Supplementary Material

Assessment of distribution of potentially toxic elements in different environmental media impacted by a former chlor-alkali plant

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Table S1. Total concentrations of Hg (average [mg/kg] ± relative standard deviation (RSD) [%]) in soils and sediments

Fieldtrip: May 2018		Fieldtrip: September 2018		Fieldtrip: October 2018	
ID	**Hg**	**ID**	**Hg**	**ID**	**Hg**
2505-P-S-01	0.09 ± 0.02	2509-P-S-01	0.04 ± 0.01	0810-P-S-01	0.01 ± 0.01
2505-P-S-02	0.01 ± 0.02	2509-P-S-02	0.01 ± 0.03	0810-P-S-02	0.00 ± 0.02
2505-P-S-03	7.0 ± 0.00	2509-P-S-03	0.01 ± 0.02	0810-P-S-03	0.01 ± 0.01
2505-P-S-04	4.3 ± 0.03	2509-P-S-04	0.01 ± 0.01	0810-P-S-04	0.01 ± 0.01
2505-P-S-05	1.6 ± 0.00	2509-P-S-05	0.01 ± 0.01	0810-P-S-05	0.02 ± 0.02
2505-P-S-06	4.7 ± 0.01	2509-P-S-06	0.01 ± 0.02	0810-P-S-06	0.04 ± 0.03
2505-P-S-07	0.00 ± 0.01			0810-P-S-07	0.03 ± 0.03
2505-P-S-08	0.02 ± 0.01			0810-P-S-08	0.08 ± 0.00
2505-P-S-09	0.01 ± 0.00			0810-P-S-09	0.13 ± 0.01
2505-P-S-10	0.03 ± 0.02			0810-P-S-10	0.02 ± 0.01
2505-P-S-11	0.00 ± 0.05			0810-P-S-11	0.00 ± 0.05
2505-P-S-12	0.00 ± 0.02			0810-P-S-12	1.2 ± 0.00
2505-P-S-13	0.00 ± 0.02			0810-P-S-13	0.02 ± 0.00
2505-P-Sed-01	0.03 ± 0.03			0810-P-S-14	0.02 ± 0.00
2505-P-Sed-02	0.01 ± 0.04			0810-P-S-15	0.00 ± 0.04
2505-P-Sed-03	0.85 ± 0.00			0810-P-S-16	0.00 ± 0.00
2505-P-Sed-04	5.1 ± 0.01			0810-P-S-17	0.00 ± 0.00
2505-P-Sed-05	1.9 ± 0.00			0810-P-S-18	0.03 ± 0.03
2505-P-Sed-06	4.3 ± 0.01			0810-P-S-19	0.01 ± 0.00
2505-P-Sed-07	0.02 ± 0.01			0810-P-S-20	0.01 ± 0.02
2505-P-Sed-08	0.00 ± 0.01			0810-P-S-21	0.02 ± 0.00
2505-P-Sed-09	0.12 ± 0.03			0810-P-S-22	0.00 ± 0.00
2505-P-Sed-10	0.02 ± 0.01			0810-P-Sed-01	0.01 ± 0.01
				0810-P-Sed-02	0.33 ± 0.00
				0910-P-Sed-03	0.45 ± 0.70
				0910-P-Sed-04	24 ± 0.01
				0910-P-Sed-05	0.04 ± 0.01
				0910-P-Sed-06	0.07 ± 0.02
				0910-P-Sed-07	0.10 ± 0.00
				0910-P-Sed-08	0.06 ± 0.00

Table S2. Total concentration of Hg (average [mg/L]) and selected characteristics in soils and sediments

Field trip	ID	THg	pH	TC (g/kg)	TOC (g/kg)	TN
Oct-18	0810-P-S-01	0.013	7.97	-	-	-
	0810-P-S-02	0.0016	7.86	-	-	-
	0810-P-S-03	0.014	8.31	-	-	-
	0810-P-S-04	0.012	8.26	-	-	-
	0810-P-S-05	0.021	8.05	-	-	-
	0810-P-S-06	0.036	8.43	-	-	-
	0810-P-S-07	0.028	8.08	-	-	-
	0810-P-S-08	0.077	8.40	-	-	-
	0810-P-S-09	0.13	7.63	-	-	-
	0810-P-S-10	0.017	7.92	-	-	-
	0810-P-S-11	0.0006	9.25	-	-	-
	0810-P-S-12	1.2	8.49	-	-	-
	0810-P-S-13	0.020	7.48	-	-	-
	0810-P-S-14	0.018	7.27	-	-	-
	0810-P-S-15	0.0007	8.33	-	-	-
	0810-P-S-16	0.0017	8.57	-	-	-
	0810-P-S-17	0.0017	8.13	-	-	-
	0810-P-S-18	0.033	7.74	-	-	-
	0810-P-S-19	0.011	7.53	-	-	-
	0810-P-S-20	0.0076	8.40	-	-	-
	0810-P-S-21	0.015	8.06	-	-	-
	0810-P-S-22	0.0014	8.00	-	-	-
May-18	2505-P-S-01	91	7.64	-	-	-
	2505-P-Sed-01	33	7.48	-	-	-
	2505-P-S-02	6.4	8.25	11.5	8.38	0.072
	2505-P-Sed-02	13	8.70	7.72	4.57	0.064
	2505-P-S-03	7,000	7.58	-	-	-
	2505-P-Sed-03	850	8.07	-	-	-
	2505-P-S-04	4,260	8.23	12.8	10.4	0.167
	2505-P-Sed-04	5,100	8.08	11.1	6.53	0.114
	2505-P-S-05	1,620	8.70	-	-	-
	2505-P-Sed-05	1,900	8.25	-	-	-
	2505-P-S-06	4,680	8.45	12.5	10.6	0.148
	2505-P-Sed-06	4,280	8.48	11.0	10.8	0.167
	2505-P-S-07	2.2	8.40	-	-	-
	2505-P-Sed-07	17	8.23	-	-	-
	2505-P-S-08	18	8.04	-	-	-
	2505-P-Sed-08	3.8	8.74	2.21	2.14	0.033
	2505-P-S-09	9.3	8.29	3.13	2.32	0.042
	2505-P-Sed-09	120	7.58	-	-	-
	2505-P-S-10	33	7.80	-	-	-
	2505-P-Sed-10	21	8.25	-	-	-
	2505-P-S-11	0.81	8.07	-	-	-
	2505-P-S-12	1.8	8.50	-	-	-
	2505-P-S-13	2.8	8.51	-	-	-
Sep-18	2509-P-S-01	0.0380	7.11	-	-	-
	2509-P-S-02	0.0050	7.47	-	-	-
	2509-P-S-03	0.0078	7.82	-	-	-
	2509-P-S-04	0.012	7.77	-	-	-
	2509-P-S-05	0.0085	7.94	-	-	-
	2509-P-S-06	0.011	8.08	-	-	-

Table S3. Total concentration of Hg (average [mg/L]) and selected characteristics in groundwater

Field trip	Sample	Sample ID	Hg (mg/L)	pH	Conductivity (mS/cm)
May-18	1	2205-P-GW-01	1.70E-05	8.74	4.74
	5	2205-P-GW-02	2.80E-05	-	7.47
	6	2205-P-GW-03	8.00E-06	-	5.12
	8	2205-P-GW-04	1.50E-05	-	7.72
	9	2205-P-GW-05	6.50E-06	-	8.10
	10	2205-P-GW-06	1.50E-05	-	10.6
	11	2205-P-GW-07	1.20E-05	-	6.00
	12	2205-P-GW-08	6.00E-06	-	8.67
	13	2205-P-GW-09	6.00E-06	-	8.57
	14	2205-P-GW-10	2.30E-05	-	2.64
	15	2305-P-GW-11	5.50E-06	-	14.1
	16	2305-P-GW-12	6.50E-06	-	7.28
	17	2305-P-GW-13	9.00E-06	-	4.37
	18	2305-P-GW-14	7.00E-06	-	1.81
	20	2305-P-GW-15	7.50E-06	-	1.32
	21	2305-P-GW-16	7.00E-06	-	43.4
	22	2305-P-GW-17	8.00E-06	-	2.03
	23	2305-P-GW-18	9.00E-06	-	2.11
	24	2305-P-GW-19	5.00E-06	9.86	-
	25	2305-P-GW-20	1.10E-05	8.85	-
	28	2305-P-GW-22	7.30E-06	8.62	-
Oct-18	24	0910-P-GW-02	4.70E-02	-	-
	25	0910-P-GW-03	6.00E-02	-	-
	26	0910-P-GW-04	2.00E-01	-	-
	30	0910-P-GW-05	9.10E-01	-	-
	31	0910-P-GW-06	1.70E-01	-	-
	32	0910-P-GW-07	9.90E-02	-	-
	34	0910-P-GW-09	1.40E-01	-	-
	35	0910-P-GW-10	3.60E-01	-	-
	36	0910-P-GW-11	1.30E+00	-	-
	39	0910-P-GW-14	9.20E-01	-	-
	45	0910-P-GW-16	2.60E-01	-	-
	49	0910-P-GW-18	6.70E-03	-	-
	60	0910-P-GW-20	3.40E-02	-	-
	62	0910-P-GW-22	4.90E-01	-	-
	86	0910-P-GW-23	7.00E-06	-	-
Jul-19	1	2307-P-GW-01	8.00E-04	9.49	-
	3	2307-P-GW-02	2.60E-04	8.75	-
	4	2307-P-GW-03	2.10E-04	7.23	-
	5	2307-P-GW-04	1.40E-04	9.50	-
	6	2307-P-GW-05	2.20E-05	4.68	-
	9	2307-P-GW-06	1.20E-05	10.35	-
	11	2307-P-GW-07	2.40E-04	9.12	-
	12	2307-P-GW-08	9.00E-05	9.15	-
	13	2307-P-GW-09	1.30E-05	9.94	-

17	2307-P-GW-10	3.00E-05	7.89	-
18	2307-P-GW-11	2.00E-05	8.03	-
20	2307-P-GW-12	3.10E-05	9.84	-
32	2407-P-GW-13	1.10E-05	9.38	-
35	2407-P-GW-14	1.40E-05	8.99	-
36	2407-P-GW-15	7.00E-06	9.04	-
40	2407-P-GW-16	7.00E-06	8.85	-
41	2407-P-GW-17	4.00E-06	9.66	-
42	2407-P-GW-18	1.70E-05	7.70	-

Table S4. Total concentration of Hg (average [mg/kg]) and selected characteristics in surface waters

Field trip	Sample	Sample ID	Hg (mg/L)	pH	Conductivity (mS/cm)
May-18	2	2205-P-LW-01	1.40E-05	-	12.0
	3	2205-P-LW-02	6.00E-06	-	18.6
	4	2205-P-LW-03	1.30E-05	-	19.1
	7	2205-P-LW-04	1.50E-05	-	18.8
	19	2305-P-LW-05	2.60E-05	-	5.46
	N/A (69)	2605-P-Cdr-01	5.50E-06	8.65	-
Oct-18	22	0910-P-LW-01	3.60E-01	-	-
	41	0910-P-LW-03	1.30E-02	-	-
	53	0910-P-RW-04	7.20E-01	-	-
	56	0910-P-LW-05	1.30E-02	-	-
	63	0910-P-LW-06	1.40E-02	-	-
	13	0810-P-Wc-02	5.50E-04	-	-
Jul-19	7	2307-P-LW-01	1.30E-04	8.56	-
	8	2307-P-LW-02	2.30E-05	7.59	-
	10	2307-P-LW-03	6.50E-03	7.25	-
	14	2307-P-LW-04	5.00E-04	8.65	-
	15	2307-P-LW-05	3.20E-04	8.44	-
	19	2307-P-LW-06	2.10E-04	8.73	-
	21	2307-P-LW-07	3.50E-05	7.37	-
	22	2307-P-LW-08	5.00E-05	8.26	-
	33	2407-P-LW-14	5.00E-06	8.21	-
	34	2407-P-LW-15	6.00E-06	8.39	-
	24	2307-P-LW-09	1.40E-05	8.62	-
	26	2307-P-LW-10	8.00E-06	8.63	-
	28	2407-P-LW-11	9.00E-06	6.40	-
	29	2407-P-LW-12	9.00E-06	7.34	-
	31	2407-P-LW-13	9.00E-06	6.44	-
	37	2407-P-LW-16	1.40E-05	5.89	-
	38	2407-P-LW-17	6.00E-06	6.14	-
	39	2407-P-LW-18	9.00E-06	6.37	-
	43	2407-P-LW-19	4.90E-05	8.53	-
	44	2407-P-LW-20	3.20E-05	8.67	-
	45	2407-P-LW-21	4.50E-05	8.36	-
	46	2407-P-LW-22	4.60E-05	8.49	-
	47	2407-P-LW-23	8.20E-05	8.43	-
	48	2407-P-LW-24	3.40E-04	8.44	-
	51	2407-P-Cdr-01	6.00E-06	7.83	-
	49	2407-P-RW-01	4.00E-06	8.38	-
	50	2407-P-RW-02	3.00E-06	8.30	-
	52	2407-P-RW-03	4.00E-06	7.94	-
	53	2407-P-RW-04	4.00E-06	8.55	-
	54	2407-P-RW-05	4.00E-06	7.96	-
	55	2407-P-RW-06	4.00E-06	8.11	-
	56	2407-P-RW-07	4.00E-06	8.49	-

Table S5. Total concentrations of selected PTEs (average [mg/kg] ± RSD [%]) in soils

Field trip	Sample ID	As	Ba	Cd	Co	Cr	Cu	Mn	Ni	Pb	Sb	Se	Zn
Jul-19	7 (1 m)	26 ± 11	180 ± 3	< 0.0012	17 ± 9	76 ± 14	32 ± 8	550 ± 8	42 ± 11	19 ± 2	< 1.1	< 0.60	< 1.5
	7 (10 m)	< 0.22	390 ± 4	< 0.0012	16 ± 5	120 ± 3	39 ± 2	520 ± 3	51 ± 3	26 ± 5	< 1.1	< 0.60	< 1.5
	8 (1 m)	32 ± 0.2	430 ± 8	0.53 ± 25	34 ± 1	120 ± 3	49 ± 8	8,170 ± 5	83 ± 4	38 ± 4	< 1.1	< 0.60	< 1.5
	9	26 ± 13	410 ± 8	0.60 ± 2	25 ± 3	120 ± 12	78 ± 69	1,220 ± 4	72 ± 3	30 ± 11	< 1.1	< 0.60	< 1.5
	10 (1 m)	27 ± 1	310 ± 1	< 0.0012	21 ± 33	100 ± 5	35 ± 9	540 ± 15	58 ± 31	23 ± 7	< 1.1	< 0.60	< 1.5
	10 (10 m)	30 ± 3	380 ± 4	< 0.0012	13 ± 3	110 ± 2	37 ± 7	580 ± 2	41 ± 13	25 ± 2	< 1.1	< 0.60	< 1.5
	12	31 ± 22	420 ± 10	< 0.0012	24 ± 11	110 ± 12	41 ± 17	1,540 ± 16	69 ± 16	31 ± 21	< 1.1	< 0.60	< 1.5
	13	< 0.22	230 ± 0.1	< 0.0012	20 ± 1	84 ± 7	24 ± 5	820 ± 2	48 ± 6	20 ± 0.4	< 1.1	< 0.60	< 1.5
	14 (1 m)	28 ± 9	160 ± 15	0.21 ± 23	19 ± 53	< 0.62	25 ± 35	340 ± 4	34 ± 6	13 ± 12	< 1.1	< 0.60	< 1.5
	14 (10 m)	28 ± 9	270 ± 15	0.25 ± 42	12 ± 0.4	84 ± 10	30 ± 2	560 ± 5	41 ± 1	22 ± 11	< 1.1	< 0.60	< 1.5
	15 (1 m)	37 ± 2	150 ± 9	< 0.0012	11 ± 4	< 0.62	15 ± 19	430 ± 10	30 ± 31	12 ± 3	< 1.1	< 0.60	< 1.5
	15 (10 m)	< 0.22	180 ± 14	< 0.0012	18 ± 20	90 ± 14	280 ± 129	400 ± 113	< 0.10	92 ± 116	< 1.1	< 0.60	< 1.5
	16	< 0.22	360 ± 1	0.32 ± 0.1	23 ± 10	110 ± 3	1,1 ± 1	92 ± 2	< 0.10	250 ± 12	< 1.1	< 0.60	< 1.5
	17	< 0.22	340 ± 10	0.29 ± 2	19 ± 1	96 ± 1	1,1 ± 7	98 ± 2	< 0.10	190 ± 16	< 1.1	< 0.60	< 1.5
	18	< 0.22	360 ± 9	0.42 ± 8	57 ± 59	140 ± 30	1,390 ± 6	140 ± 21	< 0.10	280 ± 9	< 1.1	< 0.60	< 1.5
	19 (1 m)	< 0.22	200 ± 7	< 0.0012	16 ± 6	90 ± 12	24 ± 23	780 ± 10	41 ± 10	18 ± 4	< 1.1	< 0.60	< 1.5
	19 (10 m)	< 0.22	400 ± 52	< 0.0012	17 ± 12	100 ± 17	22 ± 6	620 ± 10	42 ± 17	18 ± 10	< 1.1	< 0.60	< 1.5
	20	< 0.22	450 ± 4	0.59 ± 29	25 ± 5	150 ± 0.4	49 ± 1	1,370 ± 4	73 ± 4	42 ± 1	< 1.1	< 0.60	< 1.5
	21 (1 m)	< 0.22	140 ± 0.1	< 0.0012	11 ± 15	< 0.62	17 ± 8	930 ± 18	30 ± 17	16 ± 10	< 1.1	< 0.60	< 1.5
	21 (10 m)	< 0.22	320 ± 12	0.32 ± 32	20 ± 6	110 ± 3	34 ± 7	660 ± 8	48 ± 2	25 ± 4	< 1.1	< 0.60	< 1.5
	22 (1 m)	27 ± 3	390 ± 13	< 0.0012	22 ± 2	100 ± 16	39 ± 15	900 ± 6	59 ± 5	24 ± 13	< 1.1	< 0.60	< 1.5
	22 (10 m)	27 ± 3	380 ± 3	0.23 ± 28	21 ± 3	100 ± 3	41 ± 7	1,090 ± 3	61 ± 3	33 ± 9	< 1.1	< 0.60	220 ± 12
	23	28 ± 3	510 ± 4	0.47 ± 33	29 ± 11	130 ± 1	45 ± 6	1,480 ± 1	72 ± 3	31 ± 2	< 1.1	< 0.60	< 1.5
	24 (1 m)	< 0.22	370 ± 7	0.29 ± 54	21 ± 10	100 ± 3	37 ± 11	1,320 ± 8	55 ± 12	29 ± 4	< 1.1	< 0.60	< 1.5
	24 (10 m)	< 0.22	280 ± 1	< 0.0012	22 ± 1	90 ± 6	40 ± 6	1,110 ± 4	61 ± 2	25 ± 2	< 1.1	< 0.60	< 1.5
	25	< 0.22	280 ± 6	< 0.0012	22 ± 30	83 ± 13	34 ± 7	1,030 ± 5	52 ± 2	26 ± 17	< 1.1	< 0.60	< 1.5
	26 (1 m)	< 0.22	330 ± 11	0.80 ± 80	21 ± 20	120 ± 4	48 ± 4	1,520 ± 11	56 ± 13	38 ± 6	< 1.1	< 0.60	170 ± 10
	26 (10 m)	25 ± 0.3	330 ± 8	0.34 ± 54	26 ± 1	110 ± 0.2	45 ± 4	1,550 ± 2	67 ± 6	29 ± 2	< 1.1	< 0.60	< 1.5
	27	< 0.22	220 ± 5	< 0.0012	17 ± 7	74 ± 9	31 ± 6	830 ± 5	49 ± 11	20 ± 0.3	< 1.1	< 0.60	< 1.5
	28 (1 m)	< 0.22	250 ± 5	< 0.0012	14 ± 11	96 ± 4	34 ± 2	510 ± 7	50 ± 7	22 ± 7	< 1.1	< 0.60	< 1.5
	28 (10 m)	< 0.22	190 ± 8	< 0.0012	18 ± 4	76 ± 19	35 ± 11	360 ± 4	50 ± 5	19 ± 12	< 1.1	< 0.60	< 1.5
	29 (1 m)	< 0.22	220 ± 0.4	< 0.0012	17 ± 8	100 ± 8	37 ± 2	450 ± 1	67 ± 29	20 ± 3	< 1.1	< 0.60	230 ± 15
	29 (10 m)	< 0.22	120 ± 14	< 0.0012	29 ± 96	74 ± 21	19 ± 9	310 ± 23	39 ± 41	12 ± 3	< 1.1	< 0.60	< 1.5
	30	24 ± 5	230 ± 5	0.31 ± 10	20 ± 0.3	87 ± 4	34 ± 6	890 ± 2	63 ± 3	23 ± 1	< 1.1	< 0.60	< 1.5
	31 (1 m)	23 ± 9	300 ± 5	0.18 ± 0.2	25 ± 2	100 ± 1	44 ± 3	700 ± 1	75 ± 5	25 ± 1	< 1.1	< 0.60	< 1.5

	31 (10 m)	24 ± 7	240 ± 2	0.22 ± 26	19 ± 4	84 ± 3	35 ± 1	1,120 ± 0.1	59 ± 6	22 ± 1	< 1.1	< 0.60	< 1.5
	32	30 ± 6	380 ± 25	0.24 ± 10	42 ± 23	150 ± 22	63 ± 20	1,180 ± 19	110 ± 28	43 ± 11	< 1.1	< 0.60	260 ± 24
	33 (1 m)	< 0.22	170 ± 14	< 0.0012	27 ± 84	< 0.62	29 ± 8	310 ± 12	46 ± 41	19 ± 0.3	< 1.1	< 0.60	< 1.5
	33 (10 m)	< 0.22	310 ± 14	< 0.0012	22 ± 9	< 0.62	43 ± 11	650 ± 14	61 ± 14	27 ± 9	< 1.1	< 0.60	< 1.5
	34 (1 m)	< 0.22	230 ± 10	< 0.0012	20 ± 21	< 0.62	32 ± 18	1,060 ± 15	48 ± 25	21 ± 12	< 1.1	< 0.60	< 1.5
	34 (10 m)	< 0.22	250 ± 5	0.37 ± 68	20 ± 7	< 0.62	37 ± 0.2	430 ± 1	61 ± 2	24 ± 4	< 1.1	< 0.60	< 1.5
	35	32 ± 1	360 ± 16	0.43 ± 39	29 ± 2	79 ± 10	59 ± 6	1,040 ± 3	93 ± 11	46 ± 12	< 1.1	< 0.60	220 ± 2
	37 (1 m)	< 0.22	330 ± 13	0.22 ± 25	28 ± 24	72 ± 9	45 ± 7	520 ± 6	77 ± 8	31 ± 2	< 1.1	< 0.60	< 1.5
	37 (10 m)	< 0.22	220 ± 1	< 0.0012	16 ± 28	< 0.62	35 ± 13	380 ± 2	47 ± 10	23 ± 2	< 1.1	< 0.60	< 1.5
	38 (1 m)	< 0.22	150 ± 9	0.17 ± 17	15 ± 5	< 0.62	25 ± 9	650 ± 8	35 ± 14	18 ± 16	< 1.1	< 0.60	< 1.5
	38 (10 m)	< 0.22	180 ± 6	0.16 ± 18	18 ± 3	< 0.62	32 ± 8	460 ± 1	41 ± 4	20 ± 6	< 1.1	< 0.60	< 1.5
	39 (1 m)	< 0.22	86 ± 10	0.47 ± 19	11 ± 23	< 0.62	20 ± 16	500 ± 22	26 ± 27	17 ± 14	< 1.1	< 0.60	< 1.5
	39 (10 m)	< 0.22	200 ± 18	< 0.0012	13 ± 6	< 0.62	38 ± 3	370 ± 9	45 ± 16	22 ± 9	< 1.1	< 0.60	< 1.5
	40	< 0.22	250 ± 8	0.34 ± 31	19 ± 11	< 0.62	310 ± 123	920 ± 7	48 ± 4	37 ± 51	< 1.1	< 0.60	< 1.5
	41	< 0.22	270 ± 3	0.49 ± 10	20 ± 16	< 0.62	39 ± 4	970 ± 1	50 ± 2	25 ± 0.3	< 1.1	< 0.60	< 1.5
	42	< 0.22	540 ± 14	0.42 ± 26	38 ± 15	140 ± 40	72 ± 18	1,800 ± 15	120 ± 16	46 ± 12	< 1.1	< 0.60	180 ± 7
	43 (1 m)	< 0.22	77 ± 3	< 0.0012	10 ± 11	< 0.62	19 ± 16	320 ± 15	29 ± 13	14 ± 12	< 1.1	< 0.60	< 1.5
	43 (10 m)	< 0.22	140 ± 1	< 0.0012	16 ± 8	< 0.62	26 ± 7	520 ± 9	38 ± 15	18 ± 4	< 1.1	< 0.60	< 1.5
	44 (1 m)	< 0.22	87 ± 14	< 0.0012	7.2 ± 16	< 0.62	15 ± 53	210 ± 25	14 ± 41	14 ± 53	< 1.1	< 0.60	< 1.5
	44 (10 m)	< 0.22	210 ± 11	0.33 ± 63	14. ± 6	< 0.62	29 ± 8	340 ± 8	40 ± 11	18 ± 4	< 1.1	< 0.60	< 1.5
	45 (1 m)	< 0.22	100 ± 17	< 0.0012	9.2 ± 12	< 0.62	13 ± 6	270 ± 22	22 ± 1	11 ± 12	< 1.1	< 0.60	< 1.5
	45 (10 m)	33 ± 14	320 ± 6	0.29 ± 54	24 ± 12	110 ± 5	39 ± 3	680 ± 2	54 ± 16	25 ± 2	< 1.1	< 0.60	< 1.5
	46 (10 m)	< 0.22	150 ± 3	0.24 ± 34	14 ± 6	< 0.62	21 ± 11	970 ± 2	31 ± 1	13 ± 1	< 1.1	< 0.60	< 1.5
	47 (1 m)	< 0.22	170 ± 21	< 0.0012	14 ± 2	< 0.62	21 ± 2	330 ± 1	31 ± 8	14 ± 12	< 1.1	< 0.60	< 1.5
	47 (10 m)	< 0.22	180 ± 8	0.20 ± 40	12 ± 34	< 0.62	28 ± 7	310 ± 8	26 ± 23	16 ± 14	< 1.1	< 0.60	< 1.5
	48 (1 m)	< 0.22	200 ± 2	0.22 ± 26	18 ± 12	< 0.62	32 ± 8	660 ± 8	51 ± 19	21 ± 4	< 1.1	< 0.60	< 1.5
	49 (1 m)	< 0.22	170 ± 5	0.58 ± 23	20 ± 1	< 0.62	35 ± 17	760 ± 2	44 ± 5	24 ± 2	< 1.1	< 0.60	170 ± 19
	49 (10 m)	< 0.22	130 ± 2	0.56 ± 18	20 ± 2	< 0.62	25 ± 6	690 ± 9	46 ± 10	20 ± 13	< 1.1	< 0.60	190 ± 11
	52 (1 m)	< 0.22	430 ± 14	2.5 ± 1	32 ± 2	130 ± 18	81 ± 4	1,710 ± 9	96 ± 10	56 ± 3	< 1.1	< 0.60	290 ± 27
	52 (10 m)	< 0.22	94 ± 27	0.55 ± 35	16 ± 4	< 0.64	21 ± 6	770 ± 25	32 ± 3	17 ± 2	< 1.1	< 0.60	< 1.5
	53 (1 m)	< 0.22	370 ± 14	< 0.0012	30 ± 9	83 ± 6	54 ± 6	1,140 ± 13	73 ± 5	38 ± 6	< 1.1	< 0.60	< 1.5
	53 (10 m)	< 0.22	320 ± 3	0.43 ± 30	23 ± 5	< 0.62	44 ± 5	1,000 ± 10	55 ± 6	58 ± 62	< 1.1	< 0.60	< 1.5
	57	< 0.22	220 ± 67	0.32 ± 61	17 ± 64	< 0.62	39 ± 64	830 ± 64	54 ± 55	27 ± 52	< 1.1	< 0.60	< 1.5
	58	< 0.22	430 ± 2	0.62 ± 48	24 ± 12	85 ± 14	65 ± 1	1,260 ± 7	58 ± 1	110 ± 5	< 1.1	< 0.60	280 ± 16
	59	24 ± 10	320 ± 22	0.44 ± 30	22 ± 11	73 ± 17	54 ± 25	1,210 ± 8	53 ± 5	31 ± 20	< 1.1	< 0.60	< 1.50

Table S6. Limits of detection (DL, ppm) for collected samples for ICP-MS analyses

	DL for 2019 samples	**DL for 2018 samples**
As	22	6.5
Ba	2.4	71
Cd	0.15	0.0012
Co	3.3	1.3
Cr	63	N/A
Cu	5.7	20
Mn	5.4	54
Ni	9.5	21
Pb	2.3	0.74
Sb	110	8.3
Se	61	6.4
Sn	12	2.9
Zn	150	84

Table S7. Certified reference materials testing results for ICP-MS analyses

	Measured value of 71A (5 ppb) [1]	Measured value of 71A (10 ppb)	Measured value of 68A (5 ppb) [2]	Measured value of 68A (10 ppb)
As	4.83	9.86	-	-
Ba	4.88	9.82	-	-
Cd	4.83	10.5	-	-
Co	4.80	9.9	-	-
Cu	4.79	9.91	-	-
Mn	4.87	9.99	-	-
Ni	4.80	9.87	-	-
Pb	5.03	10.0	-	-
Sb	-	-	5.10	10.1
Se	4.63	9.38	-	-
Sn	-	-	5.48	10.3
Zn	4.83	9.94	-	-

[1] **IV-ICP-MS-71A:** ICP-MS Complete standard containing the following elements in a HNO_3 matrix: As, Ba, Cd, Co, Cu, Mn, Ni, Pb, Se, Zn

[2] **ICP-MS-68A-B:** Multi-element solution standard (2% HNO_3, 10 µg/mL). This standard is traceable to NIST SRM 3100 series. ISO 9001:2015 certified, ISO/IEC 17025:2017 and ISO 17034:2016 accredited: Sb, Sn