

Appendix 2B. 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, February-August 2005

[μ S/cm, microsiemens per centimeter at 25°C; mg/L, milligrams per liter; μ g/L, micrograms per liter; <, less than; --, no data; NR, not reported by lab by time of publication, an 'E' indicates an estimated concentration

Note: Dates and times for a sample may not match field value table because low-producing wells were often sampled for inorganic constituents at later times or dates,

Field pH, Specific Conductance, Water temperature, and Alkalinity samples for low-producing piezometers may have been collected earlier, or on a previous day (see Appendix 1),

O-Deleted, not enough water for analysis; U-deleted, unable to determine due to interference; NR,not reported]

Station name	Date	Time			pH standard units, lab	pH standard units, field	Specific conduct- tance, lab µS/cm	Specific conduct- tance, field µS/cm	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L	Sodium dis- solved, mg/L	Alkalinity,	Alkalinity,	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 SO4	Total dis- solved solids, mg/L	Ammonia dis- solved, mg/L as N
														dissolved, as CaCO3, Lab mg/L	dissolved, as CaCO3, Field mg/L							
GROUNDWATER DATA																						
March-April 2005 sampling																						
PTC3A	3/16/2005	1250	500083	--	3.9	--	729	10.8	22.7	13.6	2.90	61.7	--	--		0.31	125	0.3	24.1	150	--	--
PTC3B	3/16/2005	1310	500084	--	5.0	--	880	15.5	26.6	23.9	3.61	68.3	--	0.4	O-Deleted	157	0.4	38.9	168	--	--	
PTC3C	3/16/2005	1325	500085	--	3.9	--	772	12.0	23.4	12.6	2.79	65.9	--	--		NR	126	0.3	19.6	162	--	--
PTC3C	3/16/2005	1330	500086	--	--	--	--	--	23.7	12.7	2.78	66.1	--	--		0.20	125	0.3	19.8	160	--	--
PTC6A	3/16/2005	1300	500087	--	4.0	--	711	12.0	22.8	13.4	2.77	63.5	--	--		0.27	122	0.4	22.9	145	--	--
PTC6A	3/16/2005	1430	500088	--	--	--	--	--	23.1	14.0	2.89	64.5	--	--		0.25	123	0.4	23.6	145	--	--
PTC6B	3/16/2005	1315	500089	--	3.9	--	791	11.8	26.4	15.2	2.95	69.1	--	--		O-Deleted	132	0.5	22.2	165	--	--
PTC6C	3/17/2005	1015	500119	--	4.8	--	928	12.2	26.5	31.9	4.13	72.5	--		23.5	E.01	176	0.1	55.3	110	--	--
PTC6D	3/18/2005	1015	500118	--	5.4	--	999	8.7	26.9	30.1	3.86	102	--		37.6	E.01	179	E.1	58.8	165	--	--
PTC6E	3/21/2005	1230	500120	--	4.9	--	805	12.1	30.0	24.9	E.78	76.6	--		4.2	E.01	149	0.2	28.7	168	--	--
PTC8A	3/15/2005	1130	500090	--	5.0	--	228	8.5	8.59	6.89	1.96	16.5	--		2.2	0.11	29.1	E.1	13.0	45.2	--	--
PTC8B	3/15/2005	1215	500091	--	4.6	--	297	9.0	11.0	8.05	2.11	23.0	--		1.4	O-Deleted	40.0	0.1	15.2	59.3	--	--
PTC8C	3/15/2005	1300	500092	--	5.3	--	762	6.4	23.8	28.0	4.25	61.5	--		15.2	NR	125	E.1	47.4	127	--	--
PTC8D	3/15/2005	1315	500093	--	5.4	--	645	3.1	18.4	16.5	3.12	64.1	--		11.5	0.40	99.4	0.1	26.5	126	--	--
PTC8D	3/15/2005	1320	500094	--	--	--	--	--	18.3	16.1	3.06	62.8	--			O-Deleted	97.3	0.1	25.4	126	--	--
PTC8E	3/15/2005	1350	500095	--	4.4	--	550	5.4	28.4	18.0	3.67	54.6	--			0.31	90.3	0.5	21.0	142	--	--
PTC10A	3/15/2005	1120	500096	--	4.0	--	848	8.5	22.5	12.3	2.67	89.2	--			0.28	143	0.2	29.2	174	--	--
PTC10B	3/15/2005	1220	500097	--	3.9	--	846	10.6	26.0	13.8	3.00	78.8	--			0.28	141	0.2	25.4	183	--	--
PTC10B	3/15/2005	1225	500098	--	--	--	--	--	26.2	14.1	3.06	79.9	--			O-Deleted	140	0.2	26.1	183	--	--
PTC10C	3/16/2005	1110	500099	--	3.8	--	738	11.7	24.5	30.9	3.91	115	--			NR	204	<.5	52.5	180	--	--
PTC10D	3/16/2005	1045	500100	--	5.0	--	901	12.0	26.1	33.6	4.20	123	--		16.2	NR	211	<.5	69.6	184	--	--
PTC10E	3/16/2005	930	500101	--	4.6	--	1,030	11.3	31.7	21.6	3.86	88.2	--			O-Deleted	150	0.4	29.4	189	--	--
PTC12A	3/15/2005	1045	500102	--	3.8	--	723	10.2	21.8	11.1	2.51	70.4	--			NR	124	E.4	24.0	144	--	--
PTC12B	3/15/2005	1130	500103	--	4.3	--	747	10.2	19.6	12.6	2.88	83.2	--			0.42	126	0.2	28.0	140	--	--
PTC12C	3/16/2005	1125	500104	--	6.0	--	768	11.7	12.9	20.7	4.45	110	--		49.1	O-Deleted	160	E.1	61.1	101	--	--
PTC12D	3/16/2005	1200	500121	--	6.3	--	912	11.4	12.2	18.8	4.66	124	--		66.7	<.02	170	E.1	64.8	118	--	--
PTC12E	3/17/2005	930	500122	--	5.7	--	727	12.2	10.8	15.2	4.22	120	--		38.6	E.01	165	<.1	61.4	120	--	--
PTC12F	3/15/2005	945	500105	--	5.5	--	820	12.7	12.3	12.8	E9.15	93.3	--		31.7	0.27	135	<.1	30.1	138	--	--
PTC12F	3/16/2005	1100	500106	--	--	--	--	--	12.1	12.5	<12.0	91.0	--			0.02	133	<.1	29.8	135	--	--
PTZ1A	3/14/2005	1035	500107	--	3.9	--	1,020	7.9	43.9	21.8	3.88	90.7	--			0.46	177	0.5	38.6	221	--	--
PTZ1B	3/14/2005	1400	500108	--	6.1	--	398	9.5	9.45	20.6	6.33	27.9	--		72.4	NR	77.8	E.1	74.4	1.4	--	--
PTZ1C	3/14/2005	1210	500109	--	4.1	839	904	10.2	35.2	20.8	4.12	87.1	--			0.37	153	1.2	27.6	180	--	--
PTZ1D	3/14/2005	1320	500110	--	5.4	--	177	10.9	6.14	6.49	1.35	13.3	--		10.5	0.10	22.4	E.1	8.31	30.0	--	--
PTZ1D	3/14/2005	1325	500082	--	--	--	--	--	5.94	6.38	1.29	13.0	--			0.10	22.8	E.1	8.24	30.2	--	--
PTZ1E	3/22/2005	1500	500123	--	--	--	--	--	6.12	4.36	1.82	37.0	--			<.02	76.5	E.1	14.8	14.4	--	--
PTZ2A	3/14/2005	1430	500112	--	6.8	--	1,640	8.0	19.1	44.7	14.7	248	--		380	1.87	308	0.3	64.2	4.0	--	--
PTZ2B	3/16/2005	940	500113	--	7.0	--	825	10.2	10.6	17.1	11.3	106	--		219	2.42	120	0.1	71.9	4.2	--	--
PTZ2C	3/14/2005	1205	500115	--	--	--	--	--	9.87	11.6	4.52	81.3	--			0.57	110	E.1	24.2	67.6	--	--
PTZ2D	3/14/2005	1225	500116	--	4.2	--	693	10.4	20.6	12.3	2.65	63.0	--			0.11	122	0.3	17.1	116	--	--
PTZ2E	3/14/2005	1400	500117	4.6	4.4	422	491	12.1	12.7	8.45	2.05	44.1	--			0.15	83.1	0.3	13.2	77.9	--	--

Appendix 2B. 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, February-August 2005--Continued

Station name	Date	Time	Nitrite plus nitrate, dis- solved, mg/L as N	Nitrite dis- solved, mg/L as N	Ortho- phos- phate dis- solved, mg/L as	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	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
PTC3A	3/16/2005	1250	--	--	--	0.9	11,000	1.5	39	2.01	E2	155	1.2	3,570	2.42	1,330	--	56.4	4.4	<3.0	565
PTC3B	3/16/2005	1310	--	--	--	1.3	O-Deleted	1.0	42	E.04	E2	34.2	0.9	19,500	0.58	1,530	NR	28.2	0.7	O-Deleted	52.8
PTC3C	3/16/2005	1325	--	--	--	0.9	--	--	--	--	3.0	--	--	458	--	1,410	0.03	--	--	--	--
PTC3C	3/16/2005	1330	--	--	--	0.9	14,600	0.9	30	3.25	3.0	186	51.7	447	2.89	1,420	0.02	67.7	6.0	<3.0	682
PTC6A	3/16/2005	1300	--	--	--	2.8	11,000	1.8	36	1.79	2.0	146	2.4	2,020	4.40	1,330	<.01	63.6	5.6	<3.0	537
PTC6A	3/16/2005	1430	--	--	--	3.0	10,800	1.7	36	1.29	E2	143	1.7	2,120	5.10	1,350	<.01	62.8	5.3	<3.0	523
PTC6B	3/16/2005	1315	--	--	--	0.9	12,100	1.6	39	3.04	2.0	181	16.1	895	3.01	1,520	<.01	65.6	7.7	<3.0	633
PTC6C	3/17/2005	1015	--	--	--	1.2	--	--	--	--	2.0	--	--	3,280	--	1,530	E.01	--	--	--	--
PTC6D	3/18/2005	1015	--	--	--	1.5	13	0.3	16	1.16	<20	0.09	0.9	17,300	0.19	1,440	<.01	5.26	E.2	<2	96.7
PTC6E	3/21/2005	1230	--	--	--	0.8	--	--	--	--	<10	--	--	13,700	--	1,230	<.01	--	--	--	--
PTC8A	3/15/2005	1130	--	--	--	0.7	230	0.9	32	0.25	<2	26.3	0.7	128	0.47	165	<.01	26.5	E.4	O-Deleted	74.4
PTC8B	3/15/2005	1215	--	--	--	1.1	308	0.7	29	0.22	<2	37.6	0.9	265	0.30	288	<.01	37.7	E.3	O-Deleted	83.5
PTC8C	3/15/2005	1300	--	--	--	4.0	84	2.3	19	0.04	3.0	0.33	1.6	8,250	0.33	1,190	NR	44.4	E.3	O-Deleted	101
PTC8D	3/15/2005	1315	--	--	--	1.1	238	1.6	26	0.05	E2	15.6	1.6	6,940	1.19	762	<.01	14.2	0.4	O-Deleted	101
PTC8D	3/15/2005	1320	--	--	--	1.1	115	1.7	25	0.05	E2	16.7	0.9	6,590	0.97	748	<.01	14.9	0.5	O-Deleted	116
PTC8E	3/15/2005	1350	--	--	--	0.8	1,350	0.3	41	1.37	2.0	--	40.5	666	3.03	900	--	74.0	1.1	--	307
PTC10A	3/15/2005	1120	--	--	--	1.3	12,300	1.3	18	<.04	18.0	92.3	0.7	4,500	0.43	945	<.01	56.9	3.5	<3.0	49.3
PTC10B	3/15/2005	1220	--	--	--	1.1	13,200	1.5	23	1.63	E2	86.2	1.6	4,680	1.08	996	<.01	48.3	3.7	<3.0	378
PTC10B	3/15/2005	1225	--	--	--	1.1	13,400	1.5	24	1.79	E2	85.4	1.4	4,590	1.14	1,010	<.01	48.5	3.7	<3.0	393
PTC10C	3/16/2005	1110	--	--	--	2.1	--	--	--	--	E1	--	--	17,800	--	1,680	<.01	--	--	<2	--
PTC10D	3/16/2005	1045	--	--	--	1.6	--	--	17	0.21	E2	0.13	0.6	22,600	E.07	2,070	<.01	0.8	E.2	--	7.2
PTC10E	3/16/2005	930	--	--	--	0.9	3,910	1.5	53	0.93	3.0	78.7	0.9	13,700	0.31	1,290	<.01	45.2	1.8	O-Deleted	278
PTC12A	3/15/2005	1045	--	--	--	1.3	--	--	--	--	E1	--	--	16,700	--	943	<.01	--	--	--	--
PTC12B	3/15/2005	1130	--	--	--	1.2	6,380	1.4	39	0.32	E1	50.5	0.7	4,140	0.25	836	<.01	30.8	2.6	<2.0	191
PTC12C	3/16/2005	1125	--	--	--	1.5	24	0.5	8	0.05	E1	0.16	0.4	2,460	0.08	1,390	<.01	1.6	E.3	O-Deleted	10.2
PTC12D	3/16/2005	1200	--	--	--	1.2	4	0.3	6	E.03	E2	0.05	0.5	2,790	0.11	1,430	--	1.5	<4	<2	4.9
PTC12E	3/17/2005	930	--	--	--	1.0	--	--	--	--	<2	--	--	10,500	--	1,150	<.01	--	--	--	--
PTC12F	3/15/2005	945	--	--	--	3.8	5	0.3	26	<.04	<150	0.18	0.7	49,300	<.08	599	<.01	0.8	E.4	<2	1.1
PTC12F	3/16/2005	1100	--	--	--	1.2	4	0.4	27	E.03	<150	0.25	0.7	47,800	<.08	602	<.01	0.8	0.5	<2	2.4
PTZ1A	3/14/2005	1035	--	--	--	1.2	12,400	0.9	33	<.04	2.0	53.1	0.9	4,870	E.04	1,460	<.01	46.2	3.4	<3.0	4.1
PTZ1B	3/14/2005	1400	--	--	--	2.5	10	<2	5	<.04	E1	0.09	<.4	753	E.06	1,090	<.01	0.3	<.4	--	2.9
PTZ1C	3/14/2005	1210	--	--	--	1.1	6,470	0.8	89	3.00	2.0	128	25.8	10	1.00	1,120	<.01	106	6.7	<1.6	515
PTZ1D	3/14/2005	1320	--	--	--	0.9	85	E.1	74	0.10	<2	9.31	2.7	<6	0.09	89.4	<.01	10.7	0.6	<2	10.6
PTZ1D	3/14/2005	1325	--	--	--	0.6	96	E.1	71	0.10	E1	9.32	2.5	<6	0.08	88.0	<.01	10.3	0.6	O-Deleted	8.8
PTZ1E	3/22/2005	1500	--	--	--	0.5	--	--	--	--	E1	--	--	1,450	--	985	<.01	--	--	--	--
PTZ2A	3/14/2005	1430	--	--	--	10.2	173	2.0	14	<.04	4.0	0.51	1.0	210	1.98	1,740	E.01	1.6	2.6	--	6.5
PTZ2B	3/16/2005	940	--	--	--	5.6	179	2.5	9	E.03	2.0	0.70	1.0	268	0.64	1,240	<.01	1.8	0.9	--	5.1
PTZ2C	3/14/2005	1205	--	--	--	0.6	5	E.2	18	<.04	E1	0.26	E.3	1,810	<.08	363	<.01	0.6	E.3	--	E.4
PTZ2D	3/14/2005	1225	--	--	--	0.7	9,020	0.8	62	2.91	3.0	195	41.7	E6	1.20	1,440	0.10	73.0	4.6	<2.0	609
PTZ2E	3/14/2005	1400	--	--	--	0.7	5,580	0.6	52	1.65	2.0	126	29.7	<6	0.44	912	0.03	45.6	3.2	<1.4	339

Appendix 2B. 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, February-August 2005--Continued

Station name	Date	Time	pH standard units, lab	pH standard units, field	Specific conduct- tance, lab µS/cm	Specific conduct- tance, field µS/cm	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L	Sodium dis- solved, mg/L	Alkalinity, dissolved, as CaCO3, Lab mg/L	Alkalinity, dissolved, as CaCO3, Field 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 SO4	Total dis- solved solids, mg/L	Ammonia dis- solved, mg/L as N	
August 2005 sampling																					
PTC3A	8/9/2005	1425	500160	--	4.0	--	722	25.3	24.8	12.9	3.12	60.3	--	--	0.21	125	0.2	25.3	154	--	--
PTC3B	8/10/2005	1045	500161	--	5.3	--	906	27.5	29.8	26.3	3.78	68.6	--	7.1	O-Deleted	161	0.3	36.8	178	--	--
PTC3C	8/10/2005	1420	500162	--	3.8	--	732	28.8	23.8	10.6	2.90	59.5	--	--	O-Deleted	116	0.3	17.4	160	--	--
PTC3C	8/10/2005	1425	500163	--	--	--	--	24.3	10.7	2.99	60.0	--	--	--	O-Deleted	114	0.3	17.9	156	--	--
PTC6A	8/10/2005	1600	500164	--	4.0	--	556	27.9	18.4	9.19	2.73	47.8	--	--	0.14	96.0	0.4	17.8	126	--	--
PTC6A	8/10/2005	1605	500165	--	--	--	--	19.3	9.58	2.83	50.2	--	--	--	0.11	95.8	0.3	18.9	125	--	--
PTC6B	8/10/2005	1430	500166	--	4.0	--	625	25.1	20.5	10.9	2.81	53.3	--	--	O-Deleted	104	0.4	19.8	131	--	--
PTC6C	8/10/2005	1240	500167	--	5.1	--	822	24.6	24.9	31.1	3.77	67.9	--	44.9	0.08	174	<1	49.2	124	--	--
PTC6D	8/10/2005	1100	500168	--	5.6	--	929	23.9	25.4	27.8	4.03	96.9	--	47.3	O-Deleted	176	0.1	55.9	156	--	--
PTC6E	8/10/2005	930	500169	--	5.1	--	817	21.9	28.0	23.1	4.25	76.0	--	13.3	0.43	150	E.1	27.2	161	--	--
PTC8A	8/9/2005	1100	500170	--	4.4	--	555	22.5	25.1	15.9	3.21	46.0	--	--	0.20	99.4	0.3	20.0	129	--	--
PTC8B	8/9/2005	1315	500171	--	4.6	--	520	20.3	22.4	15.7	3.38	48.1	--	--	0.19	79.6	0.2	23.8	114	--	--
PTC8C	8/11/2005	1015	500172	--	5.6	--	705	28.1	22.4	26.7	4.17	60.1	--	53.1	0.52	116	<1	44.4	120	--	--
PTC8D	8/11/2005	1100	500173	--	5.6	--	578	28.8	21.9	17.6	3.14	50.1	--	15.8	0.21	84.3	0.1	23.2	116	--	--
PTC8D	8/11/2005	1105	500174	--	--	--	--	21.8	17.7	3.17	49.6	--	--	--	0.21	83.3	0.1	23.4	116	--	--
PTC8E	8/12/2005	900	500175	--	4.6	--	533	22.9	25.9	16.9	3.36	44.4	--	--	0.59	85.2	0.4	17.3	134	--	--
PTC10A	8/10/2005	1115	500176	--	3.8	--	234	27.9	44.7	11.6	3.14	80.4	--	--	0.23	146	0.2	26.9	178	--	--
PTC10B	8/10/2005	1220	500177	--	3.9	--	795	25.8	26.1	12.1	3.02	74.5	--	--	0.22	136	0.2	23.1	175	--	--
PTC10B	8/10/2005	1221	500178	--	--	--	--	24.8	11.4	2.98	70.2	--	--	--	O-Deleted	135	0.1	22.2	174	--	--
PTC10C	8/10/2005	1500	500179	--	4.3	--	1,005	26.2	26.0	31.4	3.96	112	--	--	O-Deleted	200	<1	48.8	177	--	--
PTC10D	8/10/2005	845	500180	--	5.6	--	1,120	19.8	27.5	35.5	4.32	121	--	12.1	O-Deleted	214	<1	64.5	196	--	--
PTC10E	8/10/2005	1550	500181	--	4.4	--	847	22.6	28.2	17.8	3.48	79.2	--	--	0.44	135	0.3	23.6	175	--	--
PTC10E	8/10/2005	1555	500182	--	--	--	--	28.9	17.7	3.41	79.5	--	--	--	0.45	135	0.3	23.3	175	--	--
PTC12A	8/15/2005	1020	500197	--	3.7	--	767	29.3	21.0	9.63	2.93	76.7	--	--	0.24	130	0.2	25.1	144	--	--
PTC12B	8/15/2005	1045	500198	--	4.0	--	736	26.9	19.7	12.0	3.15	81.5	--	--	0.26	131	E.2	28.3	134	--	--
PTC12C	8/15/2005	1240	500199	--	3.5	--	831	26.6	13.4	21.4	4.77	110	--	--	0.30	158	<2	59.2	106	--	--
PTC12D	8/11/2005	1410	500184	--	5.6	--	792	21.7	12.4	19.0	4.83	122	--	72.7	1.29	167	<1	63.4	115	--	--
PTC12E	8/11/2005	1140	500200	--	5.1	--	791	23.6	10.9	15.3	4.26	117	--	63.5	1.19	162	<2	58.0	112	--	--
PTC12F	8/11/2005	1320	500183	--	5.6	--	772	25.2	11.0	11.4	E9.76	86.6	--	42.5	0.95	130	<1	28.1	136	--	--
PTZ1A	8/16/2005	1030	500185	--	3.8	--	993	19.5	42.2	19.9	4.31	88.5	--	--	0.40	171	0.5	34.9	211	--	--
PTZ1B	8/16/2005	1200	500186	--	6.2	--	300	18.6	10.5	22.5	7.10	27.9	--	83.7	0.26	82.3	E.1	73.3	1.7	--	--
PTZ1C	8/16/2005	1310	500187	--	4.2	--	799	18.9	31.9	19.1	4.00	76.9	--	--	0.32	138	1.2	23.6	164	--	--
PTZ1D	8/16/2005	1400	500188	--	5.3	--	182	16.8	10.7	6.49	1.36	13.5	--	12.5	0.09	23.6	E.1	7.35	41.2	--	--
PTZ1D	8/16/2005	1405	500189	--	--	--	--	10.6	6.61	1.40	13.6	--	--	--	0.09	23.5	E.1	7.33	39.9	--	--
PTZ1E	8/16/2005	1430	500190	--	4.5	--	342	17.9	6.15	4.21	1.94	35.0	--	--	0.12	71.3	E.1	13.6	11.3	--	--
PTZ2A	8/15/2005	1245	500191	--	6.9	--	1,640	23.9	19.4	45.1	16.5	244	--	448	2.18	312	E.1	63.9	1.2	--	--
PTZ2B	8/16/2005	930	500192	--	6.9	--	811	21.2	10.4	19.6	12.2	113	--	227	O-Deleted	127	<2	75.7	0.2	--	--
PTZ2C	8/16/2005	1015	500193	--	5.8	--	602	19.8	11.8	12.3	4.88	82.5	--	45.1	0.28	109	<2	22.7	67.4	--	--
PTZ2C	8/16/2005	1100	500194	--	--	--	--	11.1	12.2	4.72	80.4	--	--	--	0.28	111	<2	22.7	68.6	--	--
PTZ2D	8/17/2005	915	500195	--	5.8	--	602	19.8	10.4	6.09	2.24	41.3	--	--	0.12	64.5	0.2	10.5	59.1	--	--
PTZ2E	8/17/2005	1015	500196	--	4.7	--	256	24.0	7.59	6.44	1.58	26.2	--	--	0.09	43.0	<2	9.39	41.7	--	--

Appendix 2B. 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, February-August 2005--Continued

Station name	Date	Time	Ortho-phosphate			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	Cobalt dissolved, µg/L	Copper dissolved, µg/L	Iron dissolved, µg/L	Lead dissolved, µg/L	Manganese dissolved, µg/L	Mercury dissolved, µg/L	Nickel dissolved, µg/L	Selenium dissolved, µg/L	Silver dissolved, µg/L	Zinc dissolved, µg/L
			Nitrite plus nitrate, dissolved, mg/L as N	Nitrite dissolved, mg/L as N	dis-solved, mg/L as P																
PTC3A	8/9/2005	1425	--	--	--	1.5	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	4,510	O-Deleted	1,410	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC3B	8/10/2005	1045	--	--	--	2.9	O-Deleted	O-Deleted	O-Deleted	O-Deleted	E1	O-Deleted	O-Deleted	20,700	O-Deleted	1,580	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC3C	8/10/2005	1420	--	--	--	0.8	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	530	O-Deleted	1,280	E.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC3C	8/10/2005	1425	--	--	--	0.9	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	532	O-Deleted	1,310	E.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6A	8/10/2005	1600	--	--	--	1.5	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	892	O-Deleted	1,150	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6A	8/10/2005	1605	--	--	--	1.4	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	930	O-Deleted	1,210	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6B	8/10/2005	1430	--	--	--	1.0	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	1,030	O-Deleted	1,320	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6C	8/10/2005	1240	--	--	--	1.4	O-Deleted	O-Deleted	O-Deleted	O-Deleted	3.0	O-Deleted	O-Deleted	5,720	O-Deleted	1,360	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6D	8/10/2005	1100	--	--	--	5.5	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<20	O-Deleted	O-Deleted	20,400	O-Deleted	1,420	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC6E	8/10/2005	930	--	--	--	1.7	101	2.8	52	<.04	<10	8.53	E.3	14,800	0.15	1,140	E.01	O-Deleted	<.4	0.20	O-Deleted
PTC8A	8/9/2005	1100	--	--	--	1.0	978	3.8	61	0.13	E1	43.4	E.3	3,490	0.34	692	E.01	O-Deleted	0.9	<.2	O-Deleted
PTC8B	8/9/2005	1315	--	--	--	3.3	O-Deleted	O-Deleted	O-Deleted	O-Deleted	E2	O-Deleted	O-Deleted	1,480	O-Deleted	606	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC8C	8/11/2005	1015	--	--	--	6.8	O-Deleted	O-Deleted	O-Deleted	O-Deleted	3.0	O-Deleted	O-Deleted	7,490	O-Deleted	1,070	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC8D	8/11/2005	1100	--	--	--	1.9	O-Deleted	O-Deleted	O-Deleted	O-Deleted	2.0	O-Deleted	O-Deleted	6,470	O-Deleted	830	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC8D	8/11/2005	1105	--	--	--	1.6	53	1.5	19	E.03	E2	13.3	0.8	6,540	1.81	834	<.01	O-Deleted	0.7	<.2	O-Deleted
PTC8E	8/12/2005	900	--	--	--	1.0	O-Deleted	O-Deleted	O-Deleted	O-Deleted	E2	O-Deleted	O-Deleted	1,290	O-Deleted	746	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC10A	8/10/2005	1115	--	--	--	1.9	--	--	--	--	7	--	--	--	--	921	0.01	--	--	--	--
PTC10B	8/10/2005	1220	--	--	--	1.6	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	3,770	O-Deleted	1,000	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC10B	8/10/2005	1221	--	--	--	1.4	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<2	O-Deleted	O-Deleted	3,630	O-Deleted	973	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC10C	8/10/2005	1500	--	--	--	1.9	O-Deleted	O-Deleted	O-Deleted	O-Deleted	E2	O-Deleted	O-Deleted	17,400	O-Deleted	1,640	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC10D	8/10/2005	845	--	--	--	1.7	O-Deleted	O-Deleted	O-Deleted	O-Deleted	2.0	O-Deleted	O-Deleted	11,200	O-Deleted	2,050	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTC10E	8/10/2005	1550	--	--	--	1.2	O-Deleted	1.3	29	1.23	<2	49.7	0.5	9,700	0.29	1,050	<.01	O-Deleted	2.4	<.2	253
PTC10E	8/10/2005	1555	--	--	--	1.3	O-Deleted	1.4	34	1.44	<2	55.7	0.8	9,580	0.36	1,040	<.01	O-Deleted	2.1	E.2	284
PTC12A	8/15/2005	1020	--	--	--	7.1	7,750	1.6	33	0.05	<2	61.3	0.8	7,510	0.58	734	<.01	36.8	2.7	O-Deleted	147
PTC12B	8/15/2005	1045	--	--	--	6.7	--	0.9	36	0.04	<2	37.5	0.8	4,890	0.45	838	<.01	26.8	2.0	O-Deleted	113
PTC12C	8/15/2005	1240	--	--	--	7.9	6	E.1	9	0.05	E1	0.09	0.9	2,610	E.04	1,350	<.01	1.2	<.4	O-Deleted	7.5
PTC12D	8/11/2005	1410	--	--	--	6.7	8	0.4	7	0.22	E1	0.07	0.9	3,870	<.08	1,290	<.01	0.8	<.4	O-Deleted	14.4
PTC12E	8/11/2005	1140	--	--	--	1.6	5	0.5	9	E.02	E1	0.23	0.8	16,100	<.08	1,080	<.01	1.7	<.4	O-Deleted	86.3
PTC12F	8/11/2005	1320	--	--	--	1.1	O-Deleted	O-Deleted	O-Deleted	O-Deleted	<200	O-Deleted	O-Deleted	50,900	O-Deleted	570	<.01	O-Deleted	O-Deleted	O-Deleted	O-Deleted
PTZ1A	8/16/2005	1030	--	--	--	1.3	13,100	0.9	39	<.04	<2	58.0	<2	5,570	E.04	1,340	<.01	54.3	4.4	<.2	5.8
PTZ1B	8/16/2005	1200	--	--	--	1.9	16	E.1	4	<.04	E2	0.06	E.2	920	<.08	1,120	<.01	0.5	<.4	<.2	1.3
PTZ1C	8/16/2005	1310	--	--	--	1.4	5,510	0.8	83	2.71	<2	115	12.4	24	0.92	979	0.02	89.8	6.9	<.2	498
PTZ1D	8/16/2005	1400	--	--	--	3.5	59	5.8	56	0.22	<2	5.70	1.3	E3	E.08	96.7	E.01	6.9	1.0	<.2	8.4
PTZ1D	8/16/2005	1405	--	--	--	3.7	79	7.2	76	0.28	<2	7.91	1.3	7	0.10	96.3	<.01	9.4	0.6	<.2	10.8
PTZ1E	8/16/2005	1430	--	--	--	0.7	243	E.2	81	0.09	<2	83.9	E.4	1,360	0.17	677	<.01	79.1	<.4	<.2	39.5
PTZ2A	8/15/2005	1245	--	--	--	11.5	13	E.2	14	E.04	5.0	0.21	0.6	186	0.17	1,760	<.01	0.9	E.2	O-Deleted	13.2
PTZ2B	8/16/2005	930	--	--	--	6.8	8	0.6	7	E.02	3.0	0.14	E.2	1,740	E.07	1,520	<.01	0.7	E.2	<.2	4.2
PTZ2C	8/16/2005	1015	--	--	--	1.6	13	<.2	19	<.04	E2	0.24	0.6	1,750	0.11	397	<.01	0.6	<.4	O-Deleted	1.5
PTZ2C	8/16/2005	1100	--	--	--	1.0	8	<.2	19	<.04	E1	0.33	0.5	1,770	<.08	398	<.01	0.6	<.4	<.2	1.5
PTZ2D	8/17/2005	915	--	--	--	4.2	<.3	1.6	<.4	<.08	<2	<.028	<.8	12	<.16	736	<.01	<.12	6.5	<.4	<.1.2
PTZ2E	8/17/2005	1015	--	--	--	0.5	1,380	E.2	60	0.78	<2	29.0	11.6	6	0.36	260	<.01	13.9	1.3	O-Deleted	83.0

Appendix 2B. 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, February-August 2005--Continued

West Branch Canal Creek, Aberdeen Proving Ground, Maryland, February-August 2005--Continued																					
				pH standard units, lab	pH standard units, field	Specific conduc- tance, lab µS/cm	Specific conduc- tance, field µS/cm	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L	Sodium dis- solved, mg/L	Alkalinity, dissolved, as CaCO3, Lab mg/L	Alkalinity, dissolved, as CaCO3, Field 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 SO4	Total dis- solved solids, mg/L	Ammonia dis- solved, mg/L as N
Station name	Date	Time																			
SURFACE WATER DATA																					
February 2005 sampling																					
Seep at 3-4W	2/8/2005	1125	500070	6.7	--	397	--	--	18.3	8.28	2.19	47.3	39.0	--	NR	84.2	0.1	8.62	25.1	366	0.08
Seep at 3-4W	2/8/2005	1525	500071	7.0	--	457	--	--	21.8	8.85	2.46	52.7	48.0	--	J-DELETED	97.8	0.1	9.02	27.3	153	0.13
Seep at 3-4W	2/8/2005	1925	500072	7.0	--	383	--	--	18.9	8.86	2.94	41.1	47.0	--	NR	77.3	0.1	8.61	18.3	234	0.09
Seep at 3-4W	2/8/2005	2325	500073	6.8	--	406	--	--	19.2	8.99	2.65	47.2	45.0	--	NR	84.7	E.1	8.87	22.1	83	0.10
Seep at 3-4W	2/9/2005	325	500074	E6.6	--	414	--	--	20.4	8.91	2.38	48.0	44.0	--	NR	85.4	0.1	9.12	27.2	80	0.09
Seep at 3-4W	2/9/2005	725	500075	7.1	--	424	--	--	20.4	9.25	2.69	49.9	48.0	--	0.17	89.2	E.1	8.97	25.2	67	0.12
Seep at 3-4W	2/9/2005	1125	500076	7.6	--	391	--	--	18.6	8.43	2.24	44.7	41.0	--	NR	80.4	0.1	8.99	26.1	64	0.08
Seep at 3-4W	2/9/2005	1525	500077	7.0	--	396	--	--	18.7	8.68	2.20	46.0	42.0	--	0.20	81.6	E.1	9.22	26.9	46	0.07
Seep at 3-4W	2/9/2005	1925	500078	7.5	--	382	--	--	18.6	8.74	2.85	41.8	46.0	--	NR	77.0	E.1	8.77	19.7	100	0.08
Seep at 3-4W	2/9/2005	2325	500079	7.0	--	417	--	--	20.2	9.29	2.73	48.0	48.0	--	NR	85.9	E.1	8.94	24.6	64	0.09
Seep at 3-4W	2/10/2005	325	500080	7.0	--	412	--	--	20.0	9.07	2.37	47.5	45.0	--	0.16	84.2	0.1	9.17	28.2	98	0.09
Seep at 3-4W	2/10/2005	725	500081	7.5	--	399	--	--	19.1	8.85	2.79	44.4	47.0	--	NR	81.8	E.1	8.71	22.8	55	0.10
March-April 2005 sampling																					
Seep at 3-4W	3/30/2005	800	500124	7.2	--	760	--	--	20.1	15.8	5.01	105	40.0	--	0.69	188	E.1	6.44	31.8	628	0.06
Seep at 3-4W	3/30/2005	1200	500125	7.2	--	957	--	--	21.8	20.4	6.21	143	40.0	--	NR	255	E.1	6.26	42.2	367	<.04
Seep at 3-4W	3/30/2005	1600	500126	7.2	--	472	--	--	19.9	10.4	3.10	54.9	41.0	--	0.32	103	E.1	7.29	31.0	185	E.03
Seep at 3-4W	3/30/2005	2000	500127	7.2	--	397	--	--	19.6	8.25	2.47	42.0	45.0	--	0.23	74.6	0.1	7.03	32.8	302	0.05
Seep at 3-4W	3/31/2005	1	500128	7.3	--	506	--	--	22.7	11.6	3.46	63.0	46.0	--	0.34	110	0.1	7.40	35.7	265	0.06
Seep at 3-4W	3/31/2005	400	500129	7.6	--	306	--	--	17.9	8.23	2.42	38.3	42.0	--	0.20	65.3	E.1	7.58	25.4	85	0.06
Seep at 3-4W	3/31/2005	800	500130	7.4	--	538	--	--	23.3	11.9	3.49	63.0	50.0	--	0.36	114	0.1	7.57	37.1	331	0.08
Seep at 3-4W	3/31/2005	1200	500131	7.4	--	646	--	--	20.3	14.1	4.56	86.8	43.0	--	0.50	155	E.1	6.98	28.1	208	<.04
Seep at 3-4W	3/31/2005	1600	500132	7.4	--	550	--	--	20.4	12.5	3.97	72.2	44.0	--	0.40	130	E.1	7.03	28.5	94	<.04
Seep at 3-4W	3/31/2005	2000	500133	7.2	--	422	--	--	19.9	10.1	2.90	49.8	46.0	--	0.26	83.9	0.1	7.43	28.1	137	E.02
Seep at 3-4W	4/1/2005	1	500134	7.3	--	595	--	--	20.4	13.7	4.27	81.7	44.0	--	0.47	145	0.1	7.07	28.2	97	E.03
Seep at 3-4W	4/1/2005	400	500135	7.2	--	422	--	--	19.8	10.4	2.98	51.4	46.0	--	0.26	80.7	0.1	7.46	28.2	78	0.04
June 2005 sampling																					
Seep at 3-4W	6/14/2005	800	500136	6.5	--	348	--	--	16.1	8.93	2.87	44.1	62.0	--	NR	75.8	0.1	3.71	17.2	4,850	0.10
Seep at 3-4W	6/14/2005	1200	500137	7.4	--	417	--	--	18.3	12.1	3.38	49.8	66.0	--	0.36	85.3	0.1	1.87	19.7	172	E.03
Seep at 3-4W	6/14/2005	1600	500138	7.5	--	400	--	--	18.7	12.3	3.43	49.5	63.0	--	0.32	78.7	0.1	1.59	18.0	105	E.03
Seep at 3-4W	6/14/2005	2000	500139	7.2	--	368	--	--	19.7	10.9	2.58	44.2	64.0	--	NR	71.6	0.1	2.36	14.9	376	0.11
Seep at 3-4W	6/15/2005	1	500140	7.2	--	451	--	--	33.8	13.1	3.43	49.5	72.0	--	NR	80.4	0.2	2.61	53.6	412	0.10
Seep at 3-4W	6/15/2005	400	500141	7.2	--	534	--	--	11.6	15.4	5.09	77.8	38.0	--	NR	139	0.1	1.88	28.0	293	0.15
Seep at 3-4W	6/15/2005	800	500142	7.2	--	461	--	--	23.3	13.9	3.92	54.9	67.0	--	NR	88.4	0.1	2.02	30.7	188	0.14
Seep at 3-4W	6/15/2005	1200	500143	7.3	--	502	--	--	18.5	14.7	4.47	64.8	55.0	--	NR	105	0.1	1.97	28.1	51	0.10
Seep at 3-4W	6/15/2005	1600	500144	7.2	--	549	--	--	13.2	15.4	4.99	76.7	40.0	--	NR	129	0.1	2.00	27.3	59	0.05
Seep at 3-4W	6/15/2005	2000	500145	7.3	--	449	--	--	20.8	13.3	3.79	53.7	59.0	--	0.38	87.3	0.1	1.96	27.4	45	E.04
Seep at 3-4W	6/16/2005	1	500146	7.2	--	523	--	--	17.2	14.6	4.50	67.8	55.0	--	NR	119	0.1	2.28	31.2	30	0.11
Seep at 3-4W	6/16/2005	400	500147	6.8	--	658	--	--	8.54	17.2	5.55	94.7	27.0	--	NR	172	0.1	1.81	31.0	44	0.07

Appendix 2B. 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, February-August 2005--Continued

Station name	Date	Time	Nitrite plus nitrate, dis-solved, mg/L as N	Nitrite dis-solved, mg/L as N	Ortho-phosphate dis-solved, mg/L	Organic carbon dis-solved, mg/L	Aluminum dis-solved, µg/L	Arsenic dis-solved, µg/L	Barium dis-solved, µg/L	Cadmium dis-solved, µg/L	Chromium dis-solved, µg/L	Cobalt dis-solved, µg/L	Copper dis-solved, µg/L	Iron dis-solved, µg/L	Lead dis-solved, µg/L	Manganese 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
SURFACE WATER DATA																					
February 2005 sampling																					
Seep at 3-4W	2/8/2005	1125	0.56	E.006	<.006	4.7	--	--	--	--	--	--	--	102	--	105	--	--	--	--	--
Seep at 3-4W	2/8/2005	1525	0.57	E.007	<.006	4.0	--	--	--	--	--	--	--	98	--	165	--	--	--	--	--
Seep at 3-4W	2/8/2005	1925	1.52	0.01	<.006	2.6	--	--	--	--	--	--	--	29	--	66.0	--	--	--	--	--
Seep at 3-4W	2/8/2005	2325	1.02	0.01	<.006	3.4	--	--	--	--	--	--	--	72	--	117	--	--	--	--	--
Seep at 3-4W	2/9/2005	325	0.59	E.007	<.006	4.1	--	--	--	--	--	--	--	105	--	128	--	--	--	--	--
Seep at 3-4W	2/9/2005	725	0.81	0.01	<.006	3.8	--	--	--	--	--	--	--	73	--	141	--	--	--	--	--
Seep at 3-4W	2/9/2005	1125	0.57	E.006	<.006	4.1	--	--	--	--	--	--	--	112	--	144	--	--	--	--	--
Seep at 3-4W	2/9/2005	1525	0.42	0.01	<.006	4.3	--	--	--	--	--	--	--	126	--	205	--	--	--	--	--
Seep at 3-4W	2/9/2005	1925	1.30	0.01	<.006	2.9	--	--	--	--	--	--	--	41	--	96.5	--	--	--	--	--
Seep at 3-4W	2/9/2005	2325	0.87	0.01	<.006	3.5	--	--	--	--	--	--	--	61	--	134	--	--	--	--	--
Seep at 3-4W	2/10/2005	325	0.47	0.01	<.006	4.2	--	--	--	--	--	--	--	100	--	162	--	--	--	--	--
Seep at 3-4W	2/10/2005	725	1.02	0.01	<.006	3.2	--	--	--	--	--	--	--	54	--	128	--	--	--	--	--
March-April 2005 sampling																					
Seep at 3-4W	3/30/2005	800	1.32	0.01	<.006	3.8	15	0.4	44	0.14	E1	0.39	7.9	66	0.53	30.2	<.01	3.2	<.4	<.2	108
Seep at 3-4W	3/30/2005	1200	1.23	E.007	<.006	3.1	11	0.3	35	0.08	E1	0.37	5.1	35	0.24	38.0	<.01	2.1	<.4	<.2	33.5
Seep at 3-4W	3/30/2005	1600	0.54	E.005	<.006	5.1	30	0.9	29	0.07	<2	0.91	4.9	151	0.77	73.4	<.01	4.3	0.8	<.2	30.9
Seep at 3-4W	3/30/2005	2000	0.40	E.004	0.31	5.4	22	0.8	31	0.06	E1	0.85	5.8	135	1.10	78.5	<.01	3.2	E.4	<.2	35.0
Seep at 3-4W	3/31/2005	1	0.56	E.006	<.006	4.7	19	0.7	33	0.07	E1	0.93	6.4	141	0.92	95.5	<.01	2.8	<.4	<.2	33.5
Seep at 3-4W	3/31/2005	400	0.37	E.004	E.003	5.1	49	0.8	35	0.09	E1	1.80	7.1	220	0.99	114	<.01	5.1	0.5	<.2	45.1
Seep at 3-4W	3/31/2005	800	0.48	E.005	E.004	5.0	23	1.0	46	0.07	E1	1.15	7.6	147	0.83	111	<.01	4.4	0.7	<.2	38.8
Seep at 3-4W	3/31/2005	1200	1.46	0.01	<.006	5.0	10	0.8	27	0.04	E1	0.34	5.4	37	0.26	32.7	<.01	2.8	1.3	<.2	18.0
Seep at 3-4W	3/31/2005	1600	1.06	0.01	<.006	3.7	10	0.4	28	0.05	E1	0.49	4.4	65	0.39	51.3	<.01	2.2	<.4	<.2	19.1
Seep at 3-4W	3/31/2005	2000	0.55	E.005	<.006	4.8	18	0.6	31	0.04	<2	0.91	3.8	138	0.60	73.1	<.01	2.8	0.4	<.2	22.6
Seep at 3-4W	4/1/2005	1	1.33	0.01	<.006	3.4	10	0.6	27	E.04	<2	0.47	3.3	71	0.28	53.3	<.01	2.0	0.7	<.2	13.6
Seep at 3-4W	4/1/2005	400	0.55	E.006	<.006	4.7	22	0.7	32	0.05	E1	1.20	3.5	134	0.56	77.9	<.01	3.4	0.5	<.2	23.5
June 2005 sampling																					
Seep at 3-4W	6/14/2005	800	<.06	<.008	0.01	6.4	--	--	--	--	--	--	--	1,600	--	1,940	--	--	--	--	--
Seep at 3-4W	6/14/2005	1200	<.06	<.008	0.01	7.2	--	--	--	--	--	--	--	346	--	473	--	--	--	--	--
Seep at 3-4W	6/14/2005	1600	<.06	<.008	0.01	7.2	--	--	--	--	--	--	--	378	--	252	--	--	--	--	--
Seep at 3-4W	6/14/2005	2000	<.06	E.004	0.01	6.9	--	--	--	--	--	--	--	190	--	273	--	--	--	--	--
Seep at 3-4W	6/15/2005	1	E.04	E.006	E.005	6.7	--	--	--	--	--	--	--	221	--	328	--	--	--	--	--
Seep at 3-4W	6/15/2005	400	0.14	0.01	<.006	5.4	--	--	--	--	--	--	--	60	--	200	--	--	--	--	--
Seep at 3-4W	6/15/2005	800	E.04	E.005	<.006	6.9	--	--	--	--	--	--	--	48	--	342	--	--	--	--	--
Seep at 3-4W	6/15/2005	1200	0.07	E.007	<.006	6.7	--	--	--	--	--	--	--	42	--	326	--	--	--	--	--
Seep at 3-4W	6/15/2005	1600	0.11	E.007	<.006	6.4	--	--	--	--	--	--	--	37	--	256	--	--	--	--	--
Seep at 3-4W	6/15/2005	2000	E.04	<.008	<.006	7.0	--	--	--	--	--	--	--	41	--	196	--	--	--	--	--
Seep at 3-4W	6/16/2005	1	0.06	E.006	<.006	6.5	--	--	--	--	--	--	--	44	--	260	--	--	--	--	--
Seep at 3-4W	6/16/2005	400	0.18	E.007	<.006	5.0	--	--	--	--	--	--	--	36	--	185	--	--	--	--	--

Appendix 2B. 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, February-August 2005--Continued

West Branch Canal Creek, Aberdeen Proving Ground, Maryland, February-August 2005--Continued																					
			pH standard units, lab	pH standard units, field	Specific conduc- tance, lab µS/cm	Specific conduc- tance, field µS/cm	Water temper- ature, deg. C.	Calcium, dis- solved, mg/L	Mag- nesium dis- solved, mg/L	Potas- sium dis- solved, mg/L	Sodium dis- solved, mg/L	Alkalinity, dissolved, as CaCO3, Lab mg/L	Alkalinity, dissolved, as CaCO3, Field 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 SO4	Total dis- solved solids, mg/L	Ammonia dis- solved, mg/L as N	
Station name	Date	Time																			
August 2005 sampling																					
Seep at 3-4W	8/2/2005	845	500148	7.8	--	1,050	--	--	18.0	25.6	6.50	164	45.0	--	1.26	308	0.1	1.95	41.1	21	0.11
Seep at 3-4W	8/2/2005	1245	500149	7.4	--	946	--	--	18.8	21.4	5.25	133	52.0	--	0.82	243	0.1	2.05	34.0	35	<.04
Seep at 3-4W	8/2/2005	1645	500150	7.3	--	854	--	--	19.5	19.5	4.34	116	54.0	--	0.72	213	0.1	2.51	30.1	12	<.04
Seep at 3-4W	8/2/2005	2045	500151	7.5	--	731	--	--	19.8	16.9	3.31	98.3	57.0	--	0.68	177	0.1	3.00	26.6	11	<.04
Seep at 3-4W	8/3/2005	45	500152	7.4	--	529	--	--	19.7	13.2	2.23	66.7	59.0	--	0.35	118	0.1	4.29	20.6	26	<.04
Seep at 3-4W	8/3/2005	445	500153	7.4	--	496	--	--	20.1	12.2	1.95	58.8	60.0	--	0.30	105	0.1	4.74	18.8	14	<.04
Seep at 3-4W	8/3/2005	845	500154	7.5	--	668	--	--	20.4	15.8	2.97	82.7	64.0	--	0.59	154	0.1	3.39	23.1	13	<.04
Seep at 3-4W	8/3/2005	1245	500155	7.3	--	503	--	--	19.7	12.8	2.08	62.8	59.0	--	0.33	108	0.1	4.41	19.5	18	<.04
Seep at 3-4W	8/3/2005	1645	500156	7.4	--	446	--	--	20.0	10.8	1.68	50.4	57.0	--	0.25	91.6	0.1	4.97	17.3	<10	<.04
Seep at 3-4W	8/3/2005	2045	500157	7.3	--	428	--	--	20.2	10.4	1.65	49.2	57.0	--	0.23	88.8	0.1	4.79	17.2	<10	<.04
Seep at 3-4W	8/4/2005	45	500158	7.2	--	427	--	--	20.7	10.5	1.65	47.1	59.0	--	0.22	84.8	0.1	5.27	17.2	11	<.04
Seep at 3-4W	8/4/2005	445	500159	7.3	--	435	--	--	21.4	11.0	1.90	48.9	62.0	--	0.23	87.0	0.1	5.62	16.9	<10	<.04

Appendix 2B. 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, February-August 2005--Continued

Station name	Date	Time	Nitrite plus nitrate, dissolved, mg/L as N	Nitrite dis-solved, mg/L as N	Ortho-phosphate dis-solved, mg/L	Organic carbon dis-solved, mg/L	Aluminum dis-solved, µg/L	Arsenic dis-solved, µg/L	Barium dis-solved, µg/L	Cadmium dis-solved, µg/L	Chromium dis-solved, µg/L	Cobalt dis-solved, µg/L	Copper dis-solved, µg/L	Iron dis-solved, µg/L	Lead dis-solved, µg/L	Manganese 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
August 2005 sampling																					
Seep at 3-4W	8/2/2005	845	<.06	<.008	0.02	5.5	5.0	1.6	28	0.12	E1	0.21	10.2	28	0.64	52.3	<.01	3.7	1.6	<.2	126
Seep at 3-4W	8/2/2005	1245	<.06	<.008	<.006	6.0	9.0	1.4	24	0.09	E2	0.16	9.3	45	0.66	30.4	<.01	2.4	1.2	<.2	52.8
Seep at 3-4W	8/2/2005	1645	<.06	<.008	0.01	5.7	3.0	1.0	25	E.04	E1	0.14	6.6	84	0.60	22.2	<.01	2.4	<.4	<.2	70.6
Seep at 3-4W	8/2/2005	2045	<.06	<.008	E.003	5.5	5.0	1.4	24	0.05	E1	0.14	6.1	57	0.83	15.4	<.01	2.1	0.9	<.2	48.5
Seep at 3-4W	8/3/2005	45	<.06	<.008	<.006	5.3	4.0	1.3	27	0.05	<2	0.14	7.8	69	1.01	22.4	<.01	2.2	0.6	<.2	50.4
Seep at 3-4W	8/3/2005	445	<.06	<.008	<.006	4.9	4.0	0.9	26	<.04	E1	0.17	3.9	50	0.53	47.6	<.01	2.1	<.4	<.2	28.3
Seep at 3-4W	8/3/2005	845	<.06	<.008	<.006	5.4	4.0	1.5	25	E.03	E1	0.24	6.0	92	1.02	123	<.01	2.2	0.8	<.2	28.9
Seep at 3-4W	8/3/2005	1245	<.06	<.008	E.003	5.0	7.0	1.2	24	0.04	E1	0.26	5.3	55	0.69	62.6	<.01	2.0	0.5	<.2	25.4
Seep at 3-4W	8/3/2005	1645	<.06	<.008	E.003	4.6	6.0	1.1	23	E.02	<2	0.27	3.9	60	0.79	32.6	<.01	1.8	E.4	<.2	33.1
Seep at 3-4W	8/3/2005	2045	<.06	<.008	<.006	4.7	5.6	1.1	25	0.05	E1	0.424	3.2	42	0.48	63.4	<.01	1.8	0.4	<.2	25.0
Seep at 3-4W	8/4/2005	45	<.06	<.008	E.003	4.1	5.0	1.1	29	<.04	<2	0.33	3.2	54	0.63	58.6	<.01	2.0	0.5	<.2	35.8
Seep at 3-4W	8/4/2005	445	<.06	<.008	<.006	4.4	4.0	1.2	30	E.03	E1	0.39	3.0	42	0.42	212	<.01	2.0	E.3	<.2	30.0