Appendix A

for

Effects of mining-derived metals on riffle-dwelling crayfish in southwestern Missouri and southeastern Kansas of the Tri-State Mining District, USA

Ann L. Allert[1], Robert J. DiStefano[2], Christopher J. Schmitt[1], James F. Fairchild[1], and William G. Brumbaugh[1]

[1]U.S. Geological Survey, Columbia Environmental Research Center, 4200 New Haven Road, Columbia, MO 65201

[2]Missouri Department of Conservation, 1110 College Avenue, Columbia, MO 65211

Natural Resource Damage Assessment and Restoration Program

Administrative Report 08-NRDAR-03

Submitted to: U.S. Fish and Wildlife Service (USFWS)

Project Officer: David E Mosby, USFWS, Columbia Ecological Services Office
101 Park DeVille Drive, Suite A, Columbia, MO 65203

August 11, 2011

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47580	1-1	07/13/09	1	detritus	11.5	12.4	69.6	0.89	4.76
47581	1-2	07/13/09	1	detritus	12.7	12.6	79.2	1.18	5.59
47582	1-3	07/13/09	1	detritus	14.1	14.4	98.0	1.62	7.29
47583	2-1	07/14/09	2	detritus	22.9	31.9	10700.	150.	726.
47584	2-2	07/14/09	2	detritus	24.8	22.8	8330.	158.	572.
47585	2-3	07/14/09	2	detritus	22.2	31.5	10900.	147.	714.
47586	3-1	07/14/09	3	detritus	30.7	43.3	10200.	149.	959.
47587	3-2	07/14/09	3	detritus	27.9	27.3	9460.	113.	559.
47588	3-3	07/14/09	3	detritus	40.7	56.5	12300.	167.	954.
47589	4-1	07/15/09	4	detritus	22.3	22.0	6440.	58.9	182.
47590	4-2	07/15/09	4	detritus	27.5	19.9	8120.	60.9	196.
47591	4-3	07/15/09	4	detritus	26.0	14.9	6360.	36.1	171.
47592	5-1	07/15/09	5	detritus	37.7	50.0	12600.	170.	866.
47593	5-2	07/15/09	5	detritus	42.5	66.5	14800.	194.	1410.
47594	5-3	07/15/09	5	detritus	32.9	38.5	10700.	94.9	787.
47595	6-1	07/20/09	6	detritus	28.0	21.2	8740.	64.0	409.
47596	6-2	07/20/09	6	detritus	32.3	50.4	16100.	228.	1200.
47597	6-3	07/20/09	6	detritus	25.6	21.9	10100.	89.8	525.
47598	7-1	07/21/09	7	detritus	17.2	13.4	1420.	5.27	72.7
47599	7-2	07/21/09	7	detritus	21.6	20.9	3400.	21.4	189.
47600	7-3	07/21/09	7	detritus	17.5	13.7	1170.	3.42	63.4
47601	8-1	07/22/09	8	detritus	52.8	60.8	30200.	369.	1070.
47602	8-2	07/22/09	8	detritus	33.7	63.7	21500.	314.	1320.
47603	8-3	07/22/09	8	detritus	29.7	36.7	14200.	181.	696.
47604	9-1	07/22/09	9	detritus	15.5	14.3	296.	2.20	11.9
47605	9-2	07/22/09	9	detritus	21.7	22.2	433.	4.20	14.3
47606	9-3	07/22/09	9	detritus	20.3	21.5	396.	3.94	15.2
47607	10-1	07/23/09	10	detritus	33.7	107.	7020.	53.0	316.
47608	10-2	07/23/09	10	detritus	29.3	30.4	5260.	39.4	214.
47609	10-3	07/23/09	10	detritus	28.7	23.7	5530.	62.5	198.
47610	11-1	07/27/09	11	detritus	28.8	35.9	7200.	63.3	623.
47611	11-2	07/27/09	11	detritus	32.2	34.9	7420.	91.6	594.
47612	11-3	07/27/09	11	detritus	36.0	43.1	8270.	97.2	749.

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47613	12-1	07/27/09	12	detritus	30.1	50.4	6550.	71.6	584.
47614	12-2	07/27/09	12	detritus	26.9	30.0	6350.	201.	324.
47615	12-3	07/27/09	12	detritus	25.4	27.0	5350.	56.7	236.
47616	13-1	07/28/09	13	detritus	31.3	34.0	6510.	87.9	331.
47617	13-2	07/28/09	13	detritus	30.7	25.3	4910.	42.3	178.
47618	13-3	07/28/09	13	detritus	23.0	19.2	2900.	19.8	117.
47619	14-1	07/28/09	14	detritus	26.3	20.0	4160.	46.2	200.
47620	14-2	07/28/09	14	detritus	28.1	24.0	5260.	37.9	254.
47621	14-3	07/28/09	14	detritus	28.1	23.2	5230.	28.9	244.
47622	15-1	07/29/09	15	detritus	17.6	19.1	3530.	21.8	205.
47623	15-2	07/29/09	15	detritus	19.4	24.3	4380.	33.2	268.
47624	15-3	07/29/09	15	detritus	18.3	19.8	4630.	32.3	258.
47971	16-1	09/03/09	16	detritus	39.7	38.2	8650.	115.	430.
47972	16-2	09/03/09	16	detritus	45.2	36.2	8890.	117.	389.
47973	16-3	09/03/09	16	detritus	31.3	38.8	7870.	97.5	492.
47670	1-1	07/13/09	1	sediment < 250µm	31.7	12.9	328.	2.74	128.
47671	1-2	07/13/09	1	sediment < 250µm	38.9	20.2	255.	1.87	46.8
47672	1-3	07/13/09	1	sediment < 250µm	33.4	15.1	148.	1.43	41.5
47673	2-1	07/14/09	2	sediment < 250µm	37.8	24.5	11600.	76.9	983.
47674	2-2	07/14/09	2	sediment < 250µm	32.2	27.1	8320.	61.2	667.
47675	2-3	07/14/09	2	sediment < 250µm	36.0	22.1	10700.	66.5	755.
47676	3-1	07/14/09	3	sediment < 250µm	29.3	21.9	9220.	62.9	572.
47677	3-2	07/14/09	3	sediment < 250µm	50.2	48.2	21500.	143.	2120.
47678	3-3	07/14/09	3	sediment < 250µm	28.1	26.5	7350.	57.4	772.
47679	4-1	07/15/09	4	sediment < 250µm	23.6	12.4	2200.	15.9	131.
47680	4-2	07/15/09	4	sediment < 250µm	20.1	8.55	2370.	13.4	139.
47681	4-3	07/15/09	4	sediment < 250µm	44.7	17.0	2070.	13.5	133.
47682	5-1	07/15/09	5	sediment < 250µm	49.0	33.5	10800.	53.7	912.
47683	5-2	07/15/09	5	sediment < 250µm	40.4	40.5	9140.	42.1	1270.
47684	5-3	07/15/09	5	sediment < 250µm	39.4	46.6	10500.	48.0	1300.
47685	6-1	07/20/09	6	sediment < 250µm	36.3	22.3	7430.	45.1	863.

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47686	6-2	07/20/09	6	sediment < 250µm	51.9	19.8	6880.	44.7	575.
47687	6-3	07/20/09	6	sediment < 250µm	22.1	16.6	6300.	36.3	426.
47688	7-1	07/21/09	7	sediment < 250µm	24.3	16.5	2400.	7.67	281.
47689	7-2	07/21/09	7	sediment < 250µm	28.1	14.3	2710.	9.70	222.
47690	7-3	07/21/09	7	sediment < 250µm	15.6	10.3	1470.	7.30	144.
47691	8-1	07/22/09	8	sediment < 250µm	20.6	16.6	6910.	49.1	316.
47692	8-2	07/22/09	8	sediment < 250µm	30.2	21.0	6440.	42.2	465.
47693	8-3	07/22/09	8	sediment < 250µm	24.3	15.0	6350.	38.1	468.
47694	9-1	07/22/09	9	sediment < 250µm	21.4	13.0	304.	2.75	30.0
47695	9-2	07/22/09	9	sediment < 250µm	26.8	13.0	315.	2.75	30.9
47696	9-3	07/22/09	9	sediment < 250µm	27.0	15.4	351.	3.05	31.3
47697	10-1	07/23/09	10	sediment < 250µm	33.8	20.8	4380.	20.8	347.
47698	10-2	07/23/09	10	sediment < 250µm	39.2	31.1	8900.	50.7	710.
47699	10-3	07/23/09	10	sediment < 250µm	25.1	18.8	2890.	20.0	207.
47700	11-1	07/27/09	11	sediment < 250µm	45.6	57.1	24400.	141.	2170.
47701	11-2	07/27/09	11	sediment < 250µm	83.6	71.0	12900.	71.9	3940.
47702	11-3	07/27/09	11	sediment < 250µm	71.1	58.5	12100.	85.9	1850.
47703	12-1	07/27/09	12	sediment < 250µm	27.9	28.8	6000.	45.6	1330.
47704	12-2	07/27/09	12	sediment < 250µm	33.6	30.3	5270.	54.4	603.
47705	12-3	07/27/09	12	sediment < 250µm	29.3	22.9	4250.	36.8	398.
47706	13-1	07/28/09	13	sediment < 250µm	25.6	19.3	2300.	23.4	167.
47707	13-2	07/28/09	13	sediment < 250µm	25.6	19.8	2370.	22.5	182.
47708	13-3	07/28/09	13	sediment < 250µm	33.8	39.0	2350.	20.8	184.
47709	14-1	07/28/09	14	sediment < 250µm	23.4	17.0	1990.	16.9	170.
47710	14-2	07/28/09	14	sediment < 250µm	18.7	14.7	2060.	10.1	177.
47711	14-3	07/28/09	14	sediment < 250µm	23.3	19.9	2590.	19.4	180.
47712	15-1	07/29/09	15	sediment < 250µm	16.1	12.6	2120.	9.29	150.
47713	15-2	07/29/09	15	sediment < 250µm	17.9	14.0	2400.	12.9	164.
47714	15-3	07/29/09	15	sediment < 250µm	16.3	13.0	2710.	10.3	229.
47977	16-1	09/03/09	16	sediment < 250µm	22.8	19.3	2700.	25.2	217.
47978	16-2	09/03/09	16	sediment < 250µm	32.7	20.5	2650.	21.6	252.
47979	16-3	09/03/09	16	sediment < 250µm	26.3	17.4	2520.	19.8	227.

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47523	1-1	07/13/09	1	crayfish (O. macrus)	1.52	50.8	76.5	0.95	0.49
47524	1-2	07/13/09	1	crayfish (O. macrus)	1.31	110.	84.9	1.03	0.38
47525	1-3	07/13/09	1	crayfish (O. macrus)	1.15	119.	81.9	1.35	0.28
47526	7-1	07/21/09	7	crayfish (O. macrus)	1.90	107.	169.	0.38	5.51
47527	7-2	07/21/09	7	crayfish (O. macrus)	2.25	103.	194.	0.50	6.76
47528	7-3	07/21/09	7	crayfish (O. macrus)	1.90	136.	180.	0.30	5.97
47529	9-1	07/22/09	9	crayfish (O. macrus)	1.33	114.	110.	0.26	0.70
47530	9-2	07/22/09	9	crayfish (O. macrus)	0.99	120.	102.	0.39	0.36
47531	9-3	07/22/09	9	crayfish (O. macrus)	2.04	98.5	99.9	0.36	1.10
47532	15-1	07/29/09	15	crayfish (O. macrus)	1.90	119.	255.	1.72	8.52
47533	15-2	07/29/09	15	crayfish (O. macrus)	2.06	123.	231.	2.05	12.7
47534	15-3	07/29/09	15	crayfish (O. macrus)	2.27	106.	262.	1.65	9.95
47535	1-1	07/13/09	1	crayfish (O. neglectus)	0.98	80.2	69.0	0.49	0.28
47536	1-2	07/13/09	1	crayfish (O. neglectus)	1.18	72.9	82.5	0.61	0.39
47537	1-3	07/13/09	1	crayfish (O. neglectus)	0.91	89.4	89.0	0.88	0.26
47538	2-1	07/14/09	2	crayfish (O. neglectus)	1.51	62.0	340.	4.45	10.9
47539	2-2	07/14/09	2	crayfish (O. neglectus)	1.27	73.3	339.	4.42	9.33
47540	2-3	07/14/09	2	crayfish (O. neglectus)	1.39	76.8	338.	4.10	23.7
47541	3-1	07/14/09	3	crayfish (O. neglectus)	1.78	63.0	373.	8.27	8.44
47542	3-2	07/14/09	3	crayfish (O. neglectus)	1.59	75.0	385.	6.59	9.46
47543	3-3	07/14/09	3	crayfish (O. neglectus)	2.07	82.6	440.	7.02	10.1
47544	4-1	07/15/09	4	crayfish (O. neglectus)	1.89	58.3	286.	2.07	5.18
47545	4-2	07/15/09	4	crayfish (O. neglectus)	1.55	58.8	252.	1.55	5.00
47546	4-3	07/15/09	4	crayfish (O. neglectus)	1.06	38.4	186.	1.79	2.97
47547	5-1	07/15/09	5	crayfish (O. neglectus)	1.47	92.4	316.	10.3	13.8
47548	5-2	07/15/09	5	crayfish (O. neglectus)	1.50	87.7	364.	9.26	14.0
47549	5-3	07/15/09	5	crayfish (O. neglectus)	1.54	76.2	359.	6.18	31.2
47550	6-1	07/20/09	6	crayfish (O. neglectus)	1.77	74.6	330.	3.73	8.84
47551	6-2	07/20/09	6	crayfish (O. neglectus)	2.50	74.5	482.	4.80	18.9
47552	6-3	07/20/09	6	crayfish (O. neglectus)	1.92	63.6	438.	3.60	19.5

[***bold and italicized*** values are > MDL but < MQL and have higher uncertainty]

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47553	7-1	07/21/09	7	crayfish (O. neglectus)	1.16	71.3	121.	0.26	3.21
47554	7-2	07/21/09	7	crayfish (O. neglectus)	2.03	94.6	221.	0.64	4.35
47555	7-3	07/21/09	7	crayfish (O. neglectus)	1.48	83.1	130.	0.30	3.06
47556	8-1	07/22/09	8	crayfish (O. neglectus)	1.19	72.0	255.	8.52	3.76
47557	8-2	07/22/09	8	crayfish (O. neglectus)	1.93	85.4	343.	9.04	5.12
47558	8-3	07/22/09	8	crayfish (O. neglectus)	2.38	88.9	471.	8.44	11.5
47559	9-1	07/22/09	9	crayfish (O. neglectus)	0.86	59.2	62.2	***0.15***	0.28
47560	9-2	07/22/09	9	crayfish (O. neglectus)	1.11	84.0	80.6	***0.22***	0.49
47561	9-3	07/22/09	9	crayfish (O. neglectus)	1.29	95.2	80.3	***0.21***	0.68
47562	10-1	07/23/09	10	crayfish (O. neglectus)	1.88	69.5	179.	1.30	4.43
47563	10-2	07/23/09	10	crayfish (O. neglectus)	2.73	85.9	273.	2.13	6.62
47564	10-3	07/23/09	10	crayfish (O. neglectus)	1.05	64.8	160.	2.54	2.97
47565	11-1	07/27/09	11	crayfish (O. neglectus)	1.57	104.	461.	10.3	15.8
47566	11-2	07/27/09	11	crayfish (O. neglectus)	1.99	129.	503.	9.81	25.6
47567	11-3	07/27/09	11	crayfish (O. neglectus)	2.16	117.	536.	10.3	20.9
47568	12-1	07/27/09	12	crayfish (O. neglectus)	1.79	98.1	267.	3.46	12.2
47569	12-2	07/27/09	12	crayfish (O. neglectus)	1.10	84.4	198.	2.61	5.04
47570	12-3	07/27/09	12	crayfish (O. neglectus)	1.01	84.3	194.	2.84	5.99
47571	13-1	07/28/09	13	crayfish (O. neglectus)	1.15	90.3	180.	1.28	2.80
47572	13-2	07/28/09	13	crayfish (O. neglectus)	1.26	83.4	155.	1.07	3.08
47573	13-3	07/28/09	13	crayfish (O. neglectus)	1.62	90.6	162.	1.07	6.00
47574	14-1	07/28/09	14	crayfish (O. neglectus)	1.68	77.5	185.	1.56	3.05
47575	14-2	07/28/09	14	crayfish (O. neglectus)	0.88	53.9	133.	1.29	2.26
47576	14-3	07/28/09	14	crayfish (O. neglectus)	1.40	66.3	162.	1.61	2.85
47577	15-1	07/29/09	15	crayfish (O. neglectus)	1.32	91.5	195.	1.14	5.00
47578	15-2	07/29/09	15	crayfish (O. neglectus)	1.43	83.0	181.	1.31	5.95
47579	15-3	07/29/09	15	crayfish (O. neglectus)	1.44	78.7	166.	1.36	5.43
47968	16-1	08/03/09	16	crayfish (O. neglectus)	1.60	84.5	263.	2.63	5.41
47969	16-2	08/03/09	16	crayfish (O. neglectus)	1.29	119.	217.	1.72	3.79
47970	16-3	08/03/09	16	crayfish (O. neglectus)	1.48	72.0	225.	2.12	4.19

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47625	1-1	07/13/09	1	whole sediment	29.2	8.58	159.	0.80	26.2
47626	1-2	07/13/09	1	whole sediment	29.8	8.50	129.	0.74	26.9
47627	1-3	07/13/09	1	whole sediment	22.4	12.1	199.	1.31	32.2
47628	2-1	07/14/09	2	whole sediment	15.7	20.7	5430.	30.5	369.
47629	2-2	07/14/09	2	whole sediment	19.3	28.8	2650.	16.1	274.
47630	2-3	07/14/09	2	whole sediment	12.7	9.20	4430.	25.4	326.
47631	3-1	07/14/09	3	whole sediment	20.6	17.1	14920.	97.5	513.
47632	3-2	07/14/09	3	whole sediment	29.3	24.2	17950.	97.3	443.
47633	3-3	07/14/09	3	whole sediment	20.5	190.	18920.	125.	756.
47634	4-1	07/15/09	4	whole sediment	27.7	9.16	896.	2.35	50.0
47635	4-2	07/15/09	4	whole sediment	16.0	6.36	1340.	6.91	93.0
47636	4-3	07/15/09	4	whole sediment	21.3	6.43	1260.	4.74	106.
47637	5-1	07/15/09	5	whole sediment	19.8	12.5	9100.	44.4	398.
47638	5-2	07/15/09	5	whole sediment	27.8	22.5	6650.	30.7	770.
47639	5-3	07/15/09	5	whole sediment	25.8	31.8	8340.	40.7	823.
47640	6-1	07/20/09	6	whole sediment	22.5	11.4	4120.	21.7	411.
47641	6-2	07/20/09	6	whole sediment	27.2	10.2	3140.	17.0	296.
47642	6-3	07/20/09	6	whole sediment	24.0	18.4	4550.	24.2	432.
47643	7-1	07/21/09	7	whole sediment	13.9	6.89	2020.	3.47	99.0
47644	7-2	07/21/09	7	whole sediment	14.1	8.23	4870.	23.9	84.6
47645	7-3	07/21/09	7	whole sediment	11.3	6.32	1320.	6.40	90.7
47646	8-1	07/22/09	8	whole sediment	22.3	14.4	5620.	40.6	332.
47647	8-2	07/22/09	8	whole sediment	24.0	13.6	5610.	32.2	491.
47648	8-3	07/22/09	8	whole sediment	22.8	15.5	8860.	47.1	247.
47649	9-1	07/22/09	9	whole sediment	23.6	11.6	288.	2.16	29.2
47650	9-2	07/22/09	9	whole sediment	31.0	9.22	266.	1.04	40.9
47651	9-3	07/22/09	9	whole sediment	29.7	9.17	250.	1.34	27.5
47652	10-1	07/23/09	10	whole sediment	15.2	10.5	5180.	18.4	356.
47653	10-2	07/23/09	10	whole sediment	17.0	10.7	5860.	24.6	275.
47654	10-3	07/23/09	10	whole sediment	15.7	9.52	1710.	5.71	192.
47655	11-1	07/27/09	11	whole sediment	24.3	40.0	39640.	211.	1080.
47656	11-2	07/27/09	11	whole sediment	35.4	24.0	7290.	31.4	1160.
47657	11-3	07/27/09	11	whole sediment	25.8	18.6	9200.	51.3	532.

[***bold and italicized*** values are > MDL but < MQL and have higher uncertainty]

CERC ID	Field ID	Collection Date	Site	Matrix	Ni	Cu	Zn	Cd	Pb
47658	12-1	07/27/09	12	whole sediment	16.6	8.15	2240.	14.8	2150.
47659	12-2	07/27/09	12	whole sediment	25.2	12.3	3450.	19.7	555.
47660	12-3	07/27/09	12	whole sediment	19.3	12.5	3800.	28.9	332.
47661	13-1	07/28/09	13	whole sediment	19.3	9.97	1440.	11.5	113.
47662	13-2	07/28/09	13	whole sediment	17.8	9.85	1480.	9.79	126.
47663	13-3	07/28/09	13	whole sediment	21.8	11.5	858.	3.20	66.1
47664	14-1	07/28/09	14	whole sediment	18.2	8.75	1350.	5.51	126.
47665	14-2	07/28/09	14	whole sediment	13.6	9.36	1300.	5.14	113.
47666	14-3	07/28/09	14	whole sediment	17.1	11.2	1940.	11.3	153.
47667	15-1	07/29/09	15	whole sediment	13.5	8.53	1590.	6.73	113.
47668	15-2	07/29/09	15	whole sediment	13.7	7.20	1290.	6.00	133.
47669	15-3	07/29/09	15	whole sediment	12.3	10.1	2630.	8.30	162.
47974	16-1	09/03/09	16	whole sediment	18.0	9.76	1830.	12.7	163.
47975	16-2	09/03/09	16	whole sediment	19.6	10.1	2020.	13.2	144.
47976	16-3	09/03/09	16	whole sediment	16.2	7.09	2780.	11.8	105.

Run #1	Ni	0.00145	14.6	98.
	Cu	0.00051	14.9	99.
	Zn	0.01871	202.	101.
	Cd	-0.00106	3.99	100.
	Pb	0.00314	14.7	98.
Run #2	Ni	0.00031	14.9	99.
	Cu	0.00177	15.0	100.
	Zn	-0.00287	207.	104.
	Cd	-0.00018	3.98	99.
	Pb	0.00077	14.8	99.
Run #3	Ni	-0.00135	14.7	98.
	Cu	0.00050	14.7	98.
	Zn	0.02621	204.	102.
	Cd	0.00047	3.99	100.
	Pb	0.00037	14.5	97.
Run #4	Ni	-0.00080	14.0	93.
	Cu	-0.00222	14.2	95.
	Zn	0.01611	197.	99.
	Cd	0.00074	3.86	97.
	Pb	0.00030	14.2	94.
Run #5	Ni	-0.00101	13.7	91.
	Cu	-0.00141	14.0	94.
	Zn	0.06323	197.	98.
	Cd	0.00176	3.90	98.
	Pb	0.00027	14.1	94.
Run #6	Ni	-0.00320	13.6	90.
	Cu	-0.00371	14.0	93.
	Zn	-0.04068	195.	97.
	Cd	-0.00002	3.86	96.
	Pb	-0.00266	14.1	94.
Run #7	Ni	0.00067	15.0	100.
	Cu	-0.00273	15.1	101.
	Zn	-0.01734	206.	103.
	Cd	0.00028	4.05	101.
	Pb	0.00191	14.8	98.
Run #8	Ni	0.00112	14.9	99.
	Cu	-0.00163	15.1	101.
	Zn	-0.01774	207.	104.
	Cd	0.00082	4.02	101.
	Pb	-0.00052	14.7	98.
Run #9	Ni	0.00159	15.1	101.
	Cu	0.00059	15.3	102.
	Zn	-0.01122	208.	104.
	Cd	0.00024	4.06	101.
	Pb	0.00033	14.6	98.

09/15/09	Ni	0.00179	15.1	101.
Run #1	Cu	-0.00148	15.3	102.
	Zn	-0.01294	209.	105.
	Cd	0.00033	4.11	103.
	Pb	0.00235	15.0	100.
09/15/09	Ni	-0.00052	15.9	106.
Run #2	Cu	0.00281	15.8	105.
	Zn	0.00913	211.	105.
	Cd	0.00025	4.05	101.
	Pb	0.00097	15.0	100.
09/15/09	Ni	0.00041	15.6	104.
Run #3	Cu	-0.00055	15.5	103.
	Zn	0.00538	208.	104.
	Cd	-0.00030	3.96	99.
	Pb	0.00109	15.0	100.
09/15/09				
Run #4	Ni	0.00163	15.5	103.
	Cu	-0.00015	15.4	103.
	Zn	0.01811	208.	104.
	Cd	-0.00009	3.92	98.
	Pb	0.00135	14.8	99.
09/15/09	Ni	-0.00058	15.4	103.
Run #5	Cu	-0.00284	15.2	101.
	Zn	0.01407	205.	102.
	Cd	-0.00015	3.93	98.
	Pb	0.00133	14.7	98.
09/15/09	Ni	-0.00017	15.1	100.
Run #6	Cu	0.00080	15.0	100.
	Zn	0.00207	201.	100.
	Cd	-0.00064	3.83	96.
	Pb	0.00102	14.5	97.
09/15/09	Ni	0.00058	14.7	98.
Run #7	Cu	-0.00295	14.7	98.
	Zn	0.01785	197.	99.
	Cd	-0.00025	3.78	95.
	Pb	0.00126	14.4	96.
09/15/09	Ni	-0.00089	14.5	96.
Run #8	Cu	-0.00334	14.4	96.
	Zn	-0.01427	193.	97.
	Cd	-0.00061	3.72	93.
	Pb	-0.00124	14.1	94.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
09/08/09 Run #1	Ni	0.00151	15.3	102.
	Cu	0.00163	15.3	102.
	Zn	-0.00142	207.	104.
	Cd	-0.00049	4.12	103.
	Pb	0.00084	15.0	100.
09/08/09 Run #2	Ni	0.00207	15.7	104.
	Cu	0.00135	15.5	103.
	Zn	0.01636	211.	106.
	Cd	-0.00034	4.07	102.
	Pb	0.00149	14.8	99.
09/08/09 Run #3	Ni	0.00158	15.6	104.
	Cu	0.00081	15.4	103.
	Zn	0.00734	210.	105.
	Cd	-0.00007	4.07	102.
	Pb	0.00223	14.7	98.
09/08/09 Run #4	Ni	0.00028	15.4	103.
	Cu	0.00224	15.3	102.
	Zn	0.03466	205.	103.
	Cd	-0.00029	3.99	100.
	Pb	0.00470	14.5	97.
09/08/09 Run #5	Ni	0.00129	15.3	102.
	Cu	0.00480	15.1	101.
	Zn	0.01591	205.	103.
	Cd	0.00040	3.98	99.
	Pb	0.00302	14.4	96.
09/08/09 Run #6	Ni	0.00051	15.2	101.
	Cu	0.00346	15.0	100.
	Zn	0.03059	202.	101.
	Cd	-0.00011	3.92	98.
	Pb	0.00396	14.2	95.
09/08/09 Run #7	Ni	0.00010	15.3	102.
	Cu	0.00137	14.9	100.
	Zn	0.01193	202.	101.
	Cd	0.00012	3.93	98.
	Pb	0.00108	14.2	95.
09/08/09 Run #8	Ni	0.00038	14.5	97.
	Cu	-0.00309	14.4	96.
	Zn	0.01317	196.	98.
	Cd	-0.00015	3.85	96.
	Pb	0.00239	13.9	92.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
09/14/09 Run #1	Ni	-0.00005	15.3	102.
	Cu	0.00003	15.3	102.
	Zn	-0.01365	207.	103.
	Cd	0.00012	4.10	103.
	Pb	0.00257	14.9	99.
09/14/09 Run #2	Ni	-0.00073	15.0	100.
	Cu	0.00081	15.1	100.
	Zn	0.00964	202.	101.
	Cd	-0.00069	4.07	102.
	Pb	0.00193	14.9	100.
09/14/09 Run #3	Ni	-0.00227	15.2	101.
	Cu	-0.00156	15.2	101.
	Zn	0.02379	203.	101.
	Cd	-0.00003	4.08	102.
	Pb	0.00225	14.9	99.
09/14/09 Run #4	Ni	-0.00069	15.1	100.
	Cu	0.00155	15.	100.
	Zn	0.00834	203.	102.
	Cd	0.00088	4.04	101.
	Pb	0.00134	14.9	99.
09/14/09 Run #5	Ni	-0.00213	15.2	101.
	Cu	-0.00243	15.2	101.
	Zn	-0.00206	204.	102.
	Cd	-0.00033	4.10	102.
	Pb	-0.00111	14.8	99.
09/14/09 Run #6	Ni	-0.00175	15.1	101.
	Cu	0.00029	15.3	102.
	Zn	0.02512	206.	103.
	Cd	0.00070	4.03	101.
	Pb	0.00051	14.7	98.
09/14/09 Run #7	Ni	-0.00130	15.2	101.
	Cu	-0.00125	15.4	103.
	Zn	0.00188	206.	103.
	Cd	-0.00065	4.05	101.
	Pb	-0.00031	14.7	98.
09/14/09 Run #8	Ni	-0.00194	14.9	99.
	Cu	0.00188	15.0	100.
	Zn	0.00265	201.	101.
	Cd	0.00013	3.96	99.
	Pb	-0.00001	14.6	97.
09/14/09 Run #9	Ni	-0.00237	15.0	100.
	Cu	0.00023	15.3	102.
	Zn	-0.00337	202.	101.
	Cd	0.00078	3.96	99.
	Pb	-0.00065	14.7	98.
09/14/09 Run #10	Ni	-0.00301	15.2	101.
	Cu	0.00166	15.4	103.
	Zn	0.00220	203.	101.
	Cd	0.00092	4.01	100.
	Pb	0.00009	14.6	98.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
09/22/09 Run #1	Ni	0.00993	15.0	100.
	Cu	0.00395	15.2	101.
	Zn	-0.00018	206.	103.
	Cd	-0.00046	4.04	101.
	Pb	0.00215	14.8	99.
09/22/09 Run #2	Ni	0.00161	15.1	100.
	Cu	0.00364	15.3	102.
	Zn	-0.01091	205.	103.
	Cd	-0.00045	3.88	97.
	Pb	-0.00170	14.5	97.
09/22/09 Run #3	Ni	0.00574	14.5	97.
	Cu	0.00213	14.7	98.
	Zn	-0.01922	199.	99.
	Cd	-0.00012	3.84	96.
	Pb	-0.00201	14.4	96.
09/22/09 Run #4	Ni	0.00942	14.0	93.
	Cu	0.00159	14.	96.
	Zn	-0.02144	195.	97.
	Cd	0.00103	3.78	94.
	Pb	0.00015	14.2	95.
09/22/09 Run #5	Ni	0.00059	15.1	100.
	Cu	0.00079	15.1	101.
	Zn	0.00170	204.	102.
	Cd	0.00058	4.06	101.
	Pb	0.00173	14.8	99.
09/22/09 Run #6	Ni	-0.01736	14.0	94.
	Cu	-0.00097	14.4	96.
	Zn	-0.00463	193.	97.
	Cd	0.00007	4.03	101.
	Pb	-0.00110	14.6	97.
09/22/09 Run #7	Ni	-0.00781	15.2	101.
	Cu	0.00033	15.1	101.
	Zn	-0.00858	208.	104.
	Cd	-0.00054	4.06	102.
	Pb	0.00222	14.9	99.
09/22/09 Run #8	Ni	-0.01554	14.5	96.
	Cu	0.00010	14.5	97.
	Zn	-0.00180	196.	98.
	Cd	-0.00056	4.02	101.
	Pb	-0.00023	14.7	98.
09/22/09 Run #9	Ni	-0.01971	14.3	95.
	Cu	-0.00085	14.4	96.
	Zn	-0.00477	195.	98.
	Cd	-0.00035	3.96	99.
	Pb	-0.00049	14.6	97.
09/22/09 Run #10	Ni	-0.02029	14.0	93.
	Cu	-0.00092	14.1	94.
	Zn	-0.01772	191.	96.
	Cd	-0.00037	4.07	102.
	Pb	-0.00079	14.7	98.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
09/22/09 Run #1	Ni	0.01369	15.0	100.
	Cu	0.00133	15.1	101.
	Zn	-0.00174	207.	104.
	Cd	-0.00012	4.07	102.
	Pb	0.00183	15.0	100.
09/22/09 Run #2	Ni	-0.00352	15.2	101.
	Cu	0.00129	15.3	102.
	Zn	0.00458	207.	103.
	Cd	-0.00057	4.02	100.
	Pb	0.00092	14.8	99.
09/22/09 Run #3	Ni	-0.00151	14.5	97.
	Cu	0.00014	14.8	99.
	Zn	-0.00021	198.	99.
	Cd	-0.00040	3.97	99.
	Pb	-0.00041	14.8	99.
09/22/09 Run #4	Ni	0.00658	14.4	96.
	Cu	0.00081	14.	96.
	Zn	-0.00171	192.	96.
	Cd	0.00026	3.93	98.
	Pb	0.00104	14.6	97.
09/22/09 Run #5	Ni	-0.00129	14.3	95.
	Cu	0.00049	14.6	97.
	Zn	-0.00085	192.	96.
	Cd	0.00020	3.93	98.
	Pb	-0.00048	14.8	99.
09/22/09 Run #6	Ni	-0.00652	14.3	95.
	Cu	0.00188	14.3	96.
	Zn	-0.00029	190.	95.
	Cd	-0.00073	3.87	97.
	Pb	0.00045	14.6	97.
09/22/09 Run #7	Ni	-0.00728	14.0	94.
	Cu	0.00157	14.3	96.
	Zn	-0.00661	187.	93.
	Cd	-0.00003	3.87	97.
	Pb	0.00054	14.6	97.
09/22/09 Run #8	Ni	0.00758	13.9	92.
	Cu	-0.01033	14.0	93.
	Zn	-0.07603	186.	93.
	Cd	-0.00019	3.81	95.
	Pb	-0.02617	14.3	95.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
10/05/09 Run #1	Ni	-0.00078	14.9	99.
	Cu	-0.00012	15.2	101.
	Zn	-0.01308	208.	104.
	Cd	-0.00072	4.03	101.
	Pb	0.00117	14.9	99.
10/05/09 Run #2	Ni	-0.00156	15.1	101.
	Cu	-0.00147	15.1	101.
	Zn	-0.01721	205.	102.
	Cd	-0.00060	3.97	99.
	Pb	-0.00044	14.6	97.
10/05/09 Run #3	Ni	-0.00112	14.9	99.
	Cu	0.00231	14.9	99.
	Zn	-0.02437	200.	100.
	Cd	-0.00101	3.95	99.
	Pb	0.00037	14.6	97.
10/05/09 Run #4	Ni	0.00024	14.6	97.
	Cu	-0.00076	15.	98.
	Zn	-0.01973	199.	100.
	Cd	-0.00042	3.92	98.
	Pb	-0.00012	14.6	97.
10/05/09 Run #5	Ni	-0.00056	14.8	99.
	Cu	-0.00061	14.7	98.
	Zn	-0.02294	194.	97.
	Cd	-0.00101	3.85	96.
	Pb	-0.00010	14.5	97.
10/05/09 Run #6	Ni	0.00105	14.5	97.
	Cu	0.00107	14.7	98.
	Zn	0.00019	198.	99.
	Cd	0.00121	3.99	100.
	Pb	0.00286	14.5	97.
10/05/09 Run #7	Ni	-0.00009	14.8	99.
	Cu	0.00251	14.8	99.
	Zn	-0.00022	202.	101.
	Cd	0.00024	4.02	100.
	Pb	0.00142	14.7	98.
10/05/09 Run #8	Ni	0.00044	14.5	97.
	Cu	-0.00011	14.5	97.
	Zn	0.00711	197.	99.
	Cd	0.00036	3.92	98.
	Pb	0.00116	14.2	95.

BID[a]	Element	CCB[b]	ICVS	% Rec (ICVS)[c]
10/05/09	Ni	0.00159	14.8	99.
Run #1	Cu	0.00165	15.0	100.
	Zn	-0.00082	203.	102.
	Cd	-0.00074	3.97	99.
	Pb	0.00260	14.6	98.
10/05/09	Ni	0.00014	14.6	97.
Run #2	Cu	0.00054	14.5	97.
	Zn	-0.00065	196.	98.
	Cd	-0.00023	3.84	96.
	Pb	0.00075	13.9	93.
10/05/09	Ni	0.00088	13.9	92.
Run #3	Cu	0.00035	13.9	92.
	Zn	0.00383	187.	93.
	Cd	-0.00019	3.71	93.
	Pb	0.00089	13.6	91.
10/05/09	Ni	0.00062	14.7	98.
Run #4	Cu	0.00118	15.	99.
	Zn	-0.00587	200.	100.
	Cd	0.00045	3.96	99.
	Pb	0.00208	14.6	97.
10/05/09	Ni	0.00078	14.1	94.
Run #5	Cu	-0.00162	14.3	95.
	Zn	-0.00324	193.	97.
	Cd	0.00000	3.92	98.
	Pb	0.00109	14.4	96.
10/05/09	Ni	0.00071	13.8	92.
Run #6	Cu	-0.00179	14.1	94.
	Zn	-0.00892	190.	95.
	Cd	-0.00015	3.80	95.
	Pb	-0.00001	14.0	93.
10/05/09	Ni	0.00086	13.7	92.
Run #7	Cu	-0.00070	13.8	92.
	Zn	-0.00623	186.	93.
	Cd	-0.00028	3.74	93.
	Pb	0.00028	13.8	92.
10/05/09	Ni	0.00386	14.6	97.
Run #8	Cu	0.00187	14.9	99.
	Zn	-0.00427	200.	100.
	Cd	0.00044	3.97	99.
	Pb	0.00147	14.5	97.
10/05/09	Ni	0.00068	14.9	99.
Run #9	Cu	0.00155	14.9	100.
	Zn	0.00231	204.	102.
	Cd	0.00021	4.03	101.
	Pb	0.00221	14.7	98.
10/05/09	Ni	-0.00002	14.8	99.
Run #10	Cu	0.00032	14.7	98.
	Zn	0.00487	202.	101.
	Cd	0.00137	4.02	100.
	Pb	-0.00032	14.7	98.

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]acceptance criteria for CCB is +/- 3 X IDL for each element.

[c]acceptance criteria for ICVS = +/- 10% (90% - 110%).

ICVS = 15ppb for Cu,Ni,Pb; 200ppb for Zn, and 4ppb for Cd.

BID	Analysis Date	Reference Material	Matrix	Element	Actual Conc.	Meas. Conc.	% Rec[a]	ISOP	Oper. Init.
09/15/09	10/01/09	NIST 1643e[b]	detritus	Ni	62.41 +/- 0.69	60.5	98.	P.241	MJW/TWM
09/15/09	10/01/09	NIST 1643e[b]	detritus	Cu	22.76 +/- 0.31	20.2	90.	P.241	MJW/TWM
09/15/09	10/01/09	Spex ICS -1[c]	detritus	Zn	200 +/- 20	216.	100.	P.241	MJW/TWM
09/15/09	10/01/09	NIST 1643e[b]	detritus	Cd	6.568 +/- 0.073	6.14	95.	P.241	MJW/TWM
09/15/09	10/01/09	NIST 1643e[b]	detritus	Pb	19.63 +/- 0.21	19.0	98.	P.241	MJW/TWM
09/15/09	10/02/09	NIST 1643e[b]	detritus	Ni	62.41 +/- 0.69	63.5	101.	P.241	MJW/TWM
09/15/09	10/02/09	NIST 1643e[b]	detritus	Cu	22.76 +/- 0.31	21.7	97.	P.241	MJW/TWM
09/15/09	10/02/09	Spex ICS -1[c]	detritus	Zn	200 +/- 20	220.	100.	P.241	MJW/TWM
09/15/09	10/02/09	NIST 1643e[b]	detritus	Cd	6.568 +/- 0.073	6.24	96.	P.241	MJW/TWM
09/15/09	10/02/09	NIST 1643e[b]	detritus	Pb	19.63 +/- 0.21	17.8	92.	P.241	MJW/TWM
09/08/09	09/25/09	NIST 1643e[b]	sediment	Ni	62.41 +/- 0.69	61.7	100.	P.241	MJW/TWM
09/08/09	09/25/09	NIST 1643e[b]	sediment	Cu	22.76 +/- 0.31	21.8	97.	P.241	MJW/TWM
09/08/09	09/25/09	Spex ICS -1[c]	sediment	Zn	200 +/- 20	216.	100.	P.241	MJW/TWM
09/08/09	09/25/09	NIST 1643e[b]	sediment	Cd	6.568 +/- 0.073	6.41	99.	P.241	MJW/TWM
09/08/09	09/25/09	NIST 1643e[b]	sediment	Pb	19.63 +/- 0.21	18.5	95.	P.241	MJW/TWM
09/14/09	10/13/09	NIST 1643e[b]	sediment	Ni	62.41 +/- 0.69	65.9	104.	P.241	MJW/TWM
09/14/09	10/13/09	NIST 1643e[b]	sediment	Cu	22.76 +/- 0.31	22.8	100.	P.241	MJW/TWM
09/14/09	10/13/09	Spex ICS -1[c]	sediment	Zn	200 +/- 20	223.	101.	P.241	MJW/TWM
09/14/09	10/13/09	NIST 1643e[b]	sediment	Cd	6.568 +/- 0.073	6.45	99.	P.241	MJW/TWM
09/14/09	10/13/09	NIST 1643e[b]	sediment	Pb	19.63 +/- 0.21	18.5	95.	P.241	MJW/TWM

BID	Analysis Date	Reference Material	Matrix	Element	Actual Conc.	Meas. Conc.	% Rec[a]	ISOP	Oper. Init.
09/22/09	10/08/09	NIST 1643e[b]	crayfish	Ni	62.41 +/- 0.69	62.4	100.	P.241	MJW/TWM
09/22/09	10/08/09	NIST 1643e[b]	crayfish	Cu	22.76 +/- 0.31	21.7	97.	P.241	MJW/TWM
09/22/09	10/08/09	Spex ICS -1[c]	crayfish	Zn	200 +/- 20	212.	100.	P.241	MJW/TWM
09/22/09	10/08/09	NIST 1643e[b]	crayfish	Cd	6.568 +/- 0.073	6.20	95.	P.241	MJW/TWM
09/22/09	10/08/09	NIST 1643e[b]	crayfish	Pb	19.63 +/- 0.21	17.3	89.	P.241	MJW/TWM
09/22/09	10/26/09	NIST 1643e[b]	crayfish	Ni	62.41 +/- 0.69	62.6	100.	P.241	MJW/TWM
09/22/09	10/26/09	NIST 1643e[b]	crayfish	Cu	22.76 +/- 0.31	22.3	99.	P.241	MJW/TWM
09/22/09	10/26/09	Spex ICS -1[c]	crayfish	Zn	200 +/- 20	210.	100.	P.241	MJW/TWM
09/22/09	10/26/09	NIST 1643e[b]	crayfish	Cd	6.568 +/- 0.073	6.39	98.	P.241	MJW/TWM
09/22/09	10/26/09	NIST 1643e[b]	crayfish	Pb	19.63 +/- 0.21	17.8	92.	P.241	MJW/TWM
10/05/09	11/06/09	NIST 1643e[b]	sediment	Ni	62.41 +/- 0.69	61.8	100.	P.241	MJW/TWM
10/05/09	11/06/09	NIST 1643e[b]	sediment	Cu	22.76 +/- 0.31	22.0	98.	P.241	MJW/TWM
10/05/09	11/06/09	Spex ICS -1[c]	sediment	Zn	200 +/- 20	217.	100.	P.241	MJW/TWM
10/05/09	11/06/09	NIST 1643e[b]	sediment	Cd	6.568 +/- 0.073	6.36	98.	P.241	MJW/TWM
10/05/09	11/06/09	NIST 1643e[b]	sediment	Pb	19.63 +/- 0.21	18.4	95.	P.241	MJW/TWM
10/05/09	11/09/09	NIST 1643e[b]	sediment	Ni	62.41 +/- 0.69	60.3	98.	P.241	MJW/TWM
10/05/09	11/09/09	NIST 1643e[b]	sediment	Cu	22.76 +/- 0.31	21.5	96.	P.241	MJW/TWM
10/05/09	11/09/09	Spex ICS -1[c]	sediment	Zn	200 +/- 20	215.	100.	P.241	MJW/TWM
10/05/09	11/09/09	NIST 1643e[b]	sediment	Cd	6.568 +/- 0.073	6.20	95.	P.241	MJW/TWM
10/05/09	11/09/09	NIST 1643e[b]	sediment	Pb	19.63 +/- 0.21	18.2	94.	P.241	MJW/TWM

samples.

BCR 414[a]

BID	Element	Reported Conc (µg/g dry wgt)	n	Mean Measured Conc	% Rec[b]
09/15/09	Ni	18.8 ± 0.8	2	22.5	115.
09/15/09	Cu	29.5 ± 1.3	2	31.5	102.
09/15/09	Zn	112 ± 3	2	107.	98.
09/15/09	Cd	0.383 ± 0.014	2	0.35	95.
09/15/09	Pb	3.97 ± 0.19	2	3.79	100.

[a]BCR 414 = Commission of European Communities BCR 414: plankton.

[b]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

BCR 62[c]

BID	Element	Reported Conc (µg/g dry wgt)	n	Mean Measured Conc	% Rec[d]
09/15/09	Ni	nc	2	---	---
09/15/09	Cu	46.616 ± 1.8	2	43.3	97.
09/15/09	Zn	16 ± 0.7	2	16.5	100.
09/15/09	Cd	0.10 ± 0.02	2	0.062	78.
09/15/09	Pb	25 ± 1.5	2	26.1	100.

[c]BCR 62 = Commission of European Communities BCR 62: olive leaves.

[d]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

IGGE GBW07604[e]

BID	Element	Reported Conc (µg/g dry wgt)	n	Mean Measured Conc	% Rec[f]
09/15/09	Ni	1.9 ± 0.3	2	2.72	124.
09/15/09	Cu	9.3 ± 1.0	2	8.58	100.
09/15/09	Zn	37 ± 3	2	38.2	100.
09/15/09	Cd	0.32 ± 0.07	2	0.37	100.
09/15/09	Pb	1.5 ± 0.3	2	1.51	100.

[e]IGGE GBW07604 = Institute of Geophysical and Geochemical Exploration SRM GBW07604: poplar leaves.

[f]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

BID	Element	(µg/g dry wgt)	Conc	Rec[b]
09/08/09	Ni	44.18 ± 2.0	40.5	96.
09/08/09	Cu	452 ± 16	436.	100.
09/08/09	Zn	824 ± 22	811.	100.
09/08/09	Cd	2.38 ± 0.2	2.26	100.
09/08/09	Pb	404 ± 20	368.	96.
09/14/09	Ni	44.18 ± 2.0	38.9	92.
09/14/09	Cu	452 ± 16	454.	100.
09/14/09	Zn	824 ± 22	793.	99.
09/14/09	Cd	2.38 ± 0.2	2.31	98.
09/14/09	Pb	404 ± 20	384.	100.

[a]NRCC PACS-1 = National Research Council Canada PACS-1 reference material: marine sediment.
[b]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

NRCC MESS-3[c]

BID	Element	Reported Conc (µg/g dry wgt)	Measured Conc	% Rec[d]
09/08/09	Ni	46.9 ± 2.2	45.8	100.
09/08/09	Cu	33.9 ± 1.6	31.3	97.
09/08/09	Zn	159 ± 8	160.	100.
09/08/09	Cd	0.24 ± 0.01	0.19	83.
09/08/09	Pb	21.1 ± 0.7	19.6	96.
09/14/09	Ni	46.9 ± 2.2	43.4	97.
09/14/09	Cu	33.9 ± 1.6	31.1	96.
09/14/09	Zn	159 ± 8	153.	100.
09/14/09	Cd	0.24 ± 0.01	0.23	100.
09/14/09	Pb	21.1 ± 0.7	19.6	96.

BID	Element	(µg/g dry wgt)	Conc	Rec[b]
10/05/09	Ni	44.18 ± 2.0	46.5	101.
10/05/09	Cu	452 ± 16	420.	96.
10/05/09	Zn	824 ± 22	818.	100.
10/05/09	Cd	2.38 ± 0.2	2.29	100.
10/05/09	Pb	404 ± 20	376.	98.
10/05/09	Ni	44.18 ± 2.0	33.5	79.
10/05/09	Cu	452 ± 16	399.	92.
10/05/09	Zn	824 ± 22	763.	95.
10/05/09	Cd	2.38 ± 0.2	2.16	99.
10/05/09	Pb	404 ± 20	361.	94.

[a]NRCC PACS-1 = National Research Council Canada PACS-1 reference material: marine sediment.
[b]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

NRCC MESS-3[c]

BID	Element	Reported Conc (µg/g dry wgt)	Measured Conc	% Rec[d]
10/05/09	Ni	46.9 ± 2.2	43.8	98.
10/05/09	Cu	33.9 ± 1.6	31.4	97.
10/05/09	Zn	159 ± 8	157.	100.
10/05/09	Cd	0.24 ± 0.01	0.22	96.
10/05/09	Pb	21.1 ± 0.7	19.9	98.
10/05/09	Ni	46.9 ± 2.2	40.3	90.
10/05/09	Cu	33.9 ± 1.6	29.7	92.
10/05/09	Zn	159 ± 8	145.	96.
10/05/09	Cd	0.24 ± 0.01	0.22	96.
10/05/09	Pb	21.1 ± 0.7	18.6	91.

NIST 2976[a]

BID	Element	Reported Conc (µg/g dry wgt)	Measured Conc	% Rec[b]
09/22/09	Ni	0.93 ± 0.12	0.79	98.
09/22/09	Cu	4.02 ± 0.33	4.20	100.
09/22/09	Zn	137 ± 13	124.	100.
09/22/09	Cd	0.82 ± 0.16	0.76	100.
09/22/09	Pb	1.19 ± 0.18	1.09	100.
09/22/09	Ni	0.93 ± 0.12	0.78	96.
09/22/09	Cu	4.02 ± 0.33	3.95	100.
09/22/09	Zn	137 ± 13	118.	95.
09/22/09	Cd	0.82 ± 0.16	0.73	100.
09/22/09	Pb	1.19 ± 0.18	1.11	100.

[a]NIST 2976 = National Instititute of Standards and Technology SRM 2976: mussel tissue.
[b]%Rec = 100% if within range, otherwise calculated based on upper or lower limit of range.

NIST 1566b[c]

BID	Element	Reported Conc (µg/g dry wgt)	Measured Conc	% Rec[d]
09/22/09	Ni	1.04 ± 0.09	0.90	95.
09/22/09	Cu	71.6 ± 1.6	70.1	100.
09/22/09	Zn	1424 ± 46	1480.	101.
09/22/09	Cd	2.48 ± 0.08	2.37	99.
09/22/09	Pb	0.308 ± 0.009	0.27	90.
09/22/09	Ni	1.04 ± 0.09	1.00	100.
09/22/09	Cu	71.6 ± 1.6	67.3	96.
09/22/09	Zn	1424 ± 46	1340.	97.
09/22/09	Cd	2.48 ± 0.08	2.32	97.
09/22/09	Pb	0.308 ± 0.009	0.27	90.

BID[a]	Ele.	Matrix	Sample	Rep 1	Rep 2	Rep 3	Mean	Units	SD[b]	%RSD[c]	PSOP[d]	Prep. Init.	ISOP[e]	Oper. Init.
09/15/09	Ni	detritus	47582	14.1	14.9	14.8	14.6	µg/g	0.46	3.1	P.214	VDM	P.241	MJW/TWM
09/15/09	Cu	detritus	47582	14.4	14.4	14.7	14.5	µg/g	0.16	1.1	P.214	VDM	P.241	MJW/TWM
09/15/09	Zn	detritus	47582	98.0	105.	107.	103.	µg/g	4.69	4.5	P.214	VDM	P.241	MJW/TWM
09/15/09	Cd	detritus	47582	1.62	1.68	1.73	1.68	µg/g	0.053	3.2	P.214	VDM	P.241	MJW/TWM
09/15/09	Pb	detritus	47582	7.29	7.84	7.63	7.59	µg/g	0.28	3.7	P.214	VDM	P.241	MJW/TWM
09/15/09	Ni	detritus	47600	17.5	16.5	17.2	17.1	µg/g	0.53	3.1	P.214	VDM	P.241	MJW/TWM
09/15/09	Cu	detritus	47600	13.7	12.9	13.1	13.2	µg/g	0.42	3.2	P.214	VDM	P.241	MJW/TWM
09/15/09	Zn	detritus	47600	1170.	1110.	1160.	1150.	µg/g	31.9	2.8	P.214	VDM	P.241	MJW/TWM
09/15/09	Cd	detritus	47600	3.42	2.84	3.10	3.12	µg/g	0.29	9.2	P.214	VDM	P.241	MJW/TWM
09/15/09	Pb	detritus	47600	63.4	56.9	60.3	60.2	µg/g	3.25	5.4	P.214	VDM	P.241	MJW/TWM
09/08/09	Ni	sediment	47685	36.3	39.0	36.8	37.4	µg/g	1.46	3.9	P.214	VDM	P.241	MJW/TWM
09/08/09	Cu	sediment	47685	22.3	21.8	23.1	22.4	µg/g	0.64	2.8	P.214	VDM	P.241	MJW/TWM
09/08/09	Zn	sediment	47685	7430.	7480.	7540.	7480.	µg/g	55.1	0.7	P.214	VDM	P.241	MJW/TWM
09/08/09	Cd	sediment	47685	45.1	44.5	43.9	44.5	µg/g	0.61	1.4	P.214	VDM	P.241	MJW/TWM
09/08/09	Pb	sediment	47685	863.	872.	901.	879.	µg/g	20.1	2.3	P.214	VDM	P.241	MJW/TWM
09/14/09	Ni	sediment	47709	23.4	23.8	23.5	23.6	µg/g	0.21	0.9	P.214	VDM	P.241	MJW/TWM
09/14/09	Cu	sediment	47709	17.0	17.5	17.4	17.3	µg/g	0.28	1.6	P.214	VDM	P.241	MJW/TWM
09/14/09	Zn	sediment	47709	1990.	2160.	2060.	2070.	µg/g	85.4	4.1	P.214	VDM	P.241	MJW/TWM
09/14/09	Cd	sediment	47709	16.9	17.6	17.2	17.2	µg/g	0.36	2.1	P.214	VDM	P.241	MJW/TWM
09/14/09	Pb	sediment	47709	170.	175.	171.	172.	µg/g	2.7	1.6	P.214	VDM	P.241	MJW/TWM

BID[a]	Ele.	Matrix	Sample	Rep 1	Rep 2	Rep 3	Mean	Units	SD[b]	%RSD[c]	PSOP[d]	Prep. Init.	ISOP[e]	Oper. Init.
09/22/09	Ni	crayfish	47535	0.98	0.97	0.98	0.98	µg/g	0.009	0.9	P.214	VDM	P.241	MJW/TWM
09/22/09	Cu	crayfish	47535	80.2	112.	98.3	96.9	µg/g	16.1	17.	P.214	VDM	P.241	MJW/TWM
09/22/09	Zn	crayfish	47535	69.0	98.3	85.0	84.1	µg/g	14.6	17.	P.214	VDM	P.241	MJW/TWM
09/22/09	Cd	crayfish	47535	0.49	0.64	0.59	0.57	µg/g	0.079	14.	P.214	VDM	P.241	MJW/TWM
09/22/09	Pb	crayfish	47535	0.28	0.34	0.39	0.34	µg/g	0.057	17.	P.214	VDM	P.241	MJW/TWM
09/22/09	Ni	crayfish	47536	1.18	0.93	0.92	1.01	µg/g	0.15	15.	P.214	VDM	P.241	MJW/TWM
09/22/09	Cu	crayfish	47536	72.9	67.	68.7	69.6	µg/g	2.90	4.2	P.214	VDM	P.241	MJW/TWM
09/22/09	Zn	crayfish	47536	82.5	76.4	78.8	79.2	µg/g	3.07	3.9	P.214	VDM	P.241	MJW/TWM
09/22/09	Cd	crayfish	47536	0.61	0.53	0.61	0.59	µg/g	0.047	8.0	P.214	VDM	P.241	MJW/TWM
09/22/09	Pb	crayfish	47536	0.39	0.28	0.36	0.34	µg/g	0.058	17.	P.214	VDM	P.241	MJW/TWM
09/22/09	Ni	crayfish	47553	1.16	1.27	1.28	1.24	µg/g	0.067	5.4	P.214	VDM	P.241	MJW/TWM
09/22/09	Cu	crayfish	47553	71.3	80.3	75.6	75.7	µg/g	4.53	6.0	P.214	VDM	P.241	MJW/TWM
09/22/09	Zn	crayfish	47553	121.	135.	126.	127.1	µg/g	7.19	5.7	P.214	VDM	P.241	MJW/TWM
09/22/09	Cd	crayfish	47553	0.26	0.31	0.30	0.29	µg/g	0.024	8.3	P.214	VDM	P.241	MJW/TWM
09/22/09	Pb	crayfish	47553	3.21	3.55	3.52	3.42	µg/g	0.19	5.5	P.214	VDM	P.241	MJW/TWM
10/05/09	Ni	sediment	47626	29.8	30.7	25.4	28.6	µg/g	2.87	10.	P.214	VDM	P.241	MJW/TWM
10/05/09	Cu	sediment	47626	8.50	9.02	7.01	8.18	µg/g	1.04	13.	P.214	VDM	P.241	MJW/TWM
10/05/09	Zn	sediment	47626	129.	130.	140.	133.	µg/g	5.84	4.4	P.214	VDM	P.241	MJW/TWM
10/05/09	Cd	sediment	47626	0.74	0.48	0.63	0.62	µg/g	0.13	21.	P.214	VDM	P.241	MJW/TWM
10/05/09	Pb	sediment	47626	26.9	22.5	34.1	27.8	µg/g	5.86	21.	P.214	VDM	P.241	MJW/TWM

BID[a]	Ele.	Matrix	Sample	Rep 1	Rep 2	Rep 3	Mean	Units	SD[b]	%RSD[c]	PSOP[d]	Prep. Init.	ISOP[e]	Oper. Init.
10/05/09	Ni	sediment	47627	22.4	25.6	22.7	23.6	µg/g	1.78	7.6	P.214	VDM	P.241	MJW/TWM
10/05/09	Cu	sediment	47627	12.1	12.6	10.1	11.6	µg/g	1.34	12.	P.214	VDM	P.241	MJW/TWM
10/05/09	Zn	sediment	47627	199.	145.	115.	153.	µg/g	42.7	28.	P.214	VDM	P.241	MJW/TWM
10/05/09	Cd	sediment	47627	1.31	1.09	0.97	1.12	µg/g	0.17	15.	P.214	VDM	P.241	MJW/TWM
10/05/09	Pb	sediment	47627	32.2	33.8	38.9	35.0	µg/g	3.51	10.	P.214	VDM	P.241	MJW/TWM
10/05/09	Ni	sediment	47649	23.6	21.2	22.8	22.5	µg/g	1.23	5.5	P.214	VDM	P.241	MJW/TWM
10/05/09	Cu	sediment	47649	11.6	10.5	10.8	11.0	µg/g	0.54	4.9	P.214	VDM	P.241	MJW/TWM
10/05/09	Zn	sediment	47649	288.	269.	275.	277.	µg/g	9.90	3.6	P.214	VDM	P.241	MJW/TWM
10/05/09	Cd	sediment	47649	2.16	2.04	2.10	2.10	µg/g	0.060	2.8	P.214	VDM	P.241	MJW/TWM
10/05/09	Pb	sediment	47649	29.2	25.2	24.7	26.4	µg/g	2.49	9.4	P.214	VDM	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]SD = standard deviation.

[c]%RSD = percent relative standard deviation.

[d]PSOP = standard operating procedure used for chemical preparation of sample.

[e]ISOP = standard operating procedure used for instrumental analysis of sample.

study area.

BID[a]	Duplicate Type	Matrix	Element	Dup 1	Dup 2	Diff[b]	Mean	RPD[c]	ISOP[d]	Oper. Init.
09/15/09	47580 - Analytical	detritus	Ni	21.1	21.2	0.078	21.2	0.4	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Cu	21.4	21.5	0.018	21.5	0.1	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Zn	154.	155.	1.17	154.	0.8	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Cd	6.01	6.04	0.031	6.03	0.5	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Pb	20.5	20.5	0.031	20.5	0.2	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Ni	23.0	23.1	0.14	23.0	0.6	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Cu	22.6	22.8	0.15	22.7	0.7	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Zn	161.	162.	1.45	162.	0.9	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Cd	6.30	6.31	0.012	6.31	0.2	P.241	MJW/TWM
09/15/09	47580 - Analytical	detritus	Pb	21.2	21.4	0.108	21.3	0.5	P.241	MJW/TWM
09/15/09	47605 - Analytical	detritus	Ni	26.2	26.3	0.10	26.3	0.4	P.241	MJW/TWM
09/15/09	47605 - Analytical	detritus	Cu	25.9	25.4	0.47	25.7	1.8	P.241	MJW/TWM
09/15/09	47605 - Analytical	detritus	Zn	253.	250.	3.51	252.	1.4	P.241	MJW/TWM
09/15/09	47605 - Analytical	detritus	Cd	7.03	7.00	0.031	7.02	0.4	P.241	MJW/TWM
09/15/09	47605 - Analytical	detritus	Pb	23.8	23.8	0.090	23.8	0.4	P.241	MJW/TWM
09/15/09	47606 - Analytical	detritus	Ni	23.8	23.8	0.010	23.8	0.0	P.241	MJW/TWM
09/15/09	47606 - Analytical	detritus	Cu	23.7	23.8	0.050	23.7	0.2	P.241	MJW/TWM
09/15/09	47606 - Analytical	detritus	Zn	224.	225.	0.15	225.	0.1	P.241	MJW/TWM
09/15/09	47606 - Analytical	detritus	Cd	6.51	6.56	0.047	6.53	0.7	P.241	MJW/TWM
09/15/09	47606 - Analytical	detritus	Pb	22.8	23.1	0.246	22.9	1.1	P.241	MJW/TWM

Tri-State study area.

BID[a]	Duplicate Type	Matrix	Element	Dup 1	Dup 2	Diff[b]	Mean	RPD[c]	ISOP[d]	Oper. Init.
09/08/09	47671 - Analytical	sediment	Ni	28.1	28.2	0.058	28.2	0.2	P.241	MJW/TWM
09/08/09	47671 - Analytical	sediment	Cu	23.9	24.0	0.11	23.9	0.5	P.241	MJW/TWM
09/08/09	47671 - Analytical	sediment	Zn	194.	195.	1.35	194.	0.7	P.241	MJW/TWM
09/08/09	47671 - Analytical	sediment	Cd	6.28	6.35	0.070	6.32	1.1	P.241	MJW/TWM
09/08/09	47671 - Analytical	sediment	Pb	28.5	28.8	0.36	28.6	1.2	P.241	MJW/TWM
09/08/09	47672 - Analytical	sediment	Ni	25.9	25.9	0.069	25.9	0.3	P.241	MJW/TWM
09/08/09	47672 - Analytical	sediment	Cu	21.9	21.9	0.080	21.9	0.4	P.241	MJW/TWM
09/08/09	47672 - Analytical	sediment	Zn	168.	168.	0.22	168.	0.1	P.241	MJW/TWM
09/08/09	47672 - Analytical	sediment	Cd	5.98	6.07	0.090	6.03	1.5	P.241	MJW/TWM
09/08/09	47672 - Analytical	sediment	Pb	26.6	26.7	0.13	26.7	0.5	P.241	MJW/TWM
09/14/09	47694 - Analytical	sediment	Ni	24.5	24.9	0.32	24.7	1.3	P.241	MJW/TWM
09/14/09	47694 - Analytical	sediment	Cu	22.6	22.9	0.26	22.7	1.2	P.241	MJW/TWM
09/14/09	47694 - Analytical	sediment	Zn	209.	210.	0.92	209.	0.4	P.241	MJW/TWM
09/14/09	47694 - Analytical	sediment	Cd	6.73	6.80	0.076	6.76	1.1	P.241	MJW/TWM
09/14/09	47694 - Analytical	sediment	Pb	26.6	26.8	0.175	26.7	0.7	P.241	MJW/TWM
09/14/09	47695 - Analytical	sediment	Ni	24.6	25.1	0.433	24.8	1.7	P.241	MJW/TWM
09/14/09	47695 - Analytical	sediment	Cu	21.9	22.3	0.359	22.1	1.6	P.241	MJW/TWM
09/14/09	47695 - Analytical	sediment	Zn	202.	207.	4.09	205.	2.0	P.241	MJW/TWM
09/14/09	47695 - Analytical	sediment	Cd	6.48	6.56	0.086	6.52	1.3	P.241	MJW/TWM
09/14/09	47695 - Analytical	sediment	Pb	26.0	26.1	0.131	26.0	0.5	P.241	MJW/TWM

study area.

BID[a]	Duplicate Type	Matrix	Element	Dup 1	Dup 2	Diff[b]	Mean	RPD[c]	ISOP[d]	Oper. Init.
09/22/09	47523 - Analytical	crayfish	Ni	18.8	19.0	0.205	18.9	1.1	P.241	MJW/TWM
09/22/09	47523 - Analytical	crayfish	Cu	30.4	30.4	0.026	30.4	0.1	P.241	MJW/TWM
09/22/09	47523 - Analytical	crayfish	Zn	153.	155.	1.92	154.	1.3	P.241	MJW/TWM
09/22/09	47523 - Analytical	crayfish	Cd	6.35	6.42	0.071	6.38	1.1	P.241	MJW/TWM
09/22/09	47523 - Analytical	crayfish	Pb	20.4	20.4	0.004	20.4	0.0	P.241	MJW/TWM
09/22/09	47536 - Analytical	crayfish	Ni	19.1	19.1	0.014	19.1	0.1	P.241	MJW/TWM
09/22/09	47536 - Analytical	crayfish	Cu	35.7	35.8	0.072	35.8	0.2	P.241	MJW/TWM
09/22/09	47536 - Analytical	crayfish	Zn	156.	157.	0.19	156.	0.1	P.241	MJW/TWM
09/22/09	47536 - Analytical	crayfish	Cd	6.17	6.25	0.085	6.21	1.4	P.241	MJW/TWM
09/22/09	47536 - Analytical	crayfish	Pb	20.2	20.1	0.16	20.2	0.8	P.241	MJW/TWM
09/22/09	47541 - Analytical	crayfish	Ni	20.3	20.3	0.043	20.3	0.2	P.241	MJW/TWM
09/22/09	47541 - Analytical	crayfish	Cu	34.5	34.2	0.33	34.4	0.9	P.241	MJW/TWM
09/22/09	47541 - Analytical	crayfish	Zn	236.	234.	2.06	235.	0.9	P.241	MJW/TWM
09/22/09	47541 - Analytical	crayfish	Cd	8.23	8.16	0.068	8.19	0.8	P.241	MJW/TWM
09/22/09	47541 - Analytical	crayfish	Pb	22.3	22.3	0.004	22.3	0.0	P.241	MJW/TWM
09/22/09	47559 - Analytical	crayfish	Ni	19.5	19.7	0.188	19.6	1.0	P.241	MJW/TWM
09/22/09	47559 - Analytical	crayfish	Cu	33.8	33.6	0.223	33.7	0.7	P.241	MJW/TWM
09/22/09	47559 - Analytical	crayfish	Zn	156.	157.	0.29	157.	0.2	P.241	MJW/TWM
09/22/09	47559 - Analytical	crayfish	Cd	6.07	6.07	0.007	6.07	0.1	P.241	MJW/TWM
09/22/09	47559 - Analytical	crayfish	Pb	20.5	20.4	0.078	20.4	0.4	P.241	MJW/TWM
09/22/09	47575 - Analytical	crayfish	Ni	19.3	19.4	0.075	19.4	0.4	P.241	MJW/TWM
09/22/09	47575 - Analytical	crayfish	Cu	32.7	32.3	0.427	32.5	1.3	P.241	MJW/TWM
09/22/09	47575 - Analytical	crayfish	Zn	174.	170.	4.04	172.	2.4	P.241	MJW/TWM
09/22/09	47575 - Analytical	crayfish	Cd	6.27	6.22	0.054	6.25	0.9	P.241	MJW/TWM
09/22/09	47575 - Analytical	crayfish	Pb	20.5	20.5	0.019	20.5	0.1	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]Diff = Dup 1 - Dup 2; digestates spiked with mid-range standard prior to analysis.

[c]RPD = relative percent difference, calculated as Diff/Mean X 100; acceptance criteria +/- 10%.

[d]ISOP = standard operating procedure used for instrumental analysis of sample (SOP P.241).

Tri-State study area.

BID[a]	Duplicate Type	Matrix	Element	Dup 1	Dup 2	Diff[b]	Mean	RPD[c]	ISOP[d]	Oper. Init.
10/05/09	47625 - Analytical	sediment	Ni	26.4	26.7	0.284	26.6	1.1	P.241	MJW/TWM
10/05/09	47625 - Analytical	sediment	Cu	21.3	21.4	0.062	21.3	0.3	P.241	MJW/TWM
10/05/09	47625 - Analytical	sediment	Zn	175.	177.	1.45	176.	0.8	P.241	MJW/TWM
10/05/09	47625 - Analytical	sediment	Cd	5.98	6.02	0.039	6.00	0.6	P.241	MJW/TWM
10/05/09	47625 - Analytical	sediment	Pb	26.1	26.1	0.032	26.1	0.1	P.241	MJW/TWM
10/05/09	47626 - Analytical	sediment	Ni	26.4	26.2	0.176	26.3	0.7	P.241	MJW/TWM
10/05/09	47626 - Analytical	sediment	Cu	21.2	21.4	0.128	21.3	0.6	P.241	MJW/TWM
10/05/09	47626 - Analytical	sediment	Zn	173.	171.	1.57	172.	0.9	P.241	MJW/TWM
10/05/09	47626 - Analytical	sediment	Cd	6.07	6.13	0.059	6.10	1.0	P.241	MJW/TWM
10/05/09	47626 - Analytical	sediment	Pb	26.6	26.5	0.18	26.6	0.7	P.241	MJW/TWM
10/05/09	47650 - Analytical	sediment	Ni	27.9	27.6	0.300	27.7	1.1	P.241	MJW/TWM
10/05/09	47650 - Analytical	sediment	Cu	22.4	22.3	0.091	22.3	0.4	P.241	MJW/TWM
10/05/09	47650 - Analytical	sediment	Zn	214.	212.	2.35	213.	1.1	P.241	MJW/TWM
10/05/09	47650 - Analytical	sediment	Cd	6.27	6.22	0.040	6.25	0.6	P.241	MJW/TWM
10/05/09	47650 - Analytical	sediment	Pb	30.6	30.4	0.185	30.5	0.6	P.241	MJW/TWM
10/05/09	47651 - Analytical	sediment	Ni	24.9	24.8	0.164	24.8	0.7	P.241	MJW/TWM
10/05/09	47651 - Analytical	sediment	Cu	20.2	20.2	0.018	20.2	0.1	P.241	MJW/TWM
10/05/09	47651 - Analytical	sediment	Zn	194.	192.	1.87	193.	1.0	P.241	MJW/TWM
10/05/09	47651 - Analytical	sediment	Cd	5.89	5.92	0.031	5.91	0.5	P.241	MJW/TWM
10/05/09	47651 - Analytical	sediment	Pb	25.2	25.3	0.074	25.3	0.3	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]Diff = Dup 1 - Dup 2; digestates spiked with mid-range standard prior to analysis.

[c]RPD = relative percent difference, calculated as Diff/Mean X 100; acceptance criteria +/- 10%.

[d]ISOP = standard operating procedure used for instrumental analysis of sample (SOP P.241).

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Wgt. (g)	Effective[c] Conc.	Unspked.[d] Conc.	Spk/ Unspiked	Unspiked SD	Spk/ Bkgd SD	Spiked[e] Conc.	% Rec.[f]	ISOP
09/15/09	Ni	47582 - Method	detritus	µg/g	20.0	0.252	79.4	14.6	5.4	0.46	174.	95.2	101.	P.241
09/15/09	Cu	47582 - Method	detritus	µg/g	100.	0.252	397.	14.5	27.	0.16	2470.	403.	98.	P.241
09/15/09	Zn	47582 - Method	detritus	µg/g	100.	0.252	397.	103.	3.8	4.69	85.	488.	97.	P.241
09/15/09	Cd	47582 - Method	detritus	µg/g	1.0	0.252	3.97	1.68	2.4	0.053	74.	5.64	100.	P.241
09/15/09	Pb	47582 - Method	detritus	µg/g	100.	0.252	397.	7.59	52.	0.28	1420.	395.	98.	P.241
09/15/09	Ni	47582 - Method	detritus	µg/g	200.	0.275	727.	14.6	50.	0.46	1590.	740.	100.	P.241
09/15/09	Cu	47582 - Method	detritus	µg/g	1000.	0.275	3640.	14.5	251.	0.16	22700.	3700.	101.	P.241
09/15/09	Zn	47582 - Method	detritus	µg/g	1000.	0.275	3640.	103.	35.	4.69	775.	3870.	103.	P.241
09/15/09	Cd	47582 - Method	detritus	µg/g	10.0	0.275	36.4	1.68	22.	0.053	682.	37.6	99.	P.241
09/15/09	Pb	47582 - Method	detritus	µg/g	1000.	0.275	3640.	7.59	480.	0.28	13000.	3620.	99.	P.241
09/15/09	Ni	47600 - Method	detritus	µg/g	20.0	0.250	80.0	17.1	4.7	0.53	152.	104.	108.	P.241
09/15/09	Cu	47600 - Method	detritus	µg/g	100.	0.250	400.	13.2	30.	0.42	949.	429.	104.	P.241
09/15/09	Zn	47600 - Method	detritus	µg/g	100.	0.250	400.	1150.	0.3	30.7	13.	1610.	115.	P.241
09/15/09	Cd	47600 - Method	detritus	µg/g	1.0	0.250	4.00	3.12	1.3	0.29	14.	7.05	98.	P.241
09/15/09	Pb	47600 - Method	detritus	µg/g	100.	0.250	400.	60.2	6.6	3.25	123.	450.	97.	P.241
09/15/09	Ni	47600 - Method	detritus	µg/g	200.	0.249	803.	17.1	47.	0.53	1520.	869.	106.	P.241
09/15/09	Cu	47600 - Method	detritus	µg/g	1000.	0.249	4020.	13.2	304.	0.42	9540.	4290.	106.	P.241
09/15/09	Zn	47600 - Method	detritus	µg/g	1000.	0.249	4020.	1150.	3.5	30.7	131.	5470.	107.	P.241
09/15/09	Cd	47600 - Method	detritus	µg/g	10.0	0.249	40.2	3.12	13.	0.29	139.	43.0	99.	P.241
09/15/09	Pb	47600 - Method	detritus	µg/g	1000.	0.249	4020.	60.2	67.	3.25	1240.	4100.	100.	P.241

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."
as a member of the group or "block."

[b]Spike Amt. µg = the absolute microgram (µg) amount of the spike which was added to a sample.

[c]Effective Conc. = the Spike Amt (µg) divided by the sample weight (g), units µg/g.

[d]Unspiked Conc. = the measured concentration of the sample prior to spiking, units µg/g.

[e]Spiked Conc. = the measured concentration of the spiked sample (spike + unspiked, units µg/g).

[f]% Rec. = percent recovery: [(Spiked Conc. - Unspiked Conc.)/Effective Conc. * 100]

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Wgt. (g)	Effective[c] Conc.	Unspked.[d] Conc.	Spk/ Unspiked	Unspiked SD	Spk/ Bkgd SD	Spiked[e] Conc.	% Rec.[f]	ISOP
09/08/09	Ni	47685 - Method	sediment	µg/g	10.0	0.213	46.9	37.4	1.3	1.46	32.	87.8	107.	P.241
09/08/09	Cu	47685 - Method	sediment	µg/g	0.1	0.213	0.47	22.4	0.021	0.64	0.7	23.2	---[g]	P.241
09/08/09	Zn	47685 - Method	sediment	µg/g	50.0	0.213	235.	7480.	0.031	55.1	4.3	7800.	---[g]	P.241
09/08/09	Cd	47685 - Method	sediment	µg/g	1.0	0.213	4.69	44.5	0.11	0.61	7.7	50.4	---[g]	P.241
09/08/09	Pb	47685 - Method	sediment	µg/g	10.0	0.213	46.9	879.	0.05	20.1	2.3	928.	---[g]	P.241
09/08/09	Ni	47685 - Method	sediment	µg/g	100.	0.203	493.	37.4	13.	1.46	337.	541.	102.	P.241
09/08/09	Cu	47685 - Method	sediment	µg/g	1.0	0.203	4.93	22.4	0.2	0.64	7.7	26.6	---[g]	P.241
09/08/09	Zn	47685 - Method	sediment	µg/g	500.	0.203	2460.	7480.	0.3	55.1	45.	9900.	98.	P.241
09/08/09	Cd	47685 - Method	sediment	µg/g	10.0	0.203	49.3	44.5	1.1	0.61	81.	92.7	98.	P.241
09/08/09	Pb	47685 - Method	sediment	µg/g	100.	0.203	493.	879.	0.6	20.1	25.	1350.	96.	P.241
09/14/09	Ni	47709 - Method	sediment	µg/g	10.0	0.209	47.8	23.6	2.0	0.21	229.	73.8	105.	P.241
09/14/09	Cu	47709 - Method	sediment	µg/g	10.0	0.209	47.8	17.3	2.8	0.28	172.	66.5	103.	P.241
09/14/09	Zn	47709 - Method	sediment	µg/g	50.0	0.209	239.	2070.	0.1	85.3	2.8	2400.	---[g]	P.241
09/14/09	Cd	47709 - Method	sediment	µg/g	1.0	0.209	4.78	17.2	0.3	0.36	13.	22.3	106.	P.241
09/14/09	Pb	47709 - Method	sediment	µg/g	10.0	0.209	47.8	172.	0.3	2.73	18.	225.	110.	P.241
09/14/09	Ni	47709 - Method	sediment	µg/g	100.	0.205	488.	23.6	21.	0.21	2330.	520.	102.	P.241
09/14/09	Cu	47709 - Method	sediment	µg/g	100.	0.205	488.	17.3	28.	0.28	1760.	509.	101.	P.241
09/14/09	Zn	47709 - Method	sediment	µg/g	500.	0.205	2440.	2070.	1.2	85.3	29.	4500.	100.	P.241
09/14/09	Cd	47709 - Method	sediment	µg/g	10.0	0.205	48.8	17.2	2.8	0.36	135.	66.9	102.	P.241
09/14/09	Pb	47709 - Method	sediment	µg/g	100.	0.205	488.	172.	2.8	2.73	179.	670.	102.	P.241

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."
as a member of the group or "block."

[b]Spike Amt. µg = the absolute microgram (µg) amount of the spike which was added to a sample.

[c]Effective Conc. = the Spike Amt (µg) divided by the sample weight (g), units µg/g.

[d]Unspiked Conc. = the measured concentration of the sample prior to spiking, units µg/g.

[e]Spiked Conc. = the measured concentration of the spiked sample (spike + unspiked, units µg/g).

[f]% Rec. = percent recovery: [(Spiked Conc. - Unspiked Conc.)/Effective Conc. * 100]

[g]spike recovery invalid due to spk/bkgd SD being < 10.

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Wgt. (g)	Effective[c] Conc.	Unspked.[d] Conc.	Spk/ Unspiked	Unspiked SD	Spk/ Bkgd SD	Spiked[e] Conc.	% Rec.[f]	ISOP
09/22/09	Ni	47535 - Method	crayfish	µg/g	10.0	0.251	39.8	0.98	41.	0.009	4590.	40.9	100.	P.241
09/22/09	Cu	47535 - Method	crayfish	µg/g	10.0	0.251	39.8	96.9	0.4	16.1	2.5	136.	---[g]	P.241
09/22/09	Zn	47535 - Method	crayfish	µg/g	50.0	0.251	199.	84.1	2.4	14.6	14.	284.	101.	P.241
09/22/09	Cd	47535 - Method	crayfish	µg/g	1.0	0.251	3.98	0.57	7.0	0.079	50.	4.59	101.	P.241
09/22/09	Pb	47535 - Method	crayfish	µg/g	10.0	0.251	39.8	0.34	119.	0.057	700.	42.1	105.	P.241
09/22/09	Ni	47535 - Method	crayfish	µg/g	100.	0.258	388.	0.98	397.	0.009	44600.	373.	96.	P.241
09/22/09	Cu	47535 - Method	crayfish	µg/g	100.	0.258	388.	96.9	4.0	16.1	24.	475.	97.	P.241
09/22/09	Zn	47535 - Method	crayfish	µg/g	500.	0.258	1940.	84.1	23.	14.6	132.	2040.	101.	P.241
09/22/09	Cd	47535 - Method	crayfish	µg/g	10.0	0.258	38.8	0.57	68.	0.079	491.	38.3	97.	P.241
09/22/09	Pb	47535 - Method	crayfish	µg/g	100.	0.258	388.	0.34	1160.	0.057	6810.	380.	98.	P.241
09/22/09	Ni	47536 - Method	crayfish	µg/g	10.0	0.251	39.8	1.01	39.	0.15	268.	40.0	98.	P.241
09/22/09	Cu	47536 - Method	crayfish	µg/g	10.0	0.251	39.8	69.6	0.6	2.90	14.	99.1	74.	P.241
09/22/09	Zn	47536 - Method	crayfish	µg/g	50.0	0.251	199.	79.2	2.5	3.07	64.9	261.	91.	P.241
09/22/09	Cd	47536 - Method	crayfish	µg/g	1.0	0.251	3.98	0.59	6.8	0.047	85.	4.42	96.	P.241
09/22/09	Pb	47536 - Method	crayfish	µg/g	10.0	0.251	39.8	0.34	117.	0.058	685.	41.3	103.	P.241
09/22/09	Ni	47536 - Method	crayfish	µg/g	100.	0.256	391.	1.01	386.	0.15	2630.	364.	93.	P.241
09/22/09	Cu	47536 - Method	crayfish	µg/g	100.	0.256	391.	69.6	5.6	2.90	135.	439.	94.	P.241
09/22/09	Zn	47536 - Method	crayfish	µg/g	500.	0.256	1950.	79.2	25.	3.07	635.	2000.	99.	P.241
09/22/09	Cd	47536 - Method	crayfish	µg/g	10.0	0.256	39.1	0.59	67.	0.047	834.	38.2	96.	P.241
09/22/09	Pb	47536 - Method	crayfish	µg/g	100.	0.256	391.	0.34	1150.	0.058	6720.	376.	96.	P.241

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Wgt. (g)	Effective[c] Conc.	Unspked.[d] Conc.	Spk/ Unspiked	Unspiked SD	Spk/ Bkgd SD	Spiked[e] Conc.	% Rec.[f]	ISOP
09/22/09	Ni	47533 - Method	crayfish	µg/g	10.0	0.251	39.8	1.24	32.	0.067	596.	44.2	108.	P.241
09/22/09	Cu	47533 - Method	crayfish	µg/g	10.0	0.251	39.8	75.7	0.5	4.53	8.8	119.	---[g]	P.241
09/22/09	Zn	47533 - Method	crayfish	µg/g	50.0	0.251	199.	127.	1.6	7.19	28.	345.	109.	P.241
09/22/09	Cd	47533 - Method	crayfish	µg/g	1.0	0.251	3.98	0.29	14.	0.024	164.	4.44	104.	P.241
09/22/09	Pb	47533 - Method	crayfish	µg/g	10.0	0.251	39.8	3.42	12.	0.19	210.	46.1	107.	P.241
09/22/09	Ni	47533 - Method	crayfish	µg/g	100.	0.253	395.	1.24	320.	0.067	44600.	406.	102.	P.241
09/22/09	Cu	47533 - Method	crayfish	µg/g	100.	0.253	395.	75.7	5.2	4.53	87.	476.	101.	P.241
09/22/09	Zn	47533 - Method	crayfish	µg/g	500.	0.253	1976.	127.	16.	7.19	275.	2180.	104.	P.241
09/22/09	Cd	47533 - Method	crayfish	µg/g	10.0	0.253	39.5	0.29	136.	0.024	1630.	40.3	101.	P.241
09/22/09	Pb	47533 - Method	crayfish	µg/g	100.	0.253	395.	3.42	115.	0.19	2080.	396.	99.	P.241
10/05/09	Ni	47626 - Method	sediment	µg/g	20.0	0.252	79.4	28.6	2.8	2.87	28.	116.7	111.	P.241
10/05/09	Cu	47626 - Method	sediment	µg/g	100.	0.252	397.	8.18	49.	1.04	380.	419.9	104.	P.241
10/05/09	Zn	47626 - Method	sediment	µg/g	100.	0.252	397.	133.	3.0	5.84	67.9	538.	102.	P.241
10/05/09	Cd	47626 - Method	sediment	µg/g	1.0	0.252	3.97	0.62	6.4	0.13	30.	4.77	105.	P.241
10/05/09	Pb	47626 - Method	sediment	µg/g	100.	0.252	397.	27.8	14.	5.86	68.	452.1	107.	P.241
10/05/09	Ni	47626 - Method	sediment	µg/g	200.	0.257	778.	28.6	27.	2.87	272.	812.	101.	P.241
10/05/09	Cu	47626 - Method	sediment	µg/g	1000.	0.257	3890.	8.18	476.	1.04	3720.	3840.	99.	P.241
10/05/09	Zn	47626 - Method	sediment	µg/g	1000.	0.257	3890.	133.	29.	5.84	666.	3970.	99.	P.241
10/05/09	Cd	47626 - Method	sediment	µg/g	10.0	0.257	38.9	0.62	63.	0.13	299.	38.9	98.	P.241
10/05/09	Pb	47626 - Method	sediment	µg/g	1000.	0.257	3890.	27.8	140.	5.86	664.	3770.	96.	P.241

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Wgt. (g)	Effective[c] Conc.	Unspked.[d] Conc.	Spk/ Unspiked	Unspiked SD	Spk/ Bkgd SD	Spiked[e] Conc.	% Rec.[f]	ISOP
10/05/09	Ni	47627 - Method	sediment	µg/g	20.0	0.259	77.2	23.6	3.3	1.78	43.	113.	116.	P.241
10/05/09	Cu	47627 - Method	sediment	µg/g	100.	0.259	386.	11.6	33.3	1.34	288.	400.	101.	P.241
10/05/09	Zn	47627 - Method	sediment	µg/g	100.	0.259	386.	153.	2.5	42.7	9.0	510.	---[g]	P.241
10/05/09	Cd	47627 - Method	sediment	µg/g	1.0	0.259	3.86	1.12	3.4	0.17	23.	4.80	95.	P.241
10/05/09	Pb	47627 - Method	sediment	µg/g	100.	0.259	386.	35.0	11.	3.51	110.	431.	103.	P.241
10/05/09	Ni	47627 - Method	sediment	µg/g	200.	0.255	784.	23.6	33.	1.78	440.	798.	99.	P.241
10/05/09	Cu	47627 - Method	sediment	µg/g	1000.	0.255	3920.	11.6	338.	1.34	2920.	3900.	99.	P.241
10/05/09	Zn	47627 - Method	sediment	µg/g	1000.	0.255	3920.	153.	26.	42.7	92.	3960.	97.	P.241
10/05/09	Cd	47627 - Method	sediment	µg/g	10.0	0.255	39.2	1.12	35.	0.17	233.	39.4	98.	P.241
10/05/09	Pb	47627 - Method	sediment	µg/g	1000.	0.255	3920.	35.0	112.	3.51	1120.	3920.	99.	P.241
10/05/09	Ni	47649 - Method	sediment	µg/g	20.0	0.253	79.1	22.5	3.5	1.23	64.	102.	101.	P.241
10/05/09	Cu	47649 - Method	sediment	µg/g	100.	0.253	395.	11.0	36.	0.54	732.	395.	97.	P.241
10/05/09	Zn	47649 - Method	sediment	µg/g	100.	0.253	395.	277.	1.4	9.90	39.9	672.	100.	P.241
10/05/09	Cd	47649 - Method	sediment	µg/g	1.0	0.253	3.95	2.10	1.9	0.060	66.	6.05	100.	P.241
10/05/09	Pb	47649 - Method	sediment	µg/g	100.	0.253	395.	26.4	15.	2.49	159.	404.	96.	P.241
10/05/09	Ni	47649 - Method	sediment	µg/g	200.	0.256	781.	22.5	35.	1.23	634.	748.	93.	P.241
10/05/09	Cu	47649 - Method	sediment	µg/g	1000.	0.256	3910.	11.0	357.	0.54	7240.	3690.	94.	P.241
10/05/09	Zn	47649 - Method	sediment	µg/g	1000.	0.256	3910.	277.	14.	9.90	395.	3940.	94.	P.241
10/05/09	Cd	47649 - Method	sediment	µg/g	10.0	0.256	39.1	2.10	19.	0.060	656.	39.4	96.	P.241
10/05/09	Pb	47649 - Method	sediment	µg/g	1000.	0.256	3910.	26.4	148.	2.49	1570.	3660.	93.	P.241

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Vol. (mL)	Effective[c] Conc.	Bkgd.[d] Conc.	Spk/ Bkgd	Total[e] Conc.	% Rec.[f]	ISOP	Oper. Init.
09/15/09	Ni	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	2.57	7.8	21.4	94.	P.241	MJW/TWM
09/15/09	Cu	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	2.86	7.0	21.5	93.	P.241	MJW/TWM
09/15/09	Zn	47580 - Analytical	detritus	ng/mL	750.	5.	150.	16.4	9.1	156.	93.	P.241	MJW/TWM
09/15/09	Cd	47580 - Analytical	detritus	ng/mL	30.	5.	6.0	0.22	27.	6.05	97.	P.241	MJW/TWM
09/15/09	Pb	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	1.13	18.	20.6	98.	P.241	MJW/TWM
09/15/09	Ni	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	3.02	6.6	23.0	100.	P.241	MJW/TWM
09/15/09	Cu	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	3.06	6.5	22.7	98.	P.241	MJW/TWM
09/15/09	Zn	47580 - Analytical	detritus	ng/mL	750.	5.	150.	19.0	7.9	162.	95.	P.241	MJW/TWM
09/15/09	Cd	47580 - Analytical	detritus	ng/mL	30.	5.	6.0	0.28	22.	6.28	100.	P.241	MJW/TWM
09/15/09	Pb	47580 - Analytical	detritus	ng/mL	100.	5.	20.0	1.34	15.	21.3	100.	P.241	MJW/TWM
09/15/09	Ni	47605 - Analytical	detritus	ng/mL	100.	5.	20.0	4.95	4.0	24.6	98.	P.241	MJW/TWM
09/15/09	Cu	47605 - Analytical	detritus	ng/mL	100.	5.	20.0	5.06	4.0	24.0	95.	P.241	MJW/TWM
09/15/09	Zn	47605 - Analytical	detritus	ng/mL	750.	5.	150.	96.7	1.6	235.	92.	P.241	MJW/TWM
09/15/09	Cd	47605 - Analytical	detritus	ng/mL	30.	5.	6.0	0.97	6.2	6.63	94.	P.241	MJW/TWM
09/15/09	Pb	47605 - Analytical	detritus	ng/mL	100.	5.	20.0	3.34	6.0	22.6	96.	P.241	MJW/TWM
09/15/09	Ni	47606 - Analytical	detritus	ng/mL	100.	5.	20.0	4.45	4.5	23.7	96.	P.241	MJW/TWM
09/15/09	Cu	47606 - Analytical	detritus	ng/mL	100.	5.	20.0	4.79	4.2	23.6	94.	P.241	MJW/TWM
09/15/09	Zn	47606 - Analytical	detritus	ng/mL	750.	5.	150.	88.4	1.7	222.	89.	P.241	MJW/TWM
09/15/09	Cd	47606 - Analytical	detritus	ng/mL	30.	5.	6.0	0.89	6.8	6.49	93.	P.241	MJW/TWM
09/15/09	Pb	47606 - Analytical	detritus	ng/mL	100.	5.	20.0	3.49	5.7	23.0	98.	P.241	MJW/TWM

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Vol. (mL)	Effective[c] Conc.	Bkgd.[d] Conc.	Spk/ Bkgd	Total[e] Conc.	% Rec.[f]	ISOP	Oper. Init.
09/08/09	Ni	47671 - Analytical	sediment	ng/mL	100.	5.	20.0	7.60	2.6	28.1	103.	P.241	MJW/TWM
09/08/09	Cu	47671 - Analytical	sediment	ng/mL	100.	5.	20.0	3.95	5.1	23.9	100.	P.241	MJW/TWM
09/08/09	Zn	47671 - Analytical	sediment	ng/mL	750.	5.	150.	49.5	3.0	195.	97.	P.241	MJW/TWM
09/08/09	Cd	47671 - Analytical	sediment	ng/mL	30.	5.	6.0	0.37	16.	6.33	99.	P.241	MJW/TWM
09/08/09	Pb	47671 - Analytical	sediment	ng/mL	100.	5.	20.0	9.14	2.2	28.7	98.	P.241	MJW/TWM
09/08/09	Ni	47672 - Analytical	sediment	ng/mL	100.	5.	20.0	6.28	3.2	25.9	98.	P.241	MJW/TWM
09/08/09	Cu	47672 - Analytical	sediment	ng/mL	100.	5.	20.0	2.82	7.1	21.9	95.	P.241	MJW/TWM
09/08/09	Zn	47672 - Analytical	sediment	ng/mL	750.	5.	150.	27.9	5.4	168.	93.	P.241	MJW/TWM
09/08/09	Cd	47672 - Analytical	sediment	ng/mL	30.	5.	6.0	0.28	22.	6.07	97.	P.241	MJW/TWM
09/08/09	Pb	47672 - Analytical	sediment	ng/mL	100.	5.	20.0	7.83	3.	26.6	94.	P.241	MJW/TWM
09/14/09	Ni	47694 - Analytical	sediment	ng/mL	100.	5.	20.0	4.49	4.5	24.8	102.	P.241	MJW/TWM
09/14/09	Cu	47694 - Analytical	sediment	ng/mL	100.	5.	20.0	2.70	7.4	22.8	101.	P.241	MJW/TWM
09/14/09	Zn	47694 - Analytical	sediment	ng/mL	750.	5.	150.	63.4	2.4	210.	98.	P.241	MJW/TWM
09/14/09	Cd	47694 - Analytical	sediment	ng/mL	30.	5.	6.0	0.59	10.2	6.74	102.	P.241	MJW/TWM
09/14/09	Pb	47694 - Analytical	sediment	ng/mL	100.	5.	20.0	6.32	3.2	26.7	102.	P.241	MJW/TWM
09/14/09	Ni	47695 - Analytical	sediment	ng/mL	100.	5.	20.0	5.36	3.7	25.2	99.	P.241	MJW/TWM
09/14/09	Cu	47695 - Analytical	sediment	ng/mL	100.	5.	20.0	2.69	7.4	22.6	100.	P.241	MJW/TWM
09/14/09	Zn	47695 - Analytical	sediment	ng/mL	750.	5.	150.	63.8	2.4	208.	96.	P.241	MJW/TWM
09/14/09	Cd	47695 - Analytical	sediment	ng/mL	30.	5.	6.0	0.55	10.8	6.58	100.	P.241	MJW/TWM
09/14/09	Pb	47695 - Analytical	sediment	ng/mL	100.	5.	20.0	6.31	3.2	26.2	100.	P.241	MJW/TWM

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Vol. (mL)	Effective[c] Conc.	Bkgd.[d] Conc.	Spk/ Bkgd	Total[e] Conc.	% Rec.[f]	ISOP	Oper. Init.
09/22/09	Ni	47523 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.36	55.	19.5	96.	P.241	MJW/TWM
09/22/09	Cu	47523 - Analytical	crayfish	ng/mL	100.	5.	20.0	12.8	1.6	31.5	94.	P.241	MJW/TWM
09/22/09	Zn	47523 - Analytical	crayfish	ng/mL	750.	5.	150.	20.2	7.4	161.	94.	P.241	MJW/TWM
09/22/09	Cd	47523 - Analytical	crayfish	ng/mL	30.	5.	6.0	0.25	24.	6.07	97.	P.241	MJW/TWM
09/22/09	Pb	47523 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.13	150.	20.3	101.	P.241	MJW/TWM
09/22/09	Ni	47536 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.29	67.9	19.2	95.	P.241	MJW/TWM
09/22/09	Cu	47536 - Analytical	crayfish	ng/mL	100.	5.	20.0	17.7	1.1	36.4	94.	P.241	MJW/TWM
09/22/09	Zn	47536 - Analytical	crayfish	ng/mL	750.	5.	150.	20.8	7.2	159.	92.	P.241	MJW/TWM
09/22/09	Cd	47536 - Analytical	crayfish	ng/mL	30.	5.	6.0	0.17	35.	6.29	102.	P.241	MJW/TWM
09/22/09	Pb	47536 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.10	208.	20.5	102.	P.241	MJW/TWM
09/22/09	Ni	47541 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.45	44.5	20.0	98.	P.241	MJW/TWM
09/22/09	Cu	47541 - Analytical	crayfish	ng/mL	100.	5.	20.0	15.0	1.3	33.6	93.	P.241	MJW/TWM
09/22/09	Zn	47541 - Analytical	crayfish	ng/mL	750.	5.	150.	91.6	1.6	233.	94.	P.241	MJW/TWM
09/22/09	Cd	47541 - Analytical	crayfish	ng/mL	30.	5.	6.0	2.04	2.9	8.17	102.	P.241	MJW/TWM
09/22/09	Pb	47541 - Analytical	crayfish	ng/mL	100.	5.	20.0	2.07	9.7	22.4	101.	P.241	MJW/TWM
09/22/09	Ni	47559 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.19	103.	19.6	97.	P.241	MJW/TWM
09/22/09	Cu	47559 - Analytical	crayfish	ng/mL	100.	5.	20.0	14.6	1.4	33.4	94.	P.241	MJW/TWM
09/22/09	Zn	47559 - Analytical	crayfish	ng/mL	750.	5.	150.	16.3	9.2	155.	93.	P.241	MJW/TWM
09/22/09	Cd	47559 - Analytical	crayfish	ng/mL	30.	5.	6.0	0.048	124.	6.09	101.	P.241	MJW/TWM
09/22/09	Pb	47559 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.072	277.	20.4	102.	P.241	MJW/TWM

by ICP-MS.

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Vol. (mL)	Effective[c] Conc.	Bkgd.[d] Conc.	Spk/ Bkgd	Total[e] Conc.	% Rec.[f]	ISOP	Oper. Init.
09/22/09	Ni	47575 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.26	78.	19.3	95.	P.241	MJW/TWM
09/22/09	Cu	47575 - Analytical	crayfish	ng/mL	100.	5.	20.0	13.6	1.5	32.2	93.	P.241	MJW/TWM
09/22/09	Zn	47575 - Analytical	crayfish	ng/mL	750.	5.	150.	34.3	4.4	169.	90.	P.241	MJW/TWM
09/22/09	Cd	47575 - Analytical	crayfish	ng/mL	30.	5.	6.0	0.34	18.	6.26	99.	P.241	MJW/TWM
09/22/09	Pb	47575 - Analytical	crayfish	ng/mL	100.	5.	20.0	0.55	36.	20.6	100.	P.241	MJW/TWM
10/05/09	Ni	47625 - Analytical	sediment	ng/mL	100.	5.	20.0	6.98	2.9	26.5	97.	P.241	MJW/TWM
10/05/09	Cu	47625 - Analytical	sediment	ng/mL	100.	5.	20.0	2.06	9.7	21.4	97.	P.241	MJW/TWM
10/05/09	Zn	47625 - Analytical	sediment	ng/mL	750.	5.	150.	38.0	4.0	178.	93.	P.241	MJW/TWM
10/05/09	Cd	47625 - Analytical	sediment	ng/mL	30.	5.	6.0	0.20	31.	6.01	97.	P.241	MJW/TWM
10/05/09	Pb	47625 - Analytical	sediment	ng/mL	100.	5.	20.0	6.45	3.	26.1	98.	P.241	MJW/TWM
10/05/09	Ni	47626 - Analytical	sediment	ng/mL	100.	5.	20.0	7.00	2.9	26.0	95.	P.241	MJW/TWM
10/05/09	Cu	47626 - Analytical	sediment	ng/mL	100.	5.	20.0	2.04	9.8	20.8	94.	P.241	MJW/TWM
10/05/09	Zn	47626 - Analytical	sediment	ng/mL	750.	5.	150.	31.0	4.8	168.	92.	P.241	MJW/TWM
10/05/09	Cd	47626 - Analytical	sediment	ng/mL	30.	5.	6.0	0.20	30.4	6.00	97.	P.241	MJW/TWM
10/05/09	Pb	47626 - Analytical	sediment	ng/mL	100.	5.	20.0	6.66	3.0	26.1	97.	P.241	MJW/TWM
10/05/09	Ni	47650 - Analytical	sediment	ng/mL	100.	5.	20.0	7.97	2.5	27.5	98.	P.241	MJW/TWM
10/05/09	Cu	47650 - Analytical	sediment	ng/mL	100.	5.	20.0	2.46	8.1	22.1	98.	P.241	MJW/TWM
10/05/09	Zn	47650 - Analytical	sediment	ng/mL	750.	5.	150.	68.1	2.2	212.	96.	P.241	MJW/TWM
10/05/09	Cd	47650 - Analytical	sediment	ng/mL	30.	5.	6.0	0.28	21.8	6.26	100.	P.241	MJW/TWM
10/05/09	Pb	47650 - Analytical	sediment	ng/mL	100.	5.	20.0	10.6	1.9	30.6	100.	P.241	MJW/TWM

BID[a]	Ele.	Spk Type	Matrix	Analysis Units	Spk Amt.[b] µg	Vol. (mL)	Effective[c] Conc.	Bkgd.[d] Conc.	Spk/ Bkgd	Total[e] Conc.	% Rec.[f]	ISOP	Oper. Init.
10/05/09	Ni	47651 - Analytical	sediment	ng/mL	100.	5.	20.0	8.47	2.	27.6	95.	P.241	MJW/TWM
10/05/09	Cu	47651 - Analytical	sediment	ng/mL	100.	5.	20.0	2.61	7.7	22.1	97.	P.241	MJW/TWM
10/05/09	Zn	47651 - Analytical	sediment	ng/mL	750.	5.	150.	71.7	2.1	214.	95.	P.241	MJW/TWM
10/05/09	Cd	47651 - Analytical	sediment	ng/mL	30.	5.	6.0	0.40	15.	6.43	100.	P.241	MJW/TWM
10/05/09	Pb	47651 - Analytical	sediment	ng/mL	100.	5.	20.0	7.75	3.	27.3	98.	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."
as a member of the group or "block."

[b]Spike Amt. µg = the absolute microgram (µg) amount of the spike which was added to a sample.

[c]Effective Conc. = the Spike Amt (ng) divided by the sample volume (mL), units ng/mL.

[d]Unspiked Conc. = the measured concentration of the sample prior to spiking, units ng/mL.

[e]Spiked Conc. = the measured concentration of the spiked sample (spike + unspiked, units ng/mL).

[f]% Rec. = percent recovery: [(Spiked Conc. - Unspiked Conc.)/Effective Conc. * 100]

BID[a]	Dilution Type	Matrix	Element	Undiluted Sample	Diluted Sample[b]	Dil Conc X 5	Dil % Diff[c]
09/15/09	47580 - Analytical	detritus	Ni	21.0	4.21	21.1	0.2
09/15/09	47580 - Analytical	detritus	Cu	21.3	4.37	21.9	2.7
09/15/09	47580 - Analytical	detritus	Zn	155.	32.4	162.	4.5
09/15/09	47580 - Analytical	detritus	Cd	5.98	1.23	6.15	2.8
09/15/09	47580 - Analytical	detritus	Pb	20.5	4.03	20.2	1.9
09/15/09	47580 - Analytical	detritus	Ni	23.2	4.51	22.5	2.7
09/15/09	47580 - Analytical	detritus	Cu	22.8	4.59	22.9	0.9
09/15/09	47580 - Analytical	detritus	Zn	162.	33.4	167.	3.1
09/15/09	47580 - Analytical	detritus	Cd	6.28	1.27	6.34	0.9
09/15/09	47580 - Analytical	detritus	Pb	21.5	4.14	20.7	3.6
09/15/09	47605 - Analytical	detritus	Ni	26.1	5.22	26.1	0.2
09/15/09	47605 - Analytical	detritus	Cu	25.6	5.24	26.2	2.3
09/15/09	47605 - Analytical	detritus	Zn	250.	52.2	261.	4.1
09/15/09	47605 - Analytical	detritus	Cd	7.03	1.42	7.12	1.3
09/15/09	47605 - Analytical	detritus	Pb	23.8	4.68	23.4	1.5
09/15/09	47606 - Analytical	detritus	Ni	23.9	4.71	23.6	1.3
09/15/09	47606 - Analytical	detritus	Cu	23.8	4.80	24.0	0.9
09/15/09	47606 - Analytical	detritus	Zn	226.	46.4	232.	2.8
09/15/09	47606 - Analytical	detritus	Cd	6.52	1.31	6.54	0.3
09/15/09	47606 - Analytical	detritus	Pb	22.9	4.49	22.4	2.1

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]dilution factor = 5 (1+4); digestates spiked with mid-range standard prior to analysis.

[c]dilution % difference acceptance criteria = +/- 10%; concentrations exceeding +/- 10%. indicative of suspect interferent.

BID[a]	Dilution Type	Matrix	Element	Undiluted Sample	Diluted Sample[b]	Dil Conc X 5	Dil % Diff[c]
09/08/09	47671 - Analytical	sediment	Ni	28.1	5.56	27.8	1.2
09/08/09	47671 - Analytical	sediment	Cu	24.0	4.85	24.2	0.9
09/08/09	47671 - Analytical	sediment	Zn	195.	40.3	202.	3.3
09/08/09	47671 - Analytical	sediment	Cd	6.33	1.27	6.33	0.1
09/08/09	47671 - Analytical	sediment	Pb	28.7	5.65	28.3	1.5
09/08/09	47672 - Analytical	sediment	Ni	26.0	5.16	25.8	0.7
09/08/09	47672 - Analytical	sediment	Cu	22.1	4.45	22.3	0.8
09/08/09	47672 - Analytical	sediment	Zn	168.	34.8	174.	3.3
09/08/09	47672 - Analytical	sediment	Cd	6.04	1.21	6.07	0.6
09/08/09	47672 - Analytical	sediment	Pb	26.8	5.27	26.3	1.7
09/14/09	47694 - Analytical	sediment	Ni	24.6	4.94	24.7	0.3
09/14/09	47694 - Analytical	sediment	Cu	22.7	4.63	23.2	2.2
09/14/09	47694 - Analytical	sediment	Zn	209.	43.4	217.	3.7
09/14/09	47694 - Analytical	sediment	Cd	6.80	1.37	6.87	0.9
09/14/09	47694 - Analytical	sediment	Pb	27.0	5.29	26.4	1.9
09/14/09	47695 - Analytical	sediment	Ni	25.4	5.06	25.3	0.2
09/14/09	47695 - Analytical	sediment	Cu	22.8	4.58	22.9	0.6
09/14/09	47695 - Analytical	sediment	Zn	209.	42.7	213.	2.1
09/14/09	47695 - Analytical	sediment	Cd	6.63	1.33	6.63	0.0
09/14/09	47695 - Analytical	sediment	Pb	26.5	5.14	25.7	2.9

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]dilution factor = 5 (1+4); digestates spiked with mid-range standard prior to analysis.

[c]dilution % difference acceptance criteria = +/- 10%; concentrations exceeding +/- 10%. indicative of suspect interferent.

BID[a]	Dilution Type	Matrix	Element	Undiluted Sample	Diluted Sample[b]	Dil Conc X 5	Dil % Diff[c]
09/22/09	47523 - Analytical	crayfish	Ni	19.3	3.85	19.3	0.4
09/22/09	47523 - Analytical	crayfish	Cu	31.3	6.46	32.3	3.3
09/22/09	47523 - Analytical	crayfish	Zn	158.	33.3	166.	5.0
09/22/09	47523 - Analytical	crayfish	Cd	6.10	1.22	6.10	0.1
09/22/09	47523 - Analytical	crayfish	Pb	20.2	3.91	19.6	3.2
09/22/09	47536 - Analytical	crayfish	Ni	19.4	3.86	19.3	0.5
09/22/09	47536 - Analytical	crayfish	Cu	36.2	7.36	36.8	1.7
09/22/09	47536 - Analytical	crayfish	Zn	159.	32.6	163.	2.4
09/22/09	47536 - Analytical	crayfish	Cd	6.34	1.24	6.22	1.8
09/22/09	47536 - Analytical	crayfish	Pb	20.5	4.01	20.0	2.1
09/22/09	47541 - Analytical	crayfish	Ni	19.7	3.94	19.7	0.1
09/22/09	47541 - Analytical	crayfish	Cu	33.1	6.83	34.1	3.1
09/22/09	47541 - Analytical	crayfish	Zn	227.	47.3	236.	4.0
09/22/09	47541 - Analytical	crayfish	Cd	8.07	1.60	8.01	0.7
09/22/09	47541 - Analytical	crayfish	Pb	22.3	4.34	21.7	2.9
09/22/09	47559 - Analytical	crayfish	Ni	19.6	3.97	19.8	1.3
09/22/09	47559 - Analytical	crayfish	Cu	33.6	6.84	34.2	1.8
09/22/09	47559 - Analytical	crayfish	Zn	155.	31.9	160.	2.9
09/22/09	47559 - Analytical	crayfish	Cd	6.07	1.22	6.11	0.6
09/22/09	47559 - Analytical	crayfish	Pb	20.5	3.97	19.9	2.9
09/22/09	47575 - Analytical	crayfish	Ni	19.5	3.84	19.2	1.3
09/22/09	47575 - Analytical	crayfish	Cu	32.3	6.60	33.0	2.3
09/22/09	47575 - Analytical	crayfish	Zn	169.	34.9	175.	3.4
09/22/09	47575 - Analytical	crayfish	Cd	6.19	1.24	6.19	0.1
09/22/09	47575 - Analytical	crayfish	Pb	20.6	4.01	20.1	2.4

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]dilution factor = 5 (1+4); digestates spiked with mid-range standard prior to analysis.

[c]dilution % difference acceptance criteria = +/- 10%; concentrations exceeding +/- 10%. indicative of suspect interferent.

BID[a]	Dilution Type	Matrix	Element	Undiluted Sample	Diluted Sample[b]	Dil Conc X 5	Dil % Diff[c]
10/05/09	47625 - Analytical	sediment	Ni	26.5	5.21	26.0	1.6
10/05/09	47625 - Analytical	sediment	Cu	21.4	4.32	21.6	0.8
10/05/09	47625 - Analytical	sediment	Zn	178.	36.4	182.	2.5
10/05/09	47625 - Analytical	sediment	Cd	6.03	1.19	5.96	1.1
10/05/09	47625 - Analytical	sediment	Pb	26.2	5.16	25.8	1.5
10/05/09	47626 - Analytical	sediment	Ni	26.0	5.12	25.6	1.3
10/05/09	47626 - Analytical	sediment	Cu	20.8	4.23	21.2	1.7
10/05/09	47626 - Analytical	sediment	Zn	169.	35.2	176.	4.2
10/05/09	47626 - Analytical	sediment	Cd	6.03	1.22	6.12	1.5
10/05/09	47626 - Analytical	sediment	Pb	26.0	5.19	26.0	0.3
10/05/09	47650 - Analytical	sediment	Ni	27.2	5.44	27.2	0.2
10/05/09	47650 - Analytical	sediment	Cu	22.0	4.38	21.9	0.2
10/05/09	47650 - Analytical	sediment	Zn	211.	43.1	216.	2.3
10/05/09	47650 - Analytical	sediment	Cd	6.21	1.27	6.36	2.4
10/05/09	47650 - Analytical	sediment	Pb	30.2	5.95	29.7	1.6
10/05/09	47651 - Analytical	sediment	Ni	27.6	5.53	27.6	0.1
10/05/09	47651 - Analytical	sediment	Cu	22.1	4.50	22.5	1.8
10/05/09	47651 - Analytical	sediment	Zn	214.	44.3	221.	3.6
10/05/09	47651 - Analytical	sediment	Cd	6.53	1.33	6.65	1.9
10/05/09	47651 - Analytical	sediment	Pb	27.3	5.36	26.8	1.8

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]dilution factor = 5 (1+4); digestates spiked with mid-range standard prior to analysis.

[c]dilution % difference acceptance criteria = +/- 10%; concentrations exceeding +/- 10%. indicative of suspect interferent.

BID	Run Date	Analyzed With	Element	Conc (ppb) actual	Mean Conc (ppb) measured	Dilution Factor	Mean % Rec.[b]
09/15/09	10/01/09	detritus	Ni	200.	24.6	10	123.
09/15/09	10/01/09	detritus	Cu	100.	10.5	10	105.
09/15/09	10/01/09	detritus	Zn	100.	11.8	10	118.
09/15/09	10/01/09	detritus	Cd	50.	5.01	10	100.
09/15/09	10/01/09	detritus	Pb[c]	10.	11.1	10	111.
09/15/09	10/02/09	detritus	Ni	200.	23.9	10	119.
09/15/09	10/02/09	detritus	Cu	100.	10.9	10	109.
09/15/09	10/02/09	detritus	Zn	100.	12.6	10	126.
09/15/09	10/02/09	detritus	Cd	50.	5.29	10	106.
09/15/09	10/02/09	detritus	Pb[c]	10.	11.6	10	116.
09/08/09	09/25/09	sediment	Ni	200.	22.8	10	114.
09/08/09	09/25/09	sediment	Cu	100.	11.0	10	110.
09/08/09	09/25/09	sediment	Zn	100.	12.6	10	126.
09/08/09	09/25/09	sediment	Cd	50.	5.26	10	105.
09/08/09	09/25/09	sediment	Pb[c]	10.	11.2	10	112.
09/14/09	10/13/09	sediment	Ni	200.	25.1	10	126.
09/14/09	10/13/09	sediment	Cu	100.	12.1	10	121.
09/14/09	10/13/09	sediment	Zn	100.	14.2	10	142.
09/14/09	10/13/09	sediment	Cd	50.	5.30	10	106.
09/14/09	10/13/09	sediment	Pb[c]	10.	11.0	10	110.
09/22/09	10/08/09	crayfish	Ni	200.	30.9	10	155.
09/22/09	10/08/09	crayfish	Cu	100.	10.9	10	109.
09/22/09	10/08/09	crayfish	Zn	100.	15.2	10	152.
09/22/09	10/08/09	crayfish	Cd	50.	4.96	10	99.
09/22/09	10/08/09	crayfish	Pb[c]	10.	11.5	10	115.
09/22/09	10/26/09	crayfish	Ni	200.	31.9	10	160.
09/22/09	10/26/09	crayfish	Cu	100.	11.4	10	114.
09/22/09	10/26/09	crayfish	Zn	100.	16.1	10	161.
09/22/09	10/26/09	crayfish	Cd	50.	5.07	10	101.
09/22/09	10/26/09	crayfish	Pb[c]	10.	11.2	10	112.

[a]High Purity ICP-MS Solution AB in 2% nitric acid, Charleston, SC.; CAT # ICP-MS-ICS.

[b]suggested acceptance tolerance 80% - 120%.

[c]Pb not present in interference check solution but added (effective conc 10ppb) following 5X dilution.

BID	Run Date	Analyzed With	Element	Conc (ppb) actual	Mean Conc (ppb) measured	Dilution Factor	Mean % Rec.[b]
10/05/09	11/06/09	sediment	Ni	200.	23.7	10	119.
10/05/09	11/06/09	sediment	Cu	100.	11.7	10	117.
10/05/09	11/06/09	sediment	Zn	100.	14.2	10	142.
10/05/09	11/06/09	sediment	Cd	50.	4.92	10	98.
10/05/09	11/06/09	sediment	Pb[c]	10.	11.0	10	110.
10/05/09	11/09/09	sediment	Ni	200.	22.2	10	111.
10/05/09	11/09/09	sediment	Cu	100.	11.3	10	113.
10/05/09	11/09/09	sediment	Zn	100.	13.5	10	135.
10/05/09	11/09/09	sediment	Cd	50.	4.63	10	93.
10/05/09	11/09/09	sediment	Pb[c]	10.	10.7	10	107.

[a]High Purity ICP-MS Solution AB in 2% nitric acid, Charleston, SC.; CAT # ICP-MS-ICS.

[b]suggested acceptance tolerance 80% - 120%.

[c]Pb not present in interference check solution but added (effective conc 10ppb) following 5X dilution.

BID[a]	Ele.	Matrix	Soln. Units	Soln 1 Conc.	Soln 2 Conc.	Soln 3 Conc.	Dil. Vol.	Mean Conc.[b]	Sample Wgt. (g)[c]	Mean BEC µg/g	BEC SD µg/g	PSOP	Prep. Init.	ISOP	Oper. Init.
09/15/09	Ni	detritus	ng/mL	0.10	0.15	0.10	100	0.12	0.250	0.046	0.011	P.214	VDM	P.241	MJW/TWM
09/15/09	Cu	detritus	ng/mL	0.89	0.57	0.27	100	0.58	0.250	0.23	0.12	P.214	VDM	P.241	MJW/TWM
09/15/09	Zn	detritus	ng/mL	3.02	2.64	2.78	100	2.81	0.250	1.13	0.078	P.214	VDM	P.241	MJW/TWM
09/15/09	Cd	detritus	ng/mL	0.004	0.177	- 0.007	100	0.058	0.250	0.023	0.041	P.214	VDM	P.241	MJW/TWM
09/15/09	Pb	detritus	ng/mL	0.023	0.019	0.028	100	0.023	0.250	0.009	0.002	P.214	VDM	P.241	MJW/TWM
09/15/09	Ni	detritus	ng/mL	0.044	0.141	0.121	100	0.10	0.250	0.041	0.020	P.214	VDM	P.241	MJW/TWM
09/15/09	Cu	detritus	ng/mL	0.61	0.44	0.073	100	0.37	0.250	0.149	0.11	P.214	VDM	P.241	MJW/TWM
09/15/09	Zn	detritus	ng/mL	2.24	5.20	2.28	100	3.24	0.250	1.296	0.68	P.214	VDM	P.241	MJW/TWM
09/15/09	Cd	detritus	ng/mL	- 0.001	0.011	0.009	100	0.006	0.250	0.003	0.003	P.214	VDM	P.241	MJW/TWM
09/15/09	Pb	detritus	ng/mL	- 0.022	0.001	- 0.004	100	- 0.01	0.250	- 0.003	0.005	P.214	VDM	P.241	MJW/TWM
09/08/09	Ni	sediment	ng/mL	0.16	0.27	0.10	100	0.18	0.200	0.088	0.043	P.214	VDM	P.241	MJW/TWM
09/08/09	Cu	sediment	ng/mL	0.27	0.32	0.24	100	0.28	0.200	0.139	0.022	P.214	VDM	P.241	MJW/TWM
09/08/09	Zn	sediment	ng/mL	3.63	3.11	1.86	100	2.9	0.200	1.434	0.46	P.214	VDM	P.241	MJW/TWM
09/08/09	Cd	sediment	ng/mL	0.11	0.13	0.043	100	0.094	0.200	0.047	0.023	P.214	VDM	P.241	MJW/TWM
09/08/09	Pb	sediment	ng/mL	0.080	0.088	0.064	100	0.077	0.200	0.039	0.006	P.214	VDM	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]Mean Conc. = the mean solution concentration of the procedural blanks for a block, n = 3; units ng/mL.

[c]Sample Wgt. = weight (g) used for BEC calculation.

BID[a]	Ele.	Matrix	Soln. Units	Soln 1 Conc.	Soln 2 Conc.	Soln 3 Conc.	Dil. Vol.	Mean Conc.[b]	Sample Wgt. (g)[c]	Mean BEC µg/g	BEC SD µg/g	PSOP	Prep. Init.	ISOP	Oper. Init.
09/14/09	Ni	sediment	ng/mL	0.16	0.11	0.074	100	0.11	0.200	0.057	0.020	P.214	VDM	P.241	MJW/TWM
09/14/09	Cu	sediment	ng/mL	- 0.20	- 0.19	-0.23	100	- 0.21	0.200	- 0.11	0.010	P.214	VDM	P.241	MJW/TWM
09/14/09	Zn	sediment	ng/mL	0.76	2.51	2.00	100	1.8	0.200	0.88	0.45	P.214	VDM	P.241	MJW/TWM
09/14/09	Cd	sediment	ng/mL	- 0.002	0.044	0.023	100	0.022	0.200	0.011	0.011	P.214	VDM	P.241	MJW/TWM
09/14/09	Pb	sediment	ng/mL	- 0.054	- 0.035	- 0.051	100	- 0.047	0.200	- 0.024	0.005	P.214	VDM	P.241	MJW/TWM
09/22/09	Ni	crayfish	ng/mL	0.12	0.064	0.09	100	0.091	0.250	0.036	0.012	P.214	VDM	P.241	MJW/TWM
09/22/09	Cu	crayfish	ng/mL	- 0.24	- 0.25	-0.27	100	- 0.25	0.250	- 0.10	0.006	P.214	VDM	P.241	MJW/TWM
09/22/09	Zn	crayfish	ng/mL	9.17	18.7	3.97	100	10.6	0.250	4.24	2.98	P.214	VDM	P.241	MJW/TWM
09/22/09	Cd	crayfish	ng/mL	0.094	0.14	0.021	100	0.086	0.250	0.034	0.025	P.214	VDM	P.241	MJW/TWM
09/22/09	Pb	crayfish	ng/mL	0.000	0.037	0.021	100	0.019	0.250	0.008	0.007	P.214	VDM	P.241	MJW/TWM
09/22/09	Ni	crayfish	ng/mL	0.12	0.27	0.082	100	0.16	0.250	0.063	0.040	P.214	VDM	P.241	MJW/TWM
09/22/09	Cu	crayfish	ng/mL	- 0.02	- 0.047	- 0.028	100	- 0.03	0.250	- 0.013	0.006	P.214	VDM	P.241	MJW/TWM
09/22/09	Zn	crayfish	ng/mL	9.33	19.9	4.95	100	11.38	0.250	4.553	0.008	P.214	VDM	P.241	MJW/TWM
09/22/09	Cd	crayfish	ng/mL	0.11	0.16	0.036	100	0.103	0.250	0.041	0.025	P.214	VDM	P.241	MJW/TWM
09/22/09	Pb	crayfish	ng/mL	- 0.19	- 0.15	- 0.172	100	- 0.17	0.250	- 0.068	0.008	P.214	VDM	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]Mean Conc. = the mean solution concentration of the procedural blanks for a block, n = 3; units ng/mL.

[c]Sample Wgt. = weight (g) used for BEC calculation.

BID[a]	Ele.	Matrix	Soln. Units	Soln 1 Conc.	Soln 2 Conc.	Soln 3 Conc.	Dil. Vol.	Mean Conc.[b]	Sample Wgt. (g)[c]	Mean BEC µg/g	BEC SD µg/g	PSOP	Prep. Init.	ISOP	Oper. Init.
10/05/09	Ni	sediment	ng/mL	0.22	0.060	0.082	100	0.12	0.250	0.048	0.035	P.214	VDM	P.241	MJW/TWM
10/05/09	Cu	sediment	ng/mL	0.10	0.13	0.055	100	0.093	0.250	0.037	0.014	P.214	VDM	P.241	MJW/TWM
10/05/09	Zn	sediment	ng/mL	0.22	0.023	0.20	100	0.15	0.250	0.059	0.043	P.214	VDM	P.241	MJW/TWM
10/05/09	Cd	sediment	ng/mL	0.017	0.003	0.005	100	0.008	0.250	0.003	0.003	P.214	VDM	P.241	MJW/TWM
10/05/09	Pb	sediment	ng/mL	0.014	0.002	0.038	100	0.018	0.250	0.007	0.007	P.214	VDM	P.241	MJW/TWM
10/05/09	Ni	sediment	ng/mL	0.081	0.024	0.044	100	0.050	0.250	0.020	0.029	P.214	VDM	P.241	MJW/TWM
10/05/09	Cu	sediment	ng/mL	0.056	0.056	0.026	100	0.05	0.250	0.018	0.018	P.214	VDM	P.241	MJW/TWM
10/05/09	Zn	sediment	ng/mL	0.36	0.32	0.35	100	0.35	0.250	0.14	0.020	P.214	VDM	P.241	MJW/TWM
10/05/09	Cd	sediment	ng/mL	0.006	0.00	0.003	100	0.004	0.250	0.002	0.002	P.214	VDM	P.241	MJW/TWM
10/05/09	Pb	sediment	ng/mL	0.015	0.012	0.014	100	0.014	0.250	0.005	0.002	P.214	VDM	P.241	MJW/TWM

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]Mean Conc. = the mean solution concentration of the procedural blanks for a block, n = 3; units ng/mL.

[c]Sample Wgt. = weight (g) used for BEC calculation.

BID[a]	Ele.	Matrix	W/D/L[b]	Blk SD	Standard SD	IDL[c]	MDL[d]	MQL[e]	PSOP	Prep. Init.	ISOP	Inst. Init.	Units
09/15/09	Ni	detritus	D	0.011	0.003	0.005	0.035	0.12	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Cu	detritus	D	0.12	0.002	0.014	0.37	1.22	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Zn	detritus	D	0.078	0.027	1.78	0.25	0.83	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Cd	detritus	D	0.041	0.001	0.002	0.12	0.40	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Pb	detritus	D	0.002	0.002	0.002	0.007	0.023	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Ni	detritus	D	0.020	0.002	0.005	0.061	0.20	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Cu	detritus	D	0.11	0.002	0.014	0.33	1.09	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Zn	detritus	D	0.68	0.041	1.78	2.00	6.60	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Cd	detritus	D	0.003	0.000	0.002	0.008	0.026	P.214	MJW	P.241	MJW/TWM	ug/g
09/15/09	Pb	detritus	D	0.005	0.001	0.002	0.015	0.050	P.214	MJW	P.241	MJW/TWM	ug/g
09/08/09	Ni	sediment	D	0.043	0.13	0.005	0.13	0.43	P.214	MJW	P.241	MJW/TWM	ug/g
09/08/09	Cu	sediment	D	0.02	0.067	0.014	0.067	0.22	P.214	MJW	P.241	MJW/TWM	ug/g
09/08/09	Zn	sediment	D	0.46	1.37	1.78	1.40	4.62	P.214	MJW	P.241	MJW/TWM	ug/g
09/08/09	Cd	sediment	D	0. 23	0. 68	0. 02	0. 68	0. 2	P. 14	MJW	P. 41	MJW/TWM	ug/g
09/08/09	Pb	sediment	D	0.006	0.019	0.002	0.019	0.063	P.214	MJW	P.241	MJW/TWM	ug/g
09/14/09	Ni	sediment	D	0.020	0.004	0.005	0.062	0.20	P.214	MJW	P.241	MJW/TWM	ug/g
09/14/09	Cu	sediment	D	0.010	0.002	0.014	0.031	0.10	P.214	MJW	P.241	MJW/TWM	ug/g
09/14/09	Zn	sediment	D	0.45	0.014	1.78	1.30	4.29	P.214	MJW	P.241	MJW/TWM	ug/g
09/14/09	Cd	sediment	D	0.011	0.001	0.002	0.034	0.11	P.214	MJW	P.241	MJW/TWM	ug/g
09/14/09	Pb	sediment	D	0.005	0.002	0.002	0.016	0.053	P.214	MJW	P.241	MJW/TWM	ug/g

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]W/D/L = state of starting sample: wet (W), dry (D), or liquid (L).

[c]IDL = instrument detection limit, unit ng/mL.

[d]MDL = method limit of detection, computed as $3 \times (SD_b^2 + SD_s^2)^{1/2}$ where SD_b = standard deviation of field blanks (n = 8) and SD_s = standard deviation of a low level standard diluted 100X (n = 3).

[e]MQL = 3.3 x MDL.

Table 43. Method detection and quantitation limits for Ni, Cu, Zn, Cd, and Pb in crayfish and whole sediment.

BID[a]	Ele.	Matrix	W/D/L[b]	Blk SD	Standard SD	IDL[c]	MDL[d]	MQL[e]	PSOP	Prep. Init.	ISOP	Inst. Init.	Units
09/22/09	Ni	crayfish	D	0.012	0.007	0.005	0.041	0.14	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Cu	crayfish	D	0.006	0.000	0.014	0.018	0.059	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Zn	crayfish	D	2.98	0.019	1.78	8.90	29.4	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Cd	crayfish	D	0.025	0.003	0.002	0.074	0.24	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Pb	crayfish	D	0.007	0.002	0.002	0.023	0.076	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Ni	crayfish	D	0.040	0.013	0.005	0.13	0.43	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Cu	crayfish	D	0.006	0.004	0.014	0.021	0.069	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Zn	crayfish	D	3.07	0.070	1.78	9.20	30.4	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Cd	crayfish	D	0.025	0.001	0.002	0.075	0.25	P.214	MJW	P.241	MJW/TWM	ug/g
09/22/09	Pb	crayfish	D	0.008	0.004	0.002	0.027	0.089	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Ni	sediment	D	0.035	0.003	0.005	0.10	0.33	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Cu	sediment	D	0.014	0.002	0.014	0.044	0.15	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Zn	sediment	D	0.043	0.022	1.78	0.15	0.50	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Cd	sediment	D	0.003	0.002	0.002	0.011	0.036	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Pb	sediment	D	0.007	0.001	0.002	0.022	0.073	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Ni	sediment	D	0.029	0.004	0.005	0.087	0.29	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Cu	sediment	D	0.018	0.002	0.014	0.053	0.17	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Zn	sediment	D	0.020	0.040	1.78	0.14	0.46	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Cd	sediment	D	0.002	0.002	0.002	0.008	0.026	P.214	MJW	P.241	MJW/TWM	ug/g
10/05/09	Pb	sediment	D	0.002	0.001	0.002	0.006	0.020	P.214	MJW	P.241	MJW/TWM	ug/g

[a]BID = Block Initiation Date: a date assigned to each member of a group of samples that will identify the sample as a member of the group or "block."

[b]W/D/L = state of starting sample: wet (W), dry (D), or liquid (L).

[c]IDL = instrument detection limit, unit ng/mL.

[d]MDL = method limit of detection, computed as $3 \times (SD_b^2 + SD_s^2)^{1/2}$ where SD_b = standard deviation of field blanks (n = 8) and SD_s = standard deviation of a low level standard diluted 100X (n = 3).

[e]MQL = 3.3 x MDL.