GEOLOGICAL SURVEY OF CANADA

OPEN FILE 4025

Geochemical, grain size, mineralogical and chronological data from three shallow cores in the Red River Valley (Horseshoe Lake, Lake Louise, Manitoba and Salt Lake, North Dakota)

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2001

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Introduction

Present flood protection infrastructure in the Red River valley was originally designed to protect the area from flood magnitudes on the order of the 1950 flood and 1979 (3058 m^3s^{-1} and 3030 m^3s^{-1}, respectively at Redwood Station, Winnipeg) (data from Manitoba Water Resources). The 1997 flood (the third largest on record after the 1826 and 1852 floods) was much larger than the 1950 flood and the flood protection infrastructure was just sufficient to keep the river within its banks in the city of Winnipeg. Following this flood, the Red River Valley Flood Protection Program was created to enhance flood protection and flood management in southern Manitoba (Topping and Caligiuri, 1999). The program also funded a joint Geological Survey of Canada and Manitoba Geological Survey investigation of the paleo-flood history and geological controls on the flooding problem. One aspect of this study was to examine the lacustrine sediments of lakes along the Red River as an aid to reconstructing a paleo-flood record as well as the paleoenvironmental framework for the river valley.

This Open File report contains lithological (grain size and mineralogical), geochemical and chronological data of cores from the two channel scar lakes of the Red River (Horseshoe Lake and Lake Louise, Manitoba) and from Salt Lake, North Dakota. The purpose of this coring program was twofold:

1. to reconstruct a downcore paleo-flood record using lithological and geochemical parameters.
2. to investigate the paleoenvironmental change within these lakes basins based on the sedimentology and geochemistry. These data will be integrated with biostratigraphic work that is in progress and will be summarized in a subsequent publication.

The cores range in depth from 37 to 123 cm and represent the Late Holocene history of sedimentation in all three lake basins.

Location

Unlike typical meandering river valleys, the Red River valley is conspicuously lacking in meander scars and ox-bow lakes. Only four lakes exist between the Canada/United States border and the city of Winnipeg. Of these, one (formerly known as Marion Lake) has been drained for agricultural purposes and, a second is ephemeral. The

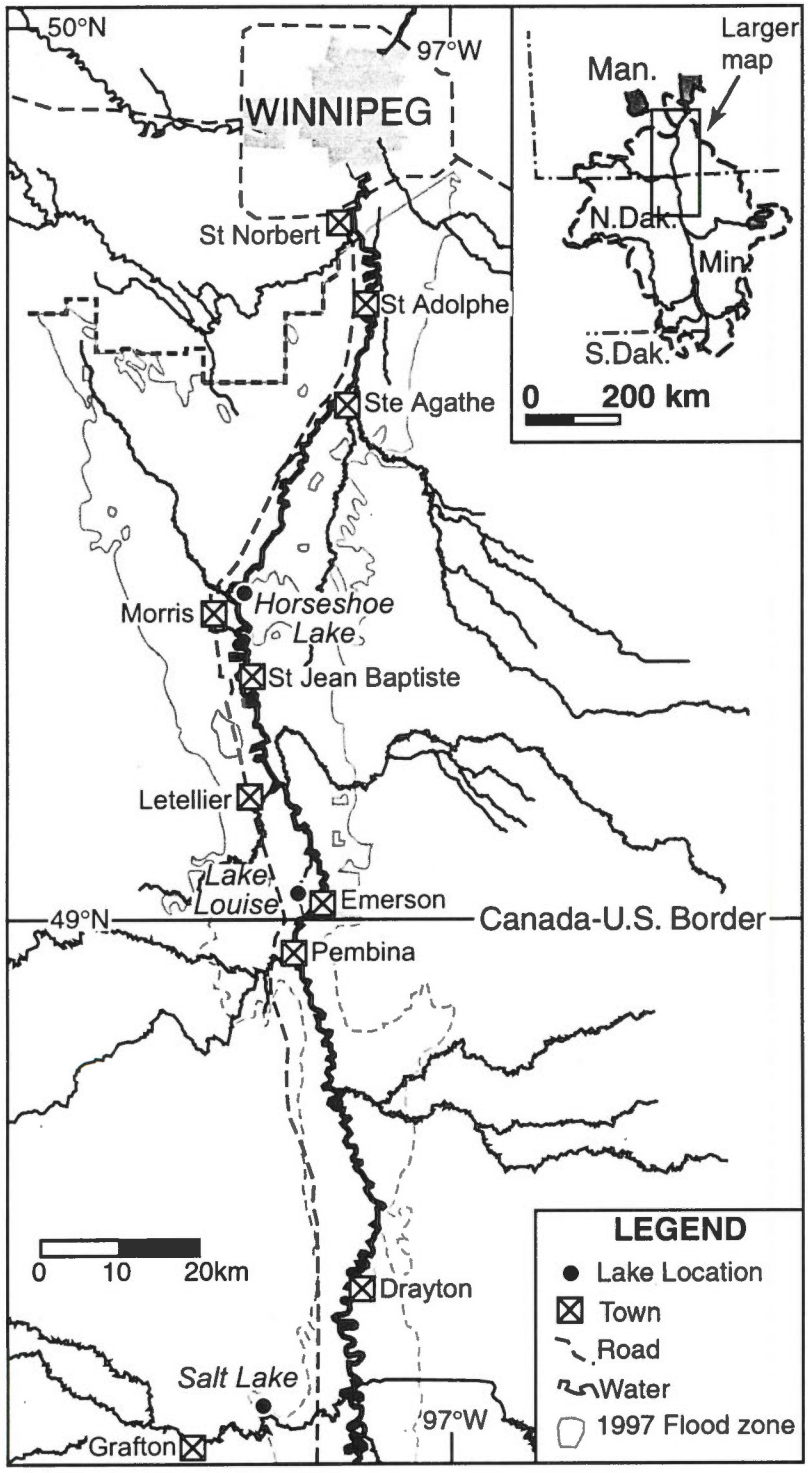
two remaining lakes (Horseshoe Lake and Lake Louise) were chosen as coring sites (Fig. 1). These two lakes are periodically inundated by Red River flood waters. The third lake that was cored, Salt Lake, North Dakota, is not a channel scar lake. In fact this lake lies well outside the genetic floodplain of the Red River. The lake was chosen because of its saline nature and the fact that it is backflooded by the freshwater of the Park River which is in turn backflooded by the flooding Red River (Fig,. 1). This contrast in salinities offered a unique opportunity to look for a geochemical flood signature.

The coring sites are located along the Red River and its tributaries, in the middle of the lake basins. Horseshoe Lake lies about 1 km E of the river, 2.5 km SE of the town of Morris (49°20'20" N, 97°19'30" W), and is an oxbow lake created by the cut-off and abandonment of a river meander. Lake Louise is located 2 km W of the Red River, approximately 3 km NW of the town of Emerson (49°02'00" N, 97°13'55" W), within a channel scar of the river. Salt Lake is located 10 km W of the Red River and 10 km ENE of Grafton, North Dakota (48°27' 45" N, 97°17' 16" W). This lake is a spring-fed saline lake with a single outflow channel that connects the lake to the Park River which in turn flows into the Red River.

Fig. 1 Map showing the general location of Horseshoe Lake, Lake Louise and Salt Lake in the Red River valley.

Core Collection

The lakes were cored on March 1st and 2nd, 2000, using a Livingstone corer (Livingstone, 1955). The core sampler consisted of a piston head and an aluminum core barrel with an inner diameter of 48 mm and an outer diameter of 50 mm. The corer was pushed into the lake bottom sediment until either corer refusal or the barrel was full (in which case it was extracted and a fresh barrel was pushed in). At Lake Louise and Horsehoe Lakes, three cores were taken in order to allow geochemical analyses to be conducted at 0.5 cm intervals. One core at each location was used for geochemical sampling, a second core was dedicated to biostratigraphic sampling and the last core was kept as an archive. Only one core was retrieved from Salt Lake due to time restraints at this location and therefore only geochemical sampling was undertaken (at 1 cm intervals). Due to the compact, stiff


50°N
97°W
WINNIPEG
St Norbert
St Adolphe
Ste Agathe
Morris
Horseshoe Lake
St Jean Baptiste
Letellier
Lake Louise
Emerson
49°N
Canada-U.S. Border
Pembina
Drayton
Salt Lake
Grafton
97°W
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Larger map
Man.
N.Dak.
Min.
S.Dak.
0 200 km
LEGEND
Lake Location
Town
Road
Water
1997 Flood zone

character of the clay-rich lake sediment, refusal was reached at relatively shallow depths in Horseshoe Lake (84 cm) and Lake Louise (37 cm). However, one full core barrel (91 cm) and one partially full (32 cm) core barrel were retrieved from Salt Lake (total length 123 cm).

Immediately upon retrieval, the piston was removed from the top of the core barrel and a foam stopper was pushed into the core barrel to keep the uppermost sediment from being disturbed during subsequent transport. Plastic core caps were fitted to both ends of the tube and secured with electrical tape. The tubes were then labelled and placed in wooden boxes for shipping. The cores were shipped to the Geological Survey of Canada in Ottawa and stored in a refridgeration unit (temperature kept constant at 4°C) until examination and subsequent subsampling.

The cores were extracted and subsampled in June and July of 2000. All samples were freeze-dried, weighed and placed into labelled vials. The vials were then sent for analysis. Table 1 shows the analyses that were conducted and at what interval each was subsampled and analysed.

Sampling Criteria and labelling

Sampling intervals were determined based on the amount of sediment available. At Horseshoe Lake and Lake Louise, multiple cores were extracted from each site and therefore enough sediment was available to impletement a high resolution (every 0.5 cm) sampling protocol (Inorganic geochemistry, Rock-Eval, Grain Size, Mineralogy, Diatoms, Thecamoebians, Pollen, Macrofossils and Pb^{210} dating). At Salt Lake sampling was conducted at 1 cm intervals and a reduced number of analyses were carried out (Inorganic geochemistry, Rock-Eval, Diatoms, Thecamoebians, Pollen, Macrofossils and Pb^{210} dating). See Table 1 for a comprehensive listing of sampling intervals.

Sample labelling was done systematically. All samples were first identified by the type of analysis to be conducted (eg. GC for geochemistry, see Table 1 for a complete list of abbreviations). The second set of letters identify the lake from which the sample was derived (HL= Horseshoe Lake, LL = Lake Louise, and SL = Salt Lake). Finally, each sample slice (which often produced multiple samples) was numbered sequentially (from 1) downcore. This enabled easy comparision of samples derived from the same depth even if the sampling interval was different (ex. RE-HL-13 and PB-HL-13 are both derived from the same sample

Sample Type	Sample Prefix	Horseshoe Lake	Lake Louise	Salt Lake
		Analysis Interval	Analysis Interval	Analysis Interval
Inorganic Geochemistry	GC	0.5 cm	0.5 cm	1.0 cm
Rock-Eval	RE	0.5 cm	0.5 cm	1.0 cm
Grain Size	GS	5.0 cm	1.0 cm	--
Mineralogy	GS	5.0 cm	1.0 cm	--
Diatoms	DT	0.5 cm	0.5 cm	1.0 cm
Thecamoebians	TH	0.5 cm	0.5 cm	1.0 cm
Pollen	PO	5.0 cm	--	5.0 cm
Macrofossils	MF	0.5 cm	0.5 cm	1.0 cm
Pb^{210} dating	PB	2.0 cm	2.0 cm	2.0 cm

Table 1. Core sampling intervals.

slice at 6.0 to 6.5 cm depth in the Horseshoe Lake core but the Rock-Eval was subsampled at 0.5 cm intervals while the Pb^{210} samples were analyzed every 2 cm).

Analytical methods

Sedimentology

The cores were x-rayed prior to extraction from the collection tubes. Since there were no bedding or sedimentary structures visible on the x-rays films, subsampling was conducted systematically at predetermined intervals throughout the cores (Table 1). The cores were extracted, photographed and the sedimentology logged. Sediment texture and colour were recorded as well as the presence of organic materials, shells, charcoal etc. Figures 2, 3 and 4 show the sedimentology of the logged cores.

Fig. 2. Graphic log showing the sedimentology, grain size and mineralogy of the Horseshoe Lake core.

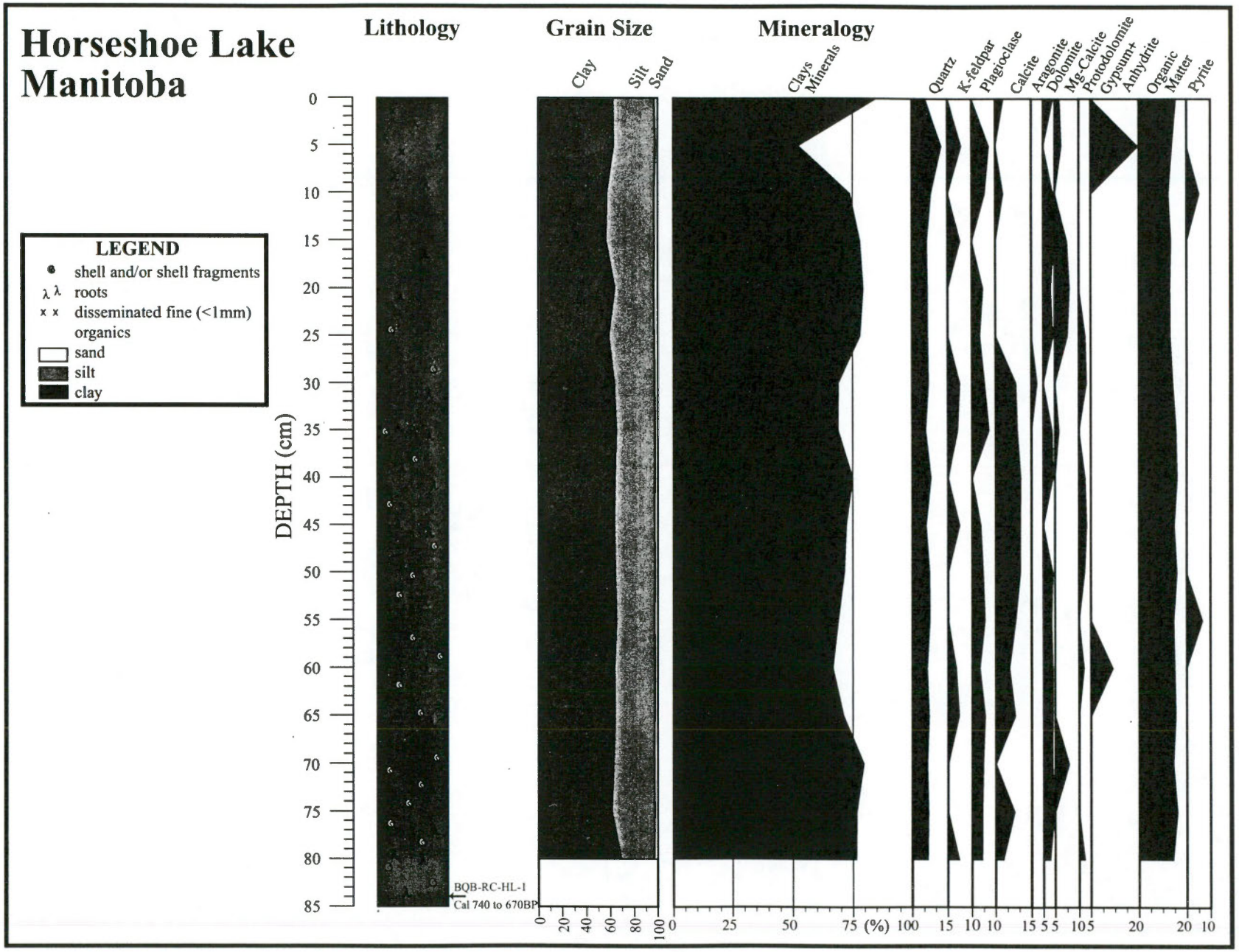
Fig. 3. Graphic log showing the sedimentology, grain size and mineralogy of the Lake Louise core.

Fig. 4. Graphic log showing the sedimentology of the Salt Lake core.

Grain Size and Mineralogy

Grain size and mineralogy samples were only collected from the Horseshoe Lake and Lake Louise cores. The samples were analysed at the University of Manitoba. The grain size data split is reported in clay-silt-sand fractions. Grain size and mineralogy samples were examined at 2.5 cm intervals for the Lake Louise core and at 5 cm intervals for the Horseshoe Lake core (Table 1; Fig. 2 and 3). No samples were analyzed from the Salt Lake core.

Organic matter and total carbonate mineral content were evaluated by weight loss on heating to temperatures of 85°C, 500°C, and 1000°C, respectively (Dean, 1974). Particle-size spectra for each subsample were determined using a Galai CIS-1 automated laser-optical particle-size analyzer (Last, 2001a; Syvitski et al., 1991; Aharonson et al., 1986) after removal of organic matter by hydrogen peroxide treatment. A 1% solution of Triton X100 was used as the dispersion agent rather than disodium hexametaphosphate. Particle-size


Horseshoe Lake
Manitoba
LEGEND
shell and/or shell fragments
roots
disseminated fine (<1mm) organics
sand
silt
clay
Lithology
Grain Size
Clay
Silt
Sand
Mineralogy
Clays Minerals
Quartz
K-feldpar
Plagioclase
Calcite
Aragonite
Dolomite
Mg-Calcite
Protodolomite
Gypsum+
Anhydrite
Organic Matter
Pyrite
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5
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15
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60
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70
75
80
85
BQB-RC-HL-1
Cal 740 to 670BP
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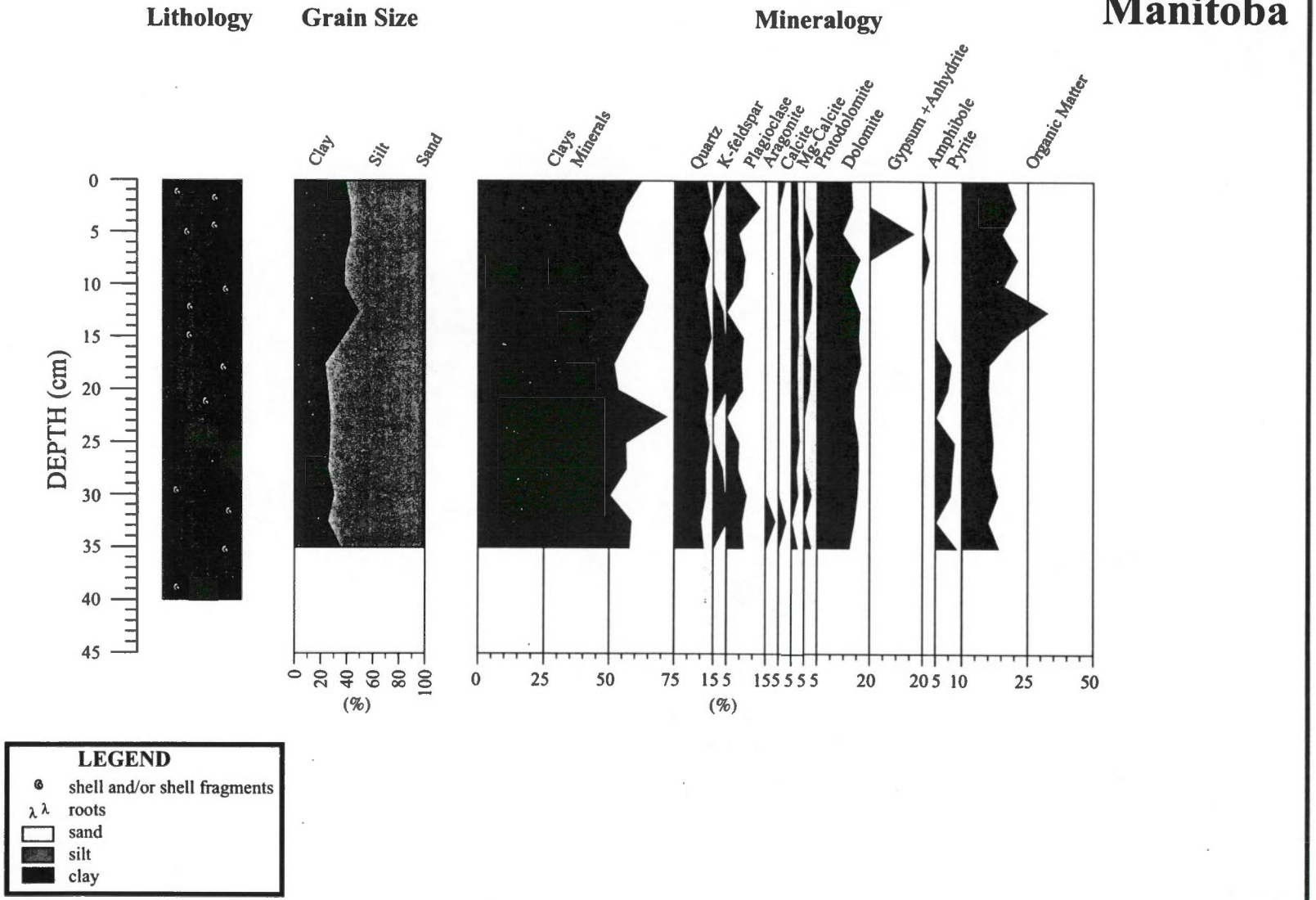
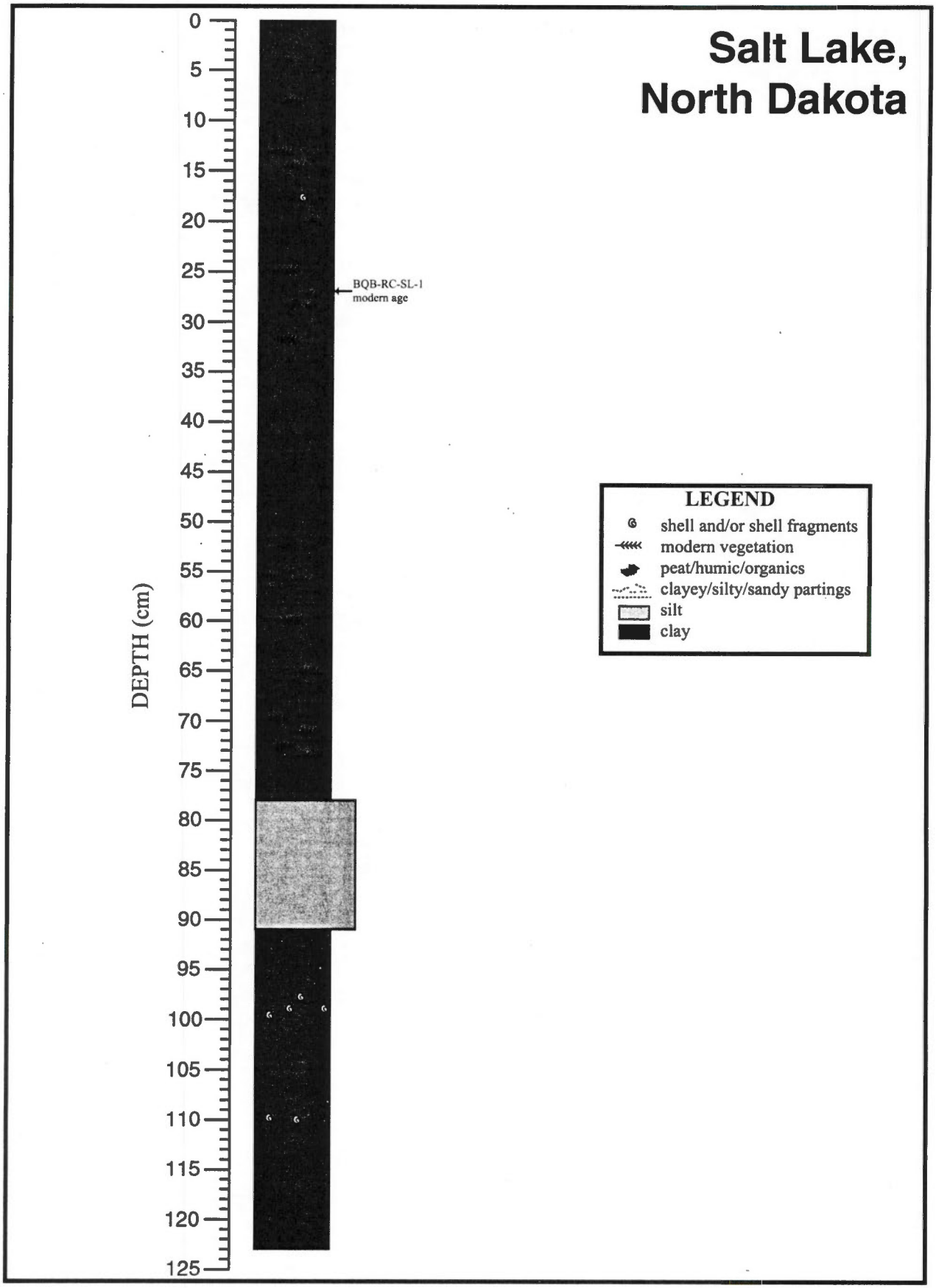
0 25 50 75 (%) 100
15 10 10 15 5 5 10 5 20 20 10

Lake Louise, Manitoba




Salt Lake,
North Dakota
DEPTH (cm)
0
5
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15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
BQB-RC-SL-1
modern age
LEGEND
shell and/or shell fragments
modern vegetation
peat/humic/organics
clayey/silty/sandy partings
silt
clay

statistics (mean, median, and standard deviation) were calculated by the moment method according to Allen (1981). Duplicate samples were prepared and analyzed every 10 samples while as standard was run every 20 samples. These replicated analyses indicate precision of the particle size data is approximately ± 3%.

Mineraological samples were freeze-dried, disaggregated in a mortor and pestle and passed through a 62.5 μm sieve. Bulk mineralogy and detailed carbonate and evaporite mineralogy were determined using a standard X-ray diffraction (XRD) techniques (Last, 2001b; Klug and Alexander, 1974). Mineral idenifications were aided by the use of an automated search-match computer program (Marquart, 1986). Percentages of the various minerals were estimated from the bulk mineral diffractograms using the intensity of the strongest peak for each minerals as outline by Schultz (1964) and Last (2001b). Non-stoichiometry of dolomite and calcite were determined by examining the displacement of the d_{104} peak on the detailed (slow) XRD scan (Goldsmith and Graf, 1958) and calculated according to Hardy and Tucker (1988). Duplicate samples were prepared and analysed for bulk mineralogy every 10 samples. These replicate analyses indicate precision of the mineralogical data is approximately ± 6%.

Inorganic Geochemistry

Inorganic geochemistry samples (1 g dry weight) were collected at 0.5 cm intervals (Horseshoe Lake and Lake Louise) or 1 cm intervals (Salt Lake) and were analyzed by ACME Analytical Laboratories Ltd., Vancouver, British Columbia. The samples underwent a complete digestion in HCl-HNO_3-H_2O (2:2:2 ratio) at 95°C for 1 hour and were then diluted to 20 ml. Reagent blanks were carried through the leaching and analysis. Elemental analyses were conducted on an Elan 6000 ICP/MS. Raw data was reviewed by the instrument operator and the laboratory information management system. It was then reviewed and adjusted by the Data Verification Technician and underwent a final verification by a Certified Assayer.

Organic Geochemistry (Rock-Eval)

Freeze dried samples (~100 mg dry weight at 0.5 cm intervals for Horseshoe Lake and Lake Louise, 1 cm intervals for Salt Lake) were sent to the GSC-Calgary for Rock-Eval

pyrolysis. The samples (with duplicates and standards) were analysized on a Vinci Technologies Rock-Eval VI apparatus (Behar et al, 2001; Peters, 1986). Rock-Eval pyrolysis permits the rapid determination of the amount, type and maturity of organic matter in sediment samples. The technique involves a microprocessor-controlled temperature program that causes the release of hydrocarbons and CO_2 in a stream of helium. The amount of hydrocarbon is determined by a flame ionization detector, whereas for CO_2 a thermal conductivity detector is employed. Standards and duplicates are run every 10 samples to ensure the machine is quality control (included in appendices). Rock-Eval measures a number of organic parameters in sediment including total organic carbon (TOC), T_{max} (the temperature at which the most hydrocarbons are evolved during pyrolysis), hydrogen index (HI) and oxygen index (OI) (these latter two parameters relate to the degree of hydrocarbon maturity).

Pb^{210} Dating

Samples from the top 40 cm of each cores (Table 1) were submitted to Flett Analytical Limited (Winnipeg, Manitoba) for Pb^{210} analysis. This method permits the dating of the last 100 to 150 years of sedimentation in a basin. Alpha spectroscopy was used to measure Pb^{210} via its granddaughter, Po^{210}. The Po^{210} in the samples was converted to chloride and distilled from the sediment at 500°C. The distillate was then digested in nitric acid and converted back to a chloride salt, silver-plated and counted by alpha spectroscopy. Recovery is monitored by concurrently measuring the activity of Po^{209} which was added at the beginning of the sample processing (Eakins and Morrison, 1978; Flynn, 1968). Detection limits are in the order of 0.1 DPM/g for an 8 hour counting period and a 0.5 g sample mass.

Macrofossil Analysis and C^{14}/AMS Dating

Large macrofossils were extracted from the cores during sedimentological logging. Smaller macrofossils were collected by washing biostratigraphic samples over a 250μm sieve. The macrofossil samples were sent for examination and identification. From this larger set of macrofossils, only two samples (plant material from both Horseshoe Lake and Salt Lake) were deemed fit for radiocarbon dating. These samples were sent to Beta

Analytical for AMS radiocarbon dating and Table 2 lists the measured and calibrated radiocarbon ages for these samples.

Results

Grain Size and Mineralogy

Horseshoe Lake sediment is dominated by clay-sized particles (55-65%) with lesser amounts of silt (~35%) (Fig. 2). The Lake Louise sediment is dominantly silt (65-75% in the lower part of the core, ~60% in the upper part of the core) although a significant amount of clay (25-40%) is present in the core and increases upcore to the present-day surface (Fig. 3). Sand-sized particles are very scarse in core from both lakes (<3% in the Horseshoe Lake Core and <1.5% in the Lake Louise core). See Appendix 1 for a complete inventory of grain size data.

The mineralogy of both lakes is dominated by clay minerals with small amounts of quartz, feldspar, plagioclase and carbonates (Figs. 2 and 3). A complete inventory of mineraological data is listed in Appendix 2.

Inorganic Geochemistry

No apparent paleo-flood record can be derived from the downcore fluctuations in the elements analyzed. The downhole variations in the elements (Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Se, Sr, Te, Th, Ti, Tl, U, V, Zn) are depicted in Figs. 5, 6 and 7 (Horseshoe Lake, Lake Louise and Salt Lake respectively). Tungstun (W) values were not plotted because they were uniformly below the detection limit of the instrumentation. Appendix 3 contains a complete inventory of these data as well as the instrumental detection limits for each element.

Fig. 5. Inorganic geochemical profiles for the 36 elements assayed in the Horsehoe Lake core.

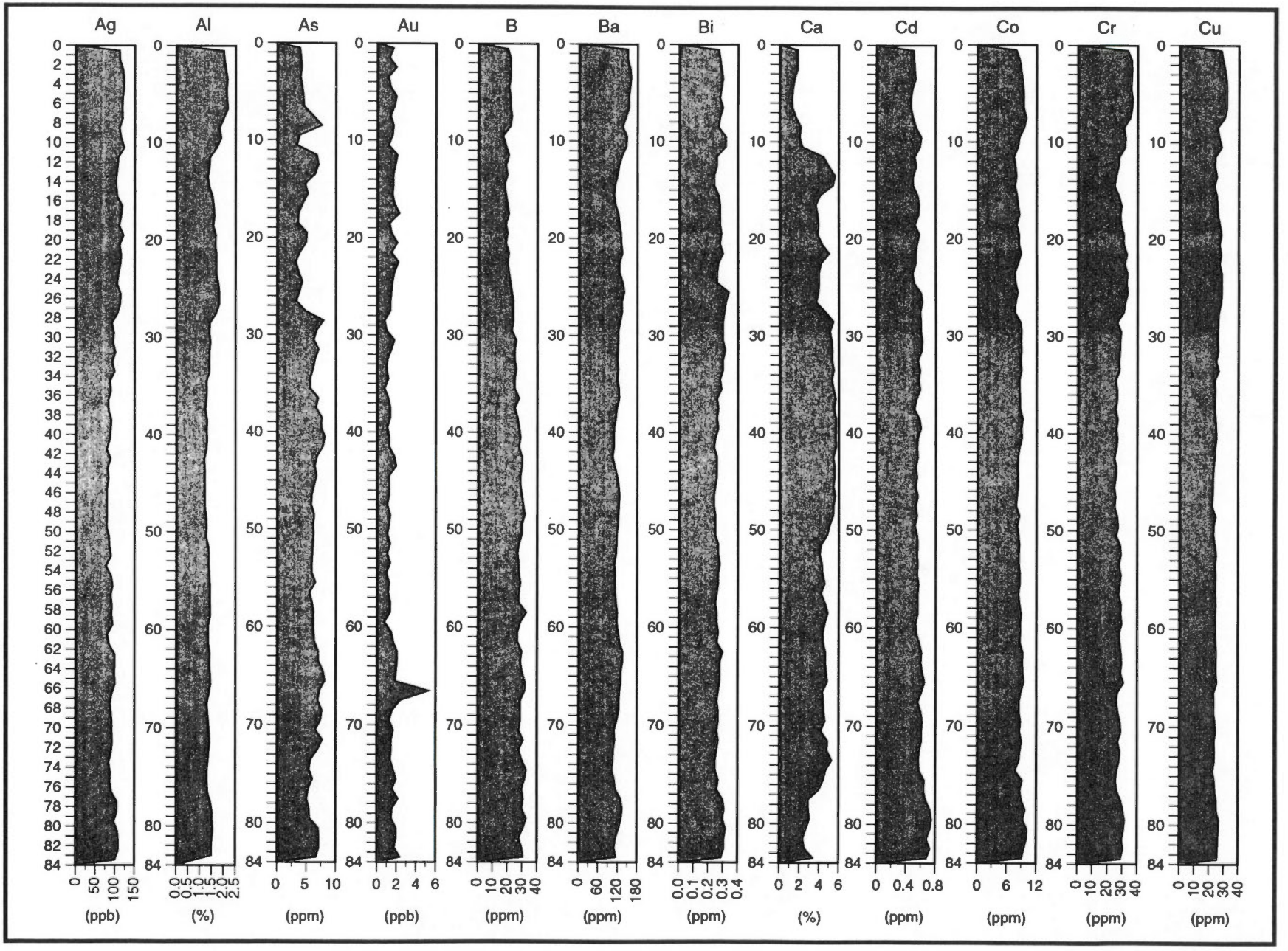
Fig. 6. Inorganic geochemical profiles for the 36 elements assayed in the Lake Louise core.

Fig. 7. Inorganic geochemical profiles for the 36 elements assayed in the Salt Lake core.

Organic Geochemistry (Rock-Eval)

Lab Sample Number	GSC Sample Number	Depth (cm)	Measured Radiocarbon Age	Calibrated Radiocarbon Age	1-Sigma Calibration Age
Beta-151988	BQB-RC-HL-1 (Horseshoe Lk.)	84 cm	780 ± 50 BP	Cal 690 BP	Cal BP 740–670
Beta-151988	BQB-RC-SL-1 (Salt Lake)	27 cm	142.4 ± 1.1 pMC	Modern	Modern

Table 2. Calibrated AMS dates (sample locations shown on Fig. 2 and 4).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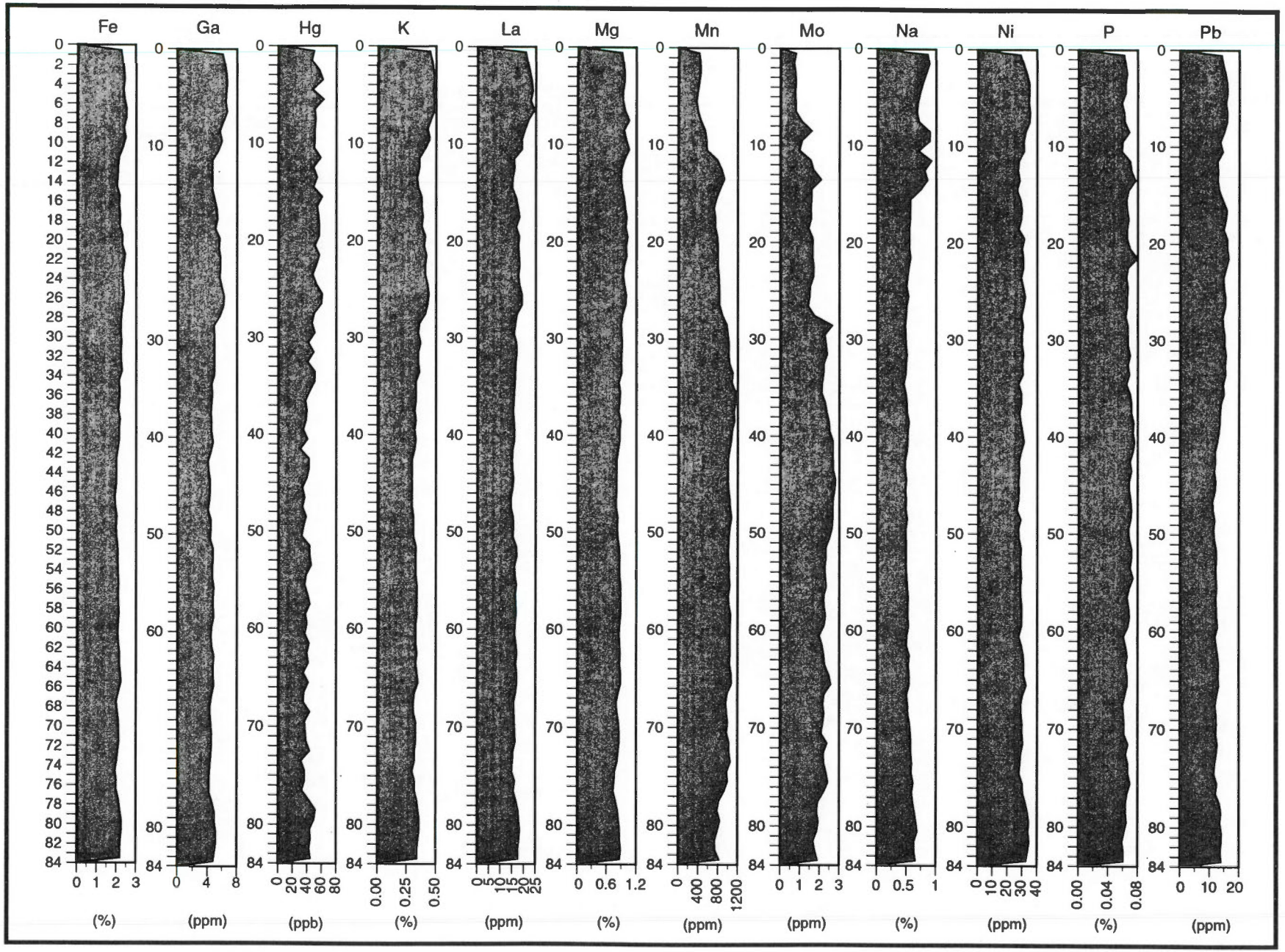
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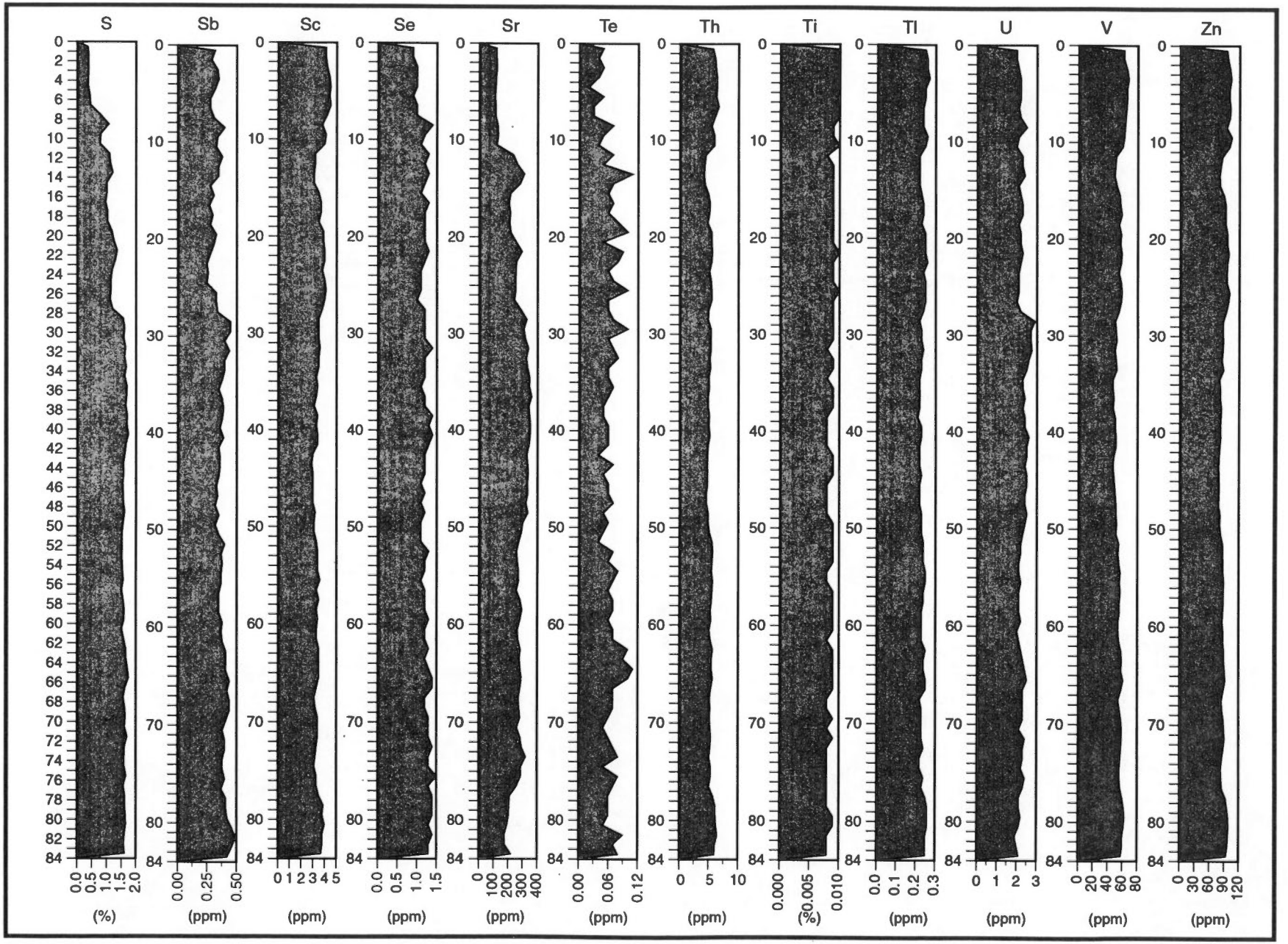
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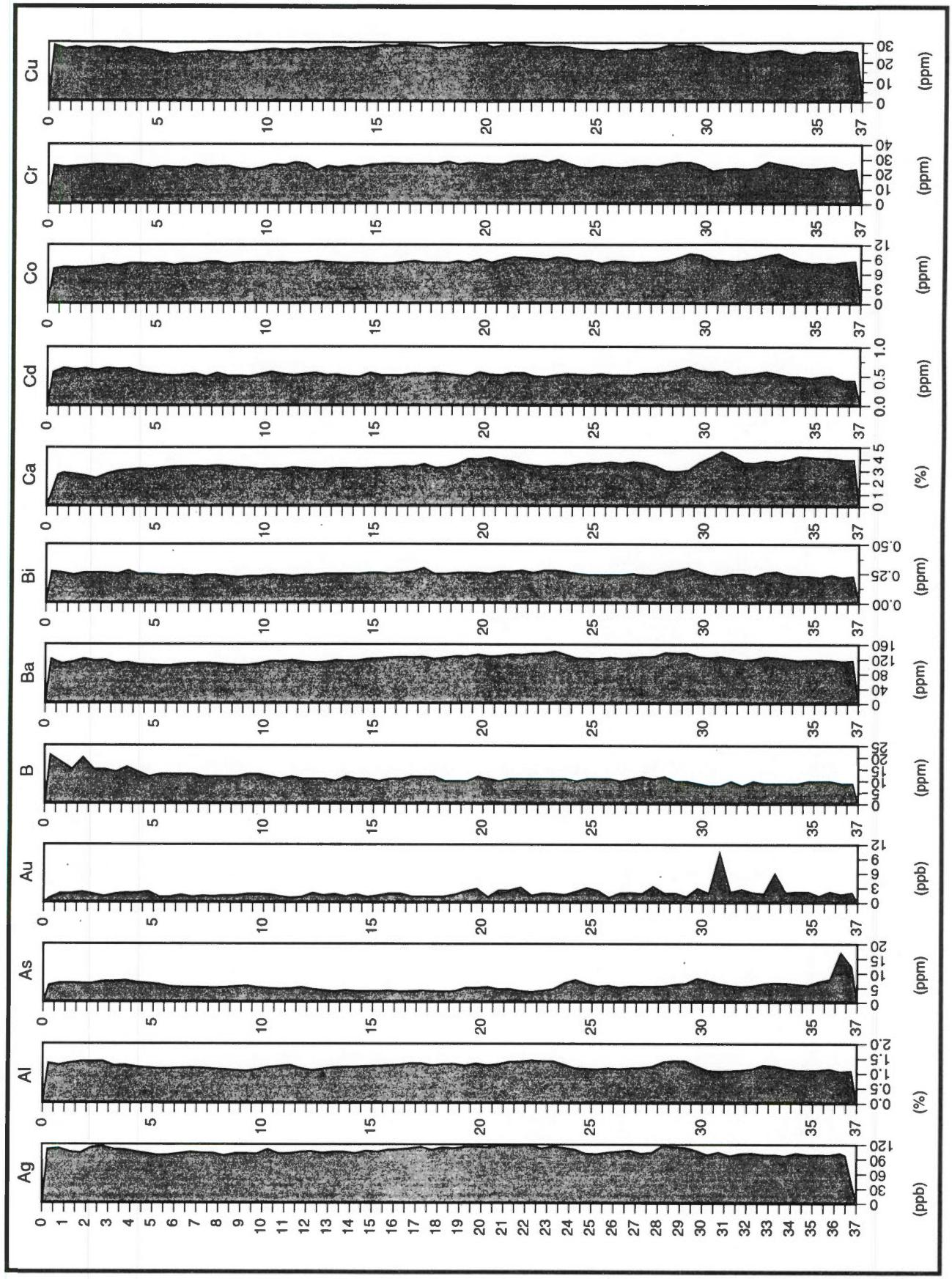
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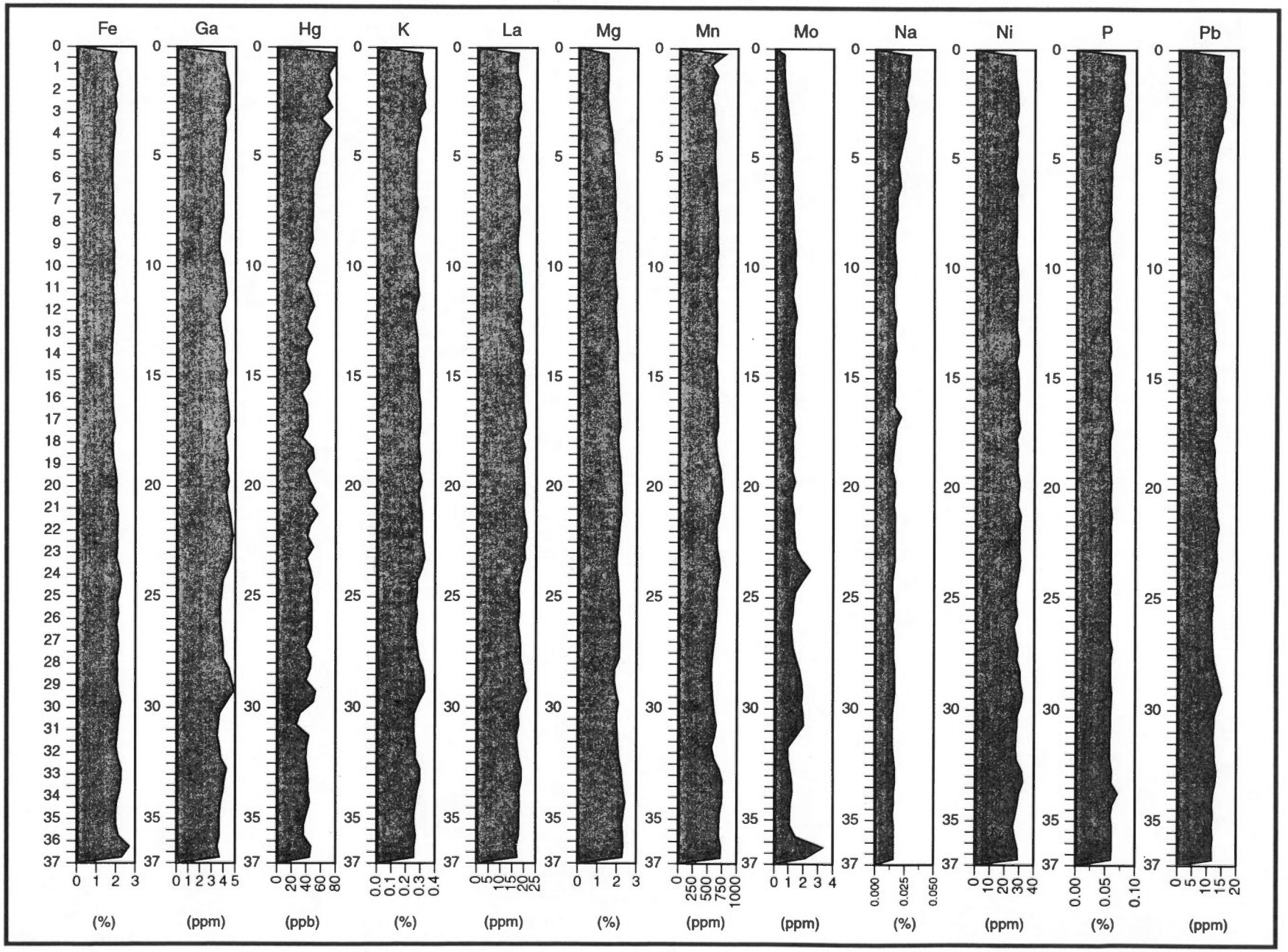
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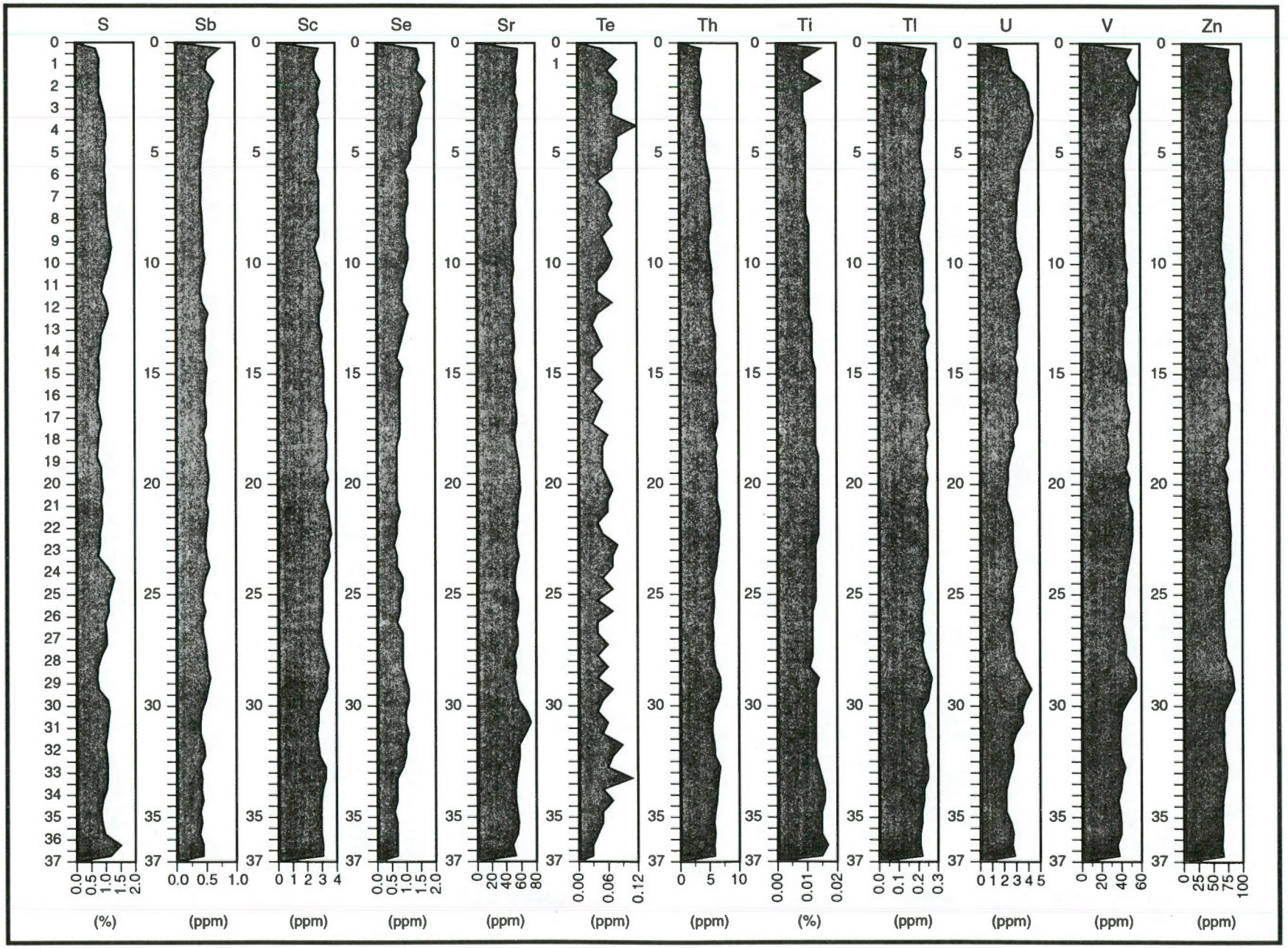
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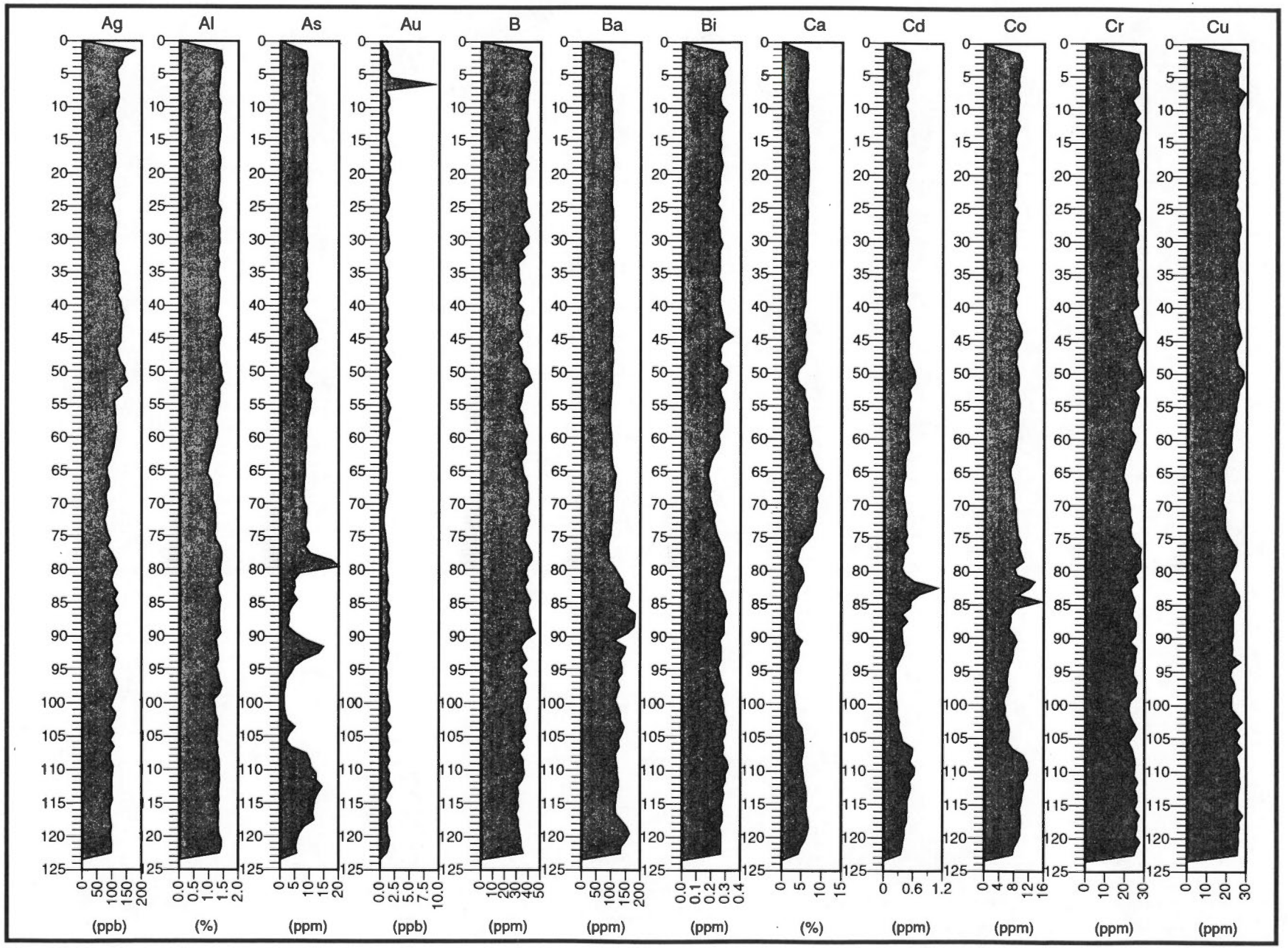
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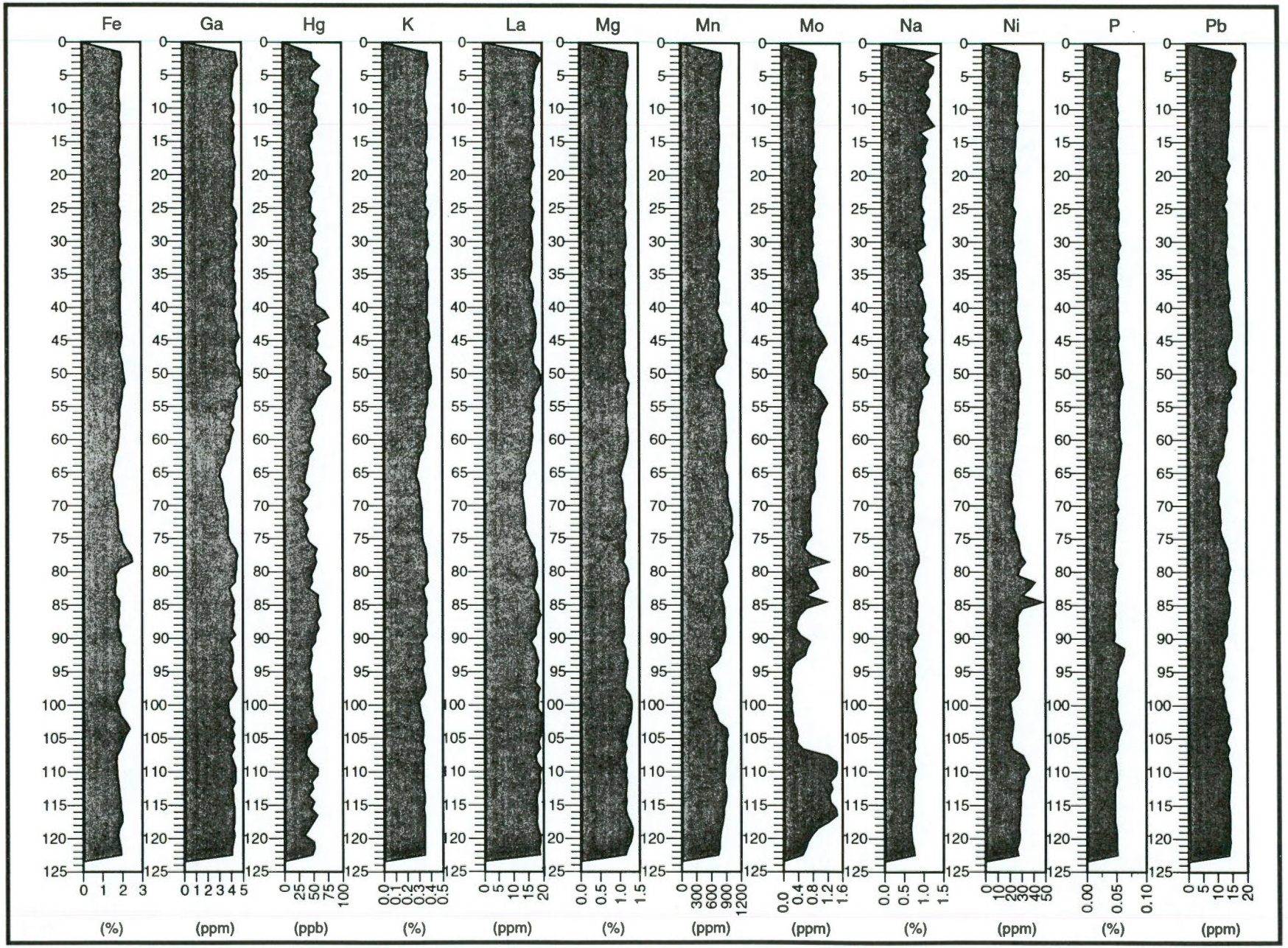
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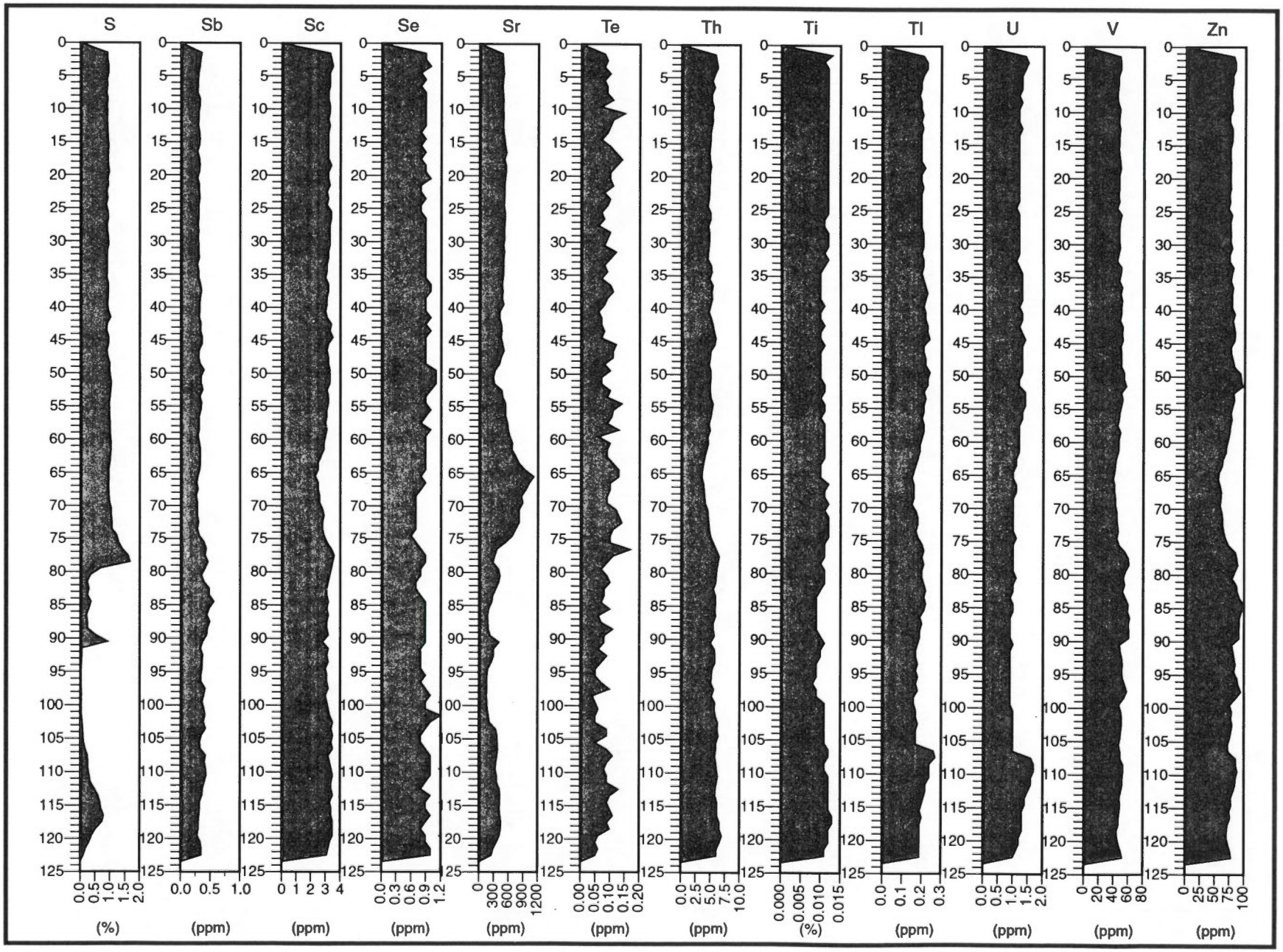
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Cross plots of HI vs. OI, TOC vs. T_{max}, and S_2 vs. TOC can be used to determine the type of organic matter present in sediment (algal vs. terrestrial vs. marine organic matter; Espitalié et al., 1977). Figures 8, 9 and 10 show that all three lakes are dominated by terrestrial organic matter (Type III). A complete inventory of Rock-Eval data are listed in Appendix 4.

Fig. 8. Rock-Eval plots for the Horseshoe Lake core: a) Hydrogen Index (HI) vs. Oxygen Index (OI); b) HI vs. T_{max}; and c) S_2 peak vs. Total Organic Carbon (TOC). Solid lines represent boundaries between the three types of organic carbon (Type I = Algal organic carbon; Type II = Marine organic carbon; and Type III = Terrestrial organic carbon).

Fig. 9. Rock-Eval plots for the Lake Louise core: a) Hydrogen Index (HI) vs. Oxygen Index (OI); b) HI vs. T_{max}; and c) S_2 peak vs. Total Organic Carbon (TOC). Solid lines represent boundaries between the three types of organic carbon (Type I = Algal organic carbon; Type II = Marine organic carbon; and Type III = Terrestrial organic carbon).

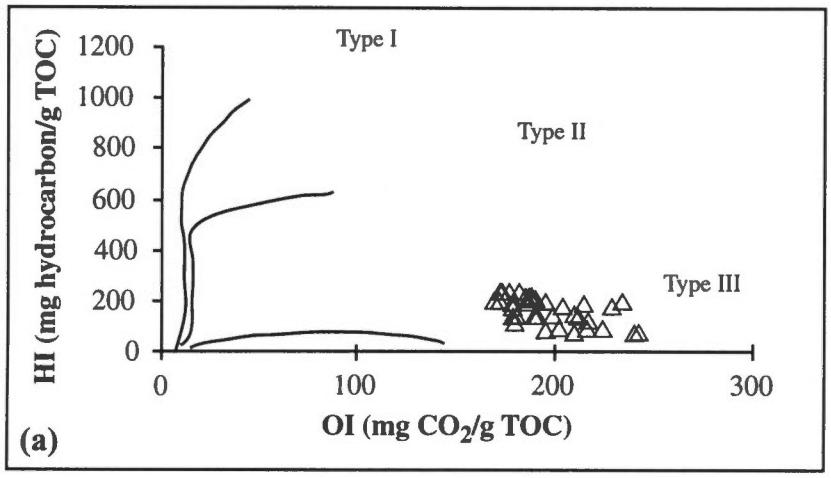
Fig. 10. Rock-Eval plots for the Salt Lake core: a) Hydrogen Index (HI) vs. Oxygen Index (OI); b) HI vs. T_{max}; and c) S_2 peak vs. Total Organic Carbon (TOC). Solid lines represent boundaries between the three types of organic carbon (Type I = Algal organic carbon; Type II = Marine organic carbon; and Type III = Terrestrial organic carbon).

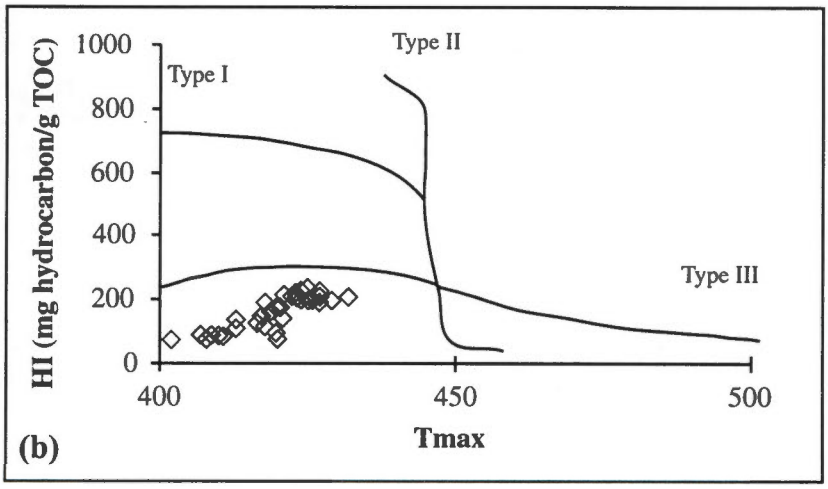
Pb^{210} Dating

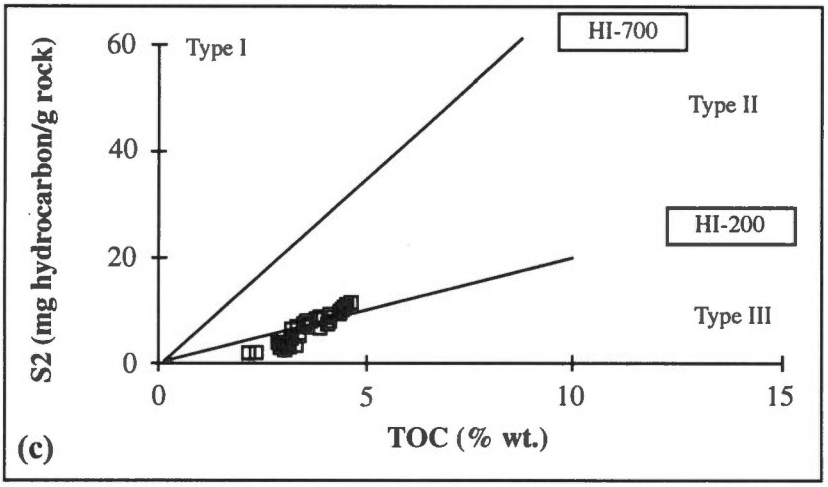
The present samples were found to have a very low background Pb^{210} value therefore the margin of error on the calculated dates is high. The low lead values also made Pb^{210} modeling very difficult for Horseshoe Lake and impossible for Lake Louise and Salt Lake. The results are plotted in Figs. 11, 12 and 13 and interpreted using a CRS (Constant Rate of Supply) model (Appleby and Oldfield, 1978). Analytical data can be found in Appendix 5.

Fig. 11. A) Total Pb^{210} activity in sample vs. the cumulative dry weight of the core samples from Horseshoe Lake; B) unsupported Pb^{210} vs. cumulative dry weight

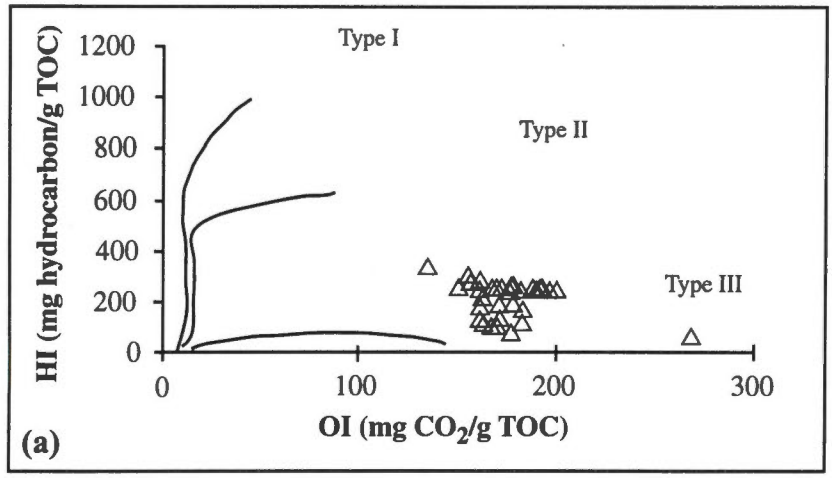
HORSESHOE LAKE

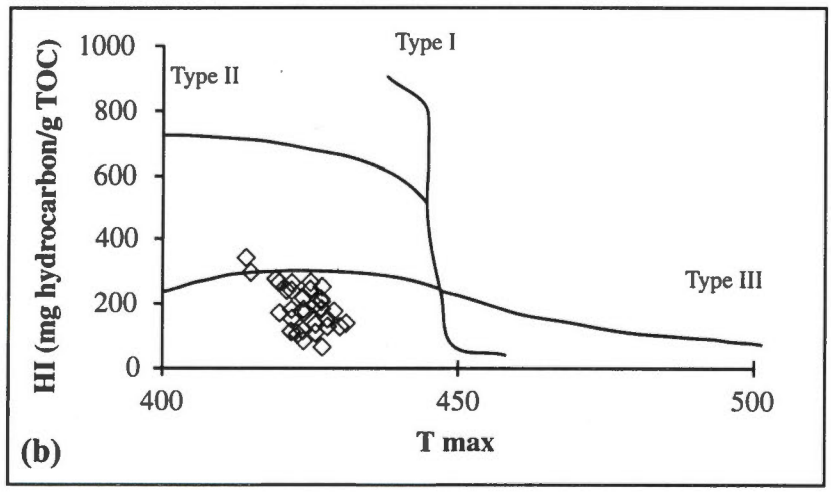


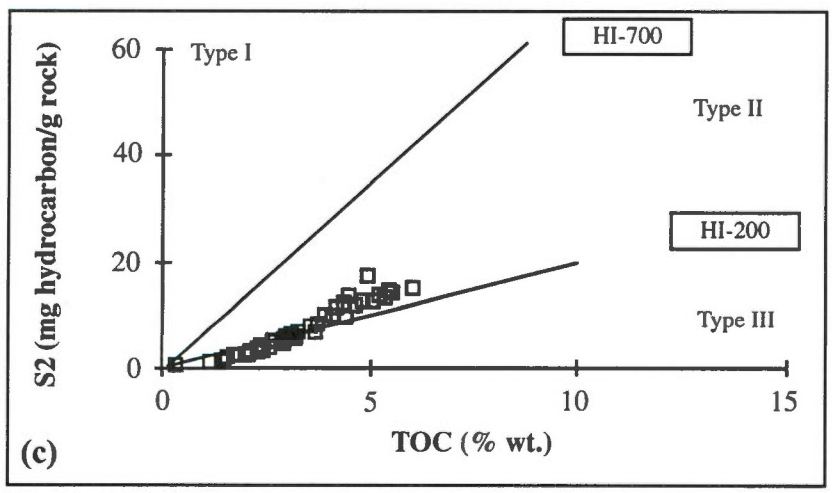




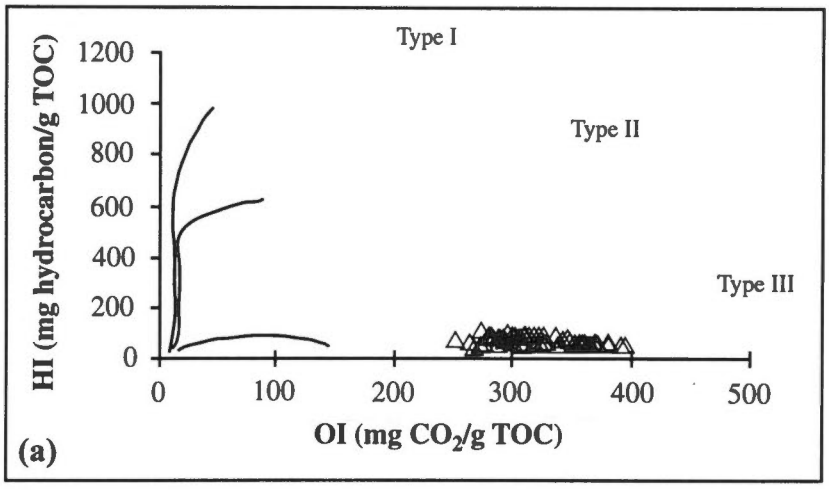
LAKE LOUISE

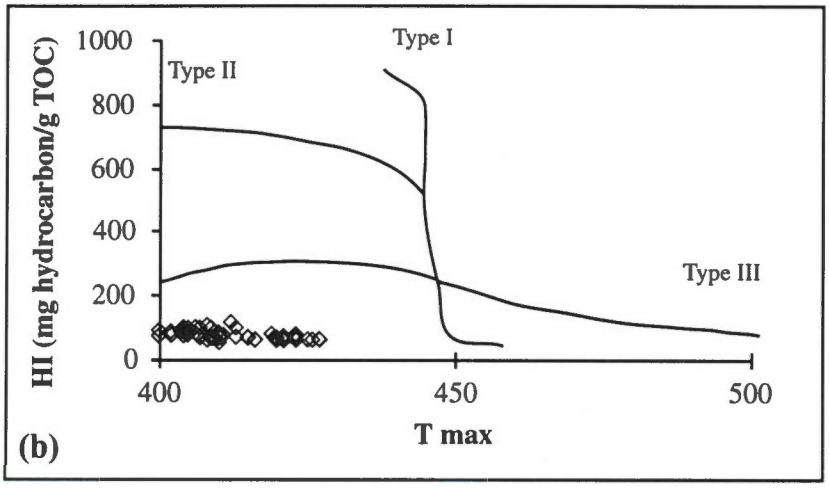

Type I
Type II
Type III
HI (mg hydrocarbon/g TOC)
1200
1000
800
600
400
200
0
0
100
200
300
OI (mg CO_2/g TOC)
(a)

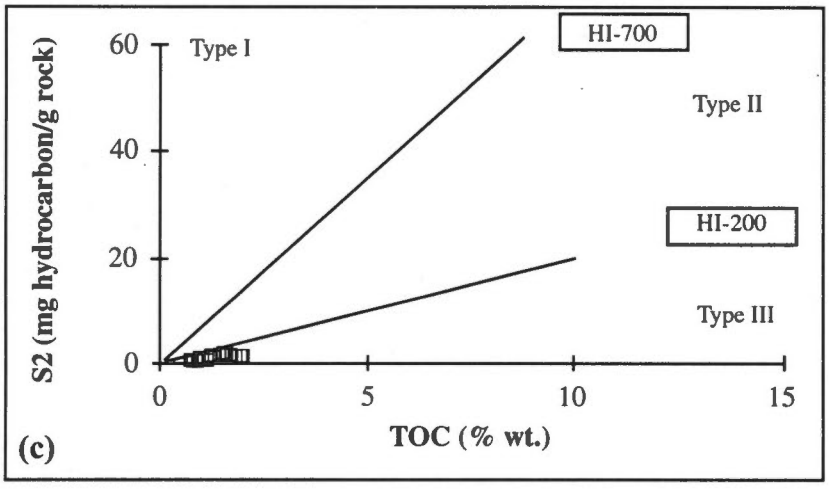

Type I
Type II
Type III
HI (mg hydrocarbon/g TOC)
1000
800
600
400
200
0
400
450
500
T max
(b)


HI-700
HI-200
Type I
Type II
Type III
S2 (mg hydrocarbon/g rock)
60
40
20
0
0
5
10
15
TOC (% wt.)
(c)

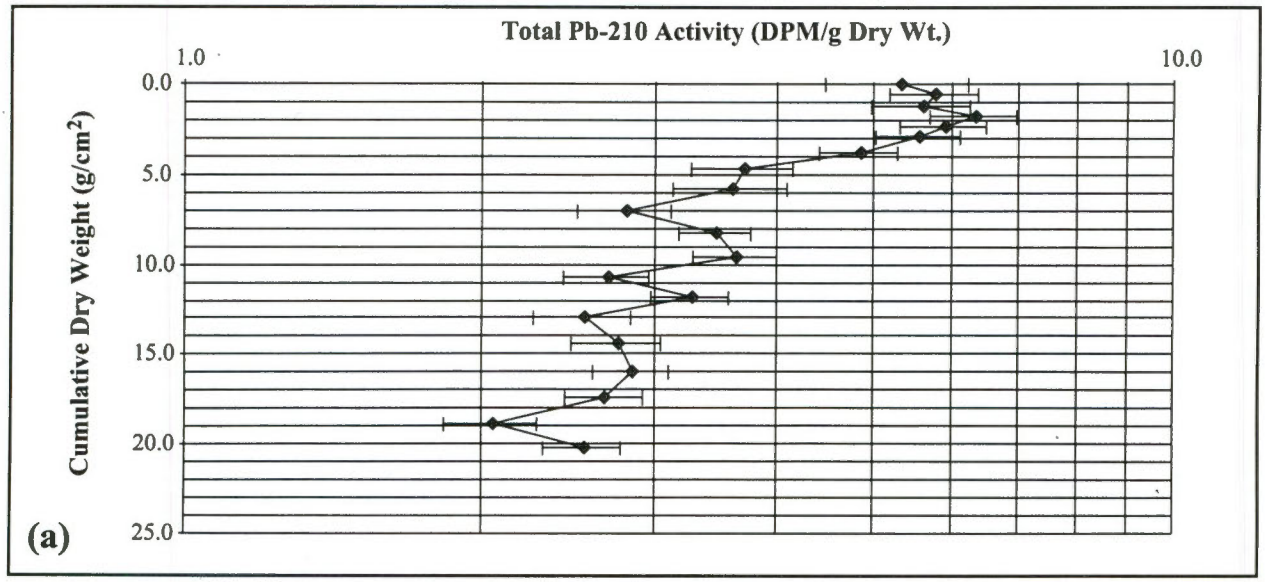
SALT LAKE

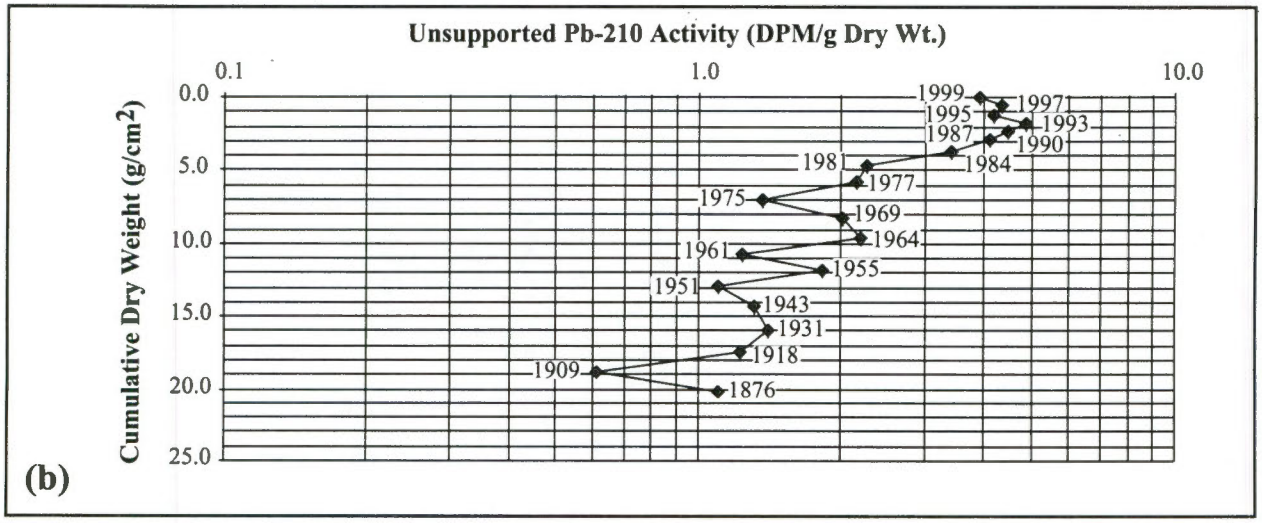

Type I
Type II
Type III
HI (mg hydrocarbon/g TOC)
1200
1000
800
600
400
200
0
0
100
200
300
400
500
OI (mg CO_2/g TOC)
(a)

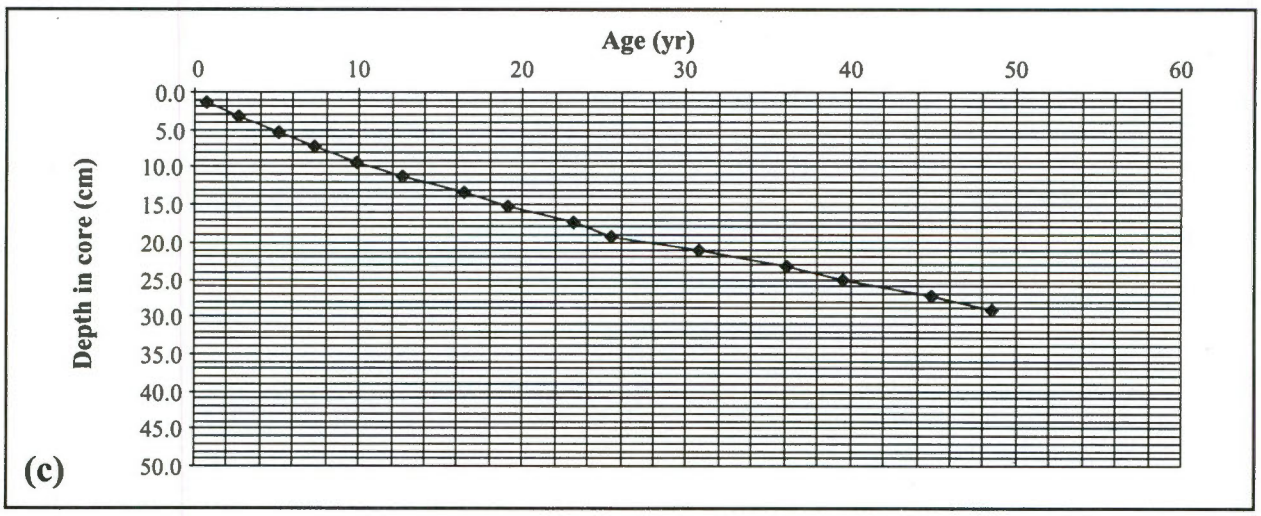

Type I
Type II
Type III
HI (mg hydrocarbon/g TOC)
1000
800
600
400
200
0
400
450
500
T max
(b)


HI-700
HI-200
Type I
Type II
Type III
S2 (mg hydrocarbon/g rock)
60
40
20
0
0
5
10
15
TOC (% wt.)
(c)

Horseshoe Lake, Manitoba







curve—calendar years have been calculated and noted for each point; and C) calculated age (in years AD) vs. core depth (in cm) based on the Constant Rate of Supply model for the Horseshoe Lake core.

Fig. 12. A) Total Pb^{210} activity in sample vs. the cumulative dry weight of the core samples from Lake Louise; B) unsupported Pb^{210} vs. cumulative dry weight curve—calendar years have been calculated and noted for each point; and C) calculated age (in years AD) vs. core depth (in cm) based on the Constant Rate of Supply model for the Lake Louise core.

Fig. 13. A) Total Pb^{210} activity in sample vs. the cumulative dry weight of the core samples from Salt Lake; B) unsupported Pb^{210} vs. cumulative dry weight curve—calendar years have been calculated and noted for each point; and C) calculated age (in years AD) vs. core depth (in cm) based on the Constant Rate of Supply model for the Salt Lake core.

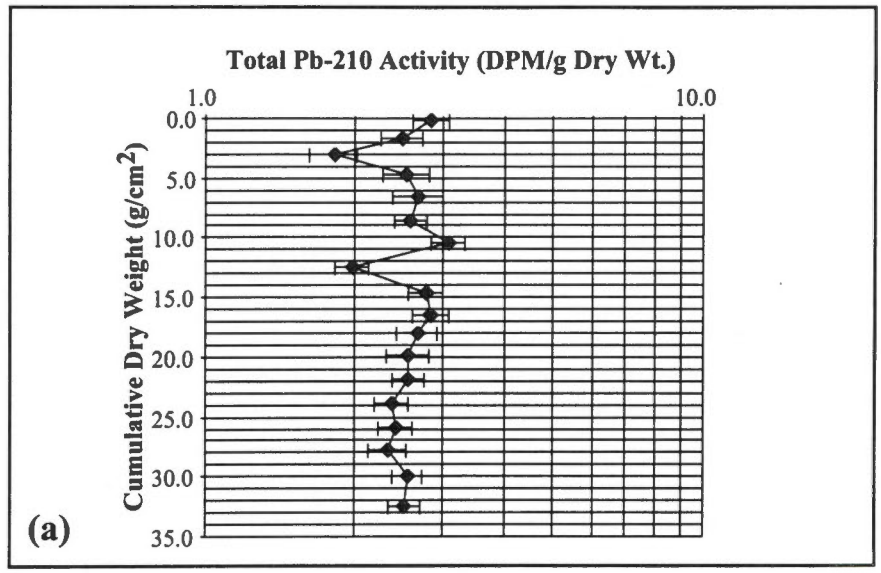
Macrofossil Analysis and C^{14}/AMS Dating

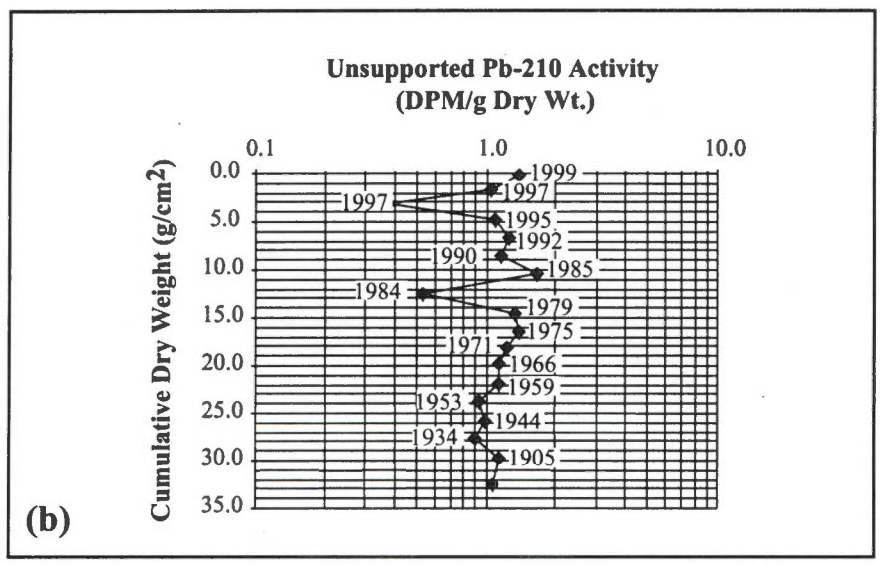
Macrofossil analysis provided two samples suitable for AMS dating. The sample from Horseshoe Lake produced a date of CAL 740-670 BP at a depth of 84 cm. The sample analyzed from Salt Lake was derived from 27 cm depth and produced a modern date. Table 2 summarizes these results.

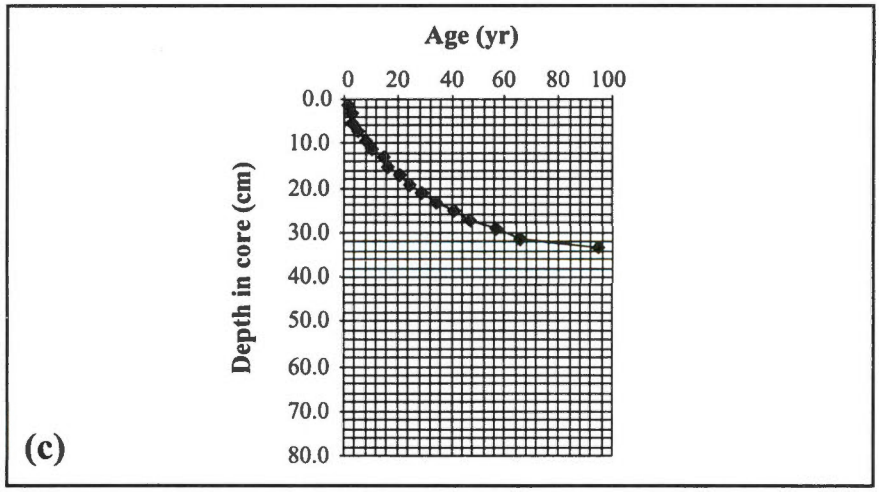
Acknowledgements

Funding for this work was provided by the Red River Valley Flood Protection Program. I would like to sincerely thank C.L. Prévost who participated in the coring of these lakes. G. Clement is thanked for providing us with access to his property at Horseshoe Lake. A special thanks to D. Berk (Manitoba Geological Survey) for logistical support. C. Van Hoof assisted with all aspects of the subsampling of the cores. Penny Henderson is thanked for her helpful comments on an earlier version of this document.

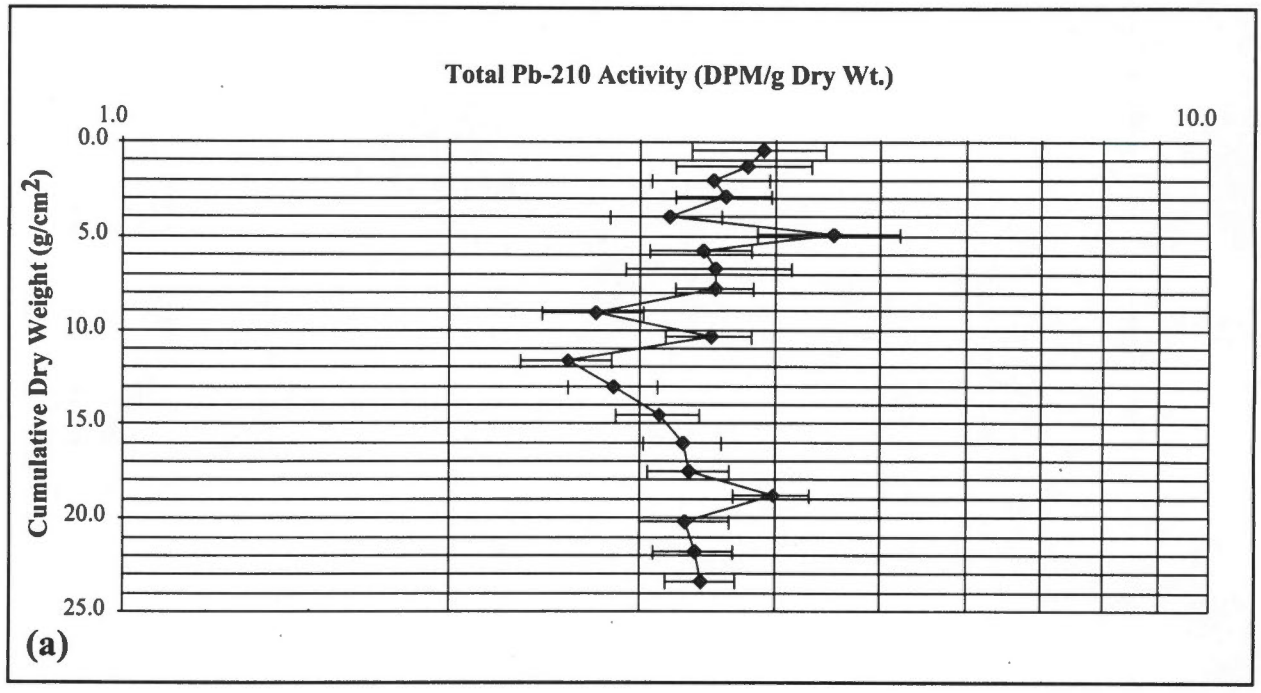
Lake Louise, Manitoba

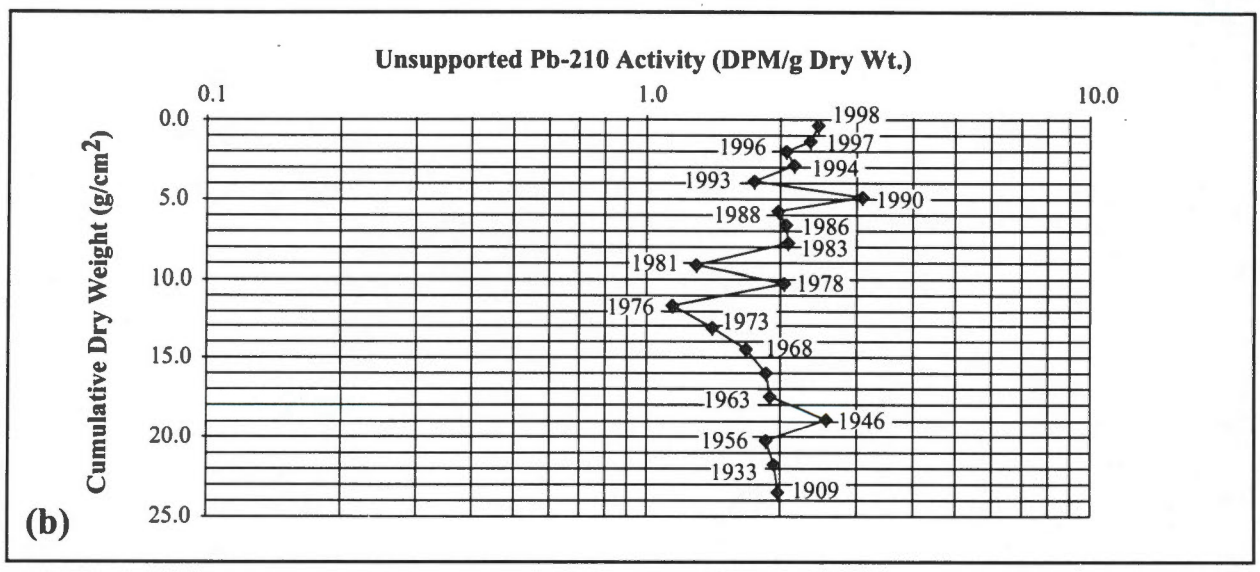


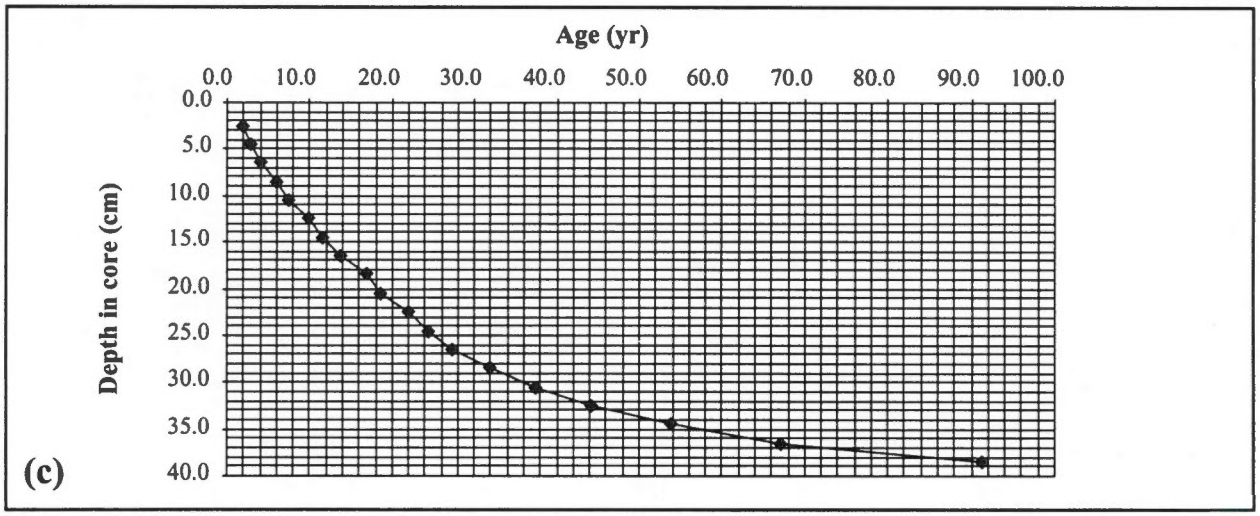




Salt Lake, North Dakota







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APPENDIX 1

GRAIN SIZE DATA

Grain Size Class Definitions

Grain Size	µm range	Phi-scale range
Sand	63 – 2000	4 – (–1)
Silt	4 – 63	8 – 4
Clay	≥ 4	≥ 4

Horseshoe Lake, Manitoba

Depth (cm)	Sand (%)	Silt (%)	Clay (%)	Mean	Median	sd
0	2.67	35.09	62.24	4.68	5.44	4.26
5	1.85	35.43	62.72	4.04	5.87	8.12
10	2.65	40.42	56.93	3.70	4.62	0.07
15	2.55	41.22	56.24	3.72	4.99	2.05
20	3.02	33.46	63.53	4.64	5.60	4.17
25	2.71	38.92	58.37	3.78	4.92	5.24
30	2.39	34.68	62.93	4.97	5.11	2.60
35	2.24	33.01	64.75	4.56	5.71	2.41
40	2.32	34.15	63.53	4.65	5.60	7.90
45	2.41	34.63	62.97	4.22	5.11	5.60
50	2.24	33.97	63.79	4.84	5.84	4.10
55	2.41	32.78	64.81	4.61	5.76	4.08
60	2.20	34.68	63.12	4.34	5.23	2.05
65	2.30	34.12	63.58	4.68	5.65	6.00
70	2.70	34.85	62.45	4.83	5.62	4.56
75	2.27	36.87	60.85	4.64	4.18	3.51
80	2.89	28.45	68.66	4.50	5.26	3.44

Lake Louise, Manitoba

Depth (cm)	Sand (%)	Silt (%)	Clay (%)	Mean	Median	sd
0.0	1.10	60.93	37.97	4.23	5.35	1.91
2.5	0.89	57.51	41.59	4.84	4.41	3.32
5.0	1.17	56.42	42.42	4.55	4.47	6.76
7.5	0.81	61.50	37.69	4.67	5.84	3.40
10.0	1.19	61.72	37.09	4.38	5.30	3.19
12.5	0.73	51.12	48.16	3.29	4.91	2.92
15.0	0.84	63.21	35.95	4.88	5.43	5.42
17.5	0.89	76.77	22.34	5.08	6.95	7.10
20.0	1.03	74.43	24.53	5.85	6.95	5.16
22.5	1.38	72.22	26.40	5.75	6.04	5.32
25.0	0.97	73.10	25.93	5.90	6.00	7.72
27.5	0.99	74.46	24.56	5.29	6.97	6.31
30.0	0.85	69.92	29.23	4.64	6.01	7.46
32.5	1.14	74.36	24.50	5.80	6.88	8.80
35.0	1.13	64.47	34.41	4.77	5.39	4.31

APPENDIX 2

MINERALOGY DATA

Mineralogical Abbreviations

Abbreviation	Mineral
Depth	Sample depth (cm)
Qtz	Quartz
Kspar	K-Feldspar
Plag	Plagioclase
Calc	Calcite
Mg-Calc	Magnisium calcite
Pr-Dol	Proto-dolomite
Dol	Dolomite
Cly	Total clay minerals
Arag	Aragonite
Gy+An	Gypsum + Anhydrite
Py	Pyrite
Amph	Amphibolite
Mg-HMC	Magnesium in High-Mg Calcite
OM	Organic Matter

Horseshoe Lake, Manitoba

Depth (cm)	Qtz (%)	Kspar (%)	Plag (%)	Calc (%)	Mg-calc (%)	Pr-dol (%)	Dol (%)	Cly (%)	Arag (%)	Gy+An (%)	Py (%)	Amph (%)	Mg-HMC (Mol %)	OM (%)
0	5.58	0.00	0.00	3.37	1.90	0.00	4.10	85.05	0.00	0.00	0.00	0.00	19.25	15.49
5	12.42	5.66	7.19	0.00	2.71	0.00	0.00	52.30	0.00	19.71	0.00	0.00	14.18	13.83
10	7.99	0.00	5.46	3.27	0.00	0.00	4.13	73.85	0.00	0.00	5.30	0.00	—	12.39
15	6.16	5.10	0.00	0.00	5.00	0.00	4.64	78.11	0.00	0.00	0.00	0.00	3.53	13.48
20	6.47	0.00	4.69	0.00	6.09	0.00	3.23	79.51	0.00	0.00	0.00	0.00	7.92	13.07
25	6.53	0.00	3.31	0.00	5.22	2.69	4.12	78.13	0.00	0.00	0.00	0.00	5.67	13.16
30	6.80	4.90	5.29	8.53	0.00	3.19	0.00	68.96	2.33	0.00	0.00	0.00	—	14.18
35	5.53	3.97	7.08	9.14	1.67	0.00	3.72	68.90	0.00	0.00	0.00	0.00	13.39	15.54
40	7.85	0.00	0.00	10.54	0.00	2.58	4.05	74.98	0.00	0.00	0.00	0.00	—	16.03
45	5.69	4.78	3.64	10.35	0.00	3.21	0.00	72.33	0.00	0.00	0.00	0.00	—	14.78
50	7.20	0.00	4.58	10.36	0.00	2.39	3.97	71.51	0.00	0.00	0.00	0.00	—	15.89
55	7.32	0.00	5.36	8.37	0.00	0.00	3.44	68.90	0.00	0.00	6.62	0.00	—	14.50
60	6.12	3.27	3.19	5.73	0.00	2.08	3.86	66.62	0.00	9.12	0.00	0.00	—	14.95
65	6.96	4.53	5.38	8.13	0.00	0.00	3.87	71.12	0.00	0.00	0.00	0.00	—	15.37
70	6.26	0.00	4.60	0.00	5.77	0.00	3.76	79.60	0.00	0.00	0.00	0.00	4.00	14.36
75	6.76	0.00	4.26	7.80	0.00	0.00	4.56	76.61	0.00	0.00	0.00	0.00	—	16.02
80	6.52	4.58	4.23	3.18	0.00	2.33	2.76	76.40	0.00	0.00	0.00	0.00	—	14.19

Lake Louise, Manitoba

Depth (cm)	Qtz (%)	Kspar (%)	Plag (%)	Calc (%)	Mg-calc (%)	Pr-dol (%)	Dol (%)	Cly (%)	Arag (%)	Gy+An (%)	Py (%)	Amph (%)	Mg-HMC (Mol %)	OM (%)
0.0	12.22	3.97	4.43	2.33	2.06	0.00	12.71	62.28	0.00	0.00	0.00	0.00	14.11	16.87
2.5	14.08	0.00	12.63	0.00	2.49	0.00	13.28	56.20	0.00	0.00	0.00	1.32	5.17	20.46
5.0	10.99	0.00	4.58	0.00	2.26	3.26	9.42	53.21	0.00	16.29	0.00	0.00	13.23	15.08
7.5	13.5	0.00	6.97	0.00	3.27	0.00	16.10	57.86	0.00	0.00	0.00	2.30	6.03	21.01
10.0	11.55	0.00	6.01	0.00	2.53	2.78	12.33	64.80	0.00	0.00	0.00	0.00	3.80	15.77
12.5	12.84	3.53	0.00	0.00	2.42	2.50	16.14	62.57	0.00	0.00	0.00	0.00	4.27	32.39
15.0	14.09	4.29	6.38	0.00	2.78	0.00	15.63	56.83	0.00	0.00	0.00	0.00	4.10	18.93
17.5	11.49	4.36	5.56	0.00	2.21	2.39	16.48	51.79	0.00	0.00	5.72	0.00	4.47	10.22
20.0	12.95	4.84	6.12	0.00	2.34	1.92	14.09	53.29	0.00	0.00	4.45	0.00	5.90	9.89
22.5	11.68	0.00	0.00	0.00	2.58	0.00	13.83	71.92	0.00	0.00	0.00	0.00	6.12	10.77
25.0	13.44	0.00	4.69	0.00	2.97	0.00	15.51	56.37	0.00	0.00	7.02	0.00	4.47	11.71
27.5	12.06	3.37	4.33	0.00	1.82	0.00	15.66	56.59	0.00	0.00	6.18	0.00	18.15	11.00
30.0	12.06	4.27	7.55	0.00	2.50	2.70	15.19	50.27	0.00	0.00	5.48	0.00	7.43	13.53
32.5	10.23	5.06	5.78	2.86	0.00	0.00	13.99	58.51	3.56	0.00	0.00	0.00	—	9.82
35.0	11.25	0.00	6.40	0.00	2.25	2.53	12.12	57.69	0.00	0.00	7.75	0.00	8.09	13.78

APPENDIX 3

INORGANIC GEOCHEMISTRY DATA

Elemental Detection Limits for Inorganic Geochemical Samples

Element	Lower Limit	Upper Limit
Au	0.2 ppb	100 ppm
Ag	2 ppb	100 ppm
Al	0.01 %	10 %
As	0.1 ppm	10 000 ppm
B	1 ppm	2 000 ppm
Ba	0.5 ppm	10 000 ppm
Bi	0.02 ppm	2 000 ppm
Ca	0.01 %	40 %
Cd	0.01 ppm	2 000 ppm
Co	0.1 ppm	2 000 ppm
Cr	0.5 ppm	10 000 ppm
Cu	0.01 ppm	10 000 ppm
Fe	0.01 %	40 %
Hg	5 ppb	100 ppm
Ga	0.1 ppm	100 ppm
K	0.01 %	10 %
La	0.5 ppm	10 000 ppm
Mg	0.01 %	30 %
Mn	7 ppm	10 000 ppm
Mo	0.01 ppm	2 000 ppm
Na	0.001 %	10 %
Ni	0.1 ppm	10 000 ppm
P	0.001 %	5 %
Pb	0.01 ppm	10 000 ppm
S	0.01 %	10 %
Sb	0.02 ppm	2 000 ppm
Sc	0.1 ppm	100 ppm
Se	0.1 ppm	100 ppm
Sr	0.5 ppm	10 000 ppm
Te	0.02 ppm	100 ppm
Th	0.1 ppm	2 000 ppm
Ti	0.001 %	10 %
Tl	0.02 ppm	100 ppm
U	0.1 ppm	2 000 ppm
V	2 ppm	10 000 ppm
W	0.2 ppm	100 ppm
Zn	0.1 ppm	10 000 ppm

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)
GC-HL-1-2	1	112	2.01	3.9	1.7	20	150.6	0.27	1.84	0.50	7.9	33.6	28.13	2.29	6.1	50	0.45	20.9	0.92
GC-HL-3-4	2	113	2.05	4.1	1.3	22	150.5	0.28	1.83	0.51	8.6	36.3	29.25	2.36	6.4	47	0.47	21.7	0.95
GC-HL-5-6	3	121	2.11	4.2	2.0	22	158.2	0.29	1.84	0.52	8.9	36.5	30.65	2.40	6.6	57	0.48	22.6	0.97
GC-HL-7-8	4	124	2.17	4.0	1.2	22	160.6	0.30	1.54	0.53	9.2	36.2	31.64	2.44	6.7	62	0.49	23.4	0.97
GC-HL-9-10	5	123	2.14	4.3	1.4	21	157.8	0.29	1.38	0.49	9.4	35.8	31.93	2.38	6.6	48	0.48	23.8	0.94
GC-HL-11-12	6	120	2.15	4.5	2.0	22	154.3	0.28	1.29	0.47	9.5	36.9	31.92	2.43	6.5	63	0.49	23.0	0.94
GC-HL-13-14	7	119	2.19	4.6	1.8	22	155.4	0.30	1.33	0.47	9.5	36.5	31.98	2.52	6.7	51	0.49	24.4	0.98
GC-HL-15-16	8	120	2.01	6.2	1.4	23	145.5	0.28	1.69	0.50	10.0	35.2	30.33	2.51	6.2	52	0.46	22.0	1.06
GC-HL-17-18	9	112	1.84	7.7	1.7	22	134.9	0.27	2.19	0.54	9.6	31.0	25.60	2.40	5.7	51	0.43	20.5	0.96
STANDARD DS2	–	240	1.72	55.8	190.0	2	148.0	10.32	0.54	10.09	11.0	159.8	126.65	2.98	5.9	230	0.17	16.1	0.58
GC-HL-19-20	10	116	1.91	3.9	1.6	17	148.5	0.32	2.05	0.61	8.6	32.1	26.84	2.48	6.0	51	0.45	19.2	1.00
GC-HL-21-22	11	124	1.73	3.4	1.2	19	146.8	0.32	2.33	0.59	8.3	31.8	28.39	2.35	5.5	50	0.41	19.3	1.06
GC-HL-23-24	12	109	1.44	6.8	2.1	21	133.4	0.26	4.46	0.52	7.5	27.9	24.11	2.15	4.7	59	0.36	15.9	0.97
GC-HL-25-26	13	107	1.42	7.1	1.9	19	124.4	0.26	5.04	0.54	7.8	27.3	23.92	2.10	4.7	49	0.36	16.1	0.91
GC-HL-27-28	14	104	1.35	6.5	1.7	20	119.5	0.24	5.65	0.50	8.0	25.8	25.19	2.08	4.7	54	0.34	15.3	0.90
GC-HL-29-30	15	104	1.41	4.8	1.7	18	111.9	0.24	5.43	0.50	7.7	24.7	23.51	2.04	4.7	49	0.35	15.1	0.92
GC-HL-31-32	16	106	1.55	5.3	1.6	19	109.4	0.27	4.13	0.56	8.1	27.6	25.17	2.19	5.0	61	0.38	16.7	0.96
GC-HL-33-34	17	119	1.60	4.4	1.8	20	113.0	0.28	3.68	0.58	8.3	29.4	25.54	2.16	5.3	54	0.38	17.5	0.98
GC-HL-35-36	18	116	1.63	3.7	2.3	21	122.0	0.28	3.88	0.57	8.6	28.7	25.87	2.21	5.4	56	0.39	18.2	1.01
GC-HL-37-38	19	111	1.58	3.6	1.3	19	125.7	0.28	3.96	0.52	8.0	29.1	27.34	2.18	5.1	57	0.38	16.7	0.99
GC-HL-39-40	20	122	1.69	5.1	1.5	20	130.0	0.29	3.88	0.58	8.5	31.0	28.39	2.33	5.7	57	0.41	18.1	1.03
GC-HL-41-42	21	112	1.67	5.0	2.1	19	131.1	0.28	4.32	0.55	8.5	31.0	27.10	2.31	5.6	51	0.40	17.7	1.00
GC-HL-43-44	22	116	1.72	3.9	1.5	21	134.8	0.30	5.05	0.53	8.9	33.2	28.17	2.46	5.8	57	0.42	18.0	1.01
GC-HL-45-46	23	114	1.71	3.2	2.2	20	125.6	0.27	4.22	0.53	8.3	31.6	27.11	2.40	5.8	53	0.41	18.2	0.96
GC-HL-47-48	24	109	1.72	3.7	1.8	21	125.7	0.26	3.99	0.49	7.6	33.5	28.51	2.32	5.7	48	0.41	17.7	0.94
GC-HL-49-50	25	106	1.80	4.3	1.6	22	135.1	0.26	4.01	0.51	7.8	32.9	28.47	2.35	6.0	53	0.43	18.2	0.97
GC-HL-51-52	26	115	1.84	3.9	1.5	23	140.5	0.34	3.94	0.60	8.2	33.7	28.53	2.39	6.3	61	0.44	19.3	1.00
GC-HL-53-54	27	114	1.84	3.3	1.4	24	133.1	0.32	3.72	0.62	7.8	31.9	28.15	2.36	6.2	60	0.43	19.3	0.99
GC-HL-55-56	28	107	1.70	4.8	1.4	24	134.0	0.31	4.65	0.59	7.6	30.9	26.58	2.28	5.7	50	0.41	17.1	0.93
GC-HL-57-58	29	93	1.44	8.0	0.8	24	128.3	0.30	5.47	0.60	8.7	26.5	26.24	2.25	4.9	47	0.36	16.4	0.90
GC-HL-59-60	30	98	1.42	6.8	1.0	23	122.3	0.30	5.11	0.60	9.0	29.2	25.95	2.24	5.0	51	0.35	15.9	0.91
GC-HL-61-62	31	96	1.47	6.3	1.8	26	122.0	0.30	5.28	0.62	8.9	28.6	25.97	2.28	5.0	42	0.37	16.9	0.92
GC-HL-63-64	32	107	1.42	7.2	1.5	25	120.0	0.32	5.42	0.61	8.9	28.4	25.96	2.25	5.0	53	0.35	17.2	0.91
RE GC-HL-63-64	32	97	1.42	7.1	1.5	26	122.6	0.31	5.30	0.61	9.1	28.5	26.65	2.23	5.1	46	0.36	16.8	0.90
GC-HL-65-66	33	94	1.43	6.5	1.1	25	119.3	0.30	5.33	0.56	8.8	27.9	25.01	2.26	5.0	41	0.35	16.6	0.90
GC-HL-67-68	34	100	1.43	6.2	1.0	26	122.0	0.30	5.51	0.59	9.0	28.1	26.66	2.30	5.0	51	0.36	16.4	0.91
GC-HL-69-70	35	88	1.30	5.7	1.2	25	118.8	0.28	5.31	0.57	8.6	25.6	23.97	2.14	4.6	51	0.33	16.3	0.85
GC-HL-71-72	36	91	1.32	5.7	0.8	25	124.1	0.29	5.48	0.59	8.6	26.7	24.38	2.18	4.7	44	0.33	16.0	0.88
GC-HL-73-74	37	84	1.29	7.1	1.2	28	125.1	0.26	5.69	0.54	8.7	26.7	24.10	2.17	4.6	38	0.33	15.8	0.87
GC-HL-75-76	38	85	1.25	6.7	1.4	25	118.0	0.27	5.53	0.51	8.7	25.6	24.08	2.11	4.5	40	0.32	15.5	0.85
GC-HL-77-78	39	92	1.33	7.7	1.4	27	114.9	0.26	5.72	0.58	9.3	27.0	24.75	2.20	4.6	39	0.33	15.8	0.89
GC-HL-79-80	40	90	1.31	7.6	1.1	28	110.0	0.27	5.73	0.60	9.0	26.1	25.05	2.15	4.6	35	0.32	16.1	0.87
GC-HL-81-82	41	88	1.33	8.2	1.3	29	108.9	0.25	5.70	0.56	9.1	26.8	25.31	2.16	4.8	41	0.33	16.0	0.87

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)
GC-HL-83-84	42	80	1.30	7.9	1.3	28	109.1	0.24	5.73	0.55	8.6	26.2	24.35	2.09	4.5	31	0.32	15.3	0.84
STANDARD DS2	–	260	1.77	57.4	197.3	<1	153.3	10.67	0.55	10.23	11.3	163.9	127.11	3.10	6.1	240	0.17	15.7	0.61
GC-HL-85-86	43	90	1.21	6.9	1.8	30	104.7	0.26	5.46	0.56	8.3	24.8	24.19	2.01	4.1	43	0.30	15.1	0.81
GC-HL-87-88	44	82	1.23	6.5	2.0	30	111.8	0.26	5.58	0.53	8.2	26.2	23.51	2.01	4.2	43	0.30	15.2	0.81
GC-HL-89-90	45	85	1.24	6.8	1.3	29	118.9	0.26	5.58	0.55	8.3	25.8	23.16	2.01	4.4	40	0.30	15.7	0.81
GC-HL-91-92	46	81	1.24	6.4	1.3	29	123.7	0.25	5.48	0.53	8.3	24.7	23.17	1.99	4.4	34	0.30	15.3	0.81
GC-HL-93-94	47	81	1.24	6.0	1.3	30	126.6	0.24	5.65	0.56	8.1	25.7	22.85	1.93	4.3	37	0.30	14.6	0.80
GC-HL-95-96	48	81	1.24	5.9	1.1	31	124.9	0.24	5.49	0.53	7.9	24.9	22.54	1.96	4.1	34	0.30	14.6	0.80
GC-HL-97-98	49	81	1.29	6.4	1.4	32	123.0	0.25	5.46	0.55	8.6	26.7	24.87	2.03	4.5	39	0.31	15.5	0.83
GC-HL-99-100	50	82	1.29	6.4	1.3	30	121.5	0.25	5.09	0.52	8.3	27.5	23.57	2.00	4.5	37	0.31	15.6	0.82
RE GC-HL-99-100	50	78	1.32	6.1	1.2	31	122.5	0.24	5.08	0.52	8.0	27.2	23.58	2.00	4.4	34	0.31	15.6	0.82
GC-HL-101-102	51	86	1.28	6.3	1.1	30	118.3	0.25	4.85	0.55	8.4	26.1	23.51	2.01	4.4	33	0.31	15.4	0.83
GC-HL-103-104	52	87	1.38	6.2	1.4	28	117.8	0.27	4.24	0.56	8.6	28.8	24.49	2.07	4.8	44	0.33	16.9	0.86
GC-HL-105-106	53	91	1.40	6.1	1.1	27	116.0	0.27	4.10	0.55	8.5	29.2	25.18	2.09	4.8	44	0.33	17.1	0.87
GC-HL-107-108	54	78	1.40	6.0	1.4	28	111.2	0.28	4.32	0.56	8.5	27.8	24.36	2.09	4.7	46	0.33	16.1	0.87
GC-HL-109-110	55	91	1.42	6.0	1.0	28	113.1	0.27	4.39	0.55	8.7	29.2	24.82	2.10	4.7	39	0.33	16.3	0.87
GC-HL-111-112	56	95	1.45	6.6	1.3	29	112.8	0.27	4.59	0.57	8.7	28.5	24.53	2.13	4.9	37	0.34	16.9	0.89
GC-HL-113-114	57	90	1.44	5.6	1.2	28	113.6	0.26	4.23	0.56	8.4	27.6	24.60	2.10	4.8	41	0.34	16.5	0.89
GC-HL-115-116	58	93	1.45	6.0	1.4	28	116.1	0.25	4.63	0.56	8.6	29.3	24.87	2.12	4.8	44	0.34	16.7	0.89
GC-HL-117-118	59	92	1.46	6.3	1.4	33	119.6	0.26	4.91	0.56	8.9	29.0	24.65	2.14	4.9	38	0.34	16.8	0.89
GC-HL-119-120	60	95	1.38	6.2	0.8	29	118.3	0.26	4.61	0.53	8.8	29.8	24.65	2.10	4.6	40	0.33	16.4	0.87
GC-HL-121-122	61	81	1.37	6.3	1.5	27	122.6	0.27	4.41	0.54	8.8	27.9	24.57	2.08	4.5	37	0.33	16.2	0.86
GC-HL-123-124	62	86	1.38	6.4	1.7	27	126.5	0.26	4.44	0.58	8.7	28.5	24.89	2.11	4.6	43	0.33	16.7	0.87
GC-HL-125-126	63	100	1.44	7.1	2.1	30	136.6	0.30	4.67	0.61	9.3	29.2	25.28	2.17	4.9	40	0.34	17.1	0.88
GC-HL-127-128	64	100	1.42	7.1	2.1	29	136.7	0.28	4.67	0.60	9.2	29.7	24.97	2.16	4.8	42	0.33	16.6	0.87
GC-HL-129-130	65	99	1.45	7.9	2.0	30	131.1	0.28	4.74	0.62	9.3	28.9	25.02	2.21	4.8	35	0.34	17.1	0.89
GC-HL-131-132	66	101	1.47	8.2	1.9	32	131.6	0.28	4.87	0.65	9.5	30.9	25.58	2.25	4.9	42	0.35	17.1	0.89
GC-HL-133-134	67	93	1.40	7.3	5.4	32	127.3	0.27	4.39	0.61	8.9	26.8	23.40	2.12	4.6	36	0.32	16.6	0.84
GC-HL-135-136	68	88	1.31	7.0	2.4	29	125.1	0.26	4.46	0.56	8.5	26.2	23.70	2.01	4.4	35	0.31	15.8	0.80
GC-HL-137-138	69	91	1.34	7.7	1.6	29	124.9	0.27	4.49	0.60	8.5	27.1	23.38	2.06	4.4	44	0.31	16.0	0.82
GC-HL-139-140	70	93	1.38	7.5	1.3	29	118.4	0.27	4.62	0.62	8.8	28.6	24.35	2.12	4.5	37	0.33	16.1	0.85
GC-HL-141-142	71	93	1.41	6.6	1.7	28	110.4	0.26	4.21	0.61	8.6	29.2	24.68	2.13	4.6	38	0.33	16.3	0.86
GC-HL-143-144	72	94	1.43	7.8	1.5	31	112.2	0.27	4.89	0.61	9.0	27.0	23.72	2.15	4.6	39	0.33	16.5	0.86
GC-HL-145-146	73	91	1.39	7.0	1.5	28	108.1	0.26	4.83	0.58	8.7	28.6	24.03	2.09	4.5	44	0.32	15.5	0.84
GC-HL-147-148	74	85	1.35	5.8	1.4	30	106.9	0.25	5.32	0.57	8.5	27.9	23.79	2.04	4.4	32	0.32	15.4	0.82
GC-HL-149-150	75	89	1.31	5.5	1.7	33	103.1	0.25	4.71	0.58	7.7	26.3	22.72	1.96	4.3	37	0.30	15.0	0.77
STANDARD DS2	–	260	1.74	56.1	198.7	2	150.5	10.72	0.55	10.42	11.2	163.3	123.55	3.04	6.1	230	0.17	16.3	0.60
GC-HL-151-152	76	88	1.32	6.1	2.0	32	110.7	0.27	4.47	0.65	9.2	25.6	23.87	2.02	4.3	37	0.32	16.3	0.76
GC-HL-153-154	77	92	1.34	5.4	1.6	30	114.3	0.26	4.03	0.64	8.7	26.4	24.27	2.02	4.3	33	0.32	15.7	0.74
GC-HL-155-156	78	106	1.46	5.1	2.2	31	130.8	0.30	2.95	0.67	9.0	29.2	25.22	2.13	4.7	43	0.34	16.8	0.79
GC-HL-157-158	79	106	1.53	5.5	1.6	30	135.5	0.31	2.96	0.73	9.8	30.6	25.29	2.19	5.0	52	0.35	17.7	0.83
GC-HL-159-160	80	98	1.54	5.6	1.5	33	132.1	0.30	3.07	0.75	9.3	31.7	26.90	2.27	5.0	50	0.36	18.0	0.85
GC-HL-161-162	81	107	1.56	7.1	2.0	31	124.7	0.32	2.73	0.73	10.2	31.0	26.65	2.28	5.2	44	0.36	18.4	0.87

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)
GC-HL-163-164	82	109	1.52	7.2	2.0	28	115.2	0.31	2.40	0.68	10.1	29.8	26.26	2.23	5.2	45	0.35	18.1	0.87
GC-HL-165-166	83	109	1.50	7.2	1.8	30	110.3	0.31	2.57	0.73	9.6	30.6	25.99	2.20	5.0	43	0.34	17.6	0.89
GC-HL-167-168	84	100	1.51	6.7	2.4	31	115.8	0.29	3.44	0.68	9.1	28.9	25.71	2.20	4.8	45	0.34	17.7	0.87

ELEMENT SAMPLES	Depth (cm)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-HL-1-2	1	426	0.80	0.861	29.1	0.062	14.14	0.36	0.32	4.1	0.9	117.9	0.05	5.7	0.010	0.25	2.0	62	< .2	94.5
GC-HL-3-4	2	452	0.70	0.888	31.3	0.064	14.63	0.39	0.29	4.1	0.9	117.9	0.04	6.1	0.010	0.26	2.0	62	< .2	96.9
GC-HL-5-6	3	457	0.77	0.836	33.4	0.066	15.45	0.39	0.34	4.2	1.0	120.5	0.05	6.2	0.010	0.26	2.1	66	< .2	100.8
GC-HL-7-8	4	433	0.80	0.781	35.0	0.064	16.00	0.38	0.35	4.4	1.0	115.2	0.04	6.4	0.010	0.27	2.2	68	< .2	103.1
GC-HL-9-10	5	401	0.76	0.735	35.1	0.064	16.09	0.37	0.32	4.5	1.0	112.5	0.02	6.4	0.010	0.25	2.2	66	< .2	99.8
GC-HL-11-12	6	375	0.79	0.697	34.8	0.059	15.57	0.43	0.28	4.4	0.9	108.4	0.05	6.3	0.010	0.25	2.2	66	< .2	99.3
GC-HL-13-14	7	403	0.80	0.677	35.5	0.062	16.03	0.45	0.28	4.5	1.0	112.2	0.03	6.7	0.010	0.24	2.1	65	< .2	101.7
GC-HL-15-16	8	463	1.11	0.712	35.2	0.063	15.88	0.79	0.31	4.2	1.0	112.0	0.03	6.1	0.010	0.24	2.2	64	< .2	100.3
GC-HL-17-18	9	547	1.62	0.894	32.5	0.069	14.94	1.08	0.40	3.8	1.4	127.4	0.07	5.5	0.009	0.24	2.5	63	< .2	94.1
STANDARD DS2	–	796	13.63	0.030	32.6	0.087	32.25	0.03	9.19	3.1	2.2	28.8	1.72	3.4	0.091	1.74	17.5	75	6.8	154.3
GC-HL-19-20	10	578	1.12	0.893	31.3	0.060	13.69	0.80	0.34	4.1	1.2	129.9	0.05	6.0	0.009	0.26	2.1	62	< .2	104.4
GC-HL-21-22	11	584	0.99	0.707	31.4	0.059	14.54	0.78	0.33	4.0	1.1	121.5	0.04	6.0	0.010	0.25	2.0	60	< .2	99.7
GC-HL-23-24	12	788	1.56	0.924	28.0	0.070	12.79	1.10	0.38	3.2	1.3	233.3	0.07	4.5	0.008	0.22	2.3	51	< .2	85.7
GC-HL-25-26	13	881	1.70	0.808	27.4	0.072	12.98	1.13	0.35	3.2	1.2	261.0	0.05	4.3	0.009	0.22	2.3	50	< .2	82.2
GC-HL-27-28	14	936	2.08	0.857	28.5	0.077	12.86	1.21	0.35	3.1	1.3	309.0	0.11	4.2	0.009	0.22	2.4	49	< .2	79.9
GC-HL-29-30	15	850	1.61	0.740	26.7	0.068	13.37	1.02	0.28	3.1	1.2	280.7	0.07	4.3	0.009	0.22	2.1	52	< .2	80.9
GC-HL-31-32	16	774	1.60	0.570	29.0	0.065	14.62	1.02	0.31	3.5	1.1	215.9	0.06	4.9	0.009	0.23	2.2	56	< .2	88.9
GC-HL-33-34	17	724	1.57	0.566	30.0	0.066	15.94	0.97	0.27	3.7	1.3	205.4	0.07	5.2	0.009	0.24	2.3	57	< .2	92.3
GC-HL-35-36	18	753	1.59	0.563	29.5	0.068	15.58	1.04	0.30	3.7	1.2	213.9	0.06	5.1	0.009	0.24	2.3	59	< .2	92.6
GC-HL-37-38	19	753	1.45	0.552	27.8	0.066	14.85	1.04	0.28	3.5	1.2	208.8	0.08	4.8	0.009	0.23	2.1	55	< .2	92.5
GC-HL-39-40	20	794	1.66	0.553	31.6	0.066	16.07	1.18	0.33	3.9	1.2	216.3	0.10	5.5	0.009	0.25	2.2	58	< .2	95.9
GC-HL-41-42	21	807	1.67	0.549	30.1	0.070	16.11	1.25	0.31	3.9	1.2	252.4	0.05	5.5	0.009	0.25	2.2	57	< .2	95.6
GC-HL-43-44	22	804	1.66	0.572	30.9	0.080	16.53	1.36	0.28	4.0	1.3	293.3	0.09	5.6	0.010	0.25	2.3	59	< .2	98.8
GC-HL-45-46	23	805	1.72	0.542	31.0	0.067	15.65	1.30	0.25	4.0	1.2	255.9	0.08	5.5	0.009	0.26	2.2	58	< .2	95.8
GC-HL-47-48	24	825	1.70	0.520	29.5	0.065	14.81	1.19	0.26	3.8	1.1	250.9	0.06	5.1	0.009	0.24	2.1	55	< .2	94.8
GC-HL-49-50	25	832	1.54	0.504	30.9	0.067	15.01	1.15	0.25	4.0	1.1	249.5	0.07	5.4	0.009	0.25	2.1	58	< .2	94.7
GC-HL-51-52	26	840	1.51	0.536	32.2	0.066	15.45	1.15	0.33	4.1	1.1	250.1	0.10	5.5	0.010	0.25	2.1	59	< .2	100.2
GC-HL-53-54	27	839	1.43	0.505	31.1	0.066	15.37	1.12	0.33	4.0	1.0	240.4	0.06	5.5	0.009	0.25	2.0	58	< .2	97.7
GC-HL-55-56	28	892	1.75	0.496	29.6	0.064	14.53	1.20	0.34	3.8	1.2	286.4	0.06	5.0	0.009	0.24	2.2	55	< .2	93.4
GC-HL-57-58	29	980	2.65	0.480	30.7	0.067	14.73	1.56	0.45	3.5	1.2	326.8	0.07	4.9	0.009	0.22	2.9	50	< .2	87.4
GC-HL-59-60	30	1004	2.27	0.489	29.9	0.067	15.22	1.61	0.45	3.5	1.2	306.4	0.10	5.4	0.009	0.23	2.7	51	< .2	86.9
GC-HL-61-62	31	1026	2.33	0.492	30.0	0.067	15.17	1.58	0.40	3.5	1.2	317.0	0.06	5.4	0.009	0.23	2.7	52	< .2	87.6
GC-HL-63-64	32	1028	2.40	0.522	30.6	0.070	15.79	1.65	0.44	3.6	1.4	343.3	0.07	5.4	0.008	0.24	2.8	49	< .2	86.5
RE GC-HL-63-64	32	1014	2.38	0.502	31.2	0.070	15.57	1.63	0.44	3.5	1.3	334.3	0.08	5.4	0.009	0.23	2.7	50	< .2	84.9
GC-HL-65-66	33	1036	2.22	0.496	30.2	0.067	15.34	1.61	0.40	3.5	1.2	324.2	0.08	5.2	0.009	0.23	2.6	51	< .2	85.0
GC-HL-67-68	34	1105	2.21	0.491	30.6	0.069	15.47	1.67	0.40	3.5	1.2	332.2	0.06	5.3	0.009	0.23	2.5	52	< .2	88.2
GC-HL-69-70	35	1087	2.14	0.456	27.7	0.065	14.66	1.61	0.38	3.3	1.2	346.4	0.06	5.0	0.008	0.22	2.3	47	< .2	80.1
GC-HL-71-72	36	1160	2.11	0.491	29.6	0.070	14.98	1.69	0.35	3.4	1.1	345.4	0.07	5.1	0.009	0.22	2.3	47	< .2	81.8
GC-HL-73-74	37	1155	2.29	0.507	29.5	0.072	13.98	1.68	0.38	3.3	1.2	360.4	0.06	4.9	0.009	0.22	2.4	48	< .2	81.7
GC-HL-75-76	38	1129	2.37	0.512	28.3	0.072	13.73	1.65	0.39	3.1	1.2	340.7	0.05	4.9	0.009	0.22	2.3	47	< .2	84.0
GC-HL-77-78	39	1138	2.48	0.544	29.2	0.075	13.65	1.70	0.38	3.4	1.4	346.5	0.05	5.1	0.008	0.21	2.4	50	< .2	83.0
GC-HL-79-80	40	1093	2.52	0.525	30.3	0.074	13.31	1.69	0.36	3.3	1.3	352.2	0.06	5.0	0.008	0.23	2.4	50	< .2	82.1
GC-HL-81-82	41	1076	2.69	0.525	31.3	0.076	12.75	1.74	0.39	3.4	1.4	350.2	0.06	5.2	0.008	0.23	2.6	51	< .2	82.7

ELEMENT SAMPLES	Depth (cm)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-HL-83-84	42	1040	2.69	0.512	29.4	0.074	12.05	1.66	0.35	3.4	1.3	343.1	0.06	4.9	0.008	0.22	2.5	51	< .2	81.0
STANDARD DS2	–	832	14.20	0.032	35.2	0.090	32.23		9.74	3.2	2.3	28.2	1.72	3.5	0.091	1.79	19	74	6.7	159.2
GC-HL-85-86	43	1010	2.69	0.480	28.0	0.070	12.17	1.62	0.36	3.0	1.2	327.7	0.04	4.8	0.009	0.22	2.5	48	< .2	79.7
GC-HL-87-88	44	1009	2.70	0.483	28.3	0.072	11.80	1.57	0.36	2.9	1.2	333.4	0.07	4.8	0.009	0.22	2.4	47	< .2	79.0
GC-HL-89-90	45	1010	2.81	0.501	27.7	0.069	12.27	1.58	0.35	3.0	1.2	336.8	0.05	4.8	0.009	0.23	2.5	48	< .2	79.4
GC-HL-91-92	46	1018	2.77	0.485	27.9	0.069	12.09	1.55	0.33	3.0	1.1	332.0	0.06	4.8	0.008	0.22	2.5	49	< .2	79.9
GC-HL-93-94	47	1042	2.69	0.498	27.7	0.071	11.29	1.56	0.34	3.0	1.2	334.7	0.06	4.6	0.008	0.22	2.4	50	< .2	79.6
GC-HL-95-96	48	1054	2.67	0.492	26.5	0.072	11.39	1.57	0.32	3.0	1.1	320.7	0.07	4.6	0.008	0.22	2.4	51	< .2	78.8
GC-HL-97-98	49	1079	2.67	0.515	29.1	0.071	11.96	1.61	0.35	3.2	1.2	335.4	0.05	4.9	0.008	0.23	2.5	51	< .2	81.9
GC-HL-99-100	50	1045	2.71	0.495	28.0	0.068	11.75	1.58	0.32	3.1	1.1	305.7	0.07	4.9	0.009	0.23	2.4	52	< .2	81.0
RE GC-HL-99-100	50	1044	2.54	0.493	27.1	0.069	11.42	1.55	0.33	3.1	1.2	295.2	0.05	4.8	0.009	0.22	2.3	53	< .2	81.0
GC-HL-101-102	51	1025	2.50	0.494	28.0	0.069	11.84	1.53	0.35	3.1	1.1	291.2	0.05	5.1	0.009	0.23	2.3	51	< .2	82.7
GC-HL-103-104	52	1018	2.32	0.498	29.4	0.072	12.43	1.53	0.40	3.3	1.1	272.1	0.04	5.6	0.009	0.24	2.2	55	< .2	86.9
GC-HL-105-106	53	1014	2.33	0.496	29.0	0.072	12.54	1.53	0.37	3.4	1.3	257.2	0.07	5.7	0.009	0.24	2.2	54	< .2	87.0
GC-HL-107-108	54	1034	2.27	0.495	29.1	0.070	12.30	1.53	0.38	3.4	1.2	262.5	0.06	5.6	0.009	0.24	2.1	55	< .2	87.7
GC-HL-109-110	55	1029	2.29	0.507	29.6	0.074	12.41	1.54	0.37	3.4	1.2	270.5	0.08	5.5	0.008	0.25	2.1	57	< .2	87.8
GC-HL-111-112	56	1045	2.34	0.517	28.9	0.069	12.61	1.57	0.37	3.6	1.1	271.0	0.07	5.7	0.008	0.25	2.2	56	< .2	89.3
GC-HL-113-114	57	1014	2.21	0.531	29.2	0.066	12.32	1.51	0.35	3.3	1.2	256.0	0.06	5.6	0.009	0.24	2.1	57	< .2	88.3
GC-HL-115-116	58	1026	2.23	0.529	29.9	0.068	12.46	1.56	0.35	3.5	1.2	282.2	0.07	5.5	0.009	0.24	2.1	56	< .2	88.7
GC-HL-117-118	59	1061	2.30	0.523	29.8	0.069	12.59	1.60	0.35	3.3	1.2	295.0	0.07	5.3	0.009	0.23	2.1	56	< .2	87.6
GC-HL-119-120	60	1052	2.23	0.538	29.6	0.067	12.86	1.60	0.38	3.4	1.3	281.7	0.06	5.4	0.009	0.23	2.2	54	< .2	86.2
GC-HL-121-122	61	1049	1.99	0.508	27.7	0.061	12.05	1.51	0.37	3.3	1.2	263.5	0.07	5.1	0.009	0.23	2.0	54	< .2	88.1
GC-HL-123-124	62	1051	2.13	0.501	29.6	0.064	12.48	1.58	0.38	3.3	1.2	266.5	0.07	5.3	0.008	0.23	2.1	55	< .2	87.8
GC-HL-125-126	63	1049	2.21	0.549	30.8	0.066	12.95	1.65	0.41	3.5	1.3	283.7	0.10	5.7	0.009	0.25	2.2	58	< .2	89.6
GC-HL-127-128	64	1039	2.26	0.533	31.1	0.064	13.25	1.66	0.41	3.5	1.2	277.2	0.09	5.5	0.009	0.24	2.3	59	< .2	89.7
GC-HL-129-130	65	1071	2.47	0.546	31.1	0.066	13.06	1.71	0.41	3.5	1.3	282.3	0.11	5.5	0.009	0.24	2.4	58	< .2	91.0
GC-HL-131-132	66	1079	2.57	0.550	32.7	0.066	13.25	1.75	0.44	3.5	1.4	291.4	0.10	5.7	0.009	0.25	2.5	61	< .2	92.4
GC-HL-133-134	67	994	2.24	0.505	30.4	0.063	12.58	1.63	0.42	3.3	1.4	282.1	0.07	5.4	0.009	0.25	2.3	58	< .2	88.6
GC-HL-135-136	68	966	2.17	0.522	29.1	0.060	12.02	1.57	0.44	3.1	1.2	271.2	0.07	5.2	0.008	0.22	2.3	54	< .2	84.8
GC-HL-137-138	69	982	2.23	0.527	29.3	0.061	12.38	1.62	0.44	3.2	1.2	274.8	0.07	5.3	0.008	0.23	2.3	56	< .2	86.1
GC-HL-139-140	70	1004	2.17	0.555	30.1	0.062	12.46	1.64	0.41	3.4	1.3	282.4	0.06	5.2	0.009	0.23	2.3	58	< .2	88.8
GC-HL-141-142	71	983	2.08	0.569	30.1	0.062	12.30	1.61	0.38	3.4	1.3	259.3	0.05	5.3	0.008	0.23	2.1	59	< .2	89.8
GC-HL-143-144	72	1030	2.39	0.579	30.5	0.067	12.79	1.70	0.40	3.4	1.3	283.6	0.06	5.4	0.009	0.23	2.4	59	< .2	90.9
GC-HL-145-146	73	1030	2.20	0.579	29.1	0.064	12.44	1.61	0.40	3.3	1.4	293.4	0.07	5.3	0.008	0.24	2.3	58	< .2	88.4
GC-HL-147-148	74	1056	2.22	0.592	28.6	0.067	11.91	1.60	0.38	3.2	1.3	322.2	0.08	5.1	0.008	0.22	2.3	57	< .2	85.5
GC-HL-149-150	75	986	2.34	0.583	28.0	0.067	11.65	1.60	0.38	3.1	1.3	290.0	0.05	5.4	0.008	0.22	2.2	56	< .2	83.3
STANDARD DS2	–	816	14.01	0.031	34.8	0.089	32.88	0.03	9.90	3.3	2.3	27.5	1.73	3.8	0.091	1.83	19.1	74	6.7	158.1
GC-HL-151-152	76	1000	2.43	0.617	30.2	0.070	12.61	1.66	0.40	3.3	1.5	288.3	0.08	5.4	0.008	0.24	2.4	56	< .2	84.1
GC-HL-153-154	77	929	2.21	0.592	30.5	0.066	12.15	1.57	0.37	3.3	1.3	258.8	0.07	5.1	0.008	0.23	2.3	57	< .2	85.4
GC-HL-155-156	78	824	1.93	0.611	32.3	0.064	13.50	1.62	0.41	3.5	1.4	212.4	0.06	5.8	0.008	0.25	2.1	60	< .2	93.2
GC-HL-157-158	79	790	1.87	0.641	33.7	0.064	13.95	1.62	0.41	3.9	1.4	208.0	0.06	6.2	0.008	0.26	2.1	62	< .2	96.0
GC-HL-159-160	80	846	1.95	0.666	34.6	0.065	13.60	1.64	0.42	3.8	1.4	206.0	0.06	6.2	0.009	0.26	2.2	63	< .2	98.5
GC-HL-161-162	81	797	1.88	0.687	34.1	0.062	14.12	1.65	0.46	4.0	1.3	194.4	0.05	6.3	0.009	0.26	2.1	62	< .2	99.0

ELEMENT SAMPLES	Depth (cm)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-HL-163-164	82	743	1.69	0.636	34.8	0.059	14.11	1.61	0.49	3.8	1.4	176.3	0.09	6.5	0.008	0.25	1.9	60	< .2	97.9
GC-HL-165-166	83	747	1.78	0.634	33.9	0.061	13.70	1.58	0.46	3.8	1.3	177.7	0.07	6.1	0.008	0.25	2.0	60	< .2	96.9
GC-HL-167-168	84	829	1.91	0.659	32.7	0.061	14.04	1.61	0.42	3.7	1.3	220.6	0.08	6.0	0.008	0.25	2.1	58	< .2	94.0

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)	Mo (ppm)
GC-LL-1	0.50	110	1.35	5.9	0.9	21	120.9	0.27	2.69	0.57	7.1	25.9	28.54	2.02	4.1	79	0.31	17.3	1.52	806	0.67
GC-LL-2	1.00	112	1.29	6.7	1.9	18	108.1	0.26	2.88	0.65	7.5	24.9	26.73	1.87	4.1	79	0.30	16.8	1.52	558	0.68
GC-LL-3	1.50	105	1.36	6.7	1.9	15	113.0	0.24	2.78	0.62	7.4	25.4	27.66	1.94	4.3	70	0.31	16.9	1.53	666	0.70
GC-LL-4	2.00	103	1.41	6.6	2.2	20	121.8	0.26	2.64	0.64	7.5	26.0	26.84	2.08	4.5	74	0.33	18.2	1.51	597	0.76
GC-LL-5	2.50	114	1.41	6.6	1.8	15	116.4	0.26	2.43	0.61	7.7	26.7	27.75	1.97	4.5	67	0.32	18.0	1.49	559	0.82
GC-LL-6	3.00	116	1.42	7.3	1.3	15	118.5	0.26	2.80	0.65	8.0	26.4	27.45	2.03	4.5	75	0.33	18.4	1.54	595	0.93
GC-LL-7	3.50	110	1.27	7.3	1.8	14	109.1	0.25	3.04	0.63	7.8	26.4	26.48	1.91	4.1	60	0.29	17.2	1.59	596	1.00
GC-LL-8	4.00	109	1.29	7.5	2.0	16	111.9	0.28	3.13	0.64	8.3	26.4	27.49	1.95	4.2	74	0.30	18.0	1.70	630	1.10
GC-LL-9	4.50	105	1.23	6.9	2.0	14	106.3	0.25	3.24	0.58	8.3	25.1	26.59	1.89	4.1	64	0.28	17.2	1.77	630	1.19
GC-LL-10	5.00	102	1.20	6.6	2.3	12	104.4	0.25	3.18	0.55	8.2	23.9	25.94	1.85	4.0	58	0.27	17.4	1.77	620	1.24
GC-LL-11	5.50	98	1.17	6.3	1.2	13	103.8	0.24	3.30	0.53	8.3	25.4	24.54	1.83	3.9	57	0.27	16.6	1.79	625	1.19
GC-LL-12	6.00	99	1.17	5.5	1.2	13	103.8	0.24	3.40	0.52	7.9	24.8	24.33	1.82	3.8	52	0.27	17.0	1.85	636	1.20
GC-LL-13	6.50	103	1.18	5.3	1.6	13	106.6	0.24	3.41	0.53	8.1	23.4	24.95	1.82	4.0	46	0.27	18.0	1.85	642	1.27
RE GC-LL-13	6.50	101	1.20	5.4	1.6	14	108.0	0.23	3.45	0.53	8.4	26.0	25.35	1.85	4.0	52	0.28	17.5	1.87	651	1.26
GC-LL-14	7.00	105	1.20	5.3	1.2	13	109.1	0.23	3.45	0.55	8.2	26.4	25.38	1.85	4.0	49	0.27	17.8	1.90	655	1.24
GC-LL-15	7.50	103	1.19	5.2	1.4	12	109.9	0.24	3.41	0.50	8.6	25.0	25.73	1.86	4.0	49	0.28	17.5	1.88	651	1.29
GC-LL-16	8.00	103	1.16	5.1	1.3	12	109.0	0.24	3.49	0.56	8.6	25.5	25.39	1.87	4.0	49	0.27	17.9	1.94	671	1.32
GC-LL-17	8.50	98	1.14	5.2	1.5	12	106.0	0.23	3.44	0.51	8.1	25.5	25.10	1.86	3.8	48	0.26	17.5	1.92	666	1.32
GC-LL-18	9.00	102	1.11	5.5	1.5	12	104.4	0.22	3.31	0.51	8.4	23.9	24.74	1.87	3.7	49	0.25	17.1	1.88	663	1.42
GC-LL-19	9.50	102	1.09	5.7	1.8	13	104.8	0.23	3.29	0.50	8.5	23.3	25.47	1.92	3.7	44	0.25	17.1	1.87	676	1.47
GC-LL-20	10.00	101	1.14	5.2	1.8	13	109.0	0.23	3.17	0.54	8.5	24.6	26.16	1.90	4.0	51	0.26	17.7	1.85	651	1.43
GC-LL-21	10.50	110	1.22	4.9	1.7	12	115.3	0.24	3.19	0.58	8.4	26.7	26.75	1.92	4.1	46	0.28	18.4	1.89	660	1.49
GC-LL-22	11.00	102	1.25	4.7	1.3	11	115.0	0.24	3.18	0.54	8.5	26.2	26.19	1.85	4.2	40	0.28	18.6	1.91	642	1.35
GC-LL-23	11.50	102	1.29	4.8	1.0	12	118.0	0.23	3.32	0.52	8.3	28.1	26.84	1.87	4.3	46	0.29	19.0	1.98	653	1.27
GC-LL-24	12.00	105	1.18	5.3	1.2	11	113.9	0.24	3.25	0.54	8.5	27.2	26.19	1.90	4.1	51	0.27	18.0	1.92	647	1.42
STANDARD DS2	–	264	1.76	57.9	183.8	3	155.1	10.84	0.55	10.68	11.5	164.6	124.11	3.05	6.1	233	0.17	16.8	0.60	819	14.19
GC-LL-25	12.50	106	1.11	4.6	2.0	11	111.3	0.24	3.18	0.56	8.7	22.9	27.15	1.91	3.7	44	0.26	18.7	1.94	659	1.53
GC-LL-26	13.00	103	1.16	4.2	1.5	11	112.9	0.25	3.16	0.52	8.5	25.7	27.40	1.87	3.8	40	0.27	18.1	1.95	651	1.38
GC-LL-27	13.50	105	1.21	3.8	1.8	10	117.9	0.25	3.26	0.53	8.4	24.7	27.69	1.83	4.0	48	0.28	19.3	2.01	653	1.34
GC-LL-28	14.00	105	1.23	4.2	1.3	12	116.5	0.25	3.26	0.50	8.3	25.8	27.04	1.81	4.1	41	0.28	19.5	2.03	646	1.33
GC-LL-29	14.50	102	1.23	3.9	1.7	11	117.0	0.25	3.21	0.49	8.4	25.2	27.37	1.78	4.1	39	0.28	18.7	2.01	637	1.32
GC-LL-30	15.00	107	1.25	3.9	1.2	11	121.9	0.26	3.25	0.56	8.3	26.7	28.01	1.81	4.3	45	0.29	19.9	2.03	658	1.38
GC-LL-31	15.50	105	1.26	3.9	1.5	10	123.1	0.26	3.32	0.52	8.2	27.1	28.71	1.83	4.2	44	0.29	19.6	2.06	659	1.35
GC-LL-32	16.00	109	1.28	4.1	1.9	11	125.7	0.25	3.31	0.52	8.2	27.6	28.44	1.83	4.3	34	0.29	19.7	2.08	661	1.33
GC-LL-33	16.50	110	1.30	3.8	1.9	11	126.9	0.26	3.43	0.52	8.5	27.1	29.15	1.84	4.4	41	0.30	19.7	2.13	670	1.32
GC-LL-34	17.00	112	1.35	3.9	1.3	12	126.2	0.27	3.38	0.55	8.7	27.3	28.69	1.89	4.5	42	0.30	20.4	2.13	674	1.31
GC-LL-35	17.50	115	1.35	4.1	1.3	12	127.5	0.30	3.61	0.54	8.4	27.3	28.47	1.96	4.5	42	0.30	20.7	2.17	676	1.42
GC-LL-36	18.00	109	1.28	3.9	1.3	12	121.7	0.25	3.29	0.56	8.4	27.1	27.33	1.84	4.2	35	0.29	19.3	2.06	641	1.27
GC-LL-37	18.50	114	1.32	3.8	1.3	10	125.4	0.25	3.32	0.54	8.3	28.7	27.62	1.85	4.3	49	0.29	20.4	2.08	649	1.28
GC-LL-38	19.00	112	1.33	3.9	1.7	10	129.1	0.26	3.58	0.52	8.7	26.9	28.26	1.88	4.4	51	0.30	19.5	2.14	677	1.30
GC-LL-39	19.50	115	1.27	5.1	2.4	10	128.1	0.26	4.03	0.50	8.4	27.8	28.72	1.98	4.3	40	0.29	19.9	2.20	724	1.24

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)	Mo (ppm)
GC-LL-40	20.00	116	1.35	5.1	2.9	12	133.4	0.26	4.00	0.57	9.1	27.6	29.58	2.05	4.5	45	0.31	20.1	2.21	734	1.43
GC-LL-41	20.50	114	1.28	5.4	1.2	11	128.5	0.25	4.17	0.53	8.4	27.1	27.80	2.04	4.3	53	0.29	20.2	2.25	753	1.22
GC-LL-42	21.00	118	1.32	4.6	2.6	10	129.4	0.27	3.93	0.52	9.0	27.0	28.70	2.02	4.4	45	0.30	19.7	2.21	722	1.23
GC-LL-43	21.50	118	1.40	4.7	2.6	11	134.0	0.27	3.83	0.56	9.5	29.0	29.48	2.11	4.6	56	0.31	20.1	2.23	701	1.37
GC-LL-44	22.00	119	1.41	4.0	3.2	11	132.7	0.28	3.57	0.56	9.4	29.5	28.64	2.10	4.7	46	0.31	21.0	2.15	655	1.34
GC-LL-45	22.50	119	1.45	3.7	1.5	11	136.4	0.26	3.47	0.50	9.2	30.0	27.97	2.08	4.8	42	0.31	21.1	2.11	655	1.41
GC-LL-46	23.00	112	1.43	4.1	2.0	11	136.6	0.28	3.37	0.49	9.0	28.0	27.93	2.09	4.7	50	0.32	20.2	2.05	661	1.47
GC-LL-47	23.50	116	1.43	4.7	1.9	11	142.4	0.28	3.45	0.52	9.5	30.1	28.20	2.04	4.7	41	0.33	20.5	1.99	696	1.86
GC-LL-48	24.00	112	1.30	6.8	1.4	11	132.5	0.27	3.40	0.53	9.3	27.5	27.48	2.18	4.4	48	0.31	18.7	2.00	708	2.36
RE GC-LL-48	24.00	115	1.32	6.6	1.9	12	133.7	0.26	3.44	0.55	9.4	27.2	28.10	2.21	4.5	43	0.31	19.6	2.03	719	2.54
GC-LL-49	24.50	110	1.19	7.8	2.3	10	123.7	0.25	3.59	0.53	8.7	24.9	26.81	2.29	4.0	49	0.28	18.3	2.08	683	1.93
GC-LL-50	25.00	102	1.17	6.5	3.1	11	122.8	0.24	3.66	0.52	8.8	24.4	26.46	2.22	3.9	46	0.28	17.7	2.10	658	1.47
GC-LL-51	25.50	101	1.15	5.6	2.5	11	122.2	0.24	3.65	0.54	8.2	25.7	26.00	2.08	3.8	48	0.27	18.1	2.14	661	1.33
GC-LL-52	26.00	104	1.19	5.9	1.1	11	126.3	0.24	3.77	0.52	8.7	24.8	26.70	2.14	3.8	48	0.28	18.0	2.11	653	1.30
GC-LL-53	26.50	106	1.16	5.2	2.0	10	122.8	0.24	3.64	0.52	8.6	24.5	26.00	2.05	3.8	48	0.27	17.5	2.18	638	1.17
GC-LL-54	27.00	108	1.19	5.7	2.1	11	125.8	0.25	3.79	0.52	8.4	25.7	26.95	2.12	3.9	47	0.27	18.2	2.15	628	1.23
GC-LL-55	27.50	102	1.20	5.6	1.9	12	128.1	0.24	3.69	0.55	8.5	26.0	26.68	2.14	4.0	40	0.28	18.6	2.15	602	1.31
GC-LL-56	28.00	104	1.25	5.6	3.4	11	128.6	0.24	3.45	0.55	8.5	25.4	27.29	2.06	4.0	47	0.29	18.5	2.13	580	1.51
GC-LL-57	28.50	118	1.40	5.7	2.0	12	138.9	0.27	3.02	0.57	8.8	27.2	28.88	2.09	4.5	46	0.32	19.6	1.90	569	1.74
STANDARD DS2	–	268	1.75	55.8	194.2	2	152.6	10.75	0.52	10.17	13.1	162.1	123.65	3.06	6.0	0.01	0.17	15.7	0.60	818	14.14
GC-LL-58	29.00	115	1.44	6.3	2.0	10	137.2	0.28	2.96	0.61	9.4	28.3	28.45	2.08	4.7	40	0.33	19.9	1.88	571	1.87
GC-LL-59	29.50	114	1.43	6.6	1.3	10	137.6	0.30	3.09	0.66	10.2	28.3	28.80	2.13	4.9	53	0.33	21.1	1.96	581	1.96
GC-LL-60	30.00	108	1.26	8.3	3.0	9	128.1	0.27	3.73	0.60	9.9	26.1	28.23	2.27	4.3	50	0.29	19.1	2.09	598	1.88
GC-LL-61	30.50	100	1.11	7.5	2.0	8	125.1	0.24	4.18	0.58	8.9	22.4	25.84	2.18	3.7	32	0.26	17.6	2.01	619	1.99
GC-LL-62	31.00	105	1.09	6.5	10.4	8	128.3	0.23	4.66	0.59	8.8	23.8	25.54	2.12	3.6	27	0.26	17.9	2.01	653	2.03
GC-LL-63	31.50	98	1.10	5.9	2.2	10	123.6	0.25	4.26	0.51	8.6	24.3	25.12	2.08	3.5	44	0.26	16.9	2.04	623	1.51
GC-LL-64	32.00	102	1.12	5.5	2.8	8	118.7	0.25	3.70	0.53	8.8	23.7	24.47	2.02	3.7	41	0.27	17.3	2.07	571	0.97
GC-LL-65	32.50	103	1.16	5.8	2.1	10	120.8	0.23	3.67	0.55	9.2	24.4	25.18	2.11	3.8	40	0.27	17.9	2.11	611	0.98
GC-LL-66	33.00	100	1.29	6.5	1.9	9	127.2	0.26	3.86	0.58	9.8	28.6	25.94	2.29	4.3	42	0.30	19.0	2.23	706	1.11
GC-LL-67	33.50	100	1.26	6.8	6.1	9	125.5	0.27	3.80	0.54	10.2	27.0	26.31	2.28	4.1	43	0.30	19.0	2.28	756	1.24
GC-LL-68	34.00	97	1.19	6.8	2.3	9	121.9	0.24	3.97	0.51	9.2	25.2	24.93	2.22	4.0	41	0.28	18.1	2.35	755	1.29
RE GC-LL-68	34.00	98	1.17	6.6	1.8	10	120.5	0.24	3.96	0.49	9.3	26.4	24.62	2.19	3.9	44	0.28	17.9	2.35	751	1.25
GC-LL-69	34.50	103	1.12	6.3	2.3	9	117.7	0.23	4.25	0.50	8.5	24.2	24.00	2.05	3.8	45	0.27	18.1	2.44	749	1.15
GC-LL-70	35.00	100	1.12	6.0	2.3	10	119.3	0.23	4.18	0.47	8.2	23.9	25.51	2.01	3.7	41	0.26	18.0	2.35	710	1.11
GC-LL-71	35.50	100	1.12	7.2	1.4	10	119.7	0.22	4.11	0.50	8.3	24.5	25.27	2.01	3.7	37	0.26	18.0	2.28	701	1.11
GC-LL-72	36.00	99	1.16	8.0	2.3	10	119.1	0.24	4.11	0.51	8.2	25.1	25.18	2.14	3.7	37	0.27	17.8	2.32	696	1.48
GC-LL-73	36.50	103	1.07	17.2	1.7	9	115.1	0.22	3.95	0.43	8.5	22.7	25.99	2.72	3.5	47	0.26	16.8	2.34	735	3.37
GC-LL-74	37.00	98	1.10	12.3	2.1	9	116.7	0.23	3.95	0.43	8.7	23.7	25.15	2.31	3.7	45	0.26	17.3	2.29	723	2.16

ELEMENT SAMPLES	Depth (cm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-LL-1	0.50	0.030	26.2	0.080	14.99	0.70	0.75	2.9	1.4	57.3	0.05	3.9	0.015	0.25	2.4	52	0.2	79.3
GC-LL-2	1.00	0.029	26.9	0.081	14.71	0.83	0.53	2.6	1.5	56.5	0.08	3.5	0.009	0.23	2.6	46	< .2	77.3
GC-LL-3	1.50	0.029	27.2	0.078	14.61	0.81	0.50	2.6	1.4	54.1	0.06	3.5	0.009	0.22	2.8	50	< .2	79.8
GC-LL-4	2.00	0.027	28.3	0.080	15.43	0.82	0.65	3.0	1.7	55.2	0.08	3.9	0.015	0.25	3.8	58	< .2	83.4
GC-LL-5	2.50	0.026	28.8	0.077	15.79	0.81	0.57	2.8	1.5	53.3	0.08	3.7	0.009	0.24	4.2	56	< .2	82.2
GC-LL-6	3.00	0.028	29.0	0.078	15.67	0.91	0.53	2.9	1.6	57.0	0.07	3.7	0.009	0.24	4.3	55	< .2	83.0
GC-LL-7	3.50	0.026	27.6	0.073	14.60	1.01	0.55	2.7	1.5	55.4	0.07	3.6	0.009	0.24	4.6	49	< .2	75.6
GC-LL-8	4.00	0.026	28.6	0.072	14.93	1.04	0.53	2.9	1.4	56.3	0.12	4.2	0.010	0.23	4.5	51	< .2	76.2
GC-LL-9	4.50	0.024	27.8	0.066	13.64	1.06	0.48	2.8	1.4	54.1	0.08	4.5	0.010	0.23	4.4	49	< .2	72.1
GC-LL-10	5.00	0.022	28.3	0.064	12.80	1.00	0.46	2.8	1.2	52.3	0.08	4.5	0.010	0.22	4.0	46	< .2	71.2
GC-LL-11	5.50	0.020	27.4	0.060	12.22	1.03	0.43	2.8	1.2	52.5	0.07	4.6	0.010	0.22	3.7	44	< .2	68.7
GC-LL-12	6.00	0.021	27.1	0.060	11.93	1.00	0.42	2.7	1.0	53.7	0.07	5.0	0.010	0.23	3.4	44	< .2	69.8
GC-LL-13	6.50	0.023	28.5	0.059	12.52	1.03	0.41	2.9	1.1	55.7	0.04	5.3	0.010	0.24	3.4	45	< .2	69.8
RE GC-LL-13	6.50	0.021	28.5	0.059	12.53	1.05	0.45	2.9	1.0	55.5	0.05	5.4	0.010	0.23	3.4	45	< .2	70.9
GC-LL-14	7.00	0.019	27.8	0.059	12.06	1.03	0.43	2.9	1.1	54.6	0.06	5.1	0.010	0.23	3.3	45	< .2	69.8
GC-LL-15	7.50	0.019	28.0	0.058	11.82	1.05	0.42	2.9	1.1	53.8	0.07	5.2	0.010	0.24	3.2	45	< .2	69.3
GC-LL-16	8.00	0.019	28.0	0.059	11.99	1.07	0.44	2.9	1.0	54.2	0.06	5.4	0.010	0.23	3.2	44	< .2	69.3
GC-LL-17	8.50	0.017	28.0	0.056	11.91	1.10	0.45	2.9	1.0	54.8	0.07	5.5	0.011	0.22	3.1	44	< .2	67.3
GC-LL-18	9.00	0.017	27.6	0.056	11.60	1.17	0.46	2.9	1.0	50.9	0.05	5.1	0.011	0.21	3.1	44	< .2	66.1
GC-LL-19	9.50	0.017	27.4	0.057	11.84	1.24	0.46	2.6	1.1	51.1	0.06	5.1	0.011	0.22	3.2	45	< .2	65.2
GC-LL-20	10.00	0.018	28.1	0.059	11.81	1.17	0.49	2.8	1.1	50.3	0.07	5.3	0.011	0.23	3.5	45	< .2	67.5
GC-LL-21	10.50	0.018	28.8	0.058	11.70	1.09	0.46	3.0	1.0	51.8	0.06	5.6	0.011	0.23	3.6	47	< .2	71.5
GC-LL-22	11.00	0.016	28.6	0.058	11.74	0.96	0.43	3.0	0.9	49.5	0.04	5.6	0.011	0.23	3.3	46	< .2	69.6
GC-LL-23	11.50	0.016	28.7	0.057	11.76	0.89	0.41	3.2	0.9	50.3	0.04	5.8	0.011	0.23	3.1	47	< .2	71.7
GC-LL-24	12.00	0.016	28.4	0.058	11.81	1.05	0.44	3.1	0.9	50.5	0.07	5.5	0.011	0.22	3.3	47	< .2	69.5
STANDARD DS2	–	0.0	36.1	0.090	32.84	0.03	9.87	3.3	2.3	29.8	1.79	3.9	0.093	1.85	19.1	75	6.6	158.9
GC-LL-25	12.50	0.018	28.1	0.057	12.11	1.12	0.54	2.9	1.1	52.3	0.04	5.6	0.011	0.24	3.4	44	< .2	71.4
GC-LL-26	13.00	0.017	27.9	0.056	12.19	1.01	0.49	2.9	1.0	50.4	0.03	5.8	0.012	0.24	3.2	44	< .2	72.5
GC-LL-27	13.50	0.017	29.3	0.058	12.65	0.87	0.49	3.1	0.9	51.7	0.04	6.2	0.012	0.26	3.2	43	< .2	73.8
GC-LL-28	14.00	0.018	29.1	0.059	12.44	0.85	0.48	3.0	0.8	52.7	0.05	6.2	0.012	0.24	3.2	43	< .2	74.6
GC-LL-29	14.50	0.016	27.7	0.056	12.17	0.78	0.48	3.1	0.7	50.4	0.03	6.1	0.012	0.24	3.0	43	< .2	72.8
GC-LL-30	15.00	0.017	29.0	0.059	12.75	0.81	0.52	3.2	0.9	51.8	0.03	6.2	0.013	0.25	3.2	45	< .2	76.1
GC-LL-31	15.50	0.017	29.2	0.059	12.77	0.81	0.50	3.2	0.8	53.9	0.05	6.1	0.013	0.25	3.1	46	< .2	75.8
GC-LL-32	16.00	0.017	29.4	0.058	12.64	0.78	0.49	3.2	0.8	52.2	0.03	6.3	0.013	0.25	3.1	46	< .2	75.4
GC-LL-33	16.50	0.016	28.8	0.058	12.74	0.74	0.48	3.2	0.8	52.5	0.05	6.2	0.013	0.25	3.0	46	< .2	78.7
GC-LL-34	17.00	0.022	29.2	0.060	12.98	0.81	0.51	3.4	0.8	54.7	0.04	6.4	0.013	0.25	3.2	49	< .2	79.0
GC-LL-35	17.50	0.018	30.4	0.062	12.98	0.88	0.51	3.4	0.8	54.8	0.03	6.5	0.013	0.26	3.2	48	< .2	78.9
GC-LL-36	18.00	0.017	28.0	0.058	11.96	0.79	0.46	3.3	0.8	52.1	0.06	6.0	0.013	0.24	2.8	46	< .2	75.5
GC-LL-37	18.50	0.016	28.7	0.058	12.71	0.76	0.50	3.4	0.7	53.1	0.05	6.4	0.013	0.25	2.9	48	< .2	75.2
GC-LL-38	19.00	0.015	28.5	0.058	12.43	0.73	0.50	3.4	0.7	55.8	0.05	6.1	0.014	0.24	2.6	48	< .2	77.6
GC-LL-39	19.50	0.015	28.6	0.059	12.58	0.87	0.53	3.3	0.7	58.2	0.05	6.3	0.014	0.24	2.4	45	< .2	70.2

ELEMENT SAMPLES	Depth (cm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-LL-40	20.00	0.017	30.0	0.060	13.14	0.88	0.55	3.5	0.7	58.6	0.06	6.4	0.014	0.25	2.4	49	< .2	76.3
GC-LL-41	20.50	0.017	29.3	0.059	13.02	0.93	0.53	3.3	0.7	59.8	0.07	6.4	0.014	0.24	2.3	47	< .2	73.9
GC-LL-42	21.00	0.016	28.7	0.059	13.20	0.86	0.50	3.3	0.7	57.4	0.06	6.4	0.014	0.24	2.3	48	< .2	76.0
GC-LL-43	21.50	0.017	31.1	0.061	13.36	0.91	0.54	3.5	0.8	55.7	0.06	6.8	0.014	0.25	2.6	52	< .2	79.1
GC-LL-44	22.00	0.017	30.1	0.059	14.09	0.89	0.52	3.6	0.7	56.0	0.04	6.9	0.014	0.25	2.8	52	< .2	79.5
GC-LL-45	22.50	0.017	30.1	0.060	13.41	0.82	0.50	3.7	0.7	53.7	0.05	6.7	0.014	0.25	2.8	52	< .2	81.2
GC-LL-46	23.00	0.017	29.9	0.060	13.30	0.83	0.49	3.5	0.6	54.7	0.08	6.7	0.013	0.25	2.8	51	< .2	80.2
GC-LL-47	23.50	0.017	30.5	0.060	13.50	0.76	0.51	3.6	0.7	57.6	0.07	6.4	0.013	0.25	2.9	49	< .2	80.4
GC-LL-48	24.00	0.016	29.6	0.058	12.74	1.06	0.57	3.4	0.7	54.2	0.09	6.1	0.013	0.24	3.1	46	< .2	77.6
RE GC-LL-48	24.00	0.017	29.9	0.060	13.26	1.08	0.59	3.4	0.8	54.3	0.05	6.4	0.013	0.25	3.2	48	< .2	78.5
GC-LL-49	24.50	0.015	28.5	0.060	12.19	1.32	0.49	3.1	0.9	52.1	0.05	5.8	0.013	0.23	2.9	45	< .2	71.3
GC-LL-50	25.00	0.015	27.3	0.058	11.84	1.22	0.45	3.1	0.9	52.4	0.07	5.7	0.013	0.22	2.7	44	< .2	68.6
GC-LL-51	25.50	0.016	27.6	0.059	12.12	1.11	0.44	3.1	0.8	56.3	0.04	5.9	0.013	0.23	2.8	43	< .2	68.1
GC-LL-52	26.00	0.016	28.7	0.059	11.77	1.12	0.49	3.1	0.8	56.5	0.07	5.8	0.012	0.22	2.7	43	< .2	68.6
GC-LL-53	26.50	0.015	26.2	0.058	11.70	1.00	0.44	3.0	0.7	53.4	0.04	5.6	0.012	0.22	2.5	41	< .2	68.7
GC-LL-54	27.00	0.016	27.5	0.058	11.84	1.04	0.45	3.0	0.9	55.9	0.04	5.8	0.012	0.23	2.7	43	< .2	69.3
GC-LL-55	27.50	0.016	28.8	0.062	12.02	1.05	0.49	3.1	0.9	55.9	0.06	5.7	0.012	0.22	2.8	45	< .2	71.9
GC-LL-56	28.00	0.016	28.2	0.059	12.37	0.87	0.51	3.3	0.9	51.6	0.04	5.8	0.012	0.23	2.9	45	< .2	72.6
GC-LL-57	28.50	0.017	30.3	0.059	13.15	0.75	0.52	3.5	0.9	53.7	0.06	6.1	0.011	0.25	3.4	52	< .2	81.5
STANDARD DS2	–	0.032	35.2	0.092	33.00	0.01	10.2	3.1	2.2	29.2	2.2	3.7	0.092	1.86	19.1	74	7.9	159.7
GC-LL-58	29.00	0.017	30.5	0.059	14.21	0.72	0.57	3.4	1.0	51.9	0.04	6.9	0.014	0.27	3.8	55	< .2	84.7
GC-LL-59	29.50	0.017	32.1	0.061	15.04	0.78	0.53	3.4	1.1	54.4	0.07	7.0	0.013	0.26	4.3	55	< .2	86.9
GC-LL-60	30.00	0.016	31.2	0.060	13.65	1.09	0.49	3.1	1.1	57.2	0.05	6.6	0.013	0.25	3.8	47	< .2	78.6
GC-LL-61	30.50	0.015	28.5	0.059	12.58	1.15	0.42	2.8	1.0	67.6	0.04	5.8	0.013	0.22	3.5	41	< .2	69.7
GC-LL-62	31.00	0.015	28.3	0.059	12.44	1.10	0.40	2.8	1.0	73.6	0.06	5.6	0.013	0.23	3.6	40	< .2	68.8
GC-LL-63	31.50	0.015	27.7	0.058	12.23	1.06	0.40	2.7	1.1	66.2	0.05	5.6	0.013	0.23	3.0	39	< .2	69.0
GC-LL-64	32.00	0.015	27.4	0.058	12.51	1.00	0.46	2.8	1.0	58.0	0.09	5.9	0.013	0.24	2.7	39	< .2	68.6
GC-LL-65	32.50	0.016	28.0	0.058	12.63	1.05	0.48	2.9	1.0	58.5	0.07	6.0	0.013	0.24	2.8	40	< .2	70.3
GC-LL-66	33.00	0.017	31.7	0.061	13.22	1.08	0.40	3.3	0.9	56.5	0.06	6.9	0.014	0.25	2.7	44	< .2	74.0
GC-LL-67	33.50	0.017	32.5	0.060	12.90	1.08	0.43	3.3	0.7	54.0	0.11	6.6	0.015	0.25	2.4	41	< .2	72.8
GC-LL-68	34.00	0.016	29.9	0.073	12.25	1.04	0.43	3.1	0.7	52.9	0.06	6.4	0.016	0.23	2.2	40	< .2	69.1
RE GC-LL-68	34.00	0.016	29.6	0.069	12.05	1.03	0.41	3.2	0.7	53.1	0.04	6.3	0.016	0.24	2.2	39	< .2	69.7
GC-LL-69	34.50	0.016	28.7	0.062	11.74	0.91	0.45	3.0	0.7	53.2	0.07	6.3	0.016	0.23	2.2	37	< .2	66.9
GC-LL-70	35.00	0.015	27.3	0.059	12.02	0.85	0.40	3.0	0.6	55.3	0.05	6.0	0.015	0.22	2.2	39	< .2	66.2
GC-LL-71	35.50	0.016	25.7	0.061	11.67	0.89	0.43	3.0	0.7	57.3	0.05	5.8	0.015	0.22	2.6	40	< .2	66.1
GC-LL-72	36.00	0.016	27.0	0.061	11.98	0.98	0.39	3.0	0.7	55.6	0.04	6.0	0.015	0.21	2.8	40	< .2	66.4
GC-LL-73	36.50	0.016	28.7	0.061	11.66	1.52	0.45	3.1	0.7	49.0	0.03	5.8	0.017	0.21	2.7	36	< .2	64.9
GC-LL-74	37.00	0.016	29.1	0.060	11.84	1.17	0.45	3.1	0.7	52.8	0.03	5.9	0.015	0.22	2.9	38	< .2	67.4

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)
GC-SL-1	2	177	1.42	8.7	1.2	42	102.0	0.28	6.22	0.51	9.2	26.5	26.34	1.98	4.5	49	0.38	17.6	1.22	833
GC-SL-3	3	140	1.44	9.2	1.3	39	105.0	0.29	6.26	0.54	10.1	27.3	25.61	2.04	4.6	51	0.38	19.6	1.24	845
GC-SL-4	4	134	1.46	9.2	1.7	42	103.4	0.31	6.42	0.52	10.0	28.3	26.38	2.06	4.7	64	0.39	18.5	1.25	855
GC-SL-5	5	118	1.39	9.1	1.0	41	99.3	0.28	6.39	0.48	9.5	26.4	25.06	1.98	4.4	52	0.38	17.6	1.21	826
GC-SL-6	6	120	1.39	8.7	1.8	40	99.0	0.29	6.33	0.50	9.2	26.2	25.12	1.97	4.3	47	0.37	17.6	1.20	819
GC-SL-7	7	126	1.36	8.7	9.5	41	97.7	0.29	6.29	0.45	9.4	27.1	25.10	1.94	4.3	62	0.37	17.1	1.18	802
GC-SL-8	8	121	1.33	8.7	0.9	40	96.5	0.27	6.24	0.47	8.8	26.8	29.10	1.90	4.2	60	0.36	16.9	1.16	782
GC-SL-9	9	125	1.32	8.8	1.5	39	98.7	0.26	6.33	0.49	9.3	23.6	27.15	1.91	4.2	54	0.36	17.2	1.18	791
GC-SL-10	10	120	1.41	8.7	1.6	39	99.3	0.27	6.44	0.43	9.1	25.2	25.53	1.96	4.4	54	0.37	17.2	1.22	797
GC-SL-11	11	112	1.39	9.0	1.1	39	103.0	0.31	6.39	0.48	9.1	27.4	25.45	1.94	4.4	51	0.38	17.5	1.20	791
GC-SL-12	12	112	1.35	8.5	1.4	38	101.2	0.28	6.34	0.49	8.6	24.9	25.95	1.91	4.2	58	0.37	17.0	1.18	777
GC-SL-13	13	119	1.39	8.9	1.5	39	102.5	0.27	6.30	0.51	9.5	27.8	26.33	1.96	4.4	59	0.38	17.4	1.20	788
GC-SL-14	14	110	1.40	9.0	1.4	40	102.9	0.27	6.47	0.46	8.8	27.0	25.99	1.95	4.3	50	0.38	16.8	1.19	796
GC-SL-15	15	113	1.38	9.0	1.0	38	103.7	0.26	6.61	0.46	8.3	26.5	25.72	1.96	4.4	51	0.38	16.7	1.20	801
GC-SL-16	16	112	1.34	9.2	1.3	38	103.2	0.27	6.62	0.47	8.6	25.3	25.37	1.91	4.3	45	0.37	17.2	1.17	789
GC-SL-17	17	108	1.31	9.2	1.5	38	103.4	0.26	6.72	0.46	8.2	24.7	25.10	1.87	4.3	49	0.36	16.9	1.16	779
GC-SL-18	18	112	1.39	9.0	1.9	37	105.0	0.27	6.59	0.48	8.6	25.9	26.22	1.93	4.4	50	0.38	16.9	1.17	775
GC-SL-19	19	113	1.40	9.1	1.5	40	107.1	0.28	6.68	0.47	8.9	26.4	25.62	1.95	4.5	52	0.38	17.6	1.19	791
GC-SL-20	20	109	1.36	9.0	1.8	37	104.4	0.27	6.77	0.51	8.7	26.7	26.22	1.91	4.4	48	0.37	16.7	1.18	776
GC-SL-21	21	103	1.37	9.1	1.5	37	104.8	0.26	6.64	0.46	8.4	25.5	24.92	1.93	4.4	54	0.37	16.3	1.19	774
GC-SL-22	22	102	1.36	9.0	1.3	37	104.9	0.26	6.61	0.43	8.5	25.9	25.38	1.93	4.4	49	0.38	16.6	1.18	776
GC-SL-23	23	105	1.34	8.8	1.2	36	101.5	0.25	6.49	0.48	8.2	25.5	24.29	1.87	4.3	44	0.36	16.0	1.16	744
GC-SL-24	24	106	1.33	8.9	1.6	38	102.2	0.25	6.43	0.49	8.1	24.8	25.03	1.90	4.3	49	0.37	16.4	1.17	758
RE GC-SL-24	24	113	1.31	9.1	1.3	38	102.4	0.27	6.36	0.51	8.5	25.5	25.00	1.89	4.3	51	0.37	17.1	1.16	757
GC-SL-25	25	98	1.30	8.5	1.6	38	102.1	0.24	6.34	0.47	7.8	24.3	24.03	1.84	4.2	48	0.36	16.2	1.13	734
GC-SL-26	26	105	1.43	9.2	1.3	39	106.5	0.27	6.52	0.46	9.0	26.7	26.09	1.96	4.5	47	0.39	17.4	1.19	781
GC-SL-27	27	111	1.38	9.0	0.7	41	106.3	0.26	6.47	0.48	8.4	27.5	26.08	1.92	4.6	56	0.38	16.9	1.16	766
GC-SL-28	28	114	1.34	8.9	1.3	35	103.8	0.25	6.39	0.45	8.4	26.0	26.83	1.89	4.4	50	0.37	16.2	1.15	752
GC-SL-29	29	113	1.37	9.0	1.3	37	105.3	0.26	6.37	0.47	8.3	26.2	26.52	1.92	4.5	56	0.38	16.5	1.17	761
GC-SL-30	30	111	1.36	9.0	1.4	40	105.2	0.26	6.38	0.50	8.3	26.7	25.65	1.94	4.4	50	0.38	16.8	1.18	772
GC-SL-31	31	112	1.38	9.3	1.6	40	107.9	0.28	6.38	0.49	8.3	25.2	26.00	1.97	4.6	50	0.39	16.9	1.19	797
GC-SL-32	32	110	1.32	9.0	1.4	34	105.5	0.26	6.38	0.48	8.1	25.5	25.90	1.89	4.4	48	0.37	16.4	1.14	763
GC-SL-33	33	112	1.31	8.9	0.6	37	102.6	0.26	6.19	0.48	8.0	25.9	24.97	1.86	4.4	58	0.36	16.3	1.13	742
STANDARD DS2	–	260	1.75	57.7	197.2	2	151.3	10.97	0.56	10.08	11.9	165.0	124.2	3.05	6.0	220	0.17	15.9	0.60	817
GC-SL-34	34	123	1.37	9.1	0.7	31	106.8	0.26	6.40	0.47	8.7	25.8	24.83	1.97	4.3	60	0.38	16.6	1.17	786
GC-SL-35	35	122	1.32	9.2	1.2	32	106.4	0.26	6.26	0.46	8.8	26.4	25.23	1.93	4.4	52	0.38	16.3	1.14	773
GC-SL-36	36	127	1.32	8.9	1.2	32	106.5	0.25	6.20	0.46	8.4	25.4	25.26	1.92	4.3	55	0.38	15.7	1.14	745
GC-SL-37	37	128	1.39	9.5	1.3	33	107.4	0.27	6.05	0.48	9.3	26.2	25.69	1.98	4.5	56	0.39	16.5	1.16	787
GC-SL-38	38	131	1.36	9.4	1.3	32	105.8	0.27	6.05	0.47	9.1	25.8	25.36	1.96	4.5	55	0.38	17.1	1.14	778

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)
GC-SL-39	39	119	1.35	8.8	0.8	34	104.9	0.26	5.91	0.48	8.4	25.9	25.66	1.94	4.4	55	0.38	17.0	1.14	764
GC-SL-40	40	130	1.34	9.2	0.9	31	107.7	0.26	6.01	0.45	8.7	26.8	25.73	1.93	4.5	56	0.38	16.5	1.14	772
GC-SL-41	41	133	1.32	7.7	1.3	36	105.3	0.27	5.48	0.53	8.3	23.6	24.98	1.94	4.3	71	0.38	17.2	1.12	735
GC-SL-42	42	140	1.28	9.0	1.3	34	100.6	0.28	5.34	0.54	8.6	24.5	25.04	1.96	4.4	78	0.37	17.7	1.15	786
GC-SL-43	43	133	1.40	10.8	1.2	33	103.1	0.29	5.83	0.54	9.3	25.5	25.69	1.96	4.6	55	0.39	18.0	1.16	849
GC-SL-44	44	132	1.41	12.1	1.4	33	103.9	0.29	5.94	0.55	10.0	26.3	26.61	1.99	4.6	63	0.39	17.7	1.16	860
GC-SL-45	45	131	1.43	12.7	0.8	35	103.2	0.35	5.67	0.51	10.1	29.2	27.33	2.03	4.8	57	0.40	17.8	1.15	855
GC-SL-46	46	131	1.35	12.5	1.2	31	101.7	0.28	6.05	0.52	9.5	27.7	25.72	1.97	4.5	60	0.38	17.1	1.16	882
GC-SL-47	47	117	1.34	9.4	0.5	34	107.2	0.26	6.28	0.51	8.6	26.3	24.35	1.89	4.4	56	0.38	16.4	1.11	932
GC-SL-48	48	122	1.36	9.1	1.2	35	105.5	0.27	5.86	0.52	8.8	25.9	25.05	1.95	4.5	66	0.39	17.0	1.12	877
GC-SL-49	49	129	1.36	9.7	1.9	34	106.2	0.26	5.67	0.56	8.5	26.6	25.41	2.04	4.5	74	0.39	17.1	1.14	859
GC-SL-50	50	144	1.43	9.3	0.9	39	103.1	0.31	4.23	0.62	9.0	28.0	28.30	2.07	4.8	68	0.40	18.7	1.16	710
GC-SL-51	51	142	1.44	8.0	1.4	41	102.8	0.31	3.83	0.65	9.3	28.8	28.65	2.12	4.8	81	0.41	19.4	1.16	675
GC-SL-52	52	152	1.51	8.3	0.9	43	103.2	0.30	4.19	0.63	9.3	28.7	28.04	2.17	5.0	81	0.41	19.5	1.25	719
GC-SL-53	53	127	1.36	10.9	1.2	36	101.5	0.26	5.75	0.53	8.9	25.0	26.11	2.03	4.5	67	0.38	18.4	1.22	841
GC-SL-54	54	134	1.37	10.3	0.9	35	100.4	0.27	5.79	0.56	9.2	27.1	25.81	2.03	4.6	58	0.38	17.3	1.17	850
GC-SL-55	55	109	1.37	10.6	1.4	34	98.8	0.29	6.45	0.51	9.5	26.3	24.88	1.97	4.4	54	0.38	16.8	1.20	888
GC-SL-56	56	110	1.30	10.3	1.8	32	97.3	0.29	6.43	0.53	9.4	25.2	24.85	1.90	4.3	46	0.36	17.3	1.18	879
GC-SL-57	57	113	1.29	9.9	1.3	35	96.1	0.28	6.46	0.51	9.1	25.2	23.53	1.89	4.3	60	0.36	16.6	1.17	884
RE GC-SL-57	57	114	1.30	9.6	1.5	34	97.0	0.28	6.57	0.51	9.2	24.4	23.93	1.91	4.2	40	0.36	16.1	1.19	899
GC-SL-58	58	112	1.23	9.3	1.2	35	96.9	0.28	6.69	0.51	9.1	23.3	23.58	1.86	4.0	54	0.35	16.7	1.18	897
GC-SL-59	59	115	1.29	9.0	1.6	37	98.4	0.28	6.77	0.51	9.0	23.2	22.70	1.89	4.3	51	0.36	16.4	1.21	900
GC-SL-60	60	113	1.28	9.0	1.4	39	100.7	0.25	7.17	0.50	8.8	25.4	22.62	1.86	4.1	47	0.36	16.7	1.22	909
GC-SL-61	61	110	1.22	8.8	1.1	37	101.8	0.26	7.49	0.52	8.6	24.4	22.34	1.82	4.0	45	0.34	16.3	1.22	913
GC-SL-62	62	107	1.18	9.0	1.0	38	101.0	0.25	7.16	0.52	8.4	23.0	22.64	1.79	3.9	51	0.34	16.1	1.20	900
GC-SL-63	63	100	1.10	8.7	1.1	38	101.1	0.22	7.75	0.46	8.1	21.7	20.34	1.67	3.6	43	0.31	15.5	1.17	880
GC-SL-64	64	95	1.05	8.6	0.9	34	103.4	0.20	8.31	0.44	7.8	20.5	19.73	1.62	3.5	42	0.30	14.5	1.12	879
GC-SL-65	65	83	0.99	8.6	1.1	35	107.2	0.19	9.19	0.44	7.0	19.8	18.49	1.54	3.2	40	0.29	14.0	1.07	885
GC-SL-66	66	84	0.95	8.6	1.1	36	117.1	0.18	10.56	0.45	7.1	19.3	18.50	1.50	3.1	37	0.28	14.2	1.03	936
STANDARD DS2	–	269	1.70	58.3	201.1	<1	149.0	10.44	0.55	10.26	12.5	161.6	123.1	3.00	6.1	240	0.16	15.9	0.59	805
GC-SL-67	67	91	1.09	8.3	1.0	39	113.8	0.19	10.09	0.41	7.7	20.7	18.72	1.59	3.3	36	0.30	13.2	1.08	943
GC-SL-68	68	91	1.11	8.2	0.8	39	112.2	0.20	9.61	0.40	7.9	21.7	18.99	1.62	3.4	45	0.31	13.2	1.09	943
GC-SL-69	69	80	1.14	8.0	1.3	40	106.0	0.19	8.80	0.40	8.0	21.6	18.71	1.65	3.4	41	0.31	13.2	1.09	936
GC-SL-70	70	81	1.14	8.2	1.1	40	106.7	0.20	9.03	0.43	8.0	22.2	18.13	1.66	3.5	31	0.32	13.6	1.10	961
GC-SL-71	71	85	1.21	9.1	0.8	39	105.9	0.21	8.65	0.44	8.5	22.8	19.55	1.77	3.7	40	0.33	13.8	1.15	1004
GC-SL-72	72	81	1.23	9.1	0.7	39	104.7	0.23	8.71	0.47	8.5	22.8	19.45	1.80	3.8	34	0.33	14.1	1.16	1027
GC-SL-73	73	75	1.23	8.8	0.6	41	103.6	0.22	8.55	0.45	8.6	23.8	19.42	1.81	3.8	38	0.33	14.2	1.15	1029
GC-SL-74	74	80	1.24	8.7	0.7	39	100.6	0.23	7.94	0.45	8.9	23.0	19.57	1.82	3.8	42	0.33	14.1	1.14	1014
GC-SL-75	75	85	1.20	9.7	0.9	38	100.1	0.24	7.71	0.49	9.0	23.4	21.21	1.97	3.8	38	0.33	14.9	1.17	1043

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)
GC-SL-76	76	95	1.25	9.9	1.0	37	93.5	0.26	6.35	0.44	9.9	25.3	23.16	2.02	4.0	43	0.34	15.9	1.13	989
GC-SL-77	77	84	1.39	8.6	1.2	40	90.6	0.28	4.80	0.50	9.4	28.4	25.48	2.21	4.4	57	0.36	17.3	1.13	966
GC-SL-78	78	100	1.45	10.4	1.3	43	93.4	0.29	4.36	0.41	10.0	27.8	25.11	2.46	4.6	53	0.37	17.2	1.14	931
GC-SL-79	79	112	1.44	17.6	1.3	43	94.6	0.29	3.93	0.41	10.6	28.1	24.79	2.53	4.5	56	0.37	17.9	1.09	837
GC-SL-80	80	118	1.40	20.2	1.1	39	112.2	0.28	5.17	0.37	8.2	28.1	23.23	1.87	4.5	52	0.37	18.1	1.19	890
GC-SL-81	81	106	1.39	6.7	1.2	38	124.9	0.27	5.54	0.44	8.7	25.4	21.53	1.68	4.4	47	0.37	18.2	1.22	918
GC-SL-82	82	99	1.46	4.9	1.4	40	139.0	0.26	5.56	0.62	13.6	26.6	23.60	1.72	4.4	49	0.38	17.6	1.24	936
GC-SL-83	83	104	1.28	5.0	1.2	37	140.0	0.26	4.54	1.12	12.2	23.5	24.56	1.64	3.9	47	0.34	17.5	1.14	850
RE GC-SL-83	83	104	1.31	5.3	1.2	37	143.7	0.27	4.62	1.09	12.3	22.8	25.54	1.67	3.9	39	0.35	16.5	1.16	868
GC-SL-84	84	120	1.33	4.4	1.2	39	164.0	0.28	3.83	0.73	9.1	24.1	26.51	1.68	4.1	59	0.35	18.2	1.12	810
GC-SL-85	85	109	1.41	5.9	1.1	42	161.5	0.30	3.72	0.56	15.4	25.6	26.84	1.88	4.3	58	0.37	18.7	1.10	843
GC-SL-86	86	121	1.37	4.1	1.7	40	152.5	0.30	3.26	0.55	8.6	24.5	25.73	1.84	4.2	60	0.36	18.5	1.11	872
GC-SL-87	87	106	1.36	3.0	1.4	40	182.7	0.31	3.00	0.38	7.1	24.0	23.47	1.86	4.3	63	0.37	19.2	1.11	874
GC-SL-88	88	107	1.36	3.2	1.7	42	181.5	0.29	3.06	0.49	7.2	25.8	23.54	1.79	4.2	56	0.36	18.6	1.10	866
GC-SL-89	89	113	1.37	2.7	1.5	43	179.6	0.29	3.18	0.37	6.6	25.8	23.47	1.83	4.1	60	0.36	17.7	1.12	893
GC-SL-90	90	110	1.41	5.3	1.6	46	155.5	0.29	3.53	0.38	8.0	25.7	23.59	1.94	4.4	54	0.37	17.7	1.12	893
GC-SL-91	91	99	1.25	8.9	1.4	38	112.3	0.26	5.28	0.39	8.8	23.0	22.79	1.92	3.9	54	0.33	16.0	1.07	865
GC-SL-92	92	102	1.28	14.9	1.2	34	150.6	0.27	4.40	0.42	7.9	26.2	23.26	2.15	4.1	46	0.34	17.3	1.15	799
GC-SL-93	93	97	1.31	13.1	1.5	36	145.4	0.27	4.45	0.38	7.8	25.6	22.96	2.12	4.2	48	0.34	17.9	1.16	796
GC-SL-94	94	112	1.33	8.0	1.3	39	132.5	0.27	4.11	0.31	7.3	25.4	27.36	2.10	4.2	46	0.35	18.6	1.21	716
GC-SL-95	95	107	1.25	5.0	1.0	34	137.9	0.25	3.21	0.25	6.5	24.6	22.92	2.09	4.0	43	0.33	18.1	1.19	562
GC-SL-96	96	101	1.32	3.7	1.2	39	138.6	0.26	3.07	0.25	6.3	24.6	22.17	2.12	4.1	47	0.34	18.1	1.17	595
GC-SL-97	97	111	1.36	2.1	1.2	36	121.8	0.27	3.10	0.25	6.1	26.4	23.92	1.99	4.2	47	0.35	17.4	1.14	673
GC-SL-98	98	120	1.45	1.9	1.1	38	129.9	0.29	3.05	0.26	6.4	25.7	24.60	2.04	4.5	47	0.36	19.0	1.14	690
GC-SL-99	99	115	1.37	1.4	1.3	38	121.4	0.27	3.15	0.25	5.7	25.8	22.71	1.88	4.2	49	0.34	18.4	1.26	665
STANDARD DS2	–	268	1.80	57.2	189.7	2	155.4	10.92	0.58	10.18	11.9	172.4	127.8	3.09	6.1	230	0.17	16.1	0.61	831
GC-SL-100	100	106	1.17	1.4	1.4	36	115.2	0.28	3.36	0.26	5.2	22.8	22.70	1.72	3.8	47	0.30	18.4	1.31	613
GC-SL-101	101	97	1.22	1.5	1.7	35	124.8	0.29	3.56	0.28	5.7	22.2	22.89	1.84	3.8	48	0.31	18.3	1.31	634
GC-SL-102	102	114	1.23	1.8	1.7	37	132.4	0.29	3.71	0.28	5.5	22.8	25.62	1.92	3.9	50	0.32	19.7	1.29	703
GC-SL-103	103	109	1.30	2.5	1.1	38	133.6	0.31	3.88	0.32	6.3	24.4	28.06	2.18	4.3	56	0.34	19.8	1.28	746
GC-SL-104	104	96	1.29	5.2	1.9	36	145.3	0.30	5.15	0.31	6.7	26.4	24.81	2.38	4.1	56	0.34	19.2	1.21	910
GC-SL-105	105	108	1.28	3.3	1.2	38	138.6	0.30	5.43	0.36	6.6	24.7	26.92	2.18	4.3	45	0.34	19.3	1.19	941
GC-SL-106	106	95	1.27	2.2	1.4	34	126.2	0.28	5.54	0.39	6.3	22.1	25.24	2.04	4.1	47	0.33	18.5	1.14	907
GC-SL-107	107	109	1.31	3.8	1.7	37	129.0	0.29	5.68	0.60	7.6	23.9	27.97	1.93	4.3	39	0.35	19.1	1.18	921
GC-SL-108	108	95	1.30	9.1	1.2	33	116.7	0.28	5.43	0.59	10.5	24.7	25.18	1.74	4.0	38	0.34	17.6	1.13	916
GC-SL-109	109	96	1.35	10.2	1.7	36	117.4	0.31	5.11	0.54	11.4	25.4	25.96	1.72	4.2	45	0.34	17.9	1.14	891
GC-SL-110	110	105	1.36	10.6	1.2	36	121.7	0.32	5.24	0.64	11.7	25.2	26.61	1.74	4.4	58	0.34	19.3	1.18	874
GC-SL-111	111	103	1.35	12.4	1.7	37	121.9	0.30	5.49	0.63	11.5	24.8	26.31	1.75	4.4	57	0.34	18.8	1.16	879
GC-SL-112	112	100	1.37	12.4	1.5	35	126.2	0.30	5.64	0.53	10.4	26.8	27.03	1.80	4.4	47	0.34	19.0	1.19	866

ELEMENT SAMPLES	Depth (cm)	Ag (ppb)	Al (%)	As (ppm)	Au (ppb)	B (ppm)	Ba (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Hg (ppb)	K (%)	La (ppm)	Mg (%)	Mn (ppm)
GC-SL-113	113	101	1.34	14.4	2.1	31	125.8	0.28	6.13	0.56	10.6	25.2	26.50	1.84	4.1	50	0.34	18.8	1.17	905
GC-SL-114	114	100	1.33	12.9	1.4	32	119.4	0.29	6.29	0.52	10.2	26.3	25.85	1.87	4.2	42	0.35	18.0	1.16	910
GC-SL-115	115	103	1.35	11.9	0.9	31	118.1	0.28	6.29	0.48	10.0	26.4	25.84	1.92	4.2	52	0.35	17.9	1.18	895
GC-SL-116	116	98	1.31	11.7	1.7	32	114.8	0.27	6.20	0.50	9.7	25.6	25.86	1.93	4.3	50	0.34	18.1	1.15	858
RE GC-SL-116	116	92	1.31	11.4	1.7	32	116.0	0.27	6.16	0.47	9.3	24.5	25.86	1.93	4.3	43	0.34	18.0	1.15	856
GC-SL-117	117	94	1.34	11.2	1.9	30	117.5	0.28	6.36	0.48	9.7	27.6	28.33	2.01	4.3	57	0.35	18.1	1.19	855
GC-SL-118	118	96	1.33	11.7	1.1	32	136.8	0.28	6.74	0.48	9.8	26.2	26.25	2.01	4.3	50	0.35	17.9	1.27	837
GC-SL-119	119	100	1.33	8.2	1.3	32	154.4	0.26	6.87	0.43	9.7	26.3	26.61	1.85	4.2	43	0.35	18.3	1.33	808
GC-SL-120	120	96	1.34	6.6	1.3	33	164.3	0.27	6.46	0.43	9.7	25.5	25.91	1.79	4.3	35	0.35	19.0	1.32	783
GC-SL-121	121	98	1.44	5.8	1.7	34	152.1	0.27	5.87	0.40	8.9	27.9	26.24	1.85	4.2	51	0.35	19.1	1.28	772
GC-SL-122	122	100	1.44	5.4	1.5	34	134.9	0.27	4.91	0.38	8.0	26.0	25.82	1.92	4.1	52	0.35	18.7	1.20	772
GC-SL-123	123	99	1.36	5.8	1.1	36	133.1	0.27	4.34	0.35	7.7	24.9	25.70	1.95	4.1	48	0.35	18.9	1.15	741

ELEMENT SAMPLES	Depth (cm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-SL-1	2	0.87	1.414	28.1	0.056	15.30	0.92	0.35	3.3	0.9	469.7	0.08	5.8	0.013	0.21	1.4	48	< .2	80.3
GC-SL-3	3	0.96	1.057	29.6	0.059	16.78	0.92	0.33	3.4	0.9	475.3	0.09	6.0	0.011	0.23	1.5	49	< .2	83.2
GC-SL-4	4	0.95	1.322	30.6	0.057	16.40	0.96	0.32	3.5	1.0	484.0	0.08	6.2	0.012	0.23	1.4	49	< .2	83.1
GC-SL-5	5	0.88	1.304	29.2	0.055	15.31	0.96	0.30	3.3	0.8	495.5	0.10	5.7	0.012	0.21	1.3	46	< .2	78.4
GC-SL-6	6	0.89	1.177	28.9	0.055	14.99	0.91	0.29	3.3	0.9	477.1	0.08	5.3	0.012	0.20	1.3	46	< .2	78.8
GC-SL-7	7	0.86	1.192	28.2	0.055	15.19	0.92	0.29	3.3	0.8	469.3	0.09	5.7	0.012	0.20	1.3	45	< .2	76.7
GC-SL-8	8	0.86	1.089	28.2	0.053	14.50	0.89	0.28	3.2	0.9	476.8	0.09	5.2	0.012	0.19	1.2	44	< .2	76.8
GC-SL-9	9	0.92	1.225	27.9	0.054	14.76	0.93	0.32	3.2	0.9	489.2	0.11	5.2	0.012	0.20	1.3	45	< .2	77.0
GC-SL-10	10	0.91	1.200	28.1	0.054	14.30	0.91	0.32	3.3	0.9	483.2	0.07	5.5	0.012	0.20	1.2	48	< .2	78.2
GC-SL-11	11	0.88	1.110	27.7	0.056	14.47	0.92	0.30	3.3	0.9	487.6	0.15	5.3	0.012	0.21	1.2	47	< .2	73.8
GC-SL-12	12	0.89	1.214	27.2	0.054	14.26	0.91	0.30	3.2	0.9	489.9	0.11	5.4	0.012	0.20	1.2	46	< .2	73.9
GC-SL-13	13	0.87	1.343	29.2	0.056	14.43	0.92	0.29	3.3	0.9	483.5	0.10	5.2	0.012	0.21	1.3	48	< .2	78.3
GC-SL-14	14	0.90	0.978	27.3	0.055	14.24	0.93	0.31	3.2	0.8	493.0	0.09	5.0	0.012	0.20	1.2	47	< .2	78.2
GC-SL-15	15	0.88	1.170	27.0	0.054	13.88	0.94	0.32	3.2	0.9	512.1	0.07	5.0	0.012	0.20	1.2	47	< .2	77.6
GC-SL-16	16	0.90	1.102	26.9	0.054	13.89	0.96	0.31	3.2	0.8	527.7	0.10	4.9	0.012	0.20	1.2	46	< .2	74.8
GC-SL-17	17	0.86	1.112	26.1	0.055	13.88	0.95	0.28	3.2	0.9	554.0	0.12	4.8	0.012	0.20	1.2	47	< .2	74.5
GC-SL-18	18	0.86	0.992	26.3	0.055	13.49	0.94	0.31	3.2	0.8	510.1	0.14	4.9	0.012	0.20	1.2	48	< .2	75.4
GC-SL-19	19	0.96	1.041	27.0	0.056	14.72	0.95	0.32	3.4	0.9	543.7	0.12	5.1	0.012	0.22	1.2	49	< .2	75.5
GC-SL-20	20	0.88	1.118	25.5	0.056	13.71	0.98	0.31	3.2	0.9	540.3	0.10	4.9	0.012	0.20	1.2	47	< .2	75.1
GC-SL-21	21	0.85	1.060	25.4	0.055	13.14	0.93	0.28	3.2	1.0	523.7	0.10	4.9	0.012	0.20	1.2	47	< .2	75.1
GC-SL-22	22	0.91	1.103	25.9	0.056	13.71	0.95	0.31	3.3	0.8	513.5	0.11	4.8	0.012	0.21	1.2	47	< .2	75.8
GC-SL-23	23	0.86	1.023	25.2	0.054	13.25	0.90	0.31	3.1	0.8	515.0	0.08	4.8	0.012	0.20	1.2	46	< .2	73.4
GC-SL-24	24	0.90	1.007	24.9	0.055	13.03	0.93	0.32	3.2	0.9	505.2	0.09	4.6	0.012	0.20	1.2	47	< .2	73.6
RE GC-SL-24	24	0.92	0.991	24.6	0.057	14.37	0.94	0.33	3.2	0.9	514.8	0.11	4.8	0.012	0.21	1.2	46	< .2	75.7
GC-SL-25	25	0.87	0.998	24.0	0.054	12.61	0.88	0.30	3.1	0.8	500.2	0.09	4.5	0.012	0.20	1.1	44	< .2	71.8
GC-SL-26	26	0.91	1.076	26.9	0.057	13.51	0.93	0.30	3.4	0.8	520.5	0.07	5.0	0.012	0.20	1.2	50	< .2	77.8
GC-SL-27	27	0.83	1.004	25.6	0.057	13.53	0.95	0.30	3.4	0.9	521.8	0.08	5.0	0.011	0.20	1.2	48	< .2	75.4
GC-SL-28	28	0.83	1.058	25.1	0.055	13.49	0.91	0.29	3.3	0.9	512.0	0.06	4.6	0.011	0.20	1.2	47	< .2	75.4
GC-SL-29	29	0.86	1.038	24.5	0.055	13.49	0.92	0.30	3.3	0.9	507.5	0.10	4.8	0.012	0.21	1.2	47	< .2	76.0
GC-SL-30	30	0.83	1.031	24.1	0.056	13.76	0.95	0.29	3.3	0.9	512.2	0.09	4.8	0.012	0.21	1.2	47	< .2	75.3
GC-SL-31	31	0.87	1.096	25.2	0.060	13.45	0.96	0.30	3.3	0.9	492.3	0.08	4.7	0.012	0.21	1.2	48	< .2	78.2
GC-SL-32	32	0.82	0.879	24.0	0.055	13.13	0.91	0.30	3.2	0.9	506.7	0.12	4.6	0.011	0.20	1.2	46	< .2	74.0
GC-SL-33	33	0.83	0.948	24.4	0.057	13.40	0.91	0.31	3.2	0.9	494.5	0.10	4.5	0.012	0.21	1.1	44	< .2	73.8
STANDARD DS2	–	14.22	0.030	35.1	0.089	33.57	0.03	9.62	3.2	2.3	30.3	1.73	4.1	0.093	1.76	19.2	75	6.8	157.6
GC-SL-34	34	0.91	0.998	26.2	0.053	13.84	0.91	0.28	3.1	0.9	492.6	0.08	5.1	0.011	0.21	1.2	50	< .2	80.4
GC-SL-35	35	0.94	1.011	26.5	0.053	13.69	0.91	0.30	3.1	0.9	495.2	0.09	5.2	0.010	0.20	1.3	49	< .2	77.7
GC-SL-36	36	0.95	1.017	26.3	0.052	13.65	0.90	0.30	3.0	0.9	481.7	0.07	4.8	0.010	0.21	1.3	47	< .2	76.1
GC-SL-37	37	0.96	0.921	26.8	0.055	13.96	0.95	0.33	3.2	1.0	465.5	0.10	5.4	0.010	0.22	1.3	51	< .2	80.0
GC-SL-38	38	0.99	1.007	27.0	0.054	14.37	0.95	0.35	3.2	1.0	481.8	0.11	5.2	0.010	0.23	1.3	49	< .2	78.3

ELEMENT SAMPLES	Depth (cm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-SL-39	39	0.99	1.035	27.5	0.055	14.56	0.94	0.33	3.1	0.9	466.5	0.09	5.3	0.010	0.22	1.3	51	< .2	78.4
GC-SL-40	40	0.87	1.090	26.8	0.054	13.90	0.92	0.32	3.1	0.9	495.2	0.08	5.0	0.011	0.21	1.2	50	< .2	78.2
GC-SL-41	41	0.82	1.074	26.7	0.055	14.31	0.95	0.32	3.0	0.9	421.1	0.06	4.7	0.010	0.22	1.3	50	< .2	83.1
GC-SL-42	42	0.90	1.001	27.7	0.055	14.90	1.03	0.31	3.1	1.0	413.4	0.07	5.1	0.010	0.22	1.3	48	< .2	79.7
GC-SL-43	43	0.93	1.049	28.4	0.055	14.99	0.91	0.34	3.4	0.9	448.2	0.07	5.4	0.011	0.23	1.2	52	< .2	81.9
GC-SL-44	44	1.04	1.000	29.5	0.055	15.14	0.89	0.33	3.3	1.0	459.7	0.08	5.6	0.010	0.23	1.3	51	< .2	83.6
GC-SL-45	45	1.15	1.147	31.0	0.057	15.15	0.96	0.36	3.5	0.9	442.4	0.07	5.9	0.010	0.24	1.4	52	< .2	82.6
GC-SL-46	46	1.22	1.017	28.5	0.054	14.23	0.96	0.36	3.2	0.9	474.9	0.12	5.7	0.011	0.21	1.3	49	< .2	76.6
GC-SL-47	47	1.09	1.000	27.2	0.056	13.37	0.90	0.31	3.1	0.9	501.4	0.11	5.0	0.010	0.21	1.3	50	< .2	77.1
GC-SL-48	48	0.98	1.129	27.8	0.057	13.56	0.93	0.30	3.2	0.9	444.7	0.11	4.9	0.010	0.22	1.3	50	< .2	80.1
GC-SL-49	49	0.91	1.051	27.9	0.058	13.93	1.00	0.32	3.2	0.9	411.1	0.08	4.7	0.010	0.22	1.3	50	< .2	82.4
GC-SL-50	50	0.88	1.068	29.2	0.059	16.15	0.99	0.39	3.3	1.1	317.2	0.10	5.0	0.010	0.24	1.3	54	< .2	92.7
GC-SL-51	51	0.85	1.174	29.6	0.061	16.50	1.02	0.34	3.3	1.1	283.9	0.07	5.0	0.010	0.23	1.2	54	< .2	94.0
GC-SL-52	52	0.84	1.119	29.8	0.063	16.20	1.05	0.34	3.3	1.1	305.9	0.07	4.9	0.011	0.23	1.2	57	< .2	96.0
GC-SL-53	53	1.02	0.957	28.3	0.059	14.42	1.03	0.37	3.1	1.0	459.6	0.10	4.9	0.011	0.21	1.4	50	< .2	81.3
GC-SL-54	54	1.13	0.996	28.2	0.057	15.02	1.01	0.32	3.2	0.9	476.4	0.09	5.0	0.010	0.22	1.4	52	< .2	82.6
GC-SL-55	55	1.22	0.953	28.6	0.057	13.57	0.98	0.35	3.2	0.9	532.5	0.14	5.4	0.011	0.21	1.4	50	< .2	79.7
GC-SL-56	56	1.12	0.906	27.9	0.056	13.48	0.99	0.34	3.1	1.0	537.7	0.11	5.2	0.011	0.21	1.3	48	< .2	76.9
GC-SL-57	57	1.06	0.888	27.5	0.056	13.36	0.99	0.31	3.1	0.9	538.4	0.12	5.0	0.010	0.20	1.3	47	< .2	78.1
RE GC-SL-57	57	1.00	0.900	28.3	0.057	13.51	1.00	0.32	3.0	0.9	538.2	0.09	4.9	0.010	0.21	1.3	48	< .2	78.6
GC-SL-58	58	1.01	0.895	26.6	0.057	13.35	1.01	0.31	3.0	0.8	576.5	0.09	4.7	0.011	0.21	1.2	45	< .2	75.9
GC-SL-59	59	0.96	0.856	26.7	0.057	13.54	1.01	0.31	3.1	1.0	588.6	0.13	4.9	0.011	0.21	1.2	49	< .2	75.0
GC-SL-60	60	0.93	0.844	26.2	0.057	12.89	1.02	0.29	3.0	0.9	623.0	0.06	4.5	0.011	0.20	1.2	47	< .2	72.7
GC-SL-61	61	0.96	0.884	25.7	0.060	12.36	1.04	0.31	2.9	0.9	676.2	0.10	4.6	0.011	0.19	1.2	47	< .2	69.9
GC-SL-62	62	0.94	0.862	24.8	0.059	12.51	1.04	0.33	2.9	0.9	666.8	0.09	4.3	0.011	0.19	1.2	46	< .2	69.0
GC-SL-63	63	0.90	0.752	23.7	0.057	12.10	1.02	0.33	2.7	0.9	743.9	0.09	4.0	0.011	0.18	1.1	43	< .2	63.8
GC-SL-64	64	0.92	0.740	23.3	0.056	10.79	1.00	0.33	2.5	0.9	812.9	0.11	3.8	0.010	0.17	1.1	42	< .2	62.4
GC-SL-65	65	0.86	0.718	21.9	0.055	10.21	0.96	0.32	2.5	0.9	938.7	0.13	3.6	0.010	0.16	1.0	41	< .2	57.2
GC-SL-66	66	0.86	0.775	21.1	0.053	9.69	0.97	0.29	2.3	0.8	1114.8	0.13	3.5	0.010	0.15	1.0	39	< .2	55.8
STANDARD DS2	–	14.29	0.030	34.7	0.087	31.35	0.03	9.50	3.1	2.4	28.2	1.77	3.8	0.088	1.80	19.1	75	6.7	155.6
GC-SL-67	67	0.88	0.757	22.0	0.051	10.78	0.96	0.27	2.5	0.9	1024.2	0.10	3.8	0.012	0.16	1.1	41	< .2	59.0
GC-SL-68	68	0.87	0.758	22.5	0.052	10.76	0.96	0.29	2.5	0.8	956.5	0.10	3.9	0.011	0.16	1.1	41	< .2	61.4
GC-SL-69	69	0.77	0.774	23.2	0.052	10.72	0.97	0.26	2.6	0.7	861.0	0.09	4.0	0.011	0.16	1.0	42	< .2	60.4
GC-SL-70	70	0.75	0.748	21.8	0.050	10.48	0.99	0.28	2.6	0.7	890.1	0.09	4.1	0.012	0.15	1.0	42	< .2	59.1
GC-SL-71	71	0.74	0.759	23.3	0.055	11.18	1.05	0.28	2.8	0.7	815.7	0.12	4.5	0.011	0.17	1.0	44	< .2	62.0
GC-SL-72	72	0.76	0.768	24.8	0.050	11.13	1.05	0.28	2.9	0.7	814.3	0.13	4.6	0.012	0.18	1.0	44	< .2	63.4
GC-SL-73	73	0.75	0.754	24.1	0.051	11.38	1.07	0.30	2.8	0.7	812.8	0.14	4.7	0.012	0.18	1.0	45	< .2	63.6
GC-SL-74	74	0.75	0.718	24.4	0.050	11.08	1.07	0.28	2.8	0.7	743.9	0.11	4.8	0.012	0.17	1.0	46	< .2	65.5
GC-SL-75	75	0.78	0.758	26.3	0.049	11.70	1.22	0.31	2.9	0.6	674.3	0.10	5.0	0.012	0.18	1.1	44	< .2	68.4

ELEMENT SAMPLES	Depth (cm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-SL-76	76	0.64	0.800	28.3	0.048	12.61	1.28	0.39	3.1	0.7	534.0	0.10	5.5	0.011	0.20	1.0	47	< .2	73.4
GC-SL-77	77	0.58	0.828	28.7	0.047	13.56	1.40	0.43	3.4	0.8	362.6	0.17	6.0	0.011	0.21	1.0	55	< .2	84.7
GC-SL-78	78	0.78	0.882	30.1	0.047	13.78	1.60	0.41	3.6	0.9	318.7	0.11	6.5	0.011	0.20	1.0	60	< .2	87.3
GC-SL-79	79	1.25	0.891	33.7	0.046	13.96	1.67	0.46	3.5	0.9	281.4	0.09	6.3	0.010	0.21	1.0	61	< .2	89.0
GC-SL-80	80	0.66	0.821	29.0	0.053	14.64	0.68	0.41	3.4	0.8	395.5	0.07	6.1	0.011	0.20	1.0	56	< .2	84.2
GC-SL-81	81	0.71	0.774	27.3	0.050	14.01	0.34	0.35	3.3	0.8	427.1	0.09	6.0	0.011	0.20	1.1	53	< .2	79.5
GC-SL-82	82	0.87	0.735	41.7	0.049	13.75	0.23	0.39	3.2	0.7	400.9	0.10	5.9	0.011	0.21	1.0	55	< .2	86.8
GC-SL-83	83	0.96	0.818	37.3	0.048	13.57	0.29	0.48	3.1	0.7	341.6	0.09	5.6	0.010	0.22	1.0	51	< .2	87.4
RE GC-SL-83	83	0.97	0.765	37.5	0.047	13.14	0.28	0.48	3.0	0.7	339.4	0.07	5.4	0.010	0.21	1.0	53	< .2	88.8
GC-SL-84	84	0.63	0.807	31.0	0.047	13.97	0.24	0.48	3.1	0.8	280.0	0.08	5.9	0.009	0.21	0.9	56	< .2	92.1
GC-SL-85	85	1.19	0.856	48.4	0.049	14.46	0.36	0.56	3.2	0.9	260.1	0.07	5.9	0.009	0.22	1.0	60	< .2	99.3
GC-SL-86	86	0.62	0.842	30.7	0.047	14.30	0.29	0.48	3.1	0.9	198.5	0.10	5.8	0.009	0.21	1.0	59	< .2	95.2
GC-SL-87	87	0.45	0.850	27.2	0.048	14.04	0.21	0.44	3.2	0.9	175.0	0.06	5.9	0.009	0.19	0.9	62	< .2	91.9
GC-SL-88	88	0.37	0.830	26.8	0.047	13.30	0.24	0.49	3.1	0.9	184.1	0.07	5.5	0.009	0.20	0.9	60	< .2	91.7
GC-SL-89	89	0.35	0.806	26.3	0.047	13.41	0.24	0.45	3.1	0.9	187.6	0.11	5.5	0.009	0.19	0.9	61	< .2	91.0
GC-SL-90	90	0.46	0.872	27.3	0.048	13.34	0.52	0.44	3.2	0.9	227.5	0.08	5.7	0.010	0.19	0.9	61	< .2	91.7
GC-SL-91	91	0.74	0.809	26.6	0.046	12.03	0.94	0.37	2.8	0.9	409.6	0.08	5.0	0.011	0.18	1.0	48	< .2	79.1
GC-SL-92	92	0.65	0.703	27.5	0.064	12.40	0.05	0.33	3.2	0.8	299.2	0.06	5.7	0.010	0.17	0.9	49	< .2	81.3
GC-SL-93	93	0.60	0.748	27.0	0.063	12.53	0.05	0.37	3.1	0.8	299.4	0.09	5.8	0.010	0.17	0.9	51	< .2	83.3
GC-SL-94	94	0.34	0.803	28.1	0.059	12.06	0.04	0.36	3.2	0.8	252.6	0.07	5.8	0.009	0.18	0.9	52	< .2	85.0
GC-SL-95	95	0.22	0.767	26.1	0.054	11.36	0.03	0.36	3.0	0.8	181.8	0.05	5.3	0.009	0.17	0.9	51	< .2	82.6
GC-SL-96	96	0.21	0.789	27.6	0.053	11.90	0.03	0.34	3.1	0.9	165.5	0.05	5.2	0.009	0.18	0.9	52	< .2	87.8
GC-SL-97	97	0.19	0.767	27.9	0.050	11.34	0.03	0.34	3.1	0.8	158.8	0.07	5.1	0.008	0.17	0.9	55	< .2	89.7
GC-SL-98	98	0.24	0.811	28.6	0.051	12.35	0.03	0.41	3.2	0.9	165.8	0.10	5.6	0.009	0.18	0.9	58	< .2	94.5
GC-SL-99	99	0.20	0.731	26.3	0.050	12.04	0.04	0.39	3.0	1.0	153.2	0.04	5.2	0.009	0.16	0.9	54	< .2	85.3
STANDARD DS2	–	14.12	0.031	35.2	0.093	32.97	0.02	9.36	3.3	2.3	31.0	1.77	3.9	0.095	1.79	19.8	76	6.5	159.1
GC-SL-100	100	0.24	0.741	20.6	0.052	12.75	0.04	0.36	3.1	0.9	167.7	0.05	5.8	0.011	0.16	0.9	47	< .2	75.4
GC-SL-101	101	0.23	0.757	21.3	0.051	12.98	0.04	0.39	3.2	0.9	172.8	0.06	5.7	0.011	0.17	1.0	50	< .2	79.0
GC-SL-102	102	0.27	0.807	22.0	0.053	13.94	0.04	0.41	3.3	1.2	196.5	0.05	5.9	0.011	0.17	1.0	51	< .2	77.5
GC-SL-103	103	0.27	0.819	23.4	0.055	13.91	0.06	0.38	3.5	1.0	214.5	0.05	6.3	0.011	0.18	1.0	51	< .2	79.8
GC-SL-104	104	0.35	0.783	22.8	0.059	14.64	0.08	0.42	3.4	0.9	344.0	0.09	6.2	0.011	0.17	1.0	50	< .2	77.7
GC-SL-105	105	0.39	0.802	22.0	0.055	13.67	0.09	0.35	3.5	0.8	372.7	0.09	6.4	0.011	0.17	1.0	49	< .2	75.5
GC-SL-106	106	0.36	0.768	21.1	0.052	12.98	0.11	0.32	3.4	0.8	376.6	0.05	6.0	0.011	0.17	1.0	47	< .2	72.0
GC-SL-107	107	0.52	0.796	22.4	0.052	14.09	0.16	0.33	3.5	0.9	386.4	0.09	6.0	0.012	0.26	1.0	49	< .2	73.2
GC-SL-108	108	1.20	0.748	31.1	0.047	13.37	0.24	0.42	3.2	1.0	371.6	0.11	5.8	0.012	0.27	1.6	49	< .2	85.7
GC-SL-109	109	1.45	0.753	33.8	0.049	13.83	0.26	0.40	3.3	1.0	350.3	0.09	6.0	0.011	0.24	1.7	53	< .2	85.8
GC-SL-110	110	1.46	0.803	36.4	0.050	14.51	0.26	0.42	3.4	1.0	335.5	0.08	6.1	0.011	0.24	1.7	53	< .2	88.2
GC-SL-111	111	1.43	0.757	32.8	0.051	14.48	0.30	0.43	3.5	1.0	362.5	0.09	6.3	0.012	0.24	1.6	52	< .2	85.3
GC-SL-112	112	1.27	0.744	31.8	0.051	14.27	0.34	0.40	3.4	0.9	364.2	0.09	6.1	0.012	0.22	1.6	52	< .2	84.5

ELEMENT SAMPLES	Depth (cm)	Mo (ppm)	Na (%)	Ni (ppm)	P (%)	Pb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sr (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)	U (ppm)	V (ppm)	W (ppm)	Zn (ppm)
GC-SL-113	113	1.34	0.750	30.9	0.048	14.10	0.48	0.37	3.4	0.8	420.1	0.13	5.9	0.012	0.22	1.5	50	< .2	81.1
GC-SL-114	114	1.25	0.732	29.5	0.048	14.03	0.60	0.36	3.5	1.0	433.7	0.10	5.9	0.012	0.21	1.4	48	< .2	77.1
GC-SL-115	115	1.28	0.733	29.5	0.048	13.82	0.67	0.32	3.3	0.9	426.0	0.09	6.2	0.012	0.20	1.4	49	< .2	78.1
GC-SL-116	116	1.40	0.734	29.3	0.048	14.05	0.70	0.32	3.4	0.9	424.6	0.09	6.2	0.012	0.19	1.3	48	< .2	74.5
RE GC-SL-116	116	1.45	0.701	28.7	0.048	14.06	0.70	0.33	3.4	0.8	420.0	0.11	6.1	0.012	0.20	1.3	48	< .2	74.8
GC-SL-117	117	1.46	0.725	28.9	0.048	14.25	0.79	0.31	3.4	1.0	431.9	0.11	6.2	0.013	0.20	1.3	47	< .2	76.2
GC-SL-118	118	1.23	0.694	28.2	0.048	14.23	0.74	0.30	3.5	0.9	453.2	0.09	6.6	0.013	0.19	1.3	47	< .2	72.0
GC-SL-119	119	0.93	0.678	27.9	0.050	14.30	0.53	0.30	3.5	0.8	446.7	0.10	6.6	0.012	0.19	1.3	44	< .2	70.6
GC-SL-120	120	0.78	0.691	28.6	0.051	14.11	0.39	0.28	3.5	0.9	420.9	0.06	7.0	0.012	0.19	1.2	45	< .2	70.2
GC-SL-121	121	0.67	0.708	27.9	0.051	14.40	0.30	0.33	3.3	0.9	360.5	0.05	6.6	0.012	0.19	1.2	47	< .2	73.0
GC-SL-122	122	0.61	0.751	26.0	0.051	14.07	0.18	0.35	3.2	1.0	290.8	0.06	6.1	0.011	0.19	1.1	50	< .2	76.3
GC-SL-123	123	0.52	0.774	27.2	0.052	13.85	0.11	0.35	3.1	1.0	256.7	0.05	6.1	0.011	0.19	1.0	52	< .2	77.9

APPENDIX 4

ROCK-EVAL DATA

List of Abbreviations:

Abbreviation	Explanation	Units
Depth	Depth from which the samples was obtained	cm
Sample	Sample name	
Qty	Amount of sediment used in analysis	mg
S_1	Hydrocarbons evolved at 300°C	mg hydrocarbon / g sediment
S_2	Hydrocarbons evolved during heating at 25°C/minute between 300-600°C	mg hydrocarbon / g sediment
PI	Production Index = $S_1/(S_1 + S_2)$	
S_3CO_2	Organic carbon dioxide evolved at 300°C and up to 390°C	mg CO_2 / g sediment
T_{max}	Temperature at the top of the S_2 peak	°C
T_{peak}	Temperature at which the S_2 peak maximum is reached	°C
S_3CO	Organic carbon monoxide evolved at 300°C and up to 390°C	mg CO / g sediment
PC%		
TOC	Total organic carbon	Weight % of total sediment
RC%	Residual carbon not pyrolyzed (i.e. inert C)	Weight % of total sediment
HI	Hydrogen Index = S_2/TOC	
OICO	Oxygen Index for CO = S_3CO/TOC	
$OICO_2$	Oxygen Index for CO_2 = S_3CO_2/TOC	
OIRE6	Oxygen Index composite = ($S_3CO + S_3CO_2$/TOC)	
MINC%	Inorganic carbon	Weight % of total sediment

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
–	**9107**	100.1	0.97	11.80	0.08	0.08	0.79	442	484	0.35	1.08	5.24	4.16	227	7	15	15	0.7
1	HL-1-2	50.4	0.33	3.16	0.05	0.09	8.25	406	448	1.14	0.34	2.94	2.60	109	39	281	227	0.8
2	HL-3-4	51.2	0.34	3.30	0.04	0.09	8.04	418	460	1.08	0.35	3.03	2.68	110	36	265	213	0.8
3	HL-5-6	50.8	0.29	2.89	0.04	0.09	7.88	420	462	1.63	0.34	2.96	2.62	99	55	266	225	0.7
4	HL-7-8	50.1	0.28	2.60	0.04	0.09	7.60	409	451	1.57	0.31	3.06	2.75	86	51	248	210	0.6
5	HL-9-10	50.7	0.27	2.35	0.02	0.10	7.53	408	450	1.64	0.29	3.06	2.77	77	54	246	210	0.6
6	HL-11-12	50.0	0.35	3.03	0.03	0.10	7.77	411	453	1.94	0.37	3.33	2.96	92	58	233	203	0.6
7	HL-13-14	50.0	0.31	2.70	0.03	0.10	7.59	410	452	1.20	0.30	3.18	2.88	86	38	239	196	0.6
8	HL-15-16	50.5	0.29	2.69	0.02	0.10	7.80	407	449	1.61	0.32	3.02	2.70	90	53	258	218	0.7
9	HL-17-18	50.5	0.57	5.61	0.04	0.09	8.11	420	462	1.28	0.57	3.40	2.83	166	38	239	196	0.8
10	HL-19-20	50.0	0.21	1.63	0.01	0.11	6.58	402	444	0.94	0.19	2.19	2.00	75	43	300	243	0.7
11	HL-21-22	50.3	0.19	1.80	0.01	0.10	6.97	420	462	1.03	0.21	2.36	2.15	77	44	295	240	0.9
12	HL-23-24	50.2	0.75	7.74	0.02	0.09	10.67	421	463	2.06	0.79	4.16	3.37	187	50	256	215	1.4
13	HL-25-26	49.9	0.69	7.39	0.02	0.09	10.35	421	463	1.50	0.74	4.10	3.36	181	37	252	204	1.2
14	HL-27-28	50.4	0.89	7.73	0.02	0.10	10.89	418	460	2.33	0.82	3.96	3.14	196	59	275	234	1.5
–	**9107**	100.5	0.99	11.76	0.08	0.08	0.59	444	486	0.32	1.08	5.19	4.11	228	6	11	11	0.7
–	**9107**	100.2	1.00	11.94	0.08	0.08	0.66	443	485	0.29	1.09	5.17	4.08	232	6	13	13	0.6
17	HL-33-34	51.1	0.32	3.42	0.01	0.09	7.59	419	461	1.14	0.36	2.87	2.51	120	40	264	215	1.1
18	HL-35-36	49.7	0.37	3.83	0.01	0.09	7.77	416	458	1.07	0.40	2.97	2.57	129	36	262	211	1.1
19	HL-37-38	49.8	0.44	4.78	0.02	0.08	7.85	419	461	1.63	0.50	3.17	2.67	151	51	248	210	1.0
20	HL-39-40	50.0	0.38	4.18	0.02	0.08	7.07	419	461	0.97	0.42	3.01	2.59	140	32	235	189	0.9
21	HL-41-42	50.7	0.44	4.44	0.02	0.09	7.99	417	459	1.23	0.46	3.05	2.59	146	40	262	213	1.0
22	HL-43-44	50.0	0.41	4.39	0.02	0.09	7.35	418	460	1.14	0.45	3.13	2.68	141	36	235	191	1.0
23	HL-45-46	50.8	0.43	4.56	0.02	0.08	7.82	418	460	1.12	0.46	3.18	2.72	144	35	246	199	1.0
24	HL-47-48	51.2	0.43	4.74	0.02	0.08	8.03	421	463	1.25	0.48	3.42	2.94	139	37	235	192	0.9
25	HL-49-50	50.2	0.44	4.80	0.02	0.08	7.44	419	461	1.09	0.48	3.31	2.83	146	33	225	182	0.9
26	HL-51-52	50.0	0.42	4.75	0.02	0.08	7.32	283	325	1.13	0.48	3.29	2.81	145	34	222	181	0.9
27	HL-53-54	50.5	0.44	4.47	0.02	0.09	7.16	413	455	0.97	0.45	3.22	2.77	139	30	222	179	0.9
28	HL-55-56	50.1	0.32	3.53	0.01	0.08	6.91	413	455	1.12	0.37	3.15	2.78	112	36	219	180	0.9
–	**9107**	99.7	0.99	11.73	0.07	0.08	0.66	441	483	0.09	1.07	5.19	4.12	227	2	13	11	0.7
29	HL-57-58	50.0	0.61	6.47	0.02	0.09	8.55	419	461	1.34	0.65	3.91	3.26	166	34	219	179	1.0
30	HL-59-60	50.1	0.68	7.64	0.03	0.08	8.36	427	469	1.90	0.77	4.09	3.32	188	46	204	175	1.0
31	HL-61-62	50.2	0.63	7.61	0.02	0.08	8.26	423	465	1.60	0.75	3.77	3.02	202	42	219	183	1.0
32	HL-63-64	50.6	0.70	7.70	0.03	0.08	8.32	422	464	1.31	0.76	3.79	3.03	204	35	220	180	1.0
33	HL-65-66	50.1	0.65	7.50	0.02	0.08	8.23	424	466	2.03	0.77	3.84	3.07	196	53	214	186	1.1
34	HL-67-68	50.4	0.71	7.51	0.02	0.09	8.37	424	466	1.39	0.74	3.76	3.02	200	37	223	183	1.1
35	HL-69-70	50.0	0.76	7.70	0.02	0.09	8.41	424	466	1.35	0.76	3.77	3.01	205	36	223	183	1.0
36	HL-71-72	50.5	0.74	7.79	0.02	0.09	8.46	422	464	1.42	0.77	3.81	3.04	205	37	222	183	1.0
37	HL-73-74	50.8	0.85	9.23	0.02	0.08	8.91	426	468	1.42	0.90	4.15	3.25	223	34	215	176	1.1
38	HL-75-76	50.0	0.85	9.18	0.03	0.08	8.97	423	465	1.90	0.92	4.15	3.23	222	46	216	183	1.1
39	HL-77-78	50.3	0.94	10.40	0.03	0.08	9.23	424	466	2.21	1.04	4.50	3.46	232	49	205	177	1.1
40	HL-79-80	50.5	0.74	8.43	0.03	0.08	8.62	423	465	1.45	0.83	4.17	3.34	203	35	207	171	1.0
41	HL-81-82	50.5	0.72	8.24	0.03	0.08	8.90	424	466	1.54	0.81	4.12	3.31	201	37	216	178	1.1
42	HL-83-84	50.3	0.93	9.75	0.03	0.09	9.55	421	463	2.67	1.00	4.50	3.50	217	59	212	188	1.1
–	**9107**	100.2	0.99	12.06	0.08	0.08	0.62	442	484	0.14	1.10	5.31	4.21	229	3	12	10	0.7

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
43	HL-85-86	50.1	0.92	11.14	0.03	0.08	9.58	425	467	2.10	1.09	4.69	3.60	238	45	204	174	1.0
44	HL-87-88	50.1	0.91	10.52	0.03	0.08	9.49	425	467	1.59	1.02	4.53	3.51	233	35	209	172	1.0
45	HL-89-90	50.0	0.90	10.43	0.03	0.08	9.56	424	466	2.22	1.04	4.51	3.47	232	49	212	182	1.0
46	HL-91-92	50.9	0.88	10.15	0.03	0.08	9.57	427	469	1.49	0.98	4.44	3.46	229	34	216	177	1.1
47	HL-93-94	50.3	0.91	10.78	0.03	0.08	9.48	425	467	2.07	1.06	4.55	3.49	238	45	208	177	1.0
48	HL-95-96	50.1	0.88	10.35	0.03	0.08	9.74	424	466	1.58	1.00	4.53	3.53	229	35	215	176	1.1
49	HL-97-98	50.2	0.77	9.30	0.03	0.08	9.67	426	468	2.08	0.93	4.39	3.46	213	47	220	187	1.0
50	HL-99-100	50.6	0.67	8.44	0.03	0.07	8.60	423	465	1.96	0.84	3.96	3.12	214	49	217	186	1.0
–	**9107**	99.9	0.98	12.31	0.08	0.07	0.67	443	485	0.34	1.12	5.35	4.23	232	6	13	13	0.7
–	**9107**	100.2	1.00	11.90	0.08	0.08	0.65	442	484	0.34	1.09	5.22	4.13	230	7	12	13	0.7
51	HL-101-102	50.3	0.73	8.51	0.03	0.08	8.39	427	469	1.27	0.82	3.95	3.13	216	32	212	172	1.0
52	HL-103-104	50.4	0.57	6.69	0.02	0.08	7.33	426	468	1.33	0.66	3.42	2.76	196	39	214	178	1.0
53	HL-105-106	50.0	0.50	6.54	0.02	0.07	7.00	427	469	1.19	0.64	3.35	2.71	196	36	209	173	0.9
54	HL-107-108	50.3	0.51	6.77	0.02	0.07	7.08	426	468	1.29	0.66	3.38	2.72	201	38	209	174	0.9
55	HL-109-110	50.1	0.61	7.53	0.02	0.07	7.82	426	468	1.78	0.75	3.64	2.89	207	49	215	184	1.0
56	HL-111-112	49.9	0.58	7.36	0.02	0.07	7.47	426	468	1.80	0.74	3.55	2.81	208	51	210	182	0.9
57	HL-113-114	50.3	0.55	6.93	0.02	0.07	7.05	423	465	1.15	0.67	3.43	2.76	203	34	206	169	0.9
58	HL-115-116	50.1	0.63	7.59	0.02	0.08	7.85	426	468	1.26	0.74	3.68	2.94	207	34	213	174	1.0
59	HL-117-118	50.1	0.63	7.60	0.02	0.08	7.98	425	467	1.17	0.73	3.76	3.03	203	31	212	172	1.0
60	HL-119-120	50.1	0.61	7.19	0.03	0.08	7.74	425	467	1.25	0.70	3.62	2.92	199	35	214	176	1.0
61	HL-121-122	50.0	0.52	6.72	0.02	0.07	7.24	424	466	1.15	0.65	3.43	2.78	197	34	211	173	1.0
62	HL-123-124	50.3	0.61	7.10	0.02	0.08	7.64	424	466	1.22	0.69	3.52	2.83	202	35	217	178	1.0
63	HL-125-126	50.8	0.58	7.28	0.02	0.07	7.72	423	465	1.13	0.70	3.62	2.92	202	31	213	173	1.0
64	HL-127-128	50.1	0.57	6.92	0.02	0.08	7.83	424	466	1.25	0.68	3.57	2.89	194	35	219	179	1.1
–	**9107**	100.4	0.98	12.19	0.08	0.07	0.63	444	486	0.32	1.11	5.18	4.07	237	6	12	12	0.7
65	HL-129-130	50.3	0.55	7.15	0.02	0.07	8.12	425	467	2.04	0.73	3.76	3.03	191	54	216	188	1.0
66	HL-131-132	50.7	0.59	7.82	0.02	0.07	7.97	425	467	1.35	0.76	3.78	3.02	207	36	211	174	1.0
67	HL-133-134	50.9	0.55	7.57	0.02	0.07	8.26	428	470	1.18	0.73	3.80	3.07	200	31	217	176	1.0
68	HL-135-136	50.6	0.57	7.80	0.02	0.07	8.18	427	469	1.33	0.75	3.80	3.05	206	35	215	176	1.0
69	HL-137-138	50.4	0.59	7.70	0.03	0.07	8.40	425	467	1.38	0.75	3.83	3.08	202	36	219	180	1.0
70	HL-139-140	50.5	0.54	7.51	0.02	0.07	8.05	427	469	1.30	0.73	3.78	3.05	199	34	213	174	1.0
71	HL-141-142	50.3	0.57	7.59	0.02	0.07	8.26	426	468	1.25	0.73	3.76	3.03	202	33	220	179	1.0
72	HL-143-144	50.1	0.58	7.38	0.02	0.07	8.59	426	468	1.98	0.75	3.77	3.02	196	53	228	196	1.0
73	HL-145-146	50.6	0.59	7.65	0.02	0.07	8.51	424	466	1.24	0.74	3.74	3.00	205	33	228	185	1.0
–	**9107**	100.6	0.97	12.26	0.08	0.07	0.65	442	484	0.07	1.11	5.19	4.08	238	1	13	10	0.7
74	HL-147-148	50.2	0.59	8.05	0.03	0.07	8.79	426	468	1.86	0.80	4.01	3.21	201	46	219	186	1.0
75	HL-149-150	50.3	0.59	8.11	0.03	0.07	8.95	426	468	1.27	0.78	4.10	3.32	199	31	218	176	1.0
76	HL-151-152	50.0	0.72	9.13	0.03	0.07	9.51	424	466	2.38	0.92	4.41	3.49	208	54	216	188	1.0
77	HL-153-154	49.7	0.70	8.60	0.03	0.08	9.09	426	468	2.36	0.88	4.17	3.29	207	57	218	191	1.0
78	HL-155-156	50.4	0.58	8.04	0.02	0.07	8.00	427	469	1.23	0.77	3.81	3.04	212	32	210	171	0.9
79	HL-157-158	50.0	0.52	7.46	0.02	0.07	7.55	432	474	1.16	0.71	3.59	2.88	208	32	210	171	0.9
80	HL-159-160	50.7	0.55	7.48	0.02	0.07	7.81	429	471	1.26	0.72	3.69	2.97	203	34	212	174	0.9
81	HL-161-162	50.8	0.49	6.72	0.02	0.07	6.88	429	471	1.75	0.68	3.41	2.73	198	51	202	176	0.8
82	HL-163-164	50.7	0.45	6.14	0.02	0.07	6.90	429	471	1.08	0.59	3.22	2.63	191	34	214	175	0.9
83	HL-165-166	50.7	0.49	6.56	0.02	0.07	7.07	429	471	1.07	0.63	3.35	2.72	196	32	211	172	0.9

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
84	HL-167-168	50.2	0.53	6.84	0.02	0.07	7.82	429	471	1.13	0.66	3.55	2.89	193	32	220	178	1.0
–	**9107**	100.2	0.98	12.48	0.08	0.07	0.73	442	484	0.26	1.13	5.27	4.14	238	5	14	13	0.7
–	**9107**	100.3	1.02	12.42	0.08	0.08	0.59	442	484	0.28	1.13	5.07	3.94	247	6	12	12	0.6
–	**9107**	100.2	0.97	11.89	0.08	0.08	0.74	441	483	0.35	1.09	5.09	4.00	235	7	15	15	0.6
–	**9107**	100.4	0.97	11.98	0.08	0.07	0.80	444	486	0.39	1.10	5.07	3.97	238	8	16	16	0.6
–	**9107**	100.5	0.99	12.11	0.08	0.07	0.83	442	484	0.37	1.11	4.98	3.87	245	7	17	16	0.7

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
0.50	RE-LL-1	51.0	0.91	12.70	0.04	0.07	11.61	426	469	3.23	1.27	5.12	3.85	249	63	227	201	0.7
0.50	RE-LL-1	51.0	1.06	13.48	0.04	0.07	11.80	422	465	2.53	1.32	5.23	3.91	259	48	226	192	0.7
1.00	RE-LL-2	50.1	1.33	14.76	0.04	0.08	13.38	422	465	2.87	1.46	6.06	4.60	244	47	221	188	0.7
1.50	RE-LL-3	100.5	1.12	13.49	0.04	0.08	11.78	423	466	3.24	1.35	5.40	4.05	251	60	218	193	0.6
2.00	RE-LL-4	100.1	1.20	13.90	0.04	0.08	11.72	421	464	3.25	1.40	5.52	4.12	253	59	212	188	0.6
2.50	RE-LL-5	100.6	0.91	12.53	0.04	0.07	11.40	421	464	3.19	1.26	5.22	3.96	241	61	218	193	0.6
3.00	RE-LL-6	101.0	0.93	12.92	0.04	0.07	11.36	423	466	4.02	1.33	5.36	4.03	242	75	212	197	0.6
3.50	RE-LL-7	99.8	0.93	12.12	0.03	0.07	10.17	422	465	2.83	1.21	4.93	3.72	246	57	206	182	0.6
4.00	RE-LL-8	101.1	1.14	14.52	0.04	0.07	10.93	422	465	3.25	1.44	5.47	4.03	266	59	200	179	0.6
4.50	RE-LL-9	100.0	0.86	11.46	0.03	0.07	8.73	426	469	2.50	1.13	4.50	3.37	255	56	194	173	0.5
5.00	RE-LL-10	100.7	0.91	12.72	0.04	0.07	9.69	422	465	2.74	1.25	4.86	3.61	263	56	199	177	0.6
5.50	RE-LL-11	100.0	0.95	9.99	0.03	0.09	7.28	425	468	2.34	1.01	3.94	2.93	254	59	185	168	0.5
6.00	RE-LL-12	100.8	1.09	10.97	0.03	0.09	8.06	420	463	2.38	1.11	4.24	3.13	259	56	190	170	0.5
–	9107	100.7	0.94	11.53	0.07	0.07	0.78	441	484	0.37	1.06	5.10	4.04	227	7	15	15	0.6
6.50	RE-LL-13	99.9	1.72	12.25	0.04	0.12	7.91	419	462	2.46	1.27	4.41	3.14	279	56	179	162	0.5
7.00	RE-LL-14	99.9	2.66	13.52	0.03	0.16	7.75	415	458	2.35	1.45	4.51	3.06	300	52	172	155	0.5
7.50	RE-LL-15	99.9	5.45	17.06	0.03	0.24	7.13	414	457	2.67	1.99	4.97	2.98	344	54	143	135	0.6
8.00	RE-LL-16	100.1	1.28	11.21	0.04	0.10	7.51	425	468	2.45	1.14	4.24	3.10	265	58	177	162	0.5
8.50	RE-LL-17	101.0	0.99	9.95	0.03	0.09	7.40	425	468	2.58	1.02	4.07	3.05	245	63	182	168	0.5
9.00	RE-LL-18	99.7	1.76	11.75	0.03	0.13	7.64	420	463	2.21	1.22	4.36	3.14	270	51	175	156	0.6
9.50	RE-LL-19	99.8	0.92	11.51	0.03	0.07	8.22	422	465	2.64	1.15	4.68	3.53	247	56	176	160	0.5
10.00	RE-LL-20	100.3	1.21	12.76	0.04	0.09	8.27	427	470	2.88	1.29	5.08	3.79	252	57	163	151	0.5
10.50	RE-LL-21	99.9	0.59	8.10	0.03	0.07	7.02	427	470	2.41	0.83	3.74	2.91	217	64	188	173	0.5
11.00	RE-LL-22	99.9	0.59	7.86	0.03	0.07	6.73	426	469	2.09	0.79	3.60	2.81	219	58	187	169	0.5
11.50	RE-LL-23	100.9	0.48	6.85	0.03	0.07	6.17	427	470	2.09	0.70	3.29	2.59	209	64	188	173	0.5
12.00	RE-LL-24	100.6	0.32	5.05	0.02	0.06	5.35	426	469	2.18	0.54	2.83	2.29	179	77	189	181	0.5
12.50	RE-LL-25	100.5	0.31	5.01	0.02	0.06	5.55	425	468	1.95	0.53	2.91	2.38	173	67	191	177	0.5
13.00	RE-LL-26	99.6	0.64	9.45	0.04	0.06	8.07	424	467	2.29	0.94	4.42	3.48	215	52	183	163	0.5
–	9107	100.3	0.88	10.72	0.07	0.08	0.78	443	486	0.33	0.98	5.04	4.06	214	7	15	15	0.5
13.50	RE-LL-27	100.0	0.46	6.27	0.02	0.07	5.76	426	469	1.70	0.63	3.10	2.47	203	55	186	167	0.5
14.00	RE-LL-28	100.6	0.34	4.76	0.02	0.07	4.90	427	470	1.49	0.49	2.64	2.15	181	56	186	167	0.4
14.50	RE-LL-29	99.9	0.20	3.00	0.02	0.06	4.09	428	471	1.37	0.33	2.14	1.81	141	64	191	175	0.4
15.00	RE-LL-30	100.4	0.26	3.90	0.02	0.06	4.59	428	471	1.02	0.39	2.38	1.99	165	43	193	165	0.4
15.50	RE-LL-31	99.9	0.25	3.41	0.02	0.07	4.42	430	473	0.94	0.35	2.30	1.95	149	41	192	163	0.5
–	9107	100.4	0.86	10.67	0.07	0.07	0.77	441	484	0.41	0.98	5.08	4.10	211	8	15	15	0.5
–	9107	100.4	0.94	11.14	0.08	0.08	0.30	444	487	0.27	1.02	1.02	0.00	1100	26	29	36	0.3
16.00	RE-LL-32	99.8	0.21	3.07	0.02	0.06	4.27	424	467	0.91	0.31	2.18	1.87	142	42	196	167	0.5
16.50	RE-LL-33	100.4	0.17	3.07	0.02	0.05	4.17	431	474	0.94	0.31	2.20	1.89	140	43	190	163	0.5
17.00	RE-LL-34	99.9	0.29	4.64	0.02	0.06	4.99	429	472	1.76	0.49	2.65	2.16	176	66	188	174	0.5
17.50	RE-LL-35	99.9	0.36	4.85	0.02	0.07	5.17	425	468	1.81	0.51	2.77	2.26	176	65	187	173	0.5
18.00	RE-LL-36	100.4	0.23	2.93	0.02	0.07	4.03	427	470	1.45	0.33	2.13	1.80	138	68	189	176	0.5
18.50	RE-LL-37	100.1	0.22	2.88	0.01	0.07	4.12	426	469	1.52	0.32	2.15	1.83	134	71	192	180	0.5
19.00	RE-LL-38	101.1	0.12	2.14	0.01	0.05	3.52	425	468	0.80	0.22	1.84	1.62	117	43	191	163	0.5
19.50	RE-LL-39	100.7	0.12	2.04	0.01	0.06	3.64	424	467	1.24	0.23	1.84	1.61	111	67	198	182	0.5
20.00	RE-LL-40	101.0	0.13	2.09	0.01	0.06	3.79	422	465	1.29	0.24	1.90	1.66	111	68	199	184	0.5
20.50	RE-LL-41	100.7	0.19	2.10	0.01	0.08	3.57	426	469	0.76	0.22	1.80	1.58	117	42	198	168	0.5
21.00	RE-LL-42	100.1	0.14	2.20	0.01	0.06	3.96	426	469	1.38	0.25	2.01	1.76	110	69	197	183	0.5

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
21.50	RE-LL-43	100.0	0.12	2.15	0.01	0.05	3.98	422	465	0.78	0.22	1.99	1.77	109	39	200	168	0.5
22.00	RE-LL-44	100.3	0.16	2.38	0.01	0.06	3.97	422	465	0.86	0.25	2.00	1.75	120	43	199	169	0.5
22.50	RE-LL-45	100.1	0.18	2.33	0.01	0.07	4.23	424	467	0.91	0.25	2.10	1.85	111	43	201	171	0.5
–	9107	100.1	0.88	10.55	0.07	0.08	0.62	442	485	0.33	0.97	5.08	4.11	209	6	12	12	0.5
23.50	RE-LL-47	100.1	0.17	2.75	0.02	0.06	4.34	428	471	0.91	0.28	2.18	1.90	127	42	199	169	0.5
24.00	RE-LL-48	100.5	0.24	3.28	0.02	0.07	4.62	424	467	1.63	0.36	2.42	2.06	136	67	191	177	0.5
24.50	RE-LL-49	100.5	0.29	4.42	0.02	0.06	5.17	423	466	1.18	0.44	2.71	2.27	164	44	191	164	0.5
25.00	RE-LL-50	100.0	0.26	4.32	0.02	0.06	5.02	425	468	1.80	0.46	2.67	2.21	163	67	188	175	0.5
25.50	RE-LL-51	100.4	0.28	4.68	0.02	0.06	5.51	425	468	2.03	0.50	2.93	2.43	160	69	188	176	0.5
26.00	RE-LL-52	100.2	0.44	5.49	0.02	0.07	5.89	422	465	2.19	0.59	3.13	2.54	176	70	188	177	0.5
26.50	RE-LL-53	99.8	0.36	5.22	0.02	0.06	5.51	426	469	1.23	0.52	2.92	2.40	179	42	189	161	0.5
27.00	RE-LL-54	100.1	0.36	5.62	0.02	0.06	6.17	423	466	2.53	0.61	3.25	2.64	174	78	190	183	0.5
27.50	RE-LL-55	100.5	0.28	4.71	0.02	0.06	5.38	420	463	1.90	0.50	2.79	2.29	170	68	193	179	0.5
28.00	RE-LL-56	99.7	0.30	4.82	0.02	0.06	5.26	425	468	1.78	0.50	2.77	2.27	175	64	190	175	0.5
28.50	RE-LL-57	100.4	0.23	3.85	0.02	0.06	5.24	422	465	1.17	0.39	2.58	2.19	150	45	203	173	0.5
29.00	RE-LL-58	100.6	0.19	3.70	0.02	0.05	5.16	426	469	1.14	0.37	2.57	2.20	145	44	201	171	0.5
29.50	RE-LL-59	99.9	0.24	3.14	0.02	0.07	4.84	426	469	1.07	0.33	2.42	2.09	131	44	200	171	0.5
–	9107	100.6	0.85	10.53	0.07	0.07	0.69	442	485	0.40	0.97	5.04	4.07	210	8	14	15	0.5
30.00	RE-LL-60	100.2	0.40	6.98	0.02	0.05	7.07	422	465	2.52	0.72	3.68	2.96	190	68	192	178	0.5
30.50	RE-LL-61	100.5	0.34	6.17	0.02	0.05	6.41	423	466	1.85	0.62	3.30	2.68	188	56	194	173	0.5
31.00	RE-LL-62	99.8	0.37	6.18	0.02	0.06	6.42	425	468	1.91	0.63	3.29	2.66	188	58	195	175	0.5
31.50	RE-LL-63	99.9	0.39	6.08	0.02	0.06	6.10	424	467	2.10	0.63	3.23	2.60	189	65	189	175	0.5
32.00	RE-LL-64	100.6	0.37	5.84	0.02	0.06	5.76	426	469	1.67	0.59	3.00	2.41	195	56	192	172	0.5
32.50	RE-LL-65	99.8	0.26	5.13	0.02	0.05	5.17	427	470	1.57	0.52	2.72	2.20	189	58	190	171	0.5
33.00	RE-LL-66	100.0	0.11	2.21	0.01	0.05	3.48	426	469	0.74	0.23	1.78	1.55	125	42	196	167	0.5
33.50	RE-LL-67	100.0	0.11	2.19	0.01	0.05	3.28	430	473	0.67	0.22	1.74	1.52	126	39	189	160	0.4
–	9107	100.1	0.92	11.40	0.07	0.07	0.70	442	485	0.31	1.04	5.08	4.04	226	6	14	14	0.5
–	9107	100.0	0.92	10.99	0.07	0.08	0.61	441	484	0.29	1.01	5.07	4.06	218	6	12	12	0.5
–	9107	100.2	0.88	10.69	0.07	0.08	0.81	441	484	0.41	0.98	5.07	4.09	212	8	16	16	0.5
–	99986	100.5	0.06	7.33	0.02	0.01	0.67	416	459	0.73	0.65	2.92	2.27	252	25	23	31	0.5
34.00	RE-LL-68	101.0	0.07	1.55	0.01	0.04	2.88	425	468	0.65	0.16	1.49	1.33	105	44	193	166	0.4
34.50	RE-LL-69	100.5	0.10	1.45	0.01	0.06	2.77	426	469	0.96	0.17	1.43	1.26	102	67	194	179	0.4
35.00	RE-LL-70	100.7	0.09	1.58	0.01	0.05	3.15	425	468	0.64	0.17	1.57	1.40	101	41	201	170	0.4
35.50	RE-LL-71	100.6	0.14	2.13	0.01	0.06	3.39	424	467	0.80	0.22	1.77	1.55	121	45	192	165	0.5
36.00	RE-LL-72	100.4	0.06	0.92	0.00	0.06	2.17	424	467	0.79	0.12	1.15	1.03	80	69	189	177	0.5
36.50	RE-LL-73	100.0	0.16	2.93	0.01	0.05	4.08	426	469	0.89	0.30	2.16	1.86	136	41	189	161	0.5
37.00	RE-LL-74	100.2	0.02	0.23	0.00	0.08	1.02	427	470	0.30	0.03	0.34	0.31	68	88	300	268	0.7
–	9107	100.2	0.91	11.23	0.07	0.07	0.62	441	484	0.25	1.02	5.05	4.03	224	5	12	12	0.5

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
2.00	RE-SL-1	100.6	0.10	1.10	0.01	0.08	5.24	404	447	0.78	0.13	1.32	1.19	84	59	397	322	2.0
3.00	RE-SL-3	100.4	0.12	1.17	0.01	0.09	5.31	409	452	0.50	0.13	1.46	1.33	81	34	364	284	1.5
4.00	RE-SL-4	99.9	0.10	1.09	0.01	0.08	5.24	406	449	0.47	0.12	1.26	1.14	87	37	416	324	2.2
5.00	RE-SL-5	99.6	0.10	1.15	0.01	0.08	5.22	405	448	0.41	0.12	1.28	1.16	91	32	408	315	2.1
6.00	RE-SL-6	100.2	0.12	1.24	0.01	0.09	5.22	413	456	0.50	0.14	1.29	1.15	97	39	405	317	2.0
7.00	RE-SL-7	99.8	0.11	1.18	0.01	0.09	5.20	409	452	0.46	0.13	1.35	1.22	88	34	385	299	1.7
8.00	RE-SL-8	100.8	0.11	1.23	0.01	0.08	5.16	409	452	0.49	0.13	1.39	1.26	89	35	371	290	1.5
9.00	RE-SL-9	100.2	0.11	1.23	0.01	0.08	5.18	408	451	0.48	0.13	1.29	1.16	96	37	402	314	2.0
10.00	RE-SL-10	99.8	0.12	1.29	0.01	0.09	5.35	409	452	0.50	0.14	1.39	1.25	94	36	385	301	2.0
11.00	RE-SL-11	100.4	0.11	1.19	0.01	0.09	5.25	407	450	0.55	0.13	1.43	1.30	84	38	367	289	1.8
12.00	RE-SL-12	100.6	0.11	1.12	0.01	0.09	5.14	404	447	0.46	0.12	1.19	1.07	95	39	432	336	2.2
13.00	RE-SL-13	100.5	0.11	1.11	0.01	0.09	5.37	405	448	0.79	0.14	1.26	1.12	89	63	426	346	2.3
14.00	RE-SL-14	100.9	0.11	1.17	0.01	0.09	5.25	409	452	0.54	0.13	1.38	1.25	86	39	380	299	1.9
15.00	RE-SL-15	100.2	0.12	1.19	0.01	0.09	5.33	406	449	0.42	0.13	1.28	1.15	94	33	416	321	2.0
–	**9107**	100.3	0.87	10.70	0.07	0.07	0.66	442	485	0.31	0.98	5.01	4.03	215	6	13	13	0.5
16.00	RE-SL-16	100.9	0.13	1.26	0.01	0.09	5.49	409	452	0.57	0.14	1.40	1.26	91	41	392	309	2.0
17.00	RE-SL-17	100.5	0.12	1.23	0.01	0.09	5.55	410	453	0.57	0.14	1.49	1.35	83	38	372	292	1.8
18.00	RE-SL-18	99.9	0.12	1.19	0.01	0.09	5.50	402	445	0.99	0.15	1.60	1.45	75	62	344	286	1.3
19.00	RE-SL-19	100.2	0.11	1.17	0.01	0.09	5.33	406	449	0.45	0.13	1.44	1.31	82	31	370	287	1.7
20.00	RE-SL-20	99.8	0.13	1.25	0.01	0.10	5.45	405	448	0.51	0.14	1.31	1.17	96	39	416	325	2.0
21.00	RE-SL-21	99.7	0.12	1.29	0.01	0.08	5.42	406	449	0.50	0.14	1.49	1.35	87	34	364	284	1.6
22.00	RE-SL-22	100.2	0.12	1.22	0.01	0.09	5.29	408	451	0.74	0.14	1.37	1.23	90	54	386	312	2.0
23.00	RE-SL-23	100.5	0.12	1.19	0.01	0.09	5.41	405	448	0.46	0.13	1.29	1.16	93	36	419	325	2.1
–	**55000**	100.2	0.27	8.99	0.01	0.03	1.52	419	461	0.69	0.80	2.93	2.13	307	24	52	52	0.5
–	**55000**	100.6	0.28	9.07	0.01	0.03	1.62	419	461	0.59	0.80	2.94	2.14	309	20	55	51	0.5
–	**9107**	100.1	0.97	12.67	0.06	0.07	0.82	443	485	0.33	1.15	5.14	3.99	248	6	16	15	0.5
–	**9107**	100.3	0.99	12.71	0.07	0.07	0.81	442	484	0.15	1.15	5.15	4.00	248	3	16	13	0.5
–	**99986**	100.3	0.05	8.11	0.01	0.01	0.70	414	456	0.56	0.70	2.99	2.29	272	19	23	28	0.5
24.00	RE-SL-24	100.1	0.11	1.26	0.00	0.08	5.65	406	448	0.54	0.14	1.51	1.37	83	36	374	293	1.6
25.00	RE-SL-25	100.2	0.12	1.28	0.00	0.09	5.70	407	449	0.53	0.14	1.44	1.30	89	37	396	309	1.8
26.00	RE-SL-26	100.0	0.10	1.25	0.00	0.08	5.54	410	452	0.85	0.15	1.48	1.33	84	57	374	305	1.7
27.00	RE-SL-27	100.0	0.11	1.18	0.00	0.09	5.50	406	448	0.44	0.13	1.47	1.34	80	30	374	289	1.4
28.00	RE-SL-28	100.0	0.13	1.40	0.00	0.09	6.00	408	450	0.61	0.15	1.64	1.49	85	37	366	287	1.8
29.00	RE-SL-29	100.3	0.12	1.28	0.00	0.08	5.54	407	449	0.44	0.14	1.36	1.22	94	32	407	314	1.9
30.00	RE-SL-30	100.4	0.12	1.28	0.00	0.09	5.64	405	447	0.47	0.14	1.49	1.35	86	32	379	294	1.6
31.00	RE-SL-31	100.1	0.12	1.17	0.00	0.09	5.55	407	449	0.81	0.14	1.49	1.35	79	54	372	301	1.5
32.00	RE-SL-32	100.1	0.13	1.27	0.00	0.09	5.69	404	446	0.50	0.14	1.44	1.30	88	35	395	307	1.8
33.00	RE-SL-33	99.8	0.13	1.20	0.00	0.10	5.64	402	444	0.53	0.13	1.42	1.29	85	37	397	310	1.7
34.00	RE-SL-34	99.9	0.13	1.25	0.00	0.09	5.77	407	449	0.52	0.14	1.47	1.33	85	35	393	306	1.8
35.00	RE-SL-35	100.1	0.13	1.34	0.00	0.09	5.74	409	451	0.50	0.14	1.54	1.40	87	32	373	290	1.6
36.00	RE-SL-36	100.3	0.14	1.38	0.00	0.09	5.86	407	449	0.88	0.16	1.55	1.39	89	57	378	307	1.7
37.00	RE-SL-37	100.1	0.13	1.22	0.00	0.10	5.66	410	452	0.82	0.15	1.60	1.45	76	51	354	287	1.5
–	**9107**	100.1	0.93	11.53	0.07	0.07	0.60	443	485	0.37	1.06	5.14	4.08	226	7	12	13	0.5
38.00	RE-SL-38	100.4	0.14	1.39	0.01	0.09	5.76	404	446	0.51	0.15	1.58	1.43	89	32	365	284	1.5

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
39.00	RE-SL-39	100.3	0.12	1.22	0.00	0.09	5.61	404	446	0.48	0.13	1.44	1.31	85	33	390	302	1.8
40.00	RE-SL-40	100.0	0.12	1.27	0.00	0.09	5.76	407	449	0.51	0.14	1.58	1.44	80	32	365	284	1.3
41.00	RE-SL-41	100.0	0.14	1.36	0.00	0.09	5.99	408	450	0.58	0.15	1.61	1.46	84	36	372	291	1.8
42.00	RE-SL-42	100.1	0.12	1.21	0.00	0.09	5.74	408	450	0.49	0.13	1.62	1.49	75	30	354	275	1.6
43.00	RE-SL-43	100.6	0.12	1.11	0.00	0.10	5.30	407	449	0.45	0.12	1.42	1.30	78	32	373	290	1.7
44.00	RE-SL-44	100.2	0.09	1.04	0.00	0.08	5.09	404	446	0.45	0.11	1.27	1.16	82	35	401	312	1.9
45.00	RE-SL-45	100.2	0.08	0.98	0.00	0.08	5.04	408	450	0.43	0.11	1.39	1.28	71	31	363	282	1.4
46.00	RE-SL-46	100.4	0.09	0.91	0.00	0.09	4.80	405	447	0.44	0.10	1.23	1.13	74	36	390	304	1.7
47.00	RE-SL-47	100.3	0.12	1.22	0.00	0.09	5.38	407	449	0.45	0.13	1.40	1.27	87	32	384	298	1.6
48.00	RE-SL-48	100.3	0.12	1.23	0.00	0.09	5.71	410	452	0.45	0.13	1.54	1.41	80	29	371	286	1.5
49.00	RE-SL-49	99.8	0.13	1.26	0.00	0.09	6.01	411	453	0.57	0.14	1.63	1.49	77	35	369	288	1.7
50.00	RE-SL-50	100.2	0.15	1.34	0.00	0.10	6.57	410	452	0.61	0.15	1.94	1.79	69	31	339	264	1.3
51.00	RE-SL-51	100.0	0.16	1.49	0.01	0.10	6.77	410	452	0.62	0.16	1.96	1.80	77	32	345	269	1.4
–	**9107**	100.5	0.97	12.08	0.08	0.07	0.58	444	486	0.32	1.10	5.12	4.02	238	6	11	11	0.5
52.00	RE-SL-52	100.2	0.15	1.50	0.01	0.09	6.47	419	461	0.65	0.17	2.02	1.85	75	32	320	251	1.3
53.00	RE-SL-53	100.1	0.12	1.16	0.00	0.09	5.74	408	450	0.49	0.13	1.57	1.44	74	31	366	284	1.6
54.00	RE-SL-54	100.0	0.12	1.10	0.00	0.10	5.68	407	449	0.90	0.14	1.60	1.46	69	56	355	290	1.5
55.00	RE-SL-55	100.9	0.10	1.04	0.00	0.09	5.05	407	449	0.46	0.11	1.36	1.25	76	34	371	289	1.2
56.00	RE-SL-56	100.2	0.12	1.10	0.00	0.10	5.18	405	447	0.70	0.13	1.46	1.33	75	48	355	286	1.3
–	**9107**	99.9	0.86	12.31	0.06	0.07	0.73	440	482	0.26	1.11	5.15	4.04	240	5	14	13	0.6
–	**9107**	100.1	1.02	11.84	0.07	0.08	0.57	443	485	0.29	1.09	5.13	4.04	232	6	11	11	0.6
–	**9107**	100.2	0.98	12.21	0.08	0.07	0.68	443	485	0.29	1.11	5.15	4.04	239	6	13	13	0.5
–	**99986**	100.4	0.07	7.83	0.01	0.01	0.67	417	459	0.72	0.69	3.01	2.32	260	24	22	30	0.5
57.00	RE-SL-57	100.9	0.13	1.19	0.01	0.09	5.50	400	442	0.79	0.14	1.60	1.46	75	49	344	278	1.2
58.00	RE-SL-58	99.9	0.12	1.25	0.00	0.09	5.44	406	448	0.51	0.14	1.57	1.43	80	32	346	270	1.4
59.00	RE-SL-59	99.7	0.13	1.32	0.01	0.09	5.52	404	446	0.84	0.16	1.57	1.41	85	54	352	287	1.5
60.00	RE-SL-60	100.3	0.13	1.28	0.01	0.09	5.40	402	444	0.85	0.15	1.54	1.39	84	55	351	287	1.3
61.00	RE-SL-61	100.0	0.14	1.43	0.00	0.09	5.56	404	446	0.48	0.15	1.54	1.39	93	31	361	280	1.4
62.00	RE-SL-62	100.2	0.15	1.40	0.00	0.10	5.71	400	442	0.63	0.16	1.63	1.47	86	39	350	277	1.4
63.00	RE-SL-63	100.7	0.15	1.42	0.01	0.10	5.57	406	448	0.82	0.17	1.51	1.34	95	54	369	299	1.5
64.00	RE-SL-64	100.3	0.14	1.44	0.00	0.09	5.42	407	449	0.47	0.15	1.51	1.36	95	31	359	279	1.5
65.00	RE-SL-65	100.1	0.16	1.56	0.01	0.09	5.59	408	450	0.81	0.18	1.53	1.35	103	53	365	296	1.3
66.00	RE-SL-66	99.8	0.16	1.81	0.01	0.08	5.50	412	454	0.53	0.19	1.58	1.39	115	34	348	273	1.1
67.00	RE-SL-67	100.8	0.13	1.37	0.00	0.09	5.32	408	450	0.45	0.14	1.47	1.33	93	31	362	281	1.3
68.00	RE-SL-68	99.7	0.12	1.26	0.00	0.09	5.20	408	450	0.46	0.13	1.42	1.29	89	32	366	284	1.2
–	**9107**	100.2	1.00	12.15	0.08	0.08	0.62	443	485	0.30	1.11	5.16	4.05	237	6	12	12	0.5
69.00	RE-SL-69	99.8	0.12	1.15	0.01	0.09	5.09	405	447	0.77	0.14	1.34	1.20	87	57	380	309	1.4
70.00	RE-SL-70	100.5	0.11	1.08	0.00	0.09	4.84	404	446	0.67	0.13	1.27	1.14	85	53	381	307	1.5
71.00	RE-SL-71	100.0	0.09	0.89	0.00	0.09	4.50	404	446	0.76	0.11	1.21	1.10	74	63	372	307	1.6
72.00	RE-SL-72	100.7	0.08	0.88	0.00	0.08	4.41	405	447	0.37	0.10	1.16	1.06	76	32	380	295	1.3
73.00	RE-SL-73	100.3	0.08	0.84	0.00	0.09	4.55	405	447	0.35	0.09	1.19	1.10	71	29	382	294	1.3
74.00	RE-SL-74	100.5	0.07	0.75	0.00	0.08	4.31	405	447	0.37	0.08	0.97	0.89	77	38	444	345	1.8
75.00	RE-SL-75	101.0	0.06	0.65	0.00	0.08	4.14	408	450	0.55	0.08	1.03	0.95	63	53	402	323	1.3
76.00	RE-SL-76	100.3	0.05	0.67	0.00	0.07	4.01	410	452	0.30	0.07	1.13	1.06	59	27	355	274	1.1

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
77.00	RE-SL-77	99.9	0.04	0.54	0.00	0.07	3.69	410	452	0.27	0.06	1.06	1.00	51	25	348	267	1.1
78.00	RE-SL-78	100.2	0.04	0.57	0.00	0.07	3.69	420	462	0.31	0.06	0.94	0.88	61	33	393	305	1.2
79.00	RE-SL-79	100.5	0.04	0.56	0.00	0.07	3.65	420	462	0.34	0.06	0.99	0.93	57	34	369	288	1.1
80.00	RE-SL-80	100.8	0.04	0.53	0.00	0.07	3.78	420	462	0.28	0.06	0.92	0.86	58	30	411	316	1.0
81.00	RE-SL-81	100.7	0.04	0.51	0.00	0.07	3.85	425	467	0.44	0.06	0.84	0.78	61	52	458	363	1.0
82.00	RE-SL-82	100.7	0.05	0.59	0.00	0.08	4.06	420	462	0.30	0.07	0.87	0.80	68	34	467	359	0.9
–	**9107**	100.0	0.98	12.04	0.07	0.07	0.72	443	485	0.32	1.10	5.18	4.08	234	6	14	14	0.6
83.00	RE-SL-83	100.1	0.04	0.53	0.00	0.07	3.94	427	469	0.46	0.07	0.85	0.78	62	54	464	368	1.0
84.00	RE-SL-84	100.2	0.04	0.55	0.00	0.07	3.93	421	463	0.42	0.07	0.87	0.80	63	48	452	356	0.9
85.00	RE-SL-85	100.3	0.05	0.56	0.00	0.08	4.02	421	463	0.36	0.07	0.95	0.88	59	38	423	329	0.9
86.00	RE-SL-86	100.3	0.05	0.55	0.00	0.08	3.91	427	469	0.50	0.07	0.92	0.85	60	54	425	340	0.9
–	**9107**	100.0	1.02	11.61	0.07	0.08	0.59	442	484	0.33	1.07	5.17	4.10	226	6	11	11	0.6
87.00	RE-SL-87	99.7	0.04	0.52	0.00	0.08	4.07	421	463	0.33	0.06	0.92	0.86	57	36	442	342	0.9
88.00	RE-SL-88	100.5	0.05	0.50	0.00	0.08	3.98	420	462	0.39	0.06	0.90	0.84	56	43	442	346	0.9
89.00	RE-SL-89	100.0	0.05	0.54	0.00	0.08	4.12	423	465	0.34	0.06	0.91	0.85	59	37	453	351	0.9
90.00	RE-SL-90	100.7	0.05	0.55	0.00	0.08	3.94	420	462	0.35	0.06	0.98	0.92	56	36	402	313	1.0
91.00	RE-SL-91	100.0	0.07	0.76	0.00	0.09	4.26	416	458	0.36	0.08	1.20	1.12	63	30	355	275	1.0
92.00	RE-SL-92	101.2	0.06	0.48	0.00	0.11	4.09	425	467	0.40	0.06	0.81	0.75	59	49	505	395	0.9
93.00	RE-SL-93	99.9	0.06	0.51	0.00	0.11	4.10	421	463	0.28	0.06	0.85	0.79	60	33	482	369	0.9
94.00	RE-SL-94	99.7	0.05	0.50	0.00	0.10	4.25	425	467	0.52	0.07	0.87	0.80	57	60	489	390	0.8
95.00	RE-SL-95	100.9	0.06	0.53	0.00	0.10	4.15	420	462	0.53	0.07	0.91	0.84	58	58	456	365	0.8
96.00	RE-SL-96	100.6	0.05	0.56	0.00	0.08	4.14	425	467	0.50	0.07	0.97	0.90	58	52	427	340	0.8
97.00	RE-SL-97	100.5	0.05	0.57	0.00	0.08	4.29	423	465	0.41	0.07	0.98	0.91	58	42	438	343	0.8
98.00	RE-SL-98	99.8	0.05	0.58	0.00	0.08	4.24	421	463	0.54	0.08	1.00	0.92	58	54	424	339	0.8
99.00	RE-SL-99	100.2	0.05	0.59	0.00	0.08	4.07	421	463	0.55	0.08	0.99	0.91	60	56	411	331	0.8
100.00	RE-SL-100	100.5	0.05	0.58	0.00	0.08	3.78	426	468	0.46	0.07	0.92	0.85	63	50	411	327	0.8
–	**9107**	100.2	1.00	11.95	0.08	0.08	0.59	443	485	0.33	1.10	5.20	4.10	231	6	11	11	0.5
101.00	RE-SL-101	100.8	0.05	0.58	0.01	0.08	4.07	427	469	0.56	0.08	0.93	0.85	63	60	438	353	0.8
102.00	RE-SL-102	101.1	0.06	0.61	0.01	0.08	4.26	423	465	0.41	0.07	0.97	0.90	64	42	439	343	0.8
103.00	RE-SL-103	100.5	0.04	0.51	0.00	0.08	4.14	423	465	0.43	0.06	0.88	0.82	58	49	470	370	0.8
104.00	RE-SL-104	101.3	0.04	0.51	0.00	0.08	4.27	427	469	0.43	0.06	0.86	0.80	59	50	497	390	0.9
105.00	RE-SL-105	100.4	0.05	0.54	0.00	0.08	4.34	421	463	0.44	0.07	0.90	0.83	60	49	482	379	0.9
106.00	RE-SL-106	100.3	0.05	0.55	0.00	0.08	4.28	423	465	0.42	0.07	0.88	0.81	63	48	486	381	0.9
107.00	RE-SL-107	100.4	0.05	0.60	0.00	0.08	4.36	421	463	0.31	0.07	0.90	0.83	67	34	484	371	1.0
108.00	RE-SL-108	100.0	0.05	0.64	0.00	0.07	4.40	423	465	0.33	0.07	0.95	0.88	67	35	463	357	1.0
109.00	RE-SL-109	100.6	0.06	0.65	0.00	0.08	4.43	420	462	0.35	0.07	0.97	0.90	67	36	457	353	1.0
110.00	RE-SL-110	100.3	0.06	0.70	0.00	0.07	4.28	423	465	0.48	0.08	0.99	0.91	71	48	432	342	0.9
111.00	RE-SL-111	100.9	0.06	0.68	0.00	0.08	4.25	420	462	0.38	0.08	0.97	0.89	70	39	438	341	0.9
112.00	RE-SL-112	100.1	0.06	0.68	0.00	0.07	4.29	420	462	0.29	0.07	1.00	0.93	68	29	429	329	0.9
113.00	RE-SL-113	100.2	0.05	0.68	0.00	0.07	4.10	421	463	0.30	0.07	1.02	0.95	67	29	402	309	1.0
114.00	RE-SL-114	100.3	0.05	0.68	0.00	0.07	4.09	410	452	0.31	0.07	1.04	0.97	65	30	393	303	1.0
–	**9107**	100.7	1.00	11.95	0.07	0.08	0.58	443	485	0.29	1.09	5.20	4.11	231	6	11	11	0.5
116.00	RE-SL-116	100.7	0.06	0.69	0.00	0.07	4.38	410	452	0.35	0.08	1.06	0.98	65	33	413	319	1.0
117.00	RE-SL-117	100.2	0.05	0.65	0.00	0.07	4.07	409	451	0.30	0.07	1.01	0.94	64	30	403	310	1.0

Depth (cm)	Sample Number	Qty (mg)	S1 (mg HC/g sed)	S2 (mg HC/g sed)	S'2 (mg HC/g sed)	PI	S3CO2	Tmax (°C)	Tpeak (°C)	S3CO	PC(%)	TOC (wt %)	RC%	HI	OICO	OICO2	OIRE6	MINC%
118.00	RE-SL-118	100.0	0.04	0.58	0.00	0.07	3.80	413	455	0.27	0.06	0.91	0.85	64	30	418	321	1.0
119.00	RE-SL-119	100.4	0.03	0.47	0.00	0.07	3.49	420	462	0.23	0.05	0.79	0.74	59	29	442	338	1.0
120.00	RE-SL-120	100.2	0.03	0.45	0.00	0.07	3.47	420	462	0.20	0.05	0.75	0.70	60	27	463	352	0.9
121.00	RE-SL-121	100.9	0.05	0.51	0.00	0.10	3.77	420	462	0.24	0.06	0.80	0.74	64	30	471	360	1.0
122.00	RE-SL-122	100.1	0.09	0.63	0.00	0.13	4.03	420	462	0.33	0.07	0.08	0.01	788	413	5038	3900	0.7
123.00	RE-SL-123	100.1	0.11	0.64	0.01	0.14	3.97	420	462	0.32	0.08	0.94	0.86	69	34	422	326	0.9
–	**9107**	100.7	1.00	12.14	0.08	0.08	0.59	443	485	0.25	1.11	5.20	4.09	235	5	11	11	0.5

APPENDIX 5

Pb^{210} DATA

Sample Number	Sample Depth (cm)	Po-210 Total Activity (DPM/g)	Error Po210 ± S.D. (DPM/g)	Po210 Unsupported Activity (DPM/g)	Age in Years (CRS model estimate)
PB-HL-1	0.0 - 0.5	5.34	0.87	3.89	**0.7**
PB-HL-5	2.0 - 2.5	5.77	0.59	4.33	**2.7**
PB-HL-9	4.0 - 4.5	5.62	0.64	4.17	**5.1**
PB-HL-13	6.0 - 6.5	6.33	0.64	4.88	**7.3**
PB-HL-17	8.0 - 8.5	5.90	0.59	4.45	**9.8**
PB-HL-21	10.0 - 10.5	5.55	0.54	4.11	**12.7**
PB-HL-25	12.0 - 12.5	4.85	0.44	3.40	**16.5**
PB-HL-29	14.0 - 14.5	3.71	0.44	2.27	**19.1**
PB-HL-33	16.0 - 16.5	3.61	0.48	2.17	**23.1**
PB-HL-37	18.0 - 18.5	2.81	0.30	1.37	**25.4**
PB-HL-41	20.0 - 20.5	3.47	0.28	2.02	**30.9**
PB-HL-45	22.0 - 22.5	3.64	0.36	2.19	**36.2**
PB-HL-49	24.0 - 24.5	2.69	0.27	1.25	**39.5**
PB-HL-53	26.0 - 26.5	3.28	0.30	1.83	**44.9**
PB-HL-57	28.0 - 28.5	2.55	0.29	1.10	**48.6**
PB-HL-61	30.0 - 30.5	2.76	0.29	1.32	**57.5**
PB-HL-65	32.0 - 32.5	2.85	0.25	1.40	**68.7**
PB-HL-69	34.0 - 34.5	2.68	0.24	1.23	**81.9**
PB-HL-73	36.0 - 36.5	2.06	0.22	0.61	**90.6**
PB-HL-77	38.0 - 38.5	2.55	0.23	1.10	**124.5**
PB-HL-81	40.0 - 40.5	2.63	0.26	1.18	
Blank					
Blank					
PB-HL-33	16.0 - 16.5	3.61	0.48	2.17	
PB-HL-33 Dup.	16.0 - 16.5	4.29	0.45	2.84	
PB-HL-61	30.0 - 30.5	2.76	0.29	1.32	
PB-HL-61 Dup.	30.0 - 30.5	3.10	0.35	1.65	

Sample Number	Sample Depth (cm)	Po-210 Total Activity (DPM/g)	Error Po210 ± S.D. (DPM/g)	Po210 Unsupported Activity (DPM/g)	Age in Years (CRS model estimate)
PB-LL-5	2.0 - 2.5	2.50	0.25	1.06	**2.7**
PB-LL-9	4.0 - 4.5	1.82	0.20	0.38	**3.2**
PB-LL-13	6.0 - 6.5	2.55	0.27	1.10	**5.1**
PB-LL-17	8.0 - 8.5	2.70	0.31	1.25	**8.0**
PB-LL-21	10.0 - 10.5	2.60	0.20	1.16	**10.5**
PB-LL-25	12.0 - 12.5	3.09	0.25	1.65	**14.6**
PB-LL-29	14.0 - 14.5	1.98	0.15	0.53	**16.4**
PB-LL-33	16.0 - 16.5	2.79	0.22	1.34	**20.7**
PB-LL-37	18.0 - 18.5	2.85	0.24	1.40	**24.8**
PB-LL-41	20.0 - 20.5	2.68	0.26	1.23	**29.0**
PB-LL-45	22.0 - 22.5	2.57	0.25	1.13	**34.0**
PB-LL-49	24.0 - 24.5	2.57	0.19	1.13	**40.7**
PB-LL-53	26.0 - 26.5	2.38	0.18	0.94	**47.4**
PB-LL-57	28.0 - 28.5	2.43	0.19	0.98	**56.4**
PB-LL-61	30.0 - 30.5	2.34	0.20	0.89	**65.9**
PB-LL-65	32.0 - 32.5	2.57	0.18	1.13	**94.7**
PB-LL-69	34.0 - 34.5	2.53	0.19	1.08	
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PB-LL-13	6.0 - 6.5	2.55	0.27	1.10	
PB-LL-13 Dup.	6.0 - 6.5	2.29	0.32	0.84	
PB-LL-17	8.0 - 8.5	2.70	0.31	1.25	
PB-LL-17 Dup.	8.0 - 8.5	2.44	0.26	1.00	

Sample Number	Sample Depth (cm)	Po-210 Total Activity (DPM/g)	Error Po210 ± S.D. (DPM/g)	Po210 Unsupported Activity (DPM/g)	Age in Years (CRS model estimate)
PB-SL-2	3 - 4	3.78	0.55	2.34	**2.8**
PB-SL-3	5 - 6	3.52	0.43	2.07	**4.1**
PB-SL-4	7 - 8	3.61	0.36	2.16	**5.9**
PB-SL-5	9 - 10	3.20	0.37	1.75	**7.4**
PB-SL-6	11 - 12	4.54	0.68	3.09	**10.0**
PB-SL-7	13 - 14	3.44	0.37	2.00	**11.7**
PB-SL-8	15 - 16	3.53	0.61	2.08	**13.7**
PB-SL-9	17 - 18	3.54	0.29	2.09	**16.8**
PB-SL-10	19 - 20	2.74	0.30	1.29	**18.7**
PB-SL-11	21 - 22	3.50	0.32	2.05	**22.0**
PB-SL-12	23 - 24	2.59	0.25	1.14	**24.3**
PB-SL-13	25 - 26	2.85	0.27	1.40	**27.3**
PB-SL-14	27 - 28	3.13	0.28	1.69	**31.8**
PB-SL-15	29 - 30	3.30	0.27	1.86	**37.4**
PB-SL-16	31 - 32	3.35	0.29	1.90	**44.3**
PB-SL-17	33 - 34	3.99	0.32	2.54	**53.8**
PB-SL-18	35 - 36	3.32	0.32	1.87	**67.1**
PB-SL-19	37 - 38	3.38	0.29	1.94	**91.2**
PB-SL-20	39 - 40	3.43	0.26	1.98	
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PB-SL-6	11 - 12	4.54	0.68	3.09	
PB-SL-6 Dup.	11 - 12	3.11	0.50	1.66	
PB-SL-8	15 - 16	3.53	0.61	2.08	
PB-SL-8 Dup.	15 - 16	2.55	0.39	1.11	