
Appendix III

Core hole number, sample number (canister number), and major, minor, and trace element content for samples from three core holes 2, 17, and 18 in the Powder River Basin, Wyoming. Location of core holes shown in figure 1 of text.

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole. [All data is on a whole coal dry basis; —, not determined; <, less than value; ppm, parts per million]

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
1	1,078.0	0.21	0.43	<0.016	0.15	0.10	<0.00034	0.012	0.49	0.14	0.016	0.050	1.2	200	0.050
2	1,082.0	0.25	0.51	<0.016	0.11	0.10	<0.00029	0.014	0.23	0.13	0.014	0.036	0.36	190	0.060
3	1,084.0	0.24	0.46	<0.016	0.12	0.11	0.00027	0.012	0.26	0.13	0.022	0.041	0.27	190	0.059
4	1,086.0	0.25	0.45	<0.016	0.12	0.11	<0.00025	0.012	0.15	0.13	0.015	0.037	0.28	130	0.060
5	1,088.0	0.27	0.47	<0.016	0.12	0.11	0.00032	0.011	0.41	0.17	0.046	0.18	0.52	190	0.16
6	1,090.0	0.33	0.41	<0.016	0.11	0.098	<0.00028	0.012	0.25	0.12	0.016	0.084	0.30	170	0.097
7	1,093.0	0.48	0.47	<0.016	0.25	0.11	0.032	0.014	0.35	0.15	0.018	0.14	3.4	190	0.29
8	1,095.0	0.34	0.52	<0.016	0.12	0.13	<0.00034	0.014	0.39	0.14	0.021	0.10	0.37	180	0.12
11	1,097.0	0.25	0.47	<0.016	0.11	0.12	0.00039	0.013	0.24	0.14	0.016	0.033	0.33	160	0.083
12	1,099.0	0.25	0.42	<0.016	0.099	0.11	<0.00024	0.014	0.19	0.14	0.025	0.020	0.34	150	0.069
13	1,101.0	0.30	1.1	0.025	0.18	0.13	0.0023	0.017	0.19	0.14	0.040	0.023	0.51	160	0.081
14	1,103.0	0.25	0.39	<0.016	0.09	0.099	<0.00023	0.013	0.13	0.13	0.029	0.026	0.38	130	0.080
15	1,107.0	0.66	0.48	<0.016	0.13	0.13	0.0085	0.031	0.76	0.13	0.053	0.22	0.49	190	0.26
16	1,109.0	0.82	0.72	<0.016	0.44	0.18	0.06	0.022	0.94	0.18	0.056	0.41	5.0	280	0.38
18	1,111.0	0.41	0.47	<0.016	0.11	0.13	0.00081	0.014	0.32	0.16	0.024	0.055	0.40	150	0.18
19	1,113.0	0.25	0.37	<0.016	0.088	0.094	0.00023	0.012	0.15	0.15	0.019	0.032	0.38	140	0.075
20	1,115.0	0.30	0.43	<0.016	0.099	0.11	0.0012	0.015	0.20	0.14	0.042	0.045	0.45	140	0.090
21	1,117.0	0.37	0.50	<0.016	0.11	0.12	<0.00029	0.014	0.32	0.14	0.040	0.043	0.48	150	0.11
25	1,122.0	0.38	0.53	<0.016	0.12	0.14	0.0013	0.014	0.66	0.14	0.077	0.14	0.57	180	0.13
26	1,124.0	0.31	0.51	<0.016	0.10	0.14	<0.00028	0.014	0.25	0.14	0.017	0.055	0.64	170	0.094
27	1,126.0	0.28	0.45	<0.016	0.10	0.12	0.00074	0.014	0.20	0.15	0.015	0.042	0.46	150	0.065
28	1,128.0	0.28	0.42	<0.017	0.10	0.12	<0.0003	0.015	0.36	0.15	0.020	0.044	0.48	160	0.058
30	1,130.0	0.31	0.56	<0.016	0.11	0.16	<0.0003	0.019	0.54	0.14	0.029	0.042	0.40	220	0.066
32	1,132.0	0.29	0.44	<0.016	0.099	0.12	<0.00025	0.014	0.20	0.14	0.016	0.034	0.41	150	0.065
38	1,137.0	0.49	0.68	<0.016	0.12	0.13	0.0083	0.014	0.30	0.18	0.044	0.099	0.46	190	0.19
39	1,139.0	0.57	2.3	<0.016	0.17	0.17	0.012	0.016	0.54	0.14	0.077	0.091	0.88	210	0.14
40	1,141.0	0.47	0.43	<0.016	0.11	0.11	0.02	0.015	0.27	0.16	0.056	0.094	0.95	170	0.19
42	1,143.0	0.11	0.12	<0.016	0.026	0.030	0.0012	0.0031	0.058	0.17	0.0076	0.059	0.45	49	0.17
47	1,145.0	0.24	0.29	<0.016	0.063	0.077	0.00045	0.015	0.068	0.14	0.0095	0.016	0.39	86	0.053
50	1,150.0	0.41	0.39	<0.016	0.091	0.11	0.0048	0.013	0.20	0.14	0.031	0.021	0.40	150	0.16
51	1,152.0	0.46	0.45	<0.016	0.10	0.13	0.0067	0.013	0.73	0.11	0.079	0.077	0.49	220	0.22
53	1,154.0	0.62	0.43	<0.016	0.099	0.12	0.019	0.014	0.83	0.14	0.18	0.074	0.54	230	0.37
60	1,156.0	0.26	0.31	<0.016	0.069	0.091	<0.00025	0.012	0.19	0.14	0.020	0.026	0.40	130	0.079
62	1,158.0	0.38	0.69	<0.016	0.21	0.16	0.0052	0.014	0.35	0.14	0.029	0.040	0.46	180	0.10

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole—Continued

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
63	1,160.0	0.33	1.7	<0.016	0.25	0.39	0.01	0.011	0.36	0.12	0.060	0.028	0.54	200	0.11
65	1,165.0	0.82	0.30	<0.016	0.90	0.094	0.0015	0.016	0.79	0.13	0.047	0.12	17	140	0.24
66	1,167.0	0.57	0.31	<0.016	0.65	0.10	0.0066	0.012	0.44	0.12	0.016	0.037	16	140	0.28
67	1,169.0	0.60	0.39	<0.016	0.079	0.12	0.018	0.014	0.85	0.14	0.064	0.11	0.6	200	0.26
68	1,171.0	0.26	0.31	<0.016	0.059	0.086	0.018	0.011	0.17	0.12	0.0065	0.016	0.29	120	0.064
69	1,173.0	0.18	0.29	<0.016	0.050	0.082	0.00077	0.012	0.088	0.12	0.008	0.019	0.28	65	0.041
70	1,175.0	0.33	0.43	—	0.075	0.14	0.035	0.012	0.53	0.14	0.027	0.036	0.34	250	0.076
71	1,183.3	0.28	0.30	—	0.059	0.095	<0.00041	0.025	0.99	0.11	0.042	0.065	0.38	210	0.27
72	1,185.5	0.50	0.32	—	0.082	0.12	0.0033	0.058	1.6	0.13	0.058	0.17	1.4	220	0.29
73	1,187.5	0.18	0.33	—	0.050	0.12	<0.00026	0.015	0.41	0.12	0.014	0.033	0.27	200	0.11
74	1,190.5	0.15	0.28	—	0.052	0.10	<0.00021	0.017	0.25	0.11	0.042	0.23	0.27	160	1.2
75	1,192.5	2.3	0.27	—	2.2	0.10	0.0015	0.039	3.4	0.11	0.20	0.42	66	220	1.1
76	1,197.7	0.68	0.28	—	0.046	0.10	<0.00072	0.031	2.0	0.13	0.098	0.25	1.2	210	2.4
A1	1,201.0	0.24	0.26	—	0.039	0.091	<0.0002	0.013	0.27	0.12	0.011	0.16	0.26	180	1.4
A2	1,210.0	0.29	0.27	—	0.049	0.11	0.0031	0.014	1.3	0.13	0.048	0.10	0.38	200	0.57
A3	1,214.0	0.21	0.23	—	0.034	0.079	0.0011	0.011	0.4	0.12	0.041	0.097	0.62	160	2.7

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole—Continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
1	0.042	62	0.046	0.023	1.7	0.69	4.4	0.48	0.069	<0.39	0.29	1.4	12	0.075	0.23	0.28
2	0.019	50	0.012	0.040	1.6	0.70	3.2	0.61	0.07	<0.33	0.28	1.7	21	<0.021	0.11	0.25
3	0.027	45	0.014	0.022	1.9	0.93	6.3	0.63	0.087	<0.31	0.52	1.3	14	<0.022	0.11	0.37
4	0.022	48	0.012	0.020	1.5	0.83	3.3	0.62	0.063	<0.29	0.38	1.3	14	<0.021	0.15	0.24
5	0.033	42	0.036	0.027	4.4	1.8	16	1.0	0.16	<0.43	0.81	2.4	20	<0.022	0.49	1.0
6	0.018	44	0.0065	0.021	2.1	0.87	3.2	0.68	0.13	<0.32	0.45	2.0	13	<0.022	0.61	0.31
7	0.022	41	0.13	0.028	3.9	3.2	6.1	1.0	0.12	<0.46	0.63	3.5	15	0.44	0.83	0.33
8	0.032	35	0.062	0.024	2.1	0.72	4.1	0.64	0.082	<0.39	0.30	2.6	13	<0.022	0.19	0.35
11	0.013	35	0.022	0.023	1.3	0.73	2.7	0.55	0.066	<0.3	0.35	1.7	12	<0.021	0.14	0.24
12	0.018	39	0.012	0.023	1.3	1.0	4.7	0.58	0.061	<0.28	0.22	1.5	10	<0.021	0.10	0.29
13	0.022	38	0.025	0.037	1.8	1.4	19	0.76	0.095	<0.48	0.59	1.8	110	0.022	0.10	0.34
14	0.017	33	0.025	0.025	1.3	1.2	5.8	0.80	0.10	<0.26	0.23	1.8	10	<0.021	0.13	0.39
15	0.076	28	0.059	0.18	6.9	1.4	9.5	2.6	0.32	<0.59	1.5	6.0	14	0.021	0.59	1.6
16	0.086	34	0.15	0.044	7.7	3.2	11	2.5	0.34	<0.86	2.6	7.1	20	0.37	1.8	1.2
18	0.032	27	0.020	0.022	2.4	1.1	5.5	0.92	0.092	<0.37	0.39	5.3	14	<0.022	0.37	0.46
19	0.015	32	0.015	0.024	1.3	1.0	3.5	0.80	0.075	<0.27	0.35	2.4	11	<0.021	0.25	0.28
20	0.018	31	0.010	0.027	1.5	1.2	8.8	0.90	0.096	<0.28	0.44	2.2	11	0.033	0.16	0.53
21	0.018	25	0.017	0.024	1.9	1.3	10	0.92	0.070	<0.33	0.46	3.1	13	<0.022	0.09	0.50
25	0.059	23	0.069	0.024	2.9	1.9	13	1.1	0.13	<0.49	0.86	4.9	14	0.075	0.22	1.1
26	0.017	22	0.013	0.020	1.5	0.87	3.1	0.68	0.068	<0.33	0.55	3.2	11	0.022	0.11	0.32
27	0.015	24	0.013	0.020	1.4	0.84	2.9	0.65	0.062	<0.28	0.35	2.7	9.2	0.022	0.11	0.27
28	0.013	27	0.0092	0.023	1.5	0.86	3.3	0.62	0.075	<0.34	0.42	2.7	8.1	<0.022	0.14	0.40
30	0.028	30	0.031	0.022	1.5	0.77	4.0	0.53	0.080	<0.35	0.31	2.6	6.7	0.033	0.14	0.40
32	0.016	24	0.0099	0.020	1.5	0.84	2.9	0.67	0.057	<0.28	0.38	2.6	6.4	<0.022	0.15	0.30
38	0.015	23	0.012	0.025	2.8	1.5	15	1.7	0.18	<0.43	0.77	8.5	26	<0.022	0.46	0.80
39	0.091	26	0.025	0.030	3.1	1.8	19	1.9	0.25	<0.91	1.8	5.6	49	0.022	0.52	1.0
40	0.043	25	0.055	0.027	2.5	1.9	18	1.4	0.25	<0.39	0.86	3.9	7.5	0.087	0.51	1.1
42	0.014	7.3	0.013	0.024	1.8	1.2	7.7	1.0	0.18	<0.31	0.27	4.2	4.6	<0.021	0.36	0.52
47	0.0064	36	0.0021	0.025	0.59	0.50	2.3	0.43	0.14	<0.21	0.32	1.5	2.4	<0.022	0.32	0.19
50	0.014	26	0.075	0.021	1.8	1.6	8.4	1.0	0.091	<0.32	0.33	5.5	5.2	<0.022	0.25	0.51
51	0.060	25	0.10	0.020	3.8	1.8	16	1.9	0.19	<0.55	1.1	4.6	5.0	0.021	0.15	1.2
53	0.041	23	0.055	0.026	4.6	3.8	46	3.1	0.25	<0.61	1.5	6.4	6.1	0.032	0.20	2.1
60	0.012	33	0.013	0.021	1.3	0.93	4.1	0.74	0.14	<0.28	0.55	2.2	2.7	<0.022	0.24	0.39
62	0.029	36	0.011	0.019	2.1	0.94	5.8	0.86	0.12	<0.44	0.66	3.1	44	<0.022	0.21	0.56

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole—Continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
63	0.039	29	0.049	0.018	2.0	1.4	11	0.87	0.077	<0.77	1.0	2.6	77	<0.021	0.17	0.66
65	0.033	40	0.28	0.052	6.0	7.0	15	2.0	0.42	<0.71	1.7	7.1	14	0.21	1.2	1.6
66	0.031	35	0.14	0.021	4.6	1.7	4.6	0.81	0.17	<0.56	0.76	5.1	15	0.24	0.45	0.50
67	0.068	33	0.042	0.024	4.0	1.7	21	2.4	0.21	<0.56	1.6	5.5	2.6	<0.022	0.25	1.3
68	0.0090	35	<0.0028	0.017	1.1	0.74	1.8	0.44	0.026	<0.28	0.20	2.0	2	<0.022	0.13	0.14
69	0.010	43	<0.002	0.019	0.78	0.65	1.6	0.34	0.047	<0.2	0.15	0.91	1.6	<0.022	0.14	0.23
70	0.026	28	0.015	0.017	1.8	0.67	4.6	0.58	0.080	<0.38	0.16	2.1	2.4	<0.021	0.072	0.58
71	0.018	39	0.020	0.046	3.3	1.6	9.5	1.3	0.27	<0.47	0.86	1.3	2.4	0.021	0.20	0.56
72	0.050	37	0.061	0.14	4.2	2.0	8.3	2.6	0.40	<0.69	2.3	2.8	4.2	0.032	0.30	2.3
73	0.010	32	0.0092	0.025	1.2	0.60	4.5	0.47	0.059	<0.3	0.074	1.1	1.9	<0.021	0.14	0.089
74	0.012	44	0.0031	0.024	7.1	2.2	3.2	6.1	0.97	<0.24	0.77	0.84	3.7	0.021	0.33	2.0
75	0.12	28	0.53	0.35	12	9.3	44	8.6	0.95	<1.7	4.9	35	27	2.2	2.2	5.8
76	0.051	35	0.040	0.053	5.3	4.8	13	5.6	0.82	<0.82	3.8	8.1	2.5	<0.021	0.39	3.4
A1	0.0079	46	0.0030	0.021	1.6	3.6	2.4	5.3	1.4	<0.23	0.40	1.2	1.3	<0.021	0.22	0.70
A2	0.026	40	0.040	0.025	2.5	2.2	14	1.6	0.45	<0.5	0.74	1.9	1.4	0.032	0.65	0.68
A3	0.029	52	0.024	0.018	2.3	5.3	13	1.5	0.28	<0.29	0.97	1.3	1.6	0.032	0.35	0.77

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole—Continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
1	1.0	0.36	0.56	1.1	<0.039	140	0.093	0.042	0.54	0.21	0.13	3.3	0.88	4.0	6.2
2	0.58	0.55	0.60	0.42	<0.033	140	0.021	0.006	<0.26	0.17	0.11	4.3	0.86	3.5	4.5
3	0.69	0.37	0.74	0.30	<0.031	130	0.029	0.0056	0.37	0.23	0.13	4.9	0.89	3.9	6.5
4	1.0	0.34	0.56	0.26	<0.029	110	0.019	0.004	0.33	0.18	0.11	4.2	0.86	3.8	5.5
5	1.2	0.46	1.6	0.47	0.043	180	0.086	<0.0043	1.1	0.41	0.41	12	2.1	5.6	12
6	1.4	0.33	0.62	0.30	<0.032	92	0.0097	<0.0032	0.42	0.20	0.18	7.5	1.1	3.4	6.4
7	5.5	0.42	1.2	2.7	<0.046	220	0.30	0.11	0.42	0.18	0.19	13	1.6	6.1	5.7
8	1.2	0.40	0.74	0.30	<0.039	90	0.047	0.0066	0.74	0.24	0.18	5.1	1.2	4.7	8.7
11	0.82	0.38	0.70	0.31	<0.03	79	0.014	0.0033	0.36	0.15	0.095	4.4	1.1	4.0	6.4
12	0.66	0.37	0.87	0.21	<0.028	70	0.012	0.0028	0.60	0.14	0.094	5.5	0.98	3.7	6.5
13	<0.19	0.54	0.95	0.25	<0.048	82	0.081	0.012	0.54	0.28	0.09	7.6	1.1	5.7	9.8
14	0.57	0.42	0.84	0.19	0.026	69	0.023	0.011	0.39	0.17	0.11	6.2	1.1	3.4	7.9
15	1.1	1.8	2.1	0.45	0.059	110	0.064	0.015	1.6	0.72	1.1	19	2.9	5.6	25
16	6.8	0.71	2.6	4.2	<0.086	320	0.63	0.073	2.0	0.50	0.84	21	3.8	7.3	7.5
18	1.2	0.39	0.94	0.32	<0.037	85	0.020	0.0048	0.55	0.20	0.18	8.2	1.7	5.4	8.0
19	0.77	0.42	0.74	0.25	<0.027	64	0.014	<0.0027	0.42	0.13	0.11	6.2	0.79	3.5	6.5
20	0.60	0.43	0.91	0.20	<0.028	61	0.10	<0.0028	0.30	0.18	0.13	8.8	0.75	3.4	8.1
21	0.96	0.41	1.1	0.25	<0.033	67	0.057	<0.0033	0.45	0.19	0.16	9.2	1.0	4.9	10
25	0.90	0.44	1.3	0.44	<0.049	67	0.24	<0.0049	1.0	0.41	0.32	11	1.3	5.0	19
26	0.77	0.39	0.77	0.28	<0.033	60	0.055	<0.0033	0.58	0.13	0.15	5.2	1.0	4.3	6.0
27	0.77	0.39	0.54	0.33	<0.028	53	0.045	<0.0028	0.35	0.14	0.12	4.3	0.79	4.2	5.5
28	0.65	0.42	0.59	0.25	<0.034	51	0.041	<0.0034	0.28	0.17	0.14	4.3	0.81	4.0	8.3
30	0.66	0.40	0.58	0.31	<0.035	43	0.098	<0.0035	0.33	0.17	0.14	3.8	0.84	4.1	12
32	0.68	0.40	0.57	0.25	<0.028	40	0.028	<0.0028	0.36	0.18	0.12	4.2	0.79	4.2	4.6
38	1.0	0.44	1.2	0.33	<0.043	110	0.065	<0.0043	0.63	0.29	0.27	14	1.3	5.5	11
39	<0.37	0.53	2.0	0.88	0.091	100	0.20	0.037	0.95	0.48	0.40	16	2.0	8.3	21
40	1.4	0.49	1.5	1.7	0.047	130	0.26	0.012	0.91	0.45	0.32	11	1.6	4.9	5.2
42	1.2	0.43	1.1	0.26	<0.031	68	0.034	0.005	0.52	0.15	0.16	11	1.5	4.2	1.9
47	0.28	0.41	0.49	0.14	<0.021	31	0.008	0.0043	<0.16	0.14	0.062	4.1	0.76	2.8	3.3
50	1.4	0.41	1.1	0.27	<0.032	63	0.027	0.0052	0.41	0.16	0.15	9.1	1.7	4.3	7.0
51	1.0	0.41	2.7	0.67	<0.055	62	0.22	0.077	1.4	0.33	0.40	20	1.8	5.1	26
53	0.97	0.52	3.4	0.70	0.068	92	0.43	0.12	0.88	0.69	0.32	42	1.7	5.6	21
60	0.57	0.41	0.83	0.19	<0.028	32	0.031	0.019	0.32	0.17	0.11	6.1	0.97	3.2	7.2
62	0.40	0.40	1.1	0.30	<0.044	55	0.089	0.0062	0.51	0.41	0.19	7.7	1.3	5.3	12

Core hole 2. Major, minor, and trace element content for MichiWest Energy, Inc., Pilot 16-32 core hole—Continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
63	<0.31	0.38	1.2	0.35	<0.077	80	0.11	<0.0077	1.2	0.37	0.25	10	1.4	7.7	14
65	6.2	0.57	2.1	9.2	<0.071	27	0.30	0.44	0.91	0.44	0.52	17	3.1	6.6	23
66	2.9	0.41	1.3	6.7	<0.056	55	0.32	0.56	0.75	0.21	0.19	11	3.7	6.8	15
67	1.0	0.47	2.1	1.1	<0.056	72	0.23	0.018	1.3	0.49	0.55	16	2.3	4.8	14
68	0.92	0.35	0.59	0.22	<0.028	55	0.0056	0.0053	0.29	0.11	0.084	3.1	1.3	3.6	4.8
69	0.61	0.36	0.37	0.34	<0.02	29	0.0076	0.0021	0.30	0.12	0.098	2.5	0.92	2.5	3.6
70	0.63	0.40	0.68	0.21	<0.076	94	0.037	0.0053	1.0	0.13	0.38	5.1	1.6	4.3	10
71	2.7	1.1	1.9	0.93	<0.093	19	0.084	0.0065	0.72	0.19	0.28	8.9	2.2	3.2	14
72	3.9	3.2	1.8	0.88	<0.14	28	0.15	0.027	0.76	0.52	0.42	9.7	2.0	6.6	17
73	2.7	0.57	0.45	0.38	<0.059	19	0.036	0.0036	0.38	0.15	0.13	2.6	1.5	4.0	6.2
74	5.0	0.62	1.9	0.53	<0.048	14	0.046	0.0036	0.20	0.29	0.14	23	2.2	1.9	22
75	19	2.6	6.5	4.6	<0.33	48	0.35	3.8	3.5	1.5	1.5	40	6.8	18	72
76	7.3	1.4	3.9	0.94	<0.16	40	0.23	0.039	1.3	0.66	0.39	20	3.6	8.5	25
A1	7.6	0.49	2.2	0.64	<0.046	21	0.028	0.0088	0.23	0.067	0.17	7.3	3.2	2.9	19
A2	9.5	0.61	1.3	1.2	<0.1	23	0.085	0.008	0.60	0.20	0.27	8.4	1.5	4.1	16
A3	11	0.44	1.4	0.67	<0.057	18	0.066	0.015	0.37	0.22	0.21	10	2.0	3.9	10

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole. [All data is on a whole coal dry basis; —, not determined; <, less than value; ppm, parts per million]

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
A1	253.0	0.54	0.93	<0.016	0.25	0.17	0.049	0.020	0.54	0.054	0.022	0.17	1.6	910	0.41
A2	255.0	0.53	1.2	<0.017	0.26	0.21	0.13	0.010	1.2	0.051	0.043	0.13	1.2	1700	<0.07
A7	257.0	0.41	1.0	<0.016	0.25	0.19	0.022	0.011	0.52	0.053	0.022	0.1	1.4	720	<0.05
A9	259.0	0.38	0.90	<0.017	0.23	0.18	0.021	0.011	0.33	0.051	0.021	0.082	0.87	650	<0.04
A10	261.0	0.44	1.1	<0.016	0.25	0.20	0.013	0.0082	0.79	0.050	0.059	0.22	1.0	650	<0.06
A11	263.0	0.46	1.0	<0.017	0.25	0.20	0.0064	0.0081	0.55	0.048	0.071	0.081	0.79	600	<0.05
A12	265.0	0.35	0.95	0.018	0.22	0.18	0.0036	0.0069	0.64	0.054	0.069	0.13	0.82	530	<0.05
A13	268.0	0.42	1.0	<0.016	0.25	0.20	0.011	0.0074	0.48	0.050	0.038	0.073	0.78	570	<0.05
A14	270.0	0.37	0.99	0.017	0.23	0.19	0.0015	0.0068	0.43	0.053	0.040	0.067	0.75	520	<0.05
A15	272.0	0.29	0.93	<0.017	0.23	0.18	0.0011	0.0067	0.19	0.054	0.027	0.053	0.68	480	<0.04
A16	274.0	0.30	0.87	<0.017	0.21	0.17	<0.00034	0.0071	0.24	0.055	0.026	0.039	0.68	450	<0.04
A17	276.0	0.36	0.93	<0.017	0.23	0.18	0.00059	0.0067	0.30	0.050	0.030	0.049	0.66	480	<0.04
A18	278.0	0.49	0.93	0.02	0.24	0.19	0.017	0.0071	0.36	0.056	0.024	0.057	0.67	560	<0.05
A19	280.0	0.72	1.0	<0.016	0.27	0.20	0.016	0.0098	1.9	0.052	0.34	0.16	1.0	670	<0.09
A20	283.0	0.55	0.97	<0.016	0.23	0.19	0.015	0.0075	0.65	0.055	0.037	0.052	0.76	580	<0.06
A21	285.0	0.49	0.83	<0.017	0.20	0.18	0.0066	0.0076	0.38	0.057	0.021	0.042	0.73	460	<0.05
A22	287.0	0.46	0.87	<0.017	0.22	0.17	0.0046	0.0068	0.51	0.050	0.022	0.072	0.75	460	<0.05
A23	289.0	0.41	0.82	<0.017	0.21	0.16	0.0022	0.0073	0.31	0.056	0.023	0.084	0.80	460	<0.04
A24	291.0	0.42	0.86	<0.017	0.22	0.17	0.0095	0.0061	0.32	0.047	0.038	0.23	0.92	500	<0.05
A25	293.0	0.46	0.84	<0.017	0.22	0.17	0.0087	0.0069	0.40	0.054	0.032	0.12	0.82	490	<0.05
A26	295.0	0.60	0.84	<0.017	0.23	0.18	0.030	0.0072	1.3	0.057	0.090	0.19	0.84	580	<0.08
48	297.0	1.2	1.0	0.025	0.27	0.19	0.12	0.012	1.3	0.053	0.15	0.22	1.4	1100	<0.1
49	300.0	0.37	0.77	0.02	0.21	0.16	0.032	0.0074	0.22	0.051	0.010	0.057	0.97	580	0.11
50	302.0	0.37	1.1	<0.017	0.29	0.23	0.0024	0.0096	0.39	0.071	0.030	0.06	1.1	610	<0.05
51	304.0	0.22	0.63	<0.017	0.18	0.13	0.00064	0.0056	0.074	0.048	0.011	0.035	0.67	330	<0.03
52	306.0	0.24	0.80	<0.017	0.22	0.18	<0.00039	0.0074	0.44	0.046	0.032	0.041	0.72	420	<0.04
53	308.0	0.22	0.73	<0.017	0.21	0.15	<0.00035	0.0060	0.31	0.047	0.034	0.048	0.67	390	<0.04
54	310.0	0.24	0.76	<0.017	0.21	0.16	<0.00031	0.0066	0.20	0.053	0.020	0.033	0.87	400	<0.04
55	312.0	0.32	0.82	<0.017	0.23	0.17	0.0045	0.0065	0.58	0.050	0.062	0.11	0.72	450	<0.05
57	314.0	0.52	1.1	<0.018	0.25	0.21	0.083	0.0065	0.59	0.053	0.059	0.16	0.76	1100	<0.07
58	316.0	0.36	1.0	<0.017	0.24	0.21	0.041	0.0070	0.45	0.055	0.019	0.074	0.77	760	<0.05
59	318.0	0.23	0.96	<0.017	0.23	0.20	0.0034	0.0061	0.32	0.051	0.018	0.069	0.71	530	<0.05
61	320.0	0.19	0.68	<0.018	0.19	0.14	0.00037	0.0070	0.08	0.052	0.0056	0.026	0.69	370	<0.03

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole—continued

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
62	322.0	0.36	0.79	<0.017	0.22	0.16	0.032	0.0071	0.83	0.051	0.029	0.069	0.73	640	<0.05
63	324.0	0.49	0.84	<0.017	0.24	0.16	0.062	0.0084	0.57	0.050	0.040	0.079	0.75	840	<0.06
64	327.3	0.35	0.83	<0.017	0.22	0.16	0.076	0.0060	0.13	0.066	0.011	0.052	0.91	920	0.11
66	329.3	0.31	0.84	<0.017	0.23	0.16	0.033	0.0082	1.0	0.040	0.030	0.081	0.80	650	<0.06
67	331.3	0.47	0.72	<0.017	0.23	0.14	0.040	0.010	0.58	0.052	0.021	0.22	1.6	640	0.38
68	333.3	1.8	0.60	<0.017	0.50	0.13	0.0022	0.054	2.4	0.046	0.075	0.76	9.2	330	1.3

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole—continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
A1	0.067	39	0.27	0.13	2.5	7.2	5.2	1.4	0.37	<0.56	0.62	1.3	6.0	0.088	3.2	0.62
A2	0.026	32	0.16	0.021	2.4	6.8	10	1.1	0.22	<0.75	0.58	1.0	7.5	0.14	0.52	0.52
A7	0.033	34	0.087	0.033	2.1	4.3	4.7	0.99	0.12	<0.51	0.49	0.81	7.2	0.087	0.36	0.53
A9	0.031	37	0.052	0.021	1.8	2.3	3.5	0.95	0.14	<0.43	0.70	0.59	6.2	0.11	0.29	0.48
A10	0.092	27	0.080	0.0068	2.3	2.0	20	1.4	0.15	<0.62	0.49	2.1	8.6	0.15	0.22	0.95
A11	0.076	28	0.051	<0.0054	2.0	1.8	16	1.5	0.13	<0.54	0.38	3.0	8.0	0.079	0.20	1.1
A12	0.038	27	0.025	<0.0052	2.0	1.6	14	1.3	0.20	<0.52	0.41	1.8	7.2	0.078	0.41	1.2
A13	0.019	23	0.030	<0.0052	1.8	1.3	10	1.3	0.11	<0.52	0.71	3.1	8.8	0.022	0.15	0.87
A14	0.033	26	0.039	<0.0048	1.7	1.1	9.8	1.1	0.12	<0.48	0.42	2.4	7.6	0.034	0.20	0.69
A15	0.014	27	0.016	<0.0041	1.3	1.0	7.5	1.1	0.12	<0.41	0.43	1.1	7.2	0.035	0.20	0.55
A16	0.023	26	0.021	0.0043	1.1	1.0	6.4	0.95	0.081	<0.39	0.45	1.2	6.8	0.022	0.18	0.55
A17	0.041	21	0.058	<0.0045	1.4	1.1	6.7	1.0	0.09	<0.45	0.44	3.0	8.0	0.022	0.13	0.74
A18	0.018	24	0.0094	<0.0047	1.6	1.0	4.0	1.4	0.19	<0.47	0.94	6.3	8.3	<0.022	0.18	1.1
A19	0.14	23	0.091	0.011	5.7	5.4	41	4.4	0.32	<0.91	2.7	7.5	11	0.20	0.48	7.1
A20	0.011	25	0.011	<0.0057	2.3	1.3	5.8	1.4	0.12	<0.57	0.62	6.5	8.3	<0.022	0.18	0.87
A21	0.025	25	0.013	<0.0045	1.8	0.95	5.0	1.0	0.10	<0.45	0.55	5.0	7.0	0.022	0.21	0.63
A22	0.027	24	0.035	<0.0048	1.7	0.87	4.2	0.85	0.091	<0.48	1.2	4.0	7.7	0.022	0.18	0.56
A23	0.017	29	0.022	0.0046	2.2	0.91	5.1	0.91	0.15	<0.42	0.59	3.2	7.2	0.033	0.36	0.66
A24	0.091	26	0.024	<0.0045	3.3	1.3	7.4	1.6	0.24	<0.45	0.93	4.1	7.1	0.033	0.34	1.0
A25	0.047	26	0.044	<0.0049	2.0	1.0	7.5	1.5	0.18	<0.49	0.72	4.2	7.7	0.033	0.47	1.2
A26	0.13	24	0.14	<0.0079	4.1	1.7	11	2.5	0.3	<0.79	1.3	5.8	8.5	0.11	0.56	3.1
48	0.13	21	0.056	0.051	5.7	2.2	28	6.7	0.44	<0.98	5.1	7.3	10	0.25	0.53	5.7
49	0.025	23	0.015	0.02	1.4	0.74	2.1	0.52	0.23	<0.41	0.59	3.1	7.7	<0.023	0.27	0.36
50	0.055	32	0.091	0.007	1.5	0.86	4.8	0.94	0.13	<0.5	0.67	2.3	11	0.034	0.30	1.7
51	0.023	24	0.0076	0.0044	1.0	0.62	1.7	0.67	0.093	<0.29	0.40	0.82	6.4	<0.022	0.18	0.55
52	0.025	24	0.085	0.0045	1.8	0.93	4.1	0.59	0.058	<0.45	0.66	1.1	8.5	0.067	0.11	0.35
53	0.013	25	0.026	0.0044	1.3	0.86	5.7	0.59	0.068	<0.4	0.49	0.80	7.6	0.022	0.13	0.51
54	0.0093	29	0.013	0.005	1.2	0.69	3.2	0.37	0.043	<0.36	0.42	0.72	7.4	<0.023	0.37	0.23
55	0.039	28	0.029	0.0057	1.7	1.2	9.3	1.2	0.19	<0.52	0.90	1.6	8.0	0.033	0.22	1.9
57	0.065	24	0.065	<0.0065	2.3	1.1	8.2	1.6	0.18	<0.65	1.8	3.7	11	0.093	0.18	2.5
58	0.020	25	0.034	<0.0049	1.6	0.61	1.7	0.55	0.10	<0.49	0.56	1.9	9.9	0.034	0.17	0.54
59	0.019	24	0.020	<0.0046	1.7	0.76	2.5	0.56	0.055	<0.46	0.56	1.4	11	0.033	0.11	0.47
61	0.0065	33	0.010	0.0039	0.65	0.29	0.65	0.29	0.034	<0.28	0.33	0.28	6.5	<0.023	0.30	0.18

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole—continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
62	0.032	34	0.036	0.0058	1.6	0.67	4.0	1.0	0.20	<0.53	1.7	0.69	7.6	<0.023	0.33	1.7
63	0.055	34	0.020	0.014	1.8	0.88	3.7	2.0	0.23	<0.56	1.6	1.0	8.3	0.023	0.34	3.2
64	0.019	33	0.023	0.0048	1.4	0.83	2.3	1.1	0.13	<0.4	0.84	0.44	10	<0.023	0.33	1.1
66	0.028	35	0.056	<0.0058	1.9	0.9	5.3	0.54	0.081	<0.58	0.47	0.39	6.6	0.034	0.23	0.56
67	0.054	39	0.10	0.021	3.6	2.4	6.6	1.3	0.19	<0.54	1.3	0.96	7.4	<0.023	0.52	0.78
68	0.20	38	0.90	0.5	11	13	68	5.5	0.97	<1.2	12	5.3	7.3	0.42	1.5	4.7

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole—continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
A1	8.3	1.6	1.0	0.57	<0.11	210	0.033	0.044	0.88	0.29	0.30	8.3	5.6	78	8.8
A2	6.8	0.39	0.99	0.35	<0.15	300	0.09	0.016	0.71	<0.22	0.33	7.3	2.9	91	19
A7	6.5	0.53	0.81	0.35	<0.10	160	0.10	0.015	0.78	0.26	0.25	6.3	2.0	42	9.8
A9	4.6	0.40	0.61	0.16	<0.086	140	0.078	0.015	0.42	0.21	0.20	5.7	1.5	43	7.7
A10	2.9	0.24	1.0	0.44	<0.12	150	0.23	0.012	0.90	0.41	0.36	12	1.5	25	23
A11	2.2	0.20	1.3	0.44	<0.11	120	0.18	0.0097	1.1	0.35	0.40	12	0.72	15	16
A12	0.33	0.21	1.0	0.32	<0.10	130	0.18	0.012	0.75	0.49	0.30	12	0.51	12	16
A13	0.93	0.19	1.0	0.29	<0.10	130	0.089	0.0084	0.96	0.28	0.29	8.5	0.88	12	13
A14	<0.19	0.18	0.79	0.16	<0.096	110	0.11	0.025	0.71	0.30	0.22	8.4	0.68	11	12
A15	<0.16	0.19	0.58	<0.12	<0.081	110	0.077	0.012	0.51	0.19	0.17	6.6	0.64	7.6	7.4
A16	<0.15	0.20	0.57	0.19	<0.077	110	0.05	0.026	0.55	0.17	0.21	5.7	0.64	8.2	8.1
A17	<0.18	0.18	0.72	0.27	<0.09	110	0.085	0.013	0.75	0.16	0.27	6.8	0.73	8.6	11
A18	<0.19	0.19	0.77	0.22	<0.094	140	0.041	0.011	1.0	0.15	0.35	8.2	0.93	8.2	9.8
A19	<0.36	0.35	3.5	0.80	<0.18	150	0.54	0.015	4.3	1.2	1.6	55	<0.091	11	47
A20	<0.23	0.22	1.4	0.15	<0.11	140	0.042	0.0068	0.91	<0.17	0.29	13	1.2	8.2	16
A21	<0.18	0.20	0.98	0.19	<0.091	120	0.050	0.0073	0.58	0.18	0.20	9.8	1.0	7.2	9.1
A22	<0.19	0.19	0.93	0.22	<0.096	110	0.077	0.0053	0.60	0.19	0.25	5.2	1.2	7.5	12
A23	<0.17	0.21	0.89	0.12	<0.084	110	0.067	0.0075	0.74	0.20	0.29	6.2	1.3	6.4	10
A24	<0.18	0.17	0.98	0.22	<0.091	110	0.11	0.0086	1.1	0.42	0.53	8.8	1.3	6.4	13
A25	<0.19	0.20	0.98	0.19	<0.097	120	0.12	0.0063	1.3	0.30	0.49	7.5	1.3	6.6	12
A26	<0.32	0.20	1.3	0.43	<0.16	160	0.28	<0.0079	2.4	1.0	1.1	12	1.3	8.0	31
48	<0.39	0.65	4.2	1.0	<0.20	340	0.54	0.022	4.3	0.61	1.9	30	2.4	10	36
49	<0.16	0.35	0.43	<0.11	<0.081	160	0.031	0.0098	0.42	0.18	0.15	3.0	1.4	6.7	4.6
50	<0.2	0.27	0.53	0.22	<0.1	140	0.096	0.014	1.8	0.35	0.85	4.1	1.3	7.8	11
51	<0.12	0.17	0.25	<0.11	<0.058	82	0.035	0.018	0.27	0.20	0.17	2.9	0.73	4.8	4.1
52	<0.18	0.18	0.50	0.16	<0.089	94	0.049	0.0063	0.59	0.19	0.21	4.2	0.88	6.3	12
53	<0.16	0.17	0.50	<0.11	<0.08	84	0.068	0.012	0.45	0.25	0.20	5.2	0.68	5.5	6.9
54	<0.14	0.22	0.47	<0.12	<0.072	90	0.029	0.0047	0.49	0.11	0.11	4.9	0.73	5.4	4.8
55	<0.21	0.20	0.60	<0.11	<0.10	98	0.14	<0.0052	0.92	0.37	0.55	8.4	0.48	6.8	16
57	<0.26	0.18	1.1	0.13	<0.13	300	0.25	<0.0065	2.1	0.34	1.0	9.5	1.8	8.5	17
58	<0.2	0.18	0.41	<0.11	<0.099	190	0.089	<0.0049	0.53	<0.15	0.21	3.5	1.6	7.3	7.3
59	<0.18	0.17	0.38	0.17	<0.092	110	0.11	<0.0046	0.49	0.16	0.19	3.0	1.2	7.5	5.4
61	<0.11	0.17	<0.11	<0.12	<0.056	76	0.025	<0.0028	<0.22	0.09	0.087	0.79	0.56	5.5	1.8

Core hole 17. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 31-1 core hole—continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
62	<0.21	0.20	0.49	<0.11	<0.11	170	0.13	<0.0053	1.6	0.30	0.67	3.1	0.86	6.3	13
63	0.35	0.30	0.52	0.48	<0.11	260	0.13	<0.0056	2.0	0.55	1.0	4.6	0.93	6.9	12
64	3.4	0.21	0.40	0.20	<0.081	370	0.081	<0.004	1.1	0.16	0.40	2.7	2.2	8.1	3.8
66	2.1	0.19	0.55	0.26	<0.12	140	0.087	<0.0058	0.9	<0.17	0.36	4.3	3.2	6.6	12
67	2.6	0.37	1.4	0.28	<0.11	200	0.076	0.0081	1.8	0.32	0.63	10	7.9	7.3	9.4
68	20	4.8	5.8	8.0	<0.25	76	0.27	0.80	11	0.80	5.5	38	14	19	32

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole. [All data is on a whole coal dry basis; —, not determined; <, less than value; ppm, parts per million]

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
B8	323.0	0.62	0.93	<0.018	0.27	0.19	0.060	0.017	0.75	0.062	0.033	0.36	1.60	460	2.2
B9	325.0	0.50	0.86	<0.017	0.21	0.19	0.024	0.013	0.69	0.056	0.028	0.10	1.30	320	0.27
B10	328.0	0.39	0.87	<0.018	0.22	0.19	0.0087	0.0091	0.76	0.059	0.028	0.084	0.99	270	<0.05
B11	330.0	0.32	0.82	<0.018	0.21	0.17	0.0019	0.0071	0.26	0.057	0.017	0.058	0.75	240	<0.039
B12	332.0	0.37	0.86	<0.017	0.22	0.19	0.0055	0.0060	0.42	0.056	0.035	0.09	0.67	250	<0.045
B13	334.0	0.45	0.93	<0.018	0.24	0.20	0.0039	0.0070	0.63	0.059	0.054	0.17	0.83	270	<0.053
B14	336.0	0.38	0.96	<0.017	0.24	0.20	0.0019	0.0070	0.53	0.058	0.11	0.069	0.77	290	<0.049
B15	338.0	0.43	0.92	<0.018	0.23	0.20	0.0024	0.0070	0.49	0.058	0.077	0.11	0.72	280	<0.049
B16	340.0	0.41	0.88	<0.017	0.22	0.19	0.0022	0.0067	0.31	0.14	0.033	0.13	1.7	240	0.44
B17	343.0	0.37	0.76	<0.019	0.23	0.17	<0.00034	0.012	0.38	0.052	0.033	0.054	1.3	210	<0.039
B18	345.0	0.35	0.79	<0.019	0.21	0.18	0.00047	0.0072	0.22	0.11	0.024	0.072	1.3	210	0.24
B19	347.0	0.35	0.71	<0.019	0.19	0.16	<0.00028	0.0080	0.15	0.062	0.025	0.045	0.71	200	<0.032
B20	349.0	0.39	0.84	<0.019	0.23	0.19	0.0014	0.0065	0.34	0.058	0.027	0.039	0.68	230	<0.041
B21	351.0	0.52	0.83	<0.019	0.24	0.18	0.0074	0.0072	0.44	0.091	0.052	0.10	1.1	250	0.16
B22	353.0	0.64	0.83	<0.019	0.23	0.19	0.022	0.0086	0.72	0.051	0.17	0.080	0.78	300	<0.057
B23	355.0	0.59	0.84	<0.02	0.22	0.19	0.016	0.0076	0.68	0.060	0.043	0.047	0.64	280	<0.051
B24	358.0	0.45	0.73	<0.019	0.21	0.17	0.0098	0.0064	0.29	0.060	0.021	0.049	0.67	220	0.057
A3	360.0	0.42	0.75	<0.019	0.22	0.16	0.0030	0.0064	0.35	0.057	0.020	0.052	0.73	210	<0.04
A5	362.0	0.54	0.73	<0.019	0.21	0.16	0.011	0.0071	0.34	0.054	0.036	0.15	0.79	230	<0.043
A6	364.0	0.53	0.73	<0.018	0.22	0.17	0.0069	0.0079	0.44	0.057	0.038	0.12	0.78	230	<0.045
A8	366.0	0.50	0.69	<0.020	0.22	0.15	0.024	0.0066	0.41	0.062	0.030	0.10	0.83	250	<0.042
6	368.0	0.69	0.81	<0.019	0.22	0.18	0.091	0.0077	1.70	0.053	0.084	0.10	0.76	450	<0.078
10	370.0	1.0	0.85	<0.019	0.24	0.18	0.12	0.014	1.60	0.054	0.20	0.098	0.51	510	0.082
40	373.0	0.32	0.71	<0.019	0.22	0.16	0.0043	0.0063	0.35	0.078	0.017	0.044	0.87	210	0.19
41	375.0	0.37	0.64	<0.019	0.26	0.15	0.0025	0.017	0.25	0.053	0.018	0.071	1.6	180	0.045
42	377.0	0.26	0.68	<0.019	0.23	0.16	<0.00031	0.0095	0.36	0.053	0.026	0.043	0.90	190	<0.036
43	379.0	0.25	0.67	<0.019	0.22	0.15	<0.00036	0.0075	0.49	0.054	0.044	0.037	0.71	190	<0.041
44	381.0	0.26	0.62	<0.019	0.21	0.14	0.0016	0.0078	0.19	0.061	0.015	0.040	0.71	180	<0.028
45	383.0	0.32	0.66	<0.019	0.22	0.15	0.0077	0.0072	0.37	0.061	0.032	0.079	0.72	210	<0.036
46	385.0	0.36	0.89	<0.019	0.26	0.19	0.014	0.0064	0.86	0.052	0.085	0.10	0.60	290	<0.055
47	388.0	0.27	0.85	<0.019	0.25	0.19	0.0035	0.0063	0.70	0.059	0.019	0.063	0.67	250	<0.042
56	390.0	0.24	0.79	<0.018	0.24	0.18	0.0014	0.0072	0.54	0.055	0.016	0.039	0.63	210	<0.039

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole—Continued

Canister number	Average depth, in ft	Aluminum ² , in percent	Calcium ² , in percent	Chlorine ³ , in percent	Iron ² , in percent	Magnesium ² , in percent	Phosphorous ² , in percent	Potassium ² , in percent	Silicon ² , in percent	Sodium ⁴ , in percent	Titanium ² , in percent	Antimony ⁵ , in ppm	Arsenic ⁵ , in ppm	Barium ² , in ppm	Beryllium ⁴ , in ppm
65	392.0	0.23	0.62	<0.020	0.20	0.14	0.00056	0.0064	0.15	0.043	0.0052	0.017	0.49	170	<0.026
69	394.0	0.45	0.90	<0.019	0.25	0.19	0.067	0.0071	0.94	0.055	0.037	0.068	0.65	460	<0.057
70	396.0	0.33	0.70	<0.020	0.22	0.13	0.055	0.007	0.19	0.059	0.013	0.052	0.76	690	<0.035
71	398.0	0.72	0.93	<0.020	0.21	0.16	0.20	0.0068	0.64	0.056	0.019	0.063	0.77	840	0.063
72	400.0	0.45	0.85	<0.024	0.23	0.16	0.10	0.0059	0.29	0.056	0.0096	0.033	0.70	500	0.061
73	402.0	0.26	0.75	<0.020	0.21	0.15	0.016	0.0063	1.1	0.052	0.029	0.076	0.82	240	0.058
74	404.0	1.0	0.76	<0.019	0.26	0.17	0.022	0.089	2.3	0.056	0.062	0.30	1.6	290	0.62
75	406.0	2.7	0.63	<0.019	0.59	0.16	0.0034	0.11	4.0	0.041	0.13	0.77	6.0	210	3.0

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole—Continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
B8	0.031	48	0.24	0.083	5.0	11	7.5	1.5	0.49	<0.59	3.6	1.0	5.6	0.099	2.2	0.69
B9	0.023	41	0.060	0.038	2.7	7.8	6.9	0.85	0.12	<0.54	0.85	1.0	6.3	0.065	0.67	0.57
B10	0.064	41	0.043	0.0099	1.9	2.6	4.7	0.73	0.11	<0.50	0.80	0.93	6.3	0.033	0.21	0.49
B11	0.022	40	0.018	0.0062	1.4	1.5	3.0	0.63	0.085	<0.39	0.35	0.63	6.2	0.033	0.20	0.32
B12	0.049	35	0.026	0.0054	1.7	1.5	11	0.90	0.11	<0.45	0.52	1.7	7.0	0.066	0.15	0.49
B13	0.074	34	0.033	<0.0053	2.2	1.8	16	1.3	0.18	<0.53	0.86	3.0	8.4	0.088	0.24	0.71
B14	0.049	42	0.042	<0.0049	2.3	2.2	23	1.1	0.16	<0.49	0.76	1.7	8.1	0.11	0.33	1.0
B15	0.079	31	0.039	<0.0049	2.3	1.9	17	1.3	0.19	<0.49	1.0	2.8	8.6	0.077	0.22	1.0
B16	0.060	29	0.060	0.0089	4.3	2.8	19	2.4	0.28	<0.43	2.0	6.3	19	0.044	0.49	1.5
B17	0.018	33	0.043	0.026	1.3	1.0	6.3	0.72	0.19	<0.39	0.53	1.6	6.6	0.044	0.26	0.39
B18	0.021	28	0.018	0.015	3.0	2.0	8.5	1.9	0.16	<0.36	1.5	3.4	16	0.056	0.28	0.94
B19	0.014	33	0.014	0.0055	1.1	0.9	8.9	0.80	0.11	<0.32	0.79	1.4	7.3	0.033	0.20	0.46
B20	0.015	28	0.027	0.0041	1.5	1.1	5.0	1.0	0.090	<0.41	0.86	3.7	9.4	0.068	0.14	0.57
B21	0.050	33	0.041	0.0082	2.9	2.1	14	2.3	0.33	<0.46	1.6	10	15	0.033	0.44	4.2
B22	0.069	27	0.032	0.0057	3.6	2.6	39	2.7	0.19	<0.57	1.0	5.2	8.8	0.20	0.21	1.9
B23	0.033	29	0.049	0.0051	2.3	1.3	8.6	0.94	0.14	<0.51	0.73	8.3	9.6	0.046	0.17	0.65
B24	0.017	31	0.015	<0.0041	1.7	0.97	3.7	0.76	0.085	<0.41	0.78	4.7	8.8	0.023	0.17	0.53
A3	0.021	29	0.019	0.0040	1.9	1.0	4.5	0.81	0.089	<0.40	0.58	4.6	9.2	0.034	0.18	0.43
A5	0.047	27	0.020	0.0051	2.7	1.2	6.5	1.1	0.16	<0.43	1.2	6.0	9.0	0.034	0.23	0.84
A6	0.044	31	0.041	0.0045	2.2	1.1	9.0	1.2	0.15	<0.45	0.83	5.0	9.2	0.066	0.33	0.78
A8	0.033	36	0.015	0.0046	2.4	1.0	5.4	1.4	0.25	<0.42	1.3	3.4	7.8	0.035	0.50	0.81
6	0.10	27	0.085	<0.0078	3.8	1.2	12	1.6	0.32	<0.78	2.7	5.1	9.2	0.10	0.45	0.86
10	0.11	24	0.049	0.057	5.4	2.6	31	4.2	0.34	<0.82	3.7	3.9	10	0.21	0.49	0.36
40	0.016	25	0.012	0.0051	1.5	0.93	3.4	0.71	0.069	<0.36	0.83	3.1	12	0.023	0.25	1.0
41	0.030	28	0.011	0.064	2.0	0.84	5.2	0.86	0.22	<0.38	1.2	2.4	15	0.033	0.23	0.75
42	0.019	27	0.012	0.024	1.7	0.92	4.1	0.60	0.079	<0.36	0.65	1.1	15	0.022	0.14	0.46
43	0.019	30	0.045	0.011	1.5	1.0	6.8	0.53	0.12	<0.41	0.78	0.93	11	0.033	0.15	0.35
44	0.0099	35	0.0037	0.0074	1.1	0.61	4.2	0.55	0.12	<0.28	0.75	0.49	7.4	0.023	0.22	0.37
45	0.021	38	0.012	0.0054	1.4	0.78	5.6	0.91	0.14	<0.36	3.8	1.1	7.4	0.034	0.23	0.76
46	0.065	30	0.050	<0.0055	2.2	1.5	13	0.97	0.11	<0.55	1.2	2.4	9.7	0.10	0.20	0.69
47	0.026	27	0.019	0.0042	1.7	0.74	2.5	0.54	0.054	<0.42	0.79	1.5	10	0.034	0.10	0.38
56	0.023	28	0.036	<0.0039	1.7	0.63	2.2	0.45	0.047	<0.39	0.76	0.90	9.5	0.033	0.099	0.30

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole—Continued

Canister number	Bismuth ⁵ , in ppm	Boron ² , in ppm	Cadmium ⁵ , in ppm	Cesium ⁵ , in ppm	Chromium ⁴ , in ppm	Cobalt ⁴ , in ppm	Copper ⁴ , in ppm	Gallium ⁵ , in ppm	Germanium ⁵ , in ppm	Gold ⁵ , in ppm	Lead ⁵ , in ppm	Lithium ⁴ , in ppm	Manganese ⁴ , in ppm	Mercury ⁶ , in ppm	Molybdenum ⁵ , in ppm	Neodymium ⁵ , in ppm
65	0.0064	37	0.0077	0.0028	0.48	0.24	0.62	0.24	0.038	<0.26	0.38	0.24	5.2	0.023	0.19	0.13
69	0.053	29	0.032	<0.0057	2.1	0.84	6.0	1.6	0.15	<0.57	2.5	1.2	10	0.033	0.20	0.46
70	0.018	47	0.0077	0.0045	1.0	0.45	2.7	0.98	0.33	<0.35	1.4	0.40	6.8	<0.023	0.48	1.3
71	0.035	38	0.014	<0.0063	1.7	0.85	3.1	2.0	0.33	<0.63	3.1	1.8	8.4	<0.023	0.24	2.2
72	0.014	39	0.012	<0.0047	1.2	0.86	1.7	0.72	0.089	<0.47	0.77	0.60	8.7	<0.025	0.20	0.85
73	0.046	36	0.038	0.0058	2.2	1.4	7.1	0.49	0.12	<0.58	0.70	0.64	8.4	0.023	0.21	0.51
74	0.035	41	0.052	0.89	10	3.2	9.5	3.4	0.46	<1.1	3.3	2.4	11	0.034	0.44	1.9
75	0.19	37	0.25	1.0	20	10	35	10	2.6	<1.9	13	8.4	9.6	0.90	1.4	8.6

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

⁶ By cold vapor-atomic absorption spectrometry, Bullock and others (2002).

⁷ By atomic absorption spectrometry of acidified coal, Bullock and others (2002).

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole—Continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
B8	7.8	0.98	2.4	0.66	<0.12	270	0.21	0.034	2.7	0.30	0.85	20	25	41	21
B9	6.1	0.53	1.2	0.21	<0.11	170	0.044	0.014	1.5	0.23	0.36	8.2	5.5	45	15
B10	4.9	0.23	0.84	0.14	<0.099	130	0.089	0.010	0.73	0.20	0.24	6.2	2.3	16	14
B11	3.2	0.19	0.59	<0.11	<0.077	110	0.058	0.012	0.62	0.15	0.15	4.7	1.7	11	6.7
B12	2.0	0.17	0.78	0.28	<0.09	120	0.099	0.011	0.62	0.20	0.22	7.9	1.4	17	11
B13	0.84	0.17	1.0	0.48	<0.11	130	0.14	0.028	0.93	0.34	0.30	12	1.3	17	18
B14	<0.2	0.17	1.4	<0.11	<0.098	120	0.19	0.018	0.97	0.38	0.31	14	0.45	19	17
B15	0.21	0.17	1.1	0.31	<0.099	130	0.14	0.011	0.98	0.57	0.35	14	0.74	12	19
B16	<0.17	0.39	2.3	0.14	<0.085	310	0.18	0.023	1.4	0.60	0.51	22	2.1	27	11
B17	<0.16	0.44	0.63	0.24	<0.078	89	0.050	0.031	<0.31	0.18	0.14	7.4	0.64	7.8	8.8
B18	<0.14	0.39	1.4	<0.11	<0.072	230	0.058	0.024	1.1	0.59	0.35	14	1.5	17	8.3
B19	<0.13	0.18	0.64	0.11	<0.064	110	0.061	0.013	0.51	0.24	0.14	7.7	0.57	7.4	7.7
B20	<0.16	0.16	0.75	0.23	<0.082	120	0.038	0.0074	0.57	0.18	0.23	7.3	0.91	8.2	9.8
B21	<0.18	0.28	1.8	0.21	<0.091	180	0.11	0.018	2.5	0.49	0.97	19	1.2	13	17
B22	<0.23	0.19	2.6	0.72	<0.11	120	0.31	0.020	1.2	0.53	0.39	34	0.31	8.3	24
B23	<0.20	0.18	1.7	<0.12	<0.1	140	0.051	0.0092	0.75	0.26	0.21	15	1.4	9.8	16
B24	<0.16	0.15	1.1	<0.11	<0.081	120	0.049	0.0097	0.54	0.37	0.17	8.0	1.7	8.2	9.9
A3	<0.16	0.15	1.1	0.16	<0.081	110	0.048	0.011	0.64	0.19	0.21	5.8	1.7	7.8	11
A5	<0.17	0.18	1.2	<0.11	<0.085	120	0.090	0.009	0.77	0.40	0.35	10	1.8	7.3	13
A6	<0.18	0.18	1.2	0.25	<0.09	110	0.12	0.027	1.1	0.44	0.35	9.0	1.9	7.3	15
A8	<0.17	0.17	1.0	0.23	<0.084	130	0.063	0.019	1.2	0.27	0.36	9.7	1.6	6.4	12
6	<0.31	0.17	1.4	0.49	<0.16	240	0.17	0.012	2.1	0.23	0.72	11	2.2	8.8	34
10	<0.33	0.56	3.2	0.95	<0.16	290	0.41	0.025	2.5	<0.25	1.2	31	1.1	12	45
40	<0.15	0.20	0.54	0.11	<0.073	140	0.036	0.011	1.2	0.25	0.45	4.1	1.1	9.5	7.2
41	<0.15	0.93	0.50	0.25	<0.075	84	0.041	0.034	0.44	0.27	0.28	4.7	1.1	7.8	5.5
42	<0.14	0.41	0.55	0.19	<0.071	88	0.030	0.015	0.51	0.31	0.15	4.3	0.91	6.8	6.9
43	<0.16	0.25	0.56	0.14	<0.082	84	0.057	0.012	0.35	0.22	0.16	5.6	0.63	7.2	8.7
44	<0.11	0.20	0.37	<0.11	<0.057	83	0.023	0.028	0.38	0.32	0.11	3.7	0.63	7.5	3.6
45	<0.14	0.17	0.54	<0.11	<0.072	98	0.065	0.55	0.51	0.22	0.23	6.4	0.72	6.5	9.5
46	<0.22	0.15	0.98	<0.11	<0.11	120	0.20	0.029	1.8	0.27	0.68	10	0.95	8.1	25
47	<0.17	0.15	0.39	<0.11	<0.084	110	0.059	0.019	0.56	0.17	0.16	3.8	1.1	8.0	6.9
56	<0.16	0.14	0.32	0.39	<0.079	95	0.075	0.022	0.39	0.18	0.13	2.5	0.84	7.6	5.8

Core hole 18. Major, minor, and trace element content for Peabody Natural Gas, Inc. PNG 35-1 core hole—Continued

Canister number	Nickel ⁴ , in ppm	Rubidium ⁵ , in ppm	Scandium ⁴ , in ppm	Selenium ⁷ , in ppm	Silver ⁵ , in ppm	Strontium ⁴ , in ppm	Tellurium ⁵ , in ppm	Thallium ⁵ , in ppm	Thorium ⁴ , in ppm	Tin ⁵ , in ppm	Uranium ⁵ , in ppm	Vanadium ⁴ , in ppm	Yttrium ⁴ , in ppm	Zinc ⁴ , in ppm	Zirconium ² , in ppm
65	<0.10	0.11	<0.1	<0.12	<0.051	59	0.019	0.10	<0.2	0.079	0.064	0.69	0.38	4.6	1.9
69	<0.23	0.16	0.75	0.29	<0.11	260	0.13	0.030	1.7	<0.17	0.81	5.6	1.1	10	18
70	<0.14	0.17	0.32	<0.12	<0.07	200	0.045	0.024	0.79	0.21	0.42	3.4	0.71	13	4.7
71	<0.25	0.16	0.72	<0.12	<0.13	640	0.081	0.018	2.1	0.34	0.74	5.7	1.7	12	8.1
72	0.76	0.15	0.45	<0.13	<0.094	360	0.046	0.0071	0.72	0.15	0.25	3.0	2.1	9.3	4.5
73	0.71	0.17	0.48	<0.12	<0.12	130	0.12	0.0093	0.76	<0.17	0.30	3.9	2.8	11	15
74	0.57	8.0	2.4	<0.11	<0.21	160	0.13	0.064	2.6	0.62	0.86	26	8.4	16	19
75	12	8.9	7.1	8.9	<0.39	72	0.29	1.5	10	1.3	3.4	64	19	31	51

¹ See Table 1 for core hole location.

² By inductive coupled plasma-atomic emission spectrometry on sintered coal ash, Bullock and others (2002).

³ By ion chromatographic determination, Bullock and others (2002).

⁴ By inductive coupled plasma-atomic emission spectrometry on acidified coal ash, Bullock and others (2002).

⁵ By inductive coupled plasma-mass spectrometry on acidified coal ash, Bullock and others (2002).

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