

Figure B1-41. Total selenium (mg/L).



Figure B1-42. Total silicon (mg/L).

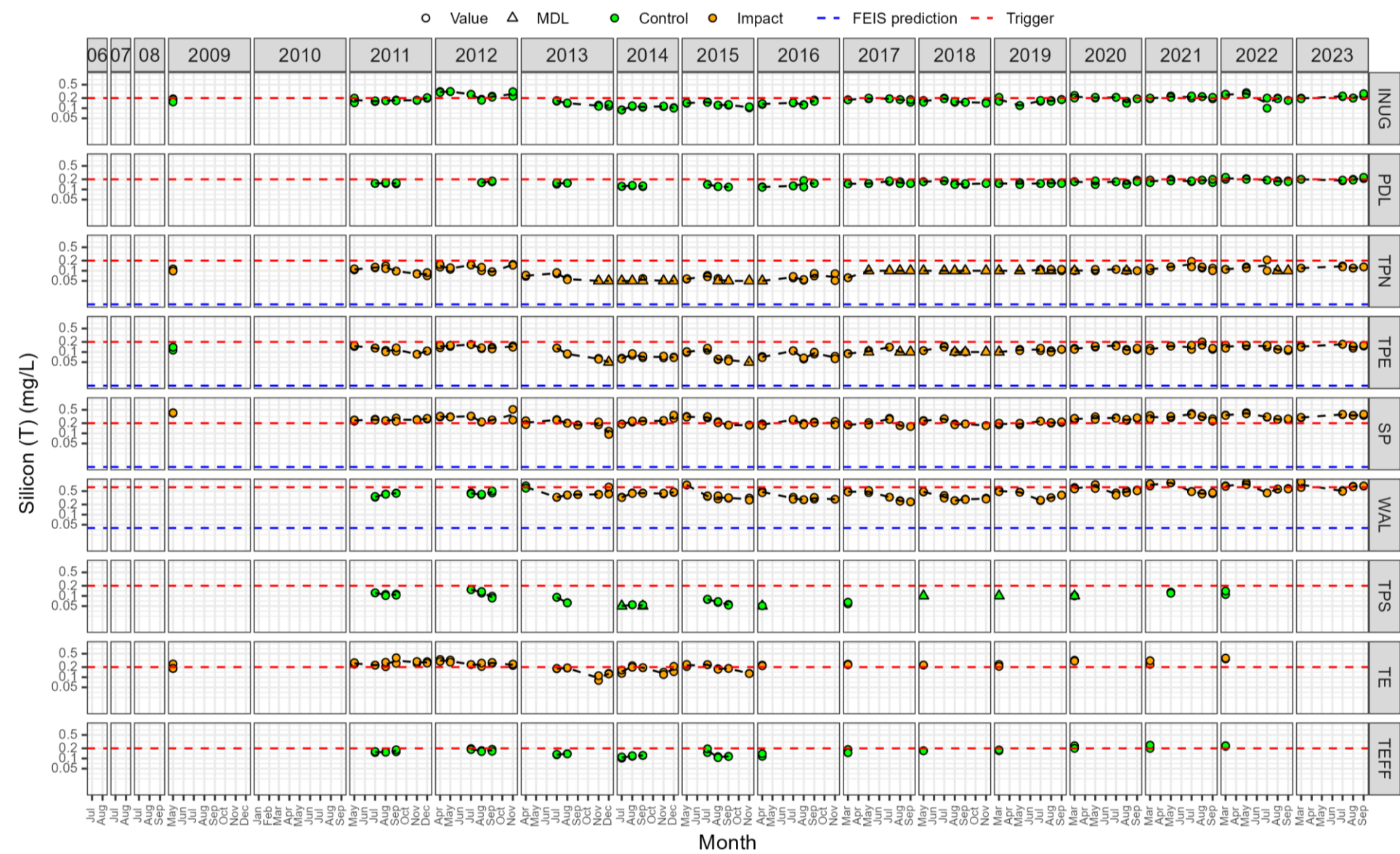


Figure B1-43. Total silver (mg/L).



Figure B1-44. Total sodium (mg/L).

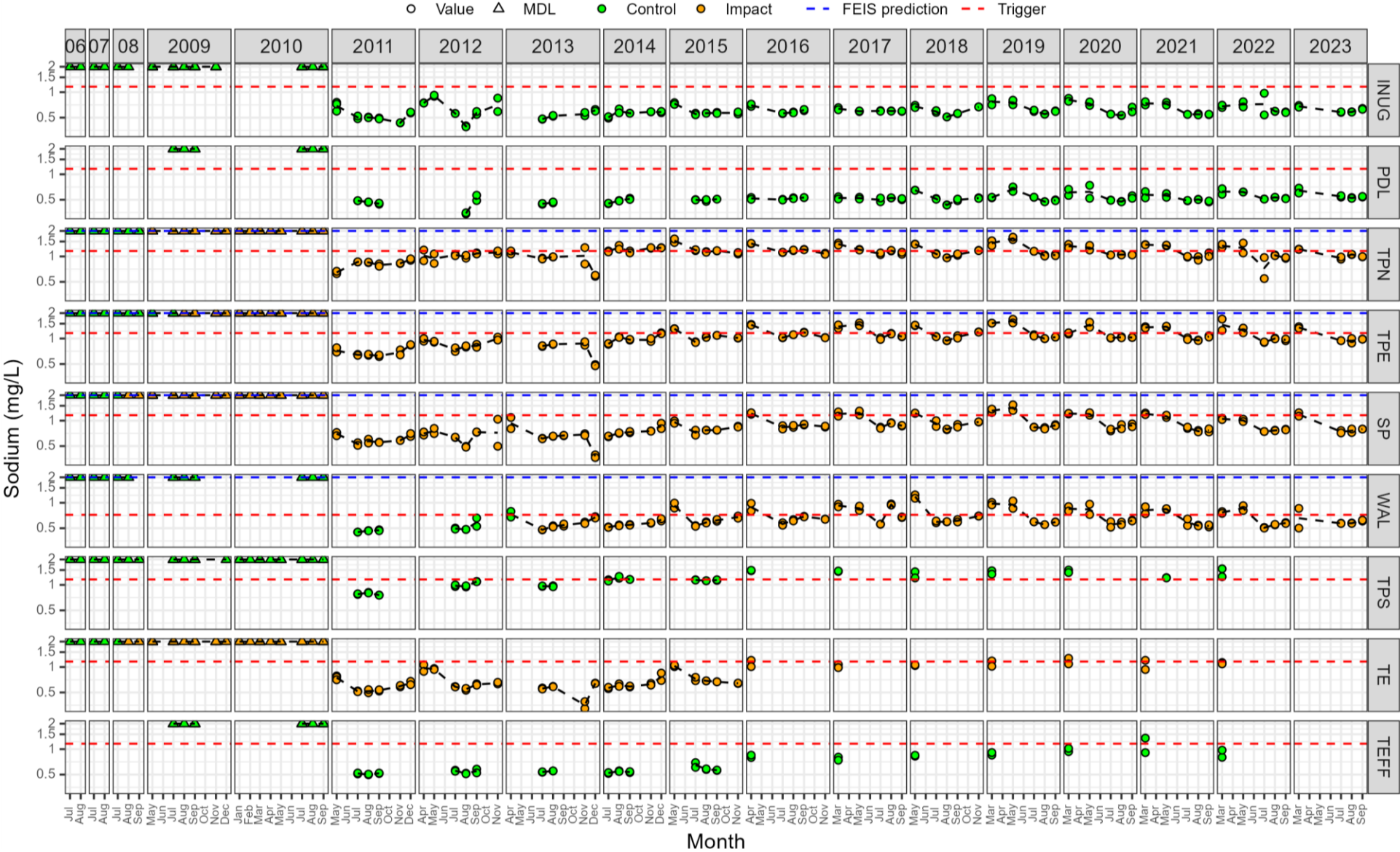


Figure B1-45. Total strontium (mg/L).

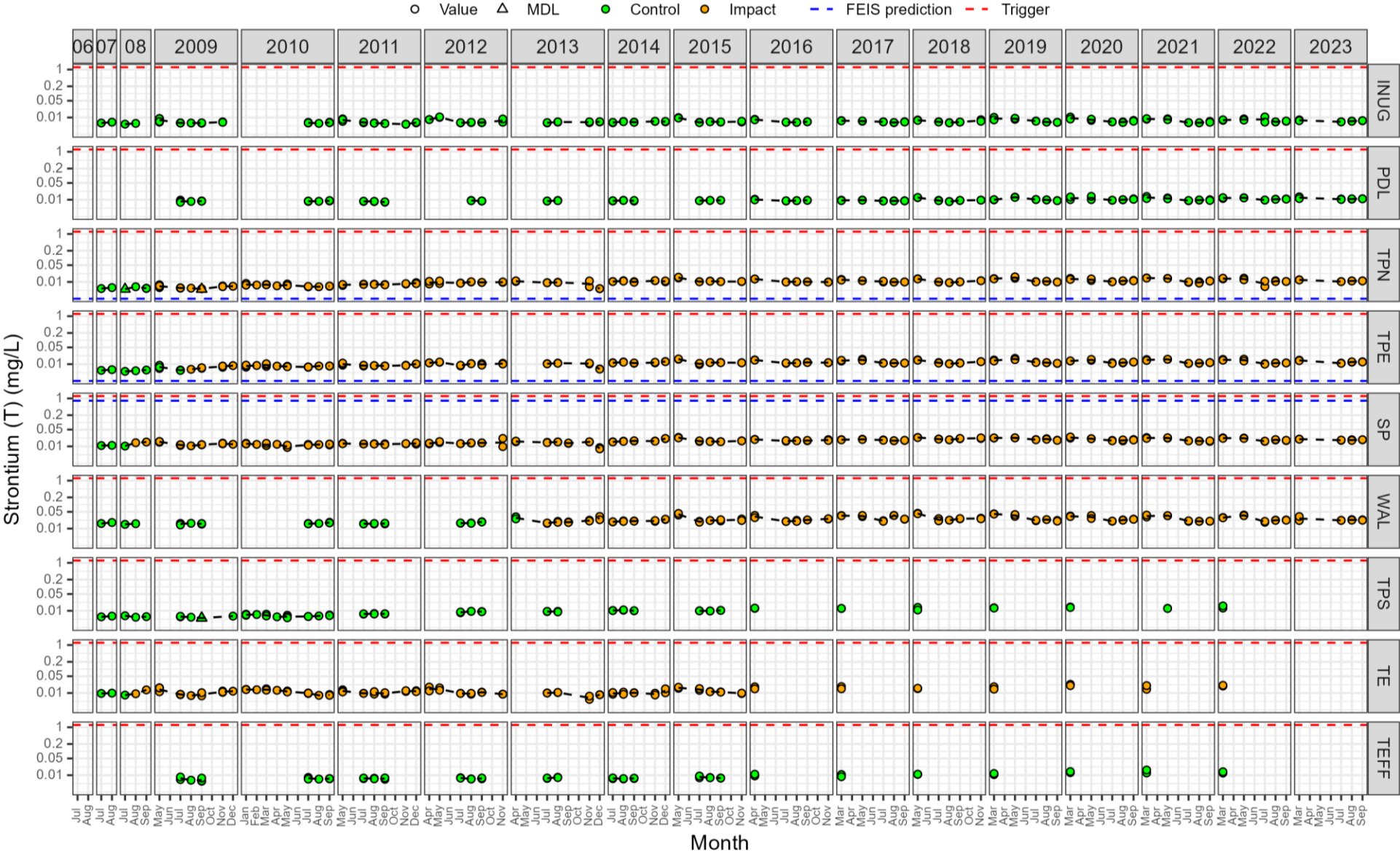


Figure B1-46. Total thallium (mg/L).

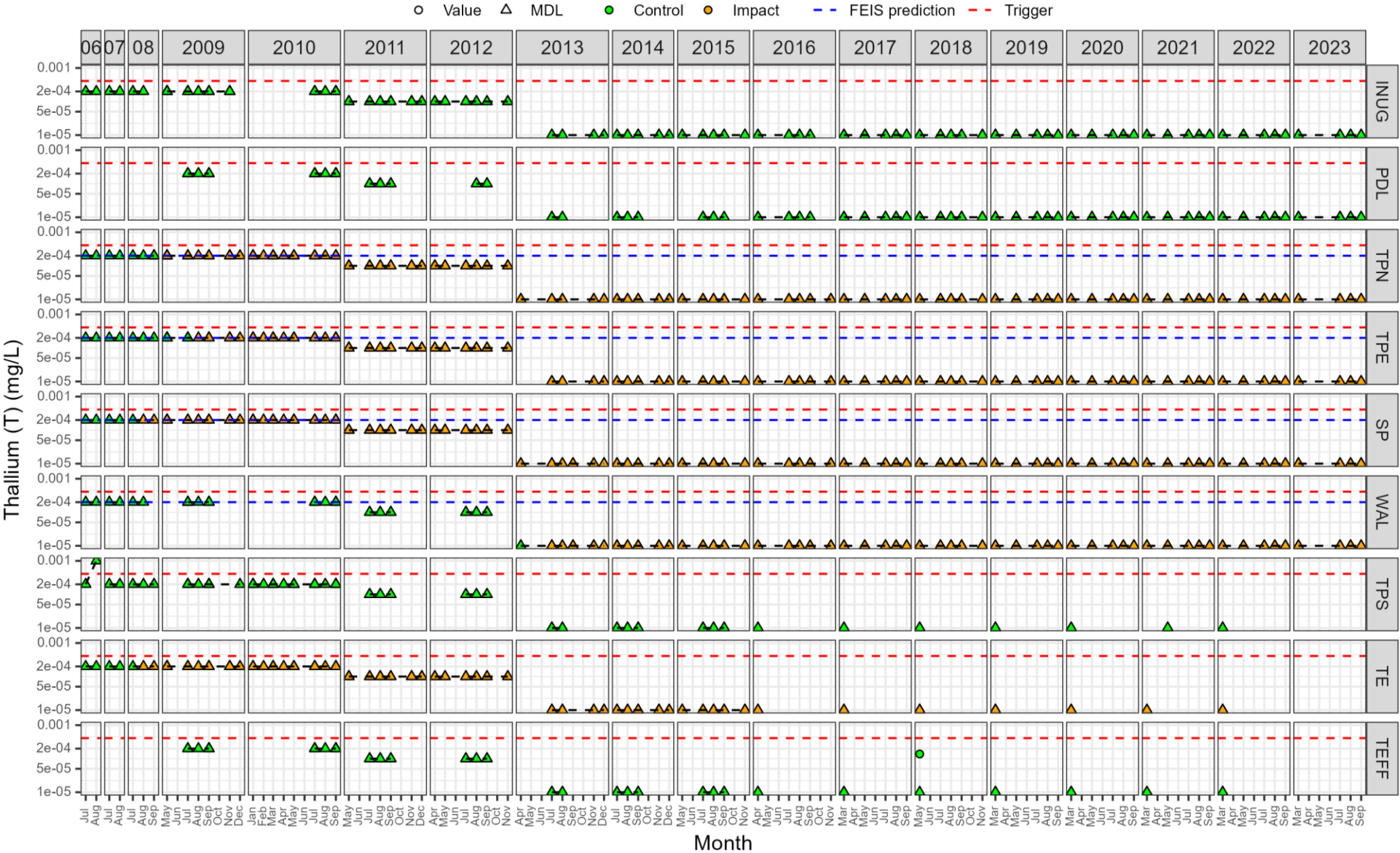


Figure B1-47. Total tin (mg/L).

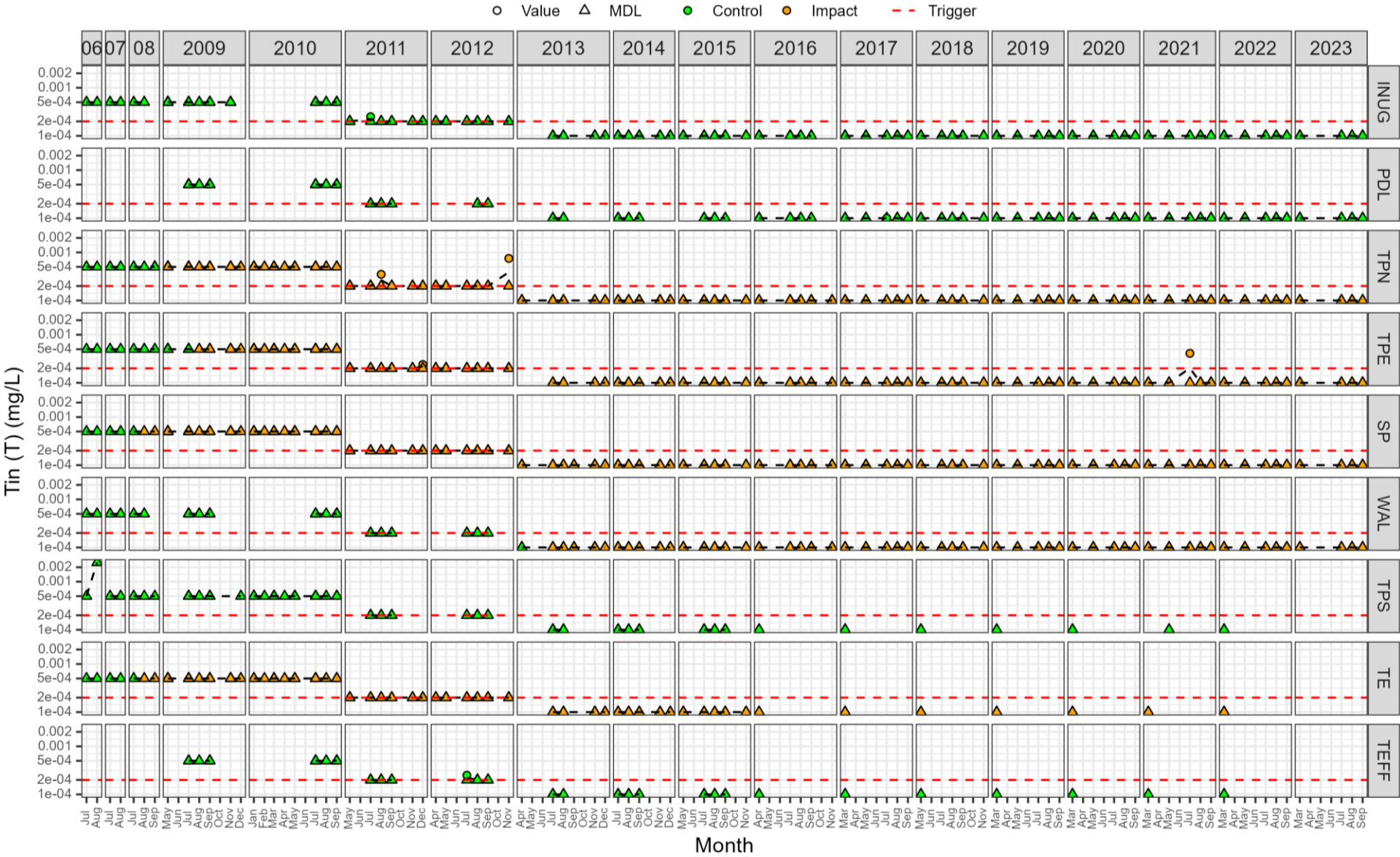


Figure B1-48. Total titanium (mg/L).

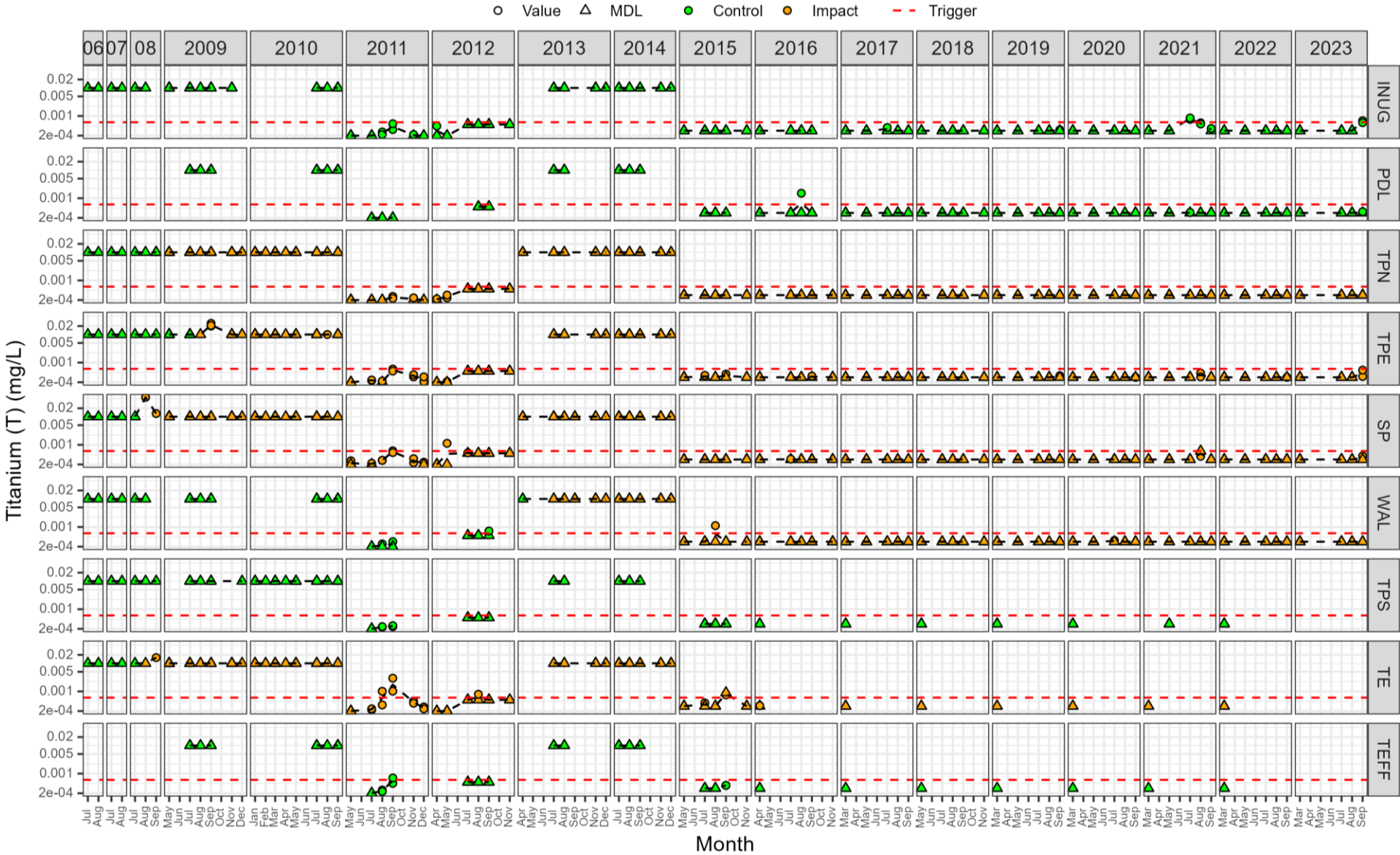


Figure B1-49. Total uranium (mg/L).

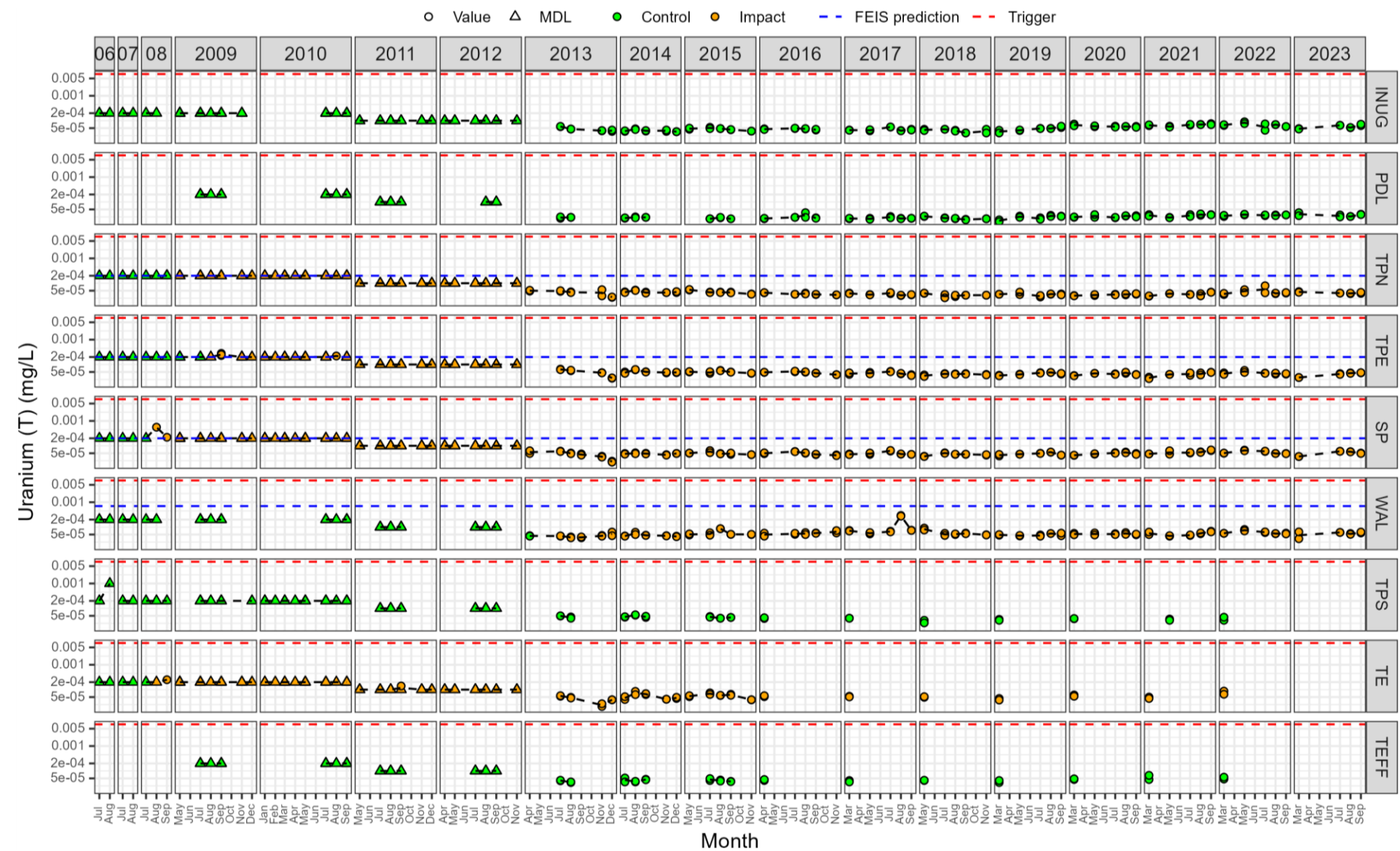


Figure B1-50. Total vanadium (mg/L).

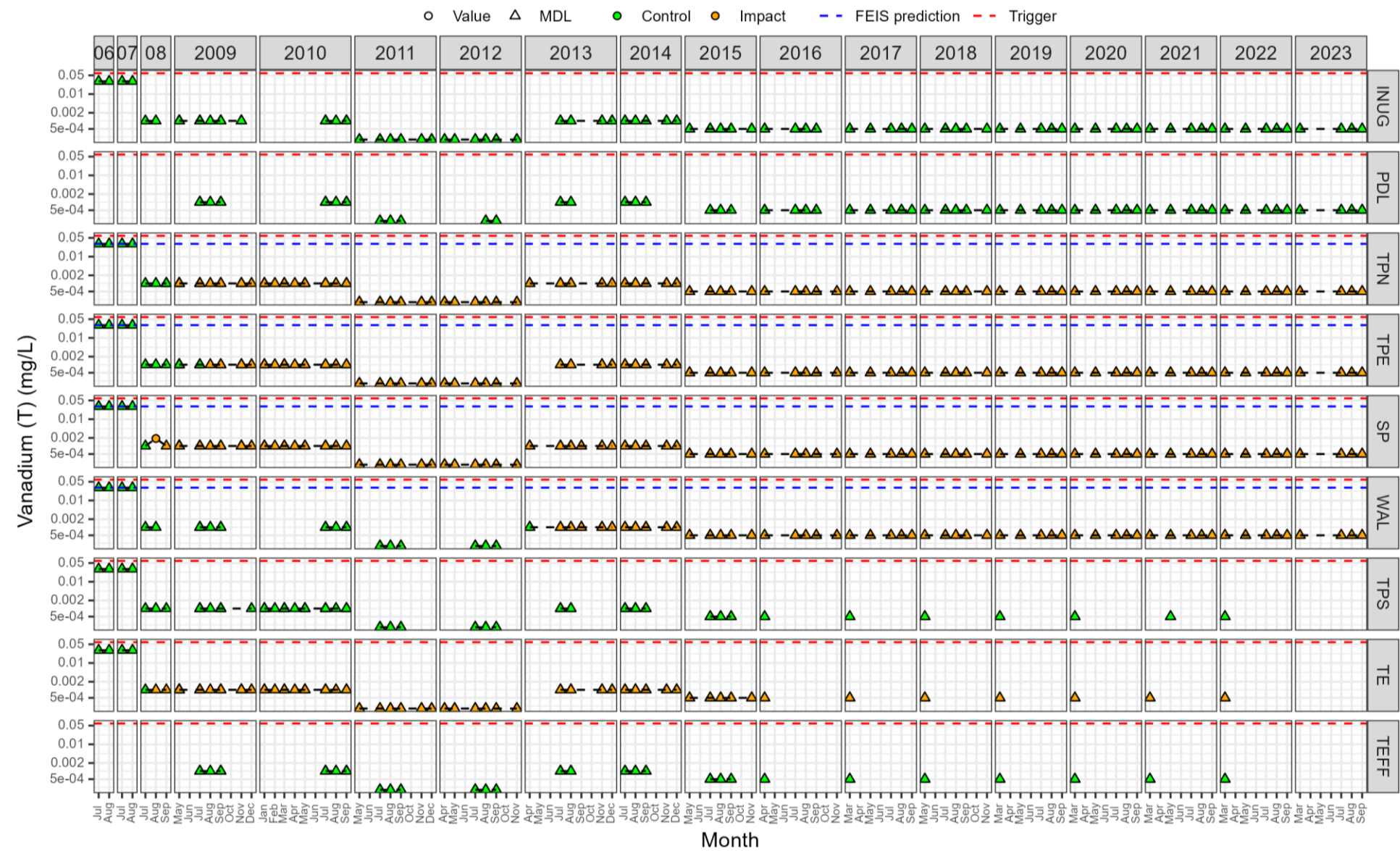


Figure B1-51. Total zinc (mg/L).

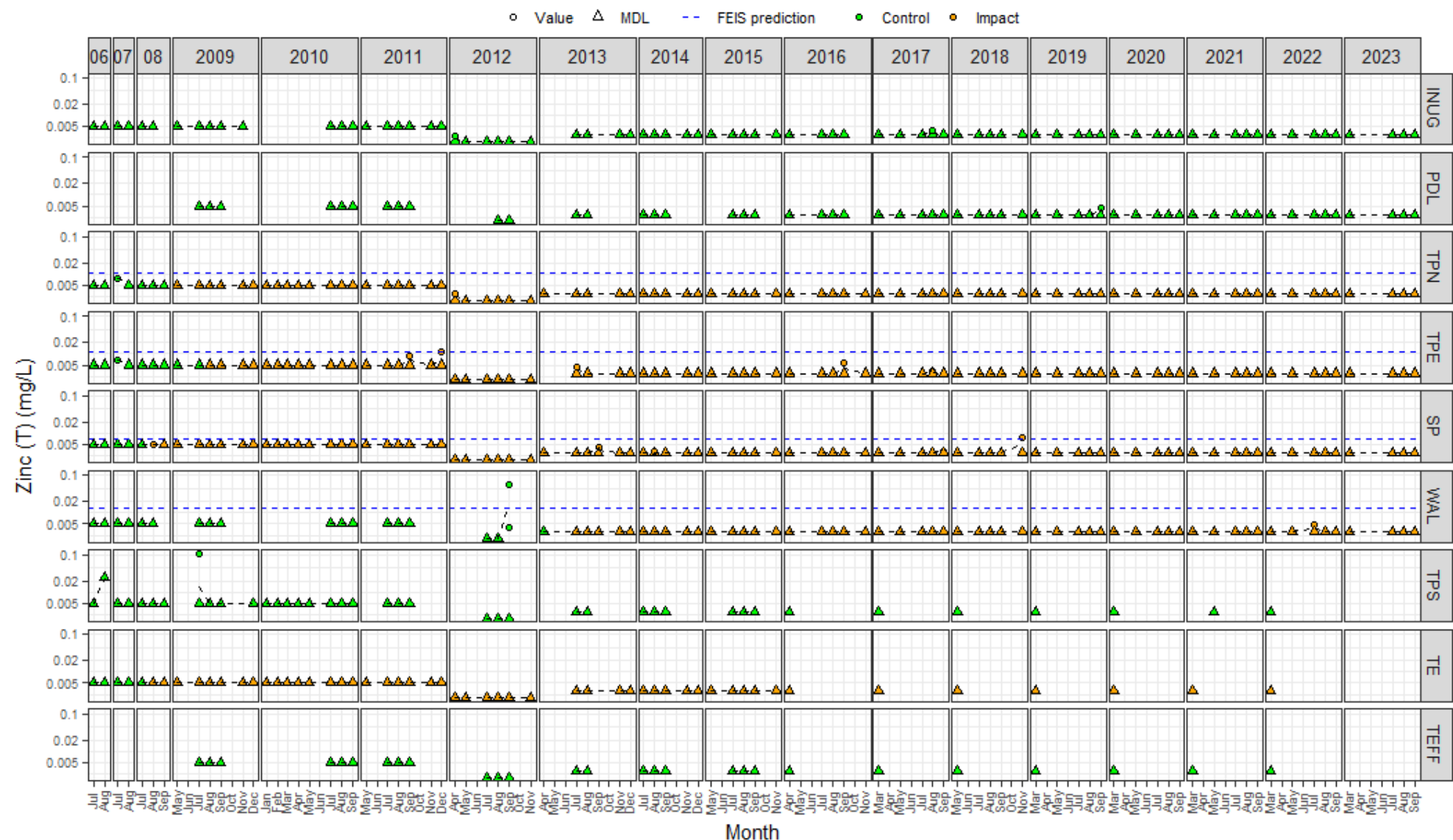
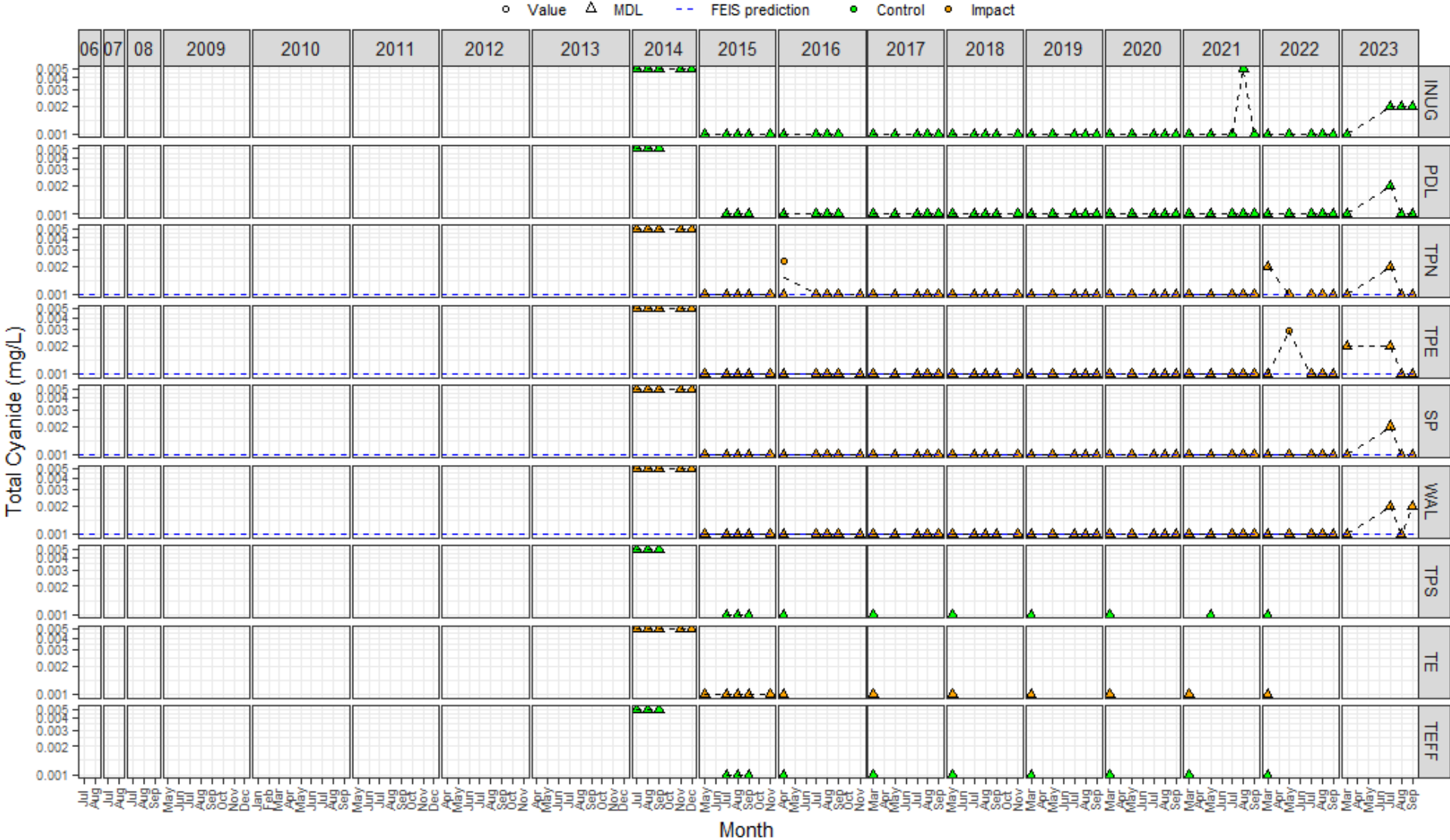


Figure B1-52. Total cyanide (mg/L).



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Figure B1-53. Free cyanide (mg/L).

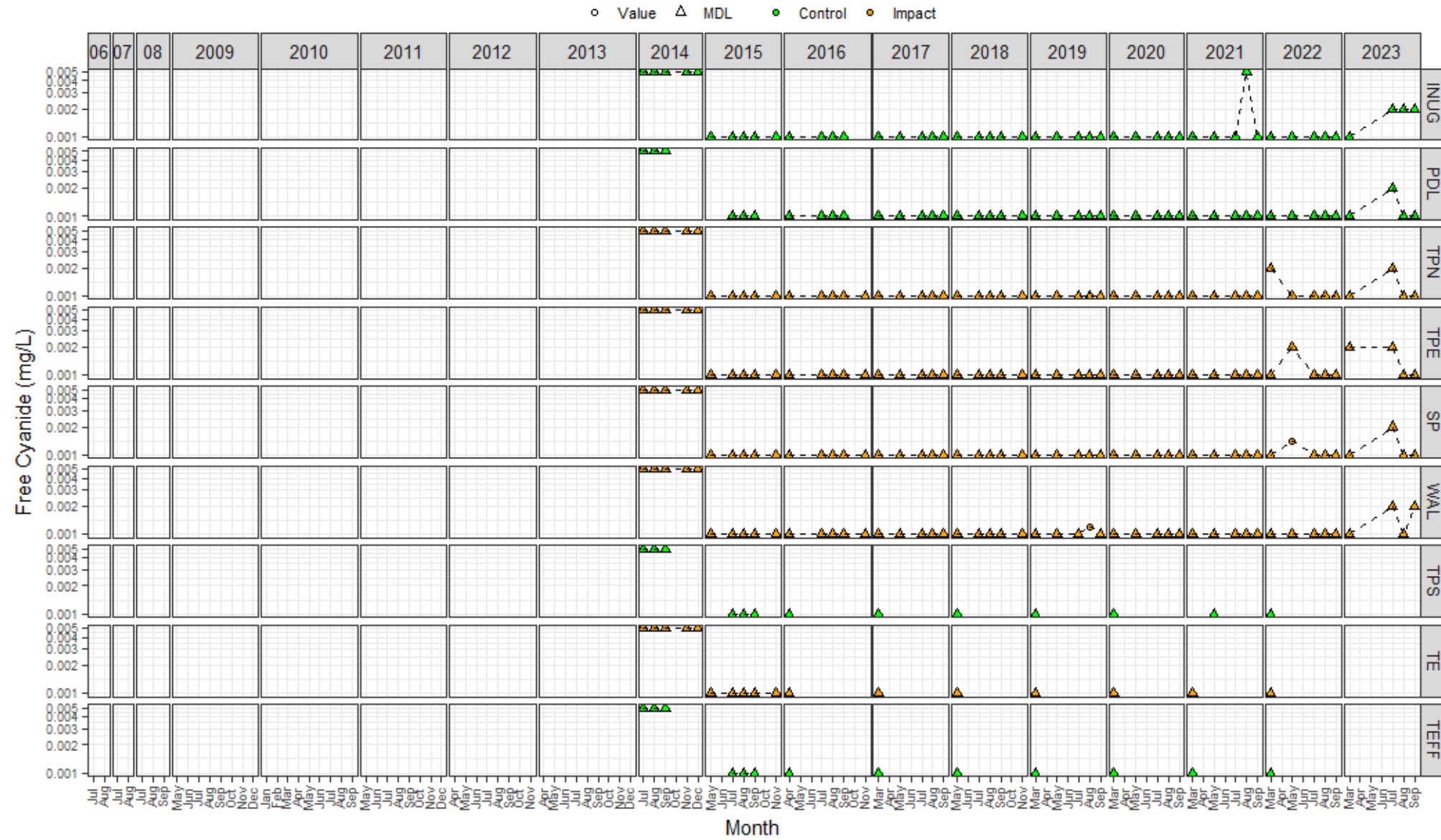


Figure B1-54. Dissolved aluminum (mg/L).

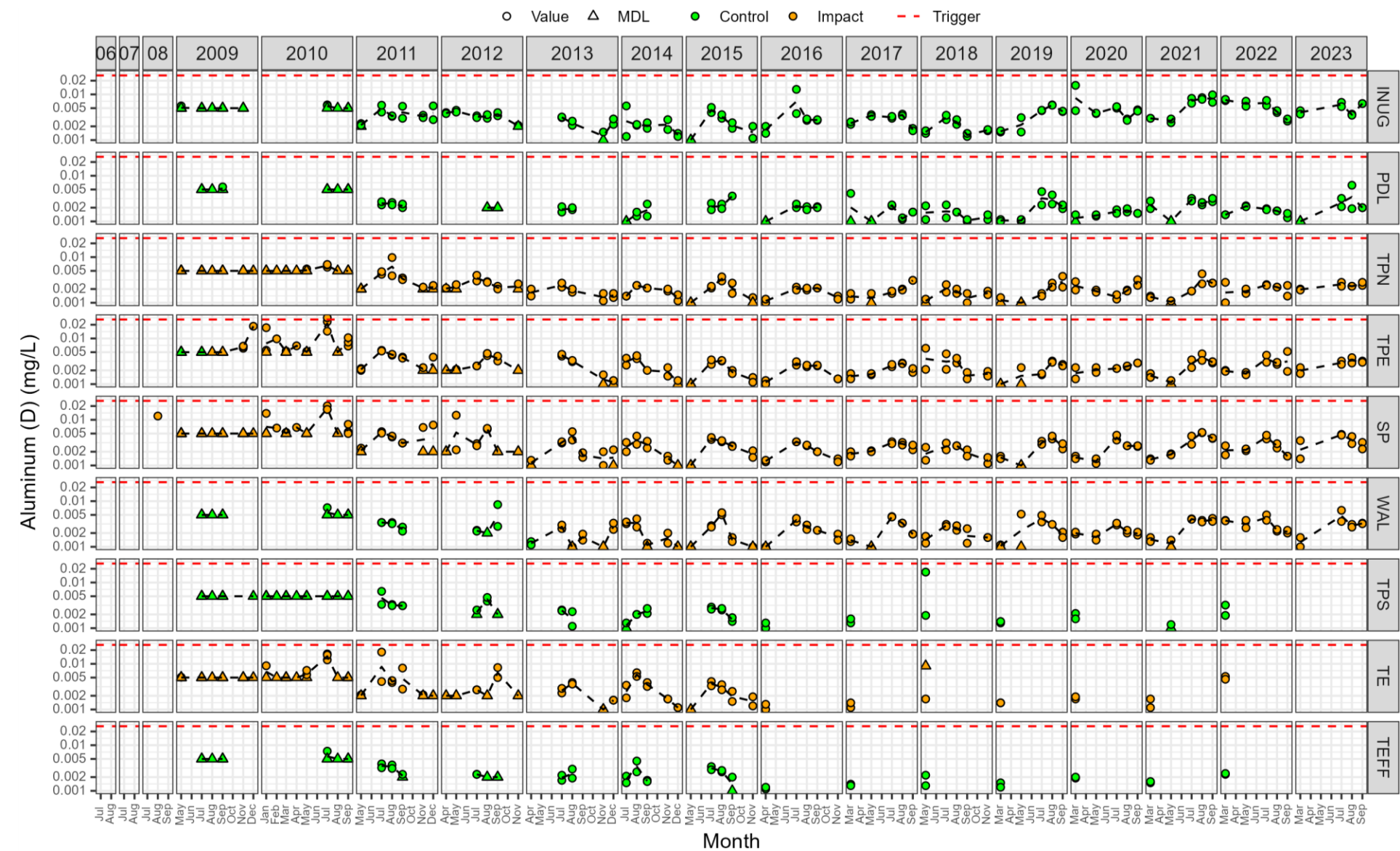


Figure B1-55. Dissolved antimony (mg/L).

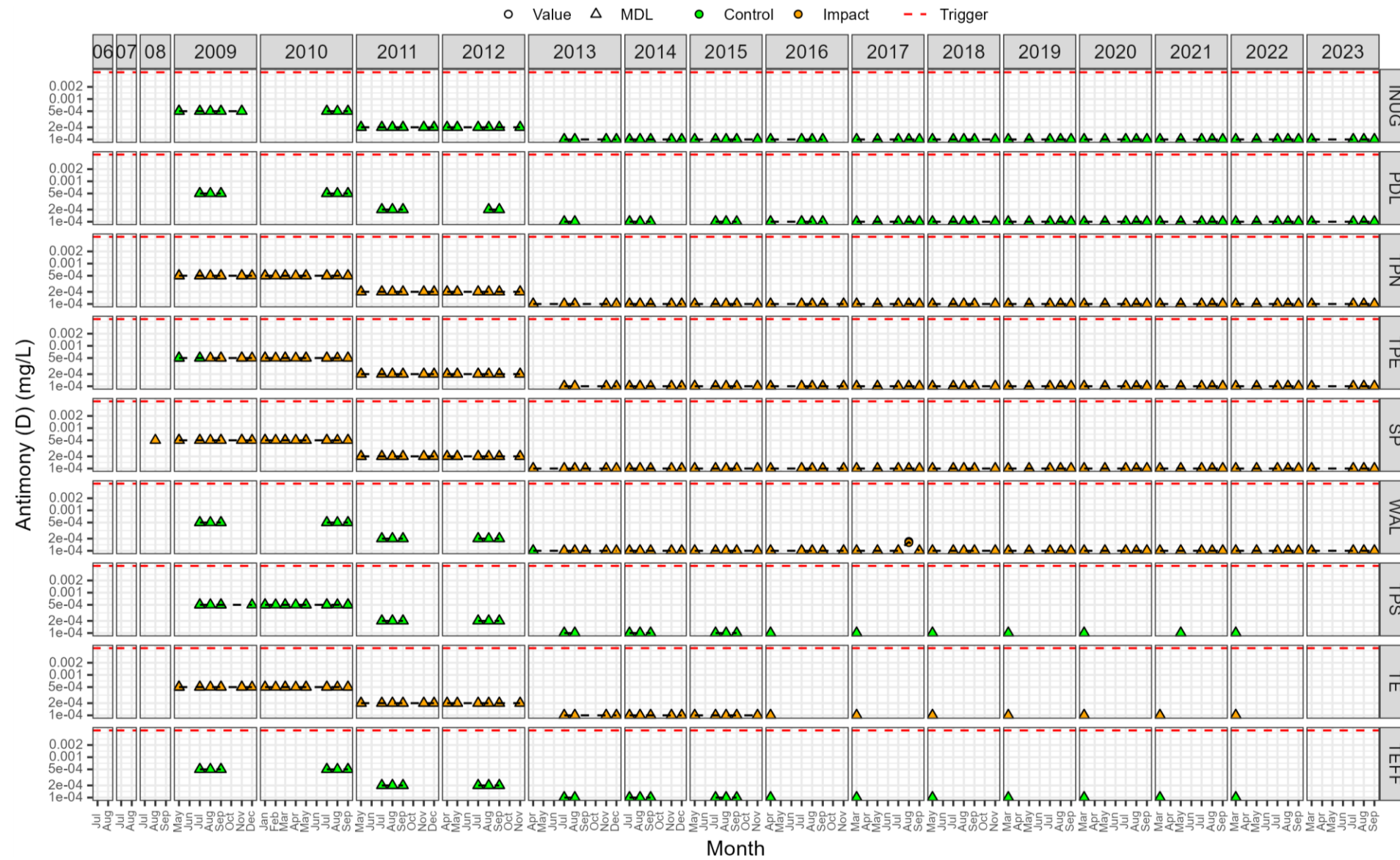


Figure B1-56. Dissolved arsenic (mg/L).

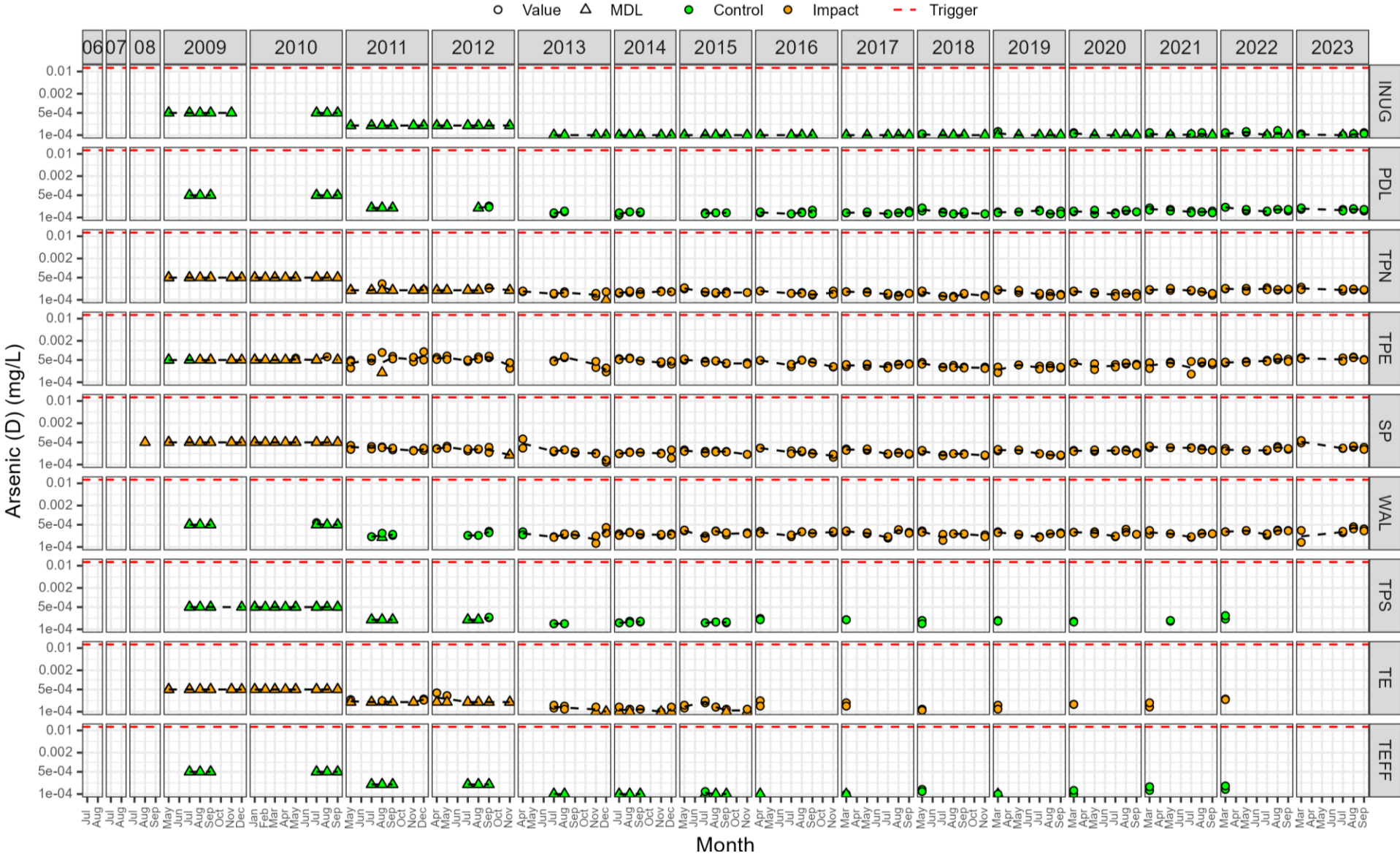


Figure B1-57. Dissolved barium (mg/L).

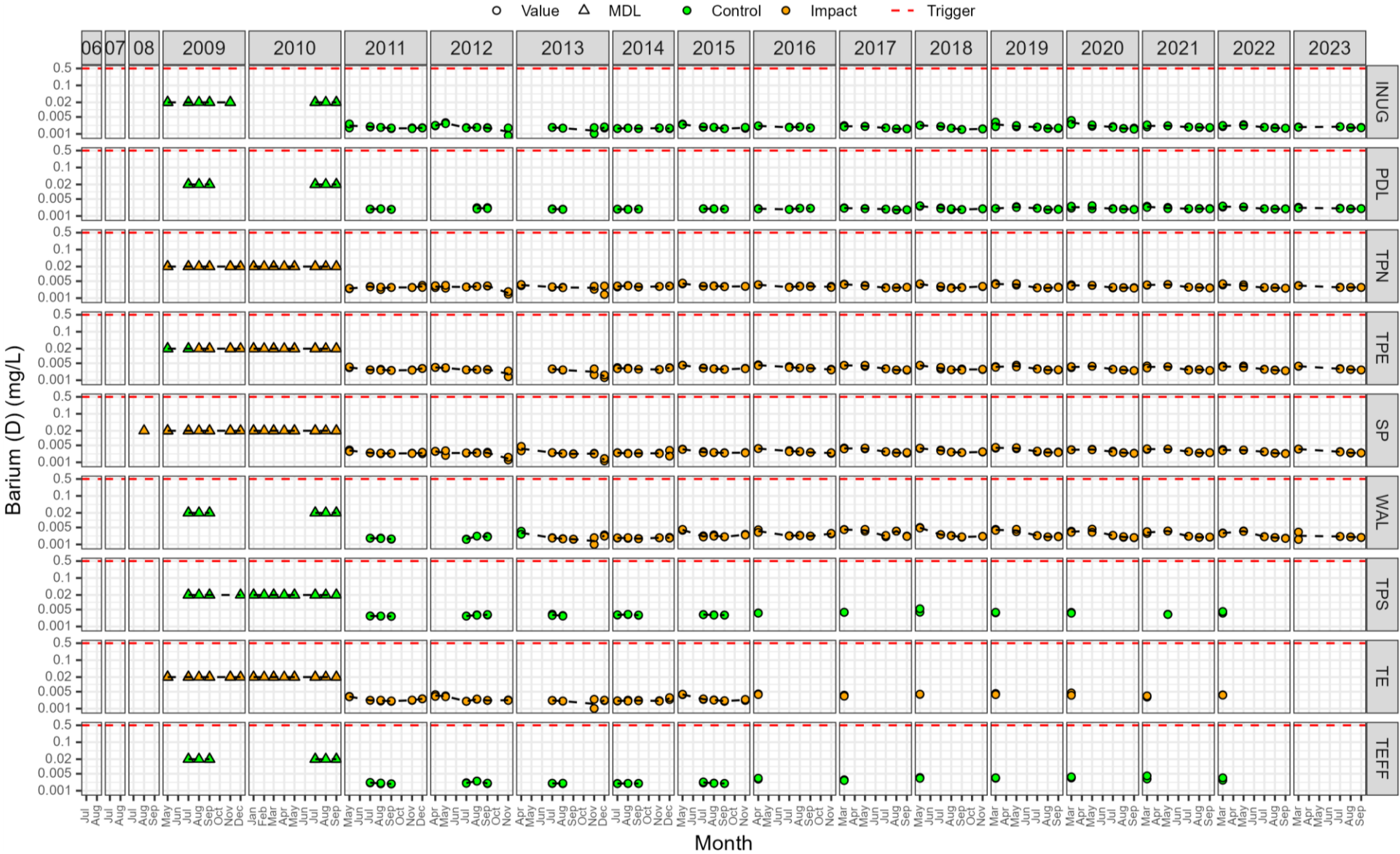


Figure B1-58. Dissolved beryllium (mg/L).



Figure B1-59. Dissolved boron (mg/L).

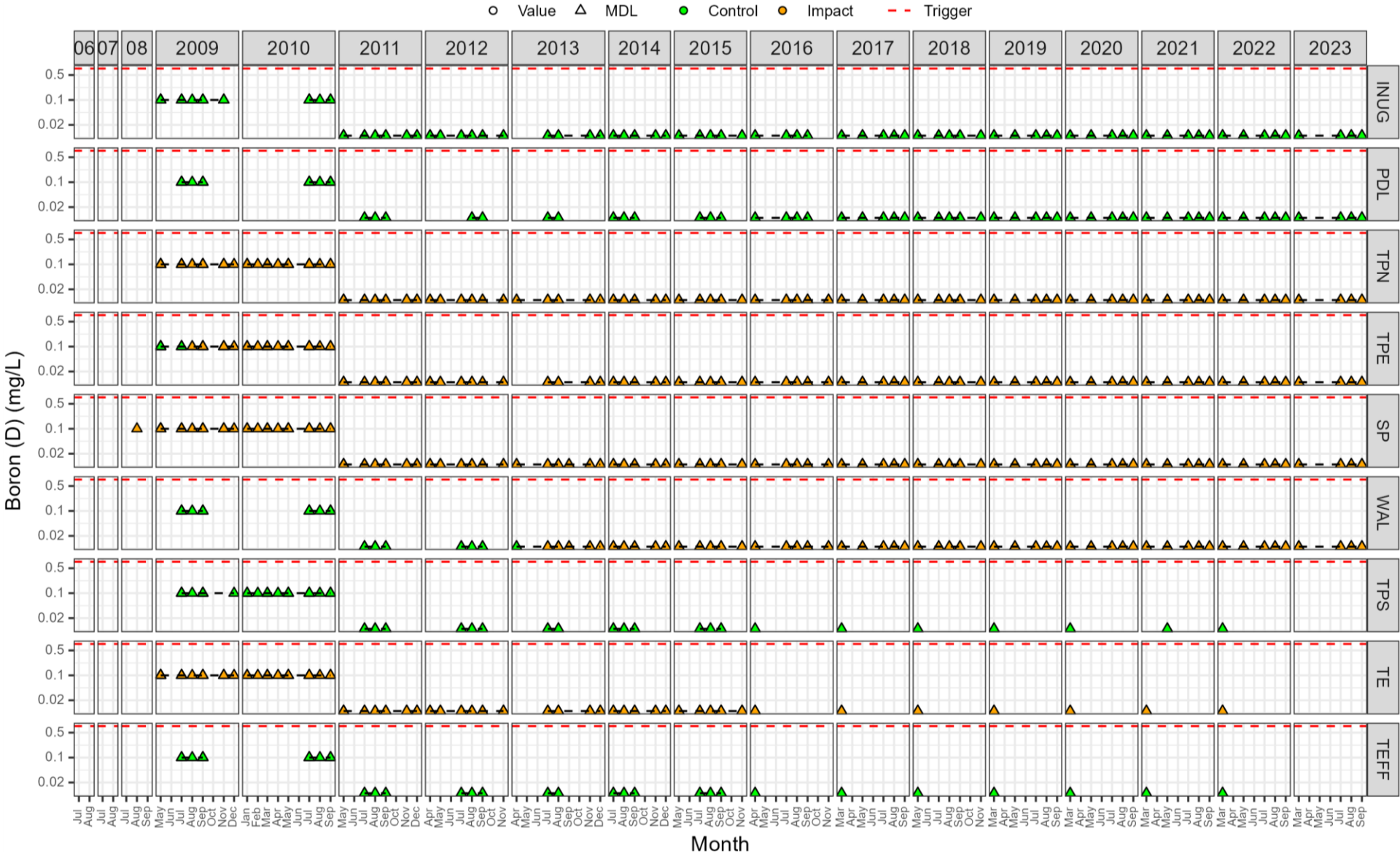


Figure B1-60. Dissolved cadmium (mg/L).

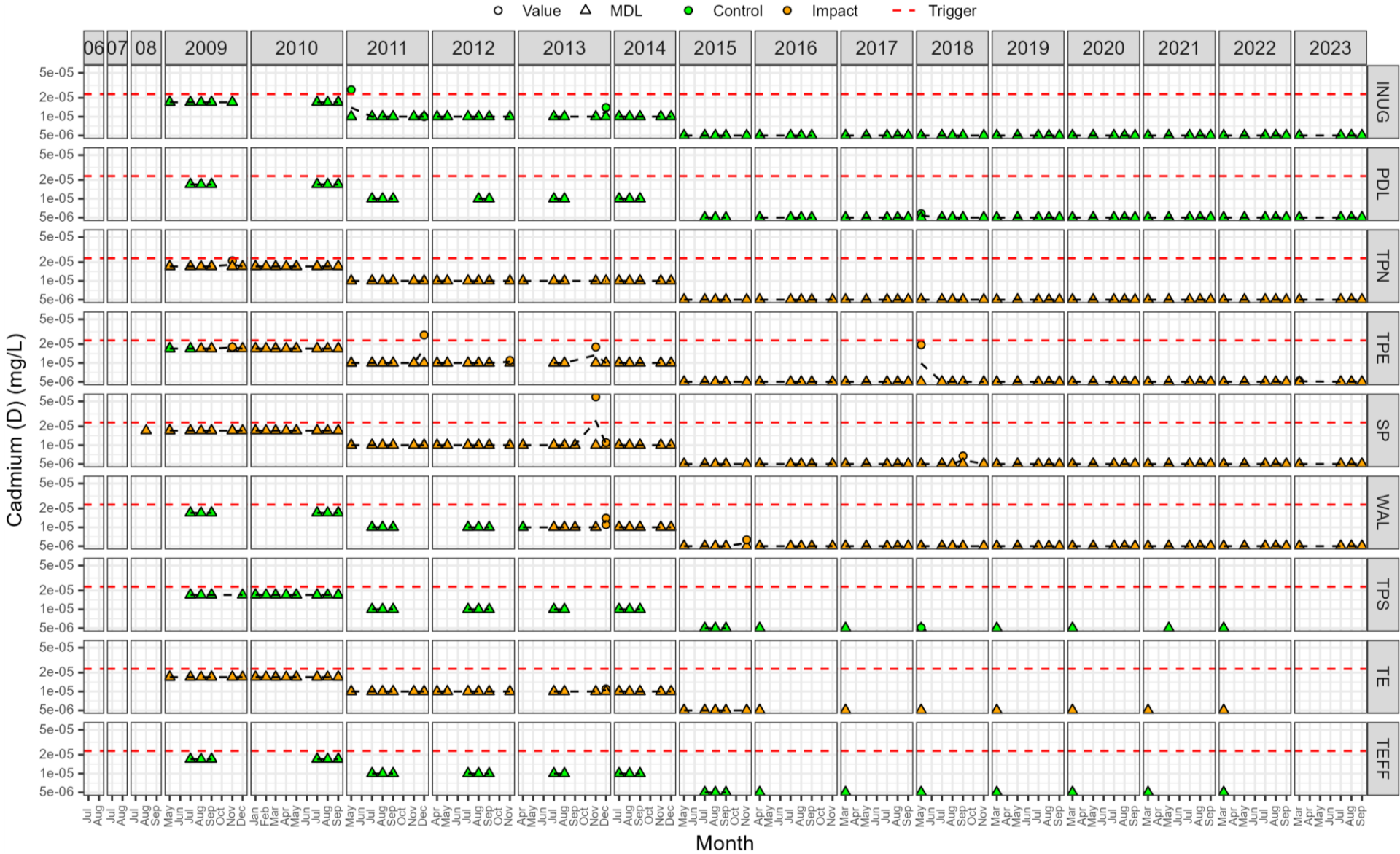


Figure B1-61. Dissolved copper (mg/L).

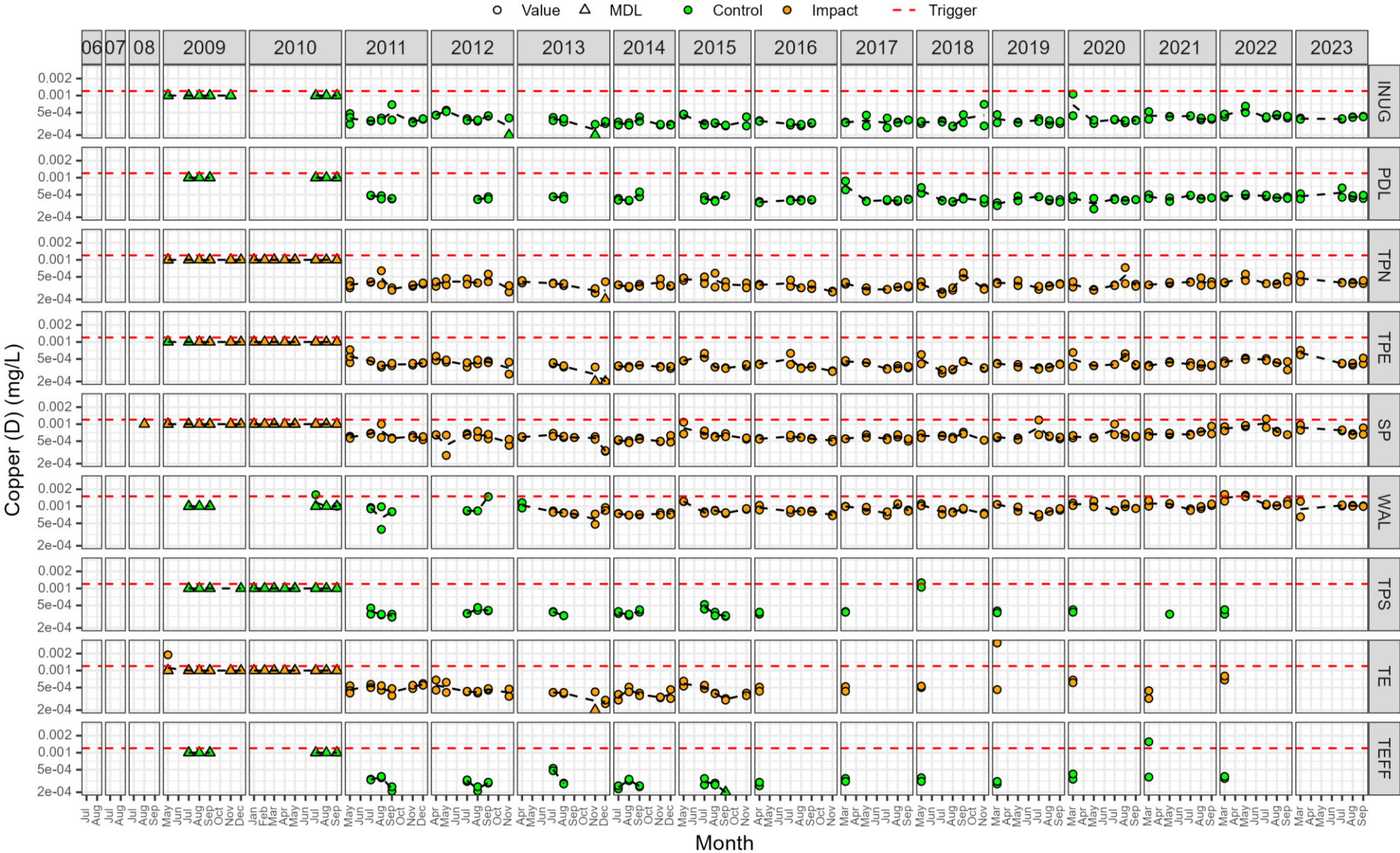


Figure B1-62. Dissolved chromium (mg/L).

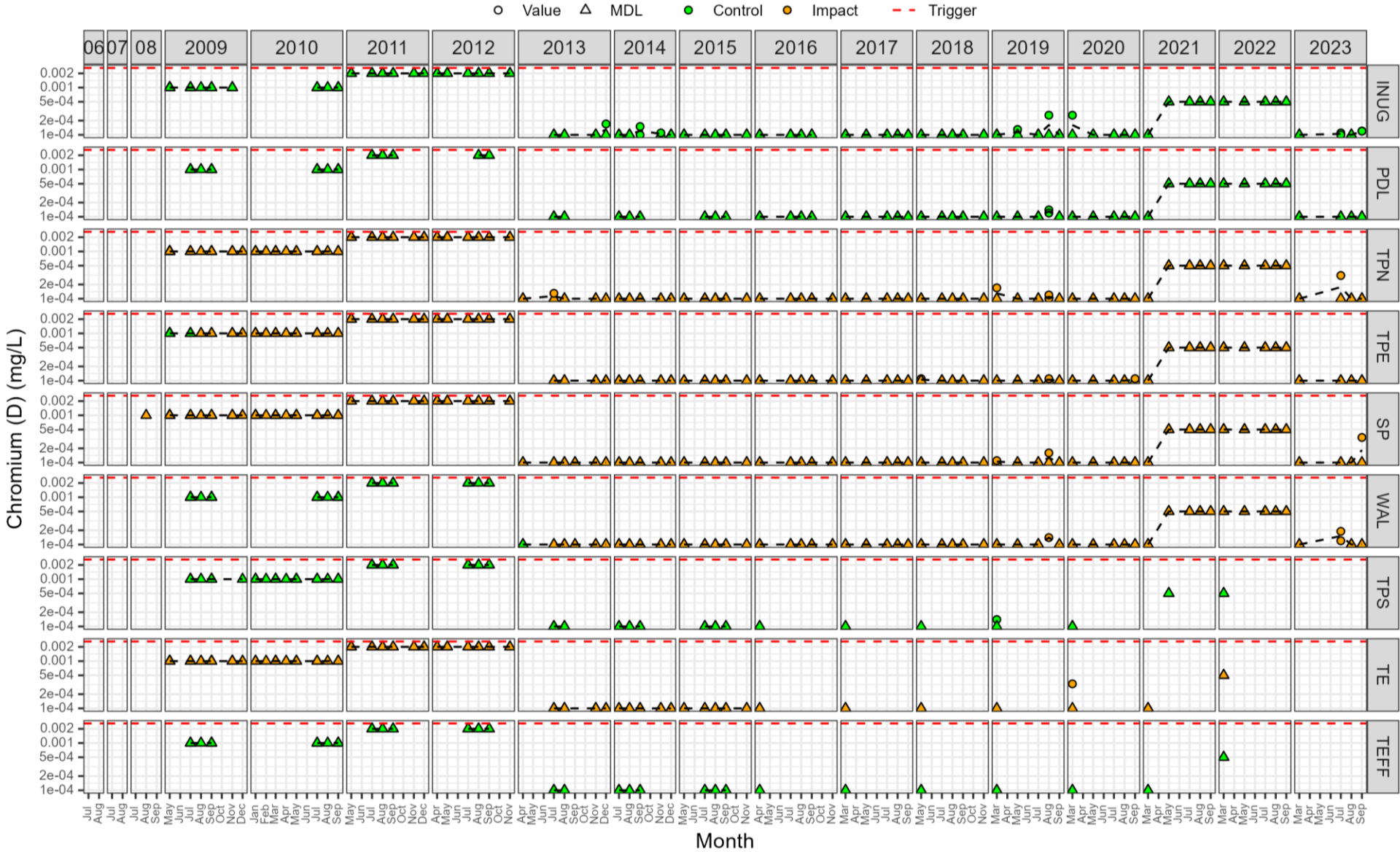


Figure B1-63. Dissolved iron (mg/L).

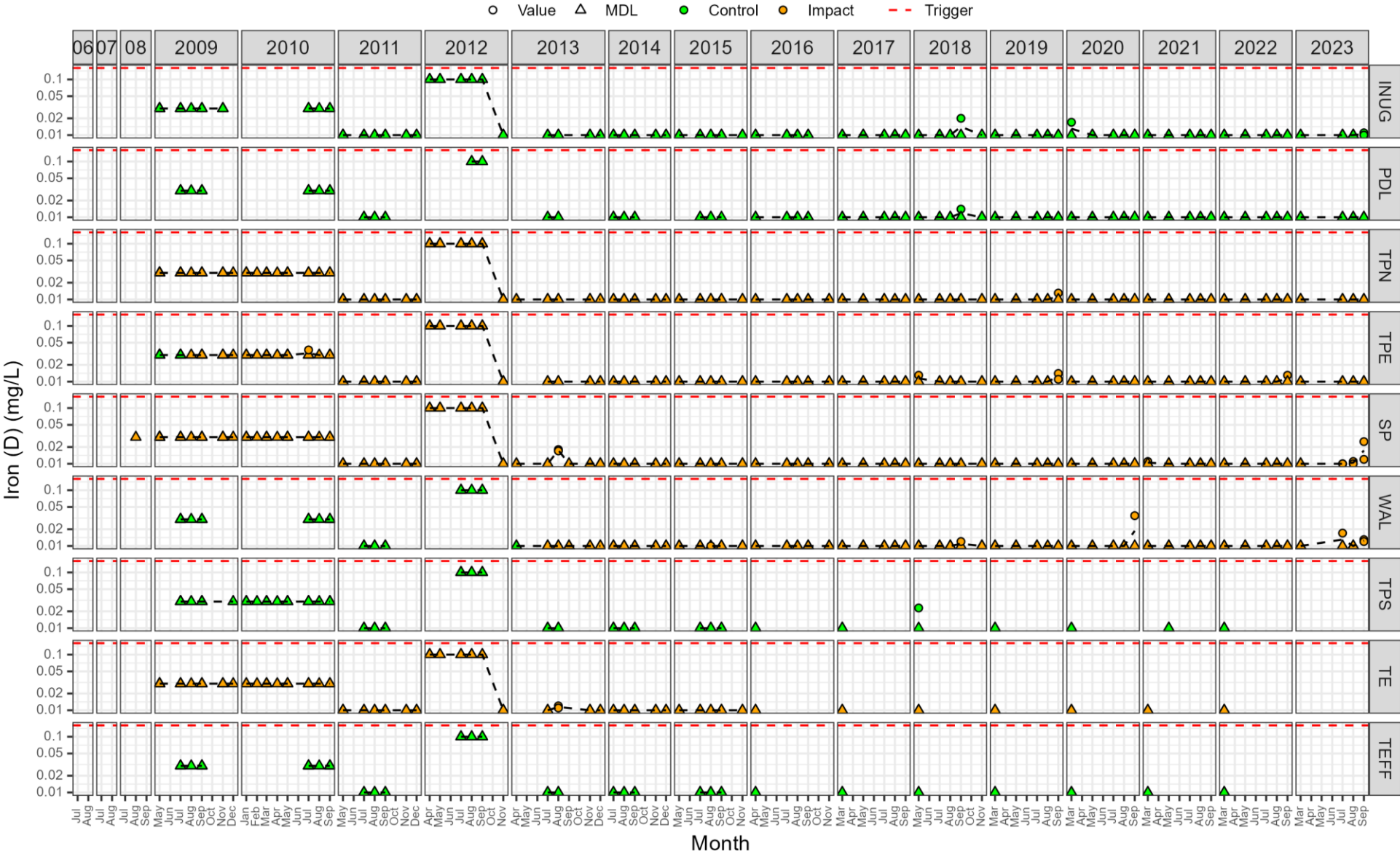


Figure B1-64. Dissolved lead (mg/L).

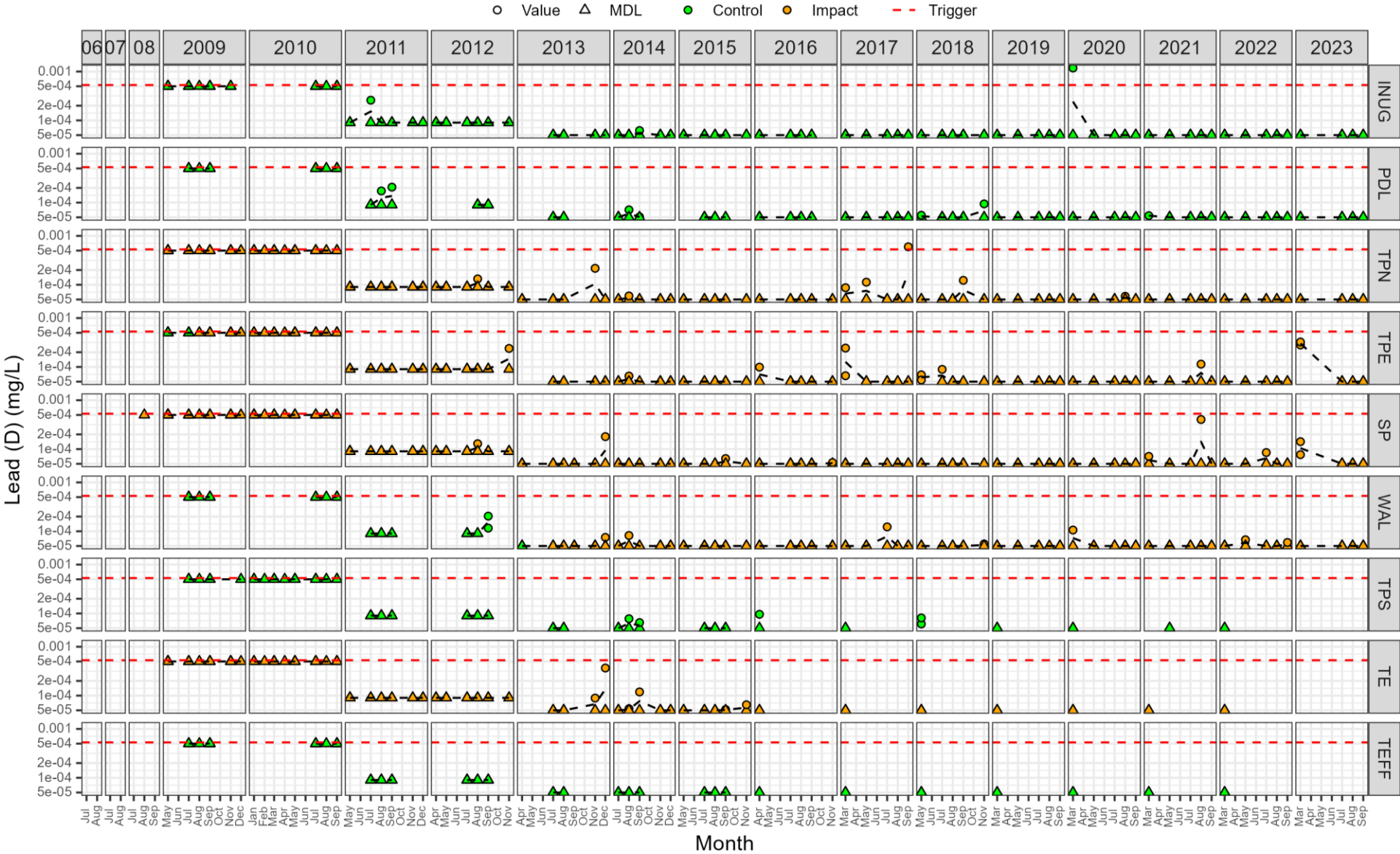


Figure B1-65. Dissolved lithium (mg/L).

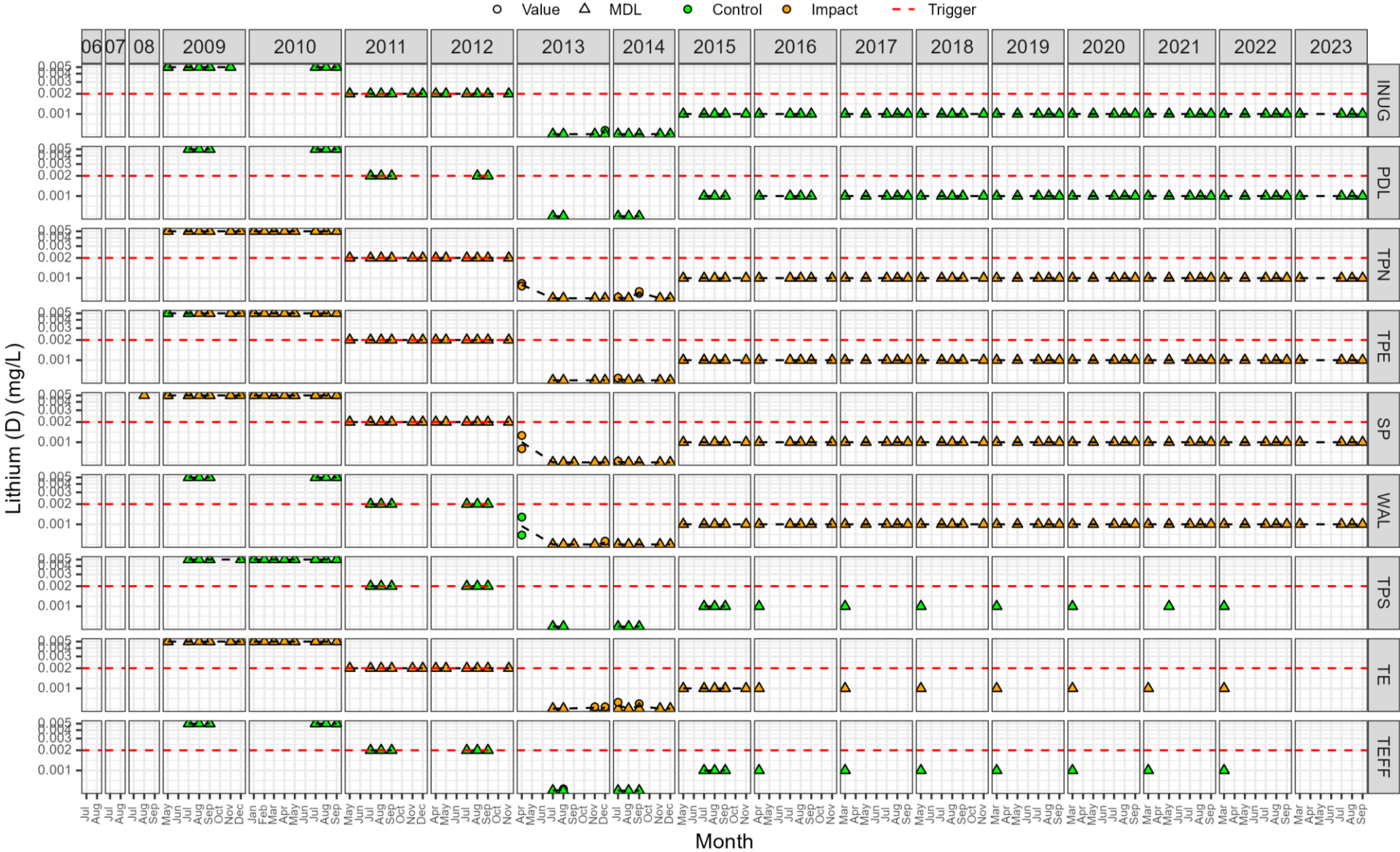


Figure B1-66. Dissolved manganese (mg/L).

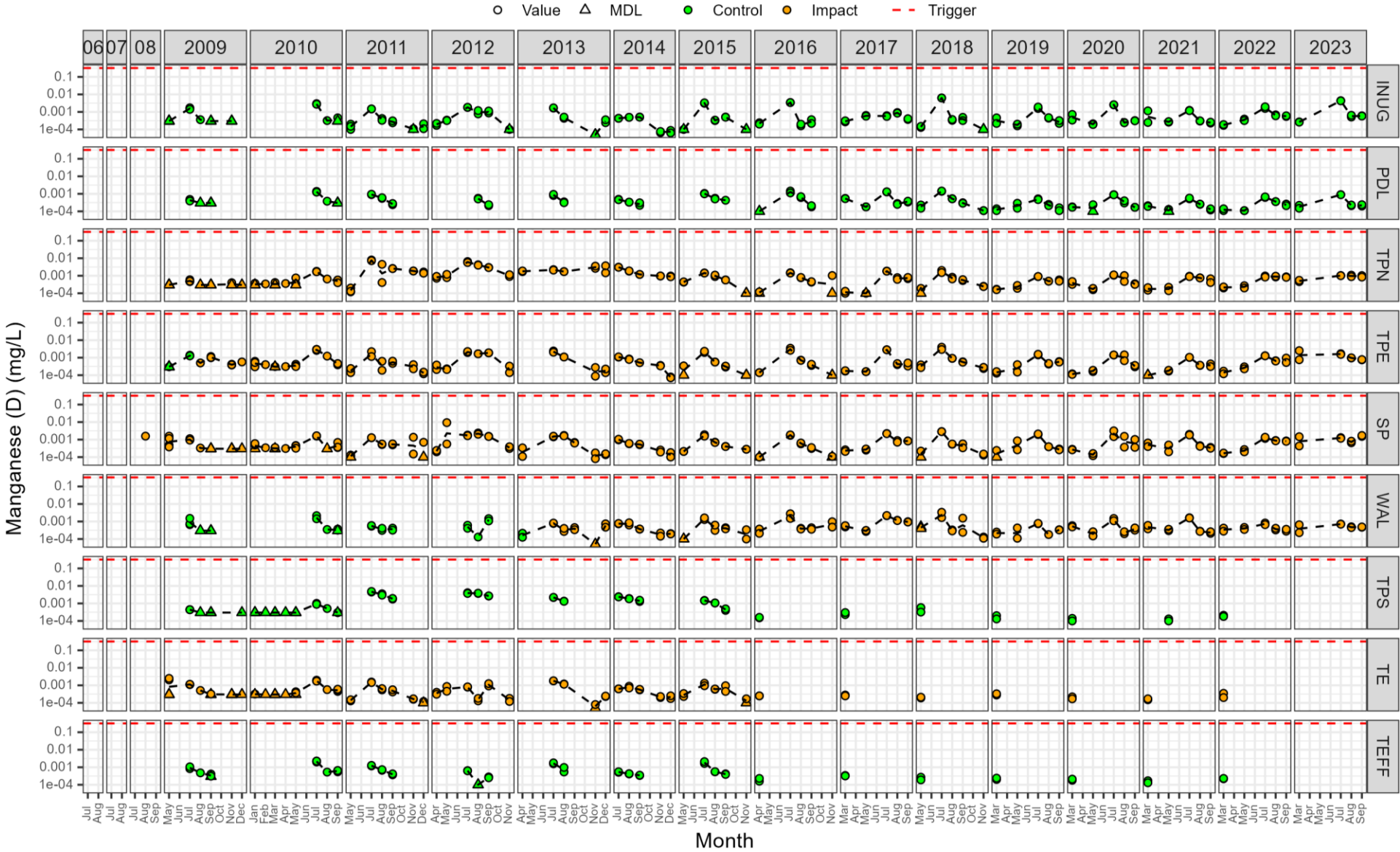


Figure B1-67. Dissolved molybdenum (mg/L).

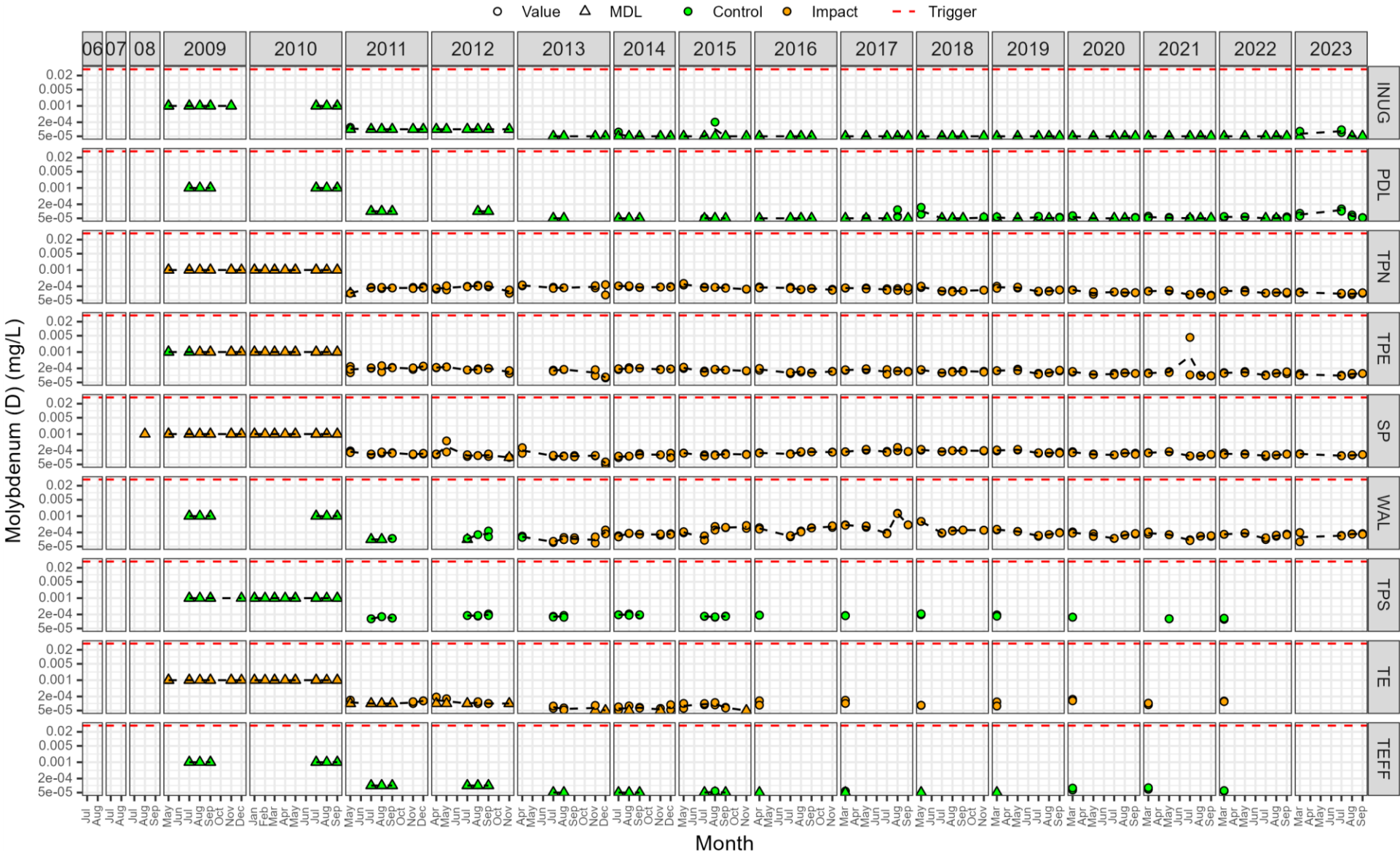


Figure B1-68. Dissolved mercury (mg/L).

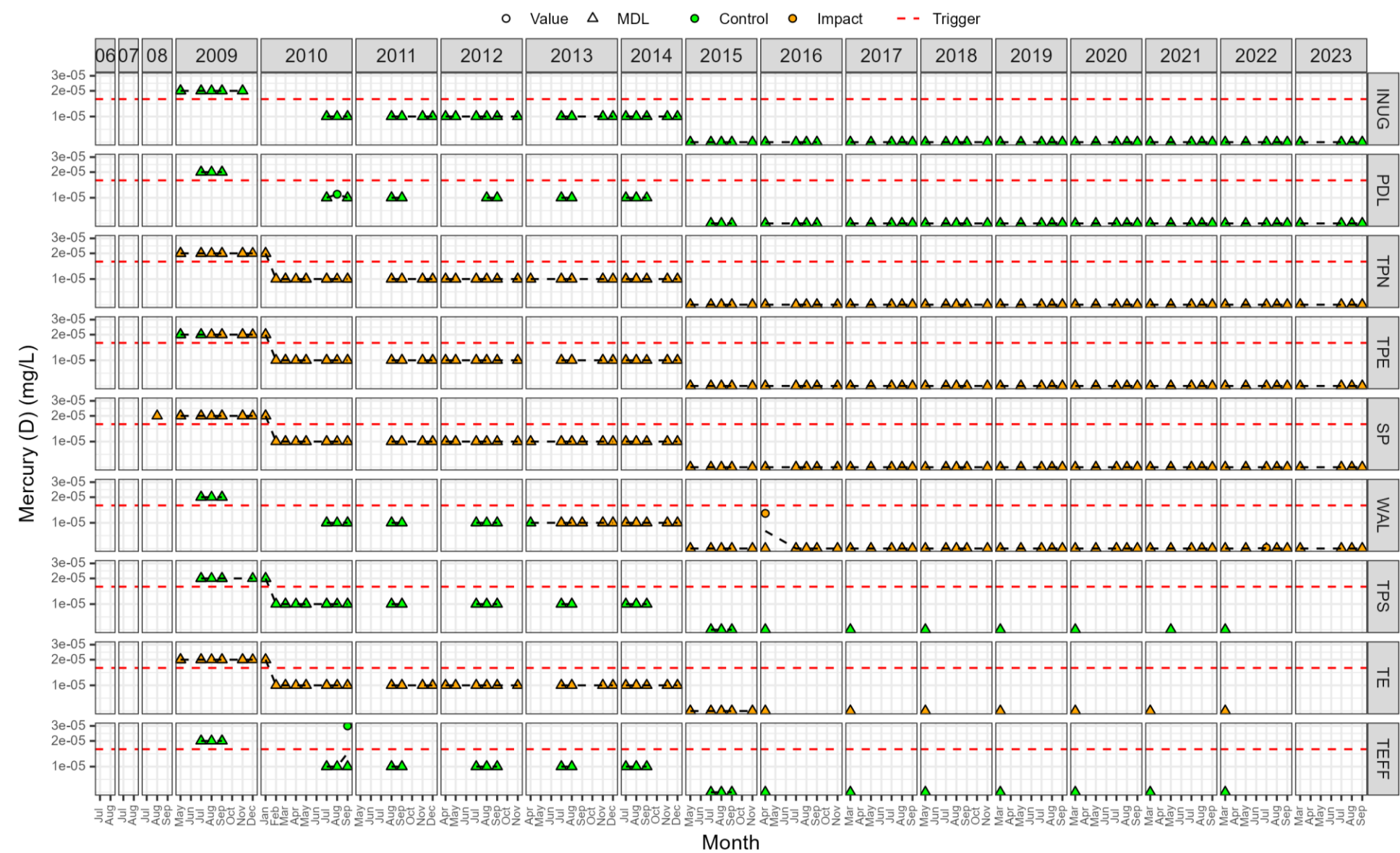


Figure B1-69. Dissolved nickel (mg/L).

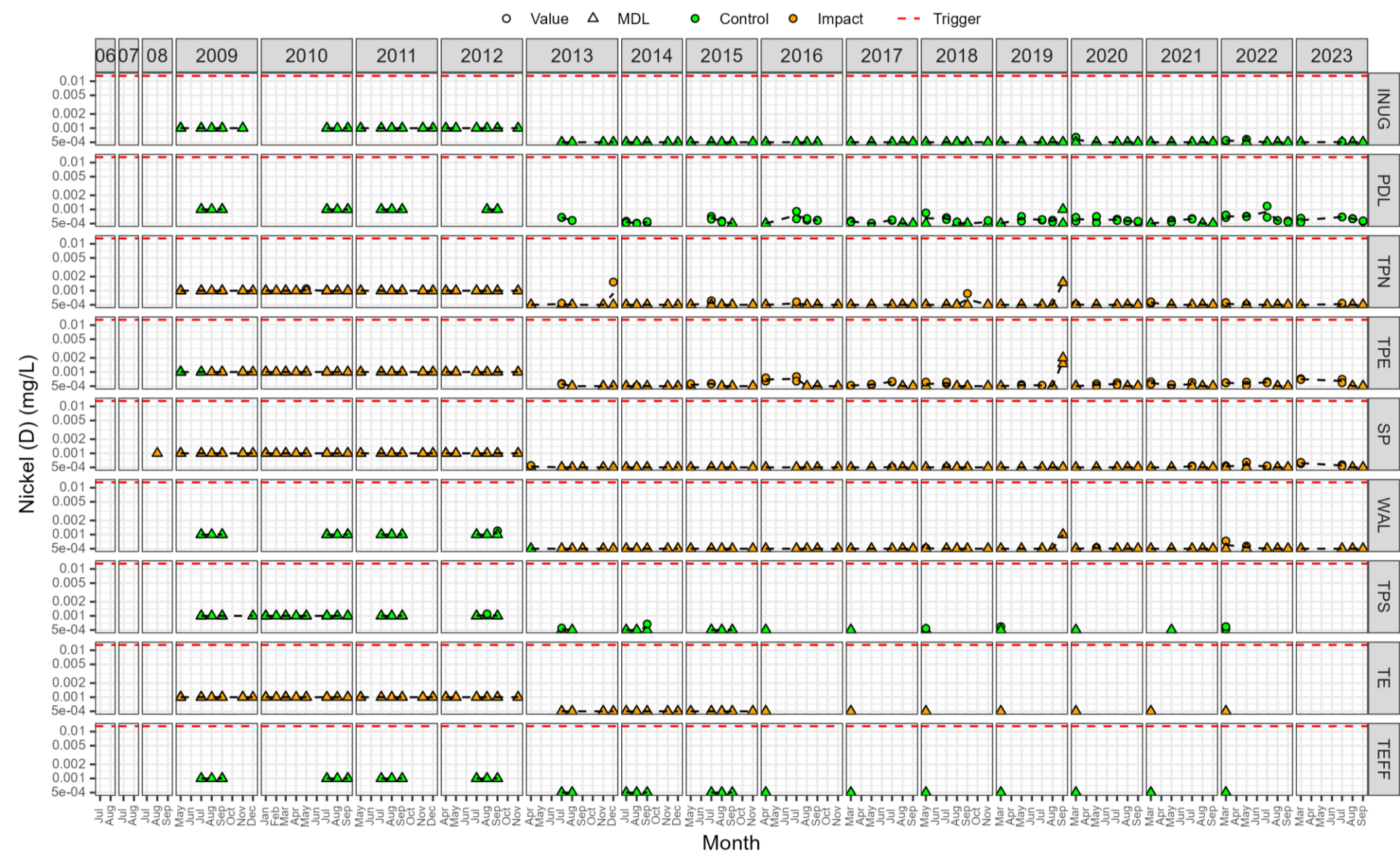


Figure B1-70. Dissolved selenium (mg/L).

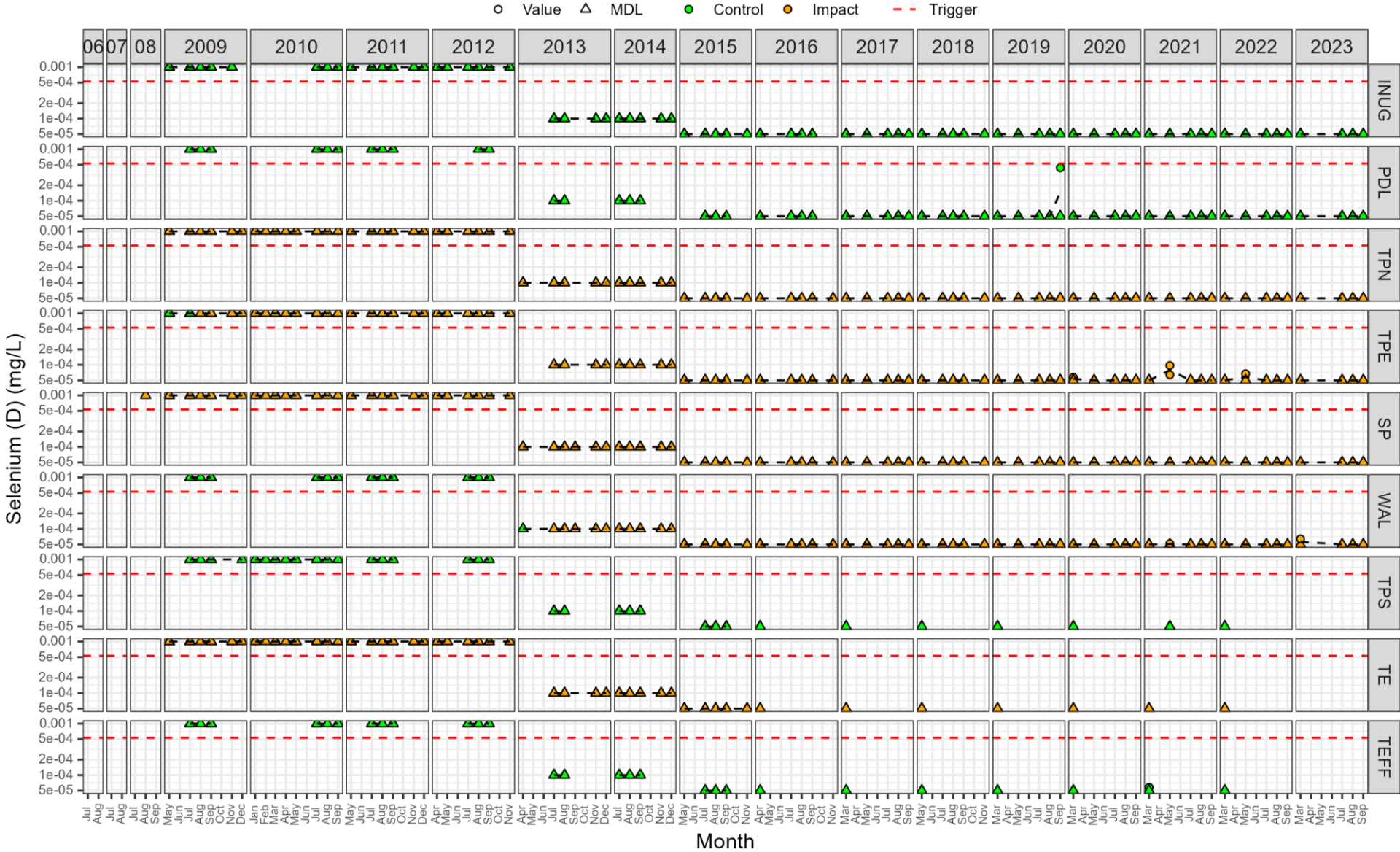


Figure B1-71. Dissolved silicon (mg/L).

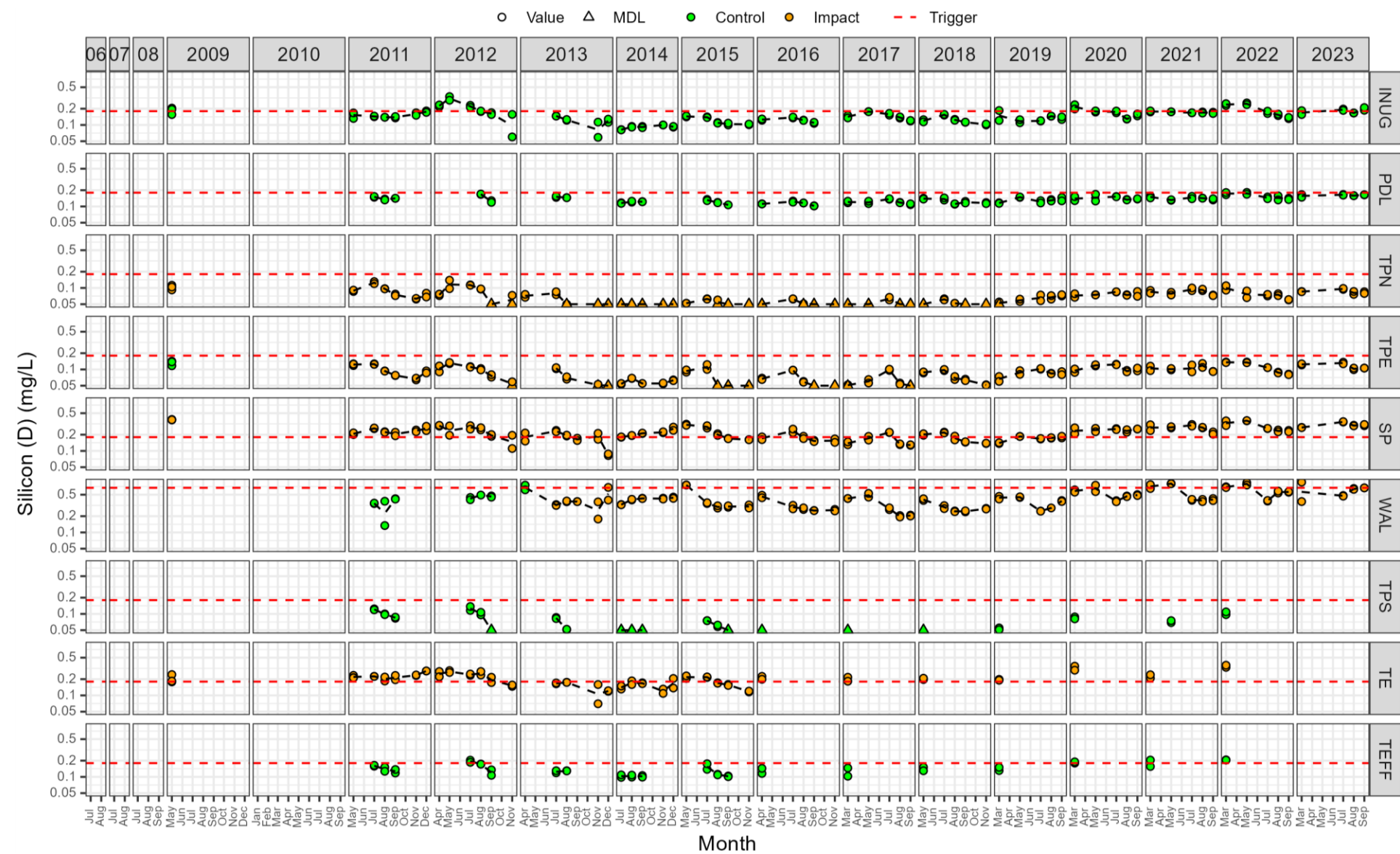


Figure B1-72. Dissolved silver (mg/L).

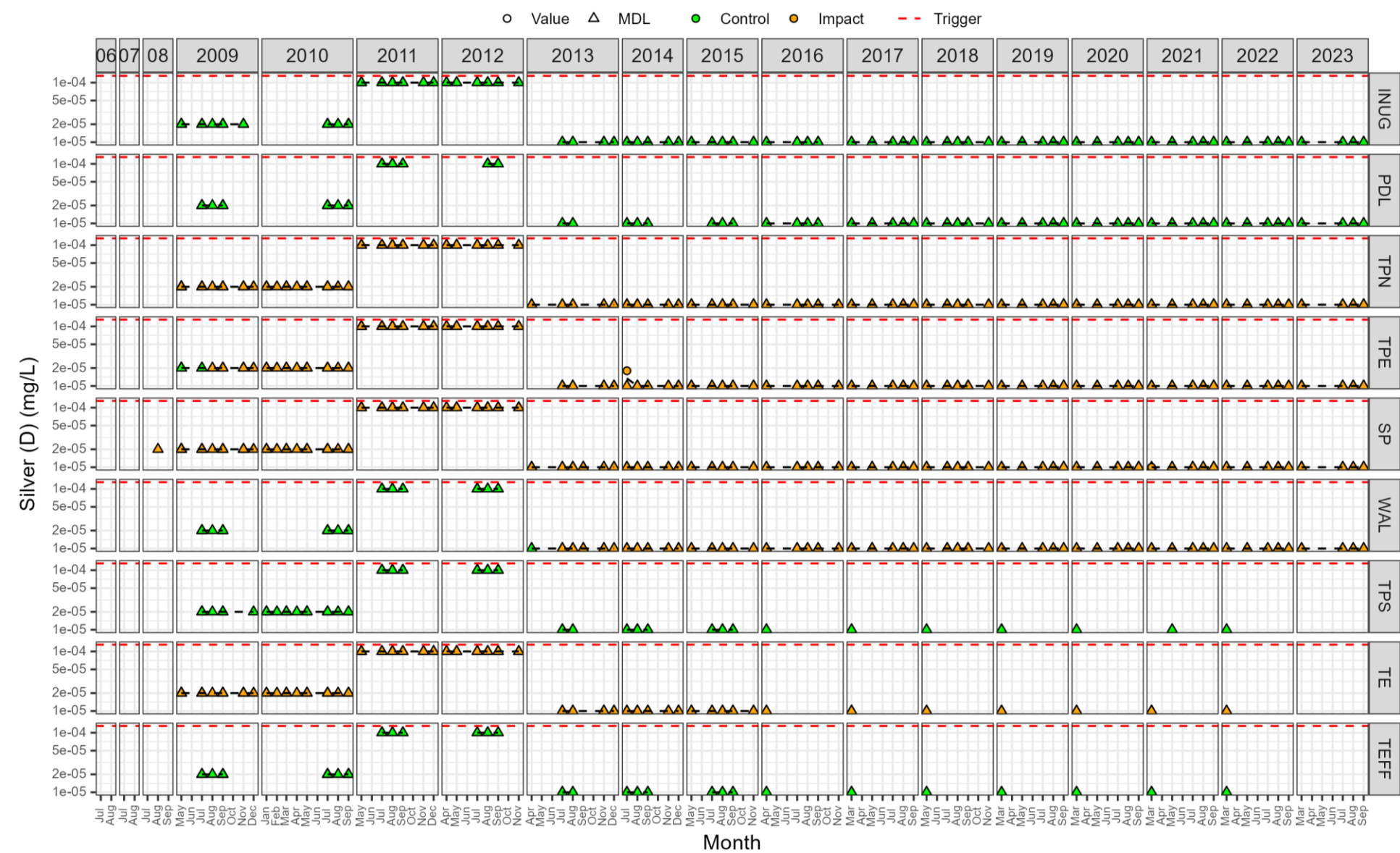


Figure B1-73. Dissolved strontium (mg/L).

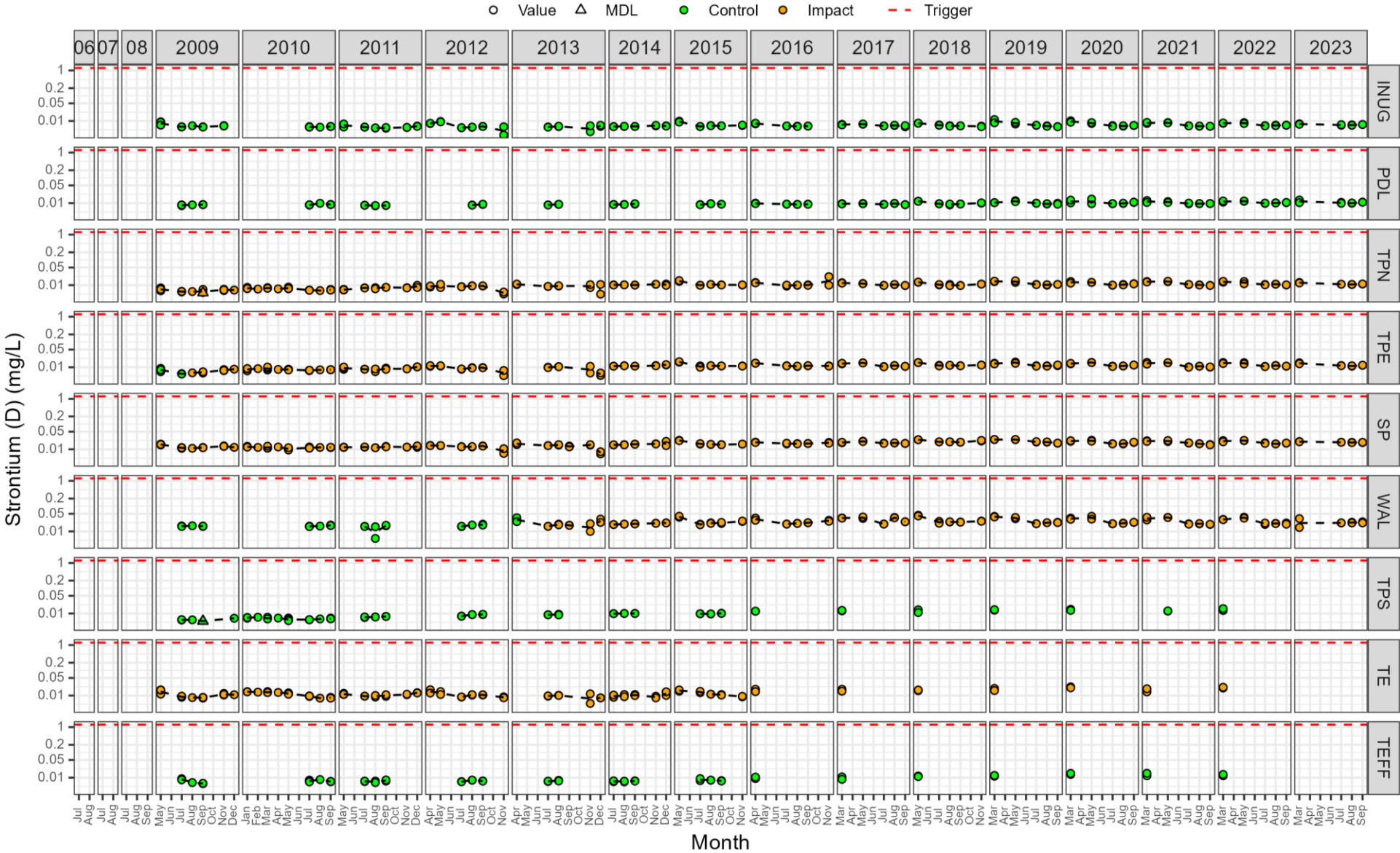


Figure B1-74. Dissolved thallium (mg/L).

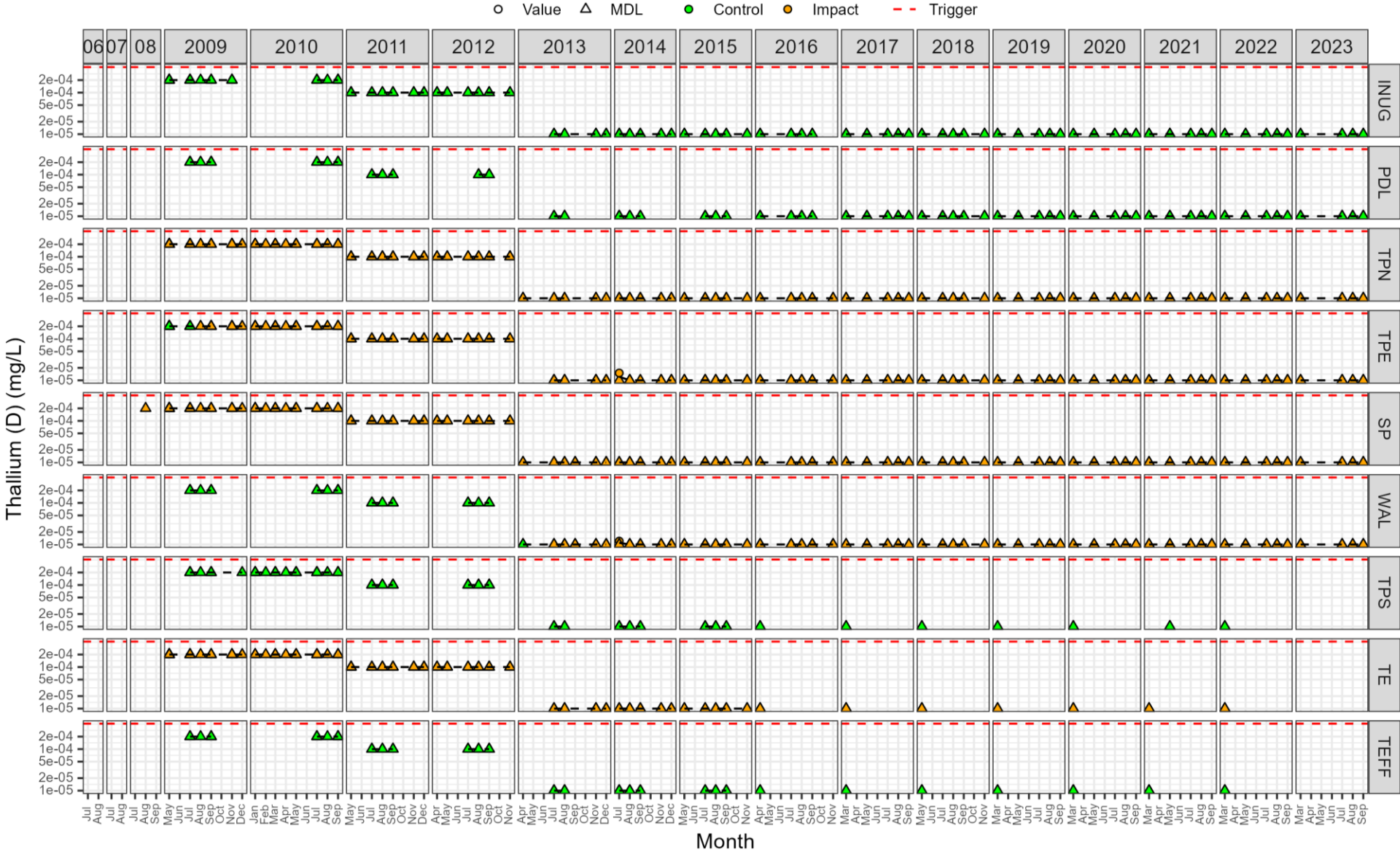


Figure B1-75. Dissolved tin (mg/L).



Figure B1-76. Dissolved titanium (mg/L).



Figure B1-77. Dissolved uranium (mg/L).

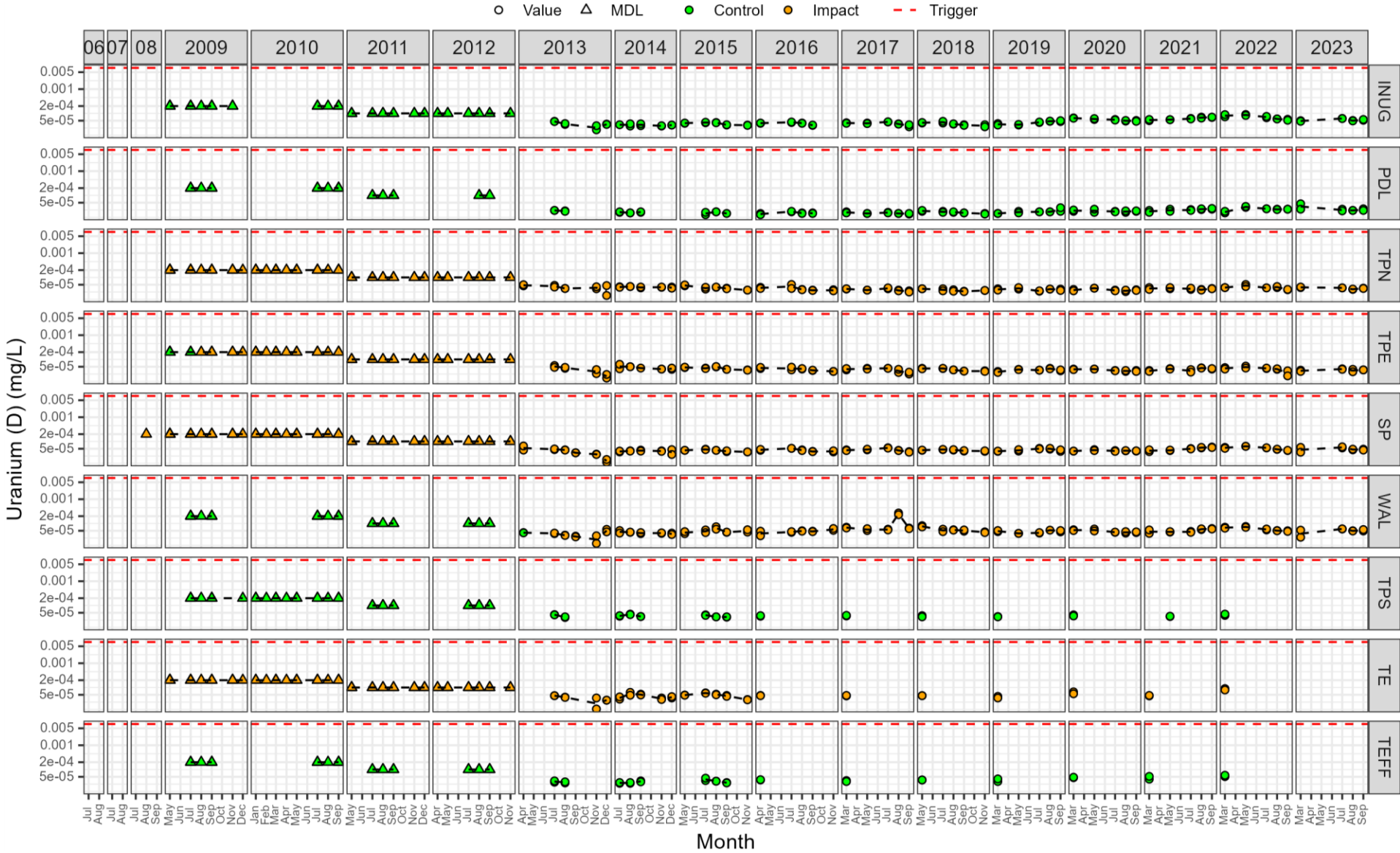


Figure B1-78. Dissolved vanadium (mg/L).

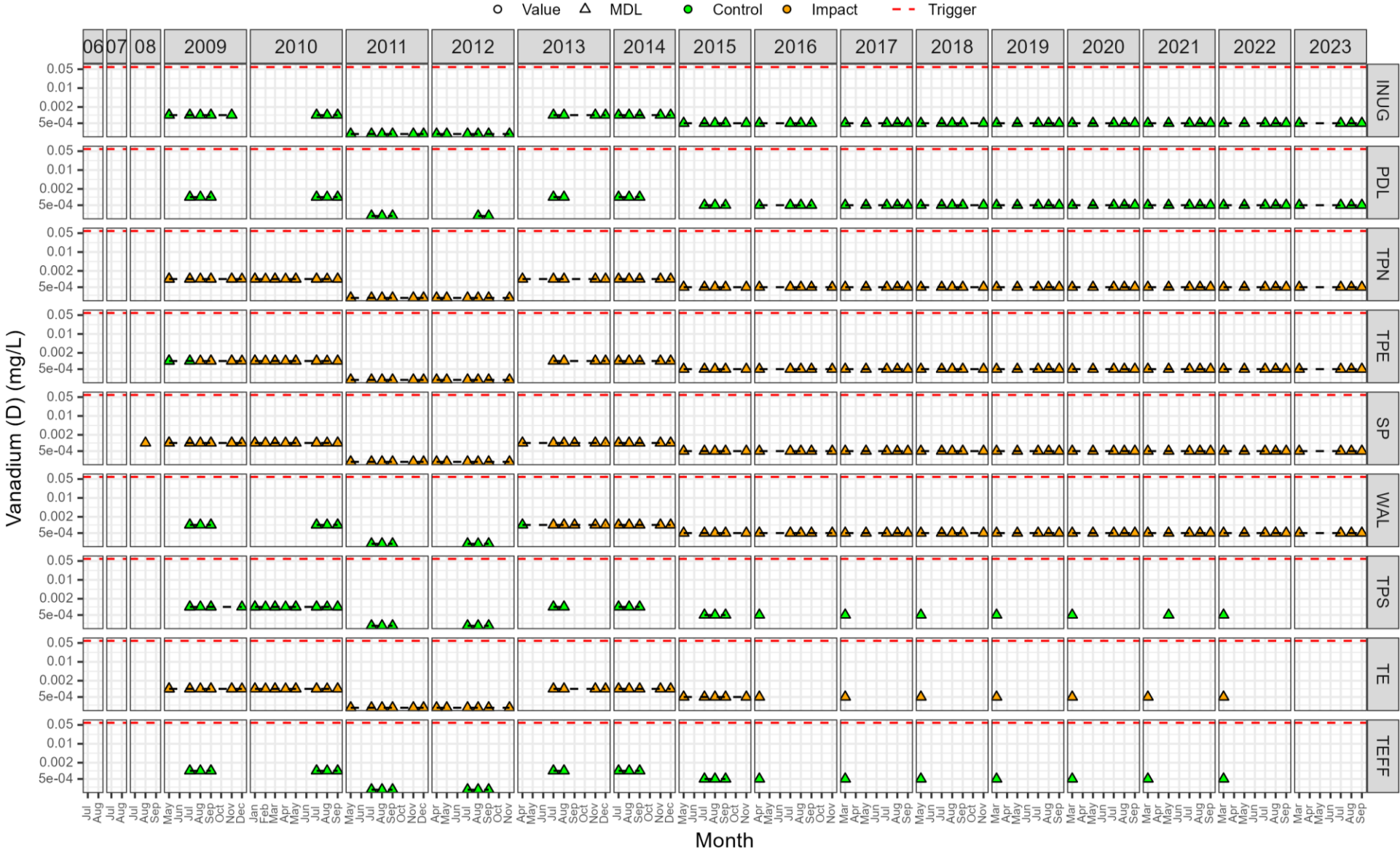
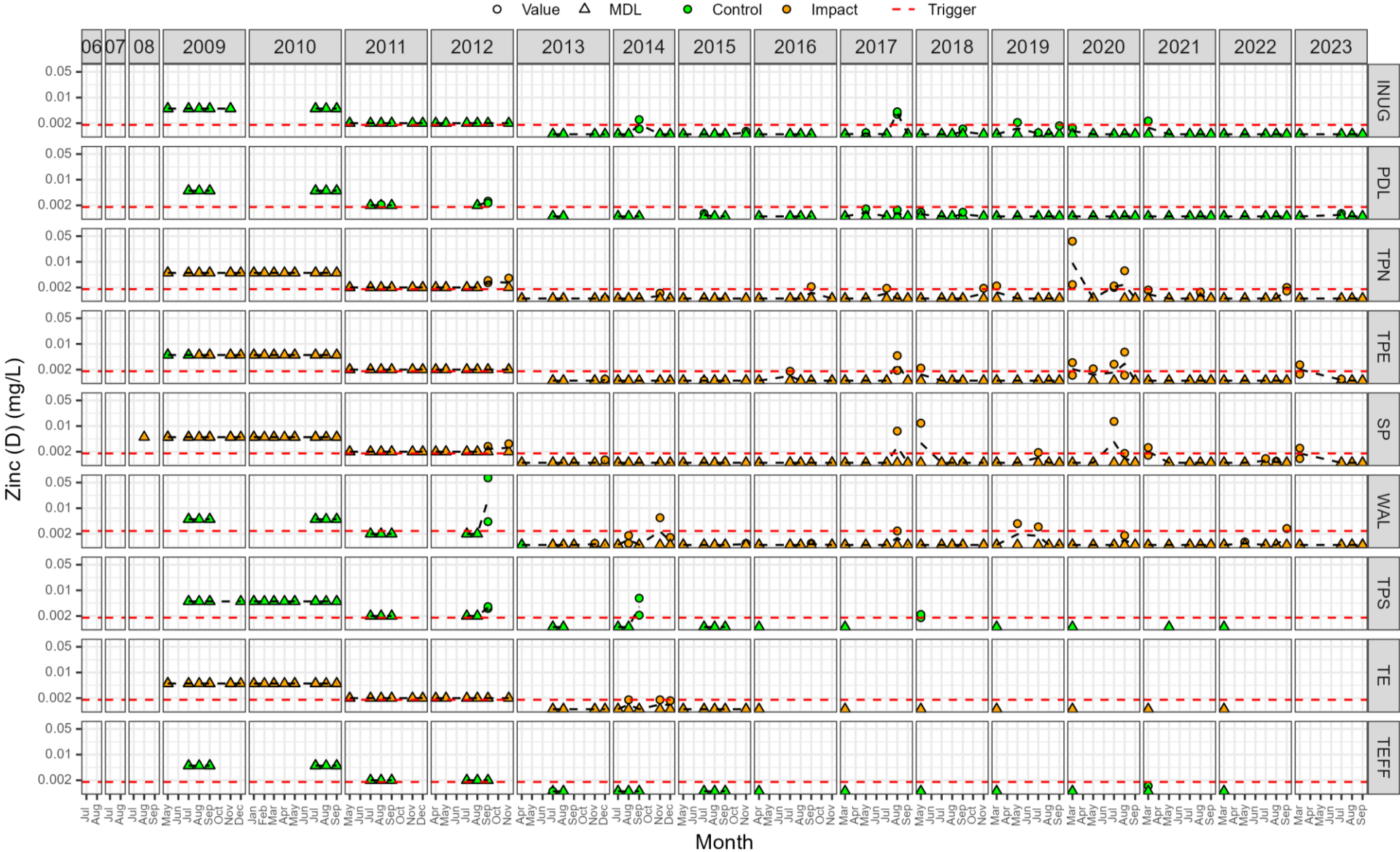


Figure B1-79. Dissolved zinc (mg/L).



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Appendix B2

Water Chemistry – Whale Tail Study Area Lakes

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Table B2-1. Water quality results from the Whale Tail study area lakes, 2023.

Lake & Area		Aquatic Life Guideline ¹	WTP Screening Values ²		Whale Tail Lake South Basin (Impoundment)											
					March	March	July	July	August	August	September	September	November	November		
					WTS-77	WTS-78	WTS-79	WTS-80	WTS-81	WTS-82	WTS-83	WTS-84	WTS-85	WTS-86		
					07-Mar-2023	07-Mar-2023	02-Jul-2023	02-Jul-2023	14-Aug-2023	14-Aug-2023	07-Sep-2023	07-Sep-2023	07-Nov-2023	07-Nov-2023		
Date	Time			11:05	10:40	14:45	14:20	15:00	15:30	09:11	08:14	16:50	17:10			
ALS Sample ID				VA23A5397-001	VA23A5397-002	VA23B5555-001	VA23B5555-002	VA23B9996-007 VA23C0547-011	VA23B9996-008 VA23C0547-012	VA23C1748-007	VA23C1748-008	VA23C7441-003	VA23C7441-004			
Field Measurements (3 m)																
Dissolved Oxygen (mg/L)						14.7	13.0	11.7	11.3	9.6	9.6	11.3	11.3	14.1	14.4	
Specific Conductivity (µS/cm)						172	167	121	121	117	117	116	116	118	119	
pH				6.5 - 9.0		7.4	7.4	7.7	7.7	7.4	7.4	7.2	7.3	7.1	7.1	
Temperature (°C)						0.58	0.60	10.6	12.3	16.6	16.8	7.0	7.0	0.18	0.20	
Physical Tests (mg/L)																
Conductivity (µS/cm)						163	161	122	121	116	116	117	118	121	122	
Alkalinity - Total (as CaCO ₃)						26	26	17.1	17.3	17.8	17.9	19.4	18.9	18.9	19.0	
Alkalinity - Bicarbonate						26	26	17.1	17.3	17.8	17.9	19.4	18.9	18.9	19.0	
Alkalinity - Carbonate						<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Alkalinity - Hydroxide						<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Hardness (as CaCO ₃), dissolved				17.4		60	60	44	43	41	41	42	39	46	45	
Hardness (as CaCO ₃), from total Ca/Mg						60	58	44	42	41	42	42	43	45	44	
pH (Laboratory)				6.5 - 9.0	6.5-9.0	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	
Total Dissolved Solids						114	120	78	83	106	121	77	71	71	73	
Total Suspended Solids				3	5	<1.0	<1.0	1.8	1.4	1.2	1.3	<1.0	<1.0	<1.0	<1.0	
Turbidity (NTU)						0.24	0.16	0.68	0.58	0.47	0.59	0.47	0.47	0.47	0.53	
Anions and Nutrients (mg/L)																
Total Kjeldahl Nitrogen				0.17		0.44	0.36	0.23	0.24	0.29	0.42	0.24	0.24	0.24	0.24	
Ammonia (as N) ³				equation	0.065	0.126	0.22	0.14	0.0090	0.015	0.012	0.032	0.022	0.031	0.027	
Bromide						0.21	0.21	0.13	0.13	0.11	0.11	0.12	0.13	0.14	0.13	
Chloride				120	60.4	120	19.4	19.1	13.0	12.9	12.4	12.3	12.7	13.2	13.3	
Fluoride				0.12	0.077	0.12	0.083	0.083	0.056	0.052	0.059	0.060	0.060	0.061	0.060	
Nitrate (as N)				3	1.5	3	0.79	0.68	0.57	0.54	0.31	0.30	0.28	0.34	0.34	
Nitrite (as N)				0.06	0.031	0.06	0.0094	0.0084	0.0050	0.0044	0.0024	0.0028	<0.0010	<0.0010	<0.0010	
Ortho Phosphate (as P)					0.0022		0.0012	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Phosphorus (P)-Total				0.01	0.0045	0.01	0.0066	0.0068	0.0065	0.011	0.0054	0.0060	0.0055	0.0060	0.0052	
Phosphorus (P)-Total Diss.							0.0028	0.0031	0.0054	0.0060	0.0032	0.0033	0.0029	0.0029	0.0031	
Reactive Silica (as SiO ₂)					1.33		1.3	1.1	0.63	0.53	<0.50	<0.50	<0.50	<0.50	<0.50	
Sulphate (SO ₄)					64.8	128	22	20	13.4	13.2	12.5	12.1	12.4	12.3	13.4	
Cyanides (mg/L)																
Free Cyanide				0.005			-	-	-	-	-	-	-	-	-	
Total Cyanide							-	-	-	-	-	-	-	-	-	
Organic / Inorganic Carbon (mg/L)																
Dissolved Organic Carbon					2.43		3.4	3.8	2.7	2.8	3.1	3.0	4.1	4.0	3.7	
Total Organic Carbon					2.42		3.7	3.9	2.6	2.8	3.1	3.1	3.8	3.6	4.0	
Total Metals (mg/L)																
Aluminum ³				equation	0.052	0.1	0.0045	0.0078	0.018	0.014	0.0056	0.0089	0.0085	0.011	0.012	
Antimony					0.0046	0.009	0.0013	0.0013	0.00066	0.00065	0.00060	0.00061	0.00058	0.00048	0.00050	
Arsenic				0.005	0.013	0.025	0.00086	0.00091	0.0010	0.00091	0.00091	0.00096	0.00077	0.00080	0.00060	
Barium					0.5	1	0.026	0.025	0.019	0.018	0.018	0.018	0.017	0.017	0.017	
Beryllium					0.000115	0.00013	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	
Bismuth							<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron				1.5	0.76	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium ³				equation	0.000023	0.00004	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Calcium					4.6		16.4	15.9	11.9	11.7	11.5	11.7	11.3	11.5	11.5	
Chromium ⁴				0.001	0.0025	0.005	0.00016	0.00020	0.00068	0.00024	0.00018	0.00020	0.00018	0.00017	0.00014	
Cobalt							0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper ³				equation	0.0013	0.002	0.00066	0.00069	0.00064	0.00055	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Iron				0.3	0.16	0.3	0.027	0.067	0.059	0.052	0.059	0.049	0.052	0.036	0.038	
Lead ⁴				equation	0.00053	0.001	<0.000050	<0.000050	0.00012	0.00006	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Lithium					0.002		0.0026	0.0026	0.0020	0.0020	0.0019	0.0020	0.0018	0.0019	0.0020	
Magnesium					1.41		4.6	4.5	3.4	3.1	3.1	3.1	3.3	3.4	3.7	
Manganese ³					0.32	See note 3	0.016	0.0066	0.013	0.012	0.015	0.015	0.0099	0.011	0.0047	
Mercury				0.000026	0.000016	0.000026	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.00001	
Molybdenum				0.073	0.037	0.073	0.0020	0.0013	0.0012	0.0012	0.0011	0.0011	0.00096	0.00094	0.00072	
Nickel ³				equation	0.013	0.025	0.0040	0.0039	0.0026	0.0023	0.0017	0.0017	0.0016	0.0015	0.0014	
Phosphorus					0.0045	0.004	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Potassium					0.84		4.0	4.0	3.0	2.9	3.0	3.0	2.9	3.0	3.2	
Rubidium							0.0060	0.0058	0.0045	0.0043	0.0049	0.0044	0.0045	0.0046	0.0047	
Selenium				0.001	0.00053	0.001	0.00008	0.00006	<0.000050	<0.000050	0.00006	<0.000050	<0.000050	<0.000050	<0.000050	
Silicon					0.61		0.66	0.55	0.36	0.32	<0.10	<0.10	<0.10	0.12	0.15	
Silver				0.00025	0.00013	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium					1		3.7	3.7	2.7	2.7	2.5	2.5	2.5	2.6	2.5	
Strontium					1.26	2.5	0.13	0.13	0.095	0.093	0.088	0.089	0.090	0.091	0.092	
Sulfur							7.0	6.7	4.1	4.3	4.3	4.5	4.1	4.4	4.8	
Tellurium							<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Thallium				0.0008	0.00013	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
Thorium							<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Tin					0.033		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium					0.00041		<0.00030	<0.00030	0.00060	0.00051	<0.00030	<0.00030	0.00030	0.00037	0.00048	
Tungsten							<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium				0.015	0.0002	0.015	0.00022	0.00018	0.00012	0.00011	0.00007	0.00007	0.00006	0.00006	0.00007	
Vanadium					0.0006	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Zinc				0.03	0.0075	See note 3	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
Zirconium							<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Dissolved Metals (mg/L)																
Aluminum ³					0.026	0.05	0.0062	0.0042	0.0025	0.0033	0.0018	0.0026	0.0027	0.0026	0.0034	
Antimony					0.005	0.009	0.0012	0.0012	0.00065	0.00062	0.00059	0.00059	0.00051	0.00046	0.00051	
Arsenic					0.013	0.025	0.00073	0.00074	0.00081	0.00084	0.00081	0.00080	0.00069	0.00066	0.00057	
Barium					0.5	1	0.023	0.022	0.019	0.018	0.017	0.017	0.017	0.016	0.018	
Beryllium				0.000115	0.00013		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	
Bismuth							<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Boron					0.76	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Cadmium				0.000023	0.00004		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
Calcium					4.6		15.9	15.8	12.2	12.2	11.3	11.2	11.6	10.5	12.3	
Cesium							0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	
Chromium				0.0026	0.0005		0.00017	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	0.00017	
Cobalt							<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Copper				0.0012	0.002		0.00059	0.00058	0.00047	0.00049	0.00041	0.00040	0.00042	0.00042	0.00052	
Iron					0.16	0.3	0.017	0.014	0.015	0.019	0.012	0.015	0.019	0.020	0.011	
Lead				0.00053	0.001		<0.000050	<0.000050	<0.000050	<						

Table B2-1. Water quality results from the Whale Tail study area lakes, 2023.

Lake & Area		Aquatic Life Guideline ¹	WTP Screening Values ²		Kangisulilik Lake*											
Month	Area-Replicate ID				March	March	July	July	August	August	September	September	November	November		
Date	Time		07-Mar-2023	07-Mar-2023	03-Jul-2023	03-Jul-2023	15-Aug-2023	15-Aug-2023	10-Sep-2023	10-Sep-2023	07-Nov-2023	07-Nov-2023				
			14:40	14:00	11:40	11:15	8:40	9:20	11:10	11:53	15:41	15:19				
ALS Sample ID			VA23A5397-003	VA23A5397-004	VA23B5555-009	VA23B5555-010	VA23B9996-005 VA23C0547-013	VA23B9996-006 VA23C0547-014	VA23C1748-017	VA23C1748-018	VA23C7441-001	VA23C7441-002				
Field Measurements (3 m)																
Dissolved Oxygen (mg/L)				12.8	12.7	10.7	10.7	9.5	9.4	12.0	11.9	14.9	14.4			
Specific Conductivity (µS/cm)				222	190	154	124	137	166	192	144	190	174			
pH	6.5 - 9.0			7.3	7.7	7.6	7.6	7.4	7.6	7.4	7.4	7.1	7.1			
Temperature (°C)				1.1	1.1	12.3	12.1	16.2	16.2	6.4	6.4	0.42	0.43			
Physical Tests (mg/L)																
Conductivity (µS/cm)			48.6	216	184	157	126	134	162	197	150	195	178			
Alkalinity - Total (as CaCO ₃)			9.61	29	25	17.8	16.3	17.7	19.2	23	19.4	24	23			
Alkalinity - Bicarbonate			9.60	29	25	17.8	16.3	17.7	19.2	23	19.4	24	23			
Alkalinity - Carbonate			2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Alkalinity - Hydroxide				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Hardness (as CaCO ₃), dissolved		17.4		80	65	54	44	48	58	72	53	72	58			
Hardness (as CaCO ₃), from total Ca/Mg				79	66	53	44	48	56	72	55	73	64			
pH (Laboratory)	6.5 - 9.0	6.57-7.97	6.5-9.0	7.5	7.4	7.5	7.4	7.5	7.5	7.5	7.5	7.6	7.5			
Total Dissolved Solids			38.5	158	119	93	82	125	144	140	99	119	108			
Total Suspended Solids			3	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	1.3	1.1	<1.0	<1.0			
Turbidity (NTU)				0.12	<0.10	0.41	0.36	0.24	0.26	0.35	0.32	0.26	0.26			
Anions and Nutrients (mg/L)																
Total Kjeldahl Nitrogen		0.17		0.28	0.24	0.29	0.17	0.26	0.29	0.37	0.20	0.24	0.21			
Ammonia (as N) ³	equation	0.065	0.126	0.066	0.052	0.068	0.019	0.046	0.019	0.095	0.011	0.018	0.018			
Bromide				0.30	0.25	0.19	0.14	0.14	0.19	0.27	0.19	0.26	0.24			
Chloride	120	60.4	120	27	23	18.7	14.4	15.4	20	25	17.7	23	21			
Fluoride	0.12	0.077	0.12	0.078	0.073	0.050	0.047	0.054	0.059	0.058	0.052	0.058	0.061			
Nitrate (as N)	3	1.5	3	1.1	0.88	0.74	0.47	0.35	0.53	0.90	0.41	0.83	0.69			
Nitrite (as N)	0.06	0.031	0.06	0.0049	0.0039	0.0062	0.0027	0.0034	0.0041	0.011	0.0018	0.0016	0.0015			
Ortho Phosphate (as P)		0.0022		0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010			
Phosphorus (P)-Total	0.01	0.0045	0.01	0.0048	0.0048	0.0041	0.0046	0.0025	0.0027	0.0038	0.0044	0.0034	0.0034			
Phosphorus (P)-Total Diss.				0.0024	<0.0020	0.0029	0.0025	0.0025	0.0024	0.0023	<0.0020	0.0025	0.0024			
Reactive Silica (as SiO ₂)		1.33		1.5	1.3	0.71	0.53	0.54	0.69	0.99	0.69	<0.50	0.82			
Sulphate (SO ₄)		64.8	128	31	26	19.0	15.1	15.5	18.5	25	17.8	26	23			
Cyanides (mg/L)																
Free Cyanide	0.005			-	-	-	-	<0.0010	<0.0010	-	-	-	-			
Total Cyanide				-	-	-	-	<0.0010	<0.0010	-	-	-	-			
Organic / Inorganic Carbon (mg/L)																
Dissolved Organic Carbon		2.43		2.9	2.5	1.9	1.9	2.2	2.3	3.0	3.6	3.8	3.2			
Total Organic Carbon		2.42		2.9	2.5	2.1	2.4	2.3	2.6	3.7	3.2	3.4	2.6			
Total Metals (mg/L)																
Aluminum ³	equation	0.052	0.1	0.0039	<0.0030	0.0097	0.0083	0.0060	0.0062	0.0048	0.0050	0.0033	<0.0030			
Antimony		0.0046	0.009	0.0016	0.0014	0.00094	0.00068	0.00080	0.0011	0.0015	0.00085	0.0012	0.00097			
Arsenic	0.005	0.013	0.025	0.0012	0.0010	0.0012	0.00092	0.0012	0.0018	0.0018	0.0011	0.00099	0.00084			
Barium		0.5	1	0.035	0.028	0.023	0.019	0.019	0.022	0.023	0.018	0.025	0.021			
Beryllium		0.000115	0.00013	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100			
Bismuth				<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			
Boron	1.5	0.76	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010			
Cadmium ³	equation	0.000023	0.00004	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			
Calcium		4.6		23	18.6	15.1	12.3	14.2	16.6	21	15.7	21	18.0			
Chromium ⁴	0.001	0.0025	0.005	0.00014	<0.00010	0.00020	0.00012	<0.00010	0.00020	<0.00010	<0.00010	<0.00010	<0.00010			
Cobalt				<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010			
Copper ³	equation	0.0013	0.002	0.00066	0.00061	0.00055	0.00054	0.00053	0.00057	0.00056	0.00052	<0.00050	<0.00050			
Iron	0.3	0.16	0.3	<0.010	<0.010	0.037	0.031	0.017	0.028	0.027	0.016	<0.010	<0.010			
Lead ³	equation	0.00053	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			
Lithium		0.002		0.0032	0.0027	0.0029	0.0020	0.0023	0.0032	0.0035	0.0025	0.0033	0.0028			
Magnesium		1.41		5.5	4.7	3.7	3.1	3.1	3.6	4.8	3.7	5.2	4.5			
Manganese ³		0.32	See note 3	0.0085	0.0023	0.022	0.0092	0.0051	0.0097	0.018	0.0059	0.0039	0.0038			
Mercury	0.000026	0.000016	0.000026	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			
Molybdenum	0.073	0.037	0.073	0.00083	0.00072	0.0016	0.00076	0.0011	0.0016	0.0019	0.0011	0.0012	0.0010			
Nickel ³	equation	0.013	0.025	0.0026	0.0017	0.0026	0.0015	0.0010	0.0015	0.0029	0.0012	0.0015	0.0013			
Phosphorus		0.0045	0.004	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050			
Potassium		0.84		5.4	4.5	3.6	3.0	3.3	3.8	4.3	3.5	4.5	4.0			
Rubidium				0.0064	0.0053	0.0045	0.0037	0.0046	0.0053	0.0054	0.0046	0.0053	0.0050			
Selenium	0.001	0.00053	0.001	0.00010	0.00006	0.00007	<0.000050	0.00007	0.00009	0.00008	<0.000050	0.00008	<0.000050			
Silicon		0.61		0.74	0.64	0.41	0.32	0.25	0.32	0.50	0.35	0.41	0.40			
Silver	0.00025	0.00013	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			
Sodium		1		4.5	3.8	3.2	2.7	2.8	3.1	3.7	3.0	3.5	3.1			

Table B2-1. Water quality results from the Whale Tail study area lakes, 2023.

Lake & Area		Aquatic Life Guideline ¹		WTP Screening Values ²		Lake A76									
						March	March	July	July	August	August	September	September		
						A76-69	A76-70	A76-71	A76-72	A76-73	A76-74	A76-75	A76-76		
						26-Mar-2023	26-Mar-2023	01-Jul-2023	01-Jul-2023	13-Aug-2023	13-Aug-2023	09-Sep-2023	09-Sep-2023		
Area-Replicate ID						10:15	10:55	14:00	13:30	10:55	10:00	11:30	11:16		
Date															
Time															
ALS Sample ID						VA23A7103-003	VA23A7103-004	VA23B5555-005	VA23B5555-006	VA23B9337-001 VA23C0547-023	VA23B9337-002 VA23C0547-024	VA23C1748-015	VA23C1748-016		
Field Measurements (3 m)															
Dissolved Oxygen (mg/L)						14.3	15.8	11.4	11.6	9.7	9.7	11.6	11.5		
Specific Conductivity (µS/cm)						115	30	88	88	92	91	98	98		
pH		6.5 - 9.0				7.3	7.4	7.6	7.7	6.8	6.6	7.1	7.1		
Temperature (°C)						0.91	0.69	11.1	10.1	17.3	17.1	7.0	7.0		
Physical Tests (mg/L)															
Conductivity (µS/cm)			48.6			120	125	89	89	92	90	93	94		
Alkalinity - Total (as CaCO ₃)			9.61			16.8	17.5	12.4	12.6	13.4	13.5	14.8	14.2		
Alkalinity - Bicarbonate			9.60			16.8	17.5	12.4	12.6	13.4	13.5	14.8	14.2		
Alkalinity - Carbonate			2.0			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity - Hydroxide						<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Hardness (as CaCO ₃), dissolved			17.4			47	48	32	33	32	31	32	32		
Hardness (as CaCO ₃), from total Ca/Mg						45	46	32	32	32	31	34	34		
pH (Laboratory)		6.5 - 9.0	6.57-7.97	6.5-9.0		7.1	7.2	7.3	7.3	7.2	7.2	7.3	7.4		
Total Dissolved Solids			38.5			80	83	57	62	57	60	64	73		
Total Suspended Solids			3	5		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Turbidity (NTU)						<0.10	0.12	0.26	0.26	0.29	0.29	0.34	0.33		
Anions and Nutrients (mg/L)															
Total Kjeldahl Nitrogen			0.17			0.20	0.24	0.13	0.14	0.18	0.15	0.15	0.15		
Ammonia (as N) ³		equation	0.065	0.126		0.032	0.042	<0.0050	<0.0050	0.0064	0.0071	0.0094	0.0086		
Bromide						0.15	0.16	0.094	0.092	0.10	0.11	0.091	0.094		
Chloride		120	60.4	120		15.2	15.9	10.6	10.6	10.8	10.7	10.7	10.7		
Fluoride		0.12	0.077	0.12		0.049	0.047	0.042	0.036	0.045	0.044	0.044	0.041		
Nitrate (as N)		3	1.5	3		0.12	0.10	0.064	0.066	0.011	0.0088	0.011	0.011		
Nitrite (as N)		0.06	0.031	0.06		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Ortho Phosphate (as P)			0.0022			0.0018	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total		0.01	0.0045	0.01		0.0035	0.0035	0.0036	0.0037	0.0030	0.0028	0.0033	0.0035		
Phosphorus (P)-Total Diss.						<0.0020	<0.0020	0.0030	0.0037	<0.0020	<0.0020	<0.0020	0.0020		
Reactive Silica (as SiO ₂)			1.33			0.97	0.97	0.65	0.65	<0.50	0.51	0.68	0.69		
Sulphate (SO ₄)			64.8	128		13.2	13.6	10.0	10.0	10.8	10.6	10.5	10.4		
Cyanides (mg/L)															
Free Cyanide		0.005				-	-	-	-	-	-	-	-		
Total Cyanide						-	-	-	-	-	-	-	-		
Organic / Inorganic Carbon (mg/L)															
Dissolved Organic Carbon			2.43			2.7	2.7	1.8	1.7	2.2	2.1	2.6	2.9		
Total Organic Carbon			2.42			2.5	2.5	1.6	1.9	2.3	2.2	2.8	3.1		
Total Metals (mg/L)															
Aluminum ³		equation	0.052	0.1		<0.0030	<0.0030	0.0057	0.0063	0.0032	0.0032	0.0059	0.0064		
Antimony			0.0046	0.009		0.00032	0.00032	0.00024	0.00026	0.00026	0.00026	0.00026	0.00026		
Arsenic		0.005	0.013	0.025		0.00032	0.00034	0.00030	0.00028	0.00034	0.00035	0.00036	0.00036		
Barium			0.5	1		0.020	0.020	0.015	0.015	0.012	0.012	0.013	0.012		
Beryllium			0.000115	0.00013		<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100		
Bismuth						<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Boron		1.5	0.76	1.5		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Cadmium ³		equation	0.000023	0.00004		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Calcium			4.6			12.6	12.7	8.8	8.9	8.9	8.8	9.4	9.3		
Chromium ⁴		0.001	0.0025	0.005		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Cobalt						<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Copper ³		equation	0.0013	0.002		0.00051	0.00053	0.00054	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Iron		0.3	0.16	0.3		<0.010	<0.010	0.023	0.023	0.025	0.023	0.027	0.025		
Lead ⁴		equation	0.00053	0.001		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Lithium			0.002			0.0012	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Magnesium			1.41			3.4	3.4	2.4	2.3	2.3	2.2	2.6	2.6		
Manganese ³			0.32	See note 3		0.00093	0.0012	0.0052	0.0051	0.0052	0.0049	0.0044	0.0043		
Mercury		0.000026	0.000016	0.000026		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Molybdenum		0.073	0.037	0.073		0.00013	0.00016	0.00012	0.00013	0.00015	0.00015	0.00016	0.00015		
Nickel ³		equation	0.013	0.025		0.00096	0.0010	0.00097	0.00096	0.00067	0.00073	0.00078	0.00075		
Phosphorus			0.0045	0.004		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Potassium			0.84			2.7	2.8	2.0	2.0	1.9	1.9	2.1	2.1		
Rubidium						0.0029	0.0030	0.0022	0.0021	0.0024	0.0023	0.0024	0.0023		
Selenium		0.001	0.00053	0.001		<0.000050	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Silicon			0.61			0.47	0.47	0.36	0.36	0.25	0.29	0.35	0.34		
Silver		0.00025	0.00013	0.00025		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Sodium			1			2.1	2.1	1.6	1.6	1.6	1.6	1.8	1.8		
Strontium			1.26	2.5		0.072	0.076	0.057	0.057	0.057	0.058	0.061	0.061		
Sulfur						4.7	5.1	3.2	3.2	3.4	3.5	3.6	3.6		
Tellurium						<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		
Thallium		0.0008	0.00013	0.0008		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Thorium						0.00012	<0.00010	<0.00010	0.00021	<0.00010	<0.00010	<0.00010	<0.00010		
Tin			0.033			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Titanium			0.00041			<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
Tungsten						<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000100			

Table B2-1. Water quality results from the Whale Tail study area lakes, 2023.

Lake & Area		Aquatic Life Guideline ¹		WTP Screening Values ²		Lake D51							
Month	March					March	July	July	August	August	September	September	
Area-Replicate ID	D51-67					D51-68	D51-69	D51-70	D51-71	D51-72	D51-73	D51-74	
Date	25-Mar-2023					25-Mar-2023	01-Jul-2023	01-Jul-2023	17-Aug-2023	17-Aug-2023	09-Sep-2023	09-Sep-2023	
Time	10:45	11:55	11:20	12:10	9:30	8:30	09:47	09:25					
ALS Sample ID													
Field Measurements (3 m)													
Dissolved Oxygen (mg/L)				16.0	15.1	10.4	10.9	9.6	9.8	11.6	11.8		
Specific Conductivity (µS/cm)				37	58	30	21	28	41	29	43		
pH	6.5 - 9.0			6.8	6.8	7.5	7.4	7.3	7.3	6.8	6.8		
Temperature (°C)				0.55	0.62	13.3	12.7	15.4	14.2	7.0	6.3		
Physical Tests (mg/L)													
Conductivity (µS/cm)		48.6		38	61	30	22	27	39	28	42		
Alkalinity - Total (as CaCO ₃)		9.61		9.0	12.6	6.8	4.9	6.0	8.0	6.7	8.6		
Alkalinity - Bicarbonate		9.60		9.0	12.6	6.8	4.9	6.0	8.0	6.7	8.6		
Alkalinity - Carbonate		2.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity - Hydroxide				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Hardness (as CaCO ₃), dissolved		17.4		18.0	23	10.5	7.2	9.3	13.9	9.0	13.0		
Hardness (as CaCO ₃), from total Ca/Mg				13.6	22	10.2	7.3	9.5	13.9	9.3	14.0		
pH (Laboratory)	6.5 - 9.0	6.57-7.97	6.5-9.0	7.1	6.9	7.0	6.9	7.0	7.1	7.0	7.1		
Total Dissolved Solids		38.5		17.6	36	15.4	15.6	24	33	21	30		
Total Suspended Solids		3	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	1.2		
Turbidity (NTU)				0.14	0.17	0.46	0.42	0.37	0.48	0.60	0.66		
Anions and Nutrients (mg/L)													
Total Kjeldahl Nitrogen		0.17		0.15	0.19	0.14	0.13	0.15	0.18	0.16	0.18		
Ammonia (as N) ³	equation	0.065	0.126	0.021	0.028	<0.0050	0.011	0.0053	<0.0050	0.020	0.0089		
Bromide				<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Chloride	120	60.4	120	3.2	5.7	2.6	1.7	2.1	3.7	2.4	3.6		
Fluoride	0.12	0.077	0.12	0.059	0.054	0.035	0.058	0.056	0.044	0.055	0.038		
Nitrate (as N)	3	1.5	3	0.019	0.051	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.010		
Nitrite (as N)	0.06	0.031	0.06	0.0015	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Ortho Phosphate (as P)		0.0022		0.0017	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total	0.01	0.0045	0.01	0.0040	0.0033	0.0043	0.0043	0.0028	0.0051	0.0041	0.0044		
Phosphorus (P)-Total Diss.				0.0024	0.0028	0.0032	0.0027	0.0026	0.0030	0.0023	0.0029		
Reactive Silica (as SiO ₂)		1.33		0.94	2.7	0.78	0.53	0.67	1.1	0.96	2.1		
Sulphate (SO ₄)		64.8	128	2.6	5.0	2.4	1.7	1.9	3.0	1.9	3.8		
Cyanides (mg/L)													
Free Cyanide	0.005			-	-	-	-	-	-	-	-		
Total Cyanide				-	-	-	-	-	-	-	-		
Organic / Inorganic Carbon (mg/L)													
Dissolved Organic Carbon		2.43		4.3	3.9	2.3	2.0	2.3	2.1	2.4	3.5		
Total Organic Carbon		2.42		3.4	4.1	2.4	2.3	2.1	2.2	2.7	3.6		
Total Metals (mg/L)													
Aluminum ³	equation	0.052	0.1	0.0045	0.0071	0.017	0.020	0.0080	0.010	0.020	0.029		
Antimony		0.0046	0.009	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Arsenic	0.005	0.013	0.025	0.00017	0.00016	0.00012	0.00013	0.00018	0.00016	0.00014	0.00017		
Barium		0.5	1	0.0064	0.010	0.0054	0.0048	0.0051	0.0063	0.0047	0.0059		
Beryllium		0.000115	0.00013	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100		
Bismuth				<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Boron	1.5	0.76	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Cadmium ³	equation	0.000023	0.00004	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Calcium		4.6		3.5	5.9	2.8	1.9	2.5	3.8	2.4	3.8		
Chromium ⁴	0.001	0.0025	0.005	0.00018	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00043		
Cobalt				<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Copper ³	equation	0.0013	0.002	<0.00050	0.00051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00063		
Iron	0.3	0.16	0.3	<0.010	0.019	0.064	0.037	0.046	0.12	0.054	0.092		
Lead ³	equation	0.00053	0.001	<0.000050	<0.000050	<0.000050	0.00006	<0.000050	<0.000050	<0.000050	<0.000050		
Lithium		0.002		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Magnesium		1.41		1.2	1.7	0.80	0.60	0.80	1.1	0.80	1.1		
Manganese ³		0.32	See note 3	0.00098	0.0026	0.0022	0.0019	0.0042	0.0055	0.0031	0.0026		
Mercury	0.000026	0.000016	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Molybdenum	0.073	0.037	0.073	0.00007	0.00007	0.00013	<0.000050	0.00007	0.00008	<0.000050	0.00011		
Nickel ³	equation	0.013	0.025	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0013		
Phosphorus		0.0045	0.004	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Potassium		0.84		0.69	1.2	0.62	0.45	0.57	0.86	0.51	0.74		
Rubidium				0.00090	0.0013	0.00078	0.00067	0.00080	0.0012	0.00071	0.00085		
Selenium	0.001	0.00053	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Silicon		0.61		0.47	1.3	0.44	0.32	0.31	0.51	0.46	1.1		
Silver	0.00025	0.00013	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Sodium		1		1.2	1.9	0.94	0.80	0.88	1.1	1.1	1.5		
Strontium		1.26	2.5	0.017	0.030	0.016	0.011	0.014	0.022	0.013	0.021		
Sulfur				0.86	2.0	0.59	<0.50	0.74	1.1	0.60	1.3		
Tellurium				<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		
Thallium	0.0008	0.00013	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Thorium				<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin		0.033		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Titanium		0.00041		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00038	0.00051		
Tungsten				<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Uranium	0.015	0.0002	0.015	0.00004	0.00005	0.00005	0.00005	0.00004	0.00003	0.00004	0.00006		
Vanadium		0.0006	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Zinc	0.03	0.0075	See note 3	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		
Zirconium				<0.00020	<0.00020	<0.00020							

Table B2-1. Water quality results from the Whale Tail study area lakes, 2023.

Lake & Area		Aquatic Life Guideline ¹		WTP Screening Values ²		Nemo Lake							
Month	Area-Replicate ID					March	March	July	July	August	August	September	September
Date						NEM-77	NEM-78	NEM-79	NEM-80	NEM-81	NEM-82	NEM-83	NEM-84
Time						08-Mar-2023	08-Mar-2023	30-Jun-2023	30-Jun-2023	16-Aug-2023	16-Aug-2023	08-Sep-2023	08-Sep-2023
						10:30	11:15	16:25	15:00	8:00	8:45	11:30	10:46
ALS Sample ID				VA23A5397-005	VA23A5397-006	VA23B5555-011	VA23B5555-012	VA23B9996-009 VA23C0547-015	VA23B9996-010 VA23C0547-016	VA23C1748-011	VA23C1748-012		
Field Measurements (3 m)													
Dissolved Oxygen (mg/L)				15.0	17.4	11.6	11.6	9.6	9.6	11.5	11.3		
Specific Conductivity (µS/cm)				104	122	84	84	88	88	91	91		
pH		6.5 - 9.0		6.9	7.0	7.5	7.5	7.2	7.2	7.3	7.4		
Temperature (°C)				0.74	0.49	10.2	9.7	15.6	15.6	7.0	7.3		
Physical Tests (mg/L)													
Conductivity (µS/cm)			48.6	104	122	86	86	85	85	87	87		
Alkalinity - Total (as CaCO ₃)			9.61	13.8	16.0	12.3	12.2	11.9	11.8	13.4	13.1		
Alkalinity - Bicarbonate			9.60	13.8	16.0	12.3	12.2	11.9	11.8	13.4	13.1		
Alkalinity - Carbonate			2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Alkalinity - Hydroxide				<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Hardness (as CaCO ₃), dissolved			17.4	40	47	33	33	34	33	31	31		
Hardness (as CaCO ₃), from total Ca/Mg				40	49	32	32	33	32	32	32		
pH (Laboratory)		6.5 - 9.0	6.57-7.97	6.5-9.0	7.2	7.3	7.3	7.3	7.3	7.3	7.3		
Total Dissolved Solids			38.5	73	91	61	63	99	96	67	65		
Total Suspended Solids			3		<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0		
Turbidity (NTU)				<0.10	<0.10	0.37	0.38	0.17	0.15	0.20	0.28		
Anions and Nutrients (mg/L)													
Total Kjeldahl Nitrogen			0.17	0.14	0.16	0.13	0.13	0.15	0.14	0.12	0.12		
Ammonia (as N) ³		equation	0.065	0.126	0.019	0.023	<0.0050	<0.0050	0.0056	0.0075	<0.0050		
Bromide				0.12	0.15	0.081	0.082	0.081	0.085	0.077	0.073		
Chloride		120	60.4	120	18.6	22	13.9	13.9	13.2	13.5	13.4		
Fluoride		0.12	0.077	0.12	0.040	0.043	0.034	0.030	0.031	0.028	0.026		
Nitrate (as N)		3	1.5	3	0.011	0.016	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050		
Nitrite (as N)		0.06	0.031	0.06	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Ortho Phosphate (as P)			0.0022	0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		
Phosphorus (P)-Total		0.01	0.0045	0.01	0.0036	0.0035	0.0035	0.0037	0.0021	0.0028	0.0030		
Phosphorus (P)-Total Diss.				0.0031	<0.0020	0.0024	0.0027	<0.0020	0.0025	<0.0020	0.0023		
Reactive Silica (as SiO ₂)			1.33	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		
Sulphate (SO ₄)			64.8	128	6.2	7.4	4.5	4.5	4.5	4.4	4.9		
Cyanides (mg/L)													
Free Cyanide		0.005			-	-	-	-	-	-	-		
Total Cyanide					-	-	-	-	-	-	-		
Organic / Inorganic Carbon (mg/L)													
Dissolved Organic Carbon			2.43	2.0	2.4	1.7	1.6	1.7	1.8	2.8	2.6		
Total Organic Carbon			2.42	2.0	2.3	1.9	1.8	1.8	1.7	2.9	2.6		
Total Metals (mg/L)													
Aluminum ³		equation	0.052	0.1	<0.0030	<0.0030	0.012	0.012	0.0052	0.0047	0.0044		
Antimony			0.0046	0.009	0.00011	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Arsenic		0.005	0.013	0.025	0.00077	0.00095	0.00093	0.00091	0.0010	0.0010	0.00088		
Barium			0.5	1	0.019	0.024	0.017	0.016	0.016	0.015	0.014		
Beryllium			0.000115	0.00013	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100		
Bismuth					<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Boron		1.5	0.76	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		
Cadmium ³		equation	0.000023	0.00004	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Calcium			4.6		12.0	14.5	9.3	9.3	9.8	9.5	9.4		
Chromium ⁴		0.001	0.0025	0.005	<0.00010	<0.00010	0.00029	0.00026	0.00035	0.00016	<0.00010		
Cobalt					<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Copper ³		equation	0.0013	0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Iron		0.3	0.16	0.3	<0.010	<0.010	0.028	0.027	0.012	0.012	0.012		
Lead ³		equation	0.00053	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Lithium			0.002		0.0015	0.0019	0.0012	0.0012	0.0012	0.0011	0.0012		
Magnesium			1.41		2.5	3.1	2.1	2.1	2.1	2.1	2.1		
Manganese ³			0.32	See note 3	0.0019	0.0013	0.0062	0.0063	0.0043	0.0040	0.0035		
Mercury		0.000026	0.000016	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		
Molybdenum		0.073	0.037	0.073	0.00009	0.00011	0.00007	0.00008	0.00009	0.00008	0.00008		
Nickel ³		equation	0.013	0.025	0.0014	0.0017	0.0015	0.0016	0.0012	0.0012	0.0011		
Phosphorus			0.0045	0.004	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Potassium			0.84		1.9	2.4	1.6	1.6	1.7	1.6	1.5		
Rubidium					0.0028	0.0034	0.0025	0.0025	0.0028	0.0027	0.0025		
Selenium		0.001	0.00053	0.001	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		
Silicon			0.61		0.18	0.22	0.18	0.18	0.16	0.15	0.18		
Silver		0.00025	0.00013	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Sodium			1		1.1	1.4	0.90	0.89	0.91	0.89	0.81		
Strontium			1.26	2.5	0.072	0.088	0.059	0.058	0.058	0.056	0.059		
Sulfur					2.0	2.4	1.4	1.4	1.8	1.7	1.6		
Tellurium					<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		
Thallium		0.0008	0.00013	0.0008	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		
Thorium					0.00016	0.00021	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Tin			0.033		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Titanium			0.00041		<0.00030	<0.00030	0.00049	0.00039	<0.00030	<0.00030	<0.00030		
Tungsten					<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		
Uranium		0.015	0.0002	0.015	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002		
Vanadium			0.0006	0.12	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		
Zinc		0.03	0.0075	See note 3	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		
Zirconium					<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		
Dissolved Metals (mg/L)													
Aluminum ³			0.026	0.05	<0.0010	<0.0010	0.0019	0.0020	0.0030	0.0024	0.0019		
Antimony			0.005	0.009	<0.00010	<0.00							

Table B2-2. Water quality results screened against FEIS predicted concentrations for Whale Tail Lake – South Basin, 2023.

Lake & Area	WTS FEIS Predictions					Whale Tail Lake South Basin (Impoundment)									
Month						March	March	July	July	August	August	September	September	November	November
Area-Replicate ID						WTS-77	WTS-78	WTS-79	WTS-80	WTS-81	WTS-82	WTS-83	WTS-84	WTS-85	WTS-86
Date	07-Mar-2023	07-Mar-2023	02-Jul-2023	02-Jul-2023	14-Aug-2023	14-Aug-2023	07-Sep-2023	07-Sep-2023	07-Nov-2023	07-Nov-2023					
Time	11:05	10:40	14:45	14:20	15:00	15:30	09:11	08:14	16:50	17:10					
ALS Sample ID	March	July	August	September	November	VA23A5397-001	VA23A5397-002	VA23B5555-001	VA23B5555-002	VA23B9996-007 VA23C0547-011	VA23B9996-008 VA23C0547-012	VA23C1748-007	VA23C1748-008	VA23C7441-003	VA23C7441-004
Physical Tests (mg/L)															
Alkalinity - Total (as CaCO3)	8.6	8.7	9.4	9.9	10.0	26	26	17.1	17.3	17.8	17.9	19.4	18.9	18.9	19.0
Total Dissolved Solids	27	31	34	36	36	114	120	78	83	106	121	77	71	71	73
Anions and Nutrients (mg/L)															
Ammonia (as N)	0.062	0.10	0.13	0.16	0.17	0.22	0.14	0.0090	0.015	0.017	0.012	0.032	0.022	0.031	0.027
Chloride	5.7	6.8	7.4	7.8	7.9	19.4	19.1	13.0	12.9	12.4	12.3	12.7	12.7	13.2	13.3
Fluoride	0.045	0.045	0.049	0.051	0.051	0.083	0.083	0.056	0.052	0.059	0.060	0.060	0.061	0.060	0.060
Nitrate (as N)	0.93	1.4	1.5	1.6	1.6	0.79	0.68	0.57	0.54	0.31	0.30	0.28	0.28	0.34	0.34
Phosphorus (P)-Total	0.0081	0.0096	0.010	0.010	0.010	0.0066	0.0068	0.0065	0.011	0.0054	0.0060	0.0055	0.0060	0.0054	0.0052
Sulphate (SO ₄)	3.9	4.0	4.5	4.9	5.0	22	20	13.4	13.2	12.5	12.1	12.4	12.3	13.4	13.5
Total Metals (mg/L)															
Aluminum	0.0040	0.0038	0.0039	0.0039	0.0039	0.0045	0.0078	0.018	0.014	0.0056	0.0089	0.0085	0.011	0.012	0.014
Antimony	0.00044	0.00044	0.00052	0.00058	0.00058	0.0013	0.0013	0.00066	0.00065	0.00060	0.00061	0.00058	0.00058	0.00048	0.00050
Arsenic	0.0094	0.011	0.012	0.013	0.013	0.00086	0.00091	0.0010	0.00091	0.00091	0.00096	0.00077	0.00080	0.00060	0.00056
Barium	0.0073	0.0075	0.0081	0.0084	0.0085	0.026	0.025	0.019	0.018	0.018	0.018	0.017	0.017	0.017	0.017
Beryllium	0.00002	0.00002	0.00002	0.00002	0.00002	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth	0.00005	0.00005	0.00005	0.00005	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	0.037	0.037	0.042	0.046	0.046	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	0.00001	0.00001	0.00001	0.00001	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	3.7	4.0	4.4	4.8	4.8	16.4	15.9	11.9	11.7	11.5	11.7	11.3	11.5	11.7	11.5
Chromium	0.00040	0.00040	0.00045	0.00049	0.00049	0.00016	0.00020	0.00068	0.00024	0.00018	0.00020	0.00018	0.00017	0.00014	0.00019
Cobalt	0.00028	0.00028	0.00032	0.00034	0.00035	0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper	0.00091	0.00089	0.00097	0.0010	0.0010	0.00066	0.00069	0.00064	0.00055	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Iron	0.052	0.053	0.055	0.058	0.059	0.027	0.027	0.067	0.059	0.052	0.059	0.049	0.052	0.036	0.038
Lead	0.00015	0.00015	0.00017	0.00018	0.00018	<0.000050	<0.000050	0.00012	0.00006	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	0.0014	0.0015	0.0016	0.0017	0.0017	0.0026	0.0026	0.0020	0.0020	0.0019	0.0020	0.0018	0.0019	0.0020	0.0020
Magnesium	1.2	1.2	1.3	1.3	1.3	4.6	4.5	3.4	3.1	3.1	3.1	3.3	3.4	3.7	3.7
Manganese	0.027	0.028	0.032	0.036	0.037	0.016	0.0066	0.013	0.012	0.015	0.015	0.0099	0.011	0.0047	0.0050
Mercury	0.00001	0.00001	0.00001	0.00001	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.00001	<0.0000050
Molybdenum	0.00052	0.00060	0.00066	0.00069	0.00070	0.0020	0.0013	0.0012	0.0012	0.0011	0.0011	0.00096	0.00094	0.00072	0.00074
Nickel	0.0026	0.0027	0.0032	0.0036	0.0036	0.0040	0.0039	0.0026	0.0023	0.0017	0.0017	0.0016	0.0015	0.0014	0.0014
Potassium	1.0	1.0	1.2	1.3	1.3	4.0	4.0	3.0	2.9	3.0	3.0	2.9	3.0	3.2	3.2
Selenium	0.00015	0.00017	0.00020	0.00022	0.00023	0.00008	0.00006	<0.000050	<0.000050	0.00006	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silver	0.00001	0.00001	0.00002	0.00002	0.00002	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	2.2	2.4	2.7	2.9	2.9	3.7	3.7	2.7	2.7	2.5	2.5	2.5	2.6	2.6	2.5
Strontium	0.024	0.027	0.029	0.031	0.032	0.13	0.13	0.095	0.093	0.088	0.089	0.090	0.091	0.092	0.090
Thallium	0.00001	0.00001	0.00001	0.00001	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	0.00012	0.00011	0.00012	0.00012	0.00012	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	0.00021	0.00023	0.00025	0.00027	0.00027	0.00022	0.00018	0.00012	0.00011	0.00007	0.00007	0.00006	0.00006	0.00007	0.00007
Vanadium	0.00071	0.00069	0.00075	0.00079	0.00080	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	0.0017	0.0018	0.0019	0.0021	0.0021	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

Notes:

Formatting for indicating the parameters that exceed the model predictions in the FEIS:

- 123** Bolded values exceed FEIS by < 10X.
- 123** Bold and shaded values exceed the FEIS by ≥ 10X.

Italicized numbers are below detection limits.

"-" not analyzed/not sampled.

Table B2-3. Water quality results screened against FEIS predicted concentrations for Kangislulik Lake, 2023.

Lake & Area	MAM/KAN FEIS Predictions					Kangislulik Lake*									
Month						March	March	July	July	August	August	September	September	November	November
Area-Replicate ID						MAM-77	MAM-78	MAM-79	MAM-80	MAM-81	MAM-82	MAM-83	MAM-84	MAM-85	MAM-86
Date						07-Mar-2023	07-Jul-2023	03-Jul-2023	03-Aug-2023	15-Aug-2023	15-Aug-2023	10-Sep-2023	10-Sep-2023	07-Nov-2023	07-Nov-2023
Time	March	July	August	September	November	14:40	14:00	11:40	11:15	8:40	9:20	11:10	11:53	15:41	15:19
ALS Sample ID						VA23A5397-003	VA23A5397-004	VA23B5555-009	VA23B5555-010	9996-005VA23C0547	9996-006VA23C0547	VA23C1748-017	VA23C1748-018	VA23C7441-001	VA23C7441-002
Physical Tests (mg/L)															
Alkalinity - Total (as CaCO ₃)	8.8	8.4	8.5	8.5	8.5	29	25	17.8	16.3	17.7	19.2	23	19.4	24	23
Total Dissolved Solids	39	33	33	33	33	158	119	93	82	125	144	140	99	119	108
Anions and Nutrients (mg/L)															
Ammonia (as N)	0.046	0.053	0.054	0.059	0.064	0.066	0.052	0.068	0.019	0.046	0.019	0.095	0.011	0.018	0.018
Chloride	14.0	10.5	10.6	10.3	10.0	27	23	18.7	14.4	15.4	20	25	17.7	23	21
Fluoride	0.044	0.043	0.043	0.043	0.043	0.078	0.073	0.050	0.047	0.054	0.059	0.058	0.052	0.058	0.061
Nitrate (as N)	0.67	0.78	0.78	0.81	0.84	1.1	0.88	0.74	0.47	0.35	0.53	0.90	0.41	0.83	0.69
Phosphorus (P)-Total	0.0075	0.0075	0.0076	0.0076	0.0077	0.0048	0.0048	0.0041	0.0046	0.0025	0.0027	0.0038	0.0044	0.0034	0.0034
Sulphate (SO ₄)	3.9	3.7	3.8	3.8	3.8	31	26	19.0	15.1	15.5	18.5	25	17.8	26	23
Total Metals (mg/L)															
Aluminum	0.0034	0.0036	0.0036	0.0037	0.0037	0.0039	<0.0030	0.0097	0.0083	0.0060	0.0062	0.0048	0.0050	0.0033	<0.0030
Antimony	0.00030	0.00032	0.00033	0.00034	0.00035	0.0016	0.0014	0.00094	0.00068	0.00080	0.0011	0.0015	0.00085	0.0012	0.00097
Arsenic	0.0063	0.0069	0.0069	0.0071	0.0074	0.0012	0.0010	0.0012	0.00092	0.0012	0.0018	0.0018	0.0011	0.00099	0.00084
Barium	0.0083	0.0078	0.0079	0.0079	0.0079	0.035	0.028	0.023	0.019	0.019	0.022	0.023	0.018	0.025	0.021
Beryllium	0.00002	0.00002	0.00002	0.00002	0.00002	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100
Bismuth	0.00005	0.00005	0.00005	0.00005	0.00005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron	0.037	0.034	0.034	0.034	0.035	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium	0.00001	0.00001	0.00001	0.00001	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	7.7	6.0	6.0	5.9	5.8	23	18.6	15.1	12.3	14.2	16.6	21	15.7	21	18.0
Chromium	0.00035	0.00034	0.00034	0.00035	0.00035	0.00014	<0.00010	0.00020	0.00012	<0.00010	0.00020	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt	0.00025	0.00025	0.00025	0.00025	0.00025	<0.00010	<0.00010	0.00013	<0.00010	<0.00010	<0.00010	0.00014	<0.00010	<0.00010	<0.00010
Copper	0.00081	0.00080	0.00080	0.00081	0.00082	0.00066	0.00061	0.00055	0.00054	0.00053	0.00057	0.00056	0.00052	<0.00050	<0.00050
Iron	0.041	0.041	0.041	0.042	0.042	<0.010	<0.010	0.037	0.031	0.017	0.028	0.027	0.016	<0.010	<0.010
Lead	0.00015	0.00014	0.00014	0.00014	0.00014	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium	0.0015	0.0014	0.0015	0.0015	0.0015	0.0032	0.0027	0.0029	0.0020	0.0023	0.0032	0.0035	0.0025	0.0033	0.0028
Magnesium	1.4	1.3	1.3	1.3	1.3	5.5	4.7	3.7	3.1	3.1	3.6	4.8	3.7	5.2	4.5
Manganese	0.023	0.022	0.022	0.023	0.023	0.0085	0.0023	0.022	0.0092	0.0051	0.0097	0.018	0.0059	0.0039	0.0038
Mercury	0.00001	0.00001	0.00001	0.00001	0.00001	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum	0.00068	0.00059	0.00059	0.00058	0.00058	0.00083	0.00072	0.0016	0.00076	0.0011	0.0016	0.0019	0.0011	0.0012	0.0010
Nickel	0.0022	0.0022	0.0022	0.0022	0.0023	0.0026	0.0017	0.0026	0.0015	0.0010	0.0015	0.0029	0.0012	0.0015	0.0013
Potassium	0.93	0.92	0.93	0.95	0.96	5.4	4.5	3.6	3.0	3.3	3.8	4.3	3.5	4.5	4.0
Selenium	0.00013	0.00013	0.00013	0.00014	0.00014	0.00010	0.00006	0.00007	<0.000050	0.00007	0.00009	0.00008	<0.000050	0.00008	<0.000050
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium	2.4	2.2	2.2	2.2	2.2	4.5	3.8	3.2	2.7	2.8	3.1	3.7	3.0	3.5	3.1
Strontium	0.029	0.027	0.027	0.028	0.028	0.16	0.14	0.13	0.096	0.10	0.14	0.18	0.12	0.16	0.15
Thallium	0.00001	0.00001	0.00001	0.00001	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin	0.00011	0.00011	0.00011	0.00011	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	0.00024	0.00021	0.00021	0.00021	0.00021	0.00014	0.00012	0.00022	0.00013	0.00015	0.00021	0.00033	0.00015	0.00018	0.00015
Vanadium	0.00065	0.00065	0.00065	0.00066	0.00067	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc	0.0016	0.0016	0.0016	0.0016	0.0017	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030

Notes:

Formatting for indicating the parameters that exceed the model predictions in the FEIS:

- 123**Bolded values exceed FEIS by < 10X.
- 123**Bold and shaded values exceed the FEIS by ≥ 10X.

Italicized numbers are below detection limits.

"-" not analyzed/not sampled.

* Previously referred to as Mammoth Lake (MAM). Acronyms MAM or KAN used interchangeably.

FIGURES
