

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005

[$\mu\text{S}/\text{cm}$, microsiemens per centimeter at 25°C; mg/L, milligrams per liter; $\mu\text{g}/\text{L}$, micrograms per liter; <, less than; '--, no data; an E before a value indicates an estimated concentration]

Station name	Date	Time	Specific conduc- tance, field $\mu\text{S}/\text{cm}$	pH standard units, field	pH standard units, lab	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L
GROUNDWATER SAMPLES									
PTZ1A	8/30/2004	1100	965	4.0	--	24.1	23.4	11.2	2.32
PTZ1B	8/30/2004	1150	344	6.1	--	19.8	12.4	18.2	6.13
PTZ1C	9/1/2004	1010	936	4.0	--	21.7	20.2	11.6	2.35
PTZ1C	9/1/2004	1015	936	4.0	--	--	19.4	11.4	2.24
PTZ1D	8/30/2004	1300	144	5.0	--	17.3	5.49	5.84	1.11
PTZ2A	9/7/2004	0930	1488	6.7	--	24.7	22.4	40.1	16.8
PTZ2A	9/7/2004	0935	1488	6.7	--	--	21.9	39.8	16.7
PTZ2C	9/2/2004	1140	800	5.6	--	21.4	9.67	11.9	4.34
PTZ2D	9/2/2004	1400	251	4.5	--	21.0	6.71	4.25	1.33
PTZ2E	9/2/2004	1300	219	4.5	--	22.9	5.93	5.22	1.14
PTZ2E	9/2/2004	1305	219	4.5	--	--	6.14	5.41	1.14
PTC2A	9/8/2004	1100	--	--	--	20.6	20.7	12.3	3.1
PTC2C	9/8/2004	1130	835	5.1	--	24.7	29.2	30.9	4.31
PTC3A	9/3/2004	1135	865	4.0	--	21.6	17.4	12.5	2.2
PTC3B	9/1/2004	1210	538	3.8	--	19.4	11	5.61	1.6
PTC3C	9/1/2004	1400	528	3.8	--	19.2	10.6	5.07	1.58
PTC4A	9/8/2004	1055	867	3.9	--	17.6	14.4	7.33	1.7
PTC4B	9/8/2004	1040	842	3.9	--	19.6	24.7	13.3	3.25
PTC4C	9/8/2004	1025	--	3.9	--	--	13.4	5.56	1.65
PTC6A	9/2/2004	1445	665	4.0	--	24.9	11.6	5.73	1.52
PTC6B	8/27/2004	0905	603	4.0	--	19.9	11.5	6.32	1.63
PTC6C	8/27/2004	1030	525	6.1	--	20.7	10.4	12.1	3.72
PTC6D	8/30/2004	1100	960	5.2	--	23.0	36.9	35.3	4.38
PTC6E	8/30/2004	1200	912	5.1	--	23.4	33.2	27.8	4.16

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Sodium dis-solved, mg/L	Alkalinity, CaCO ₃ , mg/L	Bromide dis-solved, mg/L	Chloride dis-solved, mg/L	Fluoride dis-solved, mg/L	Silica dis-solved, mg/L	Sulfate dis-solved, mg/L as SO ₄	Total dis-solved solids, mg/L	Ammonia dissolved, mg/L as N
GROUNDWATER SAMPLES									
PTZ1A	47.7	--	0.13	176	0.5	20.8	216	--	--
PTZ1B	25.2	91.3	0.08	69.9	<.2	72.7	0.7	--	--
PTZ1C	49.1	--	0.14	161	1.4	14.5	186	--	--
PTZ1C	47	--	0.13	162	1.4	14.2	186	--	--
PTZ1D	12.5	6.5	0.04	23.4	<.2	7.6	30.2	--	--
PTZ2A	223	382	0.54	301	0.2	61.9	3	--	--
PTZ2A	229	--	0.6	301	<.2	61.6	3.2	--	--
PTZ2C	75.7	30.0	0.23	116	<.2	24.4	73.6	--	--
PTZ2D	19.7	--	0.05	41.2	<.2	8.58	54.2	--	--
PTZ2E	16.8	--	0.16	33.6	<.2	7.54	41.8	--	--
PTZ2E	17.4	--	0.04	33.5	<.2	7.53	41.7	--	--
PTC2A	56.4	--	0.1	118	0.31	25.6	136	--	--
PTC2C	67.7	--	0.15	172	<.2	53.9	90.1	--	--
PTC3A	45.6	--	0.12	139	0.3	21.2	178	--	--
PTC3B	29.1	--	0.07	80.5	0.2	10.6	112	--	--
PTC3C	28.8	--	0.06	77.5	0.2	10.1	110	--	--
PTC4A	37.9	--	0.11	140	0.3	14.3	186	--	--
PTC4B	73.6	--	0.101	139	0.28	23.6	182	--	--
PTC4C	34.5	--	0.12	126	0.2	10.5	160	--	--
PTC6A	31.6	--	0.07	112	0.4	12.6	146	--	--
PTC6B	31.3	--	0.07	98.8	0.4	13.1	122	--	--
PTC6C	58.3	28.0	0.2	113	0.2	4.67	36.7	--	--
PTC6D	84	--	0.11	182	<.2	56.5	215	--	--
PTC6E	75.4	--	0.13	171	<.2	30.5	177	--	--

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Nitrite plus nitrate, dis- solved, mg/L as N	Nitrite dis- solved, mg/L as N	Ortho- phos- phate dis- solved, mg/L as P	Organic carbon dis- solved, mg/L	Alum- inum dis- solved, µg/L	Arsenic dis- solved, µg/L	Barium dis- solved, µg/L	Cadmium dis- solved, µg/L	Chro- mium dis- solved, µg/L
GROUNDWATER SAMPLES									
PTZ1A	--	--	--	1.2	13,700	0.9	44	0.11	<4
PTZ1B	--	--	--	2.8	76	<.2	5	<.04	<4
PTZ1C	--	--	--	1.2	6,050	0.8	106	3.1	<4
PTZ1C	--	--	--	1.7	6,150	0.7	104	3.17	<4
PTZ1D	--	--	--	0.5	197	<.2	67	0.09	<4
PTZ2A	--	--	--	10.9	31	0.8	16	0.13	5
PTZ2A	--	--	--	10.9	26	1.1	16	0.12	5
PTZ2C	--	--	--	1.4	4	<.2	20	<.04	<4
PTZ2D	--	--	--	0.7	3,020	E.2	21	1.16	<4
PTZ2E	--	--	--	1	976	E.1	57	0.32	<4
PTZ2E	--	--	--	1.3	956	<.2	57	0.3	<4
PTC2A	--	--	--	1.4	11,100	2.4	24.9	1.01	E2.8
PTC2C	--	--	--	1.4	34	0.3	19	0.06	E3
PTC3A	--	--	--	1.4	7,670	0.8	29	2.14	<4
PTC3B	--	--	--	0.9	7,660	0.6	26	1.77	<4
PTC3C	--	--	--	0.8	7,890	0.4	24	1.9	<4
PTC4A	--	--	--	1.2	16,500	1.5	20	3.06	<4
PTC4B	--	--	--	2	15,800	1.7	19.6	3.21	<4.2
PTC4C	--	--	--	0.8	16,500	0.8	M	4.15	<4
PTC6A	--	--	--	1.2	9,550	2.5	27	0.62	<4
PTC6B	--	--	--	1.3	7,030	1.7	26	1.08	<4
PTC6C	--	--	--	13.1	55	0.9	16	0.12	<4
PTC6D	--	--	--	4.9	87	0.6	23	0.12	E3
PTC6E	--	--	--	2.3	--	10.4	60	<.04	E2

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Cobalt dis-solved, $\mu\text{g/L}$	Copper dis-solved, $\mu\text{g/L}$	Iron dis-solved, $\mu\text{g/L}$	Lead dis-solved, $\mu\text{g/L}$	Man-ganese dis-solved, $\mu\text{g/L}$	Mercury dis-solved, $\mu\text{g/L}$	Nickel dis-solved, $\mu\text{g/L}$	Selenium dis-solved, $\mu\text{g/L}$	Silver dis-solved, $\mu\text{g/L}$	Zinc dis-solved, $\mu\text{g/L}$
GROUNDWATER SAMPLES										
PTZ1A	61.6	21.5	621	3.64	754	<.02	55.2	3.2	<.2	49.1
PTZ1B	0.166	0.7	576	0.09	962	<.02	0.72	<.4	<.2	44.4
PTZ1C	126	25.6	<6	1.06	584	<.02	102	6.1	<.2	559
PTZ1C	127	25.4	E4	1.16	575	<.02	103	5.7	<.2	542
PTZ1D	9.34	2.7	<6	0.13	92	<.02	12.1	0.5	<.2	8.9
PTZ2A	0.723	13.9	149	0.14	1,590	E.01	2	E.4	<.2	176
PTZ2A	0.742	14.3	127	0.16	1,570	<.02	2.08	1	<.2	192
PTZ2C	0.273	0.4	2,370	E.05	372	0.02	0.95	<.4	<.2	1.2
PTZ2D	86.8	27.9	<6	0.64	449	0.05	28.7	1.6	<.2	251
PTZ2E	30.4	8.7	9	0.4	204	E.01	15.5	0.9	<.2	65.2
PTZ2E	29.6	8.6	8	0.42	202	E.01	15.2	1	<.2	63.9
PTC2A	183	1.1	3,540	0.68	1,360	0.04	69	3.6	<.2	472
PTC2C	0.54	1.3	3,370	0.16	1,780	0.04	18.4	<.4	<.2	11.1
PTC3A	142	1	6,530	0.41	1,000	0.05	51.9	3	<.2	233
PTC3B	171	41.5	213	1.85	768	0.03	48.9	3.2	<.2	441
PTC3C	168	45.4	48	1.33	742	0.03	46.7	3.3	<.2	437
PTC4A	186	15.8	2,240	2.88	745	0.04	78.5	4.7	<.2	634
PTC4B	202	36.7	3,570	3.77	1,470	0.05	67.6	5.1	<.2	725
PTC4C	220	67	87	1.27	746	0.28	59.2	5.2	<.2	893
PTC6A	145	0.5	1,560	0.84	617	0.04	60.5	5.5	<.2	399
PTC6B	141	3.7	776	1.5	705	<.02	51.9	4.1	<.2	344
PTC6C	19.7	1	440	0.09	239	<.04	14.1	0.5	<.2	51.1
PTC6D	1.92	4	2,880	0.23	1,700	<.04	16.3	0.5	<.2	19.9
PTC6E	28.8	1.2	18,900	0.27	1,210	<.02	12.9	E.3	E.1	54.6

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Date	Time	Specific conductance, field μS/cm	pH standard units, field	pH standard units, lab	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L
GROUNDWATER SAMPLES									
PTC8A	8/30/2004	1415	465	4.6	--	22.9	16.4	13.1	2.63
PTC8B	8/30/2004	1215	699	4.8	--	22.6	29.3	19.4	3.5
PTC8C	9/2/2004	0910	770	5.2	--	--	26.9	28.2	4.37
PTC8D	8/27/2004	1300	883	6.0	--	22.4	16.7	13.3	2.85
PTC8E	8/27/2004	1040	753	4.6	--	22.8	32.1	20.6	3.67
PTC10A	9/2/2004	0840	1,140	3.9	--	23.4	30.3	14	3.5
PTC10B	9/1/2004	1200	933	4.0	--	22.5	17.7	8.24	1.86
PTC10C	9/1/2004	1315	1,090	5.9	--	20.3	24.1	26.5	3.72
PTC10D	9/1/2004	1430	1,100	5.9	--	21.2	27.7	31	4.06
PTC10E	9/1/2004	0830	944	4.6	--	20.9	23.9	16	2.95
PTC10E	9/1/2004	0835	944	4.6	--	20.9	24.3	15.9	2.89
PTC12A	8/26/2004	1032	939	3.6	--	22.7	20.6	8.61	2.25
PTC12B	9/1/2004	1140	819	4.2	--	23.2	17	11.2	2.35
PTC12C	9/2/2004	0900	844	5.5	--	24.0	15	19.5	4.46
PTC12D	9/2/2004	0945	951	6.0	--	26.3	16	19.7	4.79
PTC12F	9/1/2004	1050	808	5.6	--	20.1	12	12.9	3.42
PTC6A	11/8/2004	1100	568	4.1	--	12.5	18.9	10	2.66
PTC6B	11/3/2004	930	434	4.1	--	16.2	14.6	8.39	2.3
PTC6B	11/3/2004	950	--	--	--	--	15.3	9.14	2.48
PTC6C	11/5/2004	1000	873	5.5	--	16.4	29.1	32.6	4.63
PTC6D	11/8/2004	935	1,000	5.5	--	15	32.5	33	4.41
PTC6E	11/9/2004	1320	--	--	--	--	34	27.2	4.28
PTC8A	11/1/2004	1255	484	4.6	--	21.9	18.2	12.4	2.94
PTC8B	11/1/2004	1445	696	4.5	--	20.9	30.7	19.4	4.1
PTC8C	11/4/2004	825	767	5.6	--	20.8	26.9	27.8	4.69
PTC8D	11/2/2004	1237	846	5.4	--	19.3	15.7	12.1	3.45
PTC8E	11/2/2004	1355	810	4.4	--	18.2	31.9	20.2	4.14
PTC10A	11/1/2004	1300	940	3.7	--	18.2	25.2	11.9	2.89
PTC10B	11/1/2004	1410	793	3.8	--	17.1	24.6	12.7	3.04
PTC10C	11/2/2004	1200	1,050	5.0	--	15.6	27.4	28.5	4.25
PTC10D	11/2/2004	1250	1,130	5.6	--	18.3	29.2	31.8	4.54

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Sodium dis-solved, mg/L	Alkalinity, dis-dissolved, as CaCO ₃ , mg/L	Bromide dis-solved, mg/L	Chloride dis-solved, mg/L	Fluoride dis-solved, mg/L	Silica dis-solved, mg/L	Sulfate dis-solved, mg/L as SO ₄	Total dis-solved solids, mg/L	Ammonia dissolved, mg/L as N
GROUNDWATER SAMPLES									
PTC8A	39	--	0.09	73.4	<.2	16.6	94.4	--	--
PTC8B	54.9	5.2	0.1	115	0.3	21.9	140	--	--
PTC8C	64.1	14.3	0.2	127	<.2	41.7	152	--	--
PTC8D	123	56.0	0.17	135	0.3	25.8	168	--	--
PTC8E	71.5	--	0.11	136	0.7	19.5	171	--	--
PTC10A	126	--	0.126	<.20	0.26	34.3	0.29	--	--
PTC10B	47	--	0.13	154	0.2	16	210	--	--
PTC10C	116	44.3	0.23	<.20	<.2	45.6	--	--	--
PTC10D	111	42.0	0.2	<.20	<.2	61	--	--	--
PTC10E	64.4	--	0.08	148	0.8	21.4	198	--	--
PTC10E	65	--	0.13	147	0.8	21.3	197	--	--
PTC12A	65.2	--	0.13	156	0.4	21.3	214	--	--
PTC12B	62.8	--	0.15	149	0.2	24.2	164	--	--
PTC12C	102	34.4	0.15	165	<.2	60.1	115	--	--
PTC12D	118	--	0.61	173	<.2	65.1	127	--	--
PTC12F	92.3	28.2	0.13	136	<.2	27.8	141	--	--
PTC6A	47.6	--	0.06	89.3	0.38	23.2	119	--	--
PTC6B	35.9	--	0.09	68.2	0.26	18.4	90.6	--	--
PTC6B	38.3	--	0.1	70.5	0.29	20.1	91.5	--	--
PTC6C	74.9	--	--	--	<.10	59.7	--	--	--
PTC6D	94.3	--	0.39	--	0.12	62	--	--	--
PTC6E	79.5	--	--	--	0.1	30.9	--	--	--
PTC8A	42.4	--	0.16	80.5	0.16	18.1	104	--	--
PTC8B	62.7	--	0.09	112	0.3	25.2	139	--	--
PTC8C	62.5	29.0	--	--	<.10	43.9	--	--	--
PTC8D	122	20.7	0.58	125	0.18	29.2	157	--	--
PTC8E	63.6	--	0.06	125	0.56	20.5	167	--	--
PTC10A	101	--	0.12	156	0.19	30.2	216	--	--
PTC10B	66.9	--	0.19	125	0.17	23.9	168	--	--
PTC10C	118	20.7	0.17	194	E.07	49.8	187	--	--
PTC10D	120	--	0.14	218	<.10	65.4	191	--	--

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Nitrite plus nitrate, dissolved, mg/L as N	Nitrite dissolved, mg/L as N	Ortho-phosphate dissolved, mg/L as P	Organic carbon dissolved, mg/L	Aluminum dissolved, µg/L	Arsenic dissolved, µg/L	Barium dissolved, µg/L	Cadmium dissolved, µg/L	Chromium dissolved, µg/L
GROUNDWATER SAMPLES									
PTC8A	--	--	--	1.1	314	4.9	63	0.25	<4
PTC8B	--	--	--	1.5	585	2.3	55	0.22	E2
PTC8C	--	--	--	1.3	42	0.4	26	0.11	<4
PTC8D	--	--	--	1.4	105	1.2	25	0.14	<4
PTC8E	--	--	--	1.3	855	0.7	49	1.56	E2
PTC10A	--	--	--	2.6	15,400	2	26.3	<.04	38.1
PTC10B	--	--	--	2.3	14,900	1.7	24	0.91	<4
PTC10C	--	--	--	2.9	11	1.1	35	--	E2
PTC10D	--	--	--	2.7	--	1.1	21	--	E3
PTC10E	--	--	--	1.1	5,980	1.2	54	1.16	<4
PTC10E	--	--	--	1	6,140	1	54	1.21	<4
PTC12A	--	--	--	4	6,340	2.8	53	0.09	<4
PTC12B	--	--	--	1.3	4,990	1.5	42	0.07	<4
PTC12C	--	--	--	1.3	10	0.4	13	0.04	<4
PTC12D	--	--	--	1.8	4	0.3	5	<.04	<4
PTC12F	--	--	--	1.1	6	1.5	29	<.04	<315
PTC6A	--	--	--	1.4	7,380	2.4	13.9	0.49	E2
PTC6B	--	--	--	1	--	1.2	--	0.84	E2
PTC6B	--	--	--	5.8	--	1.2	--	0.83	E2
PTC6C	--	--	--	1.3	--	0.8	15.9	0.25	2
PTC6D	--	--	--	2.5	116	0.8	14.4	<.04	2
PTC6E	--	--	--	1.3	163	4.6	49.4	E.03	E2
PTC8A	--	--	--	2.8	570	5.5	48.9	0.2	E2
PTC8B	--	--	--	0.9	561	1.9	44.4	0.12	3
PTC8C	--	--	--	2.6	37	1.6	17.7	E.04	3
PTC8D	--	--	--	1.8	44.4	1.1	24.8	0.07	E2
PTC8E	--	--	--	1.2	1,630	0.6	57.4	1.37	3
PTC10A	--	--	--	3.3	11,500	1.3	12.7	<.48	20
PTC10B	--	--	--	1	11,700	1.3	22.1	1.19	2
PTC10C	--	--	--	2.2	173	0.3	33.5	E.02	3
PTC10D	--	--	--	3.9	229	0.6	15	0.08	4

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Cobalt dis-solved, $\mu\text{g/L}$	Copper dis-solved, $\mu\text{g/L}$	Iron dis-solved, $\mu\text{g/L}$	Lead dis-solved, $\mu\text{g/L}$	Man-ganese dis-solved, $\mu\text{g/L}$	Mercury dis-solved, $\mu\text{g/L}$	Nickel dis-solved, $\mu\text{g/L}$	Selenium dis-solved, $\mu\text{g/L}$	Silver dis-solved, $\mu\text{g/L}$	Zinc dis-solved, $\mu\text{g/L}$
GROUNDWATER SAMPLES										
PTC8A	48.8	0.5	2,400	0.37	372	<.02	45.4	E.3	<.2	124
PTC8B	94	0.7	861	0.7	850	<.02	69.7	E.4	<.2	162
PTC8C	6.19	1.7	3,110	0.16	1,190	E.01	11.3	<.4	<.2	31.6
PTC8D	24.5	0.9	3,600	E.07	584	<.02	15.8	0.6	<.2	40.8
PTC8E	112	6.6	1,650	0.78	977	<.02	79.3	1.1	<.2	284
PTC10A	99.1	1	8,490	0.71	1,010	0.07	91.6	4.9	E0.11	43.7
PTC10B	96	1.1	3,770	0.87	663	<.02	49.3	3.7	<.2	391
PTC10C	--	0.9	16,800	0.13	1,410	<.04	--	--	E.1	9.4
PTC10D	1.83	1.1	22,100	0.21	1,940	0.05	101	--	E.2	16.3
PTC10E	67	3.5	12,900	0.8	927	<.02	54.3	1.9	E.1	298
PTC10E	70.7	3.9	12,200	0.7	933	<.02	46.6	2.1	<.2	326
PTC12A	81.6	1.2	19,400	3.74	871	<.02	61.7	2.2	<.2	201
PTC12B	49.2	0.6	5,480	0.31	725	<.02	41.9	1.6	<.2	166
PTC12C	1.1	0.8	2,570	E.07	1,320	<.02	14.9	<.4	E.1	16.9
PTC12D	0.163	0.9	3,650	E.08	1,500	<.02	12.6	<.4	E.2	3.9
PTC12F	0.958	1	47,900	E.07	599	<.02	0.34	<.4	0.3	1.3
PTC6A	121	1	2,860	1.69	964	<.010	72.3	3.9	<1.40	518
PTC6B	100	3.2	783	1.55	811	<.010	42.9	2.9	<.20	258
PTC6B	100	2.6	946	1.34	861	<.010	43	2.6	<.20	256
PTC6C	--	1	3,090	0.18	1,620	<.010	--	1	--	44.1
PTC6D	--	1	<60	0.12	1,640	<.010	--	E.4	--	15.1
PTC6E	--	0.7	<30	0.18	1,280	<.010	--	1.2	--	94.4
PTC8A	49.2	0.7	2,560	0.47	437	<.010	67.5	0.4	<.20	133
PTC8B	90.2	0.6	1,340	0.33	901	<.010	76.7	E.2	<.20	128
PTC8C	--	1.3	2,210	0.19	1,240	<.010	--	1.5	--	26
PTC8D	13.3	1.2	4,720	0.09	571	<.010	46.2	0.5	<.20	28.9
PTC8E	103	16.7	3,160	1.49	1,060	<.010	89.7	1.4	<.20	253
PTC10A	76.8	1.2	6,290	1.62	839	E.007	101	E4.1	E.12	25
PTC10B	102	0.8	5,050	0.59	1,010	<.010	77.2	E3.2	<.20	363
PTC10C	2.13	1.1	20,200	0.22	1,660	<.010	--	<.8	E.17	9.7
PTC10D	0.89	1.4	19,900	0.36	2,090	<.010	--	--	E.14	13.5

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater
and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek
Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Date	Time	Specific conduc- tance, field μS/cm	pH standard units, field	pH standard units, lab	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L
GROUNDWATER SAMPLES									
PTC10E	11/2/2004	1430	943	4.5	--	18.0	30.4	17.4	3.63
PTC12A	11/8/2004	1415	865	3.9	--	12.5	24.5	11.5	3.06
PTC12B	11/8/2004	1535	801	4.3	--	12.5	23.4	13.3	3.15
PTC12B	11/8/2004	1545	--	--	--	--	22.9	13.4	3.2
PTC12C	11/12/2004	1005	887	6.3	--	10.3	15.3	20.3	4.83
PTC12D	11/12/2004	900	951	6.4	--	11	15	19.1	5.15
PTC12E	11/12/2004	940	860	6.0	--	12.2	12.3	14.4	4.66
PTC12F	11/9/2004	1107	805	5.3	--	13.3	12.3	12.6	3.48
PTZ1A	11/5/2004	1330	1,050	4.0	--	15.6	43.6	19.8	4.33
PTZ1B	11/9/2004	900	422	6.5	--	16.3	10.8	18.3	7.03
PTZ1B	11/10/2004	1005	--	--	--	--	10.1	19	6.88
PTZ1C	11/8/2004	1330	932	4.3	--	12.7	37.6	20	4.32
PTZ1D	11/8/2004	1500	183	5.5	--	12.9	6.05	6.33	1.35
PTZ1D	11/8/2004	1505	--	--	--	--	6.2	6.31	1.35
PTZ1E	11/10/2004	1215	350	4.7	--	10.5	7.53	4.57	2.32
PTZ2A	11/9/2004	1440	1,740	7.0	--	15.5	22	40.1	16.6
PTZ2B	11/5/2004	1000	893	7.2	--	14.3	27.1	19.1	12.4
PTZ2C	11/9/2004	1530	638	5.9	--	12.8	10.1	11.3	4.75
PTZ2D	11/5/2004	1115	219	4.6	--	14.3	5.12	4.32	1.29
PTZ2D	11/5/2004	1116	--	--	--	--	4.98	4.2	1.27
PTZ2E	11/10/2004	945	239	4.7	--	12.0	5.84	5.77	1.34
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	8/20/2004	2130	431	--	7.7	--	14.8	11.3	3.19
Canal Cr. at 3-4W	8/21/2004	0130	495	--	7.6	--	7.72	13	4.58
Canal Cr. at 3-4W	8/21/2004	0530	456	--	7.7	--	12	12	3.77
Canal Cr. at 3-4W	8/21/2004	0930	470	--	7.6	--	11.4	12.4	3.84
Canal Cr. at 3-4W	8/21/2004	1330	478	--	7.6	--	7.87	13	4.32
Canal Cr. at 3-4W	8/21/2004	1730	435	--	7.6	--	13.6	11.6	3.3
Canal Cr. at 3-4W	8/21/2004	2130	410	--	7.5	--	16.7	10.3	2.74
Canal Cr. at 3-4W	8/22/2004	0130	423	--	7.5	--	16.4	10.8	2.88
Canal Cr. at 3-4W	8/22/2004	0530	403	--	7.5	--	19.4	10.3	2.61
Canal Cr. at 3-4W	8/22/2004	0930	431	--	7.4	--	20.4	10.7	2.6

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater
and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek
Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Sodium dis- solved, mg/L	Alkalinity, dis-dissolved, as CaCO ₃ , mg/L	Bromide dis- solved, mg/L	Chloride dis- solved, mg/L	Fluoride dis- solved, mg/L	Silica dis- solved, mg/L	Sulfate dis- solved, mg/L as SO ₄	Total dis- solved solids, mg/L	Ammonia dissolved, mg/L as N
GROUNDWATER SAMPLES									
PTC10E	82.3	--	0.09	145	0.27	24.3	194	--	--
PTC12A	84	--	0.12	--	0.19	30	--	--	--
PTC12B	86.3	--	0.31	136	0.2	28.9	157	--	--
PTC12B	84.5	--	0.32	135	0.21	28.7	157	--	--
PTC12C	113	55.7	0.14	161	0.22	62.4	107	--	--
PTC12D	128	65.4	0.2	171	0.11	65.9	119	--	--
PTC12E	121	37.6	0.17	166	0.13	58.1	118	--	--
PTC12F	88.8	30.3	0.15	137	<.10	31.4	145	--	--
PTZ1A	91.9	--	--	--	0.46	36.7	--	--	--
PTZ1B	26.1	77.0	--	--	E.06	75.6	--	--	--
PTZ1B	27.3	--	0.03	74.8	E.06	77.3	2.96	--	--
PTZ1C	89.4	--	0.09	157	1.35	25.7	185	--	--
PTZ1D	13.1	7.0	0.02	23.1	<.10	7.43	31.5	--	--
PTZ1D	13.1	--	0.02	23.1	<.10	7.49	31.3	--	--
PTZ1E	37.1	--	0.05	80	0.14	16.5	21.7	--	--
PTZ2A	251	375	0.2	310	0.17	68.8	11.4	--	--
PTZ2B	113	--	<.10	122	0.12	76.7	27	--	--
PTZ2C	81.4	31.4	0.2	115	<.10	24.5	72.8	--	--
PTZ2D	16.2	--	0.04	31	0.1	7.91	44.3	--	--
PTZ2D	15.5	--	0.04	30.6	0.1	7.56	43.4	--	--
PTZ2E	20.2	3.0	0.06	37.7	E.09	9.73	41.6	--	--
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	48.4	57	0.06	83.6	<.2	0.76	16.9	<10	<.04
Canal Cr. at 3-4W	65.3	31	0.18	117	<.2	0.98	21.3	<10	<.04
Canal Cr. at 3-4W	54.6	49	0.09	94.6	<.2	0.86	18.3	<10	<.04
Canal Cr. at 3-4W	57.4	47	0.11	104	<.2	0.7	18.9	<10	E.02
Canal Cr. at 3-4W	64.5	32	0.18	118	<.2	1.09	21.1	<10	<.04
Canal Cr. at 3-4W	52.2	52	0.08	90.2	<.2	0.92	17.9	19	<.04
Canal Cr. at 3-4W	46.3	56	0.04	81.9	<.2	2.04	16.8	<10	<.04
Canal Cr. at 3-4W	47.9	55	0.05	82.4	<.2	1.87	17.1	<10	<.04
Canal Cr. at 3-4W	43.8	62	0.03	76.2	<.2	4.51	16.2	18	<.04
Canal Cr. at 3-4W	45.8	63	0.05	81.2	<.2	7.27	20.4	<10	0.07

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Nitrite plus nitrate, dissolved, mg/L as N	Nitrite dissolved, mg/L as N	Ortho-phosphate dissolved, mg/L as P	Organic carbon dissolved, mg/L	Aluminum dissolved, µg/L	Arsenic dissolved, µg/L	Barium dissolved, µg/L	Cadmium dissolved, µg/L	Chromium dissolved, µg/L
GROUNDWATER SAMPLES									
PTC10E	--	--	--	1	--	1.1	--	1.38	5
PTC12A	--	--	--	1.7	--	1.2	--	0.44	E2
PTC12B	--	--	--	1.3	6,790	1.6	--	0.11	E2
PTC12B	--	--	--	1.2	7,040	1.7	18.5	0.13	E2
PTC12C	--	--	--	2.1	13.8	0.7	6.4	E.02	E2
PTC12D	--	--	--	2.1	5.8	0.3	3.8	0.05	E2
PTC12E	--	--	--	1.4	9.7	0.3	8.7	0.46	E1
PTC12F	--	--	--	2.4	E6.2	0.8	33.3	<.04	<2
PTZ1A	--	--	--	3	12,100	0.8	25.5	<.04	2
PTZ1B	--	--	--	2.2	172	0.7	8.9	<.04	E2
PTZ1B	--	--	--	2.2	7.2	0.3	8	E.03	E2
PTZ1C	--	--	--	1.9	6,000	0.9	--	2.97	3
PTZ1D	--	--	--	0.6	99.9	<.2	61.4	0.14	E2
PTZ1D	--	--	--	0.9	95	<.2	63.8	0.15	E2
PTZ1E	--	--	--	E.3	238	<.2	87.3	0.22	E1
PTZ2A	--	--	--	11	23.4	1.3	30	<.04	4
PTZ2B	--	--	--	6.1	9.3	0.9	14.6	<.04	3
PTZ2C	--	--	--	1.5	7	<.2	20	<.04	E1
PTZ2D	--	--	--	0.4	--	0.2	16.2	0.66	<2
PTZ2D	--	--	--	0.4	1,880	0.2	--	0.59	<2
PTZ2E	--	--	--	0.5	--	0.4	<.4	0.28	2
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	<.06	<.008	E.003	6.9	8	1.6	19	0.05	<4
Canal Cr. at 3-4W	<.06	<.008	0.006	6	4	1.1	13	0.06	<4
Canal Cr. at 3-4W	<.06	<.008	0.006	6.2	4	1.3	19	E.03	<4
Canal Cr. at 3-4W	<.06	<.008	0.01	5.7	4	1.3	17	E.04	<4
Canal Cr. at 3-4W	<.06	<.008	0.006	4.9	4	1.2	13	E.03	<4
Canal Cr. at 3-4W	<.06	<.008	0.007	5.6	5	1.1	19	E.03	<4
Canal Cr. at 3-4W	<.06	<.008	0.007	5.5	5	1	26	E.02	<4
Canal Cr. at 3-4W	<.06	<.008	E.005	5.1	7	1.1	26	E.02	<4
Canal Cr. at 3-4W	<.06	<.008	E.005	4.8	5	0.9	33	E.04	<4
Canal Cr. at 3-4W	<.06	<.008	E.005	5.3	13	1	39	0.09	<4

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater
and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek
Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Cobalt dis- solved, µg/L	Copper dis- solved, µg/L	Iron dis- solved, µg/L	Lead dis- solved, µg/L	Man- ganese dis- solved, µg/L	Mercury dis- solved, µg/L	Nickel dis- solved, µg/L	Selenium dis- solved, µg/L	Silver dis- solved, µg/L	Zinc dis- solved, µg/L
GROUNDWATER SAMPLES										
PTC10E	70.5	1.9	10,300	0.67	1,060	<.010	--	2.6	E.16	289
PTC12A	66.9	0.7	<60	0.47	884	<.010	--	2.2	--	148
PTC12B	51.4	0.7	5,290	0.26	866	<.010	37.2	2	<1.40	203
PTC12B	51.7	0.7	5,310	0.28	861	<.010	38.2	2.3	<1.40	206
PTC12C	0.195	0.5	3,040	0.09	1,410	<.010	--	<.4	<.20	5.5
PTC12D	0.117	0.6	3,800	E.05	1,530	<.010	--	<.4	0.22	4.7
PTC12E	0.839	0.4	4,080	<.08	1,120	<.010	--	<.4	E.10	11.4
PTC12F	0.364	0.8	50,600	0.12	593	<.010	0.9	E.3	<.80	5
PTZ1A	65.3	0.9	4,560	0.11	1,310	<.010	59	3	<3.00	9.7
PTZ1B	0.374	1.1	712	0.32	1,050	<.010	--	<.4	<.20	7.3
PTZ1B	0.158	1.1	364	E.04	1,040	<.010	--	<.4	<.20	38.6
PTZ1C	135	22.4	16	1.32	1,020	<.010	--	8.4	<.20	484
PTZ1D	8.14	2.2	<6	0.08	87	<.010	--	0.6	<.20	8
PTZ1D	7.95	2.4	16	0.09	87	<.010	<.06	0.5	<.20	8.7
PTZ1E	266	1.4	877	0.5	1,830	<.010	--	E.2	<.20	57.8
PTZ2A	0.368	3.9	648	1.11	1,680	<.010	--	0.6	<.20	17
PTZ2B	0.192	1.7	561	0.39	1,530	<.010	--	E.3	<.20	4.6
PTZ2C	0.228	0.7	2,050	0.13	365	<.010	--	<.4	<.20	1.8
PTZ2D	40.3	18.5	<6	0.49	257	0.015	--	1.5	<.60	121
PTZ2D	42.2	17.7	<6	0.51	247	0.012	--	1.4	<.20	101
PTZ2E	26.6	8.6	224	0.38	213	E.009	--	1.1	<.40	53.4
SURFACE-WATER SAMPLES										
Canal Cr. at 3-4W	0.119	4.5	194	1.6	1	<.02	2.09	E.3	<.2	8.3
Canal Cr. at 3-4W	0.083	5.3	47	0.57	1	<.02	1.57	E.3	<.2	19.8
Canal Cr. at 3-4W	0.098	5.1	36	0.23	E.5	<.02	1.9	E.2	<.2	14.3
Canal Cr. at 3-4W	0.098	5	81	0.67	E.4	<.02	1.85	E.4	<.2	18.8
Canal Cr. at 3-4W	0.081	5.1	32	0.27	E.5	<.02	1.53	0.5	<.2	21.4
Canal Cr. at 3-4W	0.103	4.5	35	0.19	<.8	<.02	2.05	E.2	<.2	12.6
Canal Cr. at 3-4W	0.122	4.1	40	0.19	E.5	<.02	2.48	<.4	<.2	20.9
Canal Cr. at 3-4W	0.122	3.8	53	0.14	3	<.02	2.6	E.3	<.2	7.3
Canal Cr. at 3-4W	0.151	3.7	69	0.12	68	<.02	2.95	<.4	<.2	12.8
Canal Cr. at 3-4W	1.54	3.5	27	0.09	296	<.02	5	<.4	<.2	34.3

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Date	Time	Specific conduc- tance, field μS/cm	pH standard units, field	pH standard units, lab	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	8/22/2004	1330	429	--	7.6	--	19.8	10.5	2.51
Canal Cr. at 3-4W	8/22/2004	1730	431	--	7.6	--	20.1	10.3	2.46
Canal Cr. at 3-4W	10/25/2004	0815	526	--	6.9	--	9.68	12.2	4.65
Canal Cr. at 3-4W	10/25/2004	1215	489	--	7.1	--	13	12.8	5.26
Canal Cr. at 3-4W	10/25/2004	1615	491	--	7	--	12.2	11.7	4.74
Canal Cr. at 3-4W	10/25/2004	2015	516	--	7.2	--	8.28	10.1	4.24
Canal Cr. at 3-4W	10/26/2004	0015	497	--	6.7	--	9.21	9.53	4.04
Canal Cr. at 3-4W	10/26/2004	0415	374	--	7	--	15.7	10.1	3.79
Canal Cr. at 3-4W	10/26/2004	0815	510	--	7.1	--	12	13.2	5.4
Canal Cr. at 3-4W	10/26/2004	1215	451	--	7.2	--	11.2	10.7	4.11
Canal Cr. at 3-4W	10/26/2004	1615	394	--	7.2	--	15.3	11.2	4.25
Canal Cr. at 3-4W	10/26/2004	2015	559	--	7.2	--	12.8	13.5	5.31
Canal Cr. at 3-4W	10/27/2004	0015	449	--	7.2	--	12.3	10.8	4.05
Canal Cr. at 3-4W	10/27/2004	0415	432	--	7.1	--	13.4	11.3	4.41
Canal Cr. at 3-4W	12/2/2004	1030	241	--	7.1	--	14.5	7.43	2.44
Canal Cr. at 3-4W	12/2/2004	1430	226	--	7	--	13.9	6.78	2.35
Canal Cr. at 3-4W	12/2/2004	1830	239	--	6.7	--	14	7	2.34
Canal Cr. at 3-4W	12/2/2004	2230	300	--	6.9	--	20.1	8.36	2.72
Canal Cr. at 3-4W	12/3/2004	230	317	--	7.4	--	20.8	8.83	2.88
Canal Cr. at 3-4W	12/3/2004	1030	260	--	7.5	--	15.4	7.86	2.52
Canal Cr. at 3-4W	12/3/2004	1430	266	--	7.1	--	15.7	7.94	2.42
Canal Cr. at 3-4W	12/3/2004	1830	277	--	7.4	--	15.4	7.85	2.37
Canal Cr. at 3-4W	12/3/2004	2230	318	--	7.4	--	19	8.95	2.64
Canal Cr. at 3-4W	1/11/2005	1015	428	--	6.7	--	19.4	10.9	3.04
Canal Cr. at 3-4W	1/11/2005	1415	365	--	7.1	--	17.2	9.09	2.46
Canal Cr. at 3-4W	1/11/2005	1815	532	--	7.2	--	21.2	13.5	3.96
Canal Cr. at 3-4W	1/11/2005	2215	722	--	7.4	--	20.6	17.2	5.79
Canal Cr. at 3-4W	1/12/2005	0215	440	--	7.2	--	19.6	11.5	3.24
Canal Cr. at 3-4W	1/12/2005	0615	484	--	6.9	--	22.5	12.6	3.56
Canal Cr. at 3-4W	1/12/2005	1015	532	--	7.4	--	22.2	13.7	3.96
Canal Cr. at 3-4W	1/12/2005	1415	387	--	E7.5	--	17.9	9.27	2.6
Canal Cr. at 3-4W	1/12/2005	1815	500	--	7.3	--	23.5	13.2	3.59
Canal Cr. at 3-4W	1/12/2005	2215	728	--	7.2	--	20.7	17.6	5.87
Canal Cr. at 3-4W	1/13/2005	0215	524	--	7.2	--	21.1	13.4	3.92
Canal Cr. at 3-4W	1/13/2005	0615	517	--	7.3	--	21.5	13.1	3.83

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Sodium dis-solved, mg/L	Alkalinity, dis-solved, as CaCO ₃ , mg/L	Bromide dis-solved, mg/L	Chloride dis-solved, mg/L	Fluoride dis-solved, mg/L	Silica dis-solved, mg/L	Sulfate dis-solved, mg/L as SO ₄	Total dis-solved solids, mg/L	Ammonia dissolved, mg/L as N
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	46	61	0.04	81.7	<.2	6.57	19.6	<10	E.03
Canal Cr. at 3-4W	48.5	62	0.03	84.7	<.2	4.64	16.1	<10	<.04
Canal Cr. at 3-4W	58.6	34	0.23	128	0.11	1.07	28.3	32	<.04
Canal Cr. at 3-4W	64.1	37	0.18	117	0.1	1.2	29.3	13	<.04
Canal Cr. at 3-4W	58.9	37	0.18	115	0.11	1.06	29.4	<10	<.04
Canal Cr. at 3-4W	51.8	34	0.23	125	E.09	0.92	28.1	<10	<.04
Canal Cr. at 3-4W	50.3	36	0.2	119	0.12	1.02	29.1	<10	<.04
Canal Cr. at 3-4W	47.5	43	0.06	79.9	E.10	2.74	26	23	<.04
Canal Cr. at 3-4W	71	36	0.21	120	E.09	1.01	28.7	<10	<.04
Canal Cr. at 3-4W	51	39	0.16	107	E.10	1.22	29	<10	<.04
Canal Cr. at 3-4W	50.7	42	0.09	86.6	0.1	1.94	27.2	<10	<.04
Canal Cr. at 3-4W	68.3	36	0.26	135	E.10	1.21	31.3	<10	<.04
Canal Cr. at 3-4W	52.6	40	0.17	107	0.1	1.22	29.7	<10	<.04
Canal Cr. at 3-4W	52.5	40	0.12	98.5	0.1	1.58	28.2	<10	<.04
Canal Cr. at 3-4W	23.4	41	--	36.4	E.10	9.34	21.3	80	0.08
Canal Cr. at 3-4W	20.5	30	--	24.7	E.09	8.92	14.7	60	0.05
Canal Cr. at 3-4W	22.8	40	--	37.1	E.09	9.05	22.4	78	0.07
Canal Cr. at 3-4W	29.4	54	--	44.7	0.1	9.84	27.5	69	0.13
Canal Cr. at 3-4W	32	55	--	47.3	0.11	9.87	27.7	56	0.14
Canal Cr. at 3-4W	27.4	41	--	42.2	E.09	9.39	24.8	124	0.09
Canal Cr. at 3-4W	27.2	42	--	42.9	E.10	9.82	23.1	75	0.1
Canal Cr. at 3-4W	27.8	44	--	46.2	E.10	9.83	24.1	64	0.15
Canal Cr. at 3-4W	34.2	49	--	53	0.12	9.97	28.5	91	0.15
Canal Cr. at 3-4W	51.4	48	<.20	87.1	0.12	9.4	33.8	118	0.09
Canal Cr. at 3-4W	42	43	<.20	68.1	E.10	10.1	30.9	101	0.21
Canal Cr. at 3-4W	67	54	0.05	115	0.1	9.46	37.3	143	0.13
Canal Cr. at 3-4W	97	48	0.31	177	0.11	7.44	38.1	134	0.16
Canal Cr. at 3-4W	54.7	49	<.20	91.5	E.10	9.35	32.9	126	0.1
Canal Cr. at 3-4W	59.5	58		95.3	0.12	9.81	35.8	71	0.15
Canal Cr. at 3-4W	66.5	57	0.04	113	0.12	9.5	37.4	50	0.13
Canal Cr. at 3-4W	43.1	46	<.20	72	0.11	9.62	30.8	75	0.12
Canal Cr. at 3-4W	60.2	62	<.02	97.5	0.12	10.1	37.4	111	0.16
Canal Cr. at 3-4W	98.5	49	0.33	179	0.11	7.36	37.4	157	0.18
Canal Cr. at 3-4W	65.7	53	0.06	114	0.11	9.24	36	113	0.12
Canal Cr. at 3-4W	64.1	53	0.03	111	0.12	9.65	37.3	72	0.11

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Nitrite plus nitrate, dissolved, mg/L as N	Nitrite dissolved, mg/L as N	Ortho-phosphate dissolved, mg/L as P	Organic carbon dissolved, mg/L	Aluminum dissolved, µg/L	Arsenic dissolved, µg/L	Barium dissolved, µg/L	Cadmium dissolved, µg/L	Chromium dissolved, µg/L
SURFACE-WATER SAMPLES									
Canal Cr. at 3-4W	<.06	<.008	E.003	4.4	14	0.9	35	0.08	<4
Canal Cr. at 3-4W	<.06	<.008	<.006	4.7	9	1.1	32	0.04	<4
Canal Cr. at 3-4W	0.125	<.008	<.006	4	2.9	0.6	12	0.42	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	3.7	8.8	0.7	16.4	0.29	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	4	3.4	0.6	14.4	0.18	<2
Canal Cr. at 3-4W	0.117	<.008	<.006	3.6	3.6	0.5	10.2	0.09	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	3.9	2.9	0.6	12.4	0.08	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	-	6.7	0.7	23.6	0.06	E1
Canal Cr. at 3-4W	0.076	<.008	<.006	-	6.2	0.7	14.4	0.09	E1
Canal Cr. at 3-4W	<.060	<.008	<.006	-	4.7	0.6	15	0.08	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	-	5.5	0.7	20.6	0.09	<2
Canal Cr. at 3-4W	0.063	<.008	<.006	-	3.7	0.7	15.3	0.1	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	-	4.4	0.6	15.3	0.17	<2
Canal Cr. at 3-4W	<.060	<.008	<.006	-	7.1	0.6	18.2	0.08	<2
Canal Cr. at 3-4W	0.3	E.004	0.011	6.4	--	--	--	--	--
Canal Cr. at 3-4W	0.316	E.005	0.011	6.8	--	--	--	--	--
Canal Cr. at 3-4W	0.323	E.004	0.006	6	--	--	--	--	--
Canal Cr. at 3-4W	0.286	E.005	0.01	6.3	--	--	--	--	--
Canal Cr. at 3-4W	0.27	E.006	0.01	6.3	--	--	--	--	--
Canal Cr. at 3-4W	0.331	<.008	0.007	5.1	--	--	--	--	--
Canal Cr. at 3-4W	0.386	E.005	0.01	5.4	--	--	--	--	--
Canal Cr. at 3-4W	0.402	E.006	0.008	5.2	--	--	--	--	--
Canal Cr. at 3-4W	0.354	E.004	0.008	5.3	--	--	--	--	--
Canal Cr. at 3-4W	0.387	E.006	<.006	4.3	--	--	--	--	--
Canal Cr. at 3-4W	0.366	E.006	<.006	3.7	--	--	--	--	--
Canal Cr. at 3-4W	0.456	E.007	0.011	4.7	--	--	--	--	--
Canal Cr. at 3-4W	0.943	0.01	<.006	3.5	--	--	--	--	--
Canal Cr. at 3-4W	0.458	E.006	<.006	4.1	--	--	--	--	--
Canal Cr. at 3-4W	0.44	E.007	<.006	5	--	--	--	--	--
Canal Cr. at 3-4W	0.476	E.007	E.003	4	--	--	--	--	--
Canal Cr. at 3-4W	0.411	E.005	E.003	4	--	--	--	--	--
Canal Cr. at 3-4W	0.393	E.006	<.006	4.1	--	--	--	--	--
Canal Cr. at 3-4W	1.05	0.01	E.005	3	--	--	--	--	--
Canal Cr. at 3-4W	0.527	E.007	<.006	3.9	--	--	--	--	--
Canal Cr. at 3-4W	0.466	E.006	E.004	3.9	--	--	--	--	--

Appendix 2A. Field measurements and concentrations of inorganic constituents from groundwater and surface-water samples, seep 3-4W reactive mat pilot test area, West Branch Canal Creek Aberdeen Proving Ground, Maryland, August 2004-January 2005-Continued

Station name	Cobalt dis-solved, $\mu\text{g/L}$	Copper dis-solved, $\mu\text{g/L}$	Iron dis-solved, $\mu\text{g/L}$	Lead dis-solved, $\mu\text{g/L}$	Man-ganese dis-solved, $\mu\text{g/L}$	Mercury dis-solved, $\mu\text{g/L}$	Nickel dis-solved, $\mu\text{g/L}$	Selenium dis-solved, $\mu\text{g/L}$	Silver dis-solved, $\mu\text{g/L}$	Zinc dis-solved, $\mu\text{g/L}$
SURFACE-WATER SAMPLES										
Canal Cr. at 3-4W	0.652	4.6	56	0.24	78	<.02	4.34	<.4	<.2	41.5
Canal Cr. at 3-4W	0.169	4.9	56	0.28	17	<.02	3.58	E.3	<.2	40.1
Canal Cr. at 3-4W	0.152	3.8	13	0.27	7	E.009	1.81	<.4	<.20	76.4
Canal Cr. at 3-4W	0.177	5.5	21	0.34	9	E.009	1.65	<.4	<.20	44.5
Canal Cr. at 3-4W	0.139	4.3	20	0.31	9	E.008	1.42	E.3	<.20	39.5
Canal Cr. at 3-4W	0.173	5.5	15	0.31	9	0.019	1.15	0.5	<.20	33.5
Canal Cr. at 3-4W	0.172	4.7	16	0.24	11	0.018	1.16	E.3	<.20	30.1
Canal Cr. at 3-4W	0.411	4	42	0.3	38	E.007	2.19	E.4	<.20	35.8
Canal Cr. at 3-4W	0.214	3.7	31	0.53	13	E.006	1.28	0.7	<.20	45.1
Canal Cr. at 3-4W	0.169	3.1	22	0.24	14	E.008	1.34	0.5	<.20	25.3
Canal Cr. at 3-4W	0.246	5.2	40	0.41	19	E.008	2.02	E.3	<.20	36.5
Canal Cr. at 3-4W	0.195	5.8	23	0.41	17	E.008	1.31	0.7	<.20	36.9
Canal Cr. at 3-4W	0.174	3.3	21	0.27	16	E.005	1.34	E.4	<.20	24.9
Canal Cr. at 3-4W	0.173	4.8	31	0.36	14	0.074	1.56	0.4	<.20	37.1
Canal Cr. at 3-4W	--	--	285	--	94	--	--	--	--	--
Canal Cr. at 3-4W	--	--	304	--	104	--	--	--	--	--
Canal Cr. at 3-4W	--	--	245	--	114	--	--	--	--	--
Canal Cr. at 3-4W	--	--	334	--	157	--	--	--	--	--
Canal Cr. at 3-4W	--	--	340	--	168	--	--	--	--	--
Canal Cr. at 3-4W	--	--	220	--	121	--	--	--	--	--
Canal Cr. at 3-4W	--	--	307	--	174	--	--	--	--	--
Canal Cr. at 3-4W	--	--	222	--	206	--	--	--	--	--
Canal Cr. at 3-4W	--	--	254	--	221	--	--	--	--	--
Canal Cr. at 3-4W	--	--	91	--	148	--	--	--	--	--
Canal Cr. at 3-4W	--	--	42	--	408	--	--	--	--	--
Canal Cr. at 3-4W	--	--	266	--	166	--	--	--	--	--
Canal Cr. at 3-4W	--	--	21	--	49	--	--	--	--	--
Canal Cr. at 3-4W	--	--	84	--	129	--	--	--	--	--
Canal Cr. at 3-4W	--	--	66	--	184	--	--	--	--	--
Canal Cr. at 3-4W	--	--	47	--	167	--	--	--	--	--
Canal Cr. at 3-4W	--	--	82	--	245	--	--	--	--	--
Canal Cr. at 3-4W	--	--	42	--	238	--	--	--	--	--
Canal Cr. at 3-4W	--	--	18	--	49	--	--	--	--	--
Canal Cr. at 3-4W	--	--	53	--	133	--	--	--	--	--
Canal Cr. at 3-4W	--	--	52	--	161	--	--	--	--	--