DANMARKS OG GRØNLANDS GEOLOGISKE UNDERSØGELSE RAPPORT 2018/12

Conventional Core Analysis and Core Gamma Log, Ravn Pynt-1 Borehole, Store Koldewey, Northeast Greenland

Contribution to Petroleum Geological Studies, Servicesand Data in East and Northeast Greenland

Dan Olsen, John Boserup, Ditte Kiel-Dühring, Carsten Guvad, Kathrine Hedegaard, Jussi Hovikoski, Hans Jørgen Lorentzen, Meysam Nourani, Charlotte Olsen, Gunver K. Pedersen & Annette Ryge

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GEOLOGICAL SURVEY OF DENMARK AND GREENLAND
DANISH MINISTRY OF ENERGY, UTILITIES AND CLIMATE

GEUS

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1. Introduction

This report is part of the GEUS – Industry collaboration "Petroleum Geological Studies, Services and Data in East and Northeast Greenland" that was initiated by GEUS and carried out by GEUS in the period 2017 to 2018. In short, the collaboration is referred to as the NEG-2017 Project. The report presents results from spectral core gamma logging, conventional core analysis (CCAL), and XRF analysis of sample material from the **Ravn Pynt-1** well. The well was drilled in July-August 2017 on Store Koldewey, Northeast Greenland, to a depth of 116.4 m. The well was cored from 3.1 m to 116.4 m and yielded a total of 109.6 m of core with a recovery of 96.7%. The nominal core diameter was 42 mm. Details of the well are given in the well completion report (Pedersen & Bojesen-Koefoed, 2018).

The cores were received in core boxes that each contained 7 compartments for core sections of length approximately 1 meter. In this report, the 1 meter core sections are referred to as core traces, to distinguish them from the core boxes.

The following analytical programme was carried out on the core material:

- Core photography
- Spectral core gamma logging and bulk density logging
- Plugging and trimming
- Porosity, permeability, and grain density measurements of plug samples
- XRF analysis of plug samples

The core photography was carried out in another part of the NEG-2017 Project, but for convenience, the photographs are included in the present report.

2. Sampling and analytical procedure

2.1 Depth assignment.

With a spacing that ranged from 0.90 m to 3.30 m the well driller placed depth markers in the core boxes that indicated the depth of the position. These depth markers are used throughout this report to assign depth to the spectral core gamma measurements and the plug related measurements, the latter consisting of the conventional core analysis data and the XRF data.

The depth values are measured relative to a reference 2.8 m above the terrain surface (108 m above sea level) at the well site.

The depth assignment operation was carried out in two steps. First, the depth markers were used to calculate depth values for top and bottom of every core trace of the well. The gamma measurements and the core plugs then received depth assignments relative to the top of the trace that contained the relevant core segment. If the actual length of core between two depth markers differed from the length indicated by the depth markers a correction procedure was applied. In case the appearance of the core indicated missing core material, the depth assignment was corrected according to the stratigraphical log. In case missing core was not indicated, the assigned depth values were scaled by linear stretching or compression to match the depths at the bounding depth markers.

2.1 Spectral core gamma log and density log.

The natural gamma radiation of the core was recorded within an energy window of 0.5-3.0 MeV, using Tl activated NaI detectors connected to a multi-channel analyser.

The core was passed through a lead shielded tunnel at constant speed of 1 cm/min with a data read-out interval of 1 minute. The measured total intensity corrected for background is reported in counts per minute (cpm) as a function of depth.

Radiation from decay of potassium and the uranium and thorium decay series isotopes was recorded in separate energy windows. The scanning was calibrated using artificial standards of concrete doped with known amounts of K, U, and Th. The U- and Th-doping of the standards comes from naturally occurring minerals where the decay series are in equilibrium. Concentrations of K, U and Th are reported as elemental concentrations, i.e. % K, ppm U, and ppm Th.

The bulk density of the core was determined from the attenuation of the gamma-ray signal from a ^{137}Cs source. The bulk density analysis was calibrated by measurements on an aluminium core with a diameter of 5 cm.

The depth values assigned to the gamma measurements and density measurements were based on the depth markers positioned in the core boxes. In case the appearance of the core indicated missing core material, the depth assignment was corrected according to the stratigraphical log. Because the actual length of core between two depth markers sometimes differs from the length indicated by the depth markers, a depth conversion procedure was applied, where the assigned depth values were scaled by linear stretching or compression to match the depths at the bounding depth markers.

2.2 Plugging and trimming

The cores were plugged following a scheme with four 1” plugs per meter, comprising one vertical and three horizontals plugs. Ideally, the three horizontal plugs were taken respectively at 10 cm, 40 cm and 70 cm below the top of each core trace, and the vertical plug was taken at the bottom of the core trace. A total of 449 plugs were taken, of which 337 were horizontal and 112 were vertical plugs. All plugs were standard 1” core plugs. They were trimmed to right cylinders suitable for conventional core analysis.

The plugs covered the depth interval 4.58 to 116.34 m measured depth (m MD) in the Ravn Pynt-1 well.

2.3 Conventional core analysis

The first batch of plug samples that were drilled, approximately 30 plugs, were placed in a Soxhlet extractor with methanol, and the eluent was checked for salt. No salt was detected, which agrees with the wellhead being situated 108 m above mean sea level. Many samples were in a state where Soxhlet cleaning would have damaged the samples. Therefore, cleaning for salt was not performed on most of the samples.

All samples were dried at 60 °C for 40 hours before porosity and permeability measurements. When not being handled for measurements, the samples resided in a closed cabinet containing a drying agent.

Conventional core analysis (CCAL) comprising He-porosity, grain density, and gas permeability was performed. The permeability was measured using a sleeve pressure of 400 psi. A number of plugs that were poorly consolidated and/or had a rough surface could only be measured for gas permeability after being wrapped in Teflon tape. In the data listing, these analyses are flagged by the comment "Wrapped in Teflon tape at perm meas.". For sample 216 and 217 the comment is abbreviated to "Wrapped in Teflon" to enable the comment to fit in the column of comments.

A number of the plugs were poorly consolidated and experienced loss of grains during the He-porosity/grain density analysis. The loss of grains caused the measured grain density being too low. These analyses are flagged by the comment "Biased by grain loss". For sample 216 and 217 the comment is abbreviated to "Grain loss" to enable the comment to fit in the column of comments.

2.4 XRF analysis of plug samples

XRF analyses were acquired with a Niton XL3t XRF instrument on the core plugs that was also used for conventional core analysis. It is emphasized that the XRF analyses from the Niton XL3t instrument are only semi-quantitative, because the calibration of the instrument covers a very large energy interval with a very large number of spectral lines. Therefore, the calibration cannot correct for all possible interferences, and consequently erroneous analytical results may occur.

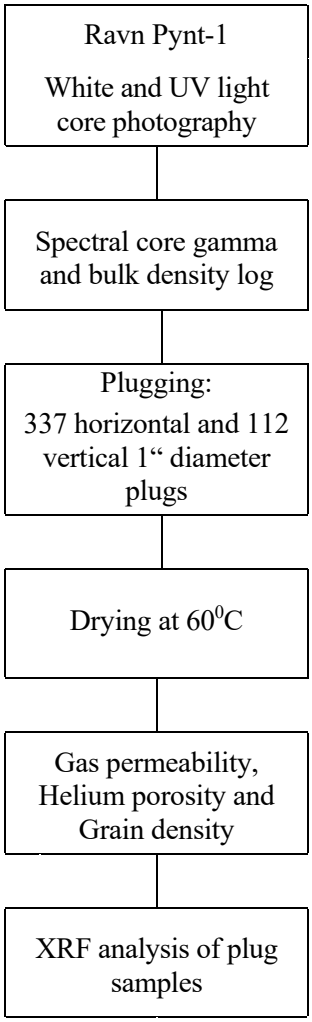
The XRF analyses were performed on one of the planar end faces of each core plug, to avoid curvature problems, which would arise if the measurements were done on the curving surfaces of the plugs. The Niton XL3t instrument analyses for a total of 43 elements, but 19 of these are unreliable at the concentration levels of the Ravn Pynt-1 cores. The precision and accuracy of the XRF analyses were evaluated by repeated analyses of the international standard NIST 2709a. The results of measurements on standard NIST 2709a are summarized in Table 1. 24 elements were sufficiently accurate to be included in the present report. For 18 of the 24 elements, the Niton instrument reproduced the concentrations of the international standard to within +40% or -30%, which is considered acceptable, and the results for these elements are included in the report. For 3 elements, Rb, Al, and Mg, the Niton instrument failed to meet the +40%/-30% criterion, but because the elements show good and scientifically sensible correlations with other elements they have been included in the report. For two elements, S and Nb, no standard values exist for the NIST 2709a standard. However, because S and Nb show good and scientifically sensible correlations with other elements they have been included in the report. For Co the concentration in the NIST 2709a standard is below the detection limit of the Niton XL3t instrument. However, 11 measurements in the Ravn Pynt-1 samples show good correlation with S, which is geochemically sensible, and therefore Co is also reported.

A summary of the Ravn Pynt-1 XRF analyses are given in Table 12.

Table 1. XRF results of 13 measurements of international standard NIST 2709a.

Element	NIST 2709a Standard conc. (ppm)	Niton measured conc. (ppm)	Niton reproducibility = std.dev. of conc. (ppm)	Ratio Niton meas. conc. / NIST std conc.	Reproduces NIST conc. +40%/-30%
Zr	195	167	8	0.86	Yes
Sr	239	211	3	0.88	Yes
Rb	99	47	1	0.48	No
Th	10.9	11	2	0.98	Yes
Pb	17.3	16	3	0.95	Yes
As	10.5	9	2	0.89	Yes
Zn	103	86	8	0.83	Yes
Cu	33.9	38	9	1.11	Yes
Ni	85	62	12	0.73	Yes
Co	12.8	<LOD	<LOD		No
Fe	33600	33201	425	0.99	Yes
Mn	529	458	26	0.87	Yes
Cr	130	138	33	1.06	Yes
V	110	121	19	1.10	Yes
Ti	3360	3511	115	1.04	Yes
Ca	19100	21146	266	1.11	Yes
K	21100	15922	228	0.75	Yes
S		1229	80		No
Ba	979	974	46	1.00	Yes
Nb		7	2		No
Al	73700	45502	1671	0.62	No
P	688	549	101	0.80	Yes
Si	303000	241506	5419	0.80	Yes
Mg	14600	6343	1494	0.43	No

3. Flow chart of the analytical procedure



4. CCAL analytical methods

The following is a short description of the methods used by the GEUS Core Analysis Laboratory. For a more detailed description of methods, instrumentation and principles of calculation the reader is referred to API recommended practice for core analysis procedure (API RP 40, 1998).

4.1 Gas permeability

Before running permeability measurements, the plugs are dried at 60 °C for 40 hours. Each plug is mounted in a Hassler core holder, and a confining pressure of 400 psi is applied to the sleeve. The specific permeability to gas is measured by flowing nitrogen gas through the plug at differential pressures between 0.0 and 0.6 bar. No back pressure is applied. Knowing the dimensions of the plug and the viscosity of the nitrogen gas the permeability to gas is calculated. The readings of the digital gas permeameter are checked regularly by measurement of permeable steel reference plugs. The flowmeters of the gas permeameter are calibrated against soap film flowmeters.

4.2 He-porosity and grain density

The porosity is measured on cleaned and dried samples. The Helium injection technique, which employs Boyle's Law, is used for grain volume determination, using a double chambered Helium porosimeter with digital readout. The bulk volume of the sample is measured by submerging the sample in a mercury bath on a balance, and using Archimedes principle. The porosity is then determined as the difference between the measured grain volume and the measured bulk volume. Grain density is calculated from the grain volume determination and the weight of the cleaned and dried sample.

4.3 Precision of analytical data

The table below gives the precision (= reproducibility) at the 68% level of confidence (+/- 1 standard deviation) for routine core analysis measurements performed at the GEUS Core Analysis Laboratory.

Table 2. Reproducibility at the 68% level of confidence for CCAL

Measurement	Range, mD	Precision
Grain density		0.003 g/cc
Porosity		0.1 porosity-%
Gas Permeability	0.001-0.01 0.01-0.1 > 0.1	25% 15% 4%

5. Results

Results are presented as follows:

- Section 5.1 presents Spectral Core Gamma results.
  The underlying data resides at the NEG-2017 Project web-site in the CSV-file
  NEG-2017_RavnPynt-1_SpectralCoreGammaLog_v1.csv.

- Section 5.2 presents Conventional Core Analysis results of 1" core plugs: Porosity, grain density and gas permeability. The underlying data resides at the NEG-2017 web-site in the Excel file
  NEG-2017_RavnPynt-1_CCAL_v1.xlsx.

- Section 5.3 presents White and UV core photographs.

- Section 5.4 presents XRF elemental analysis of core plugs. The underlying data resides at the NEG-2017 web-site in the Excel file
  NEG-2017_RavnPynt-1_XRF_v1.xlsx.

- The present report resides at the NEG-2017 web-site in the pdf-file
  NEG-2017_RavnPynt-1_GEUS2018-12.pdf

5.1 Spectral Core Gamma Log

The table below gives the accuracy of the spectral core gamma log data as calculated from counting statistics.

Table 3. Accuracy of spectral core gamma log data.

Spectral Core Gamma log	K (%)	U (ppm)	Th (ppm)
Reproducibility, 2σ level	0.33	4.0	4.5
Accuracy, cf. Note 1	0.33	4.0	4.5
Bulk density log	**Bulk density (g/ml)**		
Accuracy, cf. Note 2	0.17		

Note 1: The accuracy calculated from counting statistics was lower than the reproducibility. Because this cannot be true, the accuracy is reported to be equal to the reproducibility.

Note 2: The accuracy is calculated from measurements of core pieces from Ravn Pynt-1 where bulk density was also independently determined by weighing the core pieces and determining their volumes.

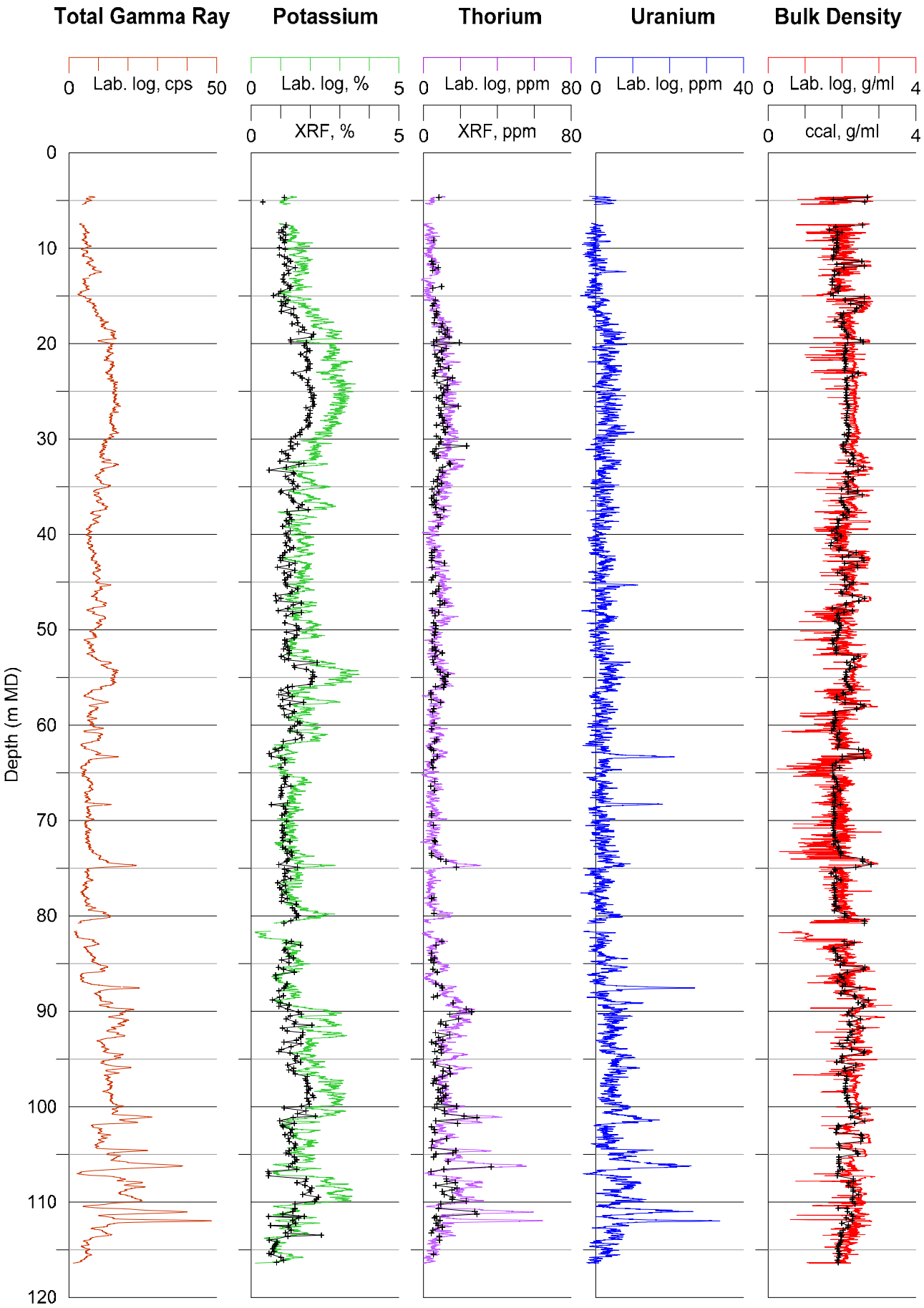


Figure 1. Spectral Core Gamma log, Field Gamma log, log of CCAL bulk density, XRF K and Th. Ravn Pynt-1 well.

5.2 Conventional core analysis data

Missing results are indicated with the label " #N/A ".

Table 4. Results of porosity, permeability and grain density of plug samples 1 to 56

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
1	4.67	Horiz.	0.054	0.68	2.707	
2	4.90	Horiz.	#N/A	33.42	2.653	Biased by grain loss: No perm meas.
3	5.15	Horiz.	0.054	1.85	2.665	
4	7.58	Horiz.	0.082	4.16	2.670	
5	7.77	Horiz.	1764.855	30.58	2.633	Wrapped in Teflon tape at perm meas.
6	8.09	Horiz.	13499.241	37.08	2.637	Wrapped in Teflon tape at perm meas.
7V	8.30	Vert.	#N/A	28.57	2.635	No perm meas.
8	8.33	Horiz.	3942.129	24.13	2.636	Wrapped in Teflon tape at perm meas.
9	8.62	Horiz.	4806.494	28.89	2.632	Wrapped in Teflon tape at perm meas.
10	8.93	Horiz.	2185.845	28.63	2.635	Wrapped in Teflon tape at perm meas.
11V	9.10	Vert.	5173.462	33.50	2.636	Wrapped in Teflon tape at perm meas.
12	9.15	Horiz.	3858.687	28.62	2.629	Wrapped in Teflon tape at perm meas.
13	9.42	Horiz.	1372.336	29.41	2.630	Wrapped in Teflon tape at perm meas.
14	9.74	Horiz.	#N/A	29.71	2.634	No perm meas.
15V	9.94	Vert.	461.035	28.30	2.643	Wrapped in Teflon tape at perm meas.
16	10.11	Horiz.	8579.190	32.57	2.632	Wrapped in Teflon tape at perm meas.
17	10.40	Horiz.	#N/A	29.08	2.606	No perm meas.
18	10.71	Horiz.	4629.415	32.70	2.630	Biased by grain loss
19V	10.89	Vert.	1449.140	32.82	2.635	Wrapped in Teflon tape at perm meas.
20	11.09	Horiz.	3946.973	33.58	2.632	Biased by grain loss
21	11.37	Horiz.	0.064	5.16	2.675	
22	11.67	Horiz.	713.768	29.48	2.638	Biased by grain loss
23V	11.86	Vert.	0.069	2.37	2.669	
24	12.03	Horiz.	7.573	24.57	2.722	
25	12.33	Horiz.	3425.496	32.12	2.636	Biased by grain loss
26	12.63	Horiz.	795.373	27.04	2.630	Biased by grain loss
27V	12.79	Vert.	320.520	31.48	2.627	Wrapped in Teflon tape at perm meas.
28	13.24	Horiz.	10273.770	34.20	2.628	Biased by grain loss
29	13.54	Horiz.	6404.847	33.77	2.625	Biased by grain loss
30	13.87	Horiz.	2981.043	34.13	2.631	Biased by grain loss
31V	14.02	Vert.	14.456	26.97	2.642	Biased by grain loss
32	14.19	Horiz.	6778.094	31.40	2.636	Biased by grain loss
33	14.51	Horiz.	314.674	28.10	2.637	Biased by grain loss
34	14.78	Horiz.	12389.343	35.93	2.637	Biased by grain loss
35V	14.95	Vert.	484.240	33.07	2.640	Biased by grain loss
36	15.10	Horiz.	0.063	3.10	2.689	
37	15.43	Horiz.	10.651	21.44	2.654	Biased by grain loss
38	15.62	Horiz.	0.151	8.43	2.841	
39V	15.81	Vert.	0.212	19.99	2.792	
40	16.03	Horiz.	0.091	5.38	2.666	Minor fracture at fossil
41	16.32	Horiz.	0.195	9.97	2.662	
42	16.62	Horiz.	0.330	11.79	2.659	
43V	16.83	Vert.	4.973	22.47	2.634	Biased by grain loss
44	16.98	Horiz.	117.652	25.91	2.643	Biased by grain loss
45	17.28	Horiz.	51.431	24.91	2.673	Fracture at black coal layer
46	17.57	Horiz.	#N/A	29.96	2.582	Fracture at coal layer: Biased by grain loss
47V	17.81	Vert.	1.694	23.22	2.674	
48	17.93	Horiz.	7.525	24.02	2.641	
49	18.27	Horiz.	15.065	24.80	2.640	Fracture at black coal layer
50	18.56	Horiz.	21.420	22.08	2.658	
51V	18.76	Vert.	0.531	20.16	2.646	
52	19.01	Horiz.	1.534	18.73	2.676	
53	19.31	Horiz.	4.733	20.10	2.677	
54	19.61	Horiz.	0.064	7.67	2.706	
55V	19.82	Vert.	0.065	4.90	2.707	
56	19.89	Horiz.	2.635	19.05	2.666	

Table 5. Results of porosity, permeability and grain density of plug samples 57 to 112

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
57	20.20	Horiz.	2.768	22.29	2.673	
58	20.50	Horiz.	7.546	21.04	2.644	
59V	20.73	Vert.	0.582	20.04	2.657	Minor fracture (damage at side of plug)
60	20.85	Horiz.	10.304	21.23	2.653	
61	21.12	Horiz.	15.079	22.86	2.647	
62	21.42	Horiz.	11.586	21.71	2.649	
63V	21.66	Vert.	3.150	20.58	2.636	
64	21.81	Horiz.	22.247	21.62	2.640	
65	22.12	Horiz.	14.755	20.64	2.658	
66	22.42	Horiz.	19.477	21.02	2.655	
67V	22.60	Vert.	1.603	21.72	2.652	
68	22.80	Horiz.	15.630	21.98	2.651	
69	23.09	Horiz.	0.256	9.06	2.679	
70	23.40	Horiz.	2.631	14.90	2.682	
71V	23.60	Vert.	2.092	21.69	2.730	
72	23.80	Horiz.	15.019	21.61	2.652	
73	24.10	Horiz.	3.177	19.82	2.650	
74	24.37	Horiz.	3.093	19.43	2.674	
75V	24.64	Vert.	0.729	20.03	2.650	
76	24.83	Horiz.	11.355	19.51	2.637	
77	25.14	Horiz.	19.022	20.58	2.648	
78	25.42	Horiz.	14.187	19.38	2.639	
79V	25.66	Vert.	0.513	20.66	2.644	
80	25.73	Horiz.	3.360	19.62	2.655	
81	26.06	Horiz.	15.163	20.57	2.661	
82	26.36	Horiz.	2.808	18.24	2.626	
83V	26.56	Vert.	0.121	16.11	2.604	
84	26.72	Horiz.	2.008	18.28	2.639	
85	27.02	Horiz.	2.400	18.31	2.636	
86	27.32	Horiz.	8.003	19.00	2.634	
87V	27.54	Vert.	1.042	20.34	2.668	
88	27.73	Horiz.	4.163	19.44	2.652	
89	28.03	Horiz.	8.856	19.99	2.647	
90	28.33	Horiz.	10.007	20.33	2.651	
91V	28.55	Vert.	0.367	18.50	2.646	
92	28.72	Horiz.	0.978	16.92	2.634	
93	29.02	Horiz.	2.725	17.90	2.653	
94	29.32	Horiz.	1.628	16.96	2.638	
95V	29.54	Vert.	0.641	23.36	2.689	
96	29.70	Horiz.	1.101	18.89	2.674	
97	30.00	Horiz.	0.558	18.96	2.653	
98	30.31	Horiz.	0.911	20.83	2.671	
99V	30.53	Vert.	2.944	24.00	2.673	
100	30.73	Horiz.	2.536	23.48	2.656	
101	31.03	Horiz.	12.977	24.23	2.676	
102	31.33	Horiz.	1.420	20.53	2.654	
103V	31.55	Vert.	0.310	14.67	2.656	
104	31.73	Horiz.	0.219	14.20	2.675	
105	32.03	Horiz.	0.161	14.20	2.704	
106	32.33	Horiz.	0.176	26.74	2.972	Clasts of brown mineral (siderite?)
107V	32.55	Vert.	0.222	17.59	2.686	
108	32.66	Horiz.	0.195	14.89	2.706	
109	32.96	Horiz.	0.077	9.03	2.838	
110	33.26	Horiz.	0.122	16.81	2.926	Clasts of brown mineral (siderite?)
111V	33.51	Vert.	3.392	24.95	2.804	Clasts of brown mineral (siderite?)
112	33.66	Horiz.	1.632	21.11	2.757	

Table 6. Results of porosity, permeability and grain density of plug samples 113 to 168

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
113	33.92	Horiz.	1.653	19.08	2.678	
114	34.25	Horiz.	2.535	14.14	2.678	
115V	34.45	Vert.	1.282	21.36	2.646	
116	34.65	Horiz.	2.107	20.14	2.646	
117	34.95	Horiz.	2.085	18.14	2.645	
118	35.25	Horiz.	33.551	25.04	2.651	
119V	35.45	Vert.	0.147	20.44	3.043	
120	35.57	Horiz.	6.552	24.70	2.873	
121	35.88	Horiz.	0.058	4.71	2.673	
122	36.19	Horiz.	235.351	25.01	2.638	
123V	36.42	Vert.	4.005	24.73	2.634	
124	36.59	Horiz.	14.140	24.65	2.625	
125	36.89	Horiz.	9.294	22.62	2.647	
126	37.19	Horiz.	5.830	22.05	2.659	
127V	37.40	Vert.	0.677	22.98	2.784	
128	37.61	Horiz.	12.603	18.02	2.666	
129	37.95	Horiz.	13.391	24.39	2.686	
130	38.22	Horiz.	2.518	19.62	2.655	
131V	38.43	Vert.	17.645	30.36	2.679	Wrapped in Teflon tape at perm meas.
132	38.54	Horiz.	22.098	29.00	2.702	
133	38.87	Horiz.	210.511	28.98	2.656	Wrapped in Teflon tape at perm meas.
134	39.16	Horiz.	158.014	28.18	2.643	Biased by grain loss
135V	39.38	Vert.	#N/A	30.29	2.641	Biased by grain loss, average of A and B sample
136	39.63	Horiz.	7881.572	34.64	2.639	Biased by grain loss
137	39.88	Horiz.	3038.419	29.27	2.641	Biased by grain loss
138	40.17	Horiz.	972.329	30.00	2.817	Biased by grain loss
139V	40.39	Vert.	92.300	31.48	2.637	Biased by grain loss
140	40.60	Horiz.	1052.062	28.72	2.621	Biased by grain loss
141	40.89	Horiz.	9705.916	35.07	2.635	Biased by grain loss
142	41.18	Horiz.	14554.992	35.78	2.635	Biased by grain loss
143V	41.41	Vert.	429.547	29.84	2.792	Biased by grain loss
144	41.61	Horiz.	97.926	26.95	2.628	Biased by grain loss
145	41.91	Horiz.	0.363	10.37	2.660	
146	42.21	Horiz.	#N/A	17.66	2.648	Biased by grain loss
147V	42.41	Vert.	5.984	25.34	2.689	
148	42.43	Horiz.	0.100	5.23	2.678	
149	42.73	Horiz.	0.080	4.18	2.708	
150	43.01	Horiz.	12.325	22.38	2.662	
151V	43.23	Vert.	0.161	9.24	2.657	
152	43.45	Horiz.	1.281	8.59	2.657	
153	43.76	Horiz.	26.083	23.87	2.630	
154	44.05	Horiz.	405.574	28.36	2.628	Biased by grain loss
155V	44.29	Vert.	6.640	21.78	2.634	
156	44.49	Horiz.	3.105	19.31	2.646	
157	44.78	Horiz.	26.977	21.34	2.633	
158	45.09	Horiz.	0.897	12.96	2.647	
159V	45.27	Vert.	2.132	19.62	2.739	
160	45.42	Horiz.	17.196	21.19	2.636	
161	45.72	Horiz.	7.299	20.22	2.660	Biased by grain loss
162	46.02	Horiz.	123.811	25.35	2.642	Biased by grain loss
163V	46.21	Vert.	9.269	24.44	2.653	Biased by grain loss, average of A and B sample
164	46.40	Horiz.	6.169	17.95	2.779	
165	46.70	Horiz.	0.071	2.82	2.685	
166	46.97	Horiz.	0.160	11.30	2.768	
167V	47.20	Vert.	2.576	19.97	2.646	
168	47.39	Horiz.	6.678	20.50	2.647	

Table 7. Results of porosity, permeability and grain density of plug samples 169 to 224

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
169	47.75	Horiz.	6.621	34.16	2.637	
170	47.99	Horiz.	23.361	13.96	2.654	
171V	48.18	Vert.	11.614	22.38	2.644	
172	48.29	Horiz.	206.074	27.79	2.633	
173	48.54	Horiz.	993.361	29.63	2.644	Wrapped in Teflon tape at perm meas.
174	48.81	Horiz.	#N/A	26.70	2.634	Crumbling
175V	49.12	Vert.	#N/A	30.69	2.611	No perm meas.
176	49.27	Horiz.	49.492	27.31	2.632	
177	49.56	Horiz.	10.552	24.62	2.623	
178	49.86	Horiz.	42.898	26.54	2.632	
179V	50.07	Vert.	81.765	27.35	2.635	
180	50.25	Horiz.	1061.909	30.90	2.641	Crumbling
181	50.55	Horiz.	95.221	27.84	2.634	Biased by grain loss
182	50.85	Horiz.	140.496	29.40	2.633	Biased by grain loss
183V	51.08	Vert.	7018.521	34.07	2.639	Biased by grain loss
184	51.19	Horiz.	1333.165	32.22	2.629	
185	51.49	Horiz.	2766.401	33.61	2.637	Biased by grain loss
186	51.81	Horiz.	217.370	29.75	2.640	Biased by grain loss
187V	52.01	Vert.	106.491	30.00	2.637	Biased by grain loss
188	52.19	Horiz.	219.046	30.57	2.645	Biased by grain loss
189	52.43	Horiz.	115.758	29.95	2.638	Biased by grain loss
190	52.79	Horiz.	0.155	8.65	2.668	
191V	53.04	Vert.	0.308	12.66	2.660	
192	53.14	Horiz.	0.451	13.09	2.666	
193	53.44	Horiz.	2.522	20.34	2.674	
194	53.75	Horiz.	6.495	22.45	2.872	
195V	53.94	Vert.	0.477	18.58	2.884	
196	54.14	Horiz.	1.665	20.84	2.781	
197	54.44	Horiz.	3.145	20.94	2.666	
198	54.71	Horiz.	2.883	21.03	2.655	
199V	54.91	Vert.	0.709	19.77	2.653	
200	55.12	Horiz.	6.232	22.09	2.655	
201	55.42	Horiz.	2.714	20.20	2.650	
202	55.72	Horiz.	2.079	19.29	2.656	
203V	55.94	Vert.	0.651	17.27	2.674	
204	56.03	Horiz.	2.731	17.35	2.649	
205	56.33	Horiz.	12.586	21.10	2.873	
206	56.63	Horiz.	2818.323	22.97	2.637	Biased by grain loss
207V	56.82	Vert.	2.618	21.11	2.659	Biased by grain loss
208	57.02	Horiz.	5317.732	29.60	2.637	Biased by grain loss
209	57.32	Horiz.	5118.490	29.26	2.634	Biased by grain loss
210	57.62	Horiz.	24.024	21.81	2.664	
211V	57.82	Vert.	0.029	6.42	2.675	
212	57.98	Horiz.	0.064	7.03	2.794	
213	58.28	Horiz.	1.453	10.47	2.677	
214	58.58	Horiz.	455.885	31.21	2.622	Biased by grain loss
215V	58.76	Vert.	616.015	31.76	2.629	Biased by grain loss
216	58.92	Horiz.	7754.137	30.54	2.610	Grain loss. Wrapped in Teflon
217	59.23	Horiz.	458.842	29.95	2.604	Frac at coal layer. Grain loss. Wrapped in Teflon
218	59.50	Horiz.	#N/A	28.86	2.592	Crumbling
219V	59.65	Vert.	1924.468	33.35	2.626	Biased by grain loss
220	59.78	Horiz.	960.848	32.24	2.614	Biased by grain loss
221	60.10	Horiz.	767.052	31.44	2.624	Biased by grain loss
222	60.38	Horiz.	839.371	32.50	2.622	Biased by grain loss
223V	60.58	Vert.	1432.986	34.27	2.620	
224	60.73	Horiz.	36.378	27.14	2.657	

Table 8. Results of porosity, permeability and grain density of plug samples 225 to 280.

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
225	61.03	Horiz.	225.264	28.42	2.624	Biased by grain loss
226	61.32	Horiz.	278.761	28.72	2.610	Biased by grain loss
227V	61.53	Vert.	51.806	26.60	2.648	Biased by grain loss
228	61.71	Horiz.	160.533	26.53	2.618	Biased by grain loss
229	62.06	Horiz.	#N/A	27.00	2.625	Biased by grain loss
230	62.36	Horiz.	925.191	28.48	2.629	Biased by grain loss
231V	62.54	Vert.	0.112	7.94	2.661	
232	62.68	Horiz.	0.062	3.31	2.664	
233	62.98	Horiz.	0.067	3.15	2.665	
234	63.28	Horiz.	70.763	25.96	2.710	
235V	63.45	Vert.	0.068	2.60	2.672	
236	63.61	Horiz.	88.917	24.31	2.641	Biased by grain loss
237	63.95	Horiz.	1453.187	30.22	2.631	Biased by grain loss
238	64.25	Horiz.	#N/A	32.29	2.569	Crumbling
239V	64.43	Vert.	34.339	27.58	2.674	Wrapped in Teflon tape at perm meas.
240	64.70	Horiz.	#N/A	33.59	2.631	Biased by grain loss
241	65.01	Horiz.	#N/A	32.92	2.610	Biased by grain loss
242	65.40	Horiz.	5643.042	31.87	2.622	Biased by grain loss
243V	65.51	Vert.	1866.092	31.86	2.630	Biased by grain loss
244	65.60	Horiz.	3307.338	31.56	2.640	Biased by grain loss
245	65.90	Horiz.	1647.322	29.68	2.641	Biased by grain loss
246	66.19	Horiz.	572.031	28.63	2.632	Biased by grain loss
247V	66.40	Vert.	506.953	28.86	2.627	Biased by grain loss
248	66.56	Horiz.	7662.460	32.76	2.622	Biased by grain loss
249	66.83	Horiz.	236.981	25.99	2.639	Biased by grain loss
250	67.16	Horiz.	4045.039	32.38	2.620	Biased by grain loss
251V	67.35	Vert.	2089.685	32.77	2.650	Biased by grain loss
252	67.54	Horiz.	3361.471	31.76	2.651	Biased by grain loss
253	67.84	Horiz.	#N/A	31.03	2.637	Biased by grain loss
254	68.14	Horiz.	6989.470	33.81	2.648	Biased by grain loss
255V	68.32	Vert.	730.593	26.87	2.680	Biased by grain loss
256	68.50	Horiz.	1777.309	31.63	2.639	Biased by grain loss
257	68.80	Horiz.	3260.524	32.95	2.643	Biased by grain loss
258	69.10	Horiz.	3076.475	32.79	2.644	Biased by grain loss
259V	69.29	Vert.	1355.954	31.91	2.648	Biased by grain loss
260	69.44	Horiz.	730.575	31.97	2.655	Biased by grain loss
261	69.77	Horiz.	#N/A	31.15	2.635	Biased by grain loss
262	70.06	Horiz.	1792.160	32.95	2.646	Biased by grain loss
263V	70.28	Vert.	#N/A	33.04	2.639	Biased by grain loss
264	70.50	Horiz.	2858.354	32.71	2.630	Biased by grain loss
265	70.76	Horiz.	3151.064	33.17	2.633	Biased by grain loss
266	71.05	Horiz.	2759.264	32.58	2.634	Biased by grain loss
267V	71.29	Vert.	1963.327	31.52	2.650	Biased by grain loss
268	71.51	Horiz.	5120.705	33.97	2.662	Biased by grain loss
269	71.79	Horiz.	2864.924	31.55	2.647	Biased by grain loss
270	72.10	Horiz.	3560.843	31.68	2.645	Biased by grain loss
271V	72.23	Vert.	105.527	28.65	2.648	Biased by grain loss
272	72.48	Horiz.	#N/A	32.70	2.633	Biased by grain loss
273	72.79	Horiz.	173.922	27.78	2.647	Biased by grain loss
274	72.97	Horiz.	1349.825	28.65	2.639	Biased by grain loss
275V	73.28	Vert.	28.456	25.35	2.637	Biased by grain loss
276	73.43	Horiz.	62.423	25.38	2.640	Biased by grain loss
277	73.64	Horiz.	#N/A	25.74	2.639	Biased by grain loss
278	74.03	Horiz.	0.043	5.89	2.716	
279V	74.21	Vert.	0.073	6.10	2.725	
280	74.29	Horiz.	0.078	6.84	2.755	

Table 9. Results of porosity, permeability and grain density of plug samples 281 to 336.

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
281	74.61	Horiz.	0.076	7.96	3.026	
282	74.89	Horiz.	0.917	11.19	2.670	
283V	75.10	Vert.	3379.666	31.57	2.636	Biased by grain loss
284	75.25	Horiz.	1766.132	31.02	2.646	Biased by grain loss
285	75.56	Horiz.	12377.085	35.04	2.624	Biased by grain loss
286	75.84	Horiz.	1695.142	30.39	2.638	Biased by grain loss
287V	76.08	Vert.	302.877	29.61	2.642	Biased by grain loss
288	76.24	Horiz.	502.873	27.20	2.703	Biased by grain loss
289	76.53	Horiz.	3639.567	32.19	2.639	Biased by grain loss
290	76.84	Horiz.	8851.515	32.88	2.653	Biased by grain loss
291V	77.05	Vert.	2195.052	32.46	2.650	Biased by grain loss
292	77.23	Horiz.	3419.061	31.24	2.636	Biased by grain loss
293	77.52	Horiz.	5456.563	31.86	2.644	Biased by grain loss
294	77.82	Horiz.	6698.305	31.88	2.641	Biased by grain loss
295V	78.06	Vert.	873.855	31.04	2.639	Biased by grain loss
296	78.18	Horiz.	1696.842	31.16	2.656	Biased by grain loss
297	78.47	Horiz.	#N/A	30.96	2.657	Biased by grain loss
298	78.77	Horiz.	#N/A	32.35	2.636	Biased by grain loss
299V	78.98	Vert.	#N/A	30.63	2.642	Biased by grain loss
300	79.15	Horiz.	246.901	27.47	2.648	Biased by grain loss
301	79.46	Horiz.	#N/A	32.03	2.638	Biased by grain loss
302	79.74	Horiz.	11.694	22.45	2.672	
303V	79.97	Vert.	1.713	20.83	2.698	
304	80.15	Horiz.	12.733	22.74	2.663	
305	80.51	Horiz.	0.042	4.90	2.744	
306	80.77	Horiz.	0.039	2.67	2.676	
307V	81.03	Vert.	#N/A	#N/A	#N/A	No plug
308	82.25	Horiz.	#N/A	#N/A	#N/A	No plug
309V	82.67	Vert.	24.602	22.52	2.655	Wrapped in Teflon tape at perm meas.
310	82.80	Horiz.	1.334	20.80	2.943	
311	83.08	Horiz.	#N/A	19.55	2.658	No perm meas.
312	83.44	Horiz.	#N/A	32.78	2.641	Biased by grain loss
313V	83.50	Vert.	2928.946	33.08	2.630	Biased by grain loss
314	83.61	Horiz.	1335.071	31.14	2.637	Wrapped in Teflon tape at perm meas.
315	83.90	Horiz.	754.098	30.70	2.634	Wrapped in Teflon tape at perm meas.
316	84.22	Horiz.	1182.062	28.96	2.638	Wrapped in Teflon tape at perm meas.
317V	84.41	Vert.	44.789	25.66	2.645	Wrapped in Teflon tape at perm meas.
318	84.61	Horiz.	1156.129	30.69	2.637	Wrapped in Teflon tape at perm meas.
319	84.90	Horiz.	29.826	22.97	2.668	Wrapped in Teflon tape at perm meas.
320	85.18	Horiz.	#N/A	26.52	2.659	Deformed
321V	85.40	Vert.	0.063	2.61	2.691	
322	85.59	Horiz.	0.067	3.86	2.681	
323	85.90	Horiz.	66.559	19.07	2.650	
324	86.19	Horiz.	4267.074	25.83	2.618	Biased by grain loss
325V	86.42	Vert.	#N/A	24.06	2.632	
326	86.54	Horiz.	908.548	22.21	2.639	Biased by grain loss
327	86.84	Horiz.	#N/A	28.51	2.628	Biased by grain loss
328	87.13	Horiz.	#N/A	22.93	2.717	Biased by grain loss
329V	87.37	Vert.	12.875	24.01	2.642	Biased by grain loss
330	87.54	Horiz.	0.259	11.85	2.817	
331	87.84	Horiz.	14.774	25.47	2.786	
332	88.14	Horiz.	#N/A	24.99	2.629	Deformed
333V	88.36	Vert.	0.314	12.38	2.669	
334	88.51	Horiz.	0.392	12.10	2.683	
335	88.81	Horiz.	0.325	14.43	3.171	
336	89.10	Horiz.	0.103	13.60	2.821	

Table 10. Results of porosity, permeability and grain density of plug samples 337V to 392.

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
337V	89.33	Vert.	0.091	5.88	2.754	
338	89.47	Horiz.	0.083	7.00	2.766	
339	89.77	Horiz.	0.502	13.69	2.649	
340	90.08	Horiz.	2.936	17.10	2.633	
341V	90.30	Vert.	0.543	18.62	2.630	
342	90.48	Horiz.	0.815	19.87	2.831	
343	90.80	Horiz.	0.098	9.44	2.758	
344	91.12	Horiz.	0.820	17.03	2.641	
345V	91.32	Vert.	0.614	16.58	2.643	
346	91.45	Horiz.	0.718	15.95	2.639	
347	91.75	Horiz.	0.127	15.95	3.054	
348	92.06	Horiz.	0.529	14.34	2.653	
349V	92.24	Vert.	0.346	16.65	2.654	
350	92.47	Horiz.	0.399	15.64	2.692	
351	92.74	Horiz.	0.938	17.97	2.639	
352	93.03	Horiz.	33.353	20.58	2.688	
353V	93.23	Vert.	0.424	12.06	2.657	
354	93.39	Horiz.	251.263	26.71	2.625	
355	93.71	Horiz.	4.759	25.75	2.725	
356	93.99	Horiz.	0.600	14.96	2.661	
357V	94.21	Vert.	0.071	2.39	2.671	
358	94.37	Horiz.	0.073	3.55	2.674	
359	94.69	Horiz.	23.699	25.05	2.678	
360	94.97	Horiz.	29.185	25.20	2.666	
361V	95.17	Vert.	14.019	24.72	2.653	
362	95.33	Horiz.	225.799	29.55	2.635	
363	95.63	Horiz.	0.251	10.68	2.660	
364	95.97	Horiz.	12.848	21.79	2.648	
365V	96.15	Vert.	0.456	12.92	2.660	
366	96.24	Horiz.	42.914	21.00	2.656	
367	96.56	Horiz.	53.433	28.07	2.647	
368	96.83	Horiz.	1.887	20.92	2.697	
369V	97.06	Vert.	1.432	21.90	2.712	
370	97.23	Horiz.	2.537	21.47	2.704	
371	97.55	Horiz.	3.840	21.51	2.669	
372	97.85	Horiz.	4.360	21.19	2.662	
373V	98.07	Vert.	1.200	21.14	2.653	
374	98.22	Horiz.	6.654	20.96	2.658	
375	98.54	Horiz.	14.351	22.70	2.666	
376	98.82	Horiz.	0.986	19.19	2.666	
377V	99.04	Vert.	0.395	19.31	2.667	
378	99.12	Horiz.	4.286	20.75	2.673	
379	99.42	Horiz.	1.975	19.70	2.671	
380	99.73	Horiz.	0.814	18.15	2.697	
381V	99.95	Vert.	0.424	16.62	2.649	
382	100.13	Horiz.	0.145	5.20	2.680	
383	100.43	Horiz.	1.256	16.05	2.662	
384	100.73	Horiz.	0.123	12.59	2.831	
385V	100.98	Vert.	0.132	13.85	2.638	
386	101.13	Horiz.	0.153	16.12	2.666	
387	101.48	Horiz.	0.059	2.36	2.682	
388	101.75	Horiz.	0.441	11.41	2.644	
389V	101.97	Vert.	93.680	27.97	2.636	Wrapped in Teflon tape at perm meas.
390	102.10	Horiz.	183.645	27.48	2.641	
391	102.39	Horiz.	264.452	29.71	2.643	
392	102.70	Horiz.	429.294	30.21	2.635	

Table 11. Results of porosity, permeability and grain density of plug samples 393V to 449V.

Plug id.	Depth (m)	Orient.	Gas perm (mD)	Porosity (%)	Gr. dens. (g/ml)	Comment
393V	102.93	Vert.	0.066	6.53	2.690	
394	103.05	Horiz.	0.074	5.27	2.682	
395	103.35	Horiz.	0.068	3.62	2.651	
396	103.65	Horiz.	0.084	6.05	2.670	
397V	103.89	Vert.	74.558	28.55	2.664	
398	104.03	Horiz.	106.750	27.71	2.668	
399	104.31	Horiz.	94.197	27.97	2.686	
400	104.61	Horiz.	0.545	12.07	2.697	
401V	104.85	Vert.	0.239	10.43	2.695	
402	104.96	Horiz.	0.259	10.02	2.704	
403	105.27	Horiz.	116.216	28.30	2.669	
404	105.56	Horiz.	105.084	27.91	2.664	
405V	105.76	Vert.	112.201	28.08	2.664	
406	105.96	Horiz.	759.027	28.45	2.668	Wrapped in Teflon tape at perm meas.
407	106.29	Horiz.	138.866	28.04	2.687	
408	106.56	Horiz.	54.299	24.66	2.677	
409V	106.80	Vert.	801.959	28.77	2.654	
410	106.97	Horiz.	2835.421	28.87	2.652	
411	107.24	Horiz.	3330.310	29.17	2.645	
412	107.57	Horiz.	42.353	15.07	2.715	
413V	107.83	Vert.	0.290	13.37	2.665	
414	107.96	Horiz.	3.916	18.33	2.667	
415	108.24	Horiz.	4.693	17.97	2.648	
416	108.52	Horiz.	1.821	12.43	2.617	
417V	108.73	Vert.	0.122	13.24	2.651	
418	108.90	Horiz.	0.757	13.21	2.646	
419	109.20	Horiz.	1.808	11.03	2.754	
420	109.49	Horiz.	2.159	12.72	2.628	
421V	109.69	Vert.	0.043	12.91	2.610	
422	109.89	Horiz.	23.084	12.38	2.601	Cracked
423	110.19	Horiz.	0.442	11.41	2.656	
424	110.57	Horiz.	#N/A	#N/A	#N/A	Deformed
425V	110.64	Vert.	#N/A	27.59	2.621	Deformed
426	110.67	Horiz.	14.109	20.14	2.677	
427	110.99	Horiz.	9.272	20.02	2.686	
428	111.26	Horiz.	5.236	15.97	2.690	
429V	111.51	Vert.	#N/A	12.38	2.621	No perm meas.
430	111.65	Horiz.	3.968	19.96	2.639	
431	111.93	Horiz.	1.818	14.84	2.672	
432	112.22	Horiz.	38.903	24.82	2.649	
433V	112.44	Vert.	#N/A	18.08	2.652	No perm meas.
434	112.63	Horiz.	10.108	18.69	2.654	
435	112.95	Horiz.	222.542	23.41	2.655	
436	113.24	Horiz.	602.181	26.27	2.641	
437V	113.47	Vert.	23.323	24.25	2.642	Wrapped in Teflon tape at perm meas.
438	113.59	Horiz.	224.761	25.31	2.643	
439	113.99	Horiz.	3271.859	25.32	2.644	Wrapped in Teflon tape at perm meas.
440	114.19	Horiz.	#N/A	26.00	2.647	No perm meas.
441V	114.42	Vert.	1456.655	27.04	2.645	Wrapped in Teflon tape at perm meas.
442	114.58	Horiz.	3829.895	27.65	2.627	Wrapped in Teflon tape at perm meas.
443	114.88	Horiz.	4197.926	28.87	2.637	
444	115.19	Horiz.	3973.507	27.49	2.640	Wrapped in Teflon tape at perm meas.
445V	115.38	Vert.	1592.606	27.90	2.636	Wrapped in Teflon tape at perm meas.
446	115.47	Horiz.	686.735	26.47	2.640	Wrapped in Teflon tape at perm meas.
447	115.79	Horiz.	635.578	27.31	2.630	
448	116.09	Horiz.	1707.331	29.04	2.630	Wrapped in Teflon tape at perm meas.
449V	116.33	Vert.	1662.118	28.16	2.639	Wrapped in Teflon tape at perm meas.

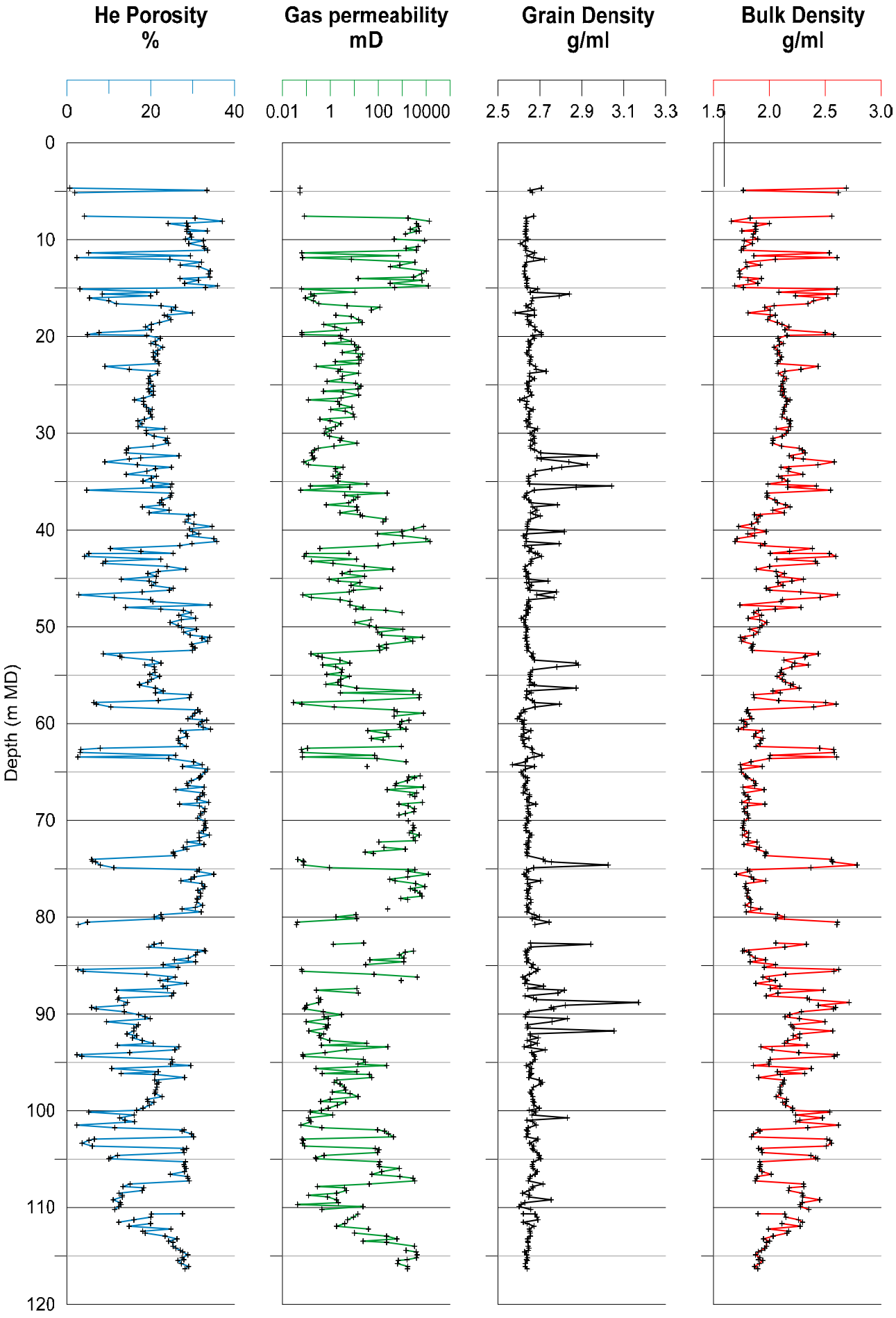


Figure 2. Log of Conventional Core Analysis results. Ravn Pynt-1 well.

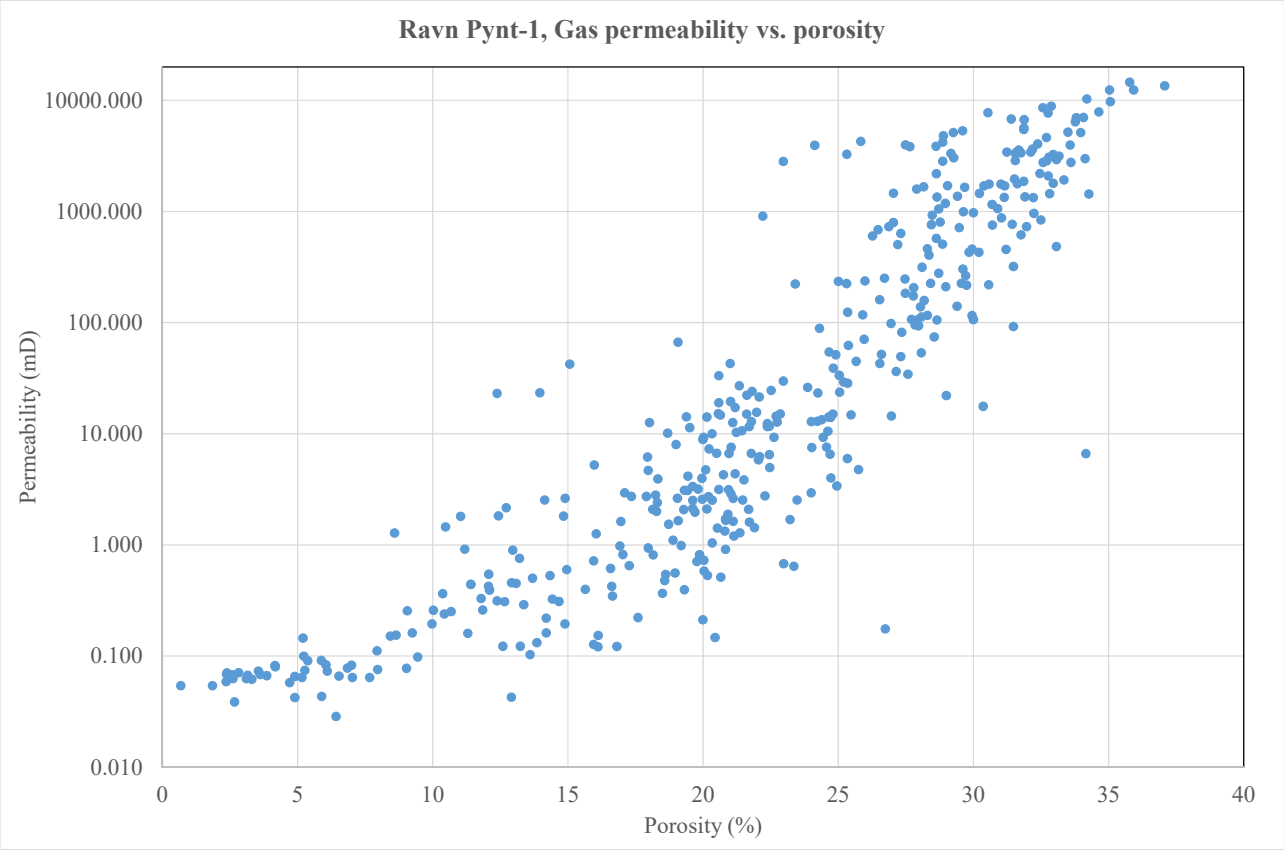


Figure 3. Permeability versus Porosity

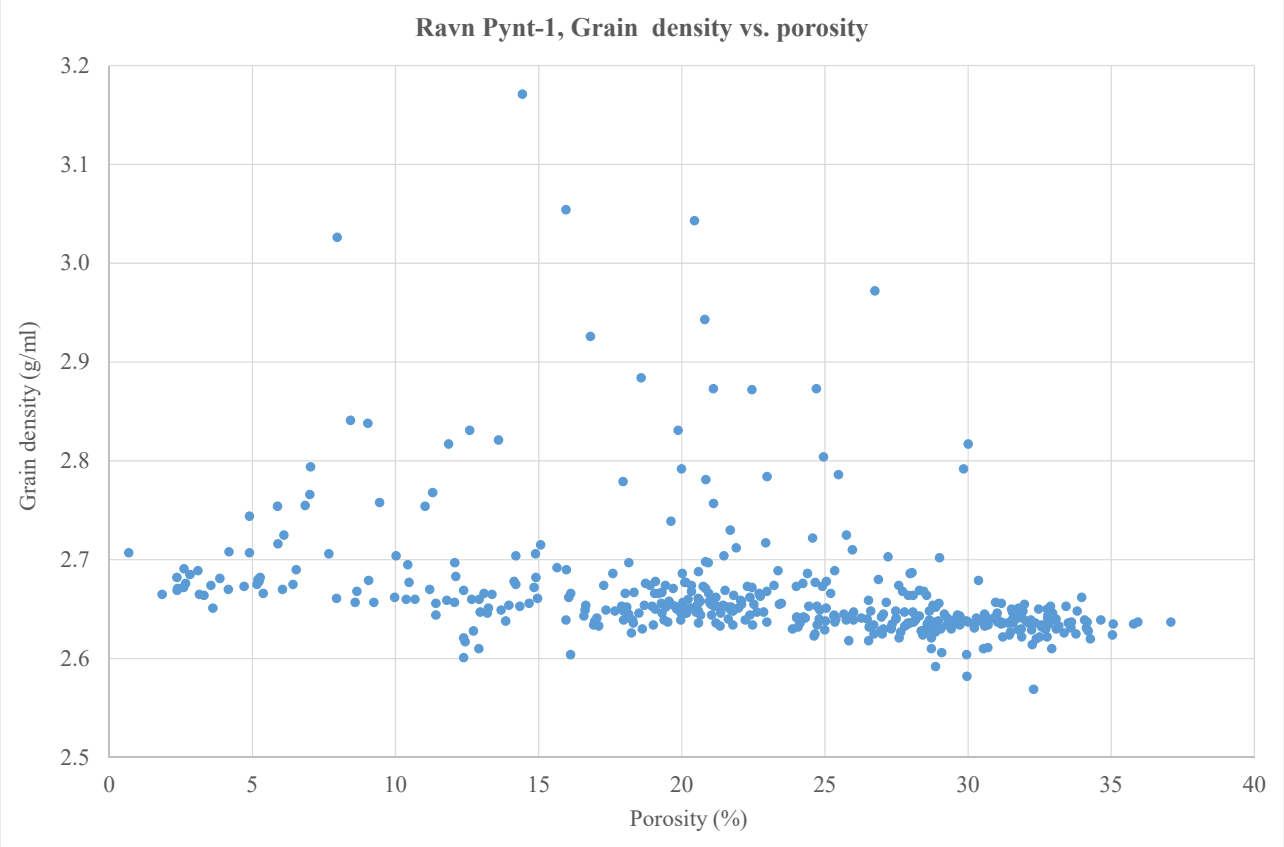


Figure 4. Grain density versus Porosity

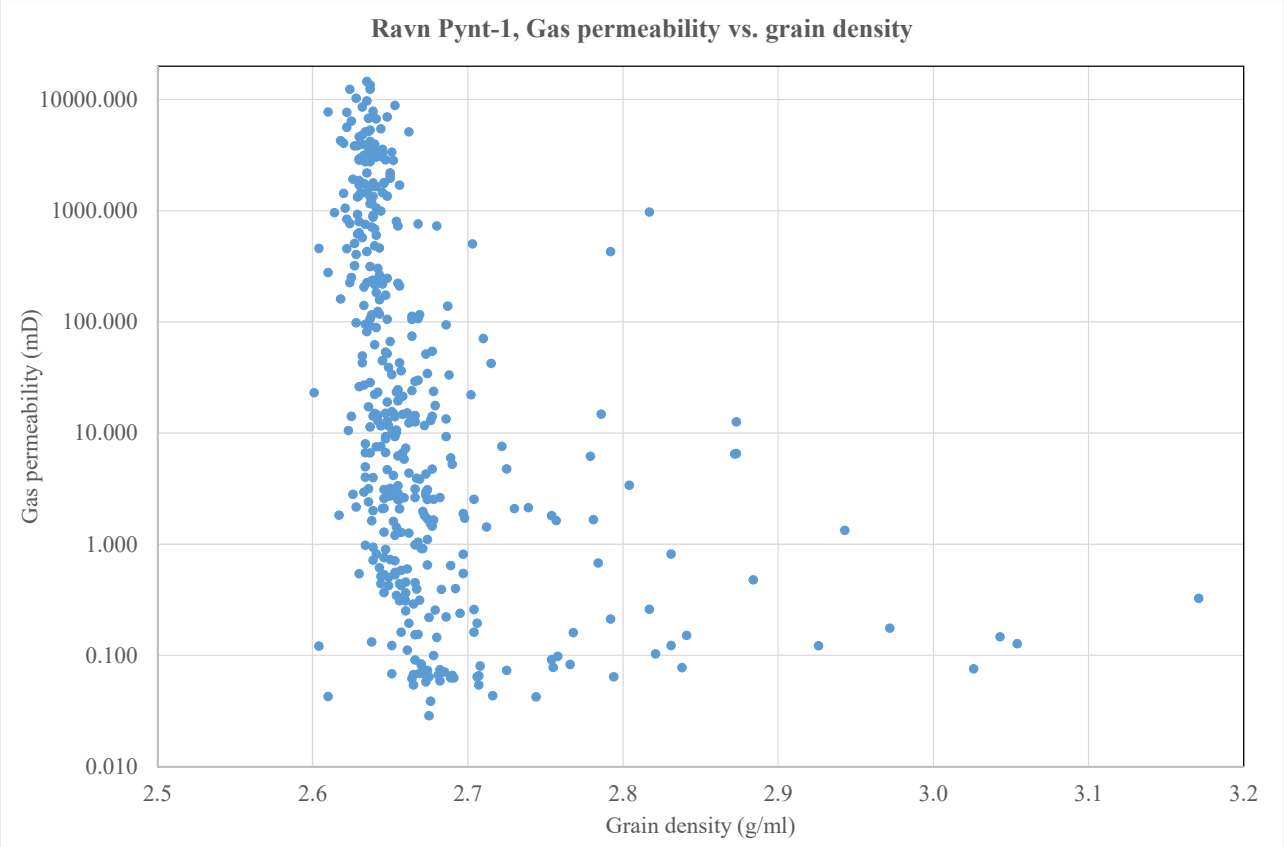


Figure 5. Permeability versus Grain density

5.3 White and UV core photos

Please notice that the depth labels at the bottom of the photographs reports depths values that were revised after the photography session. Therefore, the depth labels of the photographs should not be used for reference. Instead, use the depth values given in the caption text.

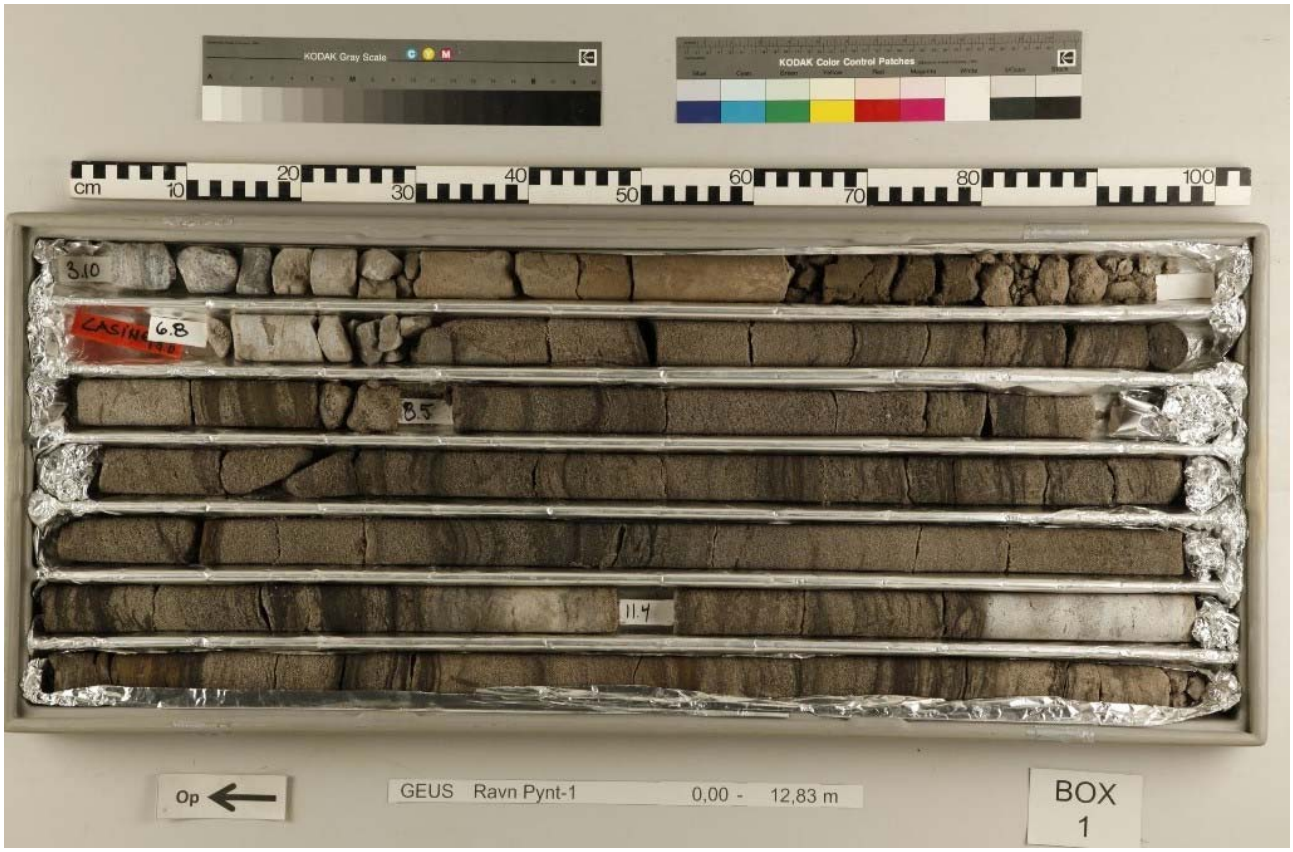


Figure 6. Photo of box 1, white light, depth interval 4.55 – 12.90 m MD

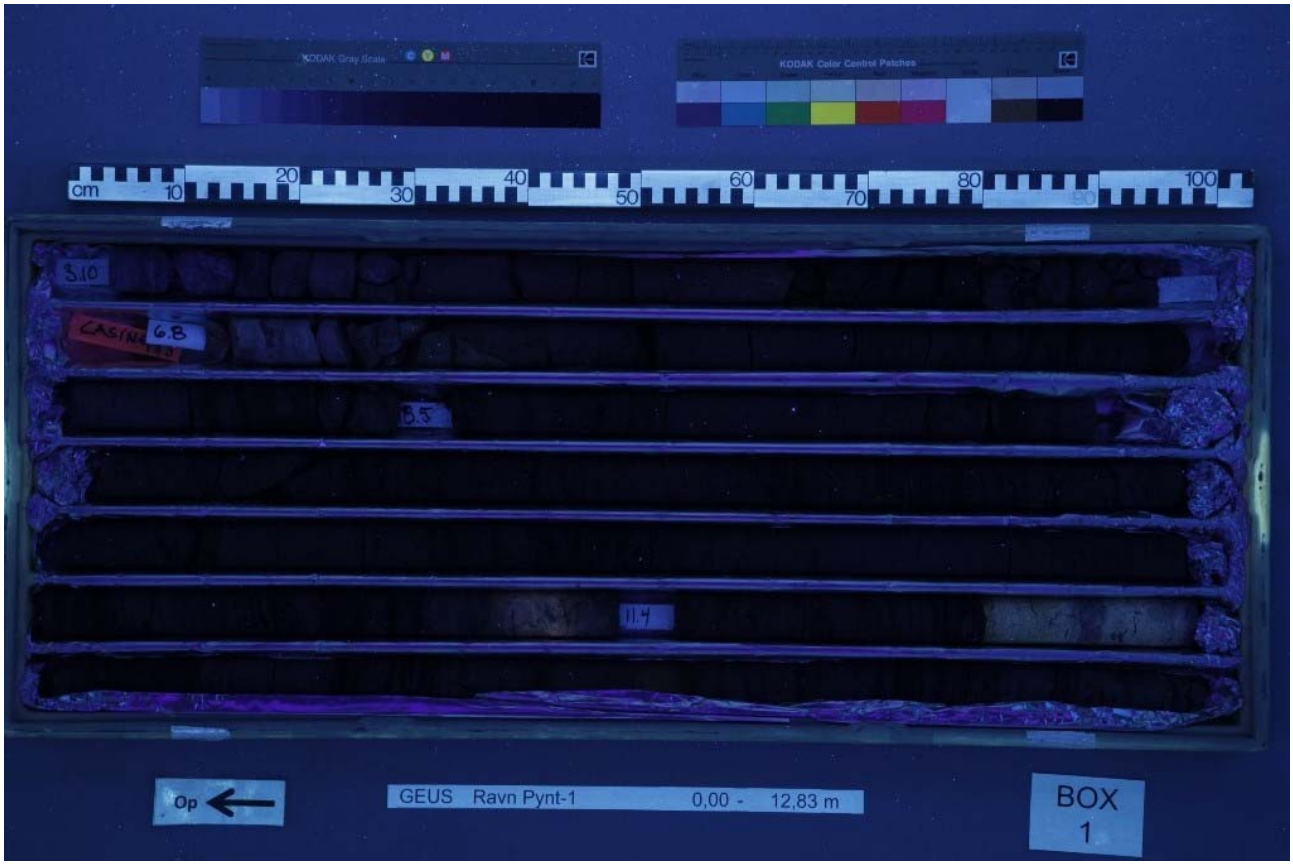


Figure 7. Photo of box 1, UV light, depth interval 4.55 – 12.90 m MD

Figure 8. Photo of box 2, white light, depth interval 13.14 – 19.80 m MD

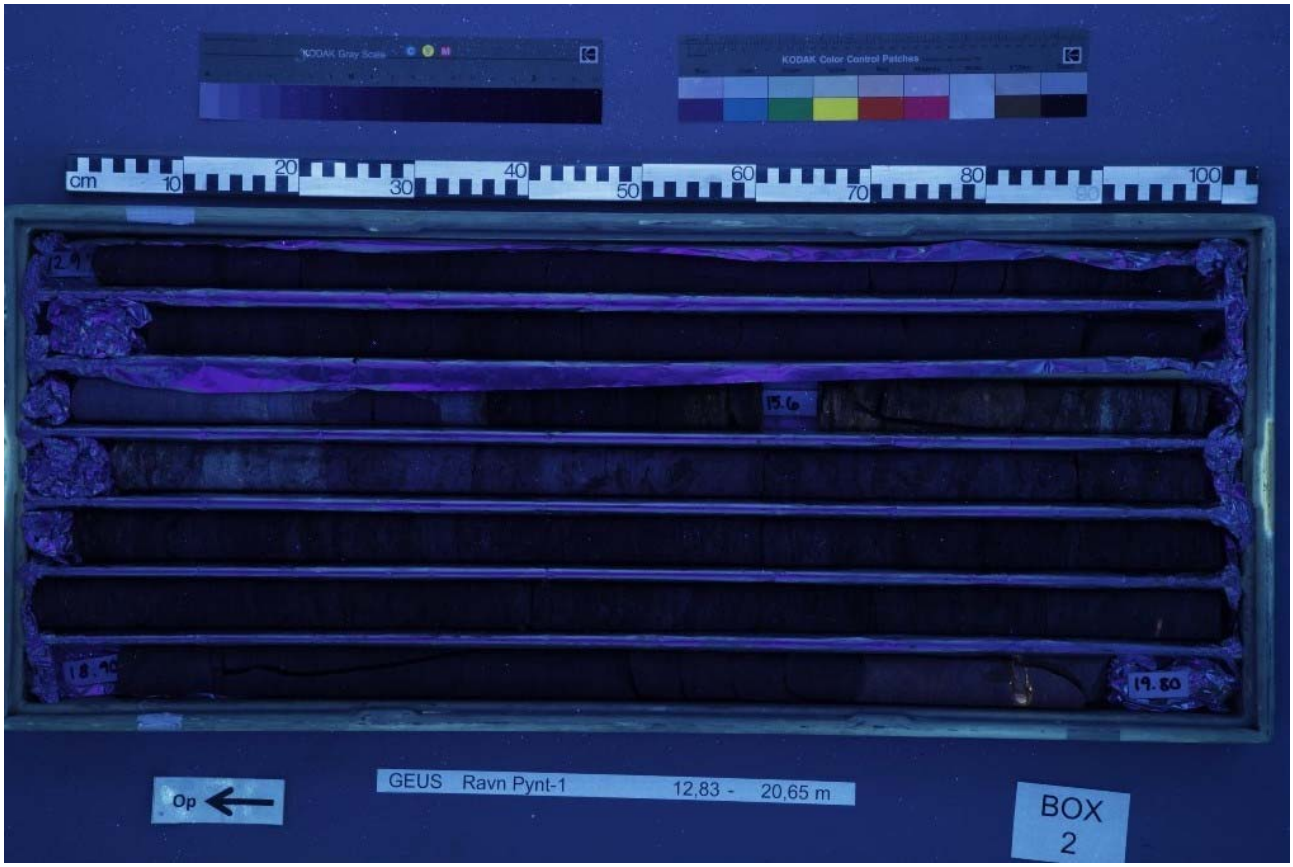


Figure 9. Photo of box 2, UV light, depth interval 13.14 – 19.80 m MD

Figure 10. Photo of box 3, white light, depth interval 19.80 – 26.62 m MD

Figure 11. Photo of box 3, UV light, depth interval 19.80 –26.62 m MD

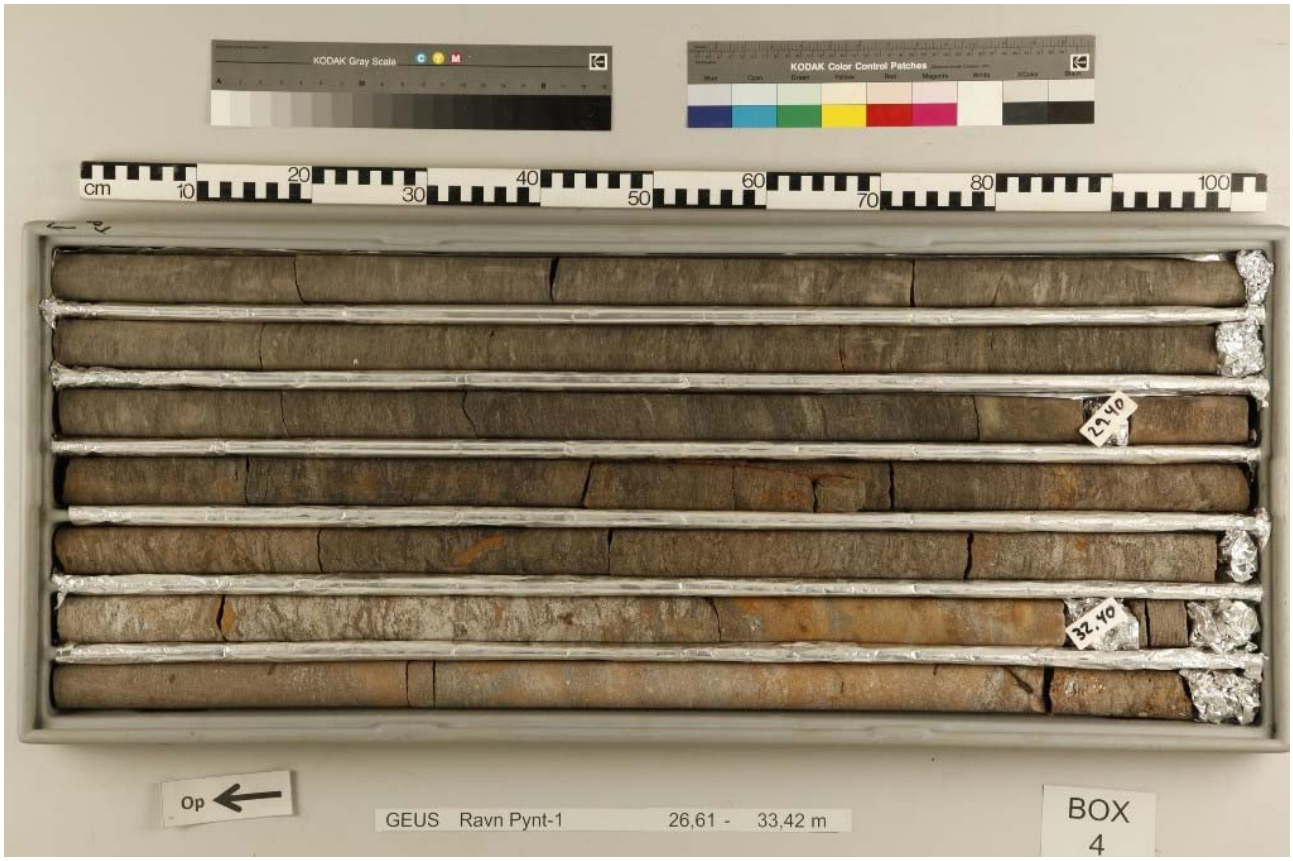


Figure 12. Photo of box 4, white light, depth interval 26.62 – 33.54 m MD

Figure 13. Photo of box 4, UV light, depth interval 26.62 – 33.54 m MD

Figure 14. Photo of box 5, white light, depth interval 33.54 – 40.51 m MD

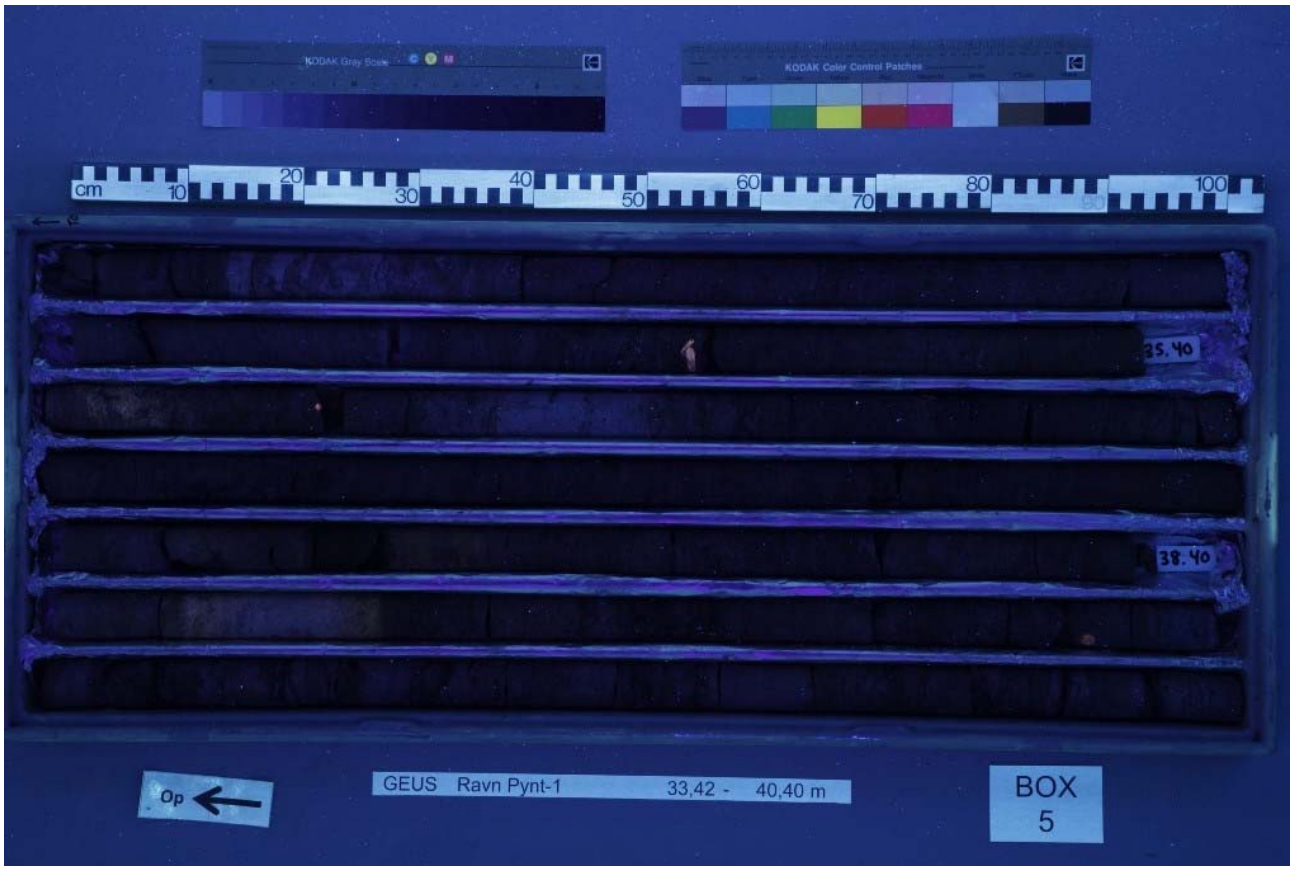


Figure 15. Photo of box 5, UV light, depth interval 34.54 – 40.51 m MD

Figure 16. Photo of box 6, white light, depth interval 40.51 – 47.30 m MD

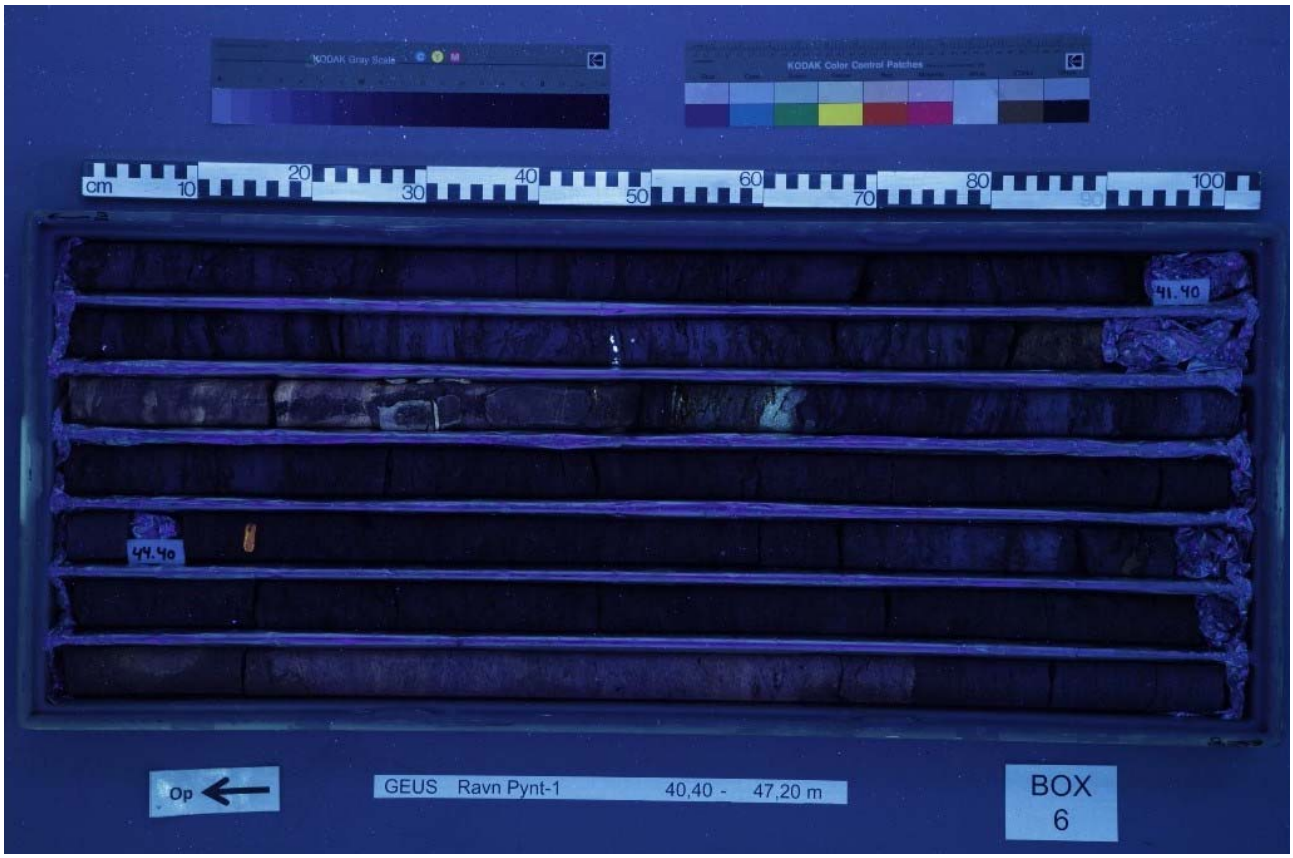


Figure 17. Photo of box 6, UV light, depth interval 40.51 – 47.30 m MD

Figure 18. Photo of box 7, white light, depth interval 47.30 – 54.04 m MD

Figure 19. Photo of box 7, UV light, depth interval 47.30 –54.04 m MD

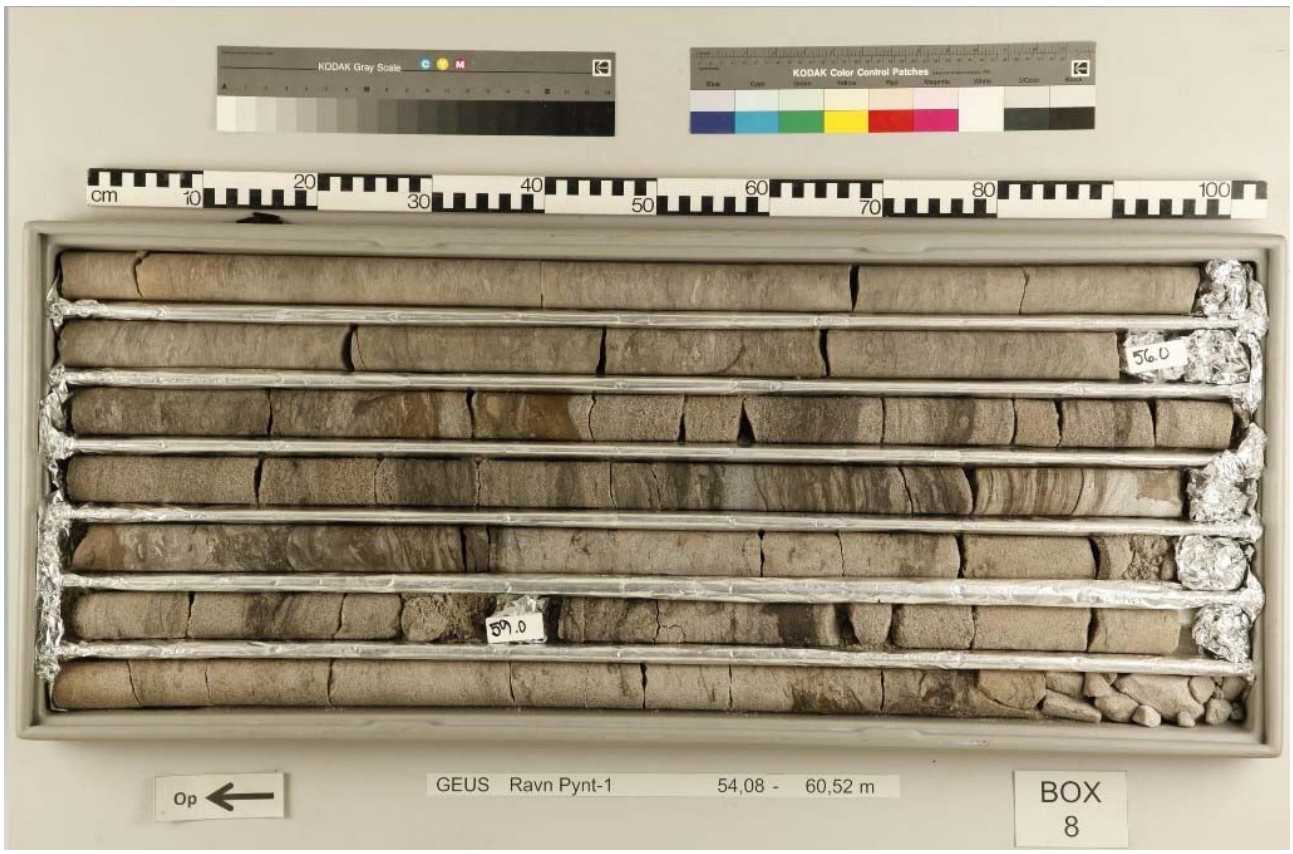


Figure 20. Photo of box 8, white light, depth interval 54.04 – 60.65 m MD

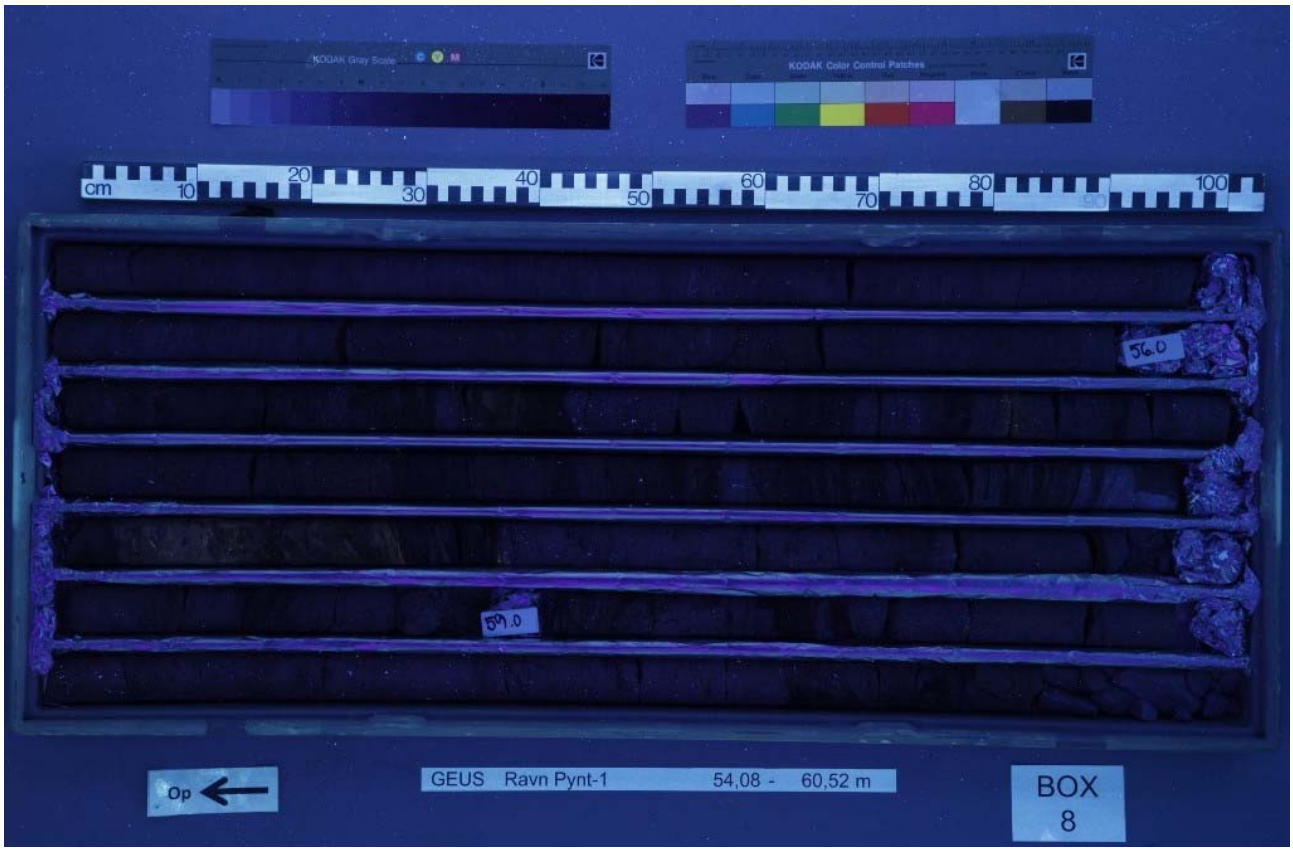


Figure 21. Photo of box 8, UV light, depth interval 54.04 – 60.65 m MD

Figure 22. Photo of box 9, white light, depth interval 60.65 – 67.44 m MD

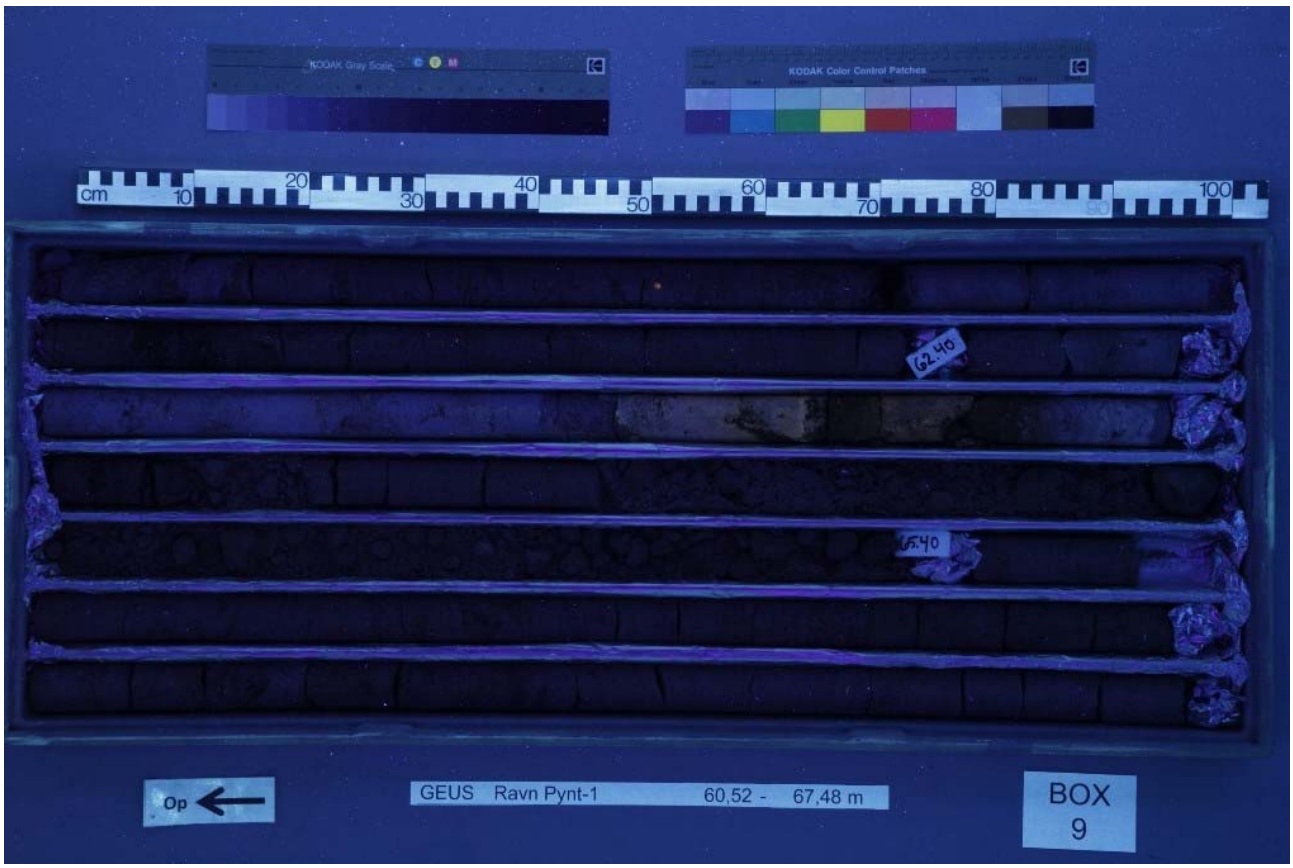


Figure 23. Photo of box 9, UV light, depth interval 60.65 – 67.44 m MD

Figure 24. Photo of box 10, white light, depth interval 67.44 – 74.19 m MD

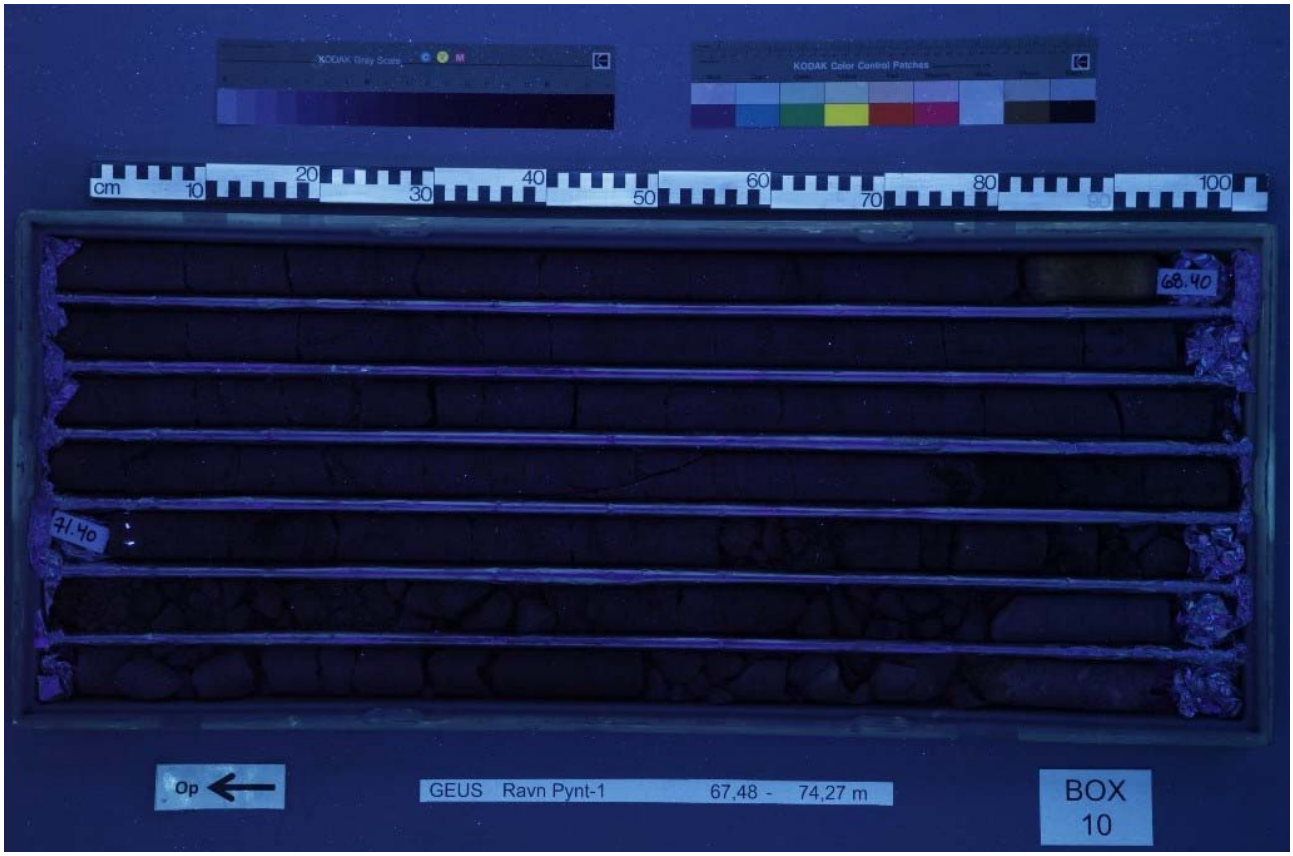


Figure 25. Photo of box 10, UV light, depth interval 67.44 – 74.19 m MD

Figure 26. Photo of box 11, white light, depth interval 74.19 – 81.75 m MD

Figure 27. Photo of box 11, UV light, depth interval 74.19 – 81.75 m MD

Figure 28. Photo of box 12, white light, depth interval 81.75 – 88.41 m MD

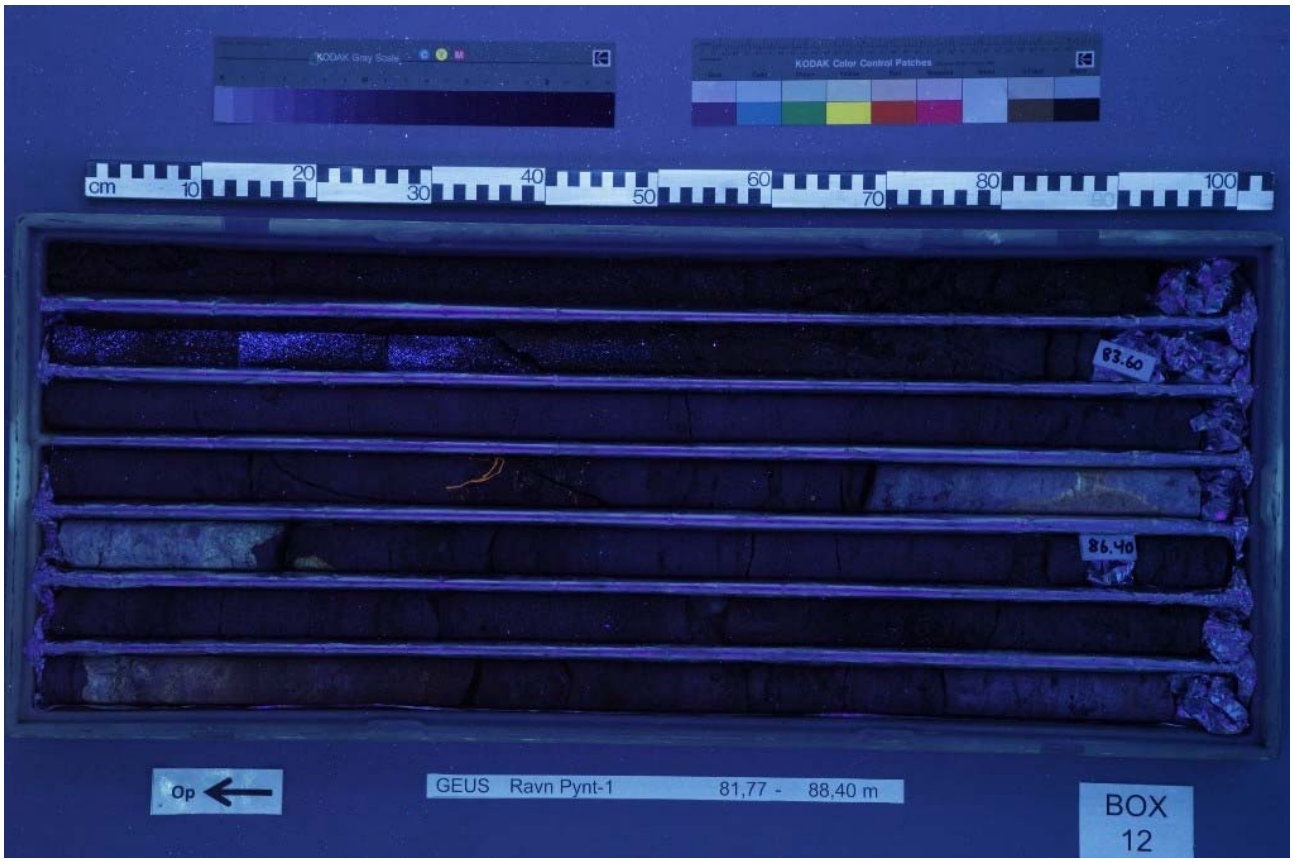


Figure 29. Photo of box 12, UV light, depth interval 81.75 – 88.41 m MD

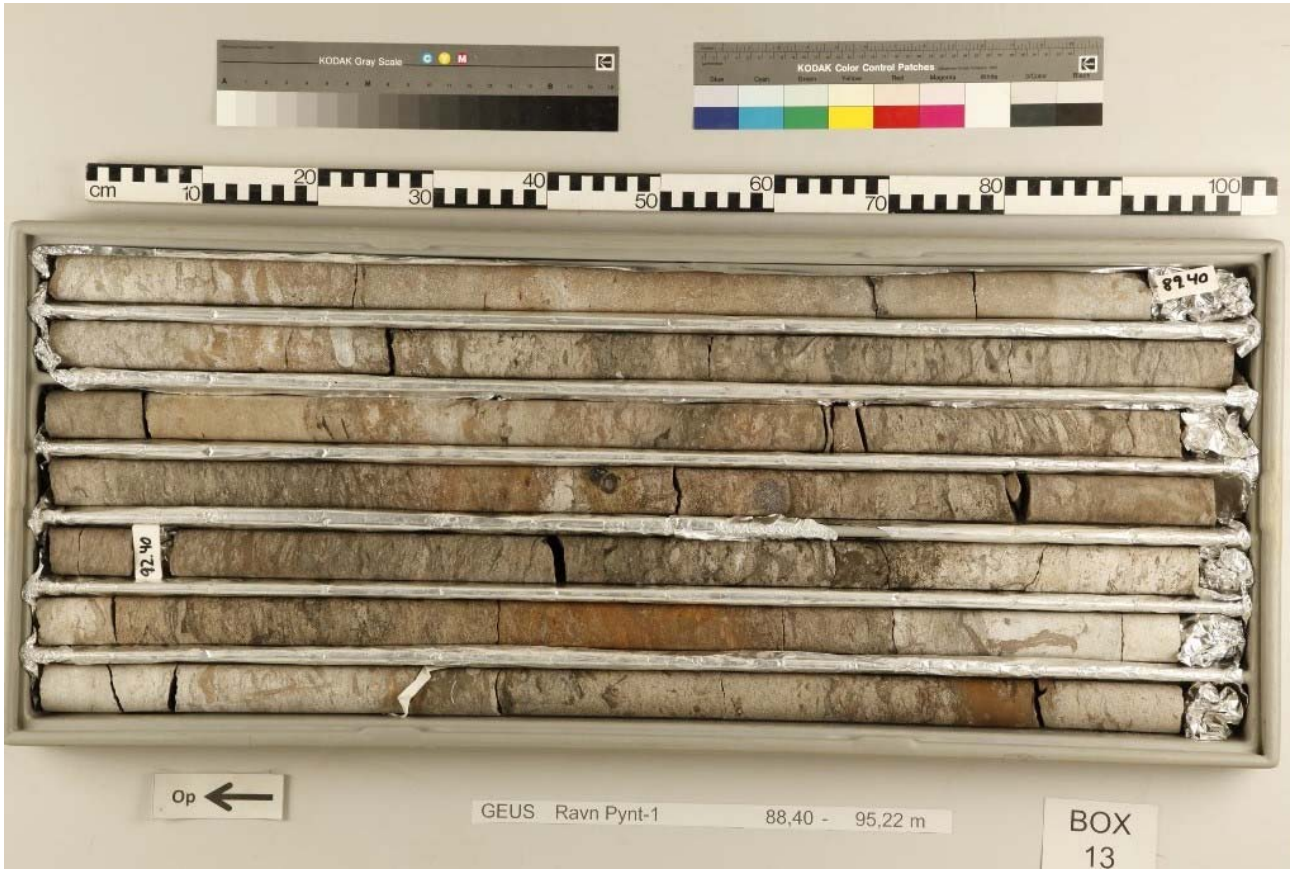


Figure 30. Photo of box 13, white light, depth interval 88.41 – 95.23 m MD

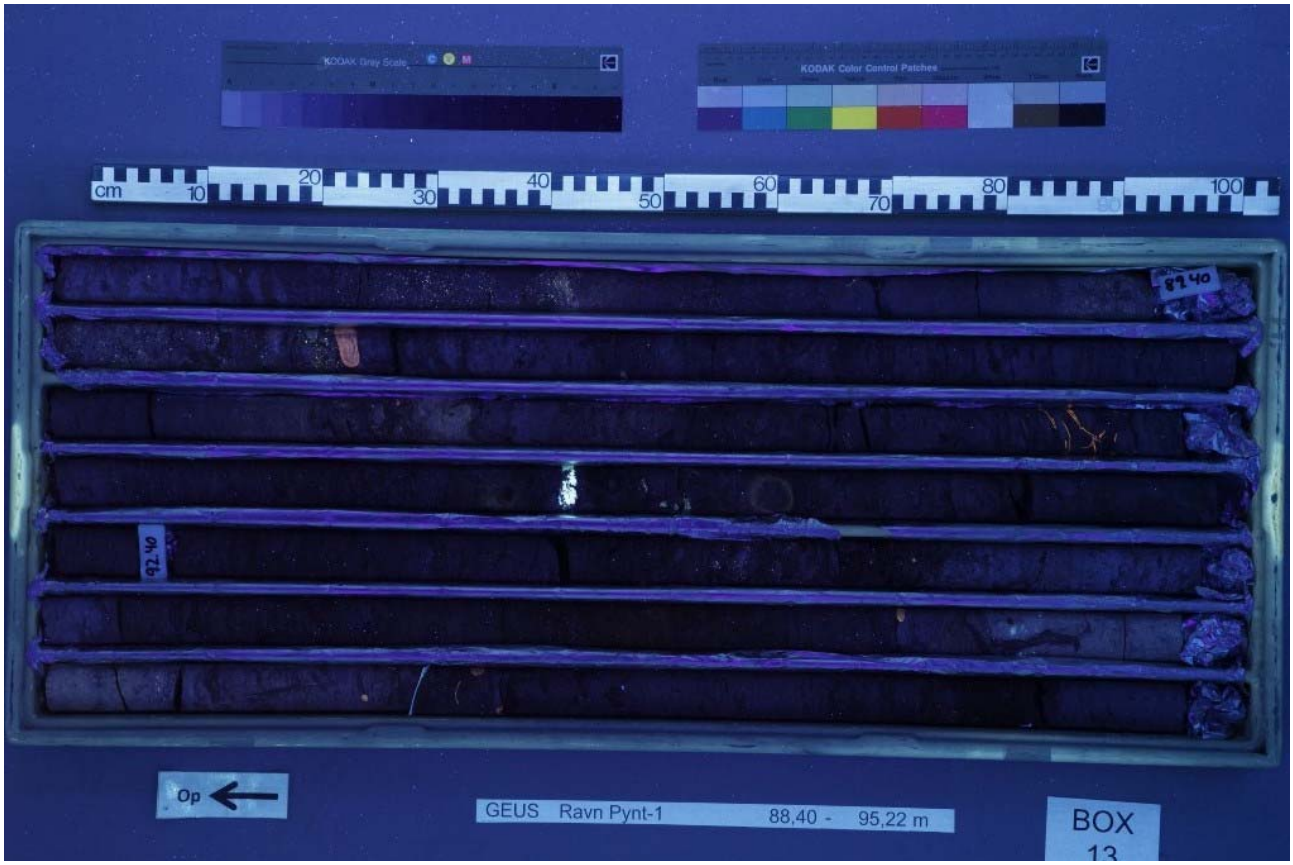


Figure 31. Photo of box 13, UV light, depth interval 88.41 –95.23 m MD

Figure 32. Photo of box 14, white light, depth interval 95.23 – 101.99 m MD

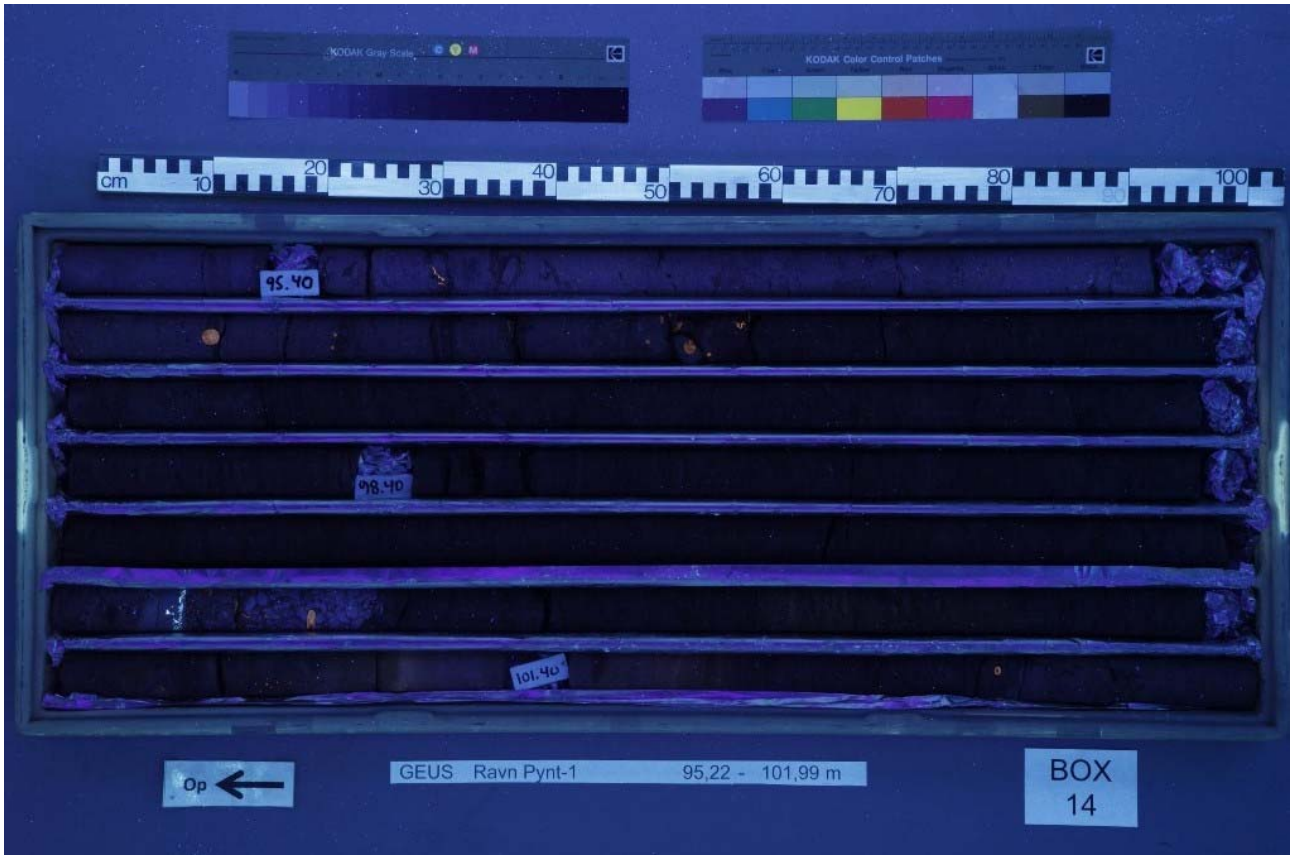


Figure 33. Photo of box 14, UV light, depth interval 95.23 – 101.99 m MD

Figure 34. Photo of box 15, white light, depth interval 101.99 – 108.80 m MD

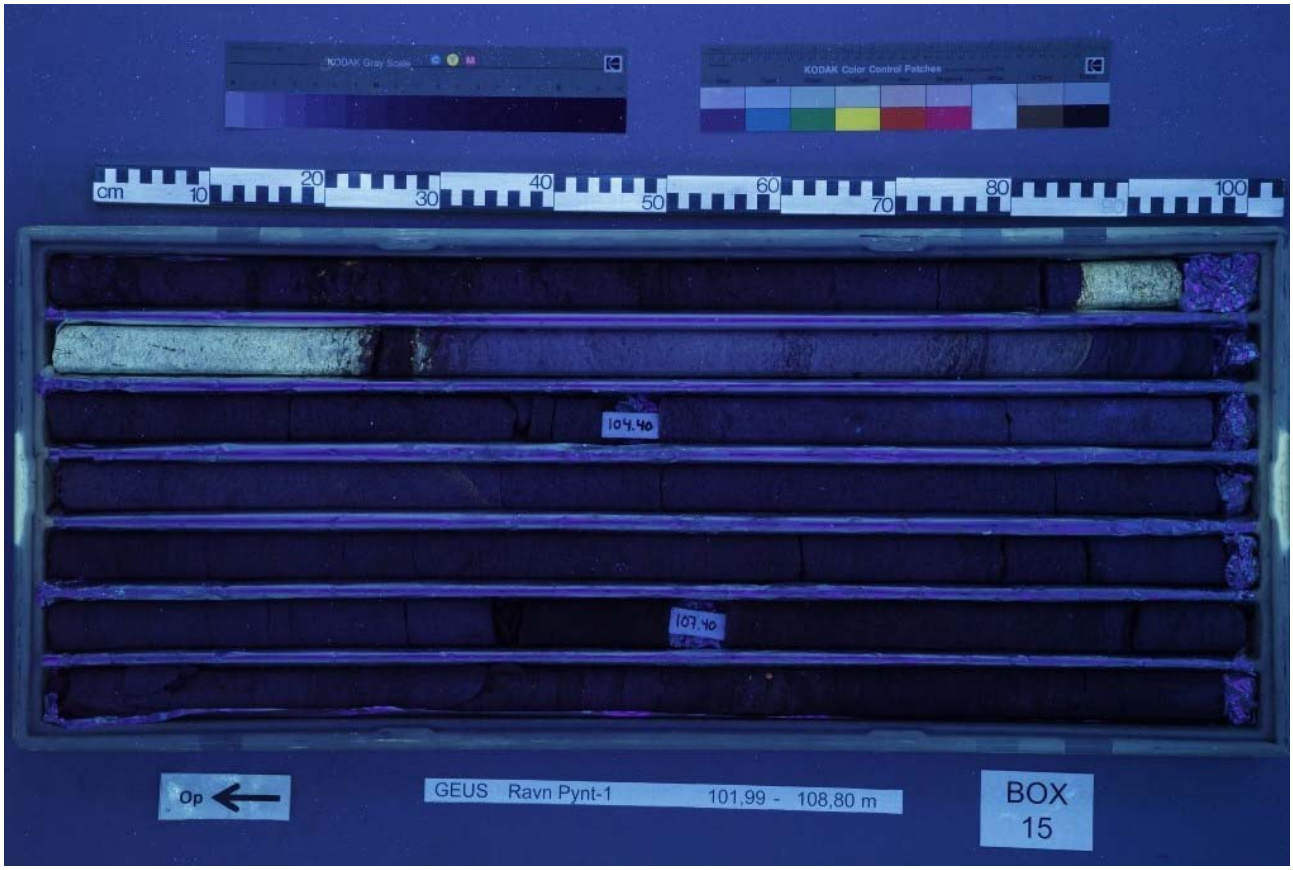


Figure 35. Photo of box 15, UV light, depth interval 101.99 – 108.80 m MD

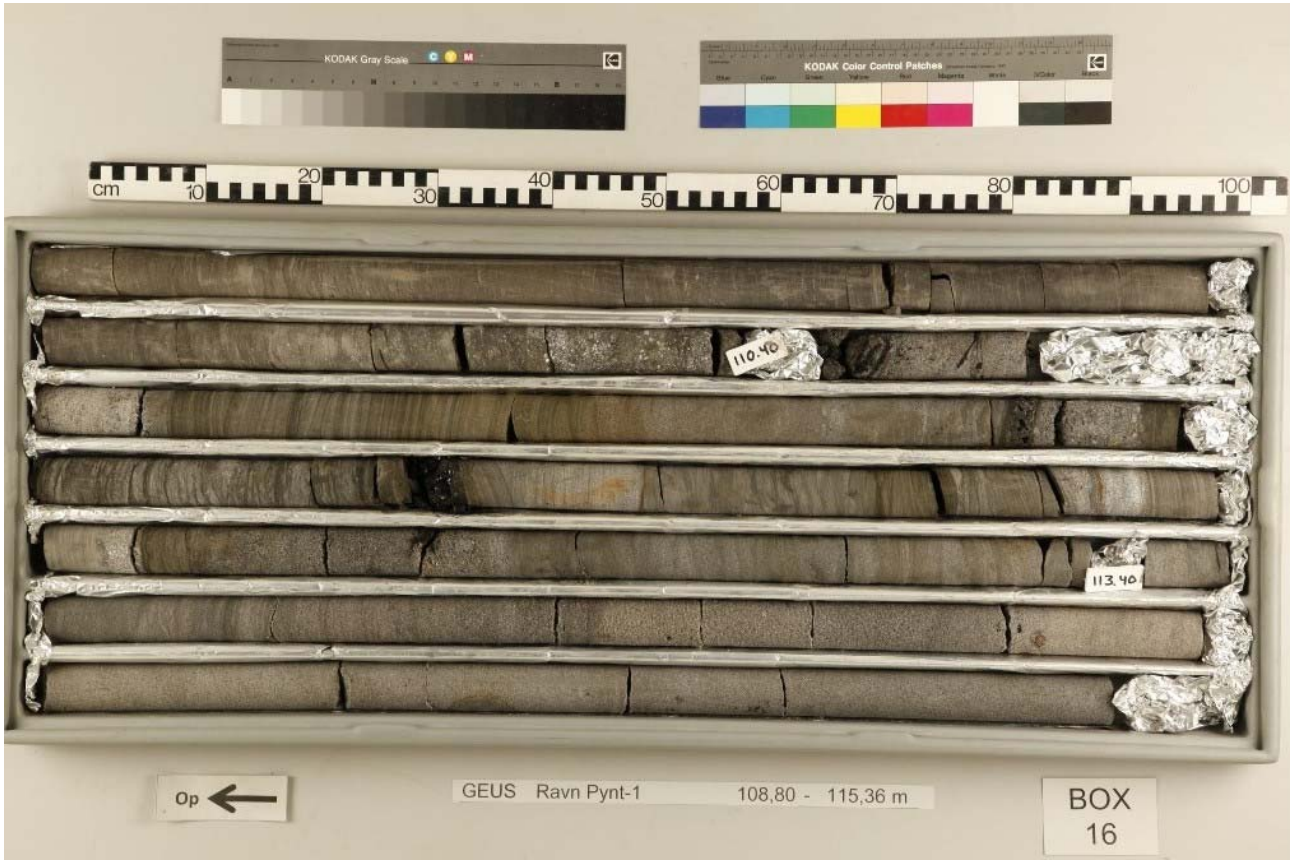


Figure 36. Photo of box 16, white light, depth interval 108.80 – 115.40 m MD

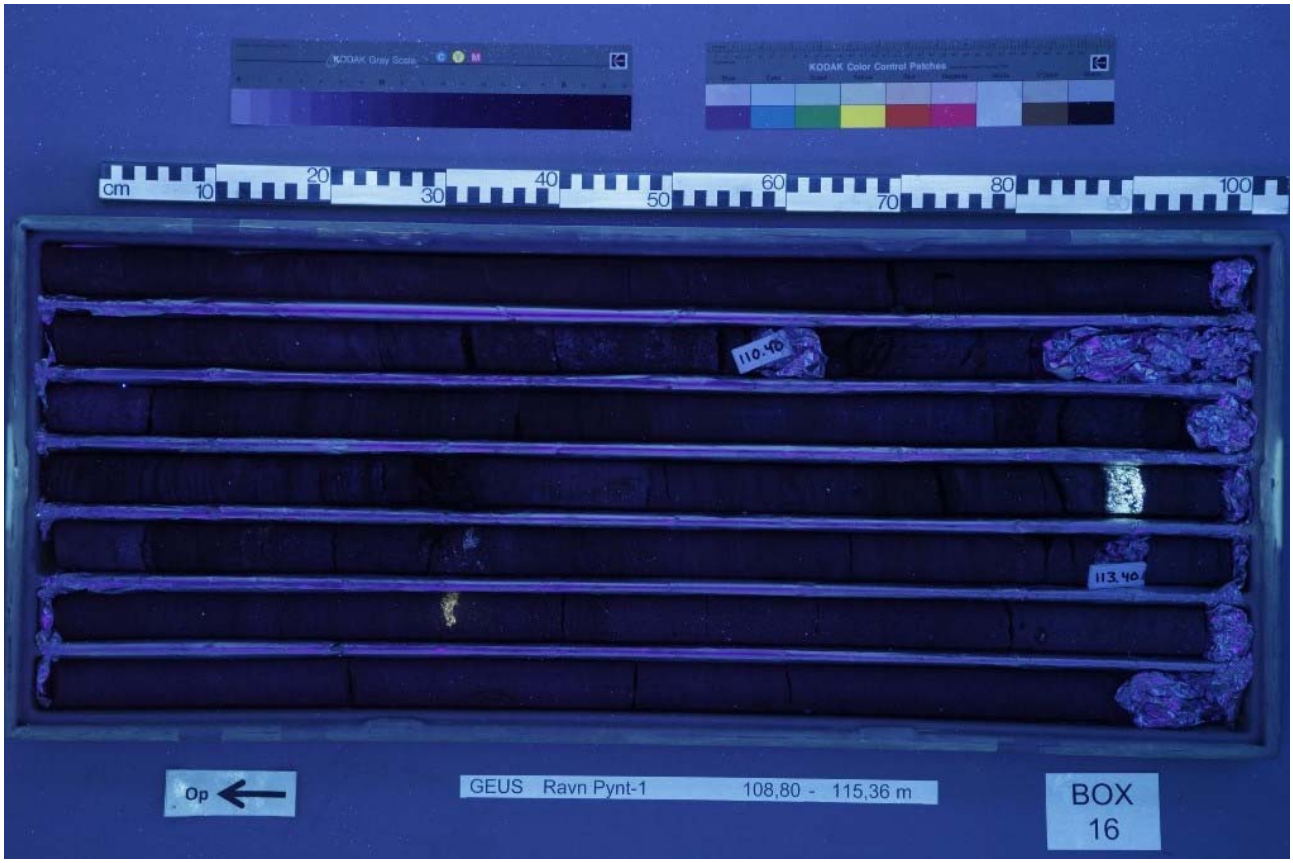


Figure 37. Photo of box 16, UV light, depth interval 108.80 – 115.40 m MD

Figure 38. Photo of box 17, white light, depth interval 115.40 – 116.40 m MD

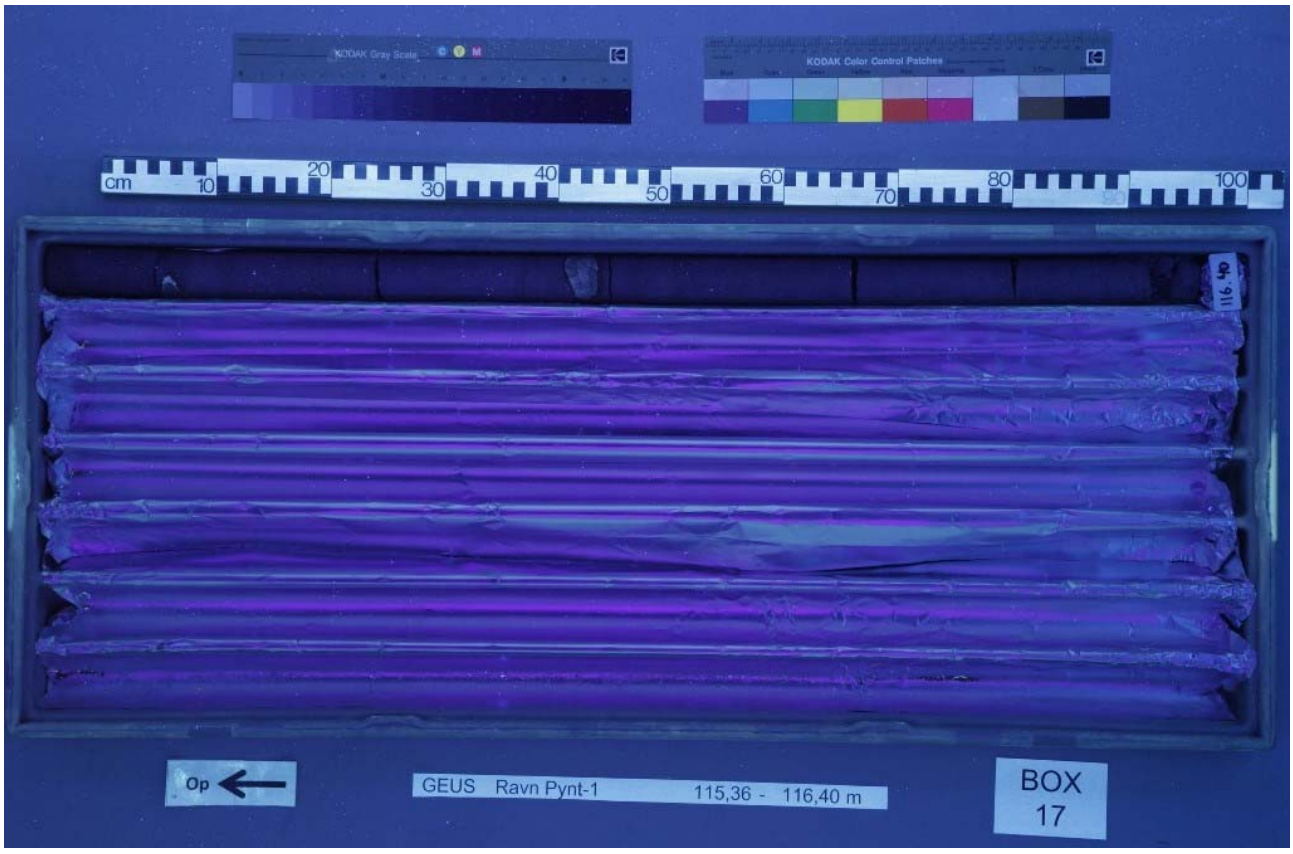


Figure 39. Photo of box 17, UV light, depth interval 115.40 – 116.40 m MD

5.4 XRF elemental analysis data

XRF results below lower limit of detection are indicated with "<LOD".

The table below summarizes the number of samples where the analysed elements were detected and the mean statistical error of the detection at 2σ level (95% confidence). In addition, the table gives the mean crustal abundance of the elements according to a Wikipedia.org reference to Jefferson Lab (retrieved May 1st, 2018). Finally, the table gives a qualitative description of correlations between the various elements.

Table 12. Summary of XRF analyses from the Ravn Pynt-1 well.

Element	Detected nos.samples	Mean error from counting statistics (ppm)	Mean crustal abundance (ppm), Ref: Jefferson Lab (Wikipedia.org)	Comment
Zr	425	6.2	165	Corr. with Ti, Th
Sr	425	3.2	370	Corr. with Ca, Ba
Rb	425	1.7	90	Good corr. with K
Th	268	3.5	9.6	Corr. with Zr, Ti
Pb	151	5.8	14	Weak corr. with S
As	112	4.8	1.8	
Zn	324	9.2	70	
Cu	156	16.2	60	
Ni	305	21.6	84	Weak corr. with Fe, Mg
Co	11	119.9	25	Few analyses, good corr. with S
Fe	425	283.1	56300	Good corr. with Mn, poor corr. S, Ti
Mn	383	56.6	950	Good corr. with Fe
Cr	262	19.8	102	Corr. with V
V	375	22.3	120	Corr. with Ti, Cr
Ti	425	74.0	5600	Corr. with V, Zr, Th, Nb, Fe
Ca	425	388.8	41500	Corr. with Sr
K	425	300.5	20900	Corr. with Rb, Al
S	423	188.5	350	Corr. with Fe, Zn, Co, weak corr. Pb, Si
Ba	425	45.3	425	Corr. with Sr, poor corr. with Ca
Nb	243	2.2	20	Moderate corr. with Zr, Ti
Al	425	1127.3	82300	Corr. with K, Si
P	86	427.5	1050	Few analyses, weak corr. Ca
Si	425	1789.2	282000	Negative corr. with Ca, Mg, Al
Mg	160	2259.6	23300	Corr. with Si, weak corr. Ni, Fe

Tables 13 to 20 gives results for Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, and Mn.
Tables 21 to 28 gives results for Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, and Mg.
All concentrations are reported as ppm.

Table 13. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 1 to 60.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
1	4.67	155.5	399.6	18.7	8.4	< LOD	< LOD	22.9	24.4	38.3	< LOD	16618	365
3	5.15	150.4	162.3	6.2	< LOD	< LOD	< LOD	16.7	< LOD	41.3	< LOD	5181	576
4	7.58	63.7	137.8	15.2	< LOD	< LOD	< LOD	29.6	< LOD	59.9	< LOD	3599	434
5	7.77	53.2	46.1	19.7	< LOD	< LOD	7.2	45.5	772.0	< LOD	< LOD	4506	< LOD
6	8.09	65.7	107.3	16.9	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1393	69
7V	8.30	63.7	41.8	21.4	< LOD	< LOD	< LOD	48.3	< LOD	26.7	< LOD	11121	74
8	8.33	55.8	36.6	15.0	< LOD	< LOD	< LOD	17.2	< LOD	< LOD	< LOD	3311	< LOD
9	8.62	64.5	35.5	18.8	< LOD	< LOD	6.2	23.8	< LOD	32.2	< LOD	6638	< LOD
10	8.93	57.5	43.8	14.9	< LOD	< LOD	< LOD	10.2	< LOD	< LOD	< LOD	2903	77
11V	9.10	62.1	49.0	20.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1520	< LOD
12	9.15	73.8	68.8	23.8	5.6	< LOD	10.8	47.1	< LOD	39.3	< LOD	17877	90
13	9.42	67.4	42.7	18.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3582	< LOD
15V	9.94	73.4	48.3	15.8	< LOD	< LOD	6.9	< LOD	< LOD	< LOD	< LOD	13226	< LOD
16	10.11	52.3	41.0	17.5	< LOD	< LOD	< LOD	< LOD	< LOD	32.7	< LOD	6418	< LOD
18	10.71	71.4	47.5	19.0	< LOD	< LOD	< LOD	< LOD	< LOD	24.1	< LOD	3140	< LOD
19V	10.89	57.8	53.3	19.3	< LOD	< LOD	< LOD	< LOD	< LOD	32.9	< LOD	2555	< LOD
20	11.09	52.3	52.9	22.5	< LOD	11.8	< LOD	< LOD	< LOD	< LOD	< LOD	3152	68
21	11.37	81.9	122.6	17.6	4.5	< LOD	7.6	24.1	< LOD	65.2	< LOD	11470	502
22	11.67	70.6	49.4	23.6	5.3	< LOD	< LOD	19.7	< LOD	< LOD	< LOD	11035	72
23V	11.86	98.2	247.8	16.2	< LOD	< LOD	< LOD	13.4	< LOD	48.2	93.3	5009	414
24	12.03	249.4	65.0	36.3	8.0	12.7	21.5	71.8	< LOD	35.1	< LOD	62319	448
25	12.33	140.4	78.6	18.9	5.0	< LOD	< LOD	26.5	41.5	< LOD	< LOD	3980	< LOD
26	12.63	77.5	53.9	25.5	< LOD	< LOD	< LOD	114.1	20.9	28.4	< LOD	5097	98
27V	12.79	229.0	43.8	21.0	< LOD	< LOD	< LOD	9.8	< LOD	< LOD	< LOD	2269	90
28	13.24	121.0	39.1	22.2	< LOD	< LOD	< LOD	< LOD	23.1	< LOD	< LOD	2711	60
29	13.54	106.8	36.2	18.1	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2586	< LOD
30	13.87	71.8	42.5	23.2	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2660	< LOD
31V	14.02	102.0	61.2	30.9	9.8	13.7	6.7	57.3	< LOD	59.7	< LOD	20036	101
32	14.19	91.4	43.8	24.3	5.0	< LOD	< LOD	28.5	41.0	< LOD	< LOD	5786	< LOD
33	14.51	63.8	37.6	19.4	< LOD	< LOD	< LOD	23.2	< LOD	< LOD	< LOD	5665	67
34	14.78	113.5	38.5	17.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1819	< LOD
35V	14.95	58.5	27.6	12.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3537	179
36	15.10	117.3	231.3	15.5	< LOD	< LOD	< LOD	< LOD	< LOD	49.1	< LOD	6143	455
37	15.43	125.6	47.6	26.4	6.5	< LOD	5.9	50.6	21.0	33.5	< LOD	27103	214
38	15.62	70.3	278.3	16.6	< LOD	< LOD	9.4	< LOD	33.3	71.7	< LOD	70669	1204
39V	15.81	113.1	308.1	24.4	5.7	< LOD	< LOD	< LOD	< LOD	70.0	< LOD	63881	938
40	16.03	268.7	380.4	18.9	4.9	13.6	< LOD	25.0	< LOD	46.1	< LOD	13701	317
41	16.32	157.3	123.7	29.5	< LOD	14.4	< LOD	35.3	26.8	41.2	< LOD	10288	337
42	16.62	142.2	60.1	20.7	6.9	< LOD	< LOD	28.1	< LOD	49.8	< LOD	5639	295
43V	16.83	115.3	50.0	28.4	7.1	< LOD	8.3	53.1	20.2	32.8	< LOD	15928	162
44	16.98	242.7	63.2	29.5	7.2	< LOD	7.6	36.6	< LOD	41.7	< LOD	13215	105
45	17.28	238.7	60.0	37.3	6.1	16.6	< LOD	67.7	< LOD	39.7	< LOD	17319	152
47V	17.81	383.0	57.8	34.4	5.8	< LOD	< LOD	46.8	28.1	51.5	< LOD	18870	182
48	17.93	399.5	57.0	34.7	10.3	< LOD	< LOD	33.9	< LOD	< LOD	< LOD	13971	134
49	18.27	406.4	65.0	42.7	9.6	15.8	< LOD	61.1	29.7	58.0	< LOD	23225	176
50	18.56	474.5	65.6	41.8	12.9	15.2	< LOD	64.2	29.3	53.7	< LOD	22178	214
51V	18.76	672.6	58.8	38.1	8.4	< LOD	< LOD	55.9	23.7	27.3	< LOD	19122	220
52	19.01	324.7	83.9	55.7	11.7	16.9	< LOD	85.0	26.5	86.9	< LOD	50433	267
53	19.31	246.7	78.0	55.5	13.9	24.7	< LOD	77.1	40.4	71.3	< LOD	68255	431
54	19.61	163.0	208.2	22.1	7.1	< LOD	< LOD	45.5	29.1	60.8	< LOD	25671	669
55V	19.82	122.6	202.3	23.5	5.4	< LOD	< LOD	41.8	< LOD	89.5	< LOD	26196	773
56	19.89	280.8	74.9	51.6	19.4	14.1	< LOD	83.7	37.7	65.0	< LOD	62030	398
57	20.20	314.2	67.8	43.0	5.7	11.9	< LOD	66.9	22.8	63.6	< LOD	40008	305
58	20.50	256.8	67.1	47.4	12.3	< LOD	6.0	72.0	< LOD	59.9	< LOD	36021	273
59V	20.73	321.6	61.6	51.1	9.9	12.7	< LOD	86.4	25.4	45.0	< LOD	34169	322
60	20.85	302.0	59.6	49.2	9.8	16.5	< LOD	63.8	38.1	63.2	< LOD	38120	263

Table 14. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 61 to 116.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
61	21.12	536.6	40.6	36.1	6.2	12.3	< LOD	53.4	< LOD	43.4	< LOD	19739	186
62	21.42	318.1	65.0	44.2	7.3	15.3	5.5	66.8	18.5	60.2	< LOD	27523	256
63V	21.66	322.1	62.9	48.8	10.2	< LOD	< LOD	73.2	22.1	49.5	< LOD	29033	200
64	21.81	336.1	61.0	48.6	8.0	12.6	6.6	234.0	19.4	54.5	< LOD	28553	180
65	22.12	289.9	63.4	49.9	8.1	< LOD	7.7	69.7	26.9	53.1	< LOD	33329	261
66	22.42	321.8	60.7	47.5	9.2	13.9	< LOD	65.3	< LOD	62.1	< LOD	30509	270
67V	22.60	240.1	59.7	49.2	13.7	12.8	< LOD	66.7	< LOD	60.0	< LOD	34959	225
68	22.80	244.9	68.6	49.6	6.4	16.6	< LOD	64.3	19.0	64.4	< LOD	33027	251
69	23.09	260.7	155.4	34.2	6.4	< LOD	5.1	40.9	25.5	63.7	< LOD	24151	492
70	23.40	246.3	67.3	43.2	5.9	14.5	< LOD	47.0	< LOD	50.1	< LOD	28329	347
71V	23.60	271.1	38.8	35.1	15.8	18.0	11.8	48.8	31.3	< LOD	< LOD	124421	147
72	23.80	282.7	61.1	49.8	13.1	14.4	< LOD	61.7	< LOD	47.9	< LOD	37281	248
73	24.10	314.7	60.1	48.8	7.3	14.2	< LOD	61.5	28.1	76.6	< LOD	38495	201
74	24.37	231.5	63.1	51.3	12.8	20.0	< LOD	63.2	40.6	49.1	< LOD	75320	280
75V	24.64	273.9	60.8	52.6	9.4	15.5	< LOD	66.3	33.3	51.5	< LOD	42142	327
76	24.83	284.2	63.6	54.1	13.2	14.5	< LOD	66.9	28.7	47.6	< LOD	34701	263
77	25.14	257.6	65.3	54.8	11.0	11.2	< LOD	75.3	25.4	60.4	< LOD	38986	284
78	25.42	352.1	66.5	55.0	10.1	14.9	< LOD	105.1	< LOD	65.1	< LOD	35490	317
79V	25.66	134.2	59.0	48.8	6.9	< LOD	< LOD	57.5	< LOD	58.7	< LOD	29657	230
80	25.73	293.4	65.3	56.5	8.3	13.0	6.6	73.8	19.1	63.0	< LOD	35964	282
81	26.06	158.0	61.3	58.1	10.1	10.0	< LOD	95.0	20.1	58.8	< LOD	43513	328
82	26.36	248.5	62.2	58.2	11.3	15.6	7.5	70.8	39.6	69.8	< LOD	40407	252
83V	26.56	256.3	64.5	54.9	18.9	20.6	6.1	82.1	< LOD	55.3	< LOD	35311	179
84	26.72	281.1	61.9	46.4	8.1	< LOD	< LOD	3055.7	23.0	59.8	< LOD	31215	229
85	27.02	302.0	60.7	47.7	9.6	14.1	7.2	71.6	24.6	62.1	< LOD	32804	256
86	27.32	280.6	61.3	50.0	9.4	19.7	< LOD	53.7	33.9	44.0	< LOD	41991	312
87V	27.54	623.6	56.0	40.7	8.5	17.8	< LOD	49.2	32.0	56.4	< LOD	31111	237
88	27.73	244.6	71.6	48.8	10.1	19.1	< LOD	61.4	24.9	51.8	< LOD	41069	292
89	28.03	276.7	66.5	48.0	11.3	15.3	< LOD	65.0	26.2	69.5	< LOD	38552	353
90	28.33	305.5	62.4	49.2	10.5	11.7	7.8	56.3	< LOD	60.8	< LOD	44572	395
91V	28.55	481.2	56.2	43.1	7.0	12.9	< LOD	50.8	22.1	68.8	< LOD	30764	213
92	28.72	381.8	62.0	44.2	13.0	< LOD	7.4	65.9	21.6	67.9	< LOD	35150	295
93	29.02	392.5	64.0	40.1	10.9	16.8	8.8	71.6	22.4	55.9	< LOD	43028	188
94	29.32	580.9	57.0	38.8	11.8	16.4	< LOD	73.5	29.4	48.0	< LOD	33130	171
95V	29.54	426.7	51.1	35.4	< LOD	16.7	6.4	64.7	< LOD	78.8	< LOD	64255	518
96	29.70	398.2	50.9	32.1	6.9	20.0	15.4	40.6	< LOD	39.5	< LOD	48821	208
97	30.00	185.1	52.1	28.7	9.2	17.5	13.4	109.6	21.5	59.2	< LOD	31257	162
98	30.31	189.1	224.1	27.4	9.4	11.4	8.6	105.7	20.6	29.5	< LOD	33398	244
99V	30.53	336.1	61.4	33.0	8.3	9.6	< LOD	100.0	< LOD	55.4	< LOD	35019	252
100	30.73	150.3	167.9	25.4	23.4	< LOD	7.3	72.3	< LOD	43.1	< LOD	22061	188
101	31.03	288.9	133.5	28.5	6.8	16.3	11.0	90.7	< LOD	32.1	< LOD	21876	194
102	31.33	243.1	132.2	19.3	5.0	< LOD	< LOD	42.8	53.7	41.2	< LOD	10321	234
103V	31.55	239.4	66.4	24.0	6.0	< LOD	< LOD	40.9	25.8	44.0	< LOD	13799	235
104	31.73	223.4	1064.6	25.7	8.0	< LOD	10.3	95.4	< LOD	51.5	< LOD	15980	264
105	32.03	109.7	1191.2	22.9	6.9	< LOD	5.9	81.3	< LOD	55.8	< LOD	19872	314
106	32.33	148.8	44.9	23.7	< LOD	< LOD	17.8	72.0	< LOD	84.8	< LOD	233542	2475
107V	32.55	247.4	62.1	40.1	14.1	14.1	10.3	93.7	< LOD	46.8	< LOD	39658	312
108	32.66	182.3	65.4	39.1	14.5	< LOD	10.4	136.2	< LOD	61.5	< LOD	36686	376
109	32.96	124.3	267.9	17.9	10.4	< LOD	27.9	152.8	26.7	55.7	< LOD	30220	526
110	33.26	178.2	240.7	10.3	8.5	< LOD	< LOD	58.9	< LOD	< LOD	< LOD	130694	1577
111V	33.51	319.0	56.7	30.7	10.4	24.5	11.1	195.4	54.2	140.8	< LOD	77458	826
112	33.66	194.0	46.7	31.8	< LOD	32.7	40.8	74.0	< LOD	98.8	< LOD	91090	783
113	33.92	274.4	46.8	21.0	8.0	< LOD	< LOD	54.0	< LOD	39.4	< LOD	45001	434
114	34.25	183.7	41.7	26.4	7.5	< LOD	6.6	65.8	24.5	45.7	< LOD	22694	175
115V	34.45	224.6	39.2	25.3	5.4	< LOD	< LOD	63.8	< LOD	58.9	< LOD	22154	230
116	34.65	379.2	45.8	27.4	9.8	< LOD	< LOD	168.1	30.6	56.9	< LOD	20279	191

Table 15. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 117 to 173.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
117	34.95	180.4	45.9	35.1	7.6	13.0	< LOD	76.3	< LOD	58.8	< LOD	22489	148
118	35.25	199.3	44.1	26.7	4.6	14.9	< LOD	29.3	< LOD	59.5	< LOD	22269	191
119V	35.45	150.8	32.0	22.8	< LOD	< LOD	< LOD	32.9	< LOD	70.9	< LOD	143553	1518
120	35.57	336.0	55.4	22.7	8.3	11.7	12.1	35.9	< LOD	< LOD	< LOD	138150	1293
121	35.88	216.0	123.7	14.7	5.6	< LOD	< LOD	15.9	20.8	50.2	< LOD	5124	332
122	36.19	202.6	32.1	27.2	4.4	< LOD	< LOD	30.8	20.0	49.4	< LOD	16655	129
123V	36.42	237.0	41.4	23.5	6.9	< LOD	5.8	20.5	< LOD	41.3	< LOD	12339	162
124	36.59	292.5	46.2	26.3	5.9	9.3	6.9	28.4	< LOD	41.0	< LOD	14104	108
125	36.89	203.2	49.6	32.6	4.6	< LOD	< LOD	40.5	< LOD	44.2	< LOD	19572	145
126	37.19	209.2	48.1	35.3	6.7	12.6	< LOD	55.3	22.3	37.9	< LOD	23375	170
127V	37.40	276.6	63.2	41.9	11.0	< LOD	8.6	65.1	< LOD	75.0	< LOD	27045	220
128	37.61	115.4	37.2	21.5	< LOD	< LOD	7.4	40.7	< LOD	< LOD	< LOD	20689	211
129	37.95	196.5	48.6	23.9	7.3	< LOD	8.2	17.9	< LOD	39.0	< LOD	30961	295
130	38.22	198.6	37.7	23.9	9.2	14.9	< LOD	86.2	< LOD	44.3	< LOD	15927	121
131V	38.43	107.9	51.2	24.4	< LOD	< LOD	6.6	42.1	< LOD	27.4	< LOD	40020	351
132	38.54	185.7	45.2	21.0	< LOD	< LOD	< LOD	< LOD	< LOD	57.7	< LOD	49628	457
133	38.87	128.1	42.6	23.7	< LOD	13.4	< LOD	20.6	< LOD	35.5	< LOD	29122	377
134	39.16	109.0	35.9	19.9	8.0	< LOD	< LOD	34.7	< LOD	33.0	< LOD	18114	129
136	39.63	121.8	38.0	21.1	< LOD	< LOD	< LOD	22.4	< LOD	< LOD	< LOD	4190	75
137	39.88	82.3	48.6	22.7	< LOD	< LOD	< LOD	12.8	24.5	43.7	< LOD	13165	107
138	40.17	117.6	27.7	22.8	< LOD	< LOD	< LOD	27.4	< LOD	30.8	< LOD	16648	68
139V	40.39	159.5	43.6	21.7	< LOD	< LOD	< LOD	9.5	< LOD	33.5	< LOD	2569	81
140	40.60	113.7	44.1	26.3	< LOD	< LOD	< LOD	29.3	< LOD	26.7	< LOD	12187	121
141	40.89	57.8	37.1	17.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2656	< LOD
142	41.18	95.0	35.0	19.6	< LOD	< LOD	< LOD	< LOD	78.8	< LOD	< LOD	1924	67
143V	41.41	65.4	32.2	22.3	< LOD	17.1	114.3	23.5	31.9	124.0	< LOD	117139	< LOD
144	41.61	131.7	42.4	27.4	6.1	< LOD	< LOD	19.7	< LOD	40.8	< LOD	13932	134
145	41.91	88.3	63.3	24.1	4.4	< LOD	< LOD	34.5	< LOD	53.7	< LOD	11066	248
146	42.21	240.1	61.6	29.9	4.6	15.6	< LOD	29.6	32.5	38.7	< LOD	22460	191
147V	42.41	176.4	87.9	19.4	< LOD	12.3	< LOD	12.3	17.7	26.8	< LOD	17858	247
148	42.43	112.7	128.6	12.8	4.6	< LOD	< LOD	18.0	< LOD	57.0	113.0	13600	440
149	42.73	84.4	159.3	15.5	4.3	< LOD	< LOD	19.7	< LOD	47.9	120.3	16510	477
150	43.01	277.4	55.7	37.5	11.3	11.1	7.6	48.8	26.6	58.9	< LOD	53301	487
151V	43.23	128.9	61.8	18.5	< LOD	< LOD	< LOD	22.0	< LOD	44.8	< LOD	5313	257
152	43.45	37.7	56.2	12.2	4.7	< LOD	< LOD	10.9	22.5	45.5	62.3	2484	340
153	43.76	175.2	39.0	22.9	< LOD	< LOD	< LOD	30.8	17.1	33.5	< LOD	10161	92
154	44.05	393.5	34.4	18.1	< LOD	< LOD	< LOD	13.2	19.7	< LOD	< LOD	4113	80
155V	44.29	214.2	31.5	21.5	6.5	< LOD	< LOD	29.1	18.2	< LOD	< LOD	12773	80
156	44.49	280.1	51.4	23.2	5.1	< LOD	< LOD	27.9	< LOD	56.7	< LOD	15617	75
157	44.78	221.2	34.6	20.7	4.3	< LOD	< LOD	23.3	< LOD	< LOD	< LOD	5738	121
158	45.09	93.9	39.1	17.2	< LOD	< LOD	< LOD	21.9	21.4	47.7	< LOD	5514	198
159V	45.27	163.5	23.5	20.2	< LOD	33.2	34.0	< LOD	46.6	69.4	< LOD	89677	151
160	45.42	423.7	26.0	21.5	8.3	< LOD	< LOD	22.1	< LOD	36.5	< LOD	6680	136
161	45.72	382.8	30.5	32.5	8.3	18.7	< LOD	71.3	23.4	35.5	< LOD	16750	109
162	46.02	239.4	35.9	22.0	6.7	< LOD	< LOD	44.8	< LOD	< LOD	< LOD	4988	92
163V	46.21	144.6	39.8	19.9	4.9	< LOD	< LOD	12.6	< LOD	24.4	< LOD	10779	117
164	46.40	221.8	92.8	18.9	< LOD	< LOD	13.3	32.8	< LOD	< LOD	< LOD	156948	1593
165	46.70	184.9	176.2	12.0	< LOD	< LOD	4.7	< LOD	21.4	45.6	< LOD	13824	346
166	46.97	236.2	99.5	12.5	8.9	9.1	< LOD	< LOD	25.4	46.2	< LOD	45809	696
167V	47.20	569.8	45.6	29.3	11.4	18.5	< LOD	33.1	19.2	34.2	< LOD	17503	184
168	47.39	407.8	44.4	28.6	8.9	< LOD	< LOD	36.8	< LOD	54.4	< LOD	13845	162
169	47.75	174.9	39.0	20.3	< LOD	< LOD	< LOD	< LOD	< LOD	26.7	< LOD	2126	88
170	47.99	151.2	43.8	9.8	4.7	< LOD	< LOD	< LOD	< LOD	39.0	< LOD	2368	221
171V	48.18	205.2	37.9	33.4	8.2	14.3	6.2	36.4	41.1	29.3	< LOD	13002	108
172	48.29	107.3	37.1	20.6	< LOD	< LOD	< LOD	12.2	< LOD	< LOD	< LOD	2236	< LOD
173	48.54	764.4	39.7	15.9	6.2	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1877	121

Table 16. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 176 to 233.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
176	49.27	261.7	29.4	21.0	5.5	< LOD	< LOD	11.6	< LOD	37.7	< LOD	2893	112
177	49.56	125.4	46.3	29.4	6.7	< LOD	6.1	51.2	19.0	26.9	< LOD	10941	135
178	49.86	156.6	45.7	28.2	6.6	13.3	< LOD	32.0	< LOD	33.0	< LOD	4325	89
179V	50.07	126.4	40.5	27.2	< LOD	17.2	11.3	17.4	< LOD	28.7	< LOD	6492	129
180	50.25	291.5	30.6	16.8	6.3	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1941	< LOD
181	50.55	98.2	32.2	24.5	5.9	< LOD	7.0	40.1	< LOD	30.2	< LOD	3649	63
182	50.85	77.9	31.5	25.5	< LOD	< LOD	< LOD	19.6	< LOD	29.9	< LOD	3652	63
183V	51.08	253.7	38.4	18.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1524	< LOD
184	51.19	168.4	35.5	20.3	4.7	< LOD	< LOD	20.1	22.2	37.8	< LOD	3941	108
185	51.49	61.9	28.2	15.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2031	< LOD
186	51.81	280.9	30.5	18.0	6.1	< LOD	< LOD	17.7	< LOD	26.5	< LOD	4098	85
187V	52.01	290.2	32.6	18.0	4.7	< LOD	< LOD	< LOD	17.4	< LOD	< LOD	2455	96
188	52.19	257.0	38.9	19.8	6.7	< LOD	< LOD	9.3	< LOD	< LOD	< LOD	3024	72
189	52.43	327.0	43.4	22.0	10.2	13.9	< LOD	16.6	< LOD	33.2	< LOD	5707	100
190	52.79	214.1	68.4	13.7	6.2	< LOD	< LOD	12.5	< LOD	49.6	< LOD	3603	250
191V	53.04	248.5	57.5	16.7	< LOD	< LOD	< LOD	21.4	< LOD	43.9	< LOD	4872	208
192	53.14	308.5	52.4	19.9	5.0	18.8	< LOD	25.0	< LOD	69.6	< LOD	17820	224
193	53.44	318.1	48.2	44.8	5.5	22.0	9.3	36.4	30.4	42.0	< LOD	36693	176
194	53.75	278.5	72.8	27.0	< LOD	< LOD	< LOD	33.9	< LOD	< LOD	< LOD	134847	1651
195V	53.94	207.4	57.1	28.9	< LOD	11.9	< LOD	45.0	< LOD	< LOD	< LOD	158490	1528
196	54.14	402.1	54.5	43.0	7.4	15.0	< LOD	53.3	32.2	89.0	< LOD	81833	950
197	54.44	361.3	58.4	46.6	9.1	14.5	< LOD	45.7	30.2	61.9	< LOD	26816	216
198	54.71	465.6	57.0	46.9	13.2	13.8	< LOD	53.4	< LOD	56.9	< LOD	27379	217
199V	54.91	384.5	42.9	45.5	11.6	16.0	< LOD	49.5	23.7	63.4	< LOD	31817	265
200	55.12	336.2	54.5	44.8	10.5	< LOD	< LOD	43.4	19.5	35.9	< LOD	22758	181
201	55.42	422.1	58.7	44.0	12.0	20.5	< LOD	39.4	< LOD	68.6	< LOD	23010	225
202	55.72	405.5	56.4	40.7	11.3	20.0	< LOD	35.3	28.4	54.3	< LOD	28433	179
203V	55.94	389.3	41.1	29.8	6.5	< LOD	5.4	60.3	19.2	47.6	< LOD	15436	249
204	56.03	305.3	28.0	22.9	10.9	< LOD	7.3	25.5	< LOD	34.6	< LOD	13582	146
205	56.33	774.6	102.9	20.7	< LOD	13.0	< LOD	< LOD	26.4	67.8	< LOD	87618	1085
206	56.63	72.9	47.8	21.9	4.0	< LOD	< LOD	15.4	< LOD	36.1	< LOD	4612	85
207V	56.82	138.2	23.9	15.7	4.0	< LOD	< LOD	21.8	17.3	< LOD	< LOD	4553	81
208	57.02	85.2	44.1	20.6	< LOD	< LOD	< LOD	< LOD	80.4	< LOD	< LOD	2226	80
209	57.32	78.3	27.4	18.7	4.2	< LOD	< LOD	23.1	37.2	27.0	< LOD	3820	87
210	57.62	258.2	52.6	42.6	9.3	13.1	< LOD	58.0	< LOD	57.2	< LOD	26923	244
211V	57.82	106.9	101.4	19.0	< LOD	< LOD	< LOD	< LOD	< LOD	39.9	< LOD	6147	227
212	57.98	93.5	236.5	14.9	< LOD	< LOD	< LOD	13.5	< LOD	63.7	< LOD	31460	687
213	58.28	218.5	74.6	17.2	5.6	< LOD	< LOD	< LOD	24.6	49.0	< LOD	10181	366
214	58.58	275.0	40.1	24.0	4.9	< LOD	< LOD	20.6	< LOD	33.8	< LOD	2539	83
215V	58.76	110.3	43.6	23.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1778	73
216	58.92	103.2	35.9	20.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	955	< LOD
217	59.23	97.0	48.6	23.7	< LOD	< LOD	< LOD	14.2	< LOD	37.8	< LOD	3208	< LOD
219V	59.65	344.6	46.7	25.1	< LOD	< LOD	< LOD	9.6	< LOD	26.3	< LOD	2108	76
220	59.78	245.9	49.4	29.0	5.8	< LOD	< LOD	10.1	< LOD	< LOD	< LOD	2307	77
221	60.10	394.9	46.0	23.0	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1972	78
222	60.38	208.1	44.7	26.1	4.5	< LOD	< LOD	< LOD	< LOD	33.2	< LOD	5911	77
223V	60.58	151.4	41.7	23.1	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2008	105
224	60.73	161.2	46.1	29.8	< LOD	18.3	< LOD	134.9	19.4	42.7	< LOD	25278	258
225	61.03	144.2	37.9	28.7	< LOD	< LOD	< LOD	< LOD	< LOD	28.8	< LOD	5490	99
226	61.32	187.5	45.9	29.8	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	4150	96
227V	61.53	474.9	42.2	25.7	7.2	11.0	< LOD	< LOD	< LOD	29.0	< LOD	5083	113
228	61.71	175.9	38.0	21.1	6.0	< LOD	< LOD	11.5	< LOD	38.0	< LOD	4708	< LOD
230	62.36	103.9	29.1	11.4	3.7	< LOD	< LOD	< LOD	50.8	< LOD	< LOD	1576	87
231V	62.54	69.5	74.7	9.6	4.2	< LOD	< LOD	11.9	18.1	38.9	< LOD	2166	284
232	62.68	179.2	136.1	12.2	5.4	< LOD	< LOD	9.7	< LOD	45.5	< LOD	3200	320
233	62.98	35.6	90.8	9.1	< LOD	< LOD	< LOD	< LOD	< LOD	54.0	< LOD	3254	347

Table 17. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 234 to 296.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
234	63.28	274.3	191.2	15.6	7.5	12.9	< LOD	105.4	< LOD	44.7	< LOD	39362	498
235V	63.45	218.1	153.2	12.0	< LOD	< LOD	< LOD	20.7	20.2	47.6	< LOD	20012	541
236	63.61	375.7	32.1	16.8	5.4	< LOD	< LOD	13.1	< LOD	< LOD	< LOD	6270	138
237	63.95	104.3	33.7	17.8	4.4	< LOD	< LOD	22.8	31.9	38.1	< LOD	15594	218
239V	64.43	170.8	28.8	19.4	5.1	< LOD	< LOD	32.6	< LOD	36.6	< LOD	25422	270
242	65.40	137.0	31.2	20.5	< LOD	< LOD	5.8	27.5	< LOD	< LOD	< LOD	11132	88
243V	65.51	89.7	35.9	21.3	< LOD	< LOD	< LOD	11.5	< LOD	< LOD	< LOD	4015	80
244	65.60	149.5	34.5	20.7	< LOD	< LOD	< LOD	11.8	< LOD	< LOD	< LOD	4110	117
245	65.90	122.8	35.0	20.2	6.1	< LOD	< LOD	11.6	< LOD	< LOD	< LOD	4927	108
246	66.19	170.7	30.8	22.5	< LOD	< LOD	< LOD	14.1	< LOD	31.8	< LOD	6140	< LOD
247V	66.40	114.9	32.7	18.7	3.9	< LOD	< LOD	11.6	< LOD	< LOD	< LOD	3457	103
248	66.56	214.7	30.2	16.6	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1923	74
249	66.83	195.5	27.6	15.4	5.9	< LOD	< LOD	58.3	< LOD	28.1	< LOD	14485	166
250	67.16	189.5	33.2	18.2	< LOD	< LOD	< LOD	13.0	< LOD	< LOD	< LOD	4960	134
251V	67.35	107.2	35.3	14.7	< LOD	< LOD	< LOD	13.1	< LOD	26.0	< LOD	2306	137
252	67.54	321.5	47.2	18.3	< LOD	< LOD	< LOD	9.9	< LOD	36.7	< LOD	2299	63
254	68.14	68.2	37.1	20.2	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1818	< LOD
255V	68.32	398.3	447.8	15.9	< LOD	< LOD	< LOD	74.2	< LOD	36.8	< LOD	2744	205
256	68.50	191.3	38.0	16.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1793	93
257	68.80	149.6	32.5	17.5	< LOD	11.6	< LOD	10.1	< LOD	< LOD	< LOD	2232	< LOD
258	69.10	270.5	40.6	17.6	< LOD	< LOD	< LOD	< LOD	115.1	< LOD	< LOD	2909	103
259V	69.29	528.5	34.2	18.1	4.5	< LOD	4.9	< LOD	< LOD	27.6	< LOD	1953	< LOD
260	69.44	266.7	33.0	16.8	4.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2363	106
262	70.06	218.3	36.2	17.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	10059	125
264	70.50	198.7	31.8	14.7	5.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2559	80
265	70.76	158.4	29.8	15.4	< LOD	< LOD	< LOD	13.9	< LOD	< LOD	< LOD	2187	63
266	71.05	81.9	35.5	17.2	< LOD	< LOD	< LOD	< LOD	< LOD	29.8	< LOD	1875	111
267V	71.29	98.1	30.0	15.3	< LOD	< LOD	15.6	< LOD	< LOD	< LOD	< LOD	15204	98
268	71.51	99.6	30.1	15.3	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3587	72
269	71.79	185.9	33.5	16.1	< LOD	< LOD	< LOD	10.8	< LOD	< LOD	< LOD	2475	< LOD
270	72.10	353.5	32.0	16.9	5.9	< LOD	< LOD	17.0	< LOD	< LOD	< LOD	2108	107
271V	72.23	241.4	41.8	23.2	6.3	< LOD	< LOD	25.4	< LOD	< LOD	< LOD	11815	124
273	72.79	148.2	35.7	17.9	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2700	< LOD
274	72.97	124.8	35.9	20.5	< LOD	< LOD	< LOD	19.0	< LOD	< LOD	< LOD	3759	< LOD
275V	73.28	205.6	37.1	20.2	< LOD	< LOD	< LOD	16.3	< LOD	37.2	< LOD	3714	115
276	73.43	273.3	38.0	19.7	4.3	< LOD	< LOD	15.7	60.8	< LOD	< LOD	4747	77
277	73.64	328.8	31.0	23.7	4.4	11.3	< LOD	13.5	< LOD	< LOD	< LOD	6368	130
278	74.03	430.4	308.2	19.1	9.3	< LOD	< LOD	18.1	28.2	52.2	< LOD	13264	415
279V	74.21	313.1	140.6	19.8	< LOD	< LOD	< LOD	26.5	< LOD	49.0	< LOD	20040	495
280	74.29	463.0	161.2	21.6	12.2	< LOD	< LOD	28.5	< LOD	90.5	< LOD	36418	744
281	74.61	313.3	76.8	18.3	< LOD	< LOD	< LOD	31.6	< LOD	99.8	< LOD	183822	2054
282	74.89	566.6	49.2	41.6	17.8	20.3	< LOD	81.6	28.9	82.3	< LOD	27284	221
283V	75.10	168.9	34.3	20.2	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2431	108
284	75.25	72.4	34.4	21.4	< LOD	< LOD	< LOD	15.8	< LOD	25.3	< LOD	2677	66
285	75.56	218.5	33.5	18.3	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1606	85
286	75.84	119.4	35.0	18.6	< LOD	< LOD	< LOD	12.4	< LOD	< LOD	< LOD	2995	77
287V	76.08	76.1	42.9	24.3	< LOD	< LOD	< LOD	26.3	< LOD	28.2	< LOD	3165	106
288	76.24	219.5	36.5	20.6	< LOD	13.8	< LOD	< LOD	< LOD	25.7	< LOD	4678	127
289	76.53	86.4	30.8	12.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1387	68
290	76.84	130.6	32.0	14.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1346	70
291V	77.05	131.0	27.1	11.8	< LOD	< LOD	< LOD	9.2	< LOD	< LOD	< LOD	2405	< LOD
292	77.23	110.8	35.2	14.5	< LOD	< LOD	< LOD	11.6	27.9	< LOD	< LOD	2151	76
293	77.52	128.9	40.4	14.9	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2055	62
294	77.82	72.9	29.5	14.7	< LOD	< LOD	< LOD	18.3	< LOD	< LOD	< LOD	2204	< LOD
295V	78.06	88.0	28.8	16.6	5.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2169	106
296	78.18	201.5	41.4	17.2	4.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1824	< LOD

Table 18. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 297 to 360.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
297	78.47	68.5	28.4	14.2	< LOD	< LOD	< LOD	9.9	78.9	< LOD	< LOD	1459	< LOD
298	78.77	83.8	46.3	24.5	< LOD	< LOD	< LOD	17.0	< LOD	< LOD	< LOD	1484	< LOD
300	79.15	259.3	42.2	22.2	< LOD	9.4	< LOD	31.0	< LOD	34.7	< LOD	4811	94
301	79.46	124.3	53.5	26.1	< LOD	< LOD	< LOD	14.1	< LOD	< LOD	< LOD	2446	125
302	79.74	304.4	46.5	27.8	5.7	20.2	< LOD	30.2	< LOD	53.9	< LOD	19935	157
303V	79.97	871.4	52.4	28.2	< LOD	15.7	7.0	< LOD	22.5	44.5	< LOD	25772	227
304	80.15	372.3	49.2	27.2	< LOD	15.5	< LOD	28.0	< LOD	26.0	< LOD	16367	215
305	80.51	92.4	178.2	15.5	< LOD	< LOD	< LOD	< LOD	38.8	51.4	88.0	5572	321
306	80.77	65.6	186.8	13.2	< LOD	< LOD	< LOD	< LOD	< LOD	52.5	72.5	3077	271
309V	82.67	194.0	42.6	22.5	10.0	< LOD	7.0	90.9	< LOD	< LOD	< LOD	5787	82
310	82.80	176.9	32.5	20.3	< LOD	13.1	< LOD	44.7	< LOD	< LOD	< LOD	161340	1886
311	83.08	178.8	45.3	31.0	6.8	10.5	8.2	52.0	20.9	30.9	< LOD	13533	137
313V	83.50	246.7	31.1	16.8	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1667	< LOD
314	83.61	104.3	30.5	17.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1274	74
315	83.90	245.7	34.1	17.6	4.4	< LOD	< LOD	< LOD	269.3	< LOD	< LOD	1830	78
316	84.22	137.7	43.3	18.6	< LOD	< LOD	< LOD	< LOD	986.3	25.3	< LOD	3531	82
317V	84.41	186.2	37.0	25.3	6.1	< LOD	< LOD	50.9	< LOD	< LOD	< LOD	16045	144
318	84.61	315.2	31.7	18.3	4.0	< LOD	< LOD	10.3	< LOD	< LOD	< LOD	1996	< LOD
319	84.90	219.3	48.5	24.3	5.6	15.8	< LOD	19.6	< LOD	54.5	< LOD	15521	107
321V	85.40	667.0	187.5	14.1	< LOD	< LOD	< LOD	16.1	< LOD	74.4	< LOD	6139	468
322	85.59	227.1	122.0	12.4	5.1	12.5	< LOD	12.8	< LOD	51.3	< LOD	6176	426
323	85.90	768.2	41.9	27.9	7.4	17.2	7.4	32.0	< LOD	40.5	< LOD	15661	152
324	86.19	63.0	22.5	8.4	< LOD	< LOD	< LOD	13.0	< LOD	< LOD	< LOD	1220	< LOD
326	86.54	110.2	27.1	12.2	< LOD	11.9	9.8	71.5	< LOD	< LOD	< LOD	3816	< LOD
328	87.13	589.9	47.5	23.6	6.7	37.1	29.9	24.7	25.5	77.7	253.3	39994	243
329V	87.37	855.2	44.5	17.4	9.9	< LOD	< LOD	42.9	98.8	34.0	< LOD	6001	140
330	87.54	626.6	820.1	14.8	10.2	16.2	< LOD	39.3	33.6	86.8	< LOD	74606	1016
331	87.84	364.9	30.5	15.5	< LOD	< LOD	< LOD	46.3	< LOD	< LOD	< LOD	120468	1226
333V	88.36	122.9	72.3	16.8	7.6	< LOD	32.0	< LOD	< LOD	51.9	< LOD	51155	485
334	88.51	324.5	492.8	10.7	5.4	< LOD	< LOD	16.6	23.4	43.0	< LOD	11888	305
335	88.81	83.8	190.4	12.6	< LOD	< LOD	9.4	< LOD	< LOD	< LOD	< LOD	176027	1674
336	89.10	57.2	214.1	17.2	16.0	< LOD	12.9	< LOD	< LOD	81.2	< LOD	84020	1083
337V	89.33	129.4	2290.1	13.2	< LOD	9.4	13.6	< LOD	< LOD	44.0	< LOD	47661	616
338	89.47	156.3	732.5	12.4	< LOD	< LOD	9.2	34.4	< LOD	70.8	< LOD	47768	555
339	89.77	871.9	81.7	20.3	23.2	< LOD	6.5	49.3	23.9	37.7	< LOD	6802	268
340	90.08	481.5	49.2	30.5	26.1	13.6	8.9	47.8	< LOD	48.8	< LOD	13137	166
341V	90.30	361.1	50.7	31.4	14.3	18.8	11.9	73.3	< LOD	31.1	< LOD	15623	168
342	90.48	207.3	36.5	30.5	< LOD	19.3	24.7	50.2	< LOD	< LOD	< LOD	149477	1396
343	90.80	334.4	186.7	20.3	19.0	< LOD	7.0	59.4	< LOD	86.6	< LOD	64416	718
344	91.12	223.6	46.8	24.5	9.5	< LOD	14.3	104.0	< LOD	38.9	< LOD	13112	246
345V	91.32	233.5	40.9	26.6	9.2	16.2	6.9	132.4	25.0	41.2	< LOD	11044	199
346	91.45	363.3	52.8	42.5	12.1	13.3	11.3	54.3	< LOD	34.2	< LOD	18612	194
347	91.75	165.1	464.5	26.2	< LOD	< LOD	9.6	61.7	41.1	155.7	< LOD	158029	1645
348	92.06	203.6	78.0	20.2	< LOD	< LOD	< LOD	51.0	< LOD	41.9	< LOD	11984	215
349V	92.24	307.1	51.3	35.3	6.5	16.5	11.2	51.9	20.1	37.6	< LOD	20617	200
350	92.47	285.2	50.2	40.0	14.3	10.9	9.4	39.4	25.2	51.9	< LOD	32884	270
351	92.74	249.4	43.5	32.0	8.1	< LOD	5.8	84.3	< LOD	49.5	< LOD	12147	148
352	93.03	204.2	50.0	28.9	10.5	34.7	17.7	182.8	19.1	60.9	< LOD	29758	162
353V	93.23	160.8	62.3	16.3	4.4	< LOD	6.2	31.7	< LOD	30.7	< LOD	5776	168
354	93.39	148.2	40.3	26.5	6.7	< LOD	< LOD	57.9	< LOD	27.8	< LOD	6638	134
355	93.71	414.1	42.0	23.4	9.7	< LOD	7.3	111.9	< LOD	34.5	< LOD	35611	313
356	93.99	195.6	80.0	18.4	9.5	< LOD	< LOD	31.6	< LOD	47.0	< LOD	6827	244
357V	94.21	230.1	173.5	10.3	6.1	< LOD	< LOD	23.1	< LOD	48.6	< LOD	4728	312
358	94.37	627.2	166.1	17.8	9.7	< LOD	11.9	42.1	21.1	52.0	< LOD	10802	324
359	94.69	304.0	45.3	28.2	< LOD	28.2	62.2	52.4	24.6	68.1	< LOD	37009	194
360	94.97	305.2	39.7	26.7	7.3	< LOD	5.6	85.7	< LOD	48.4	< LOD	23017	288

Table 19. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 361V to 416.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
361V	95.17	521.1	36.9	21.6	< LOD	12.3	< LOD	< LOD	< LOD	37.7	< LOD	6106	172
362	95.33	244.2	43.4	24.6	5.3	11.3	< LOD	26.1	< LOD	< LOD	< LOD	5984	77
363	95.63	434.8	65.9	20.2	6.3	< LOD	< LOD	18.2	< LOD	59.9	76.2	4176	297
364	95.97	1009.9	40.5	23.5	14.1	< LOD	< LOD	42.8	< LOD	28.4	< LOD	4055	184
365V	96.15	325.5	43.1	23.4	< LOD	< LOD	< LOD	48.5	18.9	30.6	< LOD	4854	190
366	96.24	766.0	40.9	18.9	10.6	< LOD	< LOD	22.7	< LOD	< LOD	< LOD	2542	152
367	96.56	1141.7	39.8	22.6	14.5	< LOD	4.9	25.9	< LOD	< LOD	< LOD	3871	146
368	96.83	408.3	48.2	44.2	10.3	9.6	8.7	50.4	27.4	66.4	< LOD	50434	488
369V	97.06	323.4	48.8	34.3	6.0	11.2	< LOD	30.9	32.3	51.5	< LOD	45002	355
370	97.23	333.0	51.4	38.8	7.0	16.9	< LOD	56.0	21.4	54.9	< LOD	51010	455
371	97.55	370.4	52.4	44.0	5.2	16.6	< LOD	45.5	23.6	73.8	< LOD	41610	286
372	97.85	421.0	51.6	41.7	12.1	14.6	< LOD	44.8	< LOD	53.7	< LOD	29114	216
373V	98.07	319.7	53.0	44.3	10.3	17.6	< LOD	50.0	20.3	56.4	< LOD	29027	206
374	98.22	363.9	50.3	39.7	8.0	11.8	< LOD	38.9	23.1	63.0	< LOD	26167	194
375	98.54	323.0	50.7	43.8	9.2	11.7	7.4	51.5	< LOD	90.9	< LOD	40774	300
376	98.82	335.1	59.1	46.6	12.1	17.3	< LOD	60.4	< LOD	66.9	< LOD	37642	240
377V	99.04	284.9	64.3	49.2	10.9	18.8	< LOD	68.1	< LOD	76.7	< LOD	44465	334
378	99.12	302.3	56.2	42.9	7.9	13.6	< LOD	35.6	< LOD	65.0	< LOD	42085	289
379	99.42	342.9	60.6	41.2	9.8	< LOD	< LOD	56.0	< LOD	51.3	< LOD	33268	277
380	99.73	313.5	69.6	45.4	7.2	14.8	< LOD	55.8	38.2	72.3	< LOD	54178	395
381V	99.95	1134.3	53.1	32.2	17.9	13.6	< LOD	44.8	20.1	55.6	< LOD	20036	183
382	100.13	608.4	106.7	13.4	6.1	< LOD	< LOD	34.1	< LOD	50.2	< LOD	6051	438
383	100.43	451.7	54.4	40.2	11.3	15.0	10.4	36.4	34.5	62.7	< LOD	34043	318
384	100.73	243.2	51.1	30.3	11.6	< LOD	19.0	45.8	< LOD	< LOD	< LOD	121074	1072
385V	100.98	570.8	61.1	50.3	22.0	28.0	65.4	81.9	< LOD	59.4	< LOD	25611	191
386	101.13	1043.5	60.8	28.2	29.0	19.8	24.7	193.2	32.9	66.2	< LOD	30262	301
387	101.48	469.6	290.9	16.9	6.6	< LOD	11.4	85.5	24.1	81.9	< LOD	33483	934
388	101.75	949.8	67.1	29.4	18.5	14.2	46.1	217.9	29.2	52.6	110.5	12612	165
389V	101.97	119.3	35.8	11.4	< LOD	< LOD	< LOD	12.9	< LOD	< LOD	< LOD	2268	< LOD
390	102.10	157.1	39.1	12.8	4.3	< LOD	< LOD	45.1	< LOD	< LOD	< LOD	2369	72
391	102.39	236.6	45.2	20.2	5.9	< LOD	< LOD	23.5	< LOD	< LOD	< LOD	2709	71
392	102.70	178.3	40.1	18.8	6.2	< LOD	< LOD	12.2	< LOD	< LOD	< LOD	2774	69
393V	102.93	104.1	146.2	11.4	< LOD	< LOD	< LOD	< LOD	< LOD	49.9	< LOD	5391	412
394	103.05	105.9	188.2	16.5	< LOD	< LOD	< LOD	18.6	28.9	57.8	< LOD	4777	315
395	103.35	719.5	309.0	13.9	12.6	< LOD	< LOD	< LOD	26.7	38.2	< LOD	10548	441
396	103.65	431.8	308.1	22.6	4.7	< LOD	< LOD	30.0	< LOD	49.6	< LOD	10900	367
397V	103.89	154.7	47.3	23.6	< LOD	< LOD	< LOD	< LOD	18.5	< LOD	< LOD	24467	73
398	104.03	122.1	48.4	23.2	< LOD	19.0	< LOD	23.8	20.8	< LOD	< LOD	14718	130
399	104.31	256.0	40.3	21.0	4.3	< LOD	< LOD	< LOD	< LOD	34.8	< LOD	14583	137
400	104.61	1488.0	58.1	17.0	17.5	< LOD	< LOD	< LOD	< LOD	56.0	115.6	6082	361
401V	104.85	1065.8	81.1	14.1	15.9	< LOD	< LOD	< LOD	40.3	59.2	< LOD	12993	351
402	104.96	241.0	71.5	14.8	6.7	< LOD	< LOD	36.4	< LOD	43.1	< LOD	11602	326
403	105.27	350.8	44.8	22.3	5.4	< LOD	< LOD	14.9	< LOD	39.5	< LOD	11722	120
404	105.56	144.1	42.6	23.3	< LOD	< LOD	< LOD	14.8	< LOD	33.7	< LOD	11215	100
405V	105.76	1119.7	47.3	19.7	13.3	< LOD	< LOD	< LOD	21.3	45.9	< LOD	12974	143
406	105.96	427.3	45.9	20.6	< LOD	11.5	< LOD	< LOD	< LOD	44.9	< LOD	11354	96
407	106.29	3033.2	27.5	17.1	36.7	< LOD	< LOD	32.1	29.6	< LOD	< LOD	14630	249
408	106.56	750.3	48.3	25.1	11.0	< LOD	< LOD	42.2	< LOD	49.4	< LOD	11827	119
409V	106.80	131.2	16.7	6.1	4.1	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2431	< LOD
410	106.97	120.8	22.2	7.1	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3311	98
411	107.24	146.6	22.1	7.3	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1860	81
412	107.57	293.9	52.2	39.8	12.4	19.9	< LOD	59.2	< LOD	80.4	< LOD	72031	614
413V	107.83	216.7	52.1	37.7	12.7	23.7	6.7	51.6	25.7	65.5	< LOD	38392	223
414	107.96	897.7	45.9	30.1	17.3	17.3	< LOD	48.9	18.7	42.7	< LOD	18066	208
415	108.24	405.3	41.5	42.1	6.7	16.9	< LOD	66.5	24.9	67.1	< LOD	23554	223
416	108.52	298.5	63.4	46.7	18.2	18.6	11.2	59.3	27.5	77.4	< LOD	55933	406

Table 20. XRF results (Zr, Sr, Rb, Th, Pb, As, Zn, Cu, Ni, Co, Fe, Mn) of plug samples 417V to 449V.

Plug id.	Depth (m)	Zr (ppm)	Sr (ppm)	Rb (ppm)	Th (ppm)	Pb (ppm)	As (ppm)	Zn (ppm)	Cu (ppm)	Ni (ppm)	Co (ppm)	Fe (ppm)	Mn (ppm)
417V	108.73	293.4	55.3	43.8	15.5	20.1	11.2	69.6	30.4	85.9	< LOD	74510	680
418	108.90	297.8	60.9	46.9	10.2	23.1	< LOD	70.0	32.6	67.4	< LOD	50688	461
419	109.20	303.1	107.1	37.6	11.2	17.0	< LOD	< LOD	30.1	69.6	< LOD	90170	1027
420	109.49	180.3	65.7	61.2	15.9	23.7	11.7	59.3	35.0	87.3	< LOD	43896	244
421V	109.69	201.8	66.4	64.3	15.5	27.0	10.5	60.8	42.1	63.3	< LOD	34748	186
422	109.89	288.2	48.6	62.9	23.1	26.0	14.4	94.7	39.7	45.3	262.8	32360	245
423	110.19	719.0	57.3	26.0	9.4	15.4	7.7	60.7	22.0	63.2	< LOD	24303	249
426	110.67	294.3	41.3	31.0	8.1	17.7	11.5	62.7	48.5	67.1	< LOD	42807	318
427	110.99	2511.5	42.1	26.8	27.8	17.3	< LOD	52.3	38.8	56.2	< LOD	33068	446
428	111.26	2864.6	44.6	16.9	28.9	< LOD	< LOD	26.6	31.2	48.6	< LOD	20144	509
429V-A	111.51	241.9	31.4	37.2	6.9	17.4	8.5	75.0	31.5	62.2	< LOD	38741	278
429V-B	111.51	116.1	17.5	12.3	< LOD	< LOD	< LOD	< LOD	< LOD	33.2	< LOD	10211	147
430	111.65	254.0	38.5	30.8	6.0	10.8	< LOD	21.5	< LOD	35.5	< LOD	15779	132
431	111.93	521.5	47.7	26.0	8.9	< LOD	7.5	72.2	< LOD	52.4	< LOD	26511	235
432	112.22	222.8	29.8	26.9	6.8	< LOD	< LOD	22.9	< LOD	41.7	< LOD	13005	206
433V-A	112.44	272.1	31.3	27.1	7.9	15.1	8.1	46.4	< LOD	59.4	< LOD	25750	257
433V-B	112.44	362.6	13.8	6.2	< LOD	< LOD	< LOD	< LOD	< LOD	30.8	< LOD	2860	96
434	112.63	419.5	36.0	23.4	10.2	< LOD	5.9	27.6	23.7	51.7	< LOD	18359	221
435	112.95	575.5	38.9	24.1	5.1	15.5	< LOD	17.7	19.0	41.8	< LOD	14949	251
436	113.24	186.3	29.2	16.8	4.2	< LOD	< LOD	< LOD	< LOD	30.1	< LOD	4104	146
437V	113.47	343.6	68.3	41.6	< LOD	17.5	6.2	< LOD	< LOD	37.7	< LOD	11131	230
438	113.59	545.4	44.4	23.9	8.5	20.1	< LOD	12.2	< LOD	33.0	< LOD	14057	256
439	113.99	710.4	22.2	8.8	8.7	< LOD	< LOD	< LOD	20.9	31.0	< LOD	2831	100
440	114.19	112.0	27.1	10.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	6416	108
441V	114.42	280.5	26.8	12.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3756	103
442	114.58	143.1	22.2	9.9	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1888	< LOD
443	114.88	156.4	22.1	10.7	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	1624	60
444	115.19	104.5	21.0	11.3	< LOD	< LOD	< LOD	< LOD	40.5	27.8	< LOD	3476	104
445V	115.38	240.2	22.2	9.9	< LOD	< LOD	< LOD	< LOD	< LOD	28.9	< LOD	4308	110
446	115.47	348.1	19.2	10.5	5.4	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	3087	166
447	115.79	104.7	32.1	17.7	< LOD	< LOD	< LOD	< LOD	< LOD	25.8	< LOD	2211	93
448	116.09	64.4	28.3	14.8	< LOD	< LOD	< LOD	13.3	< LOD	25.4	< LOD	2916	128
449V	116.33	89.1	21.0	11.5	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	< LOD	2760	84

Table 21. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 1 to 60.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
1	4.67	< LOD	37	1921	26893	11233	< LOD	1039	8.2	57788	< LOD	353016	3855
3	5.15	< LOD	< LOD	1152	203021	3954	3855	556	3.1	13378	< LOD	268753	< LOD
4	7.58	< LOD	< LOD	228	145187	11842	3529	770	< LOD	17211	< LOD	308660	3631
5	7.77	< LOD	28	870	3085	11571	10298	680	< LOD	40561	< LOD	275611	< LOD
6	8.09	< LOD	14	258	1148	10319	2007	717	< LOD	25342	321	315874	< LOD
7V	8.30	< LOD	40	1416	2619	10814	8638	649	< LOD	46435	< LOD	284527	1823
8	8.33	< LOD	15	567	4807	9392	4666	677	< LOD	23490	< LOD	310252	< LOD
9	8.62	< LOD	27	1157	1683	11728	6211	702	< LOD	43518	< LOD	288124	< LOD
10	8.93	< LOD	26	409	7385	9975	4252	777	< LOD	33586	< LOD	302245	< LOD
11V	9.10	< LOD	< LOD	151	208	11576	1629	721	< LOD	22142	< LOD	337826	< LOD
12	9.15	< LOD	115	2262	27309	10775	12348	901	< LOD	51038	< LOD	261666	2602
13	9.42	< LOD	19	350	785	11269	4257	667	< LOD	31680	< LOD	305072	< LOD
15V	9.94	< LOD	27	685	644	9553	15584	683	< LOD	26972	< LOD	309517	< LOD
16	10.11	57	28	272	2708	11517	6410	760	< LOD	25178	< LOD	309185	< LOD
18	10.71	< LOD	20	439	360	9581	5667	751	< LOD	46538	< LOD	292492	< LOD
19V	10.89	< LOD	< LOD	321	409	11237	4568	722	< LOD	31534	< LOD	330718	< LOD
20	11.09	< LOD	29	322	585	12282	5853	845	< LOD	33496	< LOD	310702	< LOD
21	11.37	< LOD	< LOD	930	205999	13353	6456	812	< LOD	28506	< LOD	222589	< LOD
22	11.67	< LOD	37	1054	1209	11251	4837	787	< LOD	49361	< LOD	282716	< LOD
23V	11.86	< LOD	< LOD	619	177117	11988	1462	908	< LOD	16173	< LOD	211997	< LOD
24	12.03	150	148	3596	13843	14935	30356	906	7.6	56706	517	244044	< LOD
25	12.33	< LOD	40	764	3734	12504	2805	783	< LOD	41817	534	287371	< LOD
26	12.63	< LOD	48	925	3225	12759	4732	712	< LOD	45220	402	302329	< LOD
27V	12.79	< LOD	< LOD	559	533	11128	1649	741	< LOD	33948	< LOD	318679	2318
28	13.24	< LOD	26	373	354	10741	1281	717	< LOD	35757	< LOD	304837	< LOD
29	13.54	< LOD	20	928	847	11111	2755	676	< LOD	47933	< LOD	286935	2084
30	13.87	< LOD	< LOD	811	767	12462	2203	761	< LOD	46394	< LOD	279456	2584
31V	14.02	70	68	2855	7119	13487	14108	827	7.4	64007	1414	265203	2606
32	14.19	28	47	1330	2436	13123	6161	799	< LOD	58558	< LOD	281756	< LOD
33	14.51	< LOD	43	1389	1138	10029	5822	744	< LOD	55164	< LOD	272240	< LOD
34	14.78	< LOD	< LOD	481	711	9296	1256	616	< LOD	41035	< LOD	302185	< LOD
35V	14.95	< LOD	< LOD	1046	1233	7567	1237	607	< LOD	33084	< LOD	326964	< LOD
36	15.10	< LOD	< LOD	512	166295	11115	8546	836	< LOD	21445	< LOD	272131	< LOD
37	15.43	63	75	2388	4501	12481	25770	801	3.6	56882	532	250593	2980
38	15.62	< LOD	< LOD	915	264785	10116	66732	709	6.5	24220	< LOD	119703	< LOD
39V	15.81	< LOD	132	2164	73811	11680	19575	655	8.0	39373	< LOD	270716	3463
40	16.03	< LOD	< LOD	808	126444	10396	16569	805	4.6	26787	< LOD	293954	< LOD
41	16.32	63	50	1540	106049	14408	5351	883	3.5	36499	< LOD	293540	< LOD
42	16.62	37	45	1166	105089	10212	3004	842	< LOD	28444	< LOD	316081	< LOD
43V	16.83	80	104	3833	5711	13469	10016	731	6.2	58736	< LOD	273642	< LOD
44	16.98	37	68	3350	2932	14416	7468	796	5.3	61873	< LOD	274243	3236
45	17.28	78	109	3827	6092	15467	7128	843	7.9	70840	444	263469	3888
47V	17.81	85	89	3883	6172	15791	11197	927	8.1	67456	< LOD	265808	< LOD
48	17.93	55	104	3611	7824	13833	6872	858	8.7	66802	< LOD	265987	4856
49	18.27	94	116	4275	5613	17387	12753	886	9.3	71619	< LOD	250361	< LOD
50	18.56	84	121	4931	4210	18057	9657	894	11.5	74761	460	256280	4388
51V	18.76	66	78	4086	4991	16136	10332	794	13.5	70235	< LOD	270248	< LOD
52	19.01	159	94	4831	8310	21110	30986	871	14.5	81327	1657	250913	4327
53	19.31	172	123	5107	8015	20411	38264	920	15.1	82056	635	232750	6210
54	19.61	66	45	1486	250723	13317	5212	780	9.5	29034	< LOD	161110	8272
55V	19.82	< LOD	73	1559	263029	13516	5736	811	8.9	35648	< LOD	137040	< LOD
56	19.89	151	122	4915	16923	18683	45252	931	11.2	73041	< LOD	209241	6131
57	20.20	126	90	4255	12485	17941	29344	843	11.1	64636	430	239256	4392
58	20.50	69	105	4967	10260	18967	25630	886	13.2	70347	309	239878	4161
59V	20.73	104	98	5340	6204	19870	22489	823	12.0	76380	391	243727	6910
60	20.85	114	107	5017	5266	18826	27819	817	11.8	71688	319	246419	6146

Table 22. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 61 to 116.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
61	21.12	54	68	3813	5477	16737	18013	741	9.5	58117	441	280548	4457
62	21.42	104	94	4756	10500	18562	34233	907	11.9	61491	< LOD	236400	3848
63V	21.66	88	85	4797	11347	18973	27185	822	9.9	68249	307	241273	4966
64	21.81	90	112	4620	4741	19037	24951	752	9.4	68979	440	255318	4403
65	22.12	138	110	4712	4918	19988	21186	810	11.6	72309	669	253927	< LOD
66	22.42	99	108	4632	5888	19178	25237	834	9.5	68402	574	260755	2529
67V	22.60	126	103	5007	8101	19915	35959	829	10.3	67807	718	239323	2865
68	22.80	53	89	4750	14305	18744	46269	847	12.2	64419	493	227261	< LOD
69	23.09	68	46	2867	96907	14380	11257	864	6.9	44108	< LOD	278093	4293
70	23.40	86	84	3659	52218	16655	22302	821	8.3	55823	< LOD	249414	4954
71V	23.60	190	156	3311	7888	17257	204068	545	8.6	73724	< LOD	194074	< LOD
72	23.80	124	81	4686	7049	19491	29294	780	12.8	71011	417	246365	3516
73	24.10	125	119	4765	8108	19037	39399	872	12.5	71201	334	241512	6024
74	24.37	191	93	3950	13051	19218	104445	789	11.6	77416	< LOD	219508	4513
75V	24.64	132	126	5259	7296	20718	31505	915	11.4	71877	< LOD	245392	3592
76	24.83	99	94	5125	7145	19778	20146	855	10.4	71151	286	242093	< LOD
77	25.14	129	88	5019	8112	20193	25962	834	13.2	70410	< LOD	242684	5042
78	25.42	152	164	5253	5770	21296	10558	875	12.9	72987	< LOD	253190	5056
79V	25.66	101	94	3907	4957	20300	11602	720	8.8	72171	< LOD	274655	6485
80	25.73	90	117	5076	5175	21170	16361	845	11.4	73514	< LOD	255617	5728
81	26.06	163	108	4491	7820	20781	23234	878	8.4	69128	< LOD	233844	4909
82	26.36	144	112	5243	4483	21326	19836	875	13.4	75986	285	237137	6796
83V	26.56	124	123	5425	3193	20912	16671	889	11.5	75557	< LOD	245743	4726
84	26.72	61	108	4422	5476	18553	22164	804	9.5	68899	< LOD	251722	2724
85	27.02	108	98	4520	2741	19976	13773	827	10.8	67204	< LOD	265046	4869
86	27.32	122	119	4977	4868	19993	25714	865	11.5	64645	503	238405	< LOD
87V	27.54	68	93	4521	3426	19128	13581	778	9.5	61121	< LOD	271116	7437
88	27.73	104	80	4851	5058	19734	28190	857	11.8	64460	599	258400	4929
89	28.03	136	90	4413	4688	18644	30211	795	11.2	62016	663	259490	3761
90	28.33	140	121	4614	3634	19938	25003	844	11.9	64243	420	254184	7179
91V	28.55	93	88	4846	1848	19347	11897	760	11.0	66409	310	279038	7322
92	28.72	133	99	4786	2537	19224	21080	820	12.7	63924	< LOD	279998	4893
93	29.02	108	109	3872	2824	17143	42509	812	11.2	65455	< LOD	269727	4752
94	29.32	69	113	4658	2505	16417	26818	749	10.8	61820	372	282275	< LOD
95V	29.54	108	128	3661	4156	16588	34889	825	10.1	59296	< LOD	251647	6057
96	29.70	124	120	3421	2009	14999	66071	682	9.1	50647	< LOD	258843	4029
97	30.00	133	97	3869	2354	13547	16443	799	5.9	56125	257	288096	4260
98	30.31	96	114	2662	2909	13391	17243	750	5.7	55697	680	269124	< LOD
99V	30.53	102	104	4100	4027	15683	13126	876	7.6	54275	304	278437	< LOD
100	30.73	92	86	2615	3865	13309	13514	754	3.7	53221	1029	260106	2010
101	31.03	71	82	2831	2522	14155	19731	854	5.6	56255	641	268087	6003
102	31.33	< LOD	55	1686	70975	10336	9091	772	< LOD	34734	< LOD	306406	3151
103V	31.55	70	56	1722	60909	11703	6678	809	3.4	42627	< LOD	304155	4306
104	31.73	102	62	1977	70618	12616	10983	835	6.4	42941	2334	286211	< LOD
105	32.03	< LOD	51	1625	97692	12461	21592	834	5.1	35403	1816	266445	< LOD
106	32.33	297	404	2313	20100	9736	13830	513	6.9	44931	480	169673	5349
107V	32.55	131	131	4121	2430	17831	7961	877	6.8	61262	< LOD	299633	3988
108	32.66	101	113	3568	16551	16155	8745	856	9.5	56517	< LOD	300462	4016
109	32.96	127	95	1631	138861	11920	10318	687	6.3	30601	< LOD	271533	4662
110	33.26	200	212	1229	98604	6095	6026	379	6.3	33044	< LOD	227908	< LOD
111V	33.51	194	188	3740	6162	14199	37504	597	7.1	61928	< LOD	218815	4742
112	33.66	185	255	3961	6542	14521	31895	922	7.6	62250	< LOD	240473	3951
113	33.92	115	83	2387	8384	11560	6751	711	< LOD	47899	970	273199	2323
114	34.25	98	104	2977	2959	12768	7215	755	4.5	53779	321	270493	< LOD
115V	34.45	101	83	3043	2540	14337	10217	701	4.3	55057	< LOD	285598	5779
116	34.65	77	90	3203	2228	13921	13383	710	5.8	55944	283	276634	< LOD

Table 23. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 117 to 173.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
117	34.95	94	95	3565	2783	15816	12400	769	7.1	58014	< LOD	281021	2558
118	35.25	72	57	2784	2838	14385	6216	794	4.6	54906	< LOD	280202	2190
119V	35.45	197	191	1477	11492	10264	5953	486	5.3	57076	< LOD	257948	4230
120	35.57	217	141	2195	46625	9935	9507	529	7.9	49092	< LOD	183654	< LOD
121	35.88	< LOD	< LOD	689	147043	12755	3725	809	< LOD	25199	< LOD	289316	< LOD
122	36.19	56	60	2171	3825	13705	10396	742	4.9	57264	< LOD	276341	2915
123V	36.42	58	66	1967	2011	14065	8574	782	3.8	59729	< LOD	284914	< LOD
124	36.59	61	75	2306	1115	14378	10747	792	3.0	65377	< LOD	271550	< LOD
125	36.89	63	66	2758	1648	17261	5570	868	3.1	62331	< LOD	282703	< LOD
126	37.19	84	87	3112	1649	15986	8212	902	3.3	62303	< LOD	272942	3760
127V	37.40	122	140	3473	2168	19310	10364	970	4.7	66688	< LOD	288891	4884
128	37.61	< LOD	91	1406	1583	12168	5745	861	< LOD	45733	< LOD	322674	< LOD
129	37.95	107	141	2873	3161	12952	5826	710	4.7	67648	718	252565	< LOD
130	38.22	71	93	2136	1034	13139	8687	713	3.0	57405	< LOD	299305	< LOD
131V	38.43	86	123	2314	2142	13742	7113	561	4.2	65625	< LOD	239578	2728
132	38.54	145	135	1709	6210	11873	6119	800	3.3	48153	209	217249	3822
133	38.87	55	72	1598	1684	12814	5009	702	< LOD	73566	< LOD	279581	< LOD
134	39.16	74	114	2003	2309	10666	9634	651	< LOD	64911	< LOD	255671	2127
136	39.63	< LOD	28	994	1840	13217	4014	667	< LOD	37828	< LOD	301273	< LOD
137	39.88	98	36	1386	7216	11750	12749	729	< LOD	42894	< LOD	280770	< LOD
138	40.17	52	56	2023	1886	12003	28227	736	< LOD	53291	390	242175	< LOD
139V	40.39	< LOD	< LOD	564	2337	12735	6053	663	< LOD	29996	610	332508	< LOD
140	40.60	42	36	1889	2358	13121	8491	673	< LOD	55888	< LOD	280933	< LOD
141	40.89	< LOD	< LOD	929	1827	11542	8433	657	< LOD	39348	< LOD	292006	< LOD
142	41.18	< LOD	< LOD	529	972	11960	3689	652	< LOD	36141	< LOD	312320	< LOD
143V	41.41	196	< LOD	988	5482	14338	173351	618	5.7	58534	< LOD	240998	< LOD
144	41.61	69	49	2041	1400	13054	12887	731	< LOD	61825	296	259813	< LOD
145	41.91	44	26	1230	96740	11411	7134	797	3.2	38993	< LOD	290491	< LOD
146	42.21	< LOD	41	2139	80215	10624	13764	774	< LOD	33022	< LOD	194785	< LOD
147V	42.41	< LOD	49	1319	105540	10641	8264	700	< LOD	42589	< LOD	176748	< LOD
148	42.43	47	< LOD	801	209392	9786	7069	793	< LOD	20901	< LOD	233181	7114
149	42.73	< LOD	< LOD	562	230488	10023	10020	675	< LOD	20822	< LOD	208191	< LOD
150	43.01	125	92	4027	6651	14887	22277	887	6.9	64530	624	230010	5073
151V	43.23	< LOD	36	858	124879	12856	6937	787	< LOD	24060	< LOD	291303	3824
152	43.45	< LOD	< LOD	486	157484	8886	3857	762	< LOD	11856	< LOD	314272	< LOD
153	43.76	56	59	1867	1511	14776	8745	675	< LOD	53579	< LOD	286777	< LOD
154	44.05	26	32	2014	1356	11166	5528	641	3.9	50958	< LOD	293682	< LOD
155V	44.29	55	85	2878	565	13375	12979	684	2.9	55539	< LOD	294152	< LOD
156	44.49	< LOD	32	2162	795	12336	23138	758	< LOD	49944	< LOD	305651	< LOD
157	44.78	37	43	1897	867	11401	7225	693	2.9	48542	< LOD	310207	< LOD
158	45.09	32	32	1325	71721	11620	4011	669	< LOD	29297	< LOD	336811	< LOD
159V	45.27	< LOD	166	1565	1148	11762	163736	399	6.5	49448	< LOD	274231	< LOD
160	45.42	45	68	2032	1783	12229	8573	695	< LOD	48056	< LOD	314545	3090
161	45.72	90	66	2984	1273	15765	18147	755	6.1	61938	< LOD	277960	< LOD
162	46.02	38	35	1550	1296	13799	8901	703	< LOD	45433	< LOD	293287	< LOD
163V	46.21	< LOD	33	1534	1232	13225	5413	681	< LOD	48271	< LOD	273653	< LOD
164	46.40	203	191	1436	71177	8251	14887	655	6.2	41057	8772	182961	5290
165	46.70	< LOD	< LOD	617	159553	10098	10400	628	< LOD	17960	< LOD	282697	4548
166	46.97	< LOD	68	731	147670	8496	11922	607	4.3	22819	< LOD	273396	< LOD
167V	47.20	60	70	2892	3042	16993	13255	758	6.1	54804	272	297252	3920
168	47.39	44	56	2975	1779	14224	9590	736	8.1	50994	< LOD	334428	< LOD
169	47.75	52	43	1440	1568	12445	2349	677	2.9	59207	< LOD	294337	< LOD
170	47.99	< LOD	22	806	102138	9165	795	680	< LOD	21283	< LOD	347507	< LOD
171V	48.18	45	89	2765	715	17036	15017	698	6.0	63284	< LOD	304865	< LOD
172	48.29	39	17	815	754	14042	4448	732	< LOD	47560	< LOD	302129	< LOD
173	48.54	< LOD	29	1521	563	11828	997	621	3.9	41302	< LOD	313218	< LOD

Table 24. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 176 to 233.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
176	49.27	< LOD	64	2394	503	11407	4495	739	3.7	59354	< LOD	304591	< LOD
177	49.56	46	104	2356	766	15239	12438	828	4.6	69435	< LOD	296682	< LOD
178	49.86	101	67	2142	882	16214	3599	789	4.2	64163	< LOD	295303	< LOD
179V	50.07	32	65	1813	870	15419	8094	746	< LOD	64330	< LOD	290018	< LOD
180	50.25	< LOD	20	1500	241	11977	2016	658	< LOD	44747	< LOD	298808	< LOD
181	50.55	52	57	1484	364	15478	6067	750	< LOD	71227	< LOD	289069	< LOD
182	50.85	< LOD	53	1089	462	14540	5021	820	< LOD	59157	< LOD	302075	< LOD
183V	51.08	< LOD	22	802	246	11377	1029	601	< LOD	33551	< LOD	318368	1787
184	51.19	70	42	1517	5501	12092	3504	617	< LOD	39500	< LOD	317446	< LOD
185	51.49	< LOD	21	753	302	11374	1061	598	< LOD	32693	< LOD	336134	< LOD
186	51.81	36	50	2330	611	12419	4390	579	< LOD	58180	< LOD	299935	< LOD
187V	52.01	24	36	2629	317	10995	2050	617	< LOD	50598	248	309540	< LOD
188	52.19	< LOD	38	1499	311	12901	3146	651	< LOD	50481	< LOD	302948	< LOD
189	52.43	48	66	2762	836	12878	9583	661	4.7	55253	< LOD	282116	1958
190	52.79	< LOD	30	861	143823	10171	1508	755	< LOD	18227	< LOD	311126	< LOD
191V	53.04	35	44	1441	88619	12681	3145	773	3.5	32140	< LOD	315243	< LOD
192	53.14	< LOD	33	1667	74588	11335	21853	729	5.6	36505	< LOD	318161	< LOD
193	53.44	90	66	4045	2550	22343	46063	953	12.3	64515	813	276094	< LOD
194	53.75	182	111	2455	34882	14500	10210	648	6.3	51595	< LOD	214717	7564
195V	53.94	194	157	2661	33929	14740	27874	613	11.0	55247	< LOD	204645	14671
196	54.14	152	113	4256	7350	18717	14547	920	10.2	65175	459	249327	8055
197	54.44	111	69	4482	3156	20896	14168	921	8.3	68811	339	281499	4597
198	54.71	85	87	4267	3292	20778	15672	877	13.4	69715	501	281086	4850
199V	54.91	67	108	4437	2830	21463	30797	915	10.9	69051	458	279802	4897
200	55.12	81	82	4372	3154	20317	12812	914	9.9	71054	374	284908	3665
201	55.42	56	75	4389	2489	20669	14630	943	11.4	66780	256	285842	2386
202	55.72	97	79	3877	2128	19973	28575	860	8.4	62370	< LOD	301713	< LOD
203V	55.94	30	50	2834	41643	13915	15623	790	5.9	45078	< LOD	320297	3276
204	56.03	< LOD	71	3039	1495	12364	17976	663	5.3	58490	< LOD	289954	3872
205	56.33	154	< LOD	2384	75624	10101	28048	880	12.0	40531	< LOD	211794	< LOD
206	56.63	47	34	1024	1273	12603	1665	778	2.8	32607	< LOD	328592	< LOD
207V	56.82	< LOD	21	831	1306	9357	5448	549	4.2	42980	< LOD	337954	1904
208	57.02	< LOD	< LOD	772	488	13899	1427	674	< LOD	43086	< LOD	309962	< LOD
209	57.32	< LOD	< LOD	1068	1640	10621	2649	698	< LOD	29880	< LOD	320159	2805
210	57.62	63	74	3400	6731	17764	15116	887	7.6	57512	< LOD	293621	< LOD
211V	57.82	< LOD	20	720	102883	13098	4670	716	< LOD	23002	< LOD	329526	3874
212	57.98	< LOD	87	780	303564	9834	30916	695	4.9	23327	< LOD	115989	< LOD
213	58.28	< LOD	< LOD	392	143153	11011	11978	839	< LOD	23628	< LOD	292267	< LOD
214	58.58	< LOD	< LOD	1109	1704	14591	4027	775	< LOD	51684	< LOD	303528	< LOD
215V	58.76	< LOD	< LOD	1061	611	13935	1961	784	< LOD	47181	< LOD	309215	< LOD
216	58.92	< LOD	< LOD	174	207	11242	1424	706	< LOD	36590	< LOD	312401	< LOD
217	59.23	< LOD	30	1280	2869	12720	5219	779	< LOD	46273	< LOD	294721	< LOD
219V	59.65	< LOD	30	1467	512	15658	1641	828	< LOD	56845	< LOD	312534	< LOD
220	59.78	< LOD	31	1164	550	16518	1862	858	< LOD	58303	< LOD	302042	< LOD
221	60.10	< LOD	46	1469	488	14687	1154	778	< LOD	40467	< LOD	315548	< LOD
222	60.38	43	51	2200	587	13309	9802	823	< LOD	60351	< LOD	285940	< LOD
223V	60.58	< LOD	27	1359	297	13148	3594	780	< LOD	56700	< LOD	305942	< LOD
224	60.73	73	72	1751	1795	15595	15559	831	< LOD	68956	< LOD	273298	2271
225	61.03	28	33	1425	519	16852	8555	921	< LOD	49080	< LOD	306974	< LOD
226	61.32	< LOD	33	1212	530	17168	5128	887	< LOD	43597	< LOD	311867	< LOD
227V	61.53	< LOD	33	1888	412	14948	14175	752	4.2	52992	< LOD	302224	< LOD
228	61.71	< LOD	54	1424	935	10841	8793	739	< LOD	46138	< LOD	301483	2111
230	62.36	< LOD	34	1154	266	10453	1603	618	< LOD	49646	< LOD	297836	< LOD
231V	62.54	< LOD	17	211	160899	8088	1436	684	< LOD	17646	< LOD	300670	< LOD
232	62.68	< LOD	34	1476	159540	9341	1308	705	< LOD	16302	< LOD	303194	< LOD
233	62.98	< LOD	20	108	155928	6113	1257	749	< LOD	9044	< LOD	326000	< LOD

Table 25. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 234 to 296.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
234	63.28	87	125	945	63890	6867	33321	713	< LOD	34670	20289	183834	< LOD
235V	63.45	< LOD	41	1514	155776	10048	4234	772	< LOD	23352	< LOD	277357	< LOD
236	63.61	42	56	1839	815	11375	5626	635	< LOD	53255	< LOD	308481	< LOD
237	63.95	62	97	2580	988	11424	3075	702	3.6	64414	< LOD	271109	< LOD
239V	64.43	63	67	2030	1212	10102	5402	505	< LOD	58813	< LOD	280983	< LOD
242	65.40	37	69	2037	439	12213	5164	729	< LOD	69224	< LOD	264092	< LOD
243V	65.51	< LOD	29	527	285	11076	2202	753	< LOD	36755	< LOD	318603	< LOD
244	65.60	< LOD	32	1031	231	11003	988	652	< LOD	41456	< LOD	318314	< LOD
245	65.90	< LOD	42	1129	233	11625	7194	707	< LOD	51346	< LOD	299099	< LOD
246	66.19	60	64	2263	504	11281	4759	666	< LOD	60501	< LOD	299090	< LOD
247V	66.40	< LOD	31	1469	367	13450	2677	621	< LOD	40121	< LOD	309377	< LOD
248	66.56	< LOD	18	710	189	10189	2027	621	< LOD	35130	< LOD	330428	< LOD
249	66.83	< LOD	63	1954	474	10157	4046	625	< LOD	43755	< LOD	292630	< LOD
250	67.16	< LOD	39	1248	560	10434	1732	618	< LOD	46307	< LOD	299559	< LOD
251V	67.35	< LOD	27	903	362	10086	1173	645	< LOD	47399	< LOD	313664	< LOD
252	67.54	< LOD	29	942	400	10005	934	594	< LOD	43266	< LOD	321962	< LOD
254	68.14	< LOD	< LOD	321	400	12274	5878	631	< LOD	37553	< LOD	308031	< LOD
255V	68.32	41	27	761	104196	6843	5310	735	20.9	29077	62216	179140	< LOD
256	68.50	< LOD	24	1640	526	10949	1895	634	< LOD	42123	< LOD	297675	< LOD
257	68.80	< LOD	27	1469	274	11670	4450	604	< LOD	42421	< LOD	305913	< LOD
258	69.10	< LOD	24	1776	651	11840	3117	646	< LOD	28859	< LOD	326845	< LOD
259V	69.29	< LOD	46	1587	838	11307	2299	618	< LOD	49643	< LOD	303474	< LOD
260	69.44	34	49	1726	525	10417	2736	624	3.0	52841	< LOD	293801	< LOD
262	70.06	36	35	1230	579	12031	4704	648	< LOD	44682	< LOD	285095	< LOD
264	70.50	< LOD	33	998	392	10515	4822	552	< LOD	34812	< LOD	308669	< LOD
265	70.76	37	28	986	347	11273	2410	549	< LOD	47948	< LOD	291507	< LOD
266	71.05	< LOD	18	474	347	10371	1450	660	< LOD	35270	< LOD	327843	< LOD
267V	71.29	< LOD	50	994	389	10816	14676	642	< LOD	40406	< LOD	296636	< LOD
268	71.51	< LOD	33	1419	501	11541	3227	634	< LOD	42060	< LOD	300594	< LOD
269	71.79	< LOD	< LOD	655	234	10515	1309	632	< LOD	24727	< LOD	340534	< LOD
270	72.10	< LOD	< LOD	891	514	10797	3400	661	< LOD	28023	< LOD	333603	< LOD
271V	72.23	50	48	2371	806	13128	6225	727	4.3	53861	< LOD	285166	3967
273	72.79	< LOD	27	1261	528	10676	4893	693	< LOD	46886	< LOD	312027	1664
274	72.97	< LOD	27	930	618	11646	8256	716	< LOD	49026	< LOD	285859	< LOD
275V	73.28	< LOD	36	1190	1622	13597	9672	716	< LOD	53171	< LOD	304657	< LOD
276	73.43	< LOD	42	1372	1742	12162	10361	781	3.0	53655	< LOD	290909	< LOD
277	73.64	37	36	1767	1626	13859	13878	762	< LOD	51119	< LOD	272202	< LOD
278	74.03	< LOD	< LOD	1242	167528	12500	6456	832	6.0	27034	< LOD	264424	< LOD
279V	74.21	47	49	1554	157149	12211	6901	792	6.2	36952	< LOD	222100	10910
280	74.29	102	67	1257	157289	11975	7645	1280	4.0	31758	< LOD	237423	5247
281	74.61	224	170	1793	71764	9344	25834	497	6.5	44408	< LOD	197973	< LOD
282	74.89	75	112	4970	1524	15673	23726	786	12.7	71392	334	316212	< LOD
283V	75.10	< LOD	< LOD	768	366	11264	1149	678	< LOD	29369	< LOD	335286	< LOD
284	75.25	< LOD	42	2502	351	12498	1718	670	< LOD	41660	< LOD	318580	< LOD
285	75.56	< LOD	15	1168	690	11362	1490	579	< LOD	25648	< LOD	333628	< LOD
286	75.84	< LOD	22	941	1075	11522	2209	675	< LOD	39090	< LOD	308036	< LOD
287V	76.08	27	19	733	2967	13424	3359	737	< LOD	36297	< LOD	309619	< LOD
288	76.24	< LOD	31	701	547	11075	10098	715	< LOD	38869	< LOD	314732	< LOD
289	76.53	< LOD	20	568	513	8958	1498	748	< LOD	30819	< LOD	332606	< LOD
290	76.84	< LOD	23	460	295	11587	756	597	< LOD	35346	< LOD	321594	< LOD
291V	77.05	< LOD	22	917	6061	9685	1068	591	< LOD	37962	< LOD	321539	< LOD
292	77.23	< LOD	26	807	7005	10316	1866	643	< LOD	46940	< LOD	295467	< LOD
293	77.52	< LOD	18	658	10056	11829	1619	592	< LOD	35597	< LOD	312196	< LOD
294	77.82	< LOD	30	553	709	10469	1515	632	< LOD	44640	< LOD	309496	< LOD
295V	78.06	< LOD	25	911	1256	10329	1933	607	< LOD	44670	< LOD	303647	< LOD
296	78.18	< LOD	32	1325	1375	12212	1388	696	< LOD	45623	< LOD	313047	< LOD

Table 26. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 297 to 360.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
297	78.47	< LOD	13	399	1378	10287	1405	619	< LOD	43525	< LOD	313452	< LOD
298	78.77	< LOD	20	1222	550	15277	1236	715	< LOD	55523	< LOD	281942	< LOD
300	79.15	41	52	1788	1671	13921	5067	638	< LOD	61051	< LOD	287452	< LOD
301	79.46	< LOD	40	927	3878	14772	2123	839	< LOD	68477	< LOD	268985	< LOD
302	79.74	71	72	2843	2988	15331	22669	814	5.7	62551	< LOD	272804	< LOD
303V	79.97	40	64	2323	3714	16008	28805	754	7.1	60253	< LOD	299705	< LOD
304	80.15	70	50	3205	6269	15308	19460	781	6.8	62554	< LOD	280724	< LOD
305	80.51	< LOD	38	130	167590	13437	8118	880	< LOD	15601	< LOD	288741	< LOD
306	80.77	< LOD	< LOD	184	186723	11077	849	896	< LOD	16899	< LOD	276135	< LOD
309V	82.67	43	86	3917	2043	13651	5343	693	3.1	56637	< LOD	274924	2451
310	82.80	203	199	1537	11762	11877	7288	666	< LOD	53092	< LOD	244996	5724
311	83.08	78	71	2832	1905	16702	11476	902	4.8	62215	< LOD	284800	2660
313V	83.50	< LOD	16	819	2045	11460	1291	655	< LOD	33943	< LOD	317866	< LOD
314	83.61	< LOD	23	510	154	11116	1333	597	< LOD	46689	< LOD	302610	< LOD
315	83.90	34	32	1012	992	12450	2384	583	< LOD	55972	< LOD	280198	< LOD
316	84.22	< LOD	55	1757	1705	12828	5645	609	< LOD	54051	< LOD	279603	1781
317V	84.41	103	98	3734	1396	14344	16999	726	3.6	62467	259	249841	3751
318	84.61	< LOD	32	1677	885	10305	2099	563	< LOD	50347	< LOD	298803	2036
319	84.90	44	50	2226	19949	12789	18002	756	< LOD	62277	< LOD	268796	< LOD
321V	85.40	< LOD	< LOD	1623	208626	9263	1046	688	4.2	18659	< LOD	250695	< LOD
322	85.59	< LOD	< LOD	992	160021	10968	1331	742	< LOD	18352	< LOD	299028	< LOD
323	85.90	31	59	2549	3463	14622	21049	705	5.9	49304	< LOD	318540	< LOD
324	86.19	< LOD	16	273	229	8287	1967	555	< LOD	25751	< LOD	333010	1764
326	86.54	< LOD	42	1203	912	8455	6155	589	< LOD	29763	< LOD	360513	< LOD
328	87.13	44	110	3579	3158	12144	56645	614	7.1	42057	< LOD	331802	< LOD
329V	87.37	45	72	2529	973	11671	4645	611	7.2	60753	< LOD	293860	< LOD
330	87.54	102	81	1677	106078	11118	4508	830	30.2	32122	20378	277659	< LOD
331	87.84	138	262	2159	7990	9368	5648	548	4.4	47820	785	257042	3547
333V	88.36	91	144	3129	27178	10909	5639	604	8.4	41841	796	316599	3057
334	88.51	< LOD	46	1010	119548	9572	1851	704	< LOD	23281	< LOD	306878	< LOD
335	88.81	209	271	680	13745	7161	2616	437	6.6	34109	855	298504	7420
336	89.10	136	73	988	168607	9897	3535	801	6.9	31713	5485	209043	< LOD
337V	89.33	< LOD	61	785	121798	12864	3857	969	< LOD	28890	2623	270695	8428
338	89.47	108	90	1089	87536	9383	3616	707	3.3	26538	509	327203	3484
339	89.77	36	61	2337	71639	12358	2890	792	7.9	40183	< LOD	313855	< LOD
340	90.08	59	94	2947	11172	15951	12810	827	7.5	65188	< LOD	299228	2494
341V	90.30	62	70	3429	1289	17072	19367	871	6.7	68675	< LOD	294896	< LOD
342	90.48	263	208	2428	6831	13212	23335	731	8.2	59104	< LOD	195785	8023
343	90.80	117	75	1993	107376	11822	4322	978	7.0	43434	< LOD	255150	< LOD
344	91.12	47	101	2076	43086	15104	7189	798	3.7	53412	< LOD	289907	< LOD
345V	91.32	73	116	1966	8290	14584	10676	768	3.5	59391	< LOD	315630	2515
346	91.45	67	117	3607	1337	20571	12980	909	8.7	64371	< LOD	309183	< LOD
347	91.75	248	283	963	124008	10578	12036	724	66.9	46250	51268	134799	6867
348	92.06	38	57	1442	66060	12211	3858	780	3.5	37882	< LOD	311023	< LOD
349V	92.24	75	85	2989	2407	17475	13069	846	4.1	57014	< LOD	317673	< LOD
350	92.47	77	91	3760	2837	17438	15385	841	8.7	63620	< LOD	311073	2789
351	92.74	58	108	2973	1306	16767	8044	793	4.3	60913	< LOD	310206	3423
352	93.03	89	108	3279	18420	15342	36354	569	6.6	67634	< LOD	240618	3047
353V	93.23	29	52	1590	82027	11080	2256	740	< LOD	30786	< LOD	317144	< LOD
354	93.39	64	80	2483	2243	16866	2896	756	< LOD	58827	< LOD	294586	< LOD
355	93.71	101	104	1856	2472	13496	6394	527	6.4	64955	< LOD	251615	4121
356	93.99	< LOD	40	1335	74306	10321	4245	772	3.8	32121	< LOD	323598	< LOD
357V	94.21	47	< LOD	755	154473	9343	1137	721	< LOD	17459	< LOD	306060	< LOD
358	94.37	44	75	3053	140165	13165	2792	720	11.0	34700	< LOD	273454	6443
359	94.69	83	80	2324	1357	15607	69077	863	7.8	62484	< LOD	250506	< LOD
360	94.97	130	124	6767	1945	14787	10435	735	14.4	69530	< LOD	269856	< LOD

Table 27. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 361V to 416V.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
361V	95.17	71	86	4029	744	14990	11635	737	5.8	71569	< LOD	290582	< LOD
362	95.33	37	58	2419	1114	16760	7415	804	3.4	67395	< LOD	294418	< LOD
363	95.63	< LOD	30	977	142721	12348	1913	924	6.3	31601	< LOD	287409	< LOD
364	95.97	48	94	4439	24616	14429	1973	707	8.5	62064	< LOD	292374	< LOD
365V	96.15	66	75	4331	60691	12723	1214	699	6.5	46509	< LOD	296238	< LOD
366	96.24	60	83	5059	30462	14317	270	688	7.7	58669	< LOD	291892	< LOD
367	96.56	82	117	5684	911	14943	1856	646	11.4	79958	< LOD	283836	4031
368	96.83	120	100	4080	8163	18985	18564	793	11.8	60423	< LOD	273110	6078
369V	97.06	61	101	3239	10261	18302	11472	735	7.8	57712	< LOD	285426	5665
370	97.23	105	102	3719	10014	18558	14665	730	9.5	58034	< LOD	278961	4902
371	97.55	107	78	4120	7832	19132	26629	770	8.6	62957	326	270149	5458
372	97.85	78	77	4039	7753	18773	16964	725	9.8	62914	< LOD	281365	5440
373V	98.07	36	79	4199	10337	19977	20904	787	9.2	65314	< LOD	282489	6908
374	98.22	85	70	3669	8051	19393	15833	774	7.0	60075	< LOD	293665	4709
375	98.54	110	82	4425	8478	18905	21075	779	9.1	59609	< LOD	272066	7152
376	98.82	67	118	4334	8587	20825	25564	841	9.7	64145	365	286147	6916
377V	99.04	113	99	4134	13689	21221	17178	846	11.0	66005	< LOD	277569	5826
378	99.12	95	85	4225	14142	18842	24141	777	8.4	61357	< LOD	257689	3298
379	99.42	73	75	3766	13505	19410	15332	760	10.3	61099	< LOD	282651	3300
380	99.73	150	95	4493	17735	19690	23799	807	11.6	65141	< LOD	261527	5669
381V	99.95	60	95	4095	16810	17045	18608	740	10.1	59843	< LOD	302449	2770
382	100.13	< LOD	34	1464	154480	11148	1674	760	4.0	22056	< LOD	300120	< LOD
383	100.43	110	94	3932	17696	18539	17242	884	9.7	63565	296	286057	2879
384	100.73	233	204	2890	39122	15653	19673	654	8.8	55161	< LOD	239285	6270
385V	100.98	114	172	5402	3546	21760	17067	904	15.2	72824	< LOD	277875	3932
386	101.13	166	286	5634	3809	14203	6852	823	14.9	71770	< LOD	291707	2697
387	101.48	106	< LOD	1234	277739	9646	4030	833	7.0	33915	5771	126444	< LOD
388	101.75	130	209	4625	2263	14613	10491	729	13.1	65084	< LOD	332535	4776
389V	101.97	25	82	1968	920	10534	4519	675	< LOD	70415	< LOD	281056	< LOD
390	102.10	< LOD	74	2194	1725	10846	2879	572	< LOD	54469	< LOD	295942	< LOD
391	102.39	38	71	2193	999	13866	2262	749	< LOD	72227	< LOD	285463	< LOD
392	102.70	< LOD	43	2094	977	13356	3425	719	< LOD	73559	< LOD	272657	< LOD
393V	102.93	< LOD	< LOD	572	159692	11432	< LOD	774	< LOD	21891	< LOD	294920	8007
394	103.05	< LOD	31	858	148236	14206	1482	934	< LOD	34649	< LOD	277247	< LOD
395	103.35	< LOD	< LOD	1994	166642	12548	3366	776	6.9	26973	< LOD	277858	< LOD
396	103.65	< LOD	< LOD	2081	145047	12916	6000	1058	5.7	34902	< LOD	272408	< LOD
397V	103.89	80	44	3422	1769	14904	46648	978	4.1	80200	< LOD	247531	< LOD
398	104.03	62	54	2338	1253	15115	20139	809	< LOD	75814	< LOD	282893	2486
399	104.31	85	95	5390	1733	14559	27645	691	5.7	82176	< LOD	261088	< LOD
400	104.61	35	70	2905	106400	12872	11611	758	10.8	36639	< LOD	310642	< LOD
401V	104.85	36	82	3170	115177	11759	17093	826	11.4	37789	< LOD	286745	< LOD
402	104.96	21	44	2102	130744	12771	15720	834	5.7	31644	< LOD	297505	3758
403	105.27	41	61	3751	2543	14607	26650	758	5.7	65995	< LOD	284219	< LOD
404	105.56	54	52	3890	1030	15461	24124	816	5.3	65466	< LOD	287710	< LOD
405V	105.76	53	62	4675	1180	14816	24157	764	7.8	74583	< LOD	276494	< LOD
406	105.96	47	75	3774	1104	13943	25367	793	6.9	63356	< LOD	282378	2467
407	106.29	102	117	9200	1078	12713	30827	536	23.1	72710	< LOD	275247	< LOD
408	106.56	90	63	4852	1507	15441	23670	811	7.7	71636	< LOD	294840	< LOD
409V	106.80	< LOD	22	1280	1513	5680	5437	400	< LOD	33902	< LOD	361299	< LOD
410	106.97	< LOD	< LOD	936	861	6057	9221	497	< LOD	29411	< LOD	351497	< LOD
411	107.24	< LOD	< LOD	970	397	5870	3800	417	< LOD	32146	< LOD	353749	< LOD
412	107.57	198	127	4805	6148	18657	53043	922	12.1	88311	372	251813	6133
413V	107.83	78	118	4664	3387	18357	52245	929	11.0	76228	< LOD	277204	< LOD
414	107.96	96	90	4730	3433	15505	25277	879	10.2	76680	< LOD	294524	< LOD
415	108.24	88	99	5508	2117	18206	24792	946	10.8	90562	471	267183	2888
416	108.52	170	121	5310	4252	20566	53040	840	14.2	78750	728	261848	< LOD

Table 28. XRF results (Cr, V, Ti, Ca, K, S, Ba, Nb, Al, P, Si, Mg) of plug samples 417V to 449V.

Plug id.	Depth (m)	Cr (ppm)	V (ppm)	Ti (ppm)	Ca (ppm)	K (ppm)	S (ppm)	Ba (ppm)	Nb (ppm)	Al (ppm)	P (ppm)	Si (ppm)	Mg (ppm)
417V	108.73	164	117	5073	6132	19725	52176	827	13.4	84659	657	244834	6438
418	108.90	146	104	4946	5037	20151	39036	851	11.6	77711	319	271107	5446
419	109.20	221	198	4269	51629	17428	37799	819	11.9	73227	1683	232190	10292
420	109.49	135	119	6091	3032	22767	43448	746	16.4	92040	1030	255485	< LOD
421V	109.69	146	165	6881	1472	22038	29562	788	16.2	87741	633	240488	3531
422	109.89	143	154	7191	1625	21513	27813	769	18.1	92888	645	252202	4615
423	110.19	73	76	3287	1846	14862	33337	847	9.6	72333	< LOD	317011	< LOD
426	110.67	105	116	5070	724	14831	77515	771	11.5	76452	339	264389	< LOD
427	110.99	82	97	6909	1273	14106	63017	650	17.5	71261	< LOD	278782	3704
428	111.26	56	78	7085	55128	10730	41091	647	19.9	50487	< LOD	292391	< LOD
429V-A	111.51	93	151	5741	987	17983	65559	913	8.7	75665	578	242514	5932
429V-B	111.51	< LOD	33	457	297	5894	16871	505	< LOD	20325	< LOD	451809	2064
430	111.65	67	62	3994	716	16089	33037	692	7.2	67506	< LOD	299348	2663
431	111.93	90	70	3853	11256	14017	48865	745	7.5	67048	< LOD	287386	3636
432	112.22	49	74	3386	948	15071	29357	677	6.1	63676	< LOD	303794	< LOD
433V-A	112.44	55	106	5993	979	12605	46952	899	7.8	81760	295	264642	< LOD
433V-B	112.44	< LOD	51	1153	183	6555	8562	513	< LOD	30064	< LOD	368599	< LOD
434	112.63	54	96	4170	693	12478	40737	708	9.5	68618	< LOD	304211	< LOD
435	112.95	51	72	3693	523	13537	34087	754	8.9	74104	< LOD	278937	< LOD
436	113.24	< LOD	22	1606	720	11586	20029	692	< LOD	57171	< LOD	288110	< LOD
437V	113.47	31	47	2908	403	23794	32834	923	5.0	73576	< LOD	279542	< LOD
438	113.59	67	75	5003	1023	12454	29800	831	10.5	79396	< LOD	275784	< LOD
439	113.99	< LOD	< LOD	584	1339	6133	11369	517	< LOD	25989	< LOD	340173	< LOD
440	114.19	< LOD	< LOD	613	99	8773	28298	529	< LOD	45797	< LOD	291341	< LOD
441V	114.42	< LOD	< LOD	1707	361	8257	12557	532	< LOD	59842	< LOD	304352	3011
442	114.58	< LOD	16	620	265	7973	5126	506	< LOD	38855	< LOD	324527	< LOD
443	114.88	< LOD	< LOD	617	565	7292	4904	509	< LOD	39294	< LOD	317494	< LOD
444	115.19	< LOD	< LOD	951	576	7703	18280	488	< LOD	41382	< LOD	310045	< LOD
445V	115.38	< LOD	20	1050	109	6042	19206	514	< LOD	60104	< LOD	272208	< LOD
446	115.47	< LOD	26	1271	573	6714	13196	468	< LOD	65771	< LOD	281416	< LOD
447	115.79	< LOD	< LOD	826	201	10028	7377	639	< LOD	61454	< LOD	316102	< LOD
448	116.09	< LOD	26	561	1802	10999	10986	553	< LOD	56700	< LOD	295994	< LOD
449V	116.33	< LOD	19	458	300	8602	8047	471	< LOD	45539	< LOD	317537	< LOD

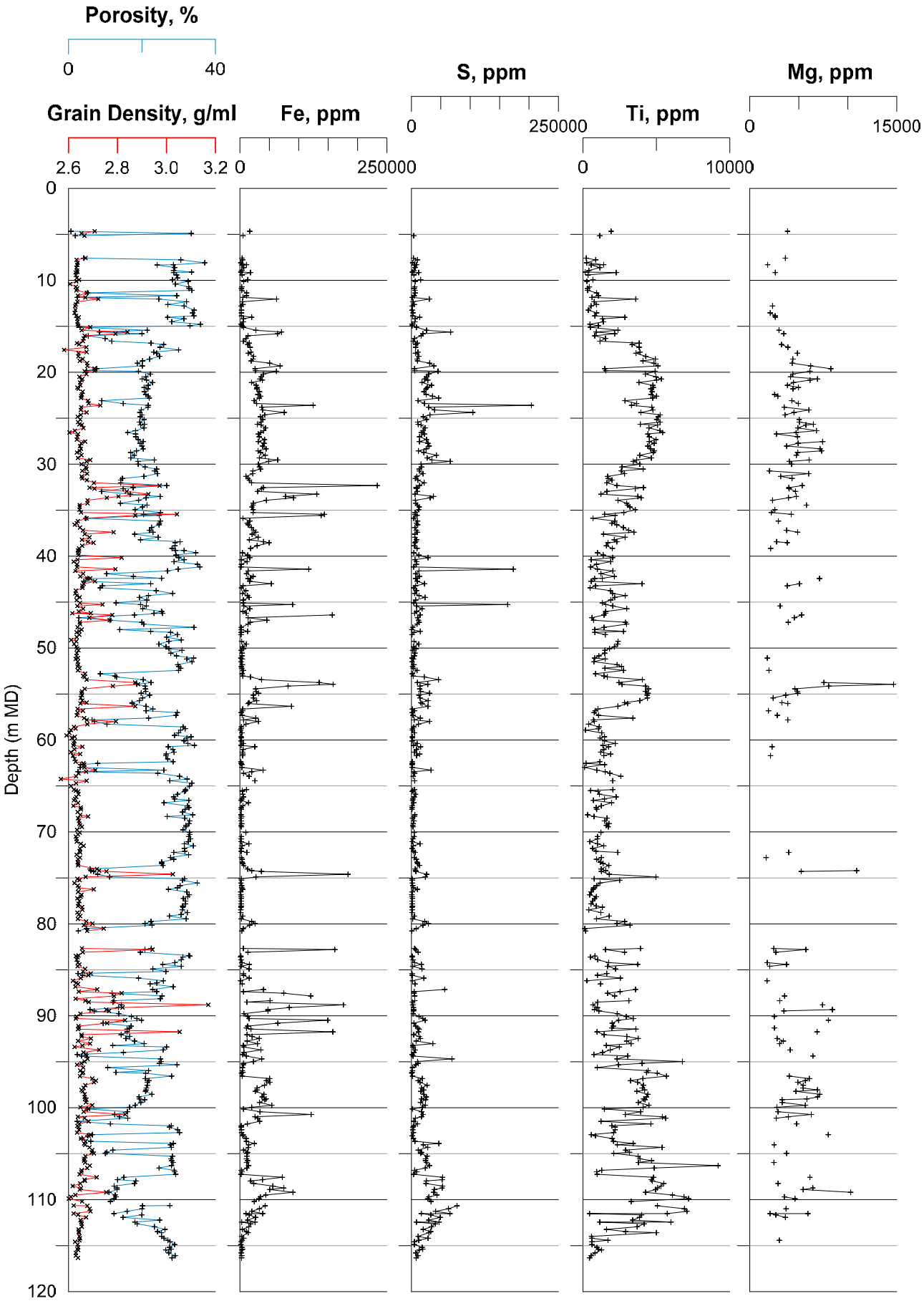


Figure 40. Log of XRF data: Fe, S, Ti, Mg vs. depth.

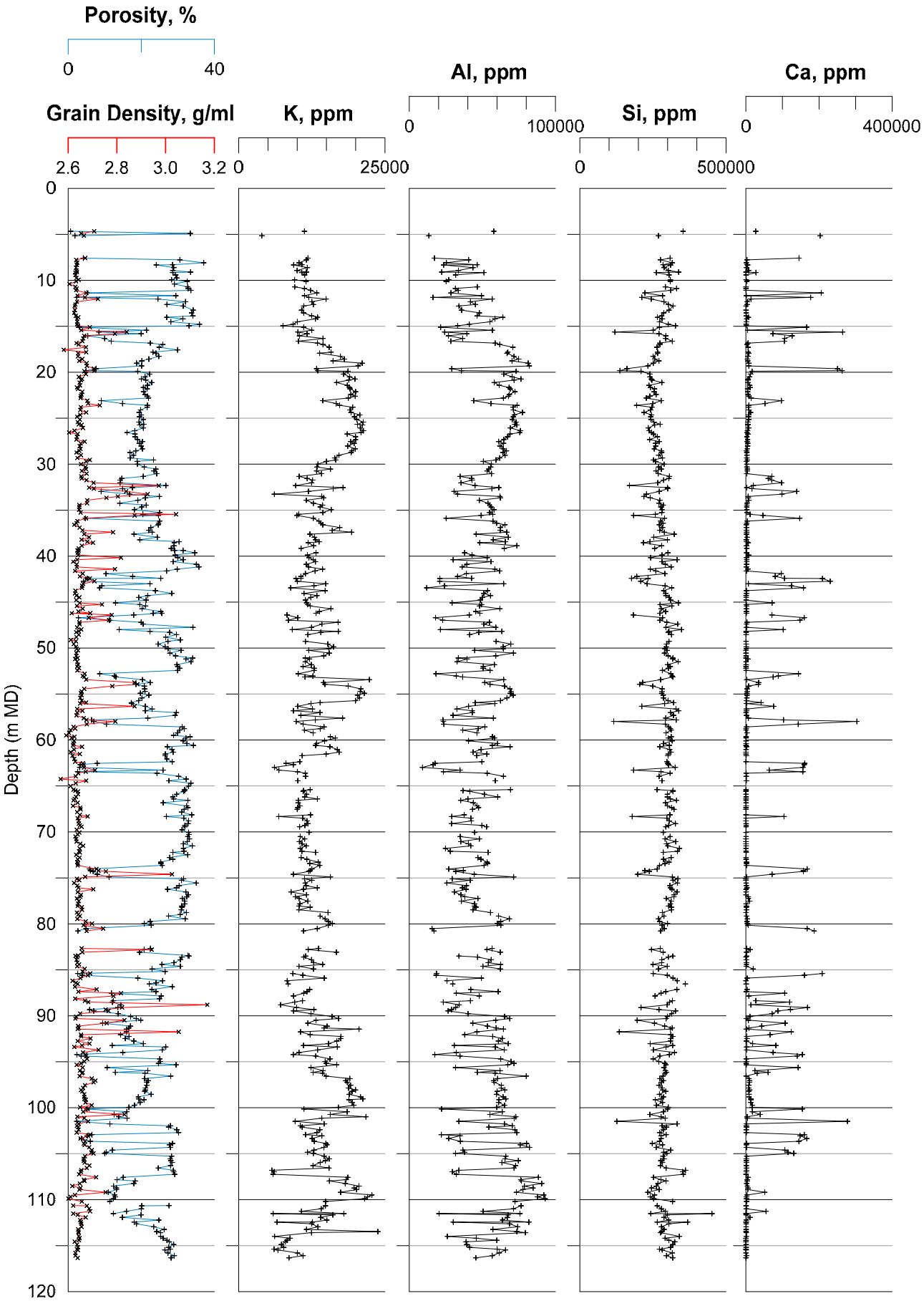


Figure 41. Log of XRF data: K, Al, Si, Ca vs. depth.

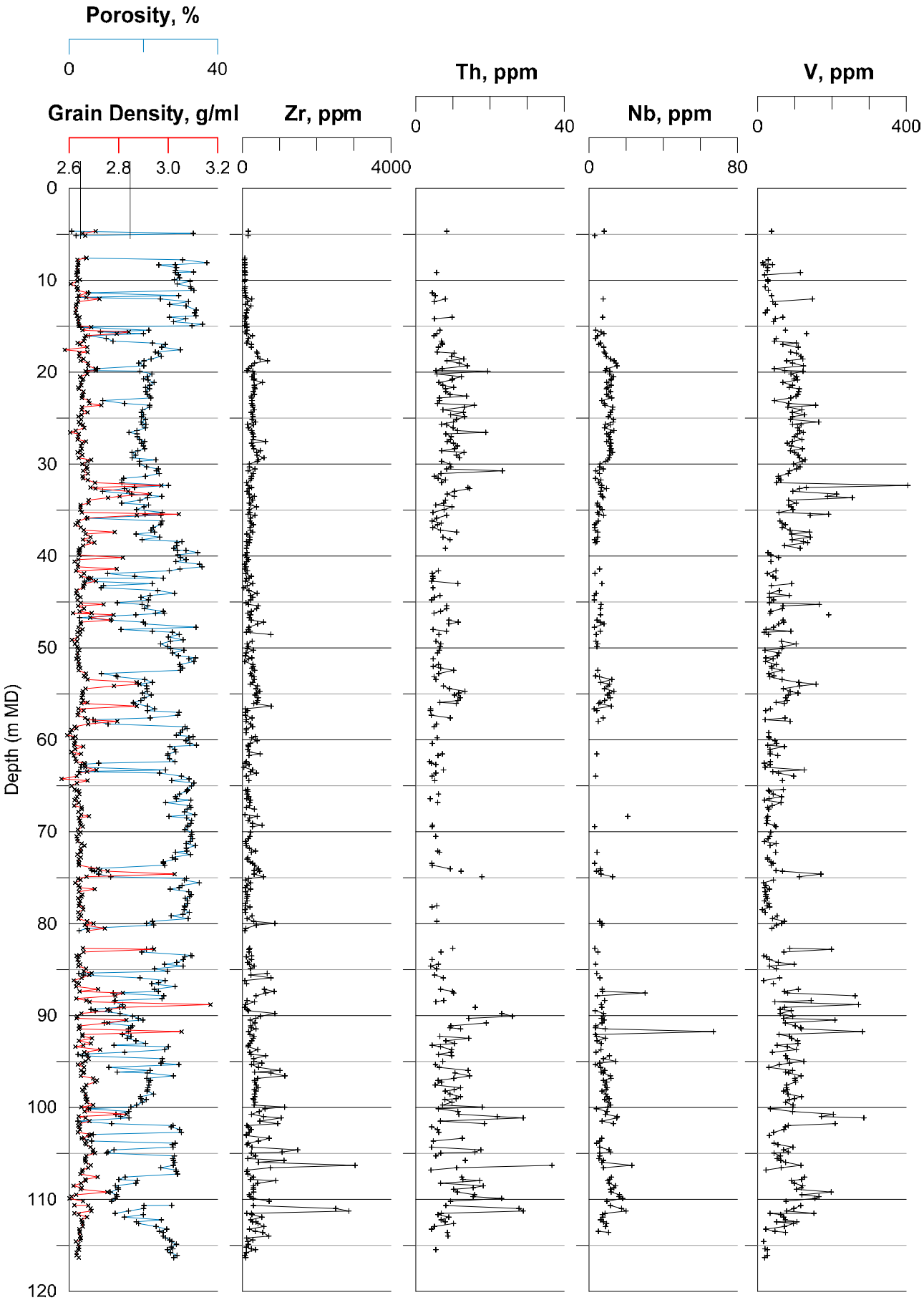


Figure 42. Log of XRF data: Zr, Th, Nb, V vs. depth.

6. References

API: Recommended practices for core analysis, RP 40, 2nd ed. *API Publications, Washington D.C., February 1998.*

Pedersen, G.K., Bojesen-Koefoed, J.A.: Well completion report: Ravn Pynt-1 fully cored borehole, Store Koldewey, Northeast Greenland. Contribution to Petroleum Geological Studies, Services and Data in East and Northeast Greenland. *Danmarks og Grønlands Geologiske Undersøgelse Rapport 2018/4.*