

Supplementary Materials: Impact of Mining and Ore Processing on Soil, Drainage and Vegetation in the Zambian Copperbelt Mining Districts: A Review

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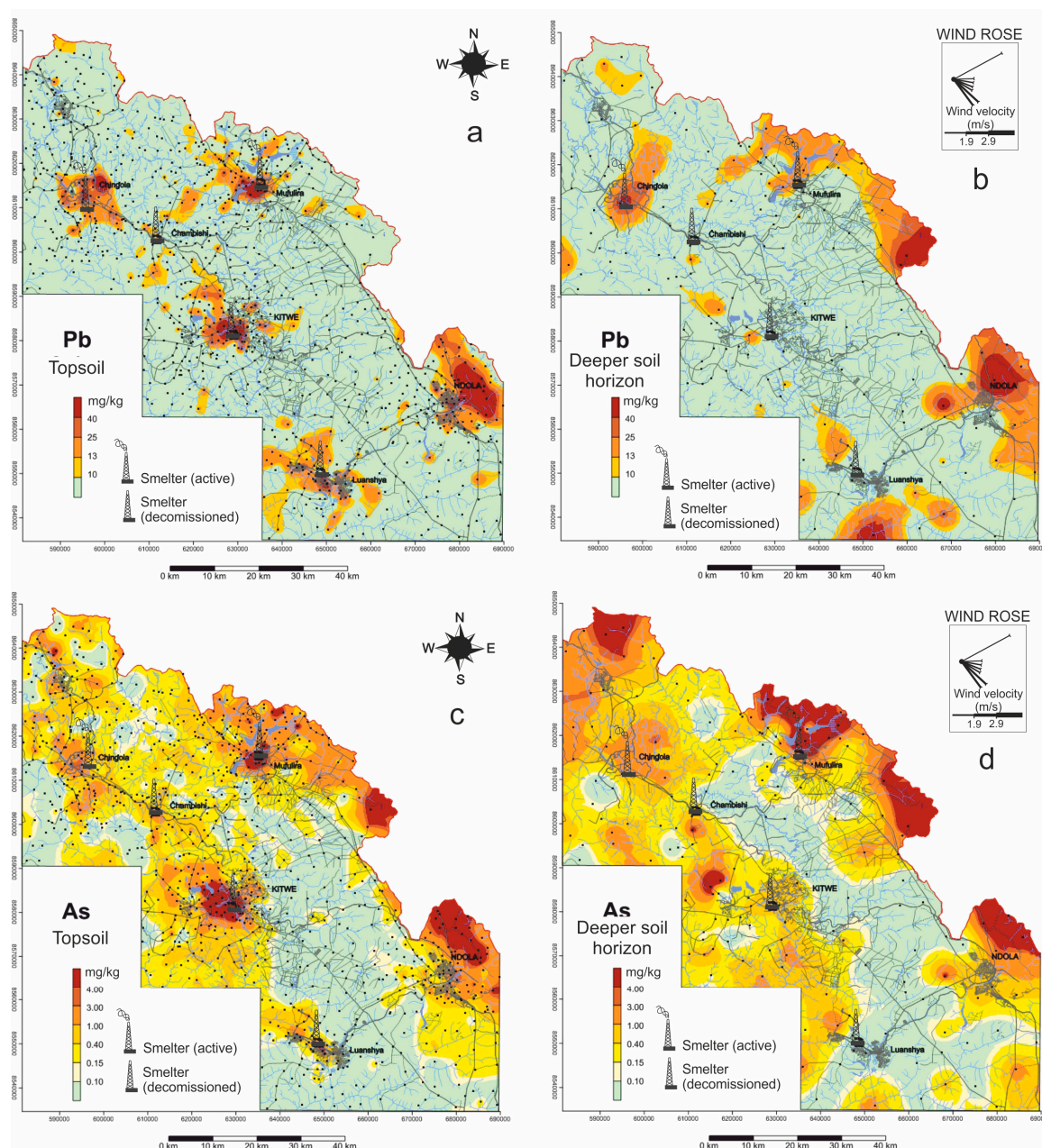


Figure S1. Contour map of the Pb concentrations in the topsoil (a), Contour map of the Pb concentrations in the deeper soil horizon (b), Contour map of the As concentrations in the topsoil (c), Contour map of the As in concentrations in the deeper soil horizon (d) Modified after Křibek and Nyambe [77].

Table S1. The location, pH, S_{tot} , CO_2 (carbonates) values and selected elements in the topsoil of the surveyed part of the Copperbelt province, Zambia. Concentrations of S_{tot} , CO_2 and Fe in wt.%, concentration of other elements in mg/kg.

Sample	X	Y	pH	S_{tot}	CO_2	V	Cr	Co	Ni	Cu	Zn	Pb	Fe	As
BB001	581780.8	8618535.0	4.19	0.004	0.020	18	16	2	5	79	12	4	0.950	0.26
BB002	584165.9	8618820.5	5.93	0.004	0.061	39	26	7	6	118	33	4	1.690	0.70
BB004	583918.9	8621892.2	4.31	0.011	0.039	24	16	2	5	115	9	4	1.430	0.48
BB005	582225.5	8623352.7	4.31	0.004	0.045	18	14	6	2	102	11	4	1.140	0.70
BB006	584271.6	8623107.5	4.35	0.011	0.044	13	13	6	2	67	10	4	1.050	0.84
BB007	584314.4	8624499.6	4.31	0.004	0.065	31	21	15	6	83	23	4	2.250	1.62
BB008	585753.4	8620191.8	4.50	0.004	0.012	14	9	2	2	49	6	4	0.630	0.30
BB010	587121.0	8618405.7	5.29	0.015	0.034	10	12	14	5	307	20	4	0.650	0.22
BB011	588166.0	8621945.4	4.25	0.004	0.018	15	13	2	2	61	8	4	0.760	0.04
BB012	587624.9	8623227.6	4.28	0.018	0.044	22	19	6	5	154	13	4	1.360	1.14
BB013	587064.1	8624445.4	4.29	0.015	0.043	10	10	6	2	151	10	4	0.980	1.17
BB015	589739.4	8619090.1	5.06	0.017	0.044	52	34	11	6	235	28	4	2.500	4.19
BB016	590871.0	8620486.4	7.22	0.054	0.234	29	26	14	7	407	20	4	1.320	1.47
BB018	592418.6	8622176.1	5.71	0.023	0.035	4	7	13	2	358	17	4	0.350	0.37
BB019	592964.2	8625400.2	5.72	0.031	0.082	4	12	7	2	327	12	4	0.870	0.48
BB020	592276.8	8627113.5	4.98	0.022	0.066	21	17	8	2	261	12	4	1.190	1.03
BB021	590824.5	8624679.8	6.52	0.031	0.152	16	22	13	2	377	19	4	1.020	0.66
BB023	592447.3	8629345.7	6.39	0.048	0.214	4	11	15	2	497	24	4	0.570	0.33
BB024	590599.3	8632330.0	7.46	0.027	0.052	16	17	9	2	282	12	4	1.650	0.37
BB025	591082.1	8633407.7	5.81	0.010	0.023	11	14	2	2	72	7	4	1.660	0.04
BB026	592808.8	8633549.6	6.13	0.024	0.073	26	22	7	2	203	13	4	2.020	0.40
BB027	593968.8	8632917.1	4.84	0.011	0.048	16	17	5	2	73	5	4	1.780	0.26
BB028	591065.1	8631068.9	6.76	0.054	0.151	14	19	15	2	621	24	4	1.000	0.54
BB029	588768.0	8633349.6	6.67	0.068	0.321	89	98	82	7	1951	35	4	4.560	3.00
BB030	588265.9	8631677.1	5.61	0.022	0.044	92	50	22	10	607	27	4	4.520	0.87
BB031	587917.5	8629563.8	6.75	0.052	0.247	59	35	10	6	332	27	11	2.090	1.47
BB033	588306.5	8627660.8	7.12	0.021	0.093	19	15	11	2	133	12	11	0.540	0.22
BB034	593151.4	8619096.2	7.51	0.004	3.900	57	60	22	21	570	32	4	2.920	1.47
BB036	592292.3	8619549.9	4.54	0.004	0.004	4	21	5	2	126	4	4	2.630	0.13
BB037	592592.4	8620996.3	5.43	0.004	0.026	4	11	2	2	88	13	4	0.410	0.17
BB038	592599.0	8621445.4	4.35	0.004	0.026	4	10	2	2	43	4	4	0.220	0.04
BB039	593732.7	8627825.7	3.69	0.014	0.049	15	13	5	2	135	5	4	0.770	0.59
BB041	590778.9	8628620.1	4.08	0.016	0.046	31	25	5	2	175	6	4	1.700	0.68
BB042	590741.2	8630350.0	6.72	0.054	0.143	17	27	97	2	3356	20	4	1.580	1.15
BB043	587049.6	8635752.3	6.87	0.004	0.019	4	12	2	2	75	7	4	0.400	0.04
BB045	585755.5	8632582.5	6.29	0.018	0.057	47	35	6	7	141	18	4	1.550	0.73
BB046	583663.2	8632263.4	7.47	0.039	0.220	15	14	6	5	277	26	4	0.770	0.04
BB047	583936.8	8628910.5	5.60	0.021	0.099	31	31	11	11	296	21	4	0.890	0.04
BB048	586367.6	8628176.6	4.58	0.020	0.053	13	16	2	2	214	12	4	0.820	0.17
BB050	584711.5	8633751.8	8.54	0.052	0.235	10	15	10	8	141	17	4	0.570	0.04
BB051	582932.4	8634099.9	7.00	0.016	0.101	26	20	5	2	216	20	4	1.340	0.45
BB052	588644.2	8635414.7	7.39	0.034	0.211	24	23	17	5	349	24	4	0.970	0.45
BB057	582247.0	8639017.7	7.03	0.021	0.073	35	28	2	2	80	13	4	2.060	0.91
BB058	582027.5	8637644.2	6.61	0.014	0.048	22	19	2	2	64	9	4	1.240	0.40
BB059	583422.3	8636215.5	8.30	0.021	0.090	15	13	2	2	64	16	4	0.440	0.13
BB060	588312.7	8636536.9	8.96	0.028	4.860	26	37	269	13	3018	12	4	1.310	0.82
BB061	588865.5	8635966.0	9.17	0.051	2.789	26	27	208	10	4211	8	4	1.300	1.43
BB062	590199.1	8635322.7	7.58	0.019	3.001	30	32	197	12	3236	17	4	1.480	1.66
BB064	589065.0	8629818.0	7.35	0.061	0.217	33	25	10	2	247	35	4	1.690	0.73
BB065	589725.0	8631108.0	6.14	0.053	0.138	36	32	30	2	1200	345	24	2.210	1.29
BB068	595230.0	8628758.0	4.38	0.012	0.054	10	13	5	2	187	8	4	1.320	0.32
BB069	596143.0	8628294.0	4.44	0.020	0.074	23	24	5	2	327	16	4	1.920	0.66
BB071	586004.0	8638206.0	6.95	0.020	0.092	14	14	5	6	190	21	4	0.640	0.04
BB073	584467.0	8638626.0	6.36	0.012	0.017	17	24	2	9	68	9	4	0.790	0.04
BB076	589189.0	8639366.0	5.08	0.017	0.056	116	65	7	12	115	29	10	4.440	6.96
BB077	588599.0	8638352.0	7.25	0.053	0.149	46	36	10	7	269	76	42	3.260	5.13

BB079	590335.0	8637490.0	6.39	0.038	0.103	12	16	7	5	279	31	4	0.840	0.38
BK001	595688.0	8627992.4	4.57	0.012	0.053	4	17	9	2	205	9	12	1.740	0.51
BK002	598305.0	8628928.4	5.78	0.021	0.071	15	17	8	2	298	17	10	0.910	0.32
BK003	601872.0	8631972.4	5.73	0.024	0.054	14	14	2	2	229	11	4	0.840	0.29
BK005	602630.0	8635445.4	4.25	0.012	0.044	31	21	11	8	128	17	4	1.300	0.48
BK006	604441.0	8638698.4	5.93	0.018	0.042	50	26	5	6	145	20	12	1.390	1.45
BK007	588098.0	8636672.0	7.61	0.039	0.307	21	21	64	9	672	26	4	0.970	1.29
BK008	585489.0	8641232.0	5.44	0.017	0.054	36	26	11	7	112	13	4	1.720	1.45
BK009	584960.0	8642109.0	6.93	0.025	0.108	30	22	12	5	96	16	4	1.300	0.79
BK010	586281.0	8643807.0	5.08	0.018	0.071	69	37	5	8	92	23	4	2.220	1.73
BK011	584649.0	8640121.0	5.18	0.019	0.046	50	30	9	2	239	20	4	2.430	1.22
BK012	582189.0	8640554.0	4.50	0.019	0.044	4	10	2	2	153	16	4	0.790	0.51
BK013	587429.0	8639090.0	6.45	0.027	0.141	72	38	6	7	144	23	4	2.450	1.35
BP001	602580.5	8618388.2	4.31	0.012	0.025	4	7	5	2	320	10	4	0.330	0.23
BP002	603759.7	8619916.1	4.30	0.004	0.023	4	5	2	2	94	4	4	0.100	0.04
BP003	604166.7	8621800.0	4.57	0.004	0.004	4	3	2	2	132	5	4	0.210	0.04
BP004	606226.6	8620637.7	4.40	0.004	0.022	4	4	2	2	94	5	4	0.140	0.11
BP007	597900.6	8618524.3	4.92	0.004	0.039	4	13	2	2	117	42	18	0.670	0.20
BP008	597135.7	8618171.1	4.46	0.004	0.035	4	4	8	2	170	6	4	0.160	0.11
BP010	596980.0	8621073.2	4.85	0.004	0.046	4	6	2	2	140	7	10	0.320	0.17
BP011	595291.6	8621543.3	4.17	0.012	0.055	4	5	2	2	118	5	4	0.160	0.04
BP012	595474.8	8619763.6	4.66	0.004	0.052	37	38	31	23	1166	35	4	2.250	0.76
BP014	595806.1	8625064.0	4.47	0.014	0.051	12	8	2	2	187	7	4	0.870	0.26
BP016	598663.6	8626522.7	4.00	0.015	0.050	14	16	7	2	132	6	4	1.060	0.66
BP017	600571.4	8625507.7	4.05	0.017	0.076	23	15	6	2	140	7	4	1.150	0.26
BP018	601368.8	8622596.1	3.94	0.016	0.060	11	9	5	2	273	8	4	0.530	0.51
BP020	602875.1	8623687.0	4.68	0.004	0.063	20	13	14	7	104	15	4	0.960	0.29
BP021	602999.9	8626187.4	5.52	0.019	0.103	28	15	16	2	235	20	4	1.060	0.53
BP022	600739.0	8627774.5	3.56	0.021	0.073	26	15	8	2	212	6	4	2.230	0.49
BP023	607763.3	8623515.2	4.09	0.017	0.040	14	7	5	2	247	8	4	0.450	0.10
BP024	606298.7	8625633.3	3.91	0.012	0.049	16	9	2	2	271	6	10	0.600	0.36
BP025	604583.0	8627355.9	3.98	0.015	0.037	4	7	2	2	163	6	11	0.360	0.33
BP026	598050.0	8623848.8	4.18	0.019	0.043	23	11	12	2	293	10	4	1.100	0.04
BP028	606709.5	8627074.8	4.53	0.013	0.047	11	4	2	2	176	6	10	0.350	0.10
BP029	603945.0	8631948.0	4.74	0.018	0.035	15	10	2	2	107	20	4	0.750	0.04
BP031	607454.0	8631768.0	4.51	0.004	0.004	4	7	2	2	97	7	4	0.350	0.04
BP032	602198.0	8637474.0	4.30	0.014	0.033	53	32	5	2	100	14	4	2.390	0.49
BP033	602735.0	8639384.0	4.51	0.016	0.056	50	37	5	17	92	26	10	1.440	1.03
BP034	598553.0	8631888.0	3.79	0.029	0.073	57	35	2	2	271	15	12	3.040	2.57
BP035	597373.0	8633672.0	4.28	0.040	0.079	58	28	5	2	216	18	4	2.150	0.93
BP036	599424.0	8636388.0	5.48	0.004	0.048	22	16	5	2	115	18	4	1.020	0.04
BP038	599678.0	8640232.0	4.85	0.004	0.033	28	23	2	7	68	14	4	0.920	0.04
BP039	596590.0	8635178.0	5.18	0.012	0.063	35	20	2	2	97	11	4	1.320	0.30
BP040	595785.0	8632836.0	4.53	0.045	0.096	47	25	8	2	469	16	4	1.990	1.10
BP041	594008.0	8634772.0	4.68	0.022	0.030	37	25	5	2	196	18	4	2.020	0.33
BP042	595335.0	8637914.0	4.45	0.012	0.028	36	22	2	2	89	16	4	1.330	0.04
BP043	594555.0	8640202.0	5.51	0.020	0.052	29	23	5	5	147	16	4	1.030	0.26
BP044	593618.0	8641400.0	5.00	0.012	0.054	14	15	2	6	113	15	4	0.300	0.04
BP045	591361.0	8642832.0	5.32	0.016	0.039	29	24	5	7	140	25	4	1.260	0.40
BP046	589120.0	8644122.0	6.78	0.016	0.065	41	23	2	6	54	17	4	1.250	0.04
BP047	590038.0	8645522.0	5.96	0.036	0.112	4	15	8	6	257	28	13	0.320	0.04
BP048	593190.0	8644928.0	5.97	0.031	0.128	49	28	6	7	213	40	11	2.070	1.50
BP049	595268.0	8644476.0	5.59	0.024	0.102	34	17	2	2	131	18	4	1.360	1.16
BP050	596698.0	8643818.0	5.78	0.010	0.072	33	22	2	2	132	29	4	1.330	0.33
BP054	596892.0	8641618.0	6.36	0.021	0.106	44	29	2	5	140	20	11	1.750	0.96
BP055	593922.0	8638548.0	6.79	0.022	0.054	18	19	7	6	117	23	4	0.910	0.04
BP058	586222.0	8618880.0	5.61	0.010	0.055	22	16	10	2	255	13	4	1.030	0.23
BP061	593329.0	8636676.0	6.52	0.022	0.054	30	24	8	9	143	20	4	0.850	0.76
CS001	585345.0	8591700.0	5.35	0.031	0.104	59	55	18	21	237	17	4	1.610	0.04
CS002	582565.0	8591746.0	5.08	0.019	0.068	36	21	13	8	104	10	4	1.230	0.04
CS004	586111.0	8595126.0	5.57	0.014	0.097	33	24	18	17	300	21	4	1.150	0.04

CS006	583961.0	8595116.0	5.57	0.014	0.105	38	35	16	17	136	12	4	1.440	0.04
CS007	586869.0	8598048.0	5.06	0.015	0.079	35	22	11	9	154	11	4	1.440	0.04
CS008	588760.0	8599150.0	4.08	0.012	0.041	14	10	2	2	100	5	4	0.360	0.04
CS016	604648.0	8604242.0	4.49	0.022	0.044	19	13	9	2	144	17	4	0.720	0.19
CS019	603687.0	8599444.0	4.59	0.011	0.043	10	8	6	2	105	4	4	0.420	0.04
CS021	602699.0	8598572.0	4.31	0.011	0.046	13	14	10	2	247	9	4	0.460	0.04
CS024	602043.0	8593862.0	5.67	0.028	0.048	27	30	23	6	431	26	4	1.240	0.68
CS025	601490.0	8591574.0	6.06	0.016	0.073	35	20	23	6	531	24	4	1.280	0.80
CS026	600572.0	8600182.0	6.12	0.013	0.038	4	9	7	2	123	8	4	0.420	0.12
CS027	606230.0	8606144.0	4.31	0.028	0.025	4	7	16	2	484	15	4	0.450	0.31
CS029	607574.0	8606660.0	5.07	0.023	0.044	10	9	16	2	298	54	4	0.520	0.28
CS031	604765.0	8610346.0	7.17	0.026	0.125	13	10	10	2	304	31	4	0.550	0.22
CS033	606372.0	8611424.0	5.65	0.024	0.083	11	9	10	2	385	14	4	0.370	0.22
CS035	605654.0	8613080.0	4.45	0.016	0.041	11	12	6	2	259	7	4	0.340	0.28
CS036	604077.0	8612736.0	4.99	0.024	0.052	4	9	7	2	292	21	4	0.370	0.25
CS037	603262.0	8615624.0	4.40	0.018	0.088	11	7	2	2	141	14	4	0.290	0.12
CS040	606229.0	8616298.0	4.83	0.004	0.035	4	4	2	2	101	4	4	0.230	0.19
CS041	601466.0	8617474.0	4.38	0.004	0.038	10	6	2	2	109	5	4	0.340	0.12
CS042	601040.0	8614416.0	4.20	0.034	0.086	11	15	10	2	475	23	26	1.170	0.99
CS045	607254.0	8598952.0	5.88	0.030	0.128	162	44	44	19	399	39	11	4.880	0.04
CS047	607714.0	8594502.0	5.40	0.019	0.076	59	28	34	17	482	18	4	2.170	0.04
CS048	605912.0	8594158.0	4.08	0.048	0.095	48	54	34	41	976	18	18	1.310	0.04
CS049	605458.0	8593220.0	3.99	0.025	0.100	44	29	15	12	407	12	4	1.290	0.04
CS050	601801.0	8610252.0	4.10	0.023	0.087	20	19	6	5	287	22	22	0.900	0.52
CS052	604358.0	8607450.0	4.30	0.018	0.074	17	14	9	2	208	18	4	0.750	0.25
CS053	599675.0	8599252.0	5.50	0.013	0.088	16	4	11	2	211	11	4	0.310	0.12
CS054	599494.0	8600104.0	4.24	0.012	0.040	19	7	10	2	213	12	4	0.350	0.15
CS055	598456.0	8601412.0	4.05	0.004	0.039	15	9	7	2	142	6	4	0.440	0.17
CS056	597543.0	8602568.0	4.38	0.011	0.062	16	6	8	2	202	8	4	0.440	0.23
CS058	596236.0	8599864.0	4.46	0.004	0.057	22	10	8	2	134	8	4	0.500	0.04
CS059	595803.0	8599318.0	4.14	0.004	0.028	34	29	20	6	131	6	4	1.860	0.93
CS060	596532.0	8597970.0	4.10	0.014	0.035	4	17	8	5	163	13	4	0.920	0.04
CS061	594829.0	8597964.0	4.84	0.012	0.049	4	5	7	2	162	19	4	0.350	0.13
CS062	592674.0	8597994.0	4.18	0.011	0.060	4	11	5	2	165	9	4	0.250	0.15
CS065	592946.0	8595476.0	3.78	0.019	0.067	4	12	11	2	369	23	4	0.560	0.45
CS067	594152.0	8602390.0	4.41	0.012	0.018	16	20	36	2	579	7	4	0.770	0.69
CS068	594342.0	8604564.0	4.42	0.014	0.036	33	31	46	2	1622	15	11	2.290	1.08
CS070	586332.0	8613978.0	4.56	0.015	0.043	46	43	11	8	154	17	11	2.280	0.04
CS072	583991.0	8614578.0	5.03	0.025	0.071	31	23	18	8	538	24	4	1.340	0.11
CS073	584548.0	8616644.0	7.12	0.044	0.628	21	16	66	9	4644	25	14	0.570	3.18
CS074	585438.0	8617566.0	6.43	0.026	0.244	15	14	23	5	522	20	4	1.460	0.43
CS077	588168.0	8617070.0	6.55	0.186	0.200	25	23	61	10	2097	17	4	0.990	0.19
CS079	583111.0	8613442.0	4.92	0.024	0.042	30	28	15	15	310	31	10	0.900	0.04
CS081	582375.0	8611796.0	4.90	0.013	0.036	42	30	9	10	89	11	4	3.590	0.04
CS083	590624.0	8610950.0	5.23	0.011	0.020	4	9	2	2	114	31	37	0.520	0.34
CS084	589612.0	8611436.0	5.33	0.025	0.031	19	17	11	2	192	15	4	0.810	0.31
CS085	590471.0	8612500.0	7.25	0.172	0.232	23	20	249	2	4410	41	45	1.440	2.91
CS086	591214.0	8613570.0	4.81	0.019	0.026	32	27	12	2	387	21	34	1.870	0.68
CS088	589021.0	8609644.0	4.31	0.004	0.013	4	7	2	2	106	6	4	0.250	0.04
CS089	590984.0	8609144.0	4.36	0.004	0.004	4	7	5	2	101	6	4	0.240	0.04
CS090	590008.0	8606258.0	5.32	0.011	0.020	4	6	6	2	83	5	4	0.120	0.04
CS091	588342.0	8604384.0	6.33	0.018	0.079	23	15	5	5	125	7	4	0.990	0.04
CS092	586665.0	8607060.0	4.20	0.004	0.018	33	29	6	9	53	10	4	1.700	0.10
CS093	584239.0	8607844.0	4.50	0.018	0.055	52	40	26	24	104	20	4	2.160	0.10
CS094	587870.0	8605130.0	7.41	0.020	0.182	19	17	2	2	121	11	4	1.000	0.04
CS095	589161.0	8603020.0	4.22	0.021	0.059	12	13	7	2	157	7	4	1.060	0.29
CS096	590360.0	8601064.0	4.24	0.011	0.036	4	7	2	2	69	4	4	0.230	0.04
CS097	588389.0	8600389.0	4.19	0.004	0.053	11	11	2	2	89	5	4	0.590	0.18
CS098	587438.0	8600802.0	4.32	0.011	0.034	4	8	2	2	341	2	4	0.130	0.04
CS099	591289.0	8598772.0	4.41	0.015	0.033	4	7	10	5	239	10	4	0.210	0.04
CS100	590244.0	8603266.0	4.83	0.004	0.020	11	9	2	2	83	6	4	0.370	0.04

CS101	592799.0	8608046.0	5.15	0.011	0.027	14	10	6	2	88	12	4	0.580	0.19
CS102	593905.0	8606064.0	4.97	0.019	0.034	35	21	19	2	357	9	10	1.590	0.53
CS103	592900.0	8604894.0	4.69	0.054	0.127	43	34	85	12	1871	55	63	2.340	2.64
CS104	594488.0	8607394.0	4.62	0.015	0.081	16	9	6	2	183	11	4	0.700	0.37
CS105	595833.0	8609898.0	4.94	0.026	0.096	18	14	7	2	223	14	15	1.370	0.72
CS106	594903.0	8611208.0	4.74	0.021	0.093	15	14	13	2	345	49	37	1.370	0.73
CS107	588978.0	8617546.0	6.49	0.047	0.365	40	21	76	11	4455	26	16	1.890	2.93
CS108	590249.0	8616226.0	4.85	0.064	0.177	26	35	66	15	2467	48	21	1.320	0.96
CS109	590985.0	8617512.0	5.40	0.033	0.077	50	39	14	8	473	52	10	2.110	0.74
CS110	591405.0	8617442.0	6.89	0.109	2.797	46	47	119	22	4600	52	10	2.250	2.02
CS112	592580.0	8613630.0	7.74	0.154	1.384	29	19	231	11	8307	61	4	1.930	4.31
CS113	595144.0	8613534.0	5.58	0.064	0.149	23	26	63	2	1572	95	56	1.880	2.84
CS114	594909.0	8614938.0	7.59	0.067	0.226	29	33	60	2	950	110	34	1.970	4.59
CS115	594319.0	8615630.0	4.41	0.013	0.041	4	7	7	2	188	22	25	0.680	0.80
CS116	595110.0	8616150.0	5.84	0.061	0.174	16	22	23	2	783	159	44	1.270	3.10
CS117	596094.0	8616264.0	4.58	0.029	0.090	4	9	9	2	355	29	32	0.460	0.64
CS118	597512.0	8616182.0	5.98	0.060	0.129	12	17	26	7	1827	178	64	1.410	2.35
CS120	598985.0	8615318.0	7.14	0.040	0.139	4	9	2	2	134	86	503	0.630	0.64
CS121	597427.0	8614622.0	4.00	0.012	0.032	4	7	2	2	127	10	18	0.460	0.48
CS122	596860.0	8612714.0	4.69	0.017	0.086	4	9	5	2	263	29	35	1.110	0.82
CS123	595105.0	8611886.0	6.81	0.093	0.210	34	30	141	7	2775	49	52	2.050	3.68
CS124	597680.0	8611188.0	4.41	0.027	0.107	18	17	6	2	245	19	25	1.700	0.90
CS125	598608.0	8612418.0	4.62	0.019	0.081	4	4	6	2	212	10	22	0.200	0.19
CS126	601371.0	8609038.0	4.65	0.027	0.155	19	18	17	2	583	32	28	1.830	0.82
CS127	602533.0	8608462.0	4.68	0.026	0.108	16	14	28	2	528	24	23	1.600	0.82
CS128	603830.0	8607230.0	4.35	0.035	0.182	17	20	13	2	335	29	28	1.790	0.69
CS129	602153.0	8604208.0	5.70	0.016	0.057	23	6	6	2	113	89	4	0.880	0.35
CS130	603746.0	8604923.0	6.01	0.029	0.097	60	33	19	2	302	48	15	2.470	1.12
CS131	604723.0	8606950.0	3.99	0.017	0.082	4	2	7	2	207	6	4	0.440	0.28
CS132	607108.0	8605154.0	4.75	0.022	0.089	25	9	40	2	572	15	10	0.840	0.49
CS133	597554.0	8610418.0	4.16	0.023	0.068	20	19	7	2	225	15	18	1.460	0.81
CS134	593286.0	8610842.0	5.30	0.065	0.128	26	18	41	2	1171	29	21	1.430	1.73
CS135	591850.0	8610116.0	5.95	0.030	0.073	17	16	7	2	156	49	21	0.940	0.40
CS136	591664.0	8608844.0	5.14	0.019	0.057	39	29	21	2	417	21	12	1.770	0.57
CS137	593655.0	8606544.0	7.02	0.022	0.101	33	20	14	2	354	24	4	1.330	0.37
CS140	596440.0	8608986.0	5.35	0.035	0.085	20	22	8	2	205	121	26	1.500	0.84
CS141	597988.0	8606464.0	7.12	0.041	1.024	26	25	179	12	3221	33	11	1.830	5.43
CS157	603051.0	8605178.0	5.42	0.015	0.033	22	19	10	6	236	16	12	0.570	0.46
CS158	602799.0	8606448.0	3.86	0.051	0.098	22	22	17	2	450	21	20	1.520	0.81
CS159	608301.0	8604268.0	4.73	0.021	0.044	10	12	24	2	277	17	4	0.700	0.52
CS160	588212.0	8613912.0	4.80	0.022	0.062	57	52	17	6	477	17	4	2.740	1.02
CS164	584375.0	8600900.0	5.90	0.030	0.091	35	44	23	27	297	17	10	1.340	0.16
CS165	591540.0	8603096.0	5.13	0.070	0.025	36	42	260	25	10080	14	4	1.940	0.43
CK001	594882.0	8600738.0	4.37	0.020	0.020	33	31	72	9	1121	12	4	2.210	0.82
CK002	583300.0	8597209.0	6.93	0.035	0.200	21	10	10	2	241	13	4	0.510	0.18
CK003	594073.0	8606530.0	6.70	0.048	0.070	25	14	19	2	469	27	20	1.050	0.89
CK005	595548.0	8608098.0	6.33	0.036	0.050	26	17	27	2	553	25	20	1.390	1.18
CK006	596668.0	8608006.0	5.23	0.042	0.060	25	17	16	2	444	25	20	1.430	1.00
CK007	597848.0	8607532.0	6.35	0.336	0.810	27	16	123	5	6141	28	13	2.010	5.51
CK008	598183.0	8605447.0	4.46	0.004	0.020	20	9	6	2	161	10	4	0.690	0.25
CK009	597921.0	8604528.0	7.21	0.036	0.120	26	10	24	2	524	21	4	0.750	0.54
CK010	597815.0	8603354.0	6.81	0.048	0.130	29	13	60	2	1155	21	4	1.000	1.28
CK011	594692.0	8603150.0	7.28	0.086	1.350	34	21	203	11	3698	35	10	2.010	5.43
CK012	598075.0	8607038.0		0.020	0.040	20	11	7	2	266	12	17	1.580	1.07
IB001	662352.9	8580710.3	4.47	0.004	0.030	13	19	2	2	44	9	4	0.740	0.04
IB003	660806.3	8577143.2	5.17	0.004	0.050	4	7	2	2	44	6	4	0.160	0.04
IB005	659301.8	8581738.7	4.58	0.004	0.020	4	9	2	5	24	6	4	0.300	0.04
IB006	657975.1	8581427.7	4.80	0.004	0.010	11	8	2	2	60	8	4	0.260	0.04
IB007	654361.6	8580545.0	5.11	0.014	0.090	4	9	2	2	105	12	4	0.310	0.129
IB009	653510.8	8577318.8	5.55	0.010	0.050	11	8	2	2	32	5	4	0.210	0.04
IB011	655296.1	8576274.1	5.73	0.004	0.004	4	5	2	2	16	5	4	0.180	0.04

IB012	650695.6	8582472.6	5.75	0.016	0.070	4	16	2	6	72	13	4	0.810	0.04
IB015	656946.0	8584412.9	5.64	0.015	0.050	4	11	5	5	84	12	4	0.610	0.04
IB016	650081.4	8578180.4	5.11	0.013	0.020	4	8	2	2	69	8	4	0.290	0.189
IB017	647377.8	8579035.7	5.71	0.013	0.020	22	22	5	2	67	15	4	1.190	0.259
IB019	642894.4	8575625.2	4.65	0.011	0.004	10	12	5	2	118	8	4	0.540	0.04
IB020	636795.5	8588465.1	5.05	0.012	0.120	10	17	6	2	208	10	4	0.540	0.04
IB022	637403.1	8585984.5	4.44	0.004	0.010	4	10	2	2	173	7	4	0.320	0.04
IB025	635983.0	8579504.2	5.70	0.004	0.020	31	27	13	2	221	11	4	1.440	0.04
IB026	636239.6	8583203.0	4.85	0.027	0.030	24	27	17	6	358	119	26	1.280	0.389
IB028	642478.2	8589359.2	5.26	0.004	0.004	4	5	2	2	68	8	4	0.230	0.04
IB029	639906.0	8590226.1	5.24	0.011	0.050	4	8	2	2	97	6	4	0.240	0.189
IK001	647396.0	8563214.0	5.18	0.004	0.020	4	10	2	2	63	6	4	0.390	0.04
IK003	642691.0	8563499.0	4.92	0.019	0.060	4	10	2	2	50	7	4	0.350	0.04
IK005	644611.0	8567500.0	4.88	0.004	0.004	14	28	2	6	94	9	4	0.340	0.04
IK006	646327.0	8567884.0	4.92	0.004	0.030	15	15	2	7	80	12	4	0.390	0.04
IK007	646772.0	8575588.0	4.81	0.004	0.030	23	15	2	2	67	10	4	0.880	0.04
IK009	636631.0	8569250.0	4.82	0.013	0.060	17	11	5	2	177	9	10	0.740	0.259
IK010	637242.0	8573541.0	5.22	0.020	0.004	25	36	8	2	147	14	4	2.100	0.129
IK012	638255.0	8576137.0	6.80	0.019	0.010	23	19	18	5	274	33	11	1.000	0.319
IK013	645171.0	8573458.0	6.14	0.018	0.260	29	15	11	6	141	15	10	1.320	0.04
IK014	641703.0	8571089.0	4.35	0.015	0.730	13	11	7	2	142	10	4	0.300	0.04
IK015	641683.0	8568817.0	4.94	0.015	0.060	10	8	7	2	107	8	4	0.260	0.04
IK016	639667.0	8577694.0	4.30	0.012	0.030	34	16	13	7	205	10	4	1.030	0.04
IK018	641552.0	8579698.0	4.51	0.010	0.030	20	24	8	2	164	8	4	1.050	0.04
IK019	637743.0	8580688.0	6.25	0.018	0.004	47	35	15	11	240	23	11	1.870	0.119
IK021	642610.0	8583276.0	5.04	0.004	0.020	11	11	6	5	48	6	15	0.280	0.04
IK023	644206.0	8587427.0	5.07	0.004	0.430	15	7	5	2	52	7	12	0.490	0.04
IK024	646328.0	8583153.0	4.58	0.004	0.004	16	14	6	2	52	8	4	0.550	0.04
IK025	650116.0	8585666.0	5.19	0.013	0.020	22	13	7	5	68	13	4	0.680	0.04
IK026	653833.0	8587206.0	5.54	0.019	0.040	18	12	5	6	104	13	4	0.530	0.04
IM001	659016.8	8564021.9	5.85	0.004	0.010	10	12	2	2	39	7	4	0.390	0.04
IM002	662497.5	8564683.6	5.62	0.004	0.004	15	12	2	2	45	9	4	0.290	0.04
IM003	654966.6	8565010.5	4.88	0.004	0.020	4	9	2	2	15	4	4	0.370	0.04
IM006	651118.3	8562724.0	5.18	0.004	0.004	12	13	2	6	72	11	4	0.580	0.04
IM007	657476.3	8567784.0	5.11	0.004	0.050	13	16	2	2	77	10	4	0.770	0.04
IM008	661589.0	8568190.5	5.44	0.012	0.020	18	9	2	2	78	11	4	0.400	0.129
IM010	661360.6	8571305.8	5.42	0.014	0.120	21	16	2	7	74	13	12	0.770	0.150
IM011	656440.1	8570146.0	5.31	0.012	0.020	16	15	2	8	74	9	10	0.550	0.04
IM012	656641.2	8572932.8	4.63	0.004	0.010	16	10	2	2	34	5	4	0.220	0.04
IM013	654120.4	8566582.0	4.26	0.004	0.004	11	18	2	6	34	7	4	0.160	0.04
IM014	650175.7	8567906.3	4.75	0.004	0.140	17	16	2	5	54	8	4	0.620	0.04
IM015	652050.9	8570852.4	4.57	0.004	0.120	13	12	2	7	41	6	4	0.370	0.04
IM017	650328.5	8572232.1	4.45	0.012	0.090	10	5	2	5	105	6	4	0.250	0.04
IM018	661575.6	8587272.1	5.00	0.004	0.040	15	6	2	5	25	5	4	0.180	0.04
IM019	662686.1	8585008.3	4.40	0.004	0.050	18	11	2	2	43	5	4	0.620	0.479
IM020	658724.6	8587132.2	5.57	0.004	0.040	17	10	6	5	74	11	4	0.540	0.150
IM021	655719.5	8585777.4	4.80	0.018	0.030	33	16	7	5	135	18	11	1.460	0.239
IM023	656977.0	8588566.2	4.34	0.004	0.020	39	17	8	6	132	18	10	1.430	0.270
IM024	647676.4	8590267.1	4.22	0.004	0.030	15	9	2	6	36	10	4	0.320	0.04
KA001	635459.8	8585560.7	4.66	0.004	0.040	4	10	7	2	149	7	4	0.630	2.37
KA002	633565.2	8584557.5	6.03	0.011	0.060	23	28	16	2	324	25	10	1.090	2.13
KA003	632450.8	8586091.9	5.07	0.004	0.060	29	31	10	2	152	33	13	2.060	1.16
KA004	632960.8	8587514.9	6.76	0.100	0.080	24	21	17	5	247	89	20	0.880	0.87
KA006	634620.0	8586508.3	5.76	0.011	0.050	21	20	6	2	133	9	4	1.580	0.71
KA007	633974.9	8587899.1	6.44	0.041	0.100	47	40	33	6	271	105	70	2.370	1.03
KA008	631354.0	8585649.5	4.66	0.010	0.080	23	19	10	2	262	11	4	0.860	0.81
KA009	631371.5	8587679.1	5.97	0.014	0.080	43	49	13	7	243	191	25	2.390	0.83
KA010	632512.0	8589435.0	5.06	0.017	0.100	40	22	15	2	316	36	4	1.200	1.14
KA012	634454.0	8589595.4	5.97	0.017	0.090	28	28	13	6	136	18	4	1.580	0.25
KA013	631110.8	8589460.8	5.19	0.004	0.030	22	10	9	2	143	9	4	0.650	0.38
KA014	629638.8	8588795.1	4.43	0.012	0.050	37	44	10	8	235	15	4	2.400	0.15

KA015	627122.9	8589114.1	6.68	0.024	0.040	34	19	79	12	439	7	4	1.670	0.16
KA016	629953.1	8586706.0	5.24	0.012	0.040	19	13	14	5	262	10	4	0.690	0.04
KA018	633428.4	8583868.8	5.47	0.013	0.050	12	12	22	2	443	13	4	0.600	0.54
KA021	634909.5	8583543.6	6.95	0.084	0.550	30	32	56	13	1312	312	54	1.790	1.53
KA025	633114.9	8582032.0	7.32	0.038	4.560	31	32	210	9	1038	27	4	1.560	1.96
KA026	631900.6	8581118.7	7.44	0.093	8.360	40	43	445	20	7831	76	36	1.890	4.14
KA027	633604.7	8580649.6	5.80	0.014	0.050	13	18	17	2	450	7	4	0.990	0.59
KA028	634274.3	8581227.9	4.45	0.004	0.020	28	46	10	6	219	7	4	2.440	0.04
KA029	634855.3	8579792.8	4.38	0.004	0.030	15	8	11	2	351	6	4	0.480	0.59
KA032	632427.8	8578566.6	7.01	0.056	0.170	63	40	53	8	1015	68	15	2.860	1.43
KA033	633315.0	8577402.1	5.99	0.030	0.150	27	15	38	2	1460	33	12	1.240	2.28
KA034	633810.0	8578485.1	5.25	0.016	0.070	25	13	25	2	765	14	4	0.920	0.85
KA036	635362.9	8576561.6	4.67	0.004	0.070	16	7	13	2	438	10	4	0.600	0.65
KA037	632074.3	8583009.9	5.70	0.050	0.130	21	14	47	5	1245	37	16	0.900	1.81
KA038	630559.3	8584483.4	6.34	0.027	0.060	21	17	38	2	901	60	28	0.870	1.60
KA039	630640.9	8583916.7	7.33	0.101	0.310	33	56	116	19	1771	318	216	2.170	5.20
KA040	632306.5	8583124.0	6.99	0.040	0.680	44	30	163	6	2399	49	12	2.040	2.97
KA041	631994.6	8577669.7	4.53	0.035	0.030	28	18	29	2	1359	12	4	1.320	2.59
KA042	631546.6	8579672.0	7.27	0.453	0.290	26	24	100	6	2680	105	25	1.300	4.30
KA044	631014.8	8579771.4	6.31	0.358	0.480	58	46	181	10	6009	118	51	2.900	7.55
KA046	630580.6	8581461.9	4.90	0.277	0.170	36	33	313	12	7838	142	99	2.550	14.84
KA047	629549.8	8582329.4	5.36	0.187	0.110	35	30	376	9	14620	97	56	2.730	20.96
KA048	627671.6	8581709.4	5.05	0.164	0.150	42	37	409	21	27410	148	131	3.030	38.72
KA050	629279.9	8583177.7	6.14	0.104	0.330	30	27	213	14	7910	105	60	1.540	7.84
KA051	628976.1	8584159.7	6.54	0.033	0.230	25	23	60	2	1285	19	11	1.460	2.23
KA052	628559.0	8585197.0	7.40	0.157	1.510	34	32	237	11	3093	72	37	1.770	4.90
KA055	626380.8	8587385.8	5.54	0.034	0.100	50	42	66	6	1833	33	28	2.450	2.31
KA056	626836.8	8586424.5	5.10	0.023	0.070	30	17	33	2	1069	25	10	1.140	4.33
KA057	627935.3	8586992.2	5.78	0.015	0.060	27	25	12	2	454	18	4	1.250	0.62
KA058	626871.6	8583248.4	6.72	0.117	0.320	67	595	384	42	18770	450	480	3.970	254.90
KA059	625493.0	8581976.6	5.50	0.041	0.110	15	21	156	14	7612	66	38	1.230	9.66
KA060	624265.6	8581295.6	4.56	0.039	0.060	28	19	90	2	3930	34	24	1.370	7.36
KA061	621184.9	8580815.3	5.58	0.037	0.110	10	7	15	2	718	24	4	0.230	0.50
KA062	619765.9	8581339.1	5.14	0.018	0.090	18	11	46	2	1660	22	10	0.610	2.15
KA063	620075.9	8583536.0	4.96	0.015	0.090	40	27	42	16	1037	12	4	1.340	0.04
KA065	619535.6	8585370.3	7.27	0.059	2.020	30	25	134	12	1053	25	4	1.560	2.23
KA066	619389.3	8586371.4	5.69	0.058	0.150	62	35	45	17	1141	28	25	2.080	1.72
KA067	619934.2	8588423.9	5.40	0.023	0.070	23	15	33	7	1291	19	4	1.850	0.84
KA068	620381.6	8589822.0	5.85	0.050	0.210	82	43	63	10	2261	49	21	3.980	1.74
KA069	626041.5	8590078.7	5.05	0.038	0.160	19	18	72	6	1800	68	49	0.800	2.91
KA070	616603.0	8582573.0	7.19	0.163	0.590	69	48	152	14	2464	119	17	2.930	2.44
KA071	617394.2	8581368.6	5.89	0.037	0.090	25	16	33	6	552	31	4	0.660	0.67
KA072	617430.6	8580705.0	4.29	0.021	0.060	19	13	20	2	661	13	4	0.920	0.42
KA073	619452.9	8579474.4	6.07	0.030	0.070	29	17	17	2	572	26	4	0.970	0.77
KA074	619803.6	8579726.4	5.29	0.018	0.070	23	14	19	2	588	34	4	0.830	0.74
KA077	624225.4	8579509.8	4.94	0.086	0.160	20	20	134	9	6604	94	45	1.050	5.51
KB001	633832.3	8575423.2	4.69	0.010	0.060	22	15	16	2	453	9	4	0.780	0.59
KB004	631082.1	8573668.0	4.39	0.004	0.030	15	4	8	2	306	5	4	0.240	0.28
KB006	628428.3	8572560.5	7.25	0.017	0.090	15	8	10	2	319	10	4	0.560	0.67
KB007	625912.6	8569564.7	4.27	0.004	0.050	13	7	7	2	221	5	4	0.360	0.57
KB009	628465.4	8571234.6	4.87	0.016	0.100	19	5	7	2	284	7	4	0.580	0.53
KB010	629583.3	8568697.0	5.49	0.023	0.120	31	32	19	2	497	15	4	1.200	1.09
KB013	627914.0	8563247.4	4.53	0.012	0.070	4	10	6	2	177	5	4	0.640	0.53
KB015	626725.4	8565308.5	4.88	0.004	0.020	15	8	2	2	71	7	4	0.450	0.38
KB016	625250.9	8566664.7	4.81	0.004	0.040	16	6	6	2	164	14	4	0.260	0.18
KB020	621080.9	8564637.8	4.11	0.019	0.120	4	4	7	2	560	11	15	0.290	0.47
KB023	622404.8	8568807.2	8.04	0.061	0.280	4	5	7	2	561	10	19	0.290	0.49
KB024	619185.7	8568965.2	4.08	0.020	0.070	4	3	7	2	236	7	4	0.180	0.32
KB027	620350.4	8570627.6	4.54	0.018	0.070	4	5	10	2	355	8	4	0.490	0.61
KB029	618967.4	8573151.3	4.46	0.016	0.080	23	14	15	2	336	9	4	1.160	0.22
KB030	617214.5	8573257.7	4.42	0.012	0.080	36	36	20	10	414	10	4	1.560	0.04

KB032	622099.3	8574912.4	6.43	0.021	0.110	12	11	17	2	541	12	4	0.660	1.05
KB033	617547.8	8568042.4	4.15	0.004	0.080	4	5	5	2	181	4	4	0.200	0.26
KB034	619425.9	8564996.1	4.26	0.019	0.090	4	4	5	2	133	6	4	0.250	0.32
KB035	615620.2	8571557.0	5.00	0.018	0.100	54	18	16	2	293	10	4	2.270	1.11
KB036	614123.9	8568126.0	5.31	0.013	0.090	11	9	7	2	143	6	4	0.790	0.59
KB038	615151.7	8565586.2	4.40	0.015	0.060	4	5	5	2	97	5	4	0.220	0.16
KB040	613299.9	8563105.6	5.49	0.004	0.060	21	14	6	5	73	14	4	1.160	0.40
KB042	610620.4	8565758.5	5.67	0.018	0.150	106	27	20	9	146	14	4	3.170	0.12
KB044	609658.7	8566735.7	5.99	0.027	0.230	227	151	60	34	252	23	4	7.130	0.26
KB045	618938.0	8578221.2	4.60	0.015	0.050	4	5	15	2	526	8	4	0.300	1.07
KB046	618164.9	8576334.1	5.16	0.024	0.080	106	28	34	12	600	20	4	2.160	0.14
KB048	619067.5	8575316.2	4.64	0.019	0.090	33	39	19	15	419	12	4	1.510	0.11
KB049	617463.2	8575365.2	4.64	0.012	0.040	28	28	13	21	272	8	4	0.920	0.04
KB050	616237.7	8573375.5	4.90	0.025	0.100	93	34	28	15	318	45	12	3.340	0.04
KB051	613639.6	8570262.5	5.44	0.004	0.050	50	28	9	5	77	13	4	1.810	0.30
KB054	610212.8	8570379.3	4.35	0.020	0.090	65	40	14	16	178	9	4	2.180	0.32
KB058	608844.3	8573294.1	4.77	0.023	0.140	150	53	35	25	340	9	4	5.880	0.04
KB060	613416.4	8575334.4	4.49	0.017	0.080	46	22	12	9	254	10	4	2.350	0.16
KB061	613315.4	8573705.1	4.26	0.023	0.140	82	28	21	17	330	9	4	3.180	0.14
KB062	608898.1	8576509.7	6.09	0.021	0.140	66	40	15	26	183	14	4	2.010	0.04
KB063	609951.7	8580091.7	4.30	0.004	0.080	20	10	9	6	180	6	4	0.480	0.22
KB064	613360.4	8579948.1	5.10	0.012	0.070	27	14	27	2	346	9	4	1.170	0.69
KB065	615518.7	8575102.7	5.13	0.030	0.170	62	22	28	12	738	16	4	2.490	3.40
KB066	615277.9	8576617.4	5.07	0.034	0.200	74	53	25	6	709	19	4	3.150	0.45
KB067	609397.2	8582505.9	6.34	0.019	0.070	17	14	13	2	223	17	4	1.300	0.18
KB069	609790.3	8584649.9	4.57	0.016	0.080	34	21	15	10	286	12	4	1.640	0.71
KB070	612333.5	8582802.9	4.12	0.041	0.080	23	23	11	11	332	6	4	0.190	0.36
KB071	616274.5	8579294.2	4.37	0.004	0.030	16	11	12	2	401	8	4	0.650	0.64
KB072	616128.9	8578278.8	4.40	0.013	0.050	21	16	15	2	472	11	4	0.970	0.46
KB073	616613.7	8582566.2	7.00	0.174	0.510	52	42	194	12	2806	138	24	2.540	2.06
KB074	618082.3	8583152.0	7.46	0.030	0.840	11	11	232	10	926	21	4	0.380	0.26
KB075	616937.1	8584136.9	4.39	0.013	0.050	42	23	21	10	591	13	4	1.610	0.46
KB076	615660.1	8584003.9	5.89	0.015	0.090	47	35	37	14	877	20	4	2.250	2.75
KB077	614736.7	8585077.8	4.50	0.013	0.090	27	21	26	13	494	14	4	1.120	0.94
KB078	615092.1	8585681.5	5.10	0.012	0.080	16	14	18	5	443	10	4	0.770	0.51
KB079	613535.7	8587437.5	4.62	0.034	0.180	105	46	47	11	1741	46	24	3.200	2.69
KB081	611895.0	8588476.4	4.67	0.015	0.060	18	17	14	6	496	13	4	0.380	0.19
KB083	611904.9	8589460.5	4.36	0.011	0.060	37	22	7	6	201	12	4	0.990	0.49
KB084	616905.8	8585541.2	6.51	0.010	0.130	20	18	27	7	949	18	4	1.010	0.26
KB086	622297.5	8571418.2	4.56	0.023	0.070	4	10	12	2	516	12	4	0.340	0.65
KB087	622173.0	8573119.9	4.78	0.020	0.080	13	10	9	2	317	11	4	0.400	0.49
KB088	625576.3	8573921.2	4.49	0.004	0.050	11	7	7	2	210	5	4	0.240	0.53
KB090	620877.1	8576237.8	4.67	0.016	0.060	18	13	14	2	523	11	4	0.570	0.98
KB091	622161.6	8577071.0	4.36	0.014	0.030	4	10	22	2	824	15	4	0.320	1.07
KB092	623947.7	8576828.5	4.73	0.035	0.100	24	32	53	8	1944	35	17	1.070	2.02
KB093	624381.4	8577221.6	4.92	0.020	0.100	10	12	36	2	1222	16	4	0.410	1.58
KB094	625162.2	8575926.7	4.47	0.004	0.050	18	21	10	2	365	9	4	0.790	0.58
KB095	625339.2	8576762.6	4.78	0.011	0.050	10	11	21	2	743	11	4	0.430	0.96
KB096	621820.7	8578765.1	4.64	0.012	0.050	30	18	25	2	702	14	4	0.920	0.69
KB097	625622.2	8579985.1	6.56	0.063	0.200	23	26	182	11	6922	77	32	1.180	6.94
KB098	626824.9	8579290.0	6.47	0.065	0.330	16	22	182	9	5855	73	30	0.980	5.75
KB099	627493.9	8580062.9	6.48	0.048	2.980	35	38	320	12	9926	64	32	1.910	10.47
KB102	616859.8	8572225.5	4.24	0.022	0.090	65	31	70	7	2079	16	4	2.050	0.44
KB103	617274.5	8572180.1	5.67	0.013	0.050	85	55	208	36	5618	25	4	2.980	0.83
KB105	630911.6	8578112.3	7.50	0.230	5.030	39	43	606	23	11830	123	58	2.130	0.78
KB106	630191.6	8578364.9	5.19	0.004	0.060	24	25	162	11	6949	56	30	1.280	9.27
KB107	629357.6	8578831.7	7.85	0.078	10.370	36	39	375	16	2443	29	4	1.530	7.65
KB108	628965.0	8576413.3	4.67	0.013	0.050	19	16	29	7	1010	13	4	0.560	1.12
KB110	627638.4	8575130.3	6.02	0.004	0.060	19	13	15	2	481	10	4	0.670	0.54
KV002	632223.0	8570158.0	4.49	0.013	0.040	14	16	12	2	445	12	4	0.670	0.70
KV004	631228.0	8567407.0	5.62	0.011	0.050	10	11	5	2	191	6	4	0.400	0.44

KV009	616370.0	8589914.0	6.80	0.033	0.120	22	19	25	9	908	30	4	0.860	1.76
KV010	617539.0	8589501.0	5.18	0.020	0.100	21	14	31	6	992	23	11	0.890	0.84
KV011	617344.0	8587107.0	5.24	0.014	0.040	22	13	22	7	662	14	4	0.650	0.74
KV013	619331.0	8590263.0	4.78	0.026	0.130	91	44	24	13	786	21	13	2.790	1.99
KV014	621390.0	8588750.0	4.38	0.026	0.070	35	29	30	12	969	13	4	2.670	1.10
KV016	622589.0	8589930.0	5.81	0.070	0.310	51	35	120	13	4809	94	43	2.910	4.68
KV017	621180.0	8586550.0	5.24	0.049	0.180	24	24	102	11	3536	71	30	1.540	2.83
KV018	622536.0	8586825.0	5.59	0.016	0.100	33	23	19	7	659	14	4	1.180	1.08
KV020	624540.0	8587215.0	5.70	0.052	0.080	36	27	68	9	2686	40	15	1.880	4.09
KV021	623531.0	8588075.0	4.60	0.017	0.030	59	34	26	11	529	10	4	2.350	0.52
KV027	621689.0	8582841.0	5.04	0.020	0.060	33	24	67	17	2246	22	4	1.520	0.44
KV028	622819.0	8585108.0	7.78	0.412	7.720	31	34	590	21	2027	52	15	3.180	23.52
KV031	622290.0	8582015.0	4.85	0.033	0.160	37	27	129	16	6401	72	37	1.760	5.91
KV032	623680.0	8583049.0	5.58	0.062	0.170	25	23	99	15	4055	96	30	1.560	3.53
KV035	624683.0	8584009.0	6.35	0.060	1.040	58	34	191	17	3440	46	16	2.750	6.60
KV036	626131.0	8584821.0	5.89	0.034	0.150	45	38	93	24	3645	44	20	1.840	4.22
KV037	632095.0	8565689.0	4.37	0.004	0.020	15	10	10	2	202	8	4	0.380	0.17
KV038	635145.0	8572965.0	4.54	0.004	0.040	4	9	11	5	310	8	4	0.170	0.23
KV040	634799.0	8570640.0	4.91	0.052	0.220	13	13	15	5	333	20	4	0.550	0.42
KV041	634958.0	8567914.0	4.24	0.015	0.040	16	10	8	2	289	11	4	0.450	0.30
KV044	634173.0	8564079.0	3.94	0.017	0.080	4	4	7	2	309	7	4	0.130	0.40
MA001	640737.0	8618176.4	4.48	0.004	0.038	18	13	2	2	204	10	12	1.000	2.04
MA002	641889.0	8619440.4	4.50	0.004	0.027	4	7	2	2	68	6	4	0.440	1.10
MA003	644053.9	8622236.8	4.67	0.012	0.062	35	20	5	2	64	10	19	1.340	8.71
MA004	645586.2	8624550.7	4.43	0.004	0.052	20	13	2	2	33	5	4	1.120	1.13
MA005	646340.8	8623258.2	4.10	0.004	0.040	10	10	2	2	35	5	4	0.740	0.98
MA006	647005.4	8621800.5	4.33	0.004	0.053	22	12	2	2	35	6	4	0.890	1.07
MA007	648256.3	8620881.8	4.54	0.004	0.052	29	14	2	2	44	7	4	0.920	1.67
MA008	649680.2	8620235.2	4.43	0.004	0.082	16	14	2	2	50	10	4	0.770	1.31
MB002	639658.1	8618080.9	6.62	0.034	0.130	20	9	6	2	491	17	4	0.550	0.83
MB003	638895.9	8619399.3	4.62	0.014	0.097	21	9	2	2	223	9	4	0.620	1.01
MB005	641316.3	8621756.7	4.54	0.014	0.058	59	25	2	2	78	16	4	1.850	1.67
MB007	639956.0	8620892.4	4.97	0.004	0.057	24	10	2	2	140	9	4	0.900	2.70
MB009	651018.0	8619510.8	4.72	0.012	0.093	23	11	2	2	115	15	11	0.900	2.70
MB010	646680.8	8618920.3	4.49	0.004	0.088	29	17	2	2	56	13	4	0.780	1.14
MB011	644387.4	8619356.1	4.88	0.004	0.059	18	5	2	2	34	6	4	0.320	0.74
MB012	643218.1	8618604.4	4.20	0.019	0.034	13	4	2	2	54	7	4	0.100	0.30
MB013	643996.2	8620137.7	4.77	0.004	0.036	18	7	2	2	39	8	4	0.330	0.60
MB014	644511.4	8625213.4	4.18	0.004	0.029	25	9	2	2	54	6	4	0.580	0.67
MB015	642698.2	8625035.4	5.26	0.004	0.036	27	9	2	2	55	9	4	0.520	1.10
MB016	641203.7	8624210.5	4.54	0.004	0.053	24	11	2	2	40	5	4	0.610	1.41
MB017	640718.2	8625405.3	4.42	0.018	0.082	55	26	2	2	49	16	12	1.790	5.17
MB018	641416.3	8623196.5	4.37	0.010	0.065	56	21	2	7	69	10	4	1.100	2.04
MB020	643513.9	8623416.6	4.55	0.004	0.042	30	9	2	2	39	6	4	0.380	1.65
MB021	636476.6	8620545.3	4.49	0.018	0.080	31	10	5	2	295	10	4	1.080	2.07
MB022	636522.6	8618742.6	4.51	0.004	0.073	34	14	2	2	343	12	4	1.210	2.72
MV002	635794.7	8619531.6	4.26	0.016	0.054	4	10	4	2	368	7	4	0.750	1.63
MV005	636884.2	8621359.4	5.34	0.059	0.251	45	31	7	2	623	28	14	2.370	2.76
MV008	636223.6	8623514.5	4.54	0.016	0.210	22	18	5	2	129	13	19	1.140	1.60
MV009	638902.1	8623726.6	5.60	0.017	0.164	42	19	2	2	116	14	14	1.590	3.06
MV010	638265.2	8625480.9	4.20	0.027	0.158	52	25	2	2	172	18	14	2.710	5.93
MV011	636396.7	8626376.1	4.66	0.014	0.171	4	8	2	2	142	10	4	0.240	0.33
MV012	636351.0	8627264.4	5.81	0.014	0.174	23	17	2	2	192	16	4	0.890	0.99
RB001	646155.2	8617566.1	4.70	0.004	0.017	11	11	2	2	75	6	4	0.230	0.22
RB002	653195.6	8614019.9	4.06	0.004	0.026	15	12	2	2	55	5	4	0.530	0.83
RB003	656643.3	8614362.3	4.56	0.017	0.082	30	20	2	2	82	12	4	0.920	1.31
RB004	651055.9	8618038.7	4.86	0.012	0.094	18	17	5	2	71	14	4	0.630	2.03
RB006	654385.0	8609629.5	4.28	0.016	0.121	64	40	5	9	64	16	11	2.140	3.77
RB007	657300.8	8607951.5	4.12	0.027	0.196	31	34	14	13	127	15	16	0.670	0.79
RB009	650972.0	8605906.2	4.56	0.015	0.072	22	16	5	2	139	9	4	0.880	0.48
RB010	654654.0	8606249.7	5.34	0.012	0.141	27	23	2	2	129	20	4	0.740	0.04

RB011	658016.1	8606064.4	5.81	0.004	0.037	34	25	2	7	68	16	4	1.060	2.39
RB013	660574.1	8603369.1	5.66	0.013	0.070	30	24	6	2	76	13	4	1.010	6.64
RB014	659796.1	8599368.1	5.73	0.018	0.161	77	39	6	9	108	24	4	2.110	3.44
RB015	658536.8	8597207.6	5.19	0.004	0.058	16	15	2	5	51	12	12	1.150	0.04
RB016	654116.4	8601805.7	4.10	0.016	0.083	17	13	2	5	103	7	4	0.660	0.35
RB018	645336.7	8609315.2	4.40	0.029	0.126	85	51	5	7	287	26	17	4.030	0.96
RB019	648908.0	8610496.1	4.39	0.046	0.246	95	52	6	14	220	17	12	2.400	2.07
RB021	639566.8	8617146.2	4.64	0.004	0.048	30	14	2	8	118	25	10	0.640	0.79
RB022	641176.0	8617080.4	6.20	0.027	0.110	22	13	2	2	147	57	19	0.710	1.18
RB024	647042.4	8614296.4	4.86	0.004	0.068	32	15	2	2	73	18	10	0.940	2.61
RB026	643816.8	8614157.3	4.48	0.011	0.079	31	21	2	7	122	13	4	0.820	1.00
RB027	638092.9	8613428.0	5.14	0.018	0.114	55	33	12	2	1240	28	13	2.210	1.98
RB028	641170.6	8612623.9	3.96	0.004	0.049	29	15	2	2	380	8	4	0.900	0.04
RB029	641482.4	8614646.2	6.45	0.011	0.068	42	21	6	6	445	13	4	0.640	4.91
RB030	643918.2	8611572.9	4.19	0.004	0.043	14	17	2	2	131	10	4	1.270	0.18
RB031	636338.2	8617734.8	4.55	0.035	0.167	85	72	12	7	1083	26	18	4.740	11.56
RB032	636045.4	8613614.1	6.60	0.124	1.342	51	47	49	9	5366	130	35	2.690	6.04
RM001	659470.9	8590300.6	5.78	0.015	0.046	20	19	2	5	37	12	4	0.910	0.44
RM002	657603.0	8593066.6	4.25	0.004	0.063	27	27	2	2	54	7	4	1.700	0.44
RM003	653392.3	8592255.6	4.12	0.004	0.048	14	14	2	5	39	9	4	0.520	0.04
RM004	649925.6	8593467.6	4.07	0.004	0.040	10	10	2	6	51	7	4	0.440	0.04
RM005	644449.3	8606061.6	4.38	0.004	0.042	15	9	2	2	122	8	4	0.420	0.18
RM007	646864.8	8604435.0	4.66	0.010	0.036	25	15	2	2	80	6	4	0.610	0.04
RM008	650088.3	8601524.6	4.24	0.004	0.030	23	17	2	2	41	7	4	0.460	0.04
RM009	654718.1	8596759.7	4.54	0.004	0.044	18	8	2	2	17	4	4	0.330	0.04
RM013	648954.1	8596391.8	5.48	0.004	0.013	10	7	2	2	26	5	4	0.370	0.14
RM015	646523.4	8592902.0	4.54	0.004	0.039	16	13	2	2	50	8	4	0.460	0.04
RM017	640881.8	8591894.2	4.98	0.004	0.059	13	13	7	2	115	11	4	0.680	0.48
RM018	645932.2	8597633.0	4.31	0.004	0.051	15	12	2	2	87	7	4	0.540	0.18
RM020	642487.5	8596404.8	4.78	0.004	0.049	17	9	2	2	78	6	4	0.330	0.04
RM022	639872.4	8599652.2	6.01	0.004	0.080	21	10	2	2	90	6	4	0.350	0.04
RM023	638411.8	8596942.6	4.23	0.004	0.083	4	12	2	2	152	7	4	0.410	0.18
RM026	636679.7	8593218.4	4.99	0.004	0.058	13	10	5	2	91	6	4	0.350	0.04
RM027	637005.1	8591060.1	4.35	0.004	0.081	27	17	2	2	68	10	4	0.620	0.04
RM028	641159.0	8609615.5	3.87	0.015	0.060	34	18	2	2	253	6	4	0.940	0.39
RM030	647224.4	8602057.3	5.02	0.012	0.048	43	19	6	6	118	14	4	0.880	0.14
RM031	643367.2	8601052.5	4.26	0.004	0.065	4	12	6	2	202	8	4	0.690	0.26
RM032	641774.1	8605372.7	4.40	0.004	0.041	4	7	2	2	71	4	4	0.220	0.18
RM034	639892.9	8609369.7	4.67	0.004	0.051	4	6	2	2	200	7	4	0.210	0.22
RM035	640155.1	8606649.8	4.10	0.011	0.082	4	15	2	2	175	6	4	0.590	0.31
RM036	639720.0	8605248.7	4.20	0.004	0.056	12	11	2	2	103	6	4	0.410	0.31
RM037	637393.1	8611356.6	4.74	0.012	0.074	17	16	7	2	721	25	4	0.770	0.70
RM039	637405.0	8607020.1	4.73	0.014	0.057	13	9	9	2	710	7	4	0.310	0.57
RM040	636747.3	8609363.6	4.14	0.004	0.041	4	9	2	2	359	7	4	0.270	0.39
SA010	617003.2	8618972.2	5.55	0.023	0.097	41	44	27	13	461	19	10	1.710	0.34
SA011	615017.7	8618203.9	4.90	0.023	0.125	13	10	8	2	529	12	4	0.530	0.16
SA013	615218.8	8620170.3	5.53	0.026	0.142	4	7	7	2	537	10	4	0.320	0.04
SA015	612672.9	8618923.9	5.39	0.015	0.124	14	10	6	2	285	11	11	0.500	0.16
SA016	611520.1	8618219.8	4.94	0.015	0.066	25	37	11	8	254	14	4	0.960	0.28
SA017	620556.2	8624720.5	4.33	0.025	0.061	14	7	7	2	803	9	10	0.480	0.54
SA018	622262.6	8624209.2	5.17	0.017	0.069	16	46	8	2	595	10	4	1.060	0.39
SA019	615119.0	8629576.0	4.07	0.025	0.108	4	7	5	2	370	9	11	0.420	0.34
SA020	624868.2	8622039.7	4.48	0.028	0.141	25	32	11	5	1188	17	13	2.200	0.74
SA021	625849.7	8620997.5	5.08	0.047	0.169	54	35	20	7	2057	22	20	2.430	1.04
SA023	626744.5	8620418.9	6.00	0.040	0.103	18	13	11	2	1502	20	13	0.970	1.73
SA024	627203.9	8619471.9	6.36	0.043	0.139	11	11	21	5	2554	24	12	0.690	0.83
SB001	628523.2	8618126.8	6.40	0.062	0.149	18	9	20	2	2536	21	13	0.490	1.25
SB023	624151.8	8618490.9	4.25	0.016	0.033	20	17	9	2	831	11	4	1.020	0.51
SB024	623512.3	8618018.8	5.02	0.018	0.068	20	11	12	2	881	16	4	0.970	0.63
SB026	620874.4	8619956.0	4.77	0.010	0.052	18	10	5	5	335	7	4	0.440	0.35
SB027	621474.5	8619666.1	4.54	0.016	0.060	24	28	11	7	632	13	4	1.000	0.56

SB028	622515.2	8619636.1	5.82	0.031	0.121	23	8	13	5	1177	22	15	0.700	0.70
SB030	626204.6	8620692.6	6.64	0.039	0.174	78	33	13	8	1185	17	10	2.810	1.10
SB031	615529.0	8630516.0	5.62	0.018	0.124	4	5	6	2	372	12	4	0.270	0.30
SB032	622837.5	8623124.4	5.66	0.035	0.203	16	8	12	2	1080	22	12	0.890	0.86
SB033	621849.8	8624765.4	4.12	0.033	0.074	4	6	9	2	801	10	4	0.560	0.65
SB034	618195.9	8623408.6	4.90	0.039	0.139	30	13	14	2	1006	21	12	1.160	0.70
SB035	616908.9	8622735.3	4.88	0.037	0.155	15	12	12	2	632	16	4	0.800	0.26
SB037	616716.4	8624546.4	5.37	0.018	0.081	12	5	10	2	556	16	4	0.420	0.44
SB039	619230.9	8628054.4	4.88	0.025	0.118	19	8	7	2	507	22	14	0.610	0.65
SB040	619293.8	8630916.7	4.45	0.031	0.122	48	12	9	2	380	10	4	1.970	0.42
SB041	617959.0	8634084.4	4.56	0.012	0.039	23	4	5	2	138	6	4	0.750	0.49
SB042	621302.3	8623876.7	4.13	0.012	0.060	4	3	5	2	227	7	4	0.250	0.35
SB043	622551.3	8622604.2	4.61	0.018	0.081	13	5	11	2	947	17	10	0.490	0.44
SB044	614948.0	8622940.3	4.95	0.025	0.106	13	13	7	2	400	10	4	0.410	0.19
SB046	611910.9	8622832.1	6.86	0.004	0.266	22	16	16	5	211	14	4	0.940	0.14
SB047	612929.4	8625597.3	4.20	0.019	0.049	11	8	5	2	352	8	4	0.410	0.23
SB048	611729.7	8626137.8	4.83	0.010	0.065	17	5	4	2	127	7	4	0.220	0.10
SB049	609913.5	8627964.6	5.32	0.026	0.083	15	7	5	2	312	9	4	0.520	0.28
SB050	611312.7	8630252.7	5.20	0.023	0.113	10	11	7	2	281	11	4	0.590	0.38
SB052	612490.5	8630029.7	5.71	0.021	0.111	11	10	6	2	262	14	4	0.410	0.22
SB053	624195.0	8624124.4	6.50	0.031	0.067	19	16	7	2	640	14	4	1.170	1.52
SB054	613403.2	8629924.1	4.33	0.029	0.115	4	8	5	2	452	11	4	0.480	0.43
SB055	626905.0	8623654.4	7.08	0.028	0.146	20	13	9	2	641	15	4	0.580	0.87
SB056	627219.2	8624662.1	4.85	0.015	0.075	19	18	8	2	401	17	18	1.370	0.96
SB057	629929.6	8619743.2	7.07	0.030	0.187	11	15	7	2	1033	12	11	1.580	0.04
SB058	628065.2	8621691.5	4.94	0.023	0.025	13	14	8	2	974	16	16	1.290	0.04
SB059	628745.8	8622302.2	6.50	0.053	0.112	40	23	8	8	745	18	14	1.100	0.74
SB060	627038.5	8619759.6	6.18	0.026	0.049	4	5	9	2	947	11	10	0.460	0.24
SV001	634965.0	8618184.3	5.54	0.023	0.052	26	24	10	5	856	18	16	1.750	3.27
SV004	635365.0	8621215.4	3.89	0.037	0.097	17	14	5	2	624	13	14	1.150	2.70
SV013	630098.3	8620489.2	7.13	0.027	0.089	22	16	8	2	868	13	4	1.510	0.65
SV015	630552.4	8622130.4	4.55	0.022	0.062	18	9	11	2	1084	11	14	0.780	0.93
SV016	630905.3	8623488.4	5.33	0.033	0.142	86	41	8	6	628	19	4	3.360	3.54
SV017	631665.7	8625129.1	7.27	0.011	0.130	21	13	5	2	303	14	4	0.850	1.04
SV018	632718.2	8623882.1	4.41	0.025	0.097	17	12	10	2	943	21	10	0.750	3.33
SV019	633489.1	8620986.4	6.57	0.016	0.140	17	11	8	2	666	18	17	0.810	1.52
SV020	633359.0	8621928.4	4.35	0.016	0.021	14	7	6	2	539	9	4	0.620	1.04
SV021	633187.6	8623138.0	4.83	0.019	0.063	36	24	5	2	364	14	4	1.690	5.22
SV022	633992.9	8625057.4	4.85	0.018	0.062	19	10	5	2	376	10	10	0.660	1.69
SV023	632769.0	8627284.3	4.47	0.014	0.064	12	9	2	2	169	9	4	0.750	1.52
SV024	631343.2	8618872.0	7.61	0.040	3.636	12	13	10	2	1505	17	4	0.820	0.60
SV025	630864.7	8618187.9	6.74	0.066	0.170	66	36	22	2	3014	17	19	3.370	2.88
SV026	624912.0	8625705.0	4.46	0.035	0.107	16	11	10	2	857	21	15	0.670	1.24
SV027	620655.0	8620959.0	5.83	0.040	0.109	4	6	12	2	1337	16	12	0.370	0.63
SV029	609126.0	8623010.0	4.81	0.018	0.083	13	5	7	2	274	8	10	0.140	0.16
SV031	629633.9	8626199.9	4.47	0.024	0.129	29	14	5	2	389	14	4	1.260	1.49
SV032	628006.5	8628221.7	4.78	0.004	0.131	23	13	2	6	129	8	4	0.390	0.60
SV034	626386.0	8628332.4	5.19	0.023	0.134	25	9	8	2	537	21	4	0.400	1.46
UB001	610803.0	8601626.0	4.19	0.036	0.090	71	26	42	2	465	9	4	3.160	1.17
UB002	608916.0	8600680.0	4.22	0.037	0.180	80	23	25	1	515	19	14	3.785	0.43
UB003	610754.0	8598462.0	5.05	0.008	0.100	23	9	9	2	184	11	4	0.780	0.04
UB004	610957.0	8598531.0	4.72	0.018	0.100	22	9	36	6	778	21	4	0.920	1.25
UB005	611235.0	8597038.0	4.69	0.041	0.160	70	29	44	5	1107	39	19	2.980	5.76
UB006	610979.0	8595270.0	5.14	0.041	0.130	49	26	33	10	789	42	14	3.000	0.67
UB008	608640.0	8594637.0	5.67	0.028	0.100	115	54	44	19	602	17	10	4.130	0.04
UB009	608737.0	8592502.0	6.53	0.033	0.290	114	28	42	22	708	20	13	3.790	0.04
UB010	608954.0	8605167.0	4.38	0.027	0.100	15	7	28	2	816	15	17	0.710	1.39
UB011	611987.0	8603698.0	4.46	0.037	0.070	22	10	37	2	477	9	10	1.070	0.67
UB014	611354.0	8605362.0	5.18	0.016	0.070	6	2	18	2	351	9	14	0.230	0.24
UB016	612941.0	8605529.0	4.13	0.023	0.070	6	8	9	2	370	6	4	0.700	0.92
UB017	614421.0	8606621.0	4.58	0.013	0.050	6	7	8	2	201	5	4	0.470	0.58

UB019	614711.0	8599906.0	6.60	0.038	0.190	125	32	81	16	1468	44	13	4.430	0.78
UB020	612036.0	8602802.0	4.34	0.040	0.080	26	13	88	2	1123	11	12	1.370	2.48
UB022	617141.0	8602386.0	6.73	0.009	0.030	15	13	5	2	95	11	4	0.730	0.25
UB023	621980.0	8601054.0	4.06	0.018	0.060	6	16	14	7	567	14	10	1.000	0.58
UB024	620355.0	8601970.0	4.03	0.012	0.030	17	11	6	5	244	7	4	0.700	0.25
UB025	618466.0	8601974.0	4.79	0.012	0.060	23	14	9	5	203	9	4	1.010	0.45
UB026	615991.0	8601638.0	4.78	0.011	0.030	6	18	10	2	188	8	4	0.830	0.45
UB027	615661.0	8599427.0	7.08	0.024	1.020	35	25	102	21	1119	40	11	2.100	0.72
UB028	617698.0	8598716.0	4.48	0.020	0.070	35	54	2	15	34	24	4	2.500	0.45
UB029	619709.0	8598209.0	5.67	0.028	0.090	78	42	31	13	356	97	13	4.820	1.66
UB030	619626.0	8597692.0	5.19	0.026	0.090	46	22	19	14	437	19	10	3.110	0.12
UB031	609878.0	8605944.0	4.65	0.035	0.050	6	8	9	2	482	10	17	0.320	0.12
UB033	608760.0	8606362.0	4.23	0.020	0.060	18	11	8	2	305	7	12	0.880	0.25
UB034	610189.0	8606120.0	4.60	0.027	0.060	6	6	13	2	316	9	4	0.250	0.25
UB037	612679.0	8606925.0	5.07	0.024	0.100	60	44	22	5	330	17	11	2.310	0.52
UB039	614009.0	8607292.0	5.24	0.017	0.050	60	44	22	5	330	17	11	1.280	0.65
UB040	614011.0	8608131.0	4.34	0.037	0.090	21	17	17	2	992	21	18	0.930	0.75
UB041	613440.0	8608079.0	4.85	0.023	0.040	22	9	10	2	381	13	11	1.030	0.49
UB042	611770.0	8609054.0	4.07	0.019	0.050	6	4	6	2	385	6	10	0.430	0.36
UB043	609714.0	8609031.0	4.21	0.022	0.060	6	10	2	2	236	6	4	0.820	0.11
UB045	615746.0	8604972.0	4.60	0.020	0.050	6	8	8	2	377	8	4	0.540	0.04
UB046	616323.0	8606601.0	5.16	0.015	0.050	34	16	11	2	216	11	11	1.390	0.17
UB048	617508.0	8604485.0	4.52	0.014	0.030	6	8	5	2	247	5	10	0.460	0.23
UB049	619590.0	8604995.0	4.49	0.012	0.030	6	24	2	2	151	18	4	1.320	0.04
UB050	619777.0	8603584.0	4.24	0.024	0.080	19	15	13	2	563	18	12	1.010	0.23
UB051	620898.0	8606507.0	5.00	0.022	0.060	29	18	11	2	411	13	11	1.340	0.55
UB052	623630.0	8607706.0	4.50	0.011	0.040	26	31	2	2	253	9	4	1.930	0.11
UB054	623296.0	8605434.0	4.54	0.013	0.050	22	24	6	2	313	9	4	1.440	0.30
UB055	623829.0	8603706.0	4.16	0.014	0.040	16	20	2	2	186	6	4	1.260	0.11
UB057	632441.0	8609332.0	4.49	0.007	0.020	6	8	2	2	202	4	4	0.640	0.04
UB060	629981.0	8611364.0	6.36	0.035	0.090	21	26	9	5	627	52	14	1.330	0.43
UB062	630190.0	8611123.0	5.46	0.020	0.030	18	23	8	2	486	15	4	1.400	1.00
UB063	635180.0	8613887.0	5.00	0.162	0.110	28	42	77	14	15010	88	119	2.990	5.63
UB064	634507.0	8613771.0	6.47	1.423	0.710	66	74	279	34	41900	225	192	6.190	13.75
UB065	631875.0	8614929.0	5.34	0.183	0.090	41	27	71	9	13110	41	43	3.210	3.85
UB067	631095.0	8615900.0	6.70	0.142	0.280	24	19	76	9	12030	84	55	2.310	2.21
UB068	630728.0	8617049.0	5.05	0.092	0.140	15	19	56	10	7427	31	30	1.540	2.63
UB069	629619.0	8617782.0	5.73	0.088	0.200	6	13	38	6	4819	24	19	0.820	1.63
UB070	626885.0	8617888.0	4.67	0.110	0.200	23	27	46	13	6133	50	40	3.370	2.84
UB071	624358.0	8616412.0	4.75	0.034	0.090	15	19	16	2	1748	13	10	1.050	0.30
UB072	622739.0	8614957.0	4.30	0.027	0.090	6	22	20	5	1793	14	13	1.430	0.30
UB073	620287.0	8615537.0	4.58	0.024	0.090	18	18	9	2	1054	19	4	1.200	0.57
UB074	623166.0	8617505.0	4.38	0.014	0.040	17	17	2	2	467	9	4	1.100	0.04
UB075	629494.0	8616769.0	4.66	0.037	0.070	24	24	16	2	2935	14	12	1.470	0.91
UB076	628701.0	8615757.0	5.66	0.028	0.070	6	10	25	8	3030	20	16	0.640	0.70
UB077	627850.0	8612991.0	5.38	0.019	0.060	6	9	15	5	1655	11	4	0.510	0.32
UB078	626119.0	8612208.0	4.73	0.032	0.060	6	9	9	2	835	15	4	0.600	0.25
UB080	625000.0	8611492.0	5.47	0.021	0.040	16	7	7	2	506	8	4	0.610	0.19
UB081	627151.0	8611080.0	4.94	0.024	0.070	6	9	14	2	1325	9	13	0.570	0.25
UB082	626794.0	8609877.0	5.27	0.050	0.160	18	23	22	10	2285	49	24	1.310	0.73
UB085	633353.0	8615828.0	6.36	0.116	0.470	32	25	67	14	17860	45	48	1.940	6.35
UB087	634733.0	8617890.0	4.45	0.011	0.030	23	14	2	2	400	6	4	1.090	0.73
UB088	632359.0	8616788.0	4.85	0.059	0.090	51	24	29	2	4530	21	21	2.670	3.18
UB090	632913.0	8612912.0	4.47	0.156	0.110	41	36	62	13	9627	38	64	2.740	5.04
UB091	630301.0	8615114.0	5.31	0.201	0.190	38	23	60	8	9209	40	33	2.400	0.19
UB092	629527.0	8613968.0	5.44	0.052	0.120	38	23	60	8	9209	40	33	1.060	1.62
UB093	628930.0	8611599.0	8.29	0.026	4.310	6	17	12	8	1150	14	11	0.730	0.46
UB096	628106.0	8611888.0	6.32	0.031	0.120	18	13	13	2	1428	15	14	0.660	0.19
UJ001	612035.0	8598924.0	6.01	0.026	0.110	69	30	82	14	1016	30	12	2.740	0.91
UJ003	614112.0	8597644.0	4.67	0.015	0.090	26	11	15	2	315	7	4	0.870	0.20
UJ004	614153.0	8596022.0	4.78	0.023	0.120	48	23	19	7	422	14	10	1.220	0.13

UJ006	617048.0	8595740.0	4.21	0.030	0.090	75	29	18	5	376	20	4	4.270	0.78
UJ008	620293.0	8595584.0	4.76	0.032	0.140	62	59	16	6	335	24	13	5.290	0.72
UJ009	622932.0	8592350.0	4.80	0.026	0.170	62	32	46	6	1139	24	13	2.600	0.26
UJ010	619480.0	8593274.0	4.87	0.021	0.130	109	33	12	9	175	14	4	4.810	0.13
UJ011	618189.0	8592988.0	6.43	0.069	0.400	84	28	18	11	409	32	4	3.920	0.72
UJ013	617260.0	8592752.0	4.06	0.029	0.170	84	24	14	6	547	9	4	3.770	0.04
UJ015	614304.0	8591960.0	4.86	0.015	0.130	39	14	14	7	415	14	10	1.350	0.91
UJ018	622408.0	8596128.0	6.33	0.043	0.240	173	82	38	29	408	61	10	4.560	0.33
UJ020	625018.0	8595222.0	6.37	0.062	0.210	44	20	22	8	270	44	10	1.740	0.33
UJ021	625858.0	8591284.0	4.76	0.017	0.180	37	14	25	5	578	18	15	1.350	0.52
UJ022	629332.0	8593700.0	4.86	0.017	0.150	32	14	15	2	317	16	4	1.470	0.20
UJ024	631952.0	8592204.0	4.83	0.017	0.100	26	11	12	2	227	13	4	1.070	0.26
UJ025	632983.0	8591508.0	6.83	0.016	0.230	37	38	5	5	134	20	4	2.460	0.26
UJ026	633869.0	8592342.0	4.30	0.014	0.040	32	20	7	6	141	10	4	1.270	0.04
UJ029	633995.0	8595050.0	4.45	0.011	0.090	41	39	5	5	103	10	4	2.410	0.20
UJ030	631539.0	8595330.0	5.06	0.018	0.110	24	10	17	2	339	19	4	1.050	0.39
UJ032	632222.0	8597572.0	4.88	0.030	0.190	22	14	28	7	919	9	4	1.090	0.85
UJ033	628360.0	8596534.0	4.60	0.017	0.110	22	8	11	2	255	9	4	0.900	0.04
UJ035	628389.0	8598254.0	5.29	0.020	0.160	32	10	13	2	297	15	4	1.170	0.13
UJ036	624864.0	8599060.0	4.70	0.015	0.090	88	65	23	11	204	19	4	3.320	0.04
UJ037	622851.0	8598710.0	4.45	0.021	0.130	32	16	11	2	384	13	4	1.270	0.52
UJ038	623715.0	8597436.0	4.54	0.021	0.150	44	20	11	2	351	13	4	2.010	0.48
UJ039	625524.0	8600720.0	4.88	0.030	0.140	49	40	24	6	1099	22	22	2.420	0.35
UJ040	623472.0	8602454.0	3.94	0.020	0.180	19	11	8	6	369	11	4	0.730	0.15
UJ042	625249.0	8604182.0	4.12	0.046	0.200	17	54	40	10	209	13	4	3.040	1.02
UJ043	624983.0	8606148.0	5.02	0.013	0.050	19	11	5	6	188	13	4	0.870	0.21
UJ046	627676.0	8601515.0	5.86	0.007	0.050	19	15	5	6	86	13	4	0.840	0.04
UJ047	627954.0	8604484.0	4.18	0.010	0.040	15	14	2	2	237	5	4	0.930	0.21
UJ049	631811.0	8601114.0	5.07	0.014	0.040	17	8	5	2	146	10	11	0.600	0.28
UJ051	632320.0	8605212.0	4.56	0.009	0.030	6	10	2	5	185	8	4	0.500	0.04
UJ053	632085.0	8606874.0	4.42	0.008	0.040	6	10	2	7	172	7	4	0.940	0.04
UJ055	626717.0	8606734.0	4.37	0.012	0.050	6	6	5	2	242	8	4	0.650	0.04
UJ056	629723.0	8606422.0	4.10	0.020	0.080	19	20	5	2	448	8	4	1.450	0.81
UJ057	630343.0	8608380.0	4.68	0.011	0.040	6	17	8	8	533	16	4	1.450	0.04
UJ058	629714.0	8608500.0	4.46	0.014	0.040	6	14	5	7	434	9	4	0.960	0.21
UJ061	634150.0	8609476.0	4.41	0.015	0.050	6	7	2	2	369	19	4	0.560	0.28
UJ062	635481.0	8608144.0	4.35	0.034	0.130	6	8	18	2	1969	19	21	0.700	1.42
UJ063	634980.0	8606436.0	4.81	0.007	0.020	6	6	2	2	153	4	4	0.330	0.25
UJ064	635150.0	8604666.0	4.54	0.009	0.070	17	10	7	2	183	11	4	0.750	0.18
UJ065	633628.0	8600958.0	5.06	0.007	0.060	6	4	2	2	110	6	4	0.430	0.04
UJ066	634792.0	8599536.0	4.79	0.017	0.090	21	10	7	2	171	11	4	0.860	0.04
UJ068	614736.0	8611024.0	4.89	0.005	0.030	6	5	2	2	109	3	4	0.310	0.04
UJ071	616477.0	8613512.0	4.75	0.033	0.120	30	14	18	6	674	21	4	1.060	0.59
UJ072	614565.0	8614776.0	4.09	0.014	0.050	6	5	2	2	418	6	4	0.330	0.25
UJ076	616032.0	8617832.0	4.60	0.029	0.120	24	11	10	2	462	12	4	1.170	0.32
UJ077	613444.0	8616838.0	4.18	0.028	0.110	24	9	8	2	728	11	13	1.320	1.01
UJ079	610767.0	8616924.0	5.21	0.013	0.050	6	8	6	2	209	8	4	0.580	0.11
UJ080	615819.0	8615630.0	4.75	0.024	0.120	42	18	9	2	245	10	13	2.010	0.45
UJ082	611744.0	8612632.0	4.31	0.028	0.140	6	8	8	2	457	15	10	0.720	0.73
UJ083	617398.0	8611110.0	5.27	0.035	0.110	16	15	12	2	770	19	15	0.770	0.04
UJ084	618727.0	8613458.0	5.91	0.039	0.180	25	15	19	8	1354	41	25	1.440	0.94
UJ085	620101.0	8611754.0	4.94	0.035	0.130	25	21	18	8	1571	41	25	1.620	0.87
UJ089	622007.0	8610628.0	5.16	0.019	0.080	17	8	9	2	560	11	4	0.590	0.24
LK001	644290.3	8557539.1	5.38	0.035	0.004	39	24	84	7	881	16	15	1.440	0.69
LK002	643166.3	8558276.6	4.93	0.017	0.004	25	17	7	2	152	15	4	1.120	0.34
LK003	646533.8	8556262.2	5.31	0.028	0.004	99	51	56	12	636	30	17	3.790	1.64
LK004	645431.4	8554994.8	4.97	0.019	0.004	14	11	19	2	254	9	11	0.720	0.48
LK005	645573.4	8553218.7	7.78	0.056	0.477	62	59	132	20	523	25	11	1.830	0.96
LK009	649044.4	8554749.7	5.12	0.004	0.004	4	5	5	2	153	10	23	0.270	0.10
LK010	647290.5	8551797.4	5.34	0.021	0.004	23	21	17	10	517	18	13	0.670	0.18
LK011	643881.5	8553963.8	5.49	0.020	0.004	23	20	31	5	398	19	14	1.040	0.88

LK012	650136.8	8556143.9	5.37	0.015	0.010	14	20	7	13	142	24	13	0.440	0.04
LK014	650953.0	8559486.9	5.10	0.016	0.004	19	25	5	5	113	19	16	1.580	0.04
LK015	650741.1	8552854.9	4.93	0.012	0.004	20	49	7	16	179	16	20	0.580	0.04
LK016	649655.2	8549273.0	5.81	0.071	0.004	42	45	69	64	7541	138	116	4.050	13.75
LK017	648020.0	8550342.0	7.93	0.123	3.220	67	51	204	19	1423	29	4	2.020	3.40
LK018	643807.0	8552211.0	5.01	0.016	0.004	53	40	37	11	1148	56	11	2.260	2.50
LK019	650724.0	8549583.0	5.60	0.030	0.004	32	37	19	12	2572	32	4	1.150	0.24
LK021	644735.6	8550740.6	4.40	0.039	0.004	25	26	10	6	715	23	16	0.920	0.54
LK022	642129.1	8550140.6	4.86	0.016	0.004	20	29	7	11	263	13	14	0.560	0.04
LK024	643328.6	8551303.0	5.92	0.108	0.010	81	62	36	13	850	59	12	2.710	0.53
LK025	644612.4	8551451.6	5.59	0.057	0.004	51	64	38	13	1910	75	84	2.080	2.26
LK026	645988.4	8549928.9	4.83	0.027	0.004	27	25	15	9	927	22	16	0.760	0.33
LK027	647017.2	8548806.0	4.77	0.021	0.004	36	45	12	6	1554	27	20	1.240	0.68
LK028	647556.5	8548310.9	6.07	0.028	0.021	63	79	14	12	618	147	28	2.290	0.39
LK029	647591.2	8548218.8	6.32	0.020	0.012	19	36	11	17	620	199	24	0.970	0.11
LK030	649733.4	8548380.8	5.66	0.266	0.004	78	89	135	22	16630	73	39	3.840	10.77
LK031	650171.2	8547768.8	5.11	0.073	0.004	39	70	35	17	4819	40	17	2.000	0.86
LK032	650117.0	8547608.9	7.52	0.089	2.066	24	51	46	16	5271	267	94	1.620	1.36
LK034	652383.4	8551972.4	4.95	0.004	0.004	39	47	12	19	185	22	4	1.410	0.04
LK035	652222.7	8549724.3	6.28	0.075	0.024	75	87	25	15	754	77	24	2.690	0.35
LK036	652126.6	8547689.2	5.80	0.026	0.004	41	50	22	14	1914	64	15	1.590	0.94
LK037	647611.3	8549458.9	4.97	0.015	0.004	25	22	13	5	1653	9	15	0.620	0.22
LM003	655081.5	8561514.6	5.00	0.004	0.004	21	23	2	6	55	19	4	1.170	0.04
LM004	659255.2	8561474.3	4.64	0.011	0.004	16	21	2	2	44	8	4	1.000	0.04
LM005	657489.0	8555620.6	5.89	0.021	0.004	39	37	7	13	83	43	4	1.450	0.04
LM006	657115.4	8554262.1	5.36	0.016	0.004	35	52	9	9	91	62	19	1.470	0.04
LM008	656391.8	8552029.6	5.14	0.012	0.004	32	43	8	18	80	18	4	0.990	0.04
LM010	654757.4	8552176.7	4.56	0.014	0.004	35	40	7	13	184	14	4	1.390	0.04
LM012	655154.6	8550631.4	5.19	0.015	0.004	46	117	7	11	105	38	17	1.930	0.04
LM013	654152.9	8549408.2	5.36	0.036	0.004	48	63	15	12	291	34	19	1.670	0.04
LM014	655945.5	8548338.5	4.82	0.013	0.004	18	30	8	19	103	20	14	0.530	0.04
LM015	658228.1	8547117.2	5.09	0.010	0.004	41	64	10	8	86	31	14	1.390	0.04
LM016	661785.5	8545462.6	5.33	0.016	0.004	109	174	13	18	71	38	26	4.390	0.24
LM019	661923.5	8550038.0	5.10	0.004	0.004	47	28	11	19	64	20	4	1.330	0.04
LM020	662290.9	8560024.6	5.45	0.011	0.010	32	35	6	11	50	17	10	1.170	0.04
LM021	646541.2	8550294.4	5.24	0.020	0.004	19	24	23	5	2134	22	25	0.890	1.23
LM022	650667.1	8546149.5	5.17	0.041	0.004	131	227	48	17	1004	79	30	5.140	0.91
LM024	649712.1	8544253.5	5.02	0.004	0.004	28	27	9	7	295	18	4	0.860	0.04
LM027	649232.6	8540283.3	5.45	0.014	0.004	21	18	2	2	54	12	4	0.700	0.04
LM029	647948.0	8537946.9	5.27	0.004	0.004	24	22	5	6	46	12	4	0.710	0.04
LM030	647878.4	8542151.4	5.86	0.023	0.004	39	34	22	5	129	15	4	1.440	0.22
LM031	648888.3	8542054.2	8.83	0.034	3.553	59	59	74	30	1278	37	4	1.760	0.62
LM032	648507.1	8544204.2	5.21	0.013	0.004	37	53	20	16	507	27	4	1.330	0.24
LM033	646244.0	8544273.9	4.76	0.004	0.004	31	28	8	7	179	15	4	1.180	0.04
LM034	645399.1	8543012.3	4.55	0.004	0.004	13	12	2	2	167	9	4	0.370	0.04
LM035	644411.4	8545289.8	4.96	0.014	0.004	21	12	2	2	191	11	4	0.680	0.04
LM036	644416.1	8540438.2	4.67	0.004	0.004	42	35	6	7	75	19	4	1.480	0.04
LM038	644944.4	8536201.5	5.10	0.014	0.004	15	18	2	2	87	11	4	0.560	0.04
LM041	642762.7	8542166.7	5.17	0.020	0.004	22	18	2	6	66	35	4	0.580	0.04
LM042	637152.6	8535333.1	4.94	0.010	0.004	4	7	2	2	26	4	4	0.410	0.04
LM043	639075.8	8537291.2	4.90	0.013	0.004	21	14	2	2	49	17	14	0.570	0.04
LM044	639198.9	8540364.2	4.89	0.035	0.004	4	12	2	2	67	13	12	0.350	0.04
LM045	640970.5	8543783.6	5.33	0.020	0.073	20	12	2	2	78	25	11	0.540	0.04
LM046	635951.8	8544605.6	4.79	0.004	0.004	4	10	2	2	155	10	10	0.160	0.04
LM047	641123.8	8546292.9	4.84	0.004	0.004	17	15	5	2	118	7	11	0.330	0.04
LM048	648560.5	8546242.0	4.81	0.012	0.004	25	21	13	5	801	20	23	0.830	0.17
LM050	644938.6	8546685.8	4.45	0.018	0.004	21	24	8	5	604	10	16	0.380	0.10
LM053	641928.2	8552494.2	4.79	0.004	0.004	27	25	15	2	417	11	13	0.850	0.88
LM054	636591.0	8552945.1	5.04	0.021	0.004	23	15	8	2	204	9	18	0.980	0.31
LM055	637674.5	8552108.4	5.02	0.004	0.004	22	32	6	2	230	9	19	0.330	0.04
LM056	637811.2	8554891.6	4.38	0.028	0.004	67	27	14	14	310	9	20	4.920	0.76

LM057	639684.3	8554006.4	4.93	0.017	0.004	33	11	13	2	348	7	15	1.020	0.68
LZ001	654301.0	8547701.9	5.40	0.017	0.004	53	90	7	9	182	32	4	2.010	0.04
LZ002	653227.1	8546071.1	5.68	0.019	0.004	36	45	12	9	342	124	42	1.700	0.67
LZ003	655275.3	8544774.3	5.16	0.004	0.004	23	26	6	12	89	26	11	0.760	0.04
LZ006	657341.1	8540616.6	5.34	0.004	0.004	19	33	6	6	39	10	4	0.630	0.04
LZ008	658953.6	8540311.4	5.15	0.004	0.004	67	48	22	6	76	18	12	2.200	0.04
LZ009	654348.0	8544514.8	6.22	0.014	0.004	46	51	9	11	141	117	37	1.570	0.04
LZ010	655608.5	8546206.1	5.42	0.004	0.004	26	21	6	8	103	34	4	0.730	0.04
LZ011	653130.1	8544263.4	5.84	0.017	0.004	38	78	7	6	84	44	20	1.340	0.04
LZ012	652925.3	8545554.3	4.78	0.028	0.004	34	36	11	15	597	48	19	1.070	0.16
LZ013	651469.8	8543040.9	5.58	0.004	0.004	26	28	19	13	281	17	4	0.950	0.11
LZ015	651830.5	8540102.5	5.41	0.004	0.004	128	127	34	10	58	43	28	4.370	0.04
LZ017	650442.7	8537284.8	5.20	0.011	0.004	61	32	10	7	71	17	17	1.910	0.04
LZ018	652323.9	8535938.3	5.19	0.004	0.004	37	23	6	5	58	13	4	1.240	0.04
LZ020	655899.6	8535758.8	4.88	0.030	0.004	29	23	2	2	74	15	4	0.920	0.04
LZ022	658341.4	8536390.9	4.91	0.012	0.004	11	24	2	6	28	7	4	0.190	0.04
LZ024	654236.5	8538575.2	5.32	0.004	0.004	23	24	2	5	45	8	4	0.680	0.04
LZ025	653537.4	8557370.3	5.20	0.004	0.004	30	29	7	10	65	13	4	0.850	0.04
LZ026	641024.1	8557687.1	4.80	0.014	0.004	20	14	5	2	242	8	4	0.540	0.43
LZ027	638421.5	8558236.2	4.95	0.004	0.004	12	8	2	2	185	6	4	0.540	0.45
LZ028	636000.7	8559999.8	5.11	0.004	0.004	11	6	6	2	169	6	4	0.220	0.16
LZ029	637773.1	8559744.4	5.24	0.024	0.004	10	7	2	2	159	6	10	0.130	0.21
LZ031	641285.2	8561087.7	4.80	0.025	0.004	11	13	2	2	97	10	23	0.540	0.04
LZ032	642397.8	8559104.0	5.02	0.024	0.004	13	9	6	2	164	7	4	0.440	0.04
LZ033	638496.8	8550804.4	4.72	0.011	0.004	15	13	2	2	200	8	4	0.590	0.21
LZ035	641395.8	8551674.6	6.10	0.042	0.012	45	47	15	10	296	38	22	1.560	0.21
NB001	684153.0	8563610.4	7.56	0.011	3.916	90	28	18	23	56	33	30	3.050	4.28
NB002	685953.8	8563178.9	7.16	0.015	0.470	52	25	7	14	33	23	75	1.100	0.68
NB004	668235.0	8565240.0	5.60	0.021	0.004	89	26	18	19	32	29	50	2.540	4.46
NB005	685382.3	8568580.4	5.35	0.021	0.004	131	36	11	20	42	165	75	3.360	7.53
NB006	689867.3	8565241.8	5.54	0.012	0.004	57	26	6	11	16	17	11	1.730	3.14
NI001	675815.5	8580259.1	5.39	0.023	0.004	209	50	12	19	43	35	35	5.490	15.19
NI002	676269.1	8579604.5	5.25	0.024	0.004	184	45	13	17	40	48	26	4.750	14.15
NI003	676916.2	8577357.5	6.11	0.020	0.004	111	36	12	11	26	38	20	3.610	7.38
NI004	679949.7	8576403.8	4.48	0.019	0.004	102	38	9	11	24	57	23	2.880	8.15
NI005	682625.7	8579125.5	4.75	0.004	0.010	33	17	5	5	15	12	4	1.440	5.62
NI006	685042.4	8571411.4	5.04	0.012	0.004	173	59	12	24	41	88	53	4.400	12.08
NI007	683348.9	8573579.4	5.19	0.022	0.004	76	35	13	9	22	58	35	2.800	6.55
NI008	681327.3	8575037.9	4.39	0.022	0.004	107	42	10	15	26	80	42	3.520	9.93
NI009	678189.6	8572143.2	5.16	0.011	0.004	63	28	6	8	38	79	29	3.110	3.96
NI010	678859.1	8571003.8	5.10	0.023	0.004	60	32	8	8	39	60	25	2.680	2.97
NI011	685533.3	8569680.0	5.05	0.033	0.300	117	55	10	15	45	73	72	3.790	10.46
NI012	687029.5	8570556.6	5.07	0.004	0.004	43	26	6	8	20	16	13	1.320	3.35
NI013	687049.2	8571918.3	5.42	0.029	0.004	25	17	7	8	23	18	10	1.200	3.21
NI014	685851.0	8574206.6	5.27	0.004	0.004	21	16	8	12	18	24	11	1.380	1.80
NI015	679948.7	8578417.0	4.74	0.021	0.011	163	51	10	16	33	60	32	4.580	8.50
NI016	683041.5	8576416.9	5.21	0.023	0.004	35	25	2	6	18	13	11	1.550	3.64
NI017	675326.2	8578542.9	5.22	0.043	0.017	146	48	12	14	51	30	29	2.750	4.53
NI018	676224.3	8576467.6	6.06	0.027	0.004	109	27	17	17	39	53	20	4.010	6.78
NI019	679748.1	8571090.4	5.28	0.027	0.004	96	29	8	7	34	135	208	2.980	3.64
NI020	679427.1	8569951.3	5.42	0.012	0.016	58	19	6	2	43	43	20	2.320	3.67
NI021	681437.1	8570144.1	5.04	0.032	0.004	87	27	13	16	36	33	26	2.780	2.61
NI022	680395.6	8568476.4	7.31	0.042	0.804	37	23	7	2	60	221	53	1.570	2.42
NI023	679887.0	8566547.6	7.52	0.025	0.578	47	21	14	9	1063	802	35	1.810	3.92
NI025	682431.4	8563472.7	7.48	0.030	0.698	48	20	15	17	140	19	18	1.550	1.62
NI026	680235.1	8564657.3	7.50	0.071	2.043	51	28	13	9	79	51	18	2.400	3.95
NI027	681003.5	8566859.3	8.18	0.083	11.299	32	19	10	11	271	1231	122	0.910	2.09
NI028	683971.6	8569344.4	5.63	0.040	0.004	134	53	18	16	40	500	218	2.930	9.14
NI029	686142.4	8566903.9	5.85	0.053	0.042	73	40	6	12	49	172	284	1.100	0.71
NV001	663176.8	8582168.0	5.05	0.023	0.004	29	11	8	2	81	15	4	0.890	0.28
NV003	663206.7	8584800.1	4.68	0.027	0.004	25	17	7	2	163	23	10	1.270	1.65

NV004	666224.1	8580357.3	5.51	0.024	0.004	39	20	8	2	129	21	16	1.710	1.25
NV005	664411.1	8578244.2	5.26	0.012	0.004	18	15	2	2	79	14	4	1.010	0.32
NV007	666233.3	8578056.4	4.98	0.004	0.004	11	6	2	2	15	6	4	0.200	0.11
NV008	667170.8	8576419.5	5.25	0.004	0.004	14	9	2	2	23	9	4	0.340	0.04
NV009	668420.8	8574355.5	4.98	0.015	0.004	4	10	2	2	34	8	4	0.200	0.11
NV010	665504.6	8574319.1	5.17	0.004	0.011	10	9	2	2	43	7	4	0.530	0.14
NV011	664443.3	8572992.9	4.99	0.004	0.004	4	5	2	2	22	5	4	0.270	0.04
NV013	668523.7	8572628.5	5.82	0.010	0.004	25	12	2	2	43	10	4	0.810	0.28
NV014	666547.6	8571641.1	5.36	0.004	0.004	12	8	2	2	29	7	4	0.230	0.04
NV015	664617.3	8570348.2	5.25	0.004	0.004	13	8	2	2	50	7	4	0.570	0.11
NV016	670120.5	8571578.3	5.04	0.012	0.004	12	5	2	2	16	6	4	0.280	0.14
NV017	668225.7	8569833.3	5.06	0.004	0.004	13	4	2	2	17	5	4	0.230	0.04
NV018	667144.8	8568008.8	5.54	0.012	0.004	16	11	2	2	22	16	4	0.430	0.14
NV019	666519.9	8566486.2	5.42	0.018	0.004	24	13	2	8	30	9	4	0.680	0.21
NV020	664230.4	8565779.9	4.98	0.019	0.004	12	6	2	2	21	6	4	0.370	0.11
NV022	663378.9	8564709.6	5.16	0.004	0.004	11	5	2	2	26	8	4	0.230	0.04
NV024	666325.8	8564781.0	5.68	0.011	0.004	26	53	5	6	41	9	12	0.300	0.04
NV025	668431.8	8565108.9	5.28	0.015	0.004	25	16	2	2	21	8	4	0.980	0.04
NV026	668395.4	8562801.7	5.32	0.010	0.004	28	18	10	7	42	8	4	0.990	0.21
NV027	670382.5	8562891.6	4.62	0.014	0.004	22	19	2	8	48	8	4	0.960	0.21
NV029	671238.9	8564276.8	5.69	0.004	0.004	22	15	2	2	20	8	4	0.830	0.11
NV030	677139.9	8565982.7	7.67	0.054	0.630	40	47	19	9	256	52	47	1.950	1.10
NV031	678507.7	8563902.3	7.17	0.051	0.381	45	29	16	8	255	135	38	1.900	1.28
NV032	678761.9	8565662.8	8.33	0.071	3.048	38	43	34	9	405	111	88	1.380	1.93
NV033	671175.5	8570125.4	5.28	0.004	0.004	29	23	2	6	25	11	4	1.110	0.21
NV035	670483.9	8568830.0	5.38	0.004	0.004	17	7	2	6	29	9	4	0.600	0.04
NV036	672096.0	8569203.9	6.82	0.004	0.010	18	10	2	2	17	6	4	0.600	0.04
NV038	673094.9	8566534.7	5.81	0.022	0.004	47	59	9	9	52	35	10	2.160	1.83
NV039	673756.2	8567696.6	5.65	0.004	0.004	19	22	5	2	28	6	4	0.940	0.18
NV041	673036.3	8564560.5	6.32	0.014	0.010	33	17	5	2	53	19	10	1.290	1.41
NV042	672518.1	8563404.5	7.16	0.004	0.081	29	15	9	2	44	30	4	1.170	0.62
NV045	674226.4	8564020.7	6.25	0.017	0.004	23	17	6	5	41	14	4	0.820	0.69
NV046	674283.4	8565741.9	6.44	0.014	0.004	19	20	5	2	15	6	4	0.610	0.15
NV047	678869.9	8562968.3	6.57	0.023	0.092	53	13	12	24	119	21	13	1.130	0.83
NV048	676023.0	8572087.7	5.62	0.004	0.004	24	11	8	5	93	23	10	1.040	0.79
NV049	674831.2	8573065.1	5.41	0.023	0.004	37	15	5	2	75	14	12	1.300	1.67
NV050	674122.3	8575306.2	5.28	0.012	0.004	73	33	10	2	37	13	4	3.020	2.77
NV051	673004.1	8574145.4	5.32	0.010	0.004	27	15	2	5	47	11	4	1.290	2.81
NV052	672341.1	8572513.4	5.32	0.012	0.011	4	12	2	6	19	7	4	0.510	0.21
NV053	676876.3	8568772.6	6.73	0.030	0.019	21	14	5	6	39	51	20	1.030	0.46
NV054	676830.8	8570125.8	7.04	0.020	0.115	47	27	7	9	39	38	14	2.070	0.89
NV055	675936.5	8569170.2	6.07	0.014	0.010	16	16	6	6	21	11	4	0.800	0.21
NV056	674834.7	8568902.0	7.23	0.036	0.146	42	25	5	8	50	151	117	1.920	0.68
NV057	674159.7	8570617.5	6.14	0.029	0.004	19	21	2	5	32	58	14	1.290	0.64
NV058	678589.0	8568493.4	7.33	0.004	0.035	19	36	5	2	26	24	10	1.950	0.68
NV059	678303.4	8566918.4	7.29	0.066	1.196	37	31	12	7	105	53	27	1.640	1.02
NV060	677041.5	8563157.2	7.31	0.026	0.201	63	36	37	12	177	70	37	3.300	1.08
NV061	674999.9	8563048.3	7.09	0.016	0.233	31	18	5	2	59	59	31	1.390	0.89
NV062	676187.8	8565097.3	6.20	0.022	0.004	15	15	2	5	20	9	4	0.290	0.16
NV063	677063.8	8566751.6	7.13	0.033	0.092	43	40	11	2	67	46	35	2.010	0.85
NV064	676238.6	8565910.0	6.77	0.053	0.192	34	30	23	11	282	38	15	1.210	0.76
NV066	670119.0	8565569.9	5.89	0.004	0.004	21	8	10	2	26	471	4	0.530	0.34
NV067	669898.2	8567294.5	5.21	0.004	0.004	21	9	2	2	20	7	4	0.440	0.21
NV068	675886.4	8567750.6	7.28	0.033	1.785	33	29	6	7	70	77	20	0.880	0.89
WI001	688446.3	8562055.3	5.06	0.011	0.004	114	33	11	11	38	28	25	4.42	5.41
WI002	685689.9	8561609.6	5.98	0.004	0.004	82	33	12	11	37	33	18	4.47	3.67
WI003	682734.7	8561815.0	6.52	0.004	0.004	74	25	13	11	672	26	16	3.05	3.30
WI004	680822.6	8561647.5	7.29	0.022	0.544	36	20	10	2	96	56	28	1.30	1.09
WI005	679653.6	8561481.5	6.15	0.004	0.004	16	8	12	8	144	24	13	0.37	0.33
WI006	681059.5	8560007.4	5.08	0.004	0.004	60	23	19	5	158	12	11	2.50	1.22
WI007	684478.9	8560858.3	5.84	0.016	0.004	71	19	5	2	27	14	4	2.72	0.36

WI008	684068.4	8560166.6	7.07	0.020	0.062	96	29	12	5	67	31	18	3.76	0.68
WI009	683695.9	8557810.8	4.85	0.004	0.004	32	21	5	10	63	14	4	0.95	0.21
WI010	681974.8	8556972.6	5.20	0.004	0.010	46	45	5	9	41	14	4	1.62	0.18
WI011	680168.3	8552914.7	5.13	0.004	0.004	34	78	23	23	23	27	4	1.24	0.24
WI012	677515.4	8553067.5	5.12	0.010	0.004	20	22	2	2	21	9	4	0.71	0.24
WI014	675775.9	8556346.2	5.39	0.004	0.004	12	24	2	2	17	7	4	0.60	0.15
WI015	677342.9	8559218.1	5.40	0.013	0.004	19	11	2	2	42	11	15	1.14	0.80
WI016	678209.3	8560213.4	6.04	0.004	0.004	39	15	7	2	100	17	14	1.66	1.22
WI018	679096.7	8559395.1	5.33	0.004	0.004	19	12	2	2	59	10	4	0.87	0.52
WI019	681131.5	8559853.1	5.72	0.022	0.004	55	22	44	6	709	20	16	2.40	1.21
WI020	675728.1	8560274.5	7.78	0.004	0.333	30	18	2	2	39	17	4	1.32	0.68
WI022	674044.1	8561441.0	5.74	0.017	0.004	17	13	11	2	53	11	4	1.53	1.54
WI023	676480.3	8560674.1	7.35	0.027	0.165	37	29	6	2	50	255	31	1.50	0.80
WI024	677916.4	8561725.6	6.68	0.029	0.004	28	11	16	7	289	31	20	1.06	1.54
WI025	676512.7	8561987.2	6.47	0.040	0.004	78	31	12	7	56	26	16	2.64	0.43
WI026	667253.0	8562006.2	4.85	0.010	0.004	73	37	7	5	53	13	11	2.17	0.27
WI027	663274.2	8559879.6	5.52	0.026	0.004	29	23	5	2	123	20	11	1.13	0.37
WI029	664952.7	8556802.3	5.07	0.020	0.004	22	25	2	5	39	13	4	1.00	0.04
WI031	665120.6	8557063.4	4.89	0.004	0.004	30	32	2	7	30	12	4	1.28	0.12
WI032	668296.3	8556765.3	5.07	0.004	0.004	28	29	2	7	37	17	4	1.09	0.04
WI033	671034.1	8557245.8	5.27	0.004	0.004	20	24	2	8	29	10	4	0.79	0.12
WI035	672132.8	8559985.5	4.78	0.023	0.004	20	21	2	7	21	7	4	0.65	0.04
WI037	670692.9	8561465.4	5.27	0.018	0.004	32	25	6	9	44	13	14	1.43	0.04
WI039	687039.2	8558411.6	5.13	0.016	0.004	15	16	2	2	320	24	4	0.38	0.66
WI041	688336.2	8557258.0	4.74	0.013	0.045	24	12	2	2	71	16	4	0.78	1.16
WI043	687079.3	8557709.9	5.10	0.013	0.004	31	17	2	2	24	14	4	1.16	0.70
WI044	686509.8	8557275.9	5.25	0.020	0.004	102	68	17	6	56	17	4	3.73	0.95
WV001	684182.7	8555115.6	5.35	0.016	0.004	25	34	14	11	67	13	10	0.73	0.12
WV003	689242.1	8552599.0	4.99	0.004	0.004	12	18	2	2	40	9	4	0.50	0.23
WV004	688888.4	8550131.6	4.52	0.014	0.004	43	41	8	13	48	19	11	1.62	0.16
WV005	684105.8	8552985.4	5.08	0.004	0.004	40	40	8	8	39	16	4	1.35	0.19
WV007	683982.4	8548598.4	5.36	0.012	0.004	35	53	21	8	93	55	23	1.36	0.27
WV009	684360.9	8544124.6	5.17	0.004	0.004	38	13	11	9	38	12	4	1.39	0.37
WV010	689171.9	8545215.7	4.86	0.017	0.004	15	27	6	7	26	14	4	0.80	0.30
WV011	683911.2	8539365.7	4.91	0.022	0.004	25	15	2	2	17	6	4	0.56	0.04
WV014	688340.0	8539301.3	4.59	0.004	0.004	14	21	5	9	18	7	4	0.44	0.04
WV016	689296.6	8536195.0	4.54	0.004	0.004	17	13	2	2	13	5	4	0.28	0.04
WM001	673313.4	8553625.1	5.86	0.014	0.012	66	35	15	8	68	46	22	2.19	0.31
WM003	673307.0	8550083.2	5.06	0.004	0.004	35	19	8	12	29	18	4	1.40	0.36
WM005	675407.5	8548223.8	5.24	0.004	0.004	18	18	2	2	23	11	4	0.94	0.46
WM006	672495.1	8544631.7	5.19	0.004	0.004	24	31	10	8	25	14	4	1.14	0.12
WM008	675073.4	8545875.3	5.25	0.004	0.004	17	18	2	5	16	6	4	0.68	0.04
WM009	675054.0	8540257.3	4.97	0.004	0.004	29	10	7	6	44	22	4	1.09	0.04
WM010	675952.4	8538253.8	5.11	0.004	0.010	19	9	2	7	29	12	4	0.55	0.04
WM012	679948.4	8535698.4	4.97	0.004	0.004	33	12	2	6	27	15	4	1.33	0.12
WM013	681988.6	8538207.4	4.77	0.004	0.004	15	9	2	2	16	8	4	0.62	0.04
WZ001	680795.6	8547161.7	5.38	0.004	0.004	69	29	26	22	43	22	4	2.57	0.16
WZ002	679941.5	8545217.0	4.94	0.010	0.004	23	17	2	8	28	12	4	0.96	0.16
WZ004	680564.0	8540751.7	5.34	0.004	0.004	4	9	2	2	9	6	4	0.26	0.12
WZ007	685517.2	8536926.9	4.81	0.004	0.004	11	9	2	2	11	6	4	0.31	0.21
WZ008	672428.4	8541282.1	4.74	0.004	0.010	10	8	5	5	21	12	4	0.41	0.12
WZ010	667439.1	8547888.3	5.10	0.004	0.004	16	12	2	5	22	10	4	0.51	0.04
WZ011	665658.3	8549312.2	4.77	0.004	0.004	28	28	2	5	33	16	4	1.65	0.04
WZ012	663100.5	8552233.3	4.83	0.012	0.004	18	19	6	15	42	14	4	0.55	0.04
WZ014	668189.6	8552442.7	5.50	0.016	0.004	25	19	5	11	36	16	4	0.78	0.04
WZ016	673033.3	8537384.1	5.00	0.004	0.004	34	21	5	8	30	15	4	1.06	0.04
WZ018	671436.8	8536003.0	5.14	0.004	0.004	14	10	2	2	24	11	4	0.49	0.04
WZ020	668341.8	8540674.1	5.40	0.004	0.004	21	9	5	2	19	19	4	0.78	0.04
WZ023	662878.4	8537396.0	5.02	0.004	0.004	21	11	5	8	37	14	4	0.88	0.04
WZ024	668396.7	8543698.7	5.48	0.004	0.004	32	29	9	10	27	19	4	1.11	0.04
WZ025	663652.4	8541823.0	5.16	0.004	0.004	16	11	6	7	34	12	4	0.71	0.04

WZ026	663175.7	8545795.4	5.12	0.004	0.004	29	33	5	11	41	15	4	0.98	0.04
Max	9.17	1.423	11.299	227	595	606	64	41900	1231	503	7.130	254.90		
Median	5.06	0.017	0.056	23	17	8	2	212	14	4	1.000	0.42		
Min	3.56	0.004	0.004	4	2	2	1	9	2	4	0.100	0.04		

Table S2. The location, pH, S_{tot}, CO₂ (carbonates) and selected elements in the deeper soil horizon (the depth of 70 to 90 cm) of the surveyed part of the Copperbelt province, Zambia. Concentrations of S_{tot}, CO₂ and Fe in wt.%, concentration of other elements in mg/kg.

Sample	X	Y	pH	S tot	CO2	V	Cr	Co	Ni	Cu	Zn	Pb	Fe	As
BB004	583918.98621892.2	4.16	0.010	0.040	57	66	2	13	25	63	4	3.89	1.83	
BB011	588166.08621945.4	4.07	0.010	0.030	41	33	2	6	17	26	4	1.96	0.60	
BB031	587917.58629563.8	4.12	0.004	0.050	116	62	2	13	29	40	4	4.26	3.52	
BB036	592292.38619549.9	4.09	0.004	0.004	26	44	2	15	12	54	4	2.20	0.69	
BB042	590741.28630350.0	4.77	0.004	0.010	28	55	9	27	270	55	4	1.92	0.60	
BB057	582247.08639017.7	4.13	0.004	0.020	67	43	2	10	21	49	4	3.36	1.05	
BK002	598305.08628928.4	4.25	0.020	0.030	32	29	5	12	28	41	11	1.54	0.28	
BK010	586281.08643807.0	4.34	0.004	0.040	119	51	5	15	39	105	4	3.48	2.71	
BP001	602580.58618388.2	4.19	0.010	0.060	102	256	17	132	30	9	21	6.28	4.09	
BP031	607454.08631768.0	4.17	0.010	0.020	18	33	5	18	44	43	4	0.93	0.31	
BP032	602198.08637474.0	4.30	0.010	0.040	70	39	5	9	17	27	4	3.30	0.69	
BP038	599678.08640232.0	4.38	0.004	0.040	60	48	2	18	24	70	12	2.09	0.89	
BP042	595335.08637914.0	4.23	0.004	0.040	108	114	2	20	28	57	12	5.13	4.02	
BP045	591361.08642832.0	4.50	0.004	0.070	140	87	10	17	29	43	16	5.99	6.35	
BP049	595268.08644476.0	4.39	0.004	0.050	173	109	2	22	28	39	4	6.72	7.93	
CK002	583300.08597209.0	4.37	0.004	0.080	160	123	38	37	47	40	21	6.84	0.82	
CS001	585345.08591700.0	4.00	0.024	0.040	118	85	14	37	105	10	4	4.02	0.04	
CS004	586111.08595126.0	4.36	0.014	0.060	138	60	47	43	100	10	4	4.27	0.10	
CS019	603687.08599444.0	4.16	0.014	0.040	43	47	8	17	41	8	4	2.17	0.28	
CS025	601490.08591574.0	4.83	0.020	0.080	159	116	32	35	62	19	4	6.35	0.89	
CS027	606230.08606144.0	3.91	0.016	0.030	23	29	2	9	15	8	4	1.13	0.31	
CS031	604765.08610346.0	4.31	0.017	0.040	76	76	5	29	40	10	4	3.60	1.70	
CS037	603262.08615624.0	4.12	0.011	0.030	16	36	2	18	19	10	4	0.89	0.28	
CS042	601040.08614416.0	4.07	0.030	0.030	18	150	2	98	65	18	31	2.23	1.64	
CS045	607254.08598952.0	4.25	0.022	0.050	271	77	43	33	215	41	4	8.51	0.16	
CS047	607714.08594502.0	5.39	0.019	0.090	272	111	42	40	143	15	4	8.80	0.07	
CS048	605912.08594158.0	4.02	0.011	0.050	101	70	19	31	66	6	4	3.35	0.04	
CS058	596236.08599864.0	4.52	0.004	0.030	63	77	17	18	59	7	4	2.49	0.61	
CS062	592674.08597994.0	4.64	0.004	0.040	58	103	2	15	17	8	4	3.66	2.40	
CS065	592946.08595476.0	4.35	0.004	0.010	19	58	2	21	12	12	4	1.57	1.26	
CS072	583991.08614578.0	4.35	0.004	0.040	69	62	6	19	23	16	4	4.25	1.32	
CS088	589021.08609644.0	4.07	0.004	0.010	12	27	5	8	131	10	4	0.54	0.04	
CS091	588342.08604384.0	3.97	0.016	0.010	51	47	2	11	21	7	4	2.26	0.13	
CS096	590360.08601064.0	3.98	0.004	0.020	41	81	2	36	42	6	4	0.94	0.19	
CS101	592799.08608046.0	3.99	0.013	0.020	20	51	5	27	39	13	13	0.55	0.04	
CS106	594903.08611208.0	4.59	0.023	0.050	13	153	2	86	63	33	60	2.58	1.29	
CS110	591405.08617442.0	6.31	0.017	0.350	56	54	50	24	1560	33	4	2.50	1.26	
IB006	657975.18581427.7	4.15	0.00	0.012	4	25	2	8	23	42	4	0.54	0.04	
IB019	642894.48575625.2	3.96	0.01	0.012	31	33	5	8	43	26	4	1.53	0.04	
IB020	636795.58588465.1	4.50	0.00	0.013	58	132	15	28	114	30	4	3.86	0.04	
IK013	645171.08573458.0	5.16	0.00	0.082	208	93	22	16	57	185	4	7.31	0.72	
IK024	646328.08583153.0	4.12	0.00	0.020	34	42	6	12	19	54	10	1.63	0.04	
IM001	659016.88564021.9	3.94	0.00	0.017	23	41	2	12	19	12	4	1.36	0.04	
IM010	661360.68571305.8	4.04	0.00	0.018	37	35	5	12	27	13	4	1.37	0.04	
IM014	650175.78567906.3	4.28	0.00	0.025	30	42	6	13	41	11	4	1.49	0.04	
IM020	658724.68587132.2	4.09	0.01	0.022	25	29	6	10	22	12	4	1.38	0.04	
KA006	634620.08586508.3	4.24	0.013	0.024	42	81	7	30	26	12	4	2.930	0.88	
KA041	631994.68577669.7	4.29	0.013	0.084	47	30	2	6	37	5	4	1.960	0.46	
KA046	630580.68581461.9	5.47	0.007	0.021	38	37	5	6	46	13	4	1.900	0.52	
KA060	624265.68581295.6	7.12	0.029	0.332	36	34	29	9	656	144	31	1.730	0.97	
KA068	620381.68589822.0	4.66	0.023	0.098	125	54	7	13	38	12	4	5.320	0.28	
KB004	631082.18573668.0	4.41	0.012	0.052	104	119	5	66	63	7	4	2.510	0.58	
KB009	628465.48571234.6	4.06	0.013	0.037	37	36	2	14	29	7	4	1.580	0.19	
KB015	626725.48565308.5	4.78	0.013	0.066	73	94	15	35	25	9	12	4.620	1.11	
KB023	622404.88568807.2	4.21	0.008	0.047	23	96	2	59	25	10	4	1.500	0.70	
KB029	618967.48573151.3	4.21	0.020	0.066	55	33	10	12	51	6	4	1.890	0.04	
KB035	615620.28571557.0	4.20	0.019	0.046	102	33	14	11	57	8	4	3.810	1.05	
KB038	615151.78565586.2	4.00	0.002	0.034	28	28	5	16	59	4	4	0.470	0.13	
KB045	618938.08578221.2	4.07	0.014	0.044	20	27	5	12	17	7	4	0.680	0.23	

KB051	613639.68570262.5	6.06	0.007	0.017	112	54	8	16	34	10	4	4.290	1.23
KB054	610212.88570379.3	4.35	0.014	0.041	85	52	12	20	54	7	4	3.040	0.46
KB060	613416.48575334.4	4.18	0.015	0.034	66	37	6	13	27	7	4	3.030	0.15
KB061	613315.48573705.1	4.81	0.025	0.074	101	43	14	16	34	5	4	3.910	0.11
KB067	609397.28582505.9	5.71	0.007	0.079	191	112	12	20	65	18	4	12.460	0.42
KB072	616128.98578278.8	4.06	0.016	0.021	39	50	5	18	16	6	4	1.690	0.25
KB075	616937.18584136.9	4.77	0.018	0.039	74	41	9	16	29	6	4	2.420	0.04
KB076	615660.18584003.9	4.51	0.020	0.047	116	128	47	36	87	13	4	5.280	4.10
KB078	615092.18585681.5	4.82	0.014	0.067	128	103	22	21	54	9	11	6.050	5.97
KB092	623947.78576828.5	4.15	0.021	0.021	44	55	14	11	32	11	4	1.900	0.11
KB096	621820.78578765.1	4.42	0.020	0.021	54	32	8	5	25	12	4	2.210	0.32
KV002	632223.08570158.0	4.42	0.013	0.037	84	149	6	52	78	9	13	5.310	2.39
KV004	631228.08567407.0	4.09	0.009	0.016	19	38	2	13	25	6	4	1.130	0.47
KV011	617344.08587107.0	4.89	0.009	0.069	205	179	14	28	49	28	24	9.000	13.71
KV032	623680.08583049.0	4.97	0.019	0.050	182	95	65	46	49	9	4	7.360	0.30
LK003	646533.88556262.2	4.87	0.013	0.004	53	35	17	11	276	35	13	1.84	0.37
LK010	647290.58551797.4	4.62	0.004	0.004	19	21	5	9	22	19	4	0.60	0.04
LK011	643881.58553963.8	5.03	0.011	0.004	87	124	144	36	172	39	20	3.81	2.74
LK028	647556.58548310.9	5.23	0.004	0.004	70	99	14	29	206	56	4	3.09	0.04
LK031	650171.28547768.8	5.01	0.004	0.004	37	56	13	31	659	54	4	1.58	0.04
LM004	659255.28561474.3	4.64	0.011	0.004	30	52	2	13	15	9	4	1.87	0.11
LM010	654757.48552176.7	4.94	0.013	0.004	52	68	12	35	149	21	4	1.83	0.04
LM016	661785.58545462.6	5.21	0.004	0.004	43	94	5	15	31	16	15	1.94	0.04
LM035	644411.48545289.8	4.70	0.004	0.012	33	26	8	16	28	55	4	1.37	0.04
LM043	639075.88537291.2	4.60	0.004	0.004	27	35	5	16	23	37	4	1.05	0.04
LM046	635951.88544605.6	4.87	0.030	0.004	105	178	9	47	28	67	24	4.95	1.96
LM054	636591.8552945.1	4.71	0.004	0.004	23	17	8	2	11	13	4	1.09	0.31
LZ018	652323.98535938.3	4.90	0.004	0.010	245	203	91	50	105	30	87	8.27	1.09
LZ031	641285.28561087.7	4.92	0.010	0.004	81	124	7	20	77	8	12	5.87	0.51
MA002	641889.08619440.4	4.10	0.004	0.059	35	30	2	7	30	12	10	1.810	4.99
MA003	644053.98622236.8	4.15	0.011	0.059	66	35	6	10	20	18	21	2.470	17.35
MA008	649680.28620235.2	4.15	0.004	0.054	32	23	2	6	33	12	12	1.310	1.87
MB011	644387.48619356.1	4.26	0.004	0.038	32	22	2	6	13	13	10	1.320	2.25
MB014	644511.48625213.4	4.13	0.004	0.062	59	54	2	12	88	12	11	2.360	3.30
MB022	636522.68618742.6	4.45	0.004	0.085	176	144	5	12	30	17	20	7.820	21.84
MV005	636884.28621359.4	4.16	0.004	0.047	95	53	2	2	28	15	13	3.730	1.64
NB004	668235.8565240.0	5.14	0.004	0.081	157	56	33	25	33	23	91	4.48	6.86
NI003	676916.28577357.5	7.27	0.029	0.188	122	50	12	19	27	48	30	4.33	7.29
NI005	682625.78579125.5	4.57	0.004	0.004	131	110	5	22	44	35	28	6.6	50.14
NI014	685851.8574206.6	4.42	0.004	0.004	64	66	7	22	25	52	23	4.7	5.36
NI019	679748.18571090.4	4.44	0.012	0.026	108	34	6	9	22	168	262	3.37	3.31
NV001	663176.88582168.0	4.55	0.013	0.004	34	32	7	13	63	12	10	1.11	0.04
NV009	668420.88574355.5	4.58	0.004	0.004	18	14	2	7	41	12	4	0.3	0.04
NV026	668395.48562801.7	4.89	0.020	0.016	52	35	12	15	20	10	11	1.66	0.04
NV047	678869.98562968.3	5.43	0.004	0.004	78	45	15	41	25	6	4	1.87	0.52
NV052	672341.18572513.4	4.59	0.004	0.004	35	26	2	9	13	12	4	1.17	0.04
RB001	646155.28617566.1	4.13	0.00	0.027	17	23	2	7	6	17	10	0.49	0.19
RB006	654385.08609629.5	3.96	0.00	0.047	102	64	6	13	23	82	17	3.44	5.71
RB014	659796.18599368.1	4.37	0.00	0.106	330	155	21	21	45	68	67	13.1	33.2
RB015	658536.88597207.6	4.34	0.00	0.075	106	111	12	27	31	94	64	8.44	2.04
RB016	654116.48601805.7	3.98	0.00	0.024	39	49	2	12	19	45	12	1.9	0.68
RB027	638092.98613428.0	4.02	0.02	0.029	89	63	2	11	25	68	4	3.75	1.96
RM002	657603.08593066.6	4.04	0.00	0.022	50	61	2	14	23	11	4	2.99	0.72
RM004	649925.68593467.6	4.52	0.00	0.004	71	167	9	31	28	25	4	6.66	1.45
RM007	646864.88604435.0	4.05	0.00	0.023	30	47	2	9	15	12	4	1.85	0.04
RM028	641159.08609615.5	3.93	0.02	0.020	44	41	2	8	10	9	4	2.04	0.34
RM031	643367.28601052.5	4.07	0.01	0.023	50	49	2	17	12	9	4	1.67	0.15
SA010	617003.28618972.2	4.41	0.012	0.076	110	99	48	49	142	34	10	4.500	0.26
SA018	622262.68624209.2	4.32	0.004	0.054	67	120	8	18	32	11	2	3.160	0.56
SA023	626744.58620418.9	4.25	0.004	0.056	33	26	2	7	170	21	2	1.410	1.51
SB030	626204.68620692.6	4.55	0.004	0.066	130	57	7	13	68	15	15	4.980	0.59
SB033	621849.88624765.4	4.11	0.004	0.018	25	64	2	36	20	6	2	1.090	0.33
SB044	614948.08622940.3	4.32	0.004	0.026	28	43	10	15	39	11	2	1.080	0.04
SB049	609913.58627964.6	4.27	0.004	0.041	50	31	6	10	43	8	10	1.730	0.18
SB053	624195.08624124.4	4.14	0.004	0.023	48	36	2	7	49	9	10	2.150	1.71
SB055	626905.08623654.4	4.50	0.004	0.046	113	78	9	27	22	6	14	2.590	4.25
SB057	629929.68619743.2	4.14	0.014	0.038	43	47	2	10	27	10	2	3.920	0.04
SB058	628065.28621691.5	4.16	0.004	0.057	93	92	2	16	29	20	12	7.680	0.50
SV004	635365.08621215.4	4.21	0.004	0.026	102	94	2	7	26	13	16	4.740	8.74
SV022	633992.98625057.4	4.43	0.004	0.065	175	166	7	23	32	18	22	8.220	26.36
SV025	630864.78618187.9	4.17	0.018	0.051	124	62	2	11	40	14	11	5.650	3.07

SV027	620655.08620959.0	4.33	0.011	0.054	52	60	18	26	35	13	26	2.360	0.80
SV032	628006.58628221.7	4.21	0.004	0.026	81	60	19	22	63	24	14	3.160	6.02
UB001	610803.08601626.0	4.06	0.038	0.080	100	52	6	10	49	20	4	4.44	0.74
UB004	610957.08598531.0	4.94	0.006	0.120	194	128	11	23	42	29	19	8.84	7.34
UB006	610979.08595270.0	5.20	0.014	0.080	104	68	11	18	43	20	4	6.54	0.24
UB009	608737.08592502.0	4.50	0.028	0.160	174	51	36	27	68	7	11	6.01	0.17
UB039	614009.08607292.0	5.12	0.024	0.070	95	68	9	12	37	10	4	3.54	0.04
UB045	615746.08604972.0	4.18	0.019	0.060	35	39	2	15	23	4	4	1.65	0.04
UB049	619590.08604995.0	4.26	0.013	0.040	32	49	2	7	41	7	4	2.52	0.04
UB065	631875.08614929.0	4.76	0.035	0.100	73	49	11	16	176	56	18	4.79	0.23
UB070	626885.08617888.0	4.14	0.013	0.040	40	34	6	13	101	13	4	1.64	0.04
UB076	628701.08615757.0	4.97	0.012	0.040	49	104	15	11	84	20	16	3.38	0.04
UB077	627850.08612991.0	4.36	0.016	0.040	39	69	10	10	47	25	4	2.71	0.32
UB082	626794.08609877.0	4.51	0.018	0.040	35	53	5	11	36	20	4	2.51	0.19
UB087	634733.08617890.0	4.32	0.014	0.040	101	64	2	7	47	17	14	4.55	10.54
UJ046	627676.08601515.0	4.50	0.007	0.070	29	34	2	17	32	21	4	1.48	0.04
UJ049	631811.08601114.0	4.32	0.019	0.060	35	20	2	9	21	21	4	1.44	0.04
UJ056	629723.08606422.0	4.58	0.012	0.040	6	33	2	8	14	16	4	1.87	0.35
UJ057	630343.08608380.0	4.48	0.013	0.050	35	79	6	17	79	20	4	4.50	0.04
UJ062	635481.08608144.0	4.11	0.025	0.050	31	33	2	18	17	36	11	1.41	0.18
UJ068	614736.08611024.0	4.33	0.007	0.060	32	45	2	11	40	25	14	2.17	0.45
UJ071	616477.08613512.0	4.32	0.022	0.070	92	60	32	21	110	44	10	3.08	0.25
UJ085	620101.08611754.0	4.57	0.019	0.090	17	28	5	2	23	11	4	2.18	0.04
WI007	684478.98560858.3	4.68	0.004	0.004	135	37	7	9	19	19	17	4.77	0.52
WI011	680168.38552914.7	5.73	0.004	0.041	65	160	47	58	33	46	14	2.50	0.04
WI020	675728.18560274.5	4.50	0.004	0.004	64	40	2	2	13	9	4	2.49	0.88
WI027	663274.28559879.6	4.59	0.013	0.004	62	46	5	9	12	12	4	2.23	0.04
WM003	673307.08550083.2	4.90	0.020	0.004	62	33	11	30	38	27	4	2.19	0.04
WM009	675054.08540257.3	4.67	0.012	0.004	60	23	8	13	41	22	4	2.13	0.04
WM012	679948.48535698.4	4.92	0.012	0.004	69	34	9	20	36	27	4	2.82	0.22
WV004	688888.48550131.6	4.43	0.021	0.004	70	60	11	21	22	17	13	2.14	0.11
WV009	684360.98544124.6	4.97	0.004	0.004	115	63	23	25	58	15	4	4.16	1.90
WZ010	667439.18547888.3	4.54	0.004	0.004	32	28	2	10	18	17	4	1.32	0.04
WZ014	668189.68552442.7	4.92	0.004	0.004	78	67	10	37	30	27	11	2.57	0.27
WZ020	668341.88540674.1	4.96	0.004	0.004	109	124	15	45	36	40	35	4.62	0.77
WZ023	662878.48537396.0	4.68	0.004	0.004	44	26	6	18	30	19	4	1.65	0.04
Max		7.27	0.038	0.350	330	256	144	132	1560	185	262	13.10	50.14
Median		4.37	0.010	0.038	58.5	53	6	16	33	16	4	2.50	0.40
Min		3.91	0.002	0.004	4	14	2	2	6	4	2	0.30	0.04

Table S3. The pH values and concentration of selected elements in the water of the Kafue River catchment. Concentrations of Ca, Mg and Fe in mg/L, other elements in µg/L, filtered water. Field campaign 2008 and 2009. Explanation: Sampling sites description: **Kafue River:** 1 Kafue River, inflow to the Copperbelt industrial area (reference point of the non-contaminated Kafue River), 4 Kafue River, after junction with contaminated Mushishima and Chililabombwe rivers, 6 Kafue River, after passing through the Chingola industrial area, 8. Kafue River, after junction with the Mufulira River, 10 Kafue River, middle stretch, 12Kafue River, middle stream, 17. Kafue River after passing the Kitwe industrial area, 18. Kafue River, outflow from the industrial Copperbelt area. **Kafue tributaries:** 2. Lubengele River, tributary of the Kafue River from the Chililabombwe industrial area, 3. Mushishima River polluted with washed-out material from old flotation tailings south of Chingola re-mined through chemical leaching plant, 5 Changa River, contaminated with overflow from the Chingola KCM thickeners, 7 Mufulira River, tributary to the Kafue River from an area of large tailing ponds south of Mufulira, 9 Musakashi River, tributary to the Kafue River from an area of large tailing ponds north of Chambishi Town, 11 Mbabwashi River, tributary to Kafue River from an area of large tailing ponds south of Chambishi Town, 13 Mindolo River, tributary to the Kafue River from an area of tailing ponds of the Mindolo mine, 14 Kitwe River, flowing through waste dumps area west of Kitwe, 15 Uchi River polluted with industrial water released from the Nkana Smelter and Chemical Plant, 16. Wusakile River, tributary to the Kafue River from an area of the Nkana Industrial Complex.

Variables	Sampling Sites - Kafue River -Water									Sampling Sites Kafue Tributaries - Water									
	Field Campaign	1	4	6	8	10	12	17	18	2	3	5	7	9	11	13	14	15	16
pH	2008	6.37	6.85	6.95	6.67	6.5	6.92	6.36	6.4	6.67	6.65	6.79	6.37	6.34	6.57	6.79	6.66	6.28	6.5
pH	2009	6.78	7.03	6.97	6.93	7.2	6.96	7.25	7.21	7.05	5.8	7.21	6.93	6.91	7.31	6.93	7.25	7.13	7.43
Al (µg/L)	2008	5	16	21	13	13	14	17	20	28	14	23	3	3	15	8	12	35	4
Al (µg/L)	2009	4	16	16	11	10	12	11	21	26	237	18	5	3	8	18	9	6	6
As (µg/L)	2008	<.5	<.5	<.5	<.5	<.5	<.5	0.5	0.8	<.5	<.5	<.5	<.5	<.5	<.5	<.5	<.5	6.7	0.6
As (µg/L)	2009	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0.5	2.9	0.6	1	1.5	0.8	1	<0.5	2.6	1.2
Ba (µg/L)	2008	14.6	35.2	44.8	41.3	39.9	34.9	33.5	33.3	57.8	47.2	76.1	39	41	22.4	46.9	34.9	52.6	136
Ba (µg/L)	2009	16.1	37.6	49.1	47.7	49.2	44.4	45	42.7	43.6	84.5	78.3	50.5	40.1	22.8	51.1	47.6	49.9	169
Ca(mg/L)	2008	14	21	23	36	29	35	36	37	23	34	26	138	162	76	151	35	254	69
Ca(mg/L)	2009	14	25	27	29	33	30	35	34	21	317	34	148	105	66	156	36	231	67
Co (µg/L)	2008	<.5	7	9	6	4	5	26	33	4	14	41	2	3	24	16	7	1571	15
Co (µg/L)	2009	<.5	17	30	13	21	10	24	19	8	5824	53	1	4	3	23	12	2262	11
Cu (µg/L)	2008	4.6	87.5	101.8	79.6	80.6	56.4	47.4	65.7	28.4	102.9	154.8	12	3.2	6.3	5.5	46.2	157.3	52.6
Cu (µg/L)	2009	2.4	106.9	107.1	89.2	79.3	86.8	38.2	38.9	49.1	29400	175.4	13.9	4.4	3.8	2.6	48.2	33.5	32.3
Mg(mg/L)	2008	7	9	9	12	11	14	15	15	11	13	13	41	10	45	41	14	156	15
Mg(mg/L)	2009	7	10	11	11	12	13	15	14	10	105	16	44	8	34	42	14	138	14
Mg(mg/L)	2009	7	10	11	11	12	13	15	14	72	223	364	289	34	46	179	116	2344	156
Mn (µg/L)	2008	6	83	157	177	149	117	136	147	85	33976	294	221	50	27	196	236	2947	127
Mn (µg/L)	2009	19	190	374	226	320	201	200	170	3.9	1.6	1	4	5.2	0.6	20.7	1	24.1	3.9
Mo (µg/L)	2008	<0.1	0.7	0.7	0.8	0.9	0.7	1	0.9	8.3	3.2	1	4.2	5.4	0.9	24.3	1.4	14	4.8
Mo (µg/L)	2009	0.2	1.1	0.9	1	1.2	1	1.4	1.4	<0.2	<0.2	2.6	8.6	<0.2	2	<0.2	0.2	53.3	0.7

Ni (µg/L)	2008	<0.2	<0.2	<0.2	0.3	0.4	0.5	0.8	1.1	<0.2	158.7	4.6	3	<0.2	<0.2	<0.2	0.3	59.8	0.2
Ni (µg/L)	2009	<0.2	<0.2	0.5	0.3	0.65	0.8	0.5	0.5	0.3	2.1	0.4	0.9	0.1	0.6	<0.1	0.5	0.5	0.1
Pb (µg/L)	2008	0.1	0.5	0.3	0.4	0.5	0.8	0.9	0.4	0.4	0.3	0.2	0.1	0.1	0.1	15.4	0.1	<0.1	0.1
Pb (µg/L)	2009	<0.1	0.7	0.2	0.2	0.15	0.2	0.1	0.1	1	1.5	3.9	1.2	0.7	<0.5	5.4	0.5	24.9	4.5
Se (µg/L)	2008	<0.5	0.5		0.6	<0.5	0.5	0.6	<0.5	1.2	5.7	4.7	1.1	2	0.7	5.5	0.9	17.4	2.9
Se (µg/L)	2009	<0.5	0.7	0.8	0.6	0.9	<0.5	1	0.9	2.59	0.26	1.28	2.43	0.46	0.37	18.8	1.1	4.75	2.65
U (µg/L)	2008	0.02	1.1	1.06	1.29	1.21	0.92	1.01	1.05	5.87	10.44	1.56	3.62	0.4	0.34	19.54	1.84	13.79	2.78
Zn (µg/L)	2008	2	1.7	4.4	19.6	7.9	4.5	2.9	4.6	1.5	3.5	6.4	7.7	3.4	8.1	5.4	1.6	28.4	3.1
Zn (µg/L)	2009	1.4	4.3	4.8	11.4	4	9.6	2.6	2.6	4.5	503	20.1	10.9	2.5	2.9	5.3	2.8	25.5	2009
SO4(mg/L)	2008	0.15	15	14.6	36.1	8.58	38.8	75.1	75.5	23.37	87.15	38.34	235.3	352.5	168.6	368.6	66.9	1203.5	74.46
SO4(mg/L)	2009	1.9	72	42.7	53.6	64.4	65.3	89.5	83.4	40.6	1850	91.8	692	294	250	663	83.7	1630	63.6

Table S4. Concentrations of selected elements in sediments of the Kafue River catchment. Concentrations of S_{tot}, CO₂ and Fe in wt.%, other elements in mg/kg. For the location of sampling sites see explanation to Table 3. Field campaign 2008 and 2009.

Sampling Sites - Kafue River - Sediment		Sampling Sites - Kafue River Tributaries - Sediments																	
Variable	Field Campaign	1	4	6	8	10	12	17	18	2	3	5	7	9	11	13	14	15	16
S _{tot} (wt.%)	2008	0.075	0.164	0.106	0.094	0.109	0.045	0.366	0.104	0.04	0.099	0.152	0.163	0.06	0.094	0.106	0.2	0.675	0.277
S _{tot} (wt.%)	2009	0.08	0.14	0.06	0.07	0.62	0.05	0.17	0.15	0.05	0.09	0.44	0.5	0.22	0.09	1.27	0.11	1.24	0.31
CO ₂ (wt.%)	2008	0	1.17	0.27	1.14	0.42	0.4	1.46	4.32	0	0.59	1.11	0.76	0	0.01	0	0.58	5.54	6.78
CO ₂ (wt.%)	2009	0	0.47	0.22	0.99	0	0.01	3.1	3.64	0.01	0.49	3.52	1.76	0	0	0	0.28	6	6.47
V (mg/kg)	2008	122	79	131	32	66	78	91	48	114	108	90	81	50	45	49	48	54	114
V (mg/kg)	2009	69	121	144	56	67	95	70	60	128	79	35	69	39	23	73	31	62	126
Cr (mg/kg)	2008	81	53	84	29	48	55	79	35	78	57	68	70	54	34	43	43	63	71
Cr (mg/kg)	2009	47	74	76	38	90	76	59	45	79	47	29	68	47	27	82	42	62	84
Co(mg/kg)	2008	21	334	437	131	252	394	1174	350	117	292	454	88	12	105	21	157	1017	779
Co(mg/kg)	2009	17	357	396	197	193	184	749	731	104	225	517	188	152	34	114	141	1427	1342
Ni (mg/kg)	2008	36	17	33	16	19	24	57	15	27	19	26	65	13	9	8	25	40	32
Ni (mg/kg)	2009	18	13	32	26	15	34	39	31	33	14	7	186	13	8	27	18	52	70
Cu(mg/kg)	2008	161	7805	8837	1667	4663	5226	6267	1520	1831	8113	10130	1854	74	90	134	1744	8630	5113
Cu(mg/kg)	2009	115	7622	8890	2355	4876	5093	4250	3204	2006	5899	10200	2658	141	69	612	1878	19490	7520
Zn(mg/kg)	2008	80	46	86	47	40	74	178	38	35	59	92	123	19	18	44	48	102	154
Zn(mg/kg)	2009	45	69	69	49	36	55	116	73	33	49	37	170	30	13	176	41	283	104
Pb(mg/kg)	2008	13	17	28	13	22	21	77	15	16	19	16	24	4	4	17	25	83	63
Pb(mg/kg)	2009	4	39	37	16	17	21	54	34	23	31	4	29	4	4	62	33	160	57
Fe (wt.%)	2008	2.5	2.17	3.82	1.22	2	2.78	3.61	1.73	2.64	2.17	3.09	2.67	1.44	1.6	1.48	1.47	2.68	3.42
Fe (wt.%)	2009	2.03	2.63	3.83	1.63	3.3	3.99	3.17	2.36	2.59	1.89	1.98	3.66	2.62	0.97	3.46	1.63	3.9	3.87
As(mg/kg)	2008	0.57	4.14	6.48	1.41	2.98	4.03	17.26	2.01	1.02	6.67	4.62	3.09	0.04	0.25	0.29	1.02	72.43	16.17

As(mg/kg)	2009	0.14	7.42	6.43	1.97	3.98	4.58	7.47	5.52	1.02	6.42	11.83	5.47	0.6	0.04	1.88	1.02	^{116.0} ₆	45.77
Hg(mg/kg)	2008	0.031	0.03	0.087	0.025	0.036	0.037	0.482	0.073	0.029	0.035	0.011	0.088	0.01	0.005	0.14	0.096	0.776	0.095
Hg(mg/kg)	2009	0.021	0.064	0.051	0.031	0.03	0.054	0.226	0.143	0.048	0.029	0.017	0.125	0.015	0.007	1.132	0.078	0.344	0.193
Mn(mg/kg)	2008	103	510	935	1295	792	1209	1423	1654	166	643	1512	2506	156	213	208	421	1616	1618
Mn(mg/kg)	2009	131	523	1000	2671	889	395	2170	2849	190	431	648	13790	643	220	302	841	1889	2218



Figure S2. Dry beaches of tailings ponds are in many places used as a playground for children. It is therefore necessary to restrict access to tailings ponds at ore treatment plants and ensure their security, especially in the vicinity of urban agglomerations. The Lubengele tailings pond. Photo by Bohdan Křibek.