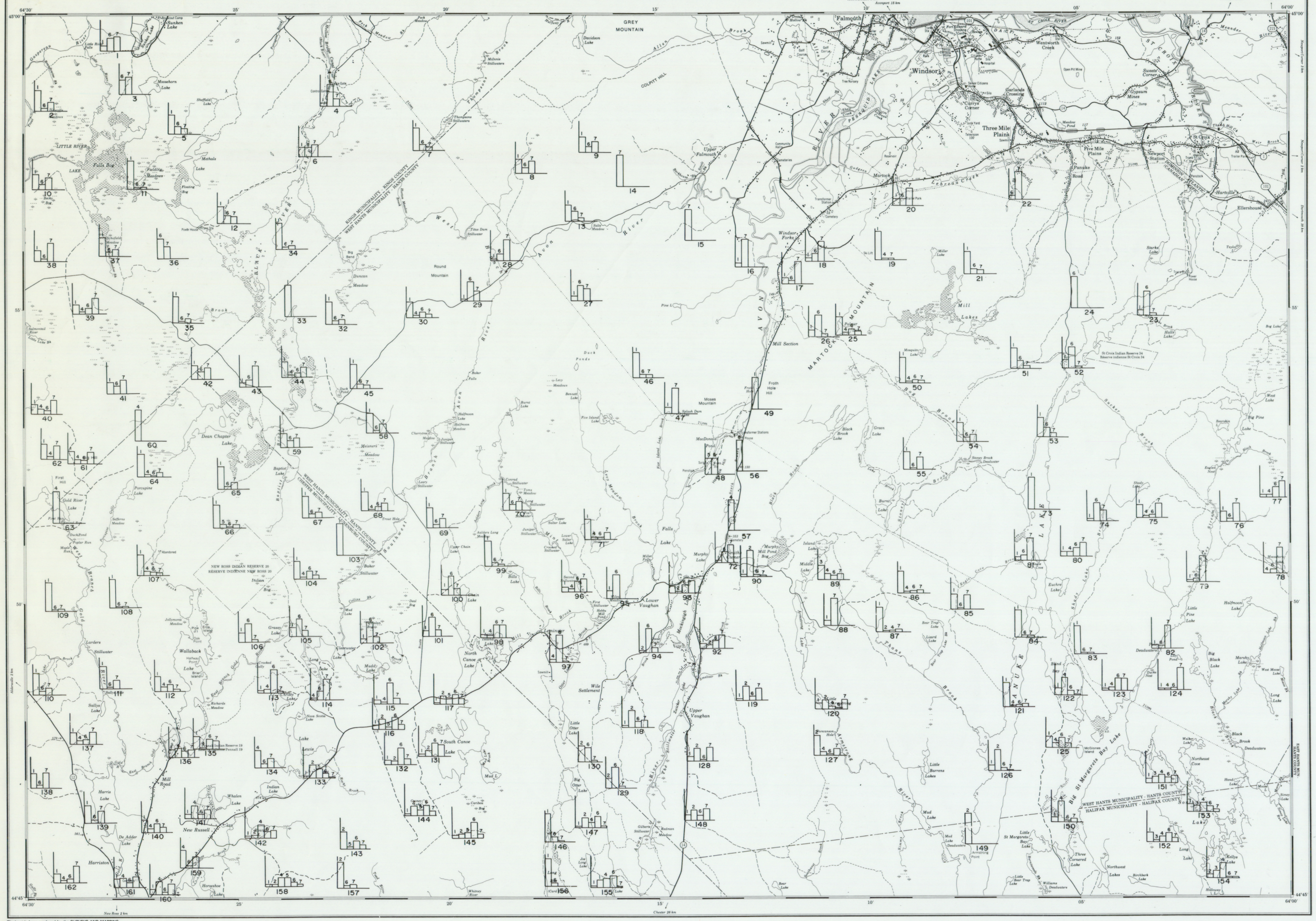


Planimetric base produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1977. Culture check 1977. Published in 1980.

OPEN FILE MAP 88-052

PRELIMINARY

TILL GEOCHEMISTRY and TILL CLAST GEOLOGY of WINDSOR MAP SHEET

NTS 21A/16

SOUTH MOUNTAIN BATHOLITH PROJECT

F. J. BONER, R. M. GRAVES and P. W. FINCK

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

Jack MacIsaac, Minister

John J. Laffin, D. Eng., FEIC, P. Eng., Deputy Minister

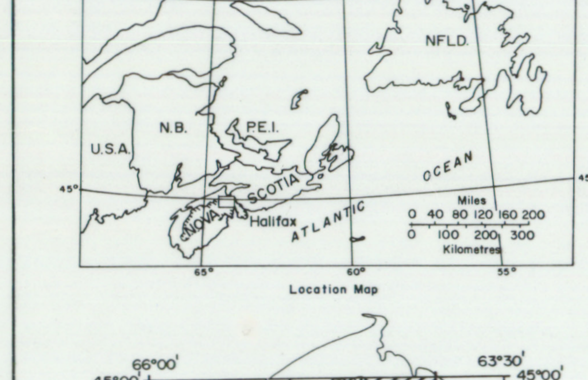
HALIFAX, NOVA SCOTIA

1989

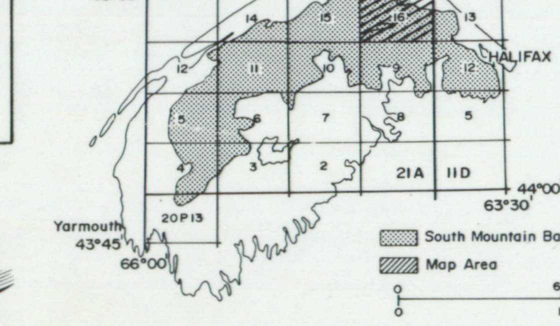
Kilometres 1 0 1 2 3 4

Miles 1 0 1 2

1:50,000



Location Map



Nova Scotia Department of Mines and Energy

Canada ~ Nova Scotia Mineral Development Agreement

LEGEND

Till Clast Lithologies

1 Biotite granodiorite/monzogranite: color varies: dark grey, medium grey, pink; fine- to coarse grained; K-feldspar megacrysts (2-3 cm); 8-20% biotite; 0% muscovite; frequently hematized; bedrock sources are granodiorite, Sandy Lake Monzogranite[1], Salmontail Monzogranite, Gaspereaux Lake Monzogranite and Sherwood Monzogranite

2 Biotite ± muscovite ± cordierite leucomonzogranite: color varies: light grey, buff, pink; medium- to coarse grained; K-feldspar megacrysts are rare; 5% biotite; 0-2% muscovite; feldspar cores are frequently saussuritized or hematized; bedrock source is the New Ross Leucomonzogranite

3 Porphyry: color varies: dark grey, light grey, buff; fine- to medium grained inequigranular matrix; megacrysts of quartz (3-7 mm), and plagioclase and K-feldspar (10-20 mm); 5-20% biotite; 0-3% muscovite; bedrock sources are mafic porphyry bodies and the Panuke Lake Leucomonzogranite

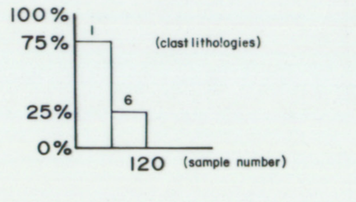
4 Biotite ± muscovite leucomonzogranite: color varies: pink, white, orange, grey, red; fine- to medium grained and fine grained equigranular; fine- to medium grained variety contains rounded quartz megacrysts (3-4 mm); 3-5% biotite; 0-2% muscovite; bedrock source is the Panuke Lake Leucomonzogranite, Gold River Leucomonzogranite and Big Indian Polyphase Intrusive

5 Leucocratic granites: color varies: white, light buff, pink; fine- to medium grained and medium grained equigranular; 0% biotite; 0-3% muscovite; this unit includes leucocratic monzogranite and felsic dyke rocks; bedrock sources are the Lake Lewis Leucogranite, Burnt Blanket Hill Leucogranite and dyke rocks intrusive into the major granite bedrock units

6 Meguma Group: grey to green wacke; light grey, greyish-black, green and red slate; includes gneissic rocks of the Hemlock Hill Complex

7 Foreign: (a) amygdaloidal and non-amygdaloidal basalt; mafic intrusives; (b) brown, green and red siltstone and sandstone; (c) slate; brown, green, red and tan meta-siltstone; quartzite; tuff; bedrock sources are the North Mountain basalt, Carboniferous and Triassic sedimentary basins, Cobequid Highlands, White Rock Formation, and may also include the Kentville and New Canaan Formations

1 All bedrock granite units after Ham and Horne (1987) and Ham (1988).



This illustration shows the system of lithological representation used on the map. Each bar represents a clast type. The bar height denotes the precentage of that clast type in the pebble fraction of the till. Clast lithologies on histograms are keyed to the legend and to the clast lithology data table. Axis of histogram defines sample location.

NOTES

Data Treatment and Presentation

Till geochemical data has been subdivided into five populations after the till nomenclature of Finck et al. 1988. The tills are categorized as follows: granite tills (GTA, GTB and GTC), Meguma Group tills (STB, GWB and GWC), Lawrencetown Till (LT), Horton Till (HT), and ice contact stratified drift (ICSD).

In the granite till population As, Sb, Cu, Pb, Zn, W, Rb, Ta, U, Li, Fe and Mn have anomalous values defined as being ≥ the 95th percentile of the cumulative frequency distribution. Sc, Cr Ba and Th are expected to show decreasing values with increasing differentiation in granitoids and are considered anomalous in this population if the value is ≤ the 5th percentile. Values for all elements ≥ the 95th percentile in the Lawrencetown Till population are regarded as anomalous. The Meguma Group tills were sampled in the exo-contact zone of the South Mountain Batholith and as such dilution by granitic material is common. A better representation of average elemental abundance in slate and greywacke tills is presented in Stea and O'Reilly (1982).

Threshold values for elements within each population have been calculated using the entire data from NTS mapsheet 21A/16. Basic statistics are shown in the statistics table. Map numbers correspond to both the till clast and geochemical sample locations. For statistical purposes samples with values less than detection limit were halved. Threshold values given in the statistics table are approximate.

Raw heavy mineral analytical values for W, were weighted as in Toverud (1982) using the formula:

$$Awv = Arv \times W1/W2$$

where

Awv = weighted analytical value (ppm/ppb)
Arv = raw analytical value (ppm/ppb)
W1 = weight of heavy minerals in -50+230 fraction
W2 = total weight of the -50+230 fraction used in the heavy mineral separation.

This method of representing geochemical data corrects for (1) the problem of weight variation among heavy mineral concentrates in a till sample population and (2) unequal weight of initial sample size. Raw analytical values are not comparable unless normalized against the weight fraction of 'heavies' in the total till. Toverud's formula produces a calculated analytical value that represents the 'ppm/ppb level' of the element in the whole till.

Sample Preparation and Analytical Methods

Till matrix (<1.25 cm) from each sample site was submitted to Minerals Engineering Centre at Technical University of Nova Scotia for sample preparation. The -50+230 and the -230 mesh fraction were wet sieved from a 5 kg sample of till matrix. Heavy minerals were extracted from the -50+230 fraction of the till matrix by heavy liquid separation using tetrabromethane. The heavy mineral concentrate was analyzed for W and Au by neutron activation (NA). The -230 fraction of the till was analyzed at Bondar-Clegg Ltd. for Sc, Cr, Ni, Ba, Th, As, Sb, W, Rb, Ta and U by neutron activation (gold + 33 package). It was also analyzed for Cu, Pb, Zn, Fe and Mn by atomic absorption (AA) using a partial extraction and Li using a total extraction.

Till clasts (>1.25 cm) were separated from 8-9 kg of till, at each sample site. The clasts were classified and counted to determine the relative percentages of each lithology present. The method of representation is shown on the histogram illustration.

References

Finck, P.W., Graves, R.M., Boner, F.J., and Bent, H.W. 1988: Glacial and till clast geology of Windsor, (N.T.S. Sheet 21A/16); Nova Scotia Department of Mines and Energy, Open File Map 88-014, scale 1:50 000.

Ham L. J. 1988: Geological map of Windsor, (N.T.S. Sheet 21A/16, West Half); Nova Scotia Department of Mines and Energy, Open File Map 88-015, Scale 1:50 000.

Ham, L.J., and Horne, R.J. 1987: Geological map of Windsor, (N.T.S. Sheet 21A/16, east half); Nova Scotia Department of Mines and Energy, Map 87-7, Scale 1:50 000.

Stea, R.R. and O'Reilly, G.A. 1982: Till geochemistry of the Meguma Terrane in Nova Scotia and its metallogenic implications; in Prospecting in Areas of Glaciated Terrain, 1982, ed. P. H. Davenport; Canadian Institute of Mining and Metallurgy, p. 82-104.

Toverud, O. 1982: Geochemical prospecting for tin in upper central Sweden using heavy mineral concentrate of glacial till; in Prospecting in Areas of Glaciated Terrain, 1982, ed. P. H. Davenport; Canadian Institute of Mining and Metallurgy, p. 204-212.

OFM 88-052 21A/16

TILL CLAST LITHOLOGIES

MAP#	TILL TYPE	1	2	3	4	5	6	7a	7b	7c
1	LT	15	0	0	0	0	41	23	0	21
2	GTB	64	0	0	0	0	7	24	0	5
3	LT	0	0	0	0	0	48	33	7	12
4	STB	8	0	0	0	0	69	11	6	6
5	GTB	62	0	0	0	0	21	7	0	10
6	LT	30	0	0	0	0	30	14	2	24
7	GTB	70	0	0	0	0	19	5	1	5
8	GTB	45	0	0	0	0	17	14	14	10
9	GTB	50	0	0	0	0	17	6	17	10
10	LT	48	0	0	0	0	15	29	0	8
11	GTB	90	0	0	0	0	5	0	0	5
12	LT	51	0	0	0	0	25	7	10	7
13	GTB	52	0	0	0	0	35	9	0	4
14	HTB	0	0	0	0	0	0	0	100	0
15	LT	0	0	0	0	0	0	0	100	0
16	LT	13	0	0	0	0	0	2	85	0
17	ICSD	20	0	0	0	0	10	0	0	70
18	LT	10	0	0	0	0	25	3	46	16
19	GTB	91	0	0	4	0	0	0	5	0
20	LT	0	0	0	22	0	21	6	7	44
21	LT	71	0	0	0	0	16	4	8	1
22	LT	0	0	0	0	0	14	2	50	34
23	STB	16	0	0	0	0	76	0	1	7
24	GWB	0	0	0	0	0	100	0	0	0
25	GTB	59	0	0	7	0	20	1	4	9
26	ICSD	20	0	0	0	0	70	0	0	10
27	LT	14	0	0	0	0	48	7	17	14
28	LT	5	0	0	0	0	23	7	37	28
29	LT	6	0	0	0	0	62	6	20	6
30	GTB	63	0	0	7	0	18	7	1	4
31	GTB	100	0	0	0	0	0	0	0	0
32	GTB	72	0	0	0	0	12	8	1	7
33	GTB	100	0	0	0	0	0	0	0	0
34	GTB	83	0	0	0	0	6	8	1	2
35	GTB	83	0	0	0	0	4	5	2	6
36	LT	0	0	0	0	0	63	25	2	10
37	GTB	62	0	0	0	0	15	13	2	8
38	LT	33	0	0	0	0	28	33	5	1
39	LT	27	0	0	6	0	17	27	0	23
40	GTB	31	0	0	14	0	11	29	2	13
41	LT	34	0	0	0	0	36	25	0	5
42	GTA	42	0	0	0	0	23	25	0	10
43	LT	13	0	0	0	0	20	59	0	8
44	LT	50	0	0	6	0	12	17	0	15
45	GTB	75	0	0	0	0	14	9	0	2
46	GTB	80	0	0	0	0	10	3	1	6
47	LT	20	0	0	0	0	0	9	46	25
48	GTB/GWB	0	0	0	0	50	50	0	0	0
49	GTB	100	0	0	0	0	0	0	0	0
50	GTB	81	0	0	4	0	8	0	0	7
51	LT	65	0	0	0	0	25	5	0	5
52	LT	27	0	0	0	0	67	3	3	0
53	GTB	59	0	0	0	0	29	0	1	11
54	GTB	60	0	0	0	0	15	3	8	14
55	LT	55	0	0	0	0	5	0	5	35
56	GWB	0	0	0	0	0	100	0	0	0
57	GTB	0	0	0	100	0	0	0	0	0
58	GTC	63	0	0	0	0	9	17	0	11
59	LT	44	0	0	0	0	24	22	2	8
60	GTB	0	0	0	100	0	0	0	0	0
61	LT	40	0	0	13	0	11	28	0	8
62	GTB	48	0	0	0	0	9	28	1	14
63	GTB	0	0	0	100	0	0	0	0	0
64	GTB	74	0	0	7	0	4	11	0	4
65	GTB	72	0	0	0	0	8	7	3	10
66	GTB	73	0	0	0	11	4	6	0	6
67	GTB	68	0	0	0	0	14	9	0	9
68	GTB	60	0	0	4	0	12	12	0	12
69	GTA	63	0	0	0	0	8	17	0	12
70	LT	55	0	0	0	0	17	13	9	6
71	GTB	64	0	0	7	0	8	9	0	12
72	LT	8	0	0	0	0	36	1	12	43
73	GTB	100	0	0	0	0	0	0	0	0
74	LT	7	0	0	0	0	59	17	17	0
75	LT	40	0	0	5	0	10	6	6	33
76	LT	32	0	0	0	0	10	8	15	35
77	LT	8	0	0	8	0	33	8	2	41
78	LT	0	0	0	4	0	12	0	23	61
79	LT	6	0	0	0	0	11	13	30	40
80	LT	14	0	0	15	0	26	6	6	33
81	LT	12	0	0	0	0	18	0	26	44
82	LT	12	0	0	0	0	11	7	23	47
83	GTB	90	0	0	0	0	5	2	0	3
84	GTB	88	0	0	0	0	5	0	7	0
85	LT	50	0	0	0	0	4	9	26	11
86	GTB	70	0	0	7	0	11	0	7	5
87	LT	79	5	0	6	0	3	0	4	3
88	LT	15	0	0	0	0	0	12	11	62
89	LT	46	0	0	20	0	14	8	5	7
90	GTB	8	82	0	0	0	7	1	2	0
91	LT	-	-	-	-	-	-	-	-	-
92	LT	17	12	0	0	0	26	2	2	41
93	LT	22	5	0	0	0	29	5	14	25
94	LT	0	5	0	0	0	78	2	5	10
95	GWB	25	0	0	0	0	75	0	0	0
96	LT	16	0	0	10	0	35	18	13	8
97	LT	0	0	0	9	0	86	0	0	5
98	LT	11	0	0	9	0	40	24	1	15
99	GTB	80	0	0	0	0	14	2	2	2
100	LT	17	0	0	0	0	62	12	0	9
101	GWB	18	0	0	0	0	60	17	4	1
102	GWB	13	0	0	0	0	68	6	0	13
103	GTB	100	0	0	0	0	0	0	0	0
104	GTB	57	0	0	5	0	25	7	0	6
105	GWB	27	0	0	0	0	54	9	2	8
106	GWB	30	0	0	0	0	61	9	0	0
107	GTB	67	0	0	13	0	11	7	0	2
108	GTB	92	0	0	0	0	3	5	0	0
109	GTB	90	0	0	0	0	4	2	0	4
110	GTB	69	0	0	0	0	11	14	0	6
111	LT	70	0	0	0	0	4	17	0	9
112	LT	49	0	0	16	0	24	11	0	0
113	GWB	8	0	0	11	0	73	8	0	0
114	LT	0	0	0	6	0	29	61	4	0
115	GWC	10	0	0	5	0	67	5	0	13
116	GTA	12	30	0	0	5	37	0	0	16
117	LT	5	27	0	0	20	26	8	0	14
118	GTB	5	54	0	0	0	18	5	2	16
119	LT	4	45	0	0	0	13	0	7	31
120	LT	19	31	0	11	0	6	5	13	15
121	GTB	77	0	0	5	0	7	4	3	4
122	GTB	22	0	0	57	0	17	0	0	4
123	LT	8	0	0	12	0	40	5	17	18
124	LT	4	0	0	4	0	4	15	34	39
125	LT	36	0	0	14	0	33	2	8	7
126	GTB	17	67	0	0	0	10	1	0	5
127	LT	0	64	0	13	0	5	1	6	11
128	LT	14	40	0	0	0	11	2	0	33
129	LT	0	30	0	0	0	65	2	0	3
130	GTB	0	50	0	0	0	46	0	0	4
131	LT	7	16	0	0	0	41	10	0	26
132	LT	15	11	0	0	0	54	6	0	14
133	LT	5	45	0	0	29	15	1	0	5
134	LT	0	0	0	56	0	14	14	0	16
135	LT	39	0	0	4	0	31	16	0	10
136	LT	25	0	0	30	0	20	15	0	10
137	LT	36	0	0	11	0	15	28	3	7
138	LT	46	0	0	0	0	7	33	0	14
139	LT	55	0	0	0	0	7	23	4	11
140	GTB	43	0	0	12	0	28	14	0	3
141	LT	13	0	0	44	0	14	21	0	8
142	LT	6	8	0	42	0	20	11	0	13
143	LT	0	55	0	0	7	25	7	6	0
144	LT	6	28	0	0	18	33	2	0	13
145	LT	9	13	0	0	15	49	9	0	5
146	GTB	0	80	0	0	0	15	0	0	5
147	LT	5	33	0	17	0	38	7	0	0
148	LT	16	32	0	0	0	15	1	0	36
149	GTB	0	100	0	0	0	0	0	0	0
150	GTB	0	15	0	67	0	5	2	0	11
151	LT	14	0	20	26	0	17	2	8	13
152	GTA	32	0	5	19	0	29	3	0	12
153	GTB	24	0	20	28	0	18	7	0	3
154	GTB	0	12	26	50	0	6	0	2	4
155	GTB	4	25	0	29	0	38	0	0	4
156	GTB	0	88	0	0	0	12	0	0	0
157	GTB	0	80	0	0	0	9	6	0	5
158	GTB	8	8	0	29	29	15	0	0	11
159	LT	0	0	0	56	0	8	36	0	0
160	LT	17	0	0	42	0	9	17	0	15
161	GTC	26	0	0	27	0	14	33	0	0
162	LT	29	0	0	7	0	12	30	0	22

TILL GEOCHEMISTRY

MAP#	TT.	Sc	Cr	Ni	Ba	Th	As	Sb	W	Rb	Ta	U	Pb	Zn	Cu	Li	Fe	Mn	Wrv	Wwv	W1	W2
1	LT	15.0	76	39	400	15.0	10.0	0.6	2	87	1.8	3.6	7	31	20	32	1.7	380	10	0.136	6.10	450
2	GTB	15.0	60	<20	420	19.0	15.0	0.5	3	92	1.4	4.0	16	54	22	41	2.4	414	<10	-	12.60	450
3	LT	13.0	68	26	390	10.0	9.1	0.6	2	85	1.2	2.3	10	34	22	36	2.5	298	<10	-	3.52	450
4	STB	15.0	90	44	440	14.0	63.8	2.4	2	85	1.4	3.8	13	55	29	44	2.7	342	10	0.227	10.20	450
5	GTB	15.0	55	21	420	18.0	11.0	0.6	3	120	1.7	6.6	12	53	23	61	2.6	479	<10	-	9.28	449
6	LT	16.0	52	25	520	16.0	25.0	1.2	2	110	1.8	4.4	13	59	26	51	2.5	549	<10	-	6.87	450
7	GTB	15.0	74	29	510	25.9	13.0	0.6	2	130	1.6	4.8	15	81	18	63	2.4	369	<10	0.109	6.76	467
8	GTB	15.0	50	24	510	16.0	13.0	0.7	4	130	1.7	4.3	18	68	17	88	2.5	573	<10	-	4.96	450
9	GTB	18.0	74	32	560	15.0	19.0	1.8	4	160	1.7	4.4	36	111	23	89	2.8	572	10	0.133	5.98	450
10	LT	12.0	50	24	410	14.0	8.1	0.5	2	100	1.5	3.3	9	48	13	43	2.0	382	20	0.044	1.00	450
11	GTB	12.0	71	21	300	15.0	10.0	0.4	1	59	1.2	4.1	15	53	15	54	2.8	278	10	0.146	6.68	457
12	LT	15.0	75	20	450	15.0	14.0	0.6	2	130	1.8	5.0	15	60	29	60	2.8	428	10	0.045	2.04	450
13	GTB	16.0	61	<20	620	15.0	14.0	0.9	3	130	1.7	4.9	25	82	19	71	2.5	672	10	0.156	7.02	450
14	HTB	15.0	78	35	520	13.0	22.0	1.1	4	110	1.5	4.6	24	51	31	79	2.5	1428	10	0.050	2.25	450
15	LT	11.0	57	<20	400	15.5	14.0	0.8	7	110	1.8	4.9	16	41	16	77	1.8	748	20	0.193	2.95	305
16	LT	13.0	78	30	540	15.0	20.0	1.0	5	140	1.8	5.1	16	49	23	70	2.6	917	20	0.045	1.02	450
17	ICSD	16.0	96	23	550	22.6	42.0	0.6	2	95	1.4	5.6	IS	IS	IS	69	IS	IS	10	0.324	3.37	104
18	LT	10.0	49	27	510	11.0	9.5	0.8	2	90	1.6	3.2	13	42	15	41	2.0	1045	<10	-	3.42	450
19	GTB	12.0	45	22	470	19.0	25.0	0.5	2	140	1.6	4.5	33	108	14	71	2.8	498	<10	-	0.96	431
20	LT	11.0	55	<20	500	24.0	11.0	0.6	3	85	1.4	5.7	17	46	14	50	1.8	543	10	0.046	2.09	450
21	LT	14.0	65	<20	540	18.0	12.0	0.6	2	130	1.3	4.6	28	99	15	51	2.5	546	10	0.070	3.16	450
22	LT	8.8	66	<20	430	11.0	6.0	0.6	2	77	1.3	3.0	10	32	9	32	1.4	426	10	0.086	2.83	328
23	STB	17.0	110	<20	570	16.0	67.2	0.3	8	140	1.9	4.9	33	55	20	86	2.8	189	20	0.624	14.00	449
24	GWB	13.0	65	33	470	12.0	27.0	0.4	2	97	1.2	5.8	37	47	26	43	2.4	387	<10	-	2.31	422
25	GTB	11.0	57	<20	390	30.8	11.0	0.4	1	75	1.3	5.4	45	81	17	45	2.8	1345	10	0.139	6.26	450
26	ICSD	11.0	77	29	440	17.0	40.0	0.6	2	70	1.2	4.5	106	77	33	57	4.1	223	15	0.161	4.85	453
27	LT	14.0	50	20	430	12.0	13.0	0.9	3	100	1.2	16.0	23	131	28	56	2.2	476	10	0.068	3.06	450
28	LT	16.0	66	<20	590	14.0	17.0	1.0	3	140	1.5	3.6	19	104	32	69	2.9	986	30	0.251	3.77	450
29	LT	15.5	64	24	720	12.5	13.5	0.8	4	130	1.6	4.4	13	53	32	84	2.6	501	10	0.031	1.39	450
30	GTB	17.0	76	24	530	13.0	14.0	0.7	3	150	1.5	4.9	16	53	36	72	2.8	535	10	0.104	4.66	450
31	GTB	15.0	68	22	420	16.0	24.0	0.7	3	160	1.9	10.0	26	60	132	94	2.9	505	10	0.200	6.26	313
32	GTB	12.0	46	<20	490	13.0	11.0	0.6	3	140	1.7	4.6	15	59	19	55	1.8	492	10	0.125	5.62	450
33	GTB	15.0	44	<20	440	21.2	7.2	0.4	2	220	1.9	5.0	NA	NA	NA	128	NA	NA	<10	-	2.55	477
34	GTB	15.0	54	26	490	21.1	10.0	0.7	2	150	2.0	6.3	12	67	21	75	2.9	464	10	0.089	4.00	450
35	GTB	13.0	41	<20	390	19.0	8.2	0.4	<1	150	1.3	5.5	NA	NA	NA	NA	NA	NA	10	0.077	3.59	467
36	LT	15.0	75	32	510	13.0	12.0	0.6	2	130	1.4	4.0	12	51	25	52	2.7	605	10	0.142	6.38	449
37	GTB	17.0	56	25	570	20.0	15.0	0.6	4	130	1.9	5.7	22	51	23	48	2.5	541	10	0.087	3.93	450
38	LT	16.0	72	23	590	12.0	10.0	0.6	3	150	1.8	3.3	9	51	22	54	2.7	642	<10	-	4.88	450
39	LT	14.0	58	<20	420	20.4	11.0	0.5	3	110	1.5	5.1	13	42	21	45	2.1	494	10	0.304	6.60	217
40	GTB	15.5	55	<20	480	17.5	11.5	0.5	3	125	1.8	4.3	12	47	23	58	2.1	402	10	0.292	13.10	449
41	LT	16.0	68	32	480	12.0	10.0	0.5	2	120	1.6	3.3	10	50	20	49	2.5	616	<10	-	2.06	450
42	GTA	15.0	55	23	430	16.0	10.0	0.5	2	95	1.6	3.9	9	35	17	38	1.7	335	10	0.216	7.70	357
43	LT	17.0	71	<20	450	14.0	11.0	0.6	2	120	1.5	3.8	11	51	25	50	2.7	524	10	0.018	0.89	494
44	LT	14.0	67	21	460	19.0	10.0	0.7	2	110	1.7	4.6	NA	NA	NA	NA	NA	NA	10	0.067	3.01	450
45	GTB	17.0	53	20	470	17.0	13.0	0.7	2	160	1.9	5.8	14	66	27	75	2.9	646	<10	-	2.45	450
46	GTB	10.0	49	<20	470	19.0	6.9	0.3	5	97	1.4	4.2	20	69	11	50	1.9	328	<10	-	3.07	421
47	LT	12.0	49	<20	480	14.0	11.0	0.9	2	110	1.3	3.8	24	80	16	57	2.1	734	10	0.046	1.80	388
48	GTB\GWB	11.0	48	20	460	16.0	31.0	0.4	5	110	1.5	7.0	32	126	29	44	2.2	959	30	0.143	1.64	343
49	GTB	17.0	67	<20	430	23.6	15.0	0.4	6	110	2.3	8.4	32	85	19	66	3.1	871	20	0.059	1.32	450
50	GTB	13.0	37	<20	430	40.9	9.2	0.4	<1	110	1.9	7.5	NA	NA	NA	49	NA	NA	<10	-	6.19	826
51	LT	20.1	74	<20	720	15.0	14.0	1.0	2	170	1.8	4.0	40	154	25	73	3.6	839	<10	-	2.30	319
52	LT	9.2	47	<20	410	11.0	5.8	0.4	1	82	1.3	3.1	27	42	11	41	1.7	273	10	0.044	1.95	448
53	GTB	9.4	45	<20	450	20.0	4.9	0.3	1	95	1.2	4.0	13	41	8	37	1.6	364	<10	-	5.58	450
54	GTB	12.0	73	27	340	20.5	11.0	0.6	2	95	1.5	5.7	19	68	13	49	2.5	549	<10	-	5.48	450
55	LT	14.0	63	<20	560	20.8	10.0	0.4	<1	140	1.5	5.2	24	92	13	48	2.5	533	<10	-	1.76	450
56	GWB	21.9	110	32	640	25.0	63.6	0.3	3	160	1.9	5.9	29	152	105	88	4.7	788	10	0.495	14.80	299
57	GTB	8.5	52	<20	390	17.0	11.0	0.3	3	200	1.9	6.3	29	159	16	87	2.0	413	30	0.084	1.01	360
58	GTC	15.0	55	21	430	18.0	10.0	0.6	2	100	1.7	5.1	10	47	18	47	2.1	426	10	0.236	10.60	450
59	LT	15.0	59	29	440	15.0	8.8	0.5	2	100	1.6	4.4	11	52	26	48	2.1	471	10	0.400	18.00	450
60	GTB	9.2	25	<20	480	8.2	7.6	0.3	11	240	3.8	6.1	20	80	20	54	1.8	461	20	0.050	0.87	348
61	LT	16.0	69	24	450	13.0	12.0	0.5	3	120	1.5	3.6	12	68	29	58	2.8	585	<10	-	1.90	450
62	GTB	15.5	55	21	365	18.0	8.2	0.5	2	92	1.7	4.4	9	39	18	42	1.7	395	10	0.327	14.70	450
63	GTB	11.0	36	<20	490	11.0	12.0	0.3	4	180	2.2	4.6	33	98	15	57	1.5	405	10	0.017	0.75	451
64	GTB	16.0	48	26	580	18.0	10.0	0.3	2	160	1.7	4.7	13	74	21	69	2.2	584	<10	-	3.11	417
65	GTB	13.0	40	20	400	19.0	7.9	0.4	3	120	1.7	6.3	17	49	15	51	2.0	332	10	0.269	4.19	156
66	GTB	17.0	61	<20	460	16.0	10.0	0.5	3	140	2.0	6.6	14	60	17	65	2.5	459	<10	-	5.68	449
67	GTB	13.0	61	23	400	14.0	8.7	0.5	3	110	1.4	4.7	12	42	14	57	2.3	274	10	0.128	5.78	450
68	GTB	15.0	60	21	470	15.0	12.0	0.7	3	130	1.7	4.9	14	66	20	65	1.9	402	10	0.087	3.91	450
69	GTA	13.0	52	<20	440	14.0	10.0	0.5	2	130	1.4	3.3	12	54	24	61	2.5	491	10	0.167	7.77	465
70	LT	11.0	35	<20	370	17.0	8.5	0.7	2	90	1.6	4.8	10	30	15	40	1.5	480	10	0.064	2.90	450
71	GTB	13.0	46	<20	490	23.7	14.0	0.7	2	120	1.6	6.4	18	55	18	53	2.0	496	<10	-	2.37	450
72	LT	8.8	52	<20	470	12.0	15.0	0.5	3	81	1.3	3.6	15	86	15	36	1.7	1039	20	0.167	3.83	459
73	GTB	12.0	33	20	480	23.0	12.0	0.3	<1	210	1.9	5.7	13	49	8	86	2.8	562	<10	-	6.98	450
74	LT	11.0	61	22	510	14.0	8.3	0.5	2	110	1.3	5.4	14	56	13	40	1.9	493	<10	-	2.88	450
75	LT	13.0	37	<20	590	21.7	8.3	0.4	<1	110	1.1	4.8	15	59	12	45	2.6	465	<10	-	3.05	450
76	LT	11.0	54	<20	490	23.2	6.4	0.4	1	100	1.2	5.0	10	47	9	38	1.8	297	10	0.050	2.24	450
77	LT	10.0	50	20	470	14.0	9.3	0.6	2	100	1.2	3.4	11	43	13	38	1.9	426	<10	-	1.68	450
78	LT	11.5	50	25	490	18.0	7.5	0.4	2	99	1.3	4.1	12	53	13	45	2.0	358	<10	-	1.79	450
79	LT	13.0	64	20	460	14.0	8.5	0.5	2	100	1.3	5.0	12	56	17	43	1.5	431	10	0.035	1.57	450
80	LT	13.0	67	<20	480	20.0	7.1	0.4	2	120	1.2	4.2	13	54	15	42	2.3	422	<10	-	0.46	450
81	LT	13.0	70	34	460	16.0	15.0	0.5	2	110	1.5	11.0	18	65	12	60	2.1	446	10	0.007	0.31	450
82	LT	11.0	42	<20	380	15.0	8.7	0.6	<1	100	1.6	4.3	14	51	14	41	1.9	382	10	0.040	1.95	482
83	GTB	13.0	60	<20	480	20.8	6.0	0.3	1	92	1.3	4.7	16	78	11	54	2.4	383	<10	-	4.28	406
84	GTB	11.0	70	<20	360	13.0	5.5	0.4	2	84	1.4	3.1	14	47	6	50	2.5	214	<10	-	2.21	329
85	LT	13.0	54	25	500	16.0	7.4	0.4	2	120	1.2	4.0	18	67	13	52	2.4	463	10	0.045	2.02	450
86	GTB	13.0	48	<20	550	19.0	8.4	0.4	<1	130	1.3	4.3	23	92	13	53	2.2	480	10	0.046	2.06	450
87	LT	9.5	47	<20	520	21.9	5.6	0.3	1	110	1.3	6.6	10	58	10	43	1.6	333	<10	-	1.79	450
88	LT	12.0	63	27	360	12.0	10.0	0.7	1	110	1.3	3.0	16	53	18	46	2.4	469	10	0.067	3.01	451
89	LT	9.0	44	<20	500	18.0	6.1	0.4	2	110	1.4	4.4	15	63	9	39	1.8	478	<10	-	1.65	450
90	GTB	9.0	36	<20	360	25.8	9.3	0.3	3	170	2.2	6.0	10	87	16	54	1.6	442	20	0.093	2.09	450
91	LT	13.0	56	<20	520	15.0	12.0	0.6	2	130	1.9	4.4	17	76	16	50	2.2	665	10	0.056	2.52	452
92	LT	12.0	54	<20	400	13.0	13.0	0.7	1	96	1.5	3.7	16	55	18	43	1.8	514	20	0.169	3.83	452
93	LT	10.0	52	21	400	12.0	9.0	0.7	3	95	1.5	3.1	NA	NA	NA	41	NA	NA	10	0.018	0.82	450
94	LT	12.0	52	<20	520	15.0	12.0	0.6	4	140	1.7	7.3	16	74	19	53	2.1	412	10	0.020	0.92	459
95	GWB	11.0	57	23	440	19.0	91.9	0.7	4	110	1.8	20.5	18	92	24	60	1.8	450	10	0.115	5.57	486
96	LT	13.0	51	<20	515	15.5	11.5	0.9	2	110	1.5	4.5	18	49	17	56	2.2	753	10	0.055	2.75	497
97	LT	13.0	58	<20	450	16.0	15.0	0.7	3	120	1.5	4.6	25	123	25	66	2.2	530	20	0.090	2.02	450
98	LT	15.0	63	26	620	12.0	10.0	0.6	5	180	1.9	3.6	13	65	21	67	2.4	651	10	0.032	1.45	450
99	GTB	13.0	44	<20	530	32.4	8.9	0.4	4	130	1.6	7.3	13	87	20	48	1.6	373	10	0.156	7.00	450
100	LT	14.0	57	23	510	15.0	11.0	0.6	3	120	1.5	4.2	15	54	23	54	2.2	443	10	0.088	3.98	450
101	GWB	15.0	63	26	480	12.0	15.0	0.7	4	130	1.5	9.0	12	66	23	56	2.5	616	10	0.074	3.33	450
102	GWB	15.0	68	48	510	14.0	89.9	0.5	5	120	1.7	3.8	27	94	40	53	2.2	369	30	0.308	4.62	450
103	GTB	15.0	100	72	440	23.2	456.0	0.6	7	140	1.4	17.0	42	319	27	154	1.4	358	<10	-	0.46	280
104	GTB	20.0	67	22	620	17.0	12.0	0.5	2	170	1.9	8.1	35	126	30	83	3.2	596	<10	-	3.13	450
105	GWB	14.0	84	37	460	14.0	19.0	0.5	2	120	1.4	3.6	24	105	25	51	2.4	436	10	0.105	4.73	450
106	GWB	17.0	70	21	560	16.0	14.0	0.4	3	150	1.6	6.4	29	130	36	63	2.8	626	20	0.077	1.74	450
107	GTB	15.0	51	<20	430	23.7	17.0	0.4	3	140	1.7	6.7	12	45	13	50	1.8	494	<10	-	11.40	372
108	GTB	11.0	45	<20	440	17.0	13.0	0.3	3	130	1.9	5.8	13	38	6	49	1.7	182	10	0.088	3.97	450
109	GTB	13.0	58	<20	490	18.0	12.0	0.4	5	140	2.0	5.3	14	66	13	58	2.4	353	10	0.101	4.69	463
110	GTB	11.0	49	<20	400	13.0	8.9	0.3	3	110	1.7	3.4	8	38	11	40	1.3	292	10	0.093	4.18	450
111	LT	17.0	65	25	440	14.0	11.0	0.5	2	130	1.9	4.5	10	46	20	48	1.7	407	10	0.107	4.82	450
112	LT	12.0	58	<20	380	16.0	8.1	0.3	3	120	1.4	4.4	12	54	18	47	1.9	392	<10	-	5.56	450
113	GWB	16.0	67	22	490	13.0	15.0	0.6	3	130	1.6	4.4	21	63	24	64	2.5	387	10	0.133	6.37	478
114	LT	15.0	63	<20	440	11.0	12.0	0.7	3	110	1.4	3.1	12	48	23	47	2.4	553	<10	-	5.57	450
115	GWC	9.0	42	21	400	13.0	18.0	0.3	4	120	1.7	3.3	17	58	18	51	1.2	201	10	0.110	4.97	450
116	GTA	12.0	42	<20	400	15.0	11.0	0.5	4	120	1.9	5.8	12	43	19	48	1.8	384	20	0.109	2.45	450
117	LT	10.0	51	21	440	14.0	15.0	0.6	4	145	2.4	4.8	13	40	14	68	2.1	285	20	0.321	7.23	450
118	GTB	17.0	82	54	480	14.0	19.0	1.0	4	120	1.6	6.0	23	106	38	72	1.8	797	10	0.401	5.94	148
119	LT	12.0	50	<20	360	14.0	12.0	0.6	3	140	1.9	6.2	17	76	22	57	2.3	497	<10	-	0.99	450
120	LT	11.0	47	<20	440	15.0	7.2	0.4	1	130	1.5	7.3	14	63	13	45	1.8	413	10	0.042	1.90	450
121	GTB	9.3	64	<20	420	21.6	5.5	0.3	<1	89	1.4	4.4	17	46	9	37	1.5	256	<10	-	4.12	450
122	GTB	6.3	36	<20	340	14.0	4.2	0.3	1	84	1.2	3.6	16	31	5	28	1.0	244	10	0.026	1.17	450
123	LT	15.0	81	38	490	13.0	13.0	0.7	2	120	1.1	3.4	20	62	21	51	2.4	541	10	0.046	2.06	452
124	LT	14.0	72	<20	510	14.0	13.0	0.7	2	120	1.1	3.9	21	51	23	50	2.5	495	20	0.137	3.09	452
125	LT	13.0	59	27	440	15.0	9.0	0.5	2	140	1.5	4.5	NA	NA	NA	58	NA	NA	10	0.099	2.91	293
126	GTB	8.9	31	<20	430	25.4	5.3	0.2	2	170	2.0	6.1	12	51	8	58	1.6	350	<10	-	4.54	435
127	LT	11.0	48	27	470	13.0	9.5	0.5	3	170	2.0	3.7	18	76	16	68	2.1	670	10	0.080	2.89	360
128	LT	16.0	46	<20	530	26.1	12.0	0.6	4	160	2.2	7.3	13	63	18	73	2.1	577	10	0.053	2.37	450
129	LT	12.0	51	24	510	11.0	20.0	0.6	7	200	2.4	4.5	28	245	26	80	2.1	571	50	0.650	3.91	301
130	GTB	10.0	51	22	380	13.0	27.0	0.6	7	150	2.2	4.8	24	128	37	60	1.3	442	30	0.442	6.36	432
131	LT	11.0	60	<20	370	13.0	11.0	0.4	3	110	1.8	3.3	12	38	14	47	1.4	258	10	0.109	4.91	450
132	LT	15.0	70	27	540	13.0	18.0	0.5	5	160	1.9	3.4	19	81	28	69	2.8	467	20	0.188	4.24	450
133	LT	13.0	54	20	360	12.0	11.0	0.5	4	160	2.1	4.7	IS	IS	IS	62	IS	IS	20	0.233	5.24	450
134	LT	16.0	76	29	380	13.0	11.0	0.6	3	140	2.0	4.0	NA	NA	NA	55	NA	NA	10	0.102	4.58	450
135	LT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	0.176	2.52	429
136	LT	11.0	45	<20	370	13.0	7.1	0.4	3	110	1.5	3.8	11	37	13	46	1.5	327	<10	-	5.45	426
137	LT	13.0	50	<20	350	13.0	7.8	0.5	2	100	1.6	3.3	10	37	16	40	1.7	353	<10	-	4.08	450
138	LT	15.0	60	23	430	11.0	10.0	0.5	4	130	1.8	3.4	12	51	19	55	2.2	524	<10	-	3.51	450
139	LT	14.0	61	23	430	16.0	13.0	0.6	3	120	1.7	5.8	NA	NA	NA	40	NA	NA	20	0.220	4.94	450
140	GTB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	0.144	6.47	450
141	LT	13.0	60	22	380	12.0	8.2	0.5	2	120	1.6	3.2	11	36	13	46	1.9	193	<10	-	2.97	390
142	LT	17.0	58	<20	440	14.0	15.0	0.7	4	140	1.7	4.9	14	53	28	58	2.3	439	20	0.149	3.36	452
143	LT	13.0	56	31	420	16.0	11.0	0.5	4	170	2.5	4.2	15	57	20	75	2.3	386	20	0.227	5.12	452
144	LT	11.0	57	20	380	14.0	14.0	0.5	6	210	2.9	3.5	14	49	18	91	1.7	294	20	0.210	4.39	418
145	LT	13.0	46	<20	430	12.0	14.0	0.5	4	160	2.2	4.5	17	54	23	71	2.1	395	<10	-	2.57	450
146	GTB	8.2	25	<20	330	24.3	12.0	0.2	8	230	3.4	5.9	9	44	22	71	1.5	209	40	0.385	4.35	452
147	LT	8.7	53	<20	380	15.0	7.9	0.5	4	150	2.5	4.0	11	44	14	54	1.3	271	40	0.097	1.17	483
148	LT	10.0	36	<20	400	15.0	9.3	0.6	3	120	1.9	3.8	16	43	12	50	1.5	481	NA	NA	1.34	450
149	GTB	6.5	<10	<20	260	17.0	9.2	0.2	4	310	4.2	8.7	11	29	4	82	1.2	189	20	0.082	1.84	450
150	GTB	9.4	61	24	380	10.0	10.2	0.6	2	105	1.7	3.4	16	47	8	53	1.7	212	<10	-	2.35	450
151	LT	10.0	39	<20	470	17.0	7.1	0.4	2	100	1.5	4.5	14	46	9	36	1.6	413	<10	-	0.75	408
152	GTA	9.2	47	<20	400	20.0	22.0	0.4	1	80	1.3	18.0	12	42	6	44	1.1	127	20	0.204	3.94	387
153	GTB	9.2	40	<20	470	18.0	4.9	0.3	3	98	1.6	4.5	NA	NA	NA	40	NA	NA	10	0.035	1.58	456
154	GTB	6.3	31	<20	430	17.0	6.7	0.2	1	130	1.4	4.7	10	30	5	36	0.9	168	10	0.044	2.00	450
155	GTB	8.1	29	<20	380	15.0	6.7	0.3	4	170	2.6	6.5	10	34	13	48	1.1	203	30	0.209	2.14	307
156	GTB	8.4	26	<20	270	20.0	262.0	0.2	13	260	3.1	12.0	14	90	58	88	1.5	253	NA	NA	2.74	488
157	GTB	14.0	60	<20	450	13.0	13.0	0.8	3	190	2.5	4.8	11	50	20	82	2.2	510	10	0.058	2.60	448
158	GTB	10.0	40	<20	380	14.0	9.3	0.4	5	150	2.7	8.9	8	24	9	70	1.2	125	10	0.111	5.03	452
159	LT	16.0	57	24	450	12.0	9.5	0.5	3	180	2.4	3.7	10	58	20	62	2.3	458	20	0.127	2.87	452
160	LT	13.0	66	20	390	13.0	6.6	0.4	3	160	2.3	7.3	12	36	13	55	1.4	288	<10	-	9.78	465
161	GTC	12.0	41	21	370	13.0	6.2	0.4	<1	110	1.8	3.4	5	23	10	36	0.9	178	<10	-	10.50	450
162	LT	14.0	61	21	440	13.5	9.5	0.5	2	120	1.6	3.4	9	45	16	41	1.9	371	10	0.077	3.46	450

STATISTICS

TILL TYPE	GRANITE TILL								LAWRENCETOWN TILL						
-230 MESH FRACTION ELEMENT	MIN	MAX	MEAN	STD	5th	90th	95th	N	MIN	MAX	MEAN	STD	90th	95th	N
Sc	6.3	20.0	12.6	3.1	8.1	-	-	65	8.7	20.1	13.0	2.3	16.0	16.5	80
Cr	<20.0	100.0	51.3	15.3	26.0	-	-	65	35.0	81.0	57.9	10.2	72.0	75.5	80
Ba	260.0	620.0	438.8	72.9	330.0	-	-	65	350.0	720.0	463.1	73.8	540.0	590.0	80
Th	8.2	40.9	18.4	5.4	13.0	-	-	65	10.0	26.1	14.8	3.1	19.5	21.8	80
As	4.2	456.0	21.9	62.6	-	19.0	25.0	65	5.6	25.0	10.9	3.4	15.0	17.5	80
Sb	0.2	1.8	0.5	0.2	-	0.7	0.8	65	0.3	1.2	0.6	0.2	0.8	1.0	80
W	<1.0	13.0	3.0	2.3	-	5.0	7.0	65	<1.0	7.0	2.7	1.3	4.0	5.0	80
Rb	59.0	310.0	137.8	45.8	-	200.0	230.0	65	77.0	210.0	123.5	27.3	160.0	175.0	80
Ta	1.2	4.2	1.8	0.6	-	2.5	3.1	65	1.1	2.9	1.6	0.4	2.2	2.4	80
U	3.1	18.0	5.9	2.6	-	8.4	10.0	65	2.3	16.0	4.5	1.8	6.0	7.3	80
Pb	5.0	45.0	17.2	8.5	-	32.5	35.3	62	7.0	40.0	15.0	5.5	23.4	27.3	73
Zn	23.0	319.0	67.2	42.3	-	106.0	126.0	62	30.0	245.0	60.6	31.3	89.5	123.0	73
Cu	4.0	132.0	19.1	17.2	-	27.0	34.5	62	9.0	32.0	18.4	5.8	26.4	29.0	73
Li	28.0	154.0	61.2	21.2	-	87.0	89.0	64	32.0	91.0	52.5	12.5	71.0	77.0	79
Fe	0.9	3.2	2.0	0.6	-	2.8	2.9	62	1.3	3.6	2.1	0.4	2.7	2.8	73
Mn	125.0	1345.0	423.3	195.6	-	585.0	685.0	62	193.0	1045.0	497.7	174.5	740.0	924.0	73

TILL TYPES

GTA	Granite Till A
GTB	Granite Till B
GTC	Granite Till C
STB	Slate Till B
GWB	Greywacke Till B
GWC	Greywacke Till C
LT	Lawrencetown Till
HT	Till Derived from Horton Bedrock
ICSD	Ice Contact Statified Drift

KEY

IS	insufficient sample
NA	not analyzed
400	Bold underlined numbers indicate anomalies ≥ 95th percentile or anomalies ≤ 5th percentile.
250	Underlined numbers indicate values ≥ 90th percentile but < 95th percentile.

Note: All values are in "ppm" except Fe ("wt. %").