Mercury Concentrations Bordering The Hamilton Army Air Field Remediation Site: February, 2003

Wet Season - Dry Season Contrast

Report to USACE District,
San Francisco

Prepared by
USACE Engineer Research and Development Center
Waterways Experiment Station
Vicksburg, MS

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Authors

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Background

The re-establishment of wetlands in the San Francisco Bay/Delta System using dredged material from bay channels has the potential for mobilizing mercury (Hg) present in the sediments. The primary route of entry of mercury from sediments into the Bay ecosystem is through the formation of the highly mobile and bioavailable form, methylmercury (monomethylmercury, CH_3Hg^+, MeHg). Methylmercury formation is favored under certain conditions characteristic of wetland environments. In the summer of 2001 (dry season) at the request of USACE District, San Francisco, the USACE Engineer Research and Development Center, Waterways Experiment Station (ERDC-WES) conducted extensive soil and sediment sampling and analysis for total mercury (THg) and MeHg at selected stations bordering the former Hamilton Army Airfield (HAAF) wetlands restoration site located on the western edge of San Pablo Bay, California. This work was continued in FY03 with wet season sampling and analysis at the same stations, and the results are here reported and contrasted with the dry season concentrations.

This report references:

1. "Appraisal of mercury methylation and bioaccumulation at Hamilton Army Airfield, Winter, 2003." Scope of Work prepared for USACE District, San Francisco by USACE Engineer Research and Development Center, Waterways Experiment Station, 25 July, 2002.

2. "Mercury Concentrations Bordering The Hamilton Army Air Field Remediation Site: September, 2001." Report to: USACE District, San Francisco, by USACE Engineer Research and Development Center, Waterways Experiment Station. October 4, 2002 + Appendices A-F[1].

3. Appendix A: Analytical Data Report.

Wet Season Sampling

Descriptions of the sampling locations, sampling and analysis methods, personnel involved, theoretical rationale for the study, and dry season results are contained in reference 2 and the appendices therein. The present study follows the proposed outline described in the scope-of-work (Reference 1). Briefly, in the dry season study seven locations were selected bordering the HAAF wetlands remediation site and one reference location (China Camp Marsh) at which three to twelve sample sites were located and identified by GPS coordinates. Five replicate soil surficial samples were taken at each site within an approximate 0.75 m radius. The original sample sites were located and re-sampled for the wet season study. Clean techniques were used in the field (gloves, SS

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trowel, acid-washed glass sample jars with teflon-lined lids) and samples were chilled on site and kept at 4EC until analysis. The sampling interval was chosen to occur during the wettest time of the year (Jan-Feb) and all samples were collected and shipped between 3 and 6 February, 2003. The dry season collection (Reference 2) occurred following the driest months, on 10-14 September, 2001. All analyses were performed by the ERDC Environmental Chemistry Branch, CEERD-EP-C, Omaha, Nebraska.

Statistical Methods

Statistical analyses for comparisons within and between locations were performed using SAS procedures (SAS Institute, Inc. 2001). Total mercury and MeHg concentrations in soil, and MeHg as percent of THg were tested statistically for differences between wet and dry season at each of the eight locations, and at each site within each location. Parametric comparison test assumptions were checked for violations using the Shapiro-Wilk's test for normality of residuals, and a modification of Hartley's *F*max test for equality of variances (Shoemaker 2003). Site data failing the normality assumption were compared using the nonparametric Kruskal-Wallis test. Site data passing the normality test were compared using *t*-tests for equal or unequal variances.

For comparisons of season at each location, all sites combined, two-way analysis of variance (ANOVA) was performed with site as a blocking variable. Ranks were used in the ANOVA instead of raw data when the normality assumption was violated. A significance level of 0.05 was used for all statistical tests. Non-detects were substituted as one-half detection limit prior to analysis.

Results and Discussion

Historical and current rainfall measurements were not found for the HAAF Remediation Site. However, the city of San Rafael is located in the vicinity of HAAF and rainfall records there are available as a surrogate (Western Regional Climate Center 2003). The average monthly rainfall and temperatures over the past 55 years at San Rafael are shown in Figure 1. Rainfall in the month preceding the wet season collection totaled 4.39 inches at San Rafael, and was about half the historical average for January. Virtually no rainfall occurs during the average summer, and none was reported in the north SF Bay area during the month preceding the dry season collection (NOAA NWS 2001). Temperatures were somewhat cooler than historical averages during both dry and wet season collection intervals. Historical September temperatures average 81E/54EF day/night, and during the dry season collection the averages were 74E/54E day/night. In February the historical averages are 61E/44EF day/night, and during the wet season collection they were 56E/36EF day/night.

Overall summary statistics calculated for all soil/sediment samples taken bordering the HAAF Remediation Site and the China Camp Reference Marsh are given in Table 1. Units of THg and MeHg concentration in Table 1 and throughout this document are expressed as ng g^{-1} (parts-per-billion, ppb) on a dry weight basis. This

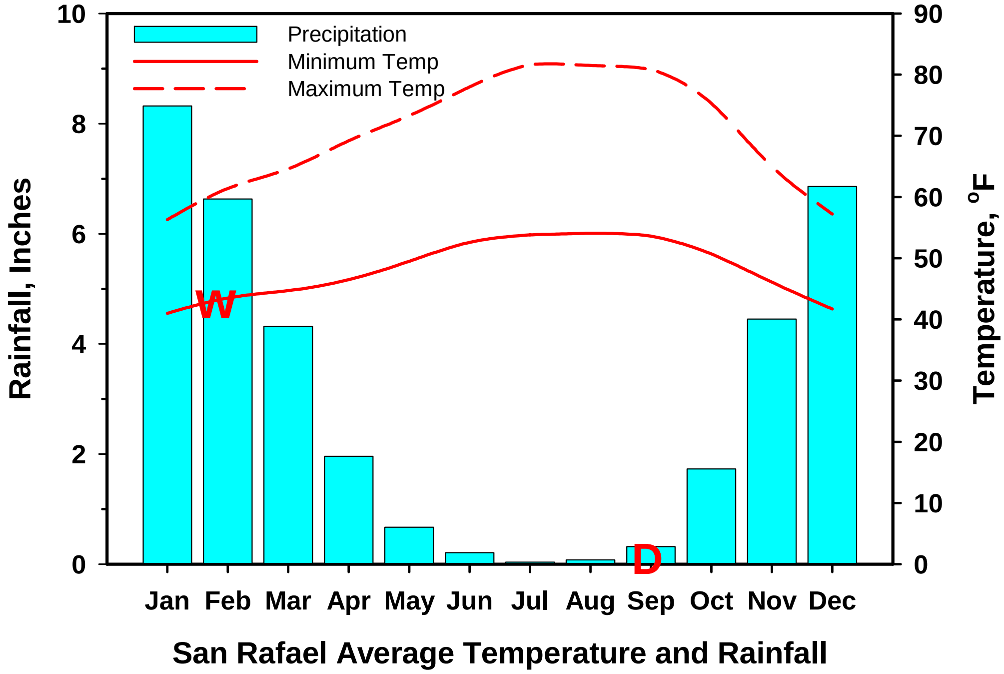

Figure 1. San Rafael Civic Center, San Rafael California (047880). Monthly Climate Summary, Period of Record: 7/ 1/1948 to 3/31/2003. Western Regional Climate Center 2003. **W**: Total rainfall for month preceding wet season collection, 4.39 inches. **D**: Total rainfall for month preceding dry season collection, 0.00 inches.

Table 1. Overall HAAF soil/sediment mercury summary statistics, ng g^{-1}.

Analyte/Season	Mean	n	SD	Std. Error of Mean	95% Confidence Limits of Mean
THg dry	292	305	103	5.93	280, 304
THg wet	**301**[1]	305	110	6.23	289, 313
MeHg dry	1.47	305	2.16	0.125	1.23, 1.72
MeHg wet	**4.39**	305	7.17	0.41	3.58, 5.20
%MeHg dry	0.539	305	0.824	0.048	0.445, 0.633
%MeHg wet	**1.49**	305	2.21	0.126	1.24, 1.74
	Median	5%ile	95%ile	Min	Max
THg dry	290	110	475	30.0	740
THg wet	291	87.4	481	43.0	900
MeHg dry	0.640	0.025	6.60	0.010	15.0
MeHg wet	1.86	0.135	17.4	0.018	74.7
%MeHg dry	0.227	0.008	2.14	0.003	6.54
%MeHg wet	0.545	0.073	6.14	0.006	15.0

[1]Based on statistical comparisons of wet and dry seasons, bold indicates significantly greater mean ($P < 0.05$)

convention is used in order to clearly show relationships between the mercury species. Wet season means were statistically higher than dry season means for all Hg metrics. Although a statistical difference was found for mean THg between seasons the difference was small, amounting to only a three percent higher concentration in the wet season. It appears unlikely that the higher value is anything more than a statistical artifact; the data were significantly non-normally distributed, and wet and dry season medians were essentially the same. Location differences for THg are notable in the case of the HAAF Bay Edge sites and the Bel Marin Creek sites (Figure 2), although not much difference can be seen among the other six locations. The overall THg concentration in the intertidal and mid- to high marsh soils bordering HAAF during both seasons (~ 0.3 ppm) is the same value measured in upper near-shore San Pablo Bay sediments by Hornberger et al. (1999), and within the range (0.166-0.515 ppm) for North Bay wetland soils reported by Lee et al. (2000). Although THg was essentially constant over seasons, the overall wet season MeHg concentrations averaged threefold higher than were measured during the dry season, whether mean or median was taken as the central tendency. This amounted to a 2.4 to 2.8-fold increase in the percentage of MeHg in surficial soil THg. This effect could be the result of a shallower anoxic or suboxic zone producing MeHg.

Results of seasonal means comparisons at the eight locations and at sample sites within locations are given in Table 2. For each mercury metric (THg, MeHg, and %MeHg), a significantly greater difference was observed for wet season samples than for dry season at about one-third to one-half of all the individual sample sites. Mean wet season concentrations significantly exceeded mean dry season concentrations in 26 percent of THg and 40 percent of MeHg soil analyses. Percent MeHg significant wet season increases paralleled MeHg at 43 percent. Mean dry season concentrations were greater than mean wet season concentrations in 15 percent of all sites for THg only. All sites within the Mid Marsh and Bel Marin Creek exhibited significant seasonal differences in concentration for at least one mercury metric. Mercury methylation was significantly increased most often at the Mid Marsh location (six out of eight sample sites) but the highest levels of MeHg were found at the High Marsh sites, reaching as much as 23.5 ng g^{-1}at SM-20, a 30-fold increase at that site. The increase in MeHg averaged 12-fold across all sites at the High Marsh location.

For all sites combined within a location, MeHg (and %MeHg) were significantly greater during the wet season than during the dry season in six of the eight locations. In decreasing order, these were: High Marsh > Mid Marsh > Reference Marsh > BM Seasonal > Bay Edge = Antenna Field. The fraction of MeHg in THg reported in coastal estuarine sediments and soils is most typically in the range of a few tenths to about one percent, with highest levels reported being on the order of six percent (Bartlett and Craig 1981, Kannan et al. 1998). High soil/sediment THg did not correlate with high mercury methylation. Locations with the highest wet season MeHg were Mid- and High Marsh which ranged to over 20 ng g^{-1}, and 9 percent MeHg in THg. The Bay Edge samples where the highest THg concentrations were found were all less than 1% MeHg. This observation is consistent with other temperate estuaries.

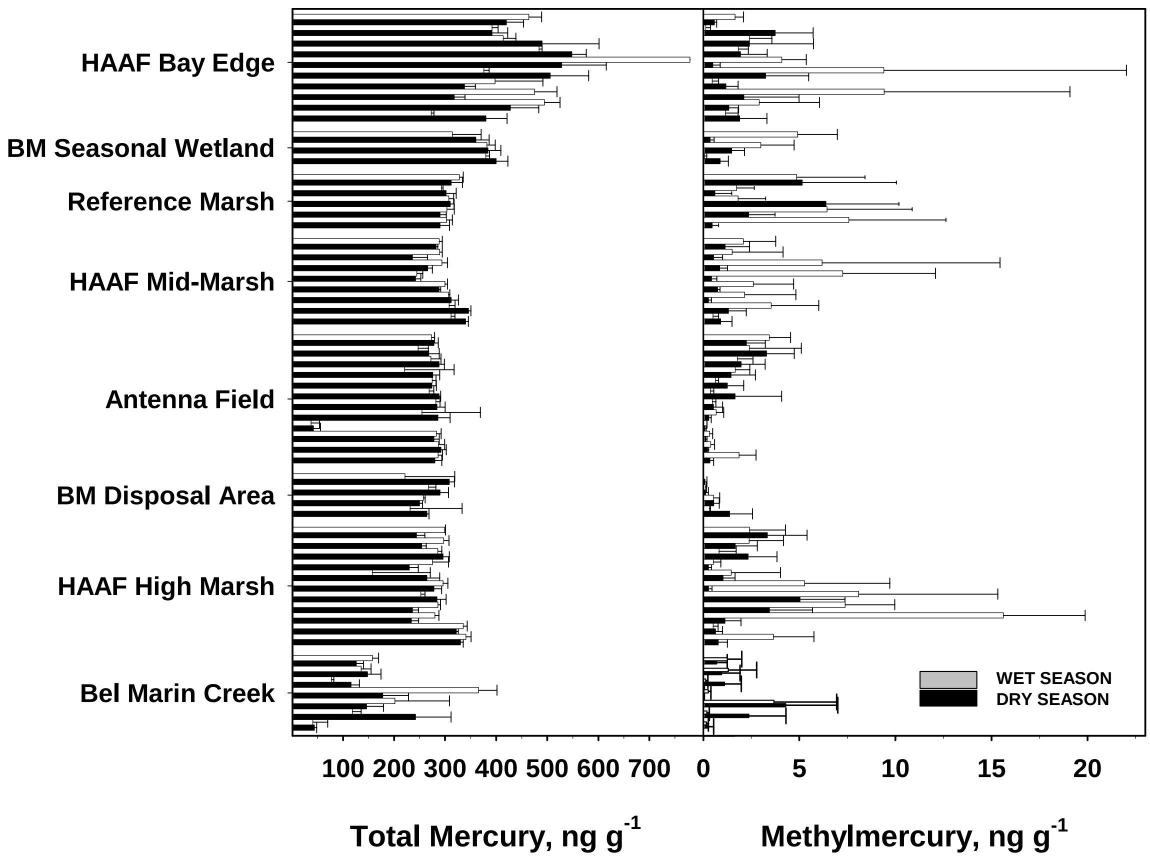

Figure 2. HAAF mercury metrics contrasting wet and dry season means by location. Whiskers are upper 95% confidence limits.

The observed increase in methylation in surficial soils/sediments is consistent with expectations. In the sediments and soils of a moderately high mercury content, climatically temperate, estuary such as the San Francisco Bay system we hypothesize that rates of mercury methylation will tend to increase in the wet season. Processes that favor increased methylation include increased atmospheric deposition of mercury-bound particulates due to rainfall, a dampening of volatilization of mercury with decreased temperatures and shorter photoperiod, decreased salinity and increased transport and deposition of organic material with increased freshwater runoff and river discharge volume, seasonal dormancy of plant rhizosphere oxidative processes and wider areal redox shift toward reducing conditions in wetted soils and sediments. These conditions and the primary processes dependent on them may be sufficient to dominate counter-processes that sum to reduce mercury methylation rates, e.g., lowered sulfate-reducing microbial activity with lowered seasonal temperatures, or a reduction in photo-oxidation of MeHg with shorter photoperiods. The complexity of the geochemical, microbial, and physical interactions that favor or reduce the rate of net methylation of inorganic mercury

Table 2. Mean dry season/wet season THg, MeHg, and percent MeHg in THg.

Location	Site	Total Hg		MeHg		Percent MeHg	
		Dry	Wet	Dry	Wet	Dry	Wet
HAAF Bay Edge	All	435	455	1.13	**1.80**[1]	0.422	**0.711**
	SM-01	**380**	273	0.353	**2.08**	0.127	**0.724**
	SM-03	428	495	0.225	**0.470**	0.078	**0.164**
	SM-10	318	**475**	0.129	**0.410**	0.046	**0.145**
	SM-13	338	398	0.095	0.178	0.203	**0.346**
	SM-17	**506**	376	0.295	**0.774**	0.106	**0.238**
	SM-19	528	**779**	0.538	0.472	0.192	0.169
	SM-21	**548**	484	1.65	0.452	0.571	0.170
	SM-23	490	414	1.26	0.639	0.464	0.233
	SM-38	392	392	1.45	1.90	0.519	0.695
	SM-39	420	464	2.00	1.77	0.688	0.657
Bel Marin Seasonal Wetland	All	381	359	0.906	**2.73**	0.240	**0.866**
	BM-56	400	379	0.882	0.269	0.225	0.071
	BM-57	384	382	1.48	3.00	0.399	0.788
	BM-58	360	314	0.355	**4.91**	0.097	**1.74**
Reference Marsh (China Camp)	All	301	307	2.99	**4.86**	0.987	**1.60**
	R-43	290	303	0.468	**7.57**	0.166	**2.57**
	R-44	290	304	2.36	6.45	0.805	2.14
	R-45	310	307	6.38	3.11	2.05	0.999
	R-46	302	293	0.612	**2.32**	0.203	**0.794**
	R-47	312	328	5.15	4.86	1.71	1.49
HAAF Mid-Marsh	All	289	**293**	0.777	**6.82**	0.267	**2.39**
	SM-02	**340**	312	0.906	0.509	0.270	0.164
	SM-04	346	**308**	1.31	3.79	0.378	1.23
	SM-05	312	307	0.278	**6.30**	0.090	**2.06**
	SM-08	288	**300**	0.752	**6.20**	0.262	**2.07**
	SM-11	242	244	0.432	**7.26**	0.185	**3.02**
	SM-14	266	**294**	0.855	**11.4**	0.321	**3.96**
	SM-18	236	**289**	0.543	**13.3**	0.227	**4.61**
	SM-24	282	**288**	1.14	**5.82**	0.405	**2.02**
Antenna Field	All	261	260	1.13	**1.80**	0.422	**0.711**
	AF-26	280	286	0.353	**2.08**	0.127	**0.724**
	AF-27	292	287	0.225	**0.470**	0.078	**0.164**
	AF-28	278	283	0.129	**0.410**	0.046	**0.145**
	AF-29	42	52	0.095	0.178	0.203	**0.346**
	AF-30	286	320	0.295	**0.774**	0.106	**0.238**
	AF-31	284	282	0.538	0.472	0.192	0.169
	AF-32	**288**	269	1.65	0.452	0.571	0.170
	AF-33	274	275	1.30	0.639	0.464	0.233
	AF-34	276	273	1.45	1.90	0.519	0.695
	AF-35	288	272	1.98	1.77	0.688	0.657
	AF-36	268	247	3.29	**9.01**	1.26	**3.73**
	AF-37	278	273	2.25	3.43	0.808	1.26

Table 2 (Concluded). Mean dry season/wet season sediment/soil concentrations of total mercury and methylmercury, and mean methylmercury as percent of total mercury.

Location	Site	Total mercury		Methylmercury		Percent Methylmercury	
		Dry	Wet	Dry	Wet	Dry	Wet
Bel Marin Disposal Area	All	278	273	0.536	0.288	0.203	0.108
	BM-52	264	287	1.37	0.321	0.518	0.112
	BM-53	250	257	0.554	0.700	0.222	0.272
	BM-54	290	268	0.123	0.105	0.043	0.041
	BM-55	308	279	0.096	0.025	0.031	0.009
HAAF High Marsh	All	270	**291**	1.82	**7.20**	0.692	**2.62**
	SM-06	330	341	0.781	3.65	0.239	1.09
	SM-07	322	**335**	0.641	0.820	0.199	0.247
	SM-09	234	**280**	1.13	**15.6**	0.472	**5.63**
	SM-12	236	**286**	3.45	7.39	1.46	2.60
	SM-15	**284**	252	5.04	10.1	1.75	4.13
	SM-16	278	296	0.279	**7.38**	0.103	**2.47**
	SM-20	264	259	1.03	**23.5**	0.404	**8.99**
	SM-22	230	275	0.279	**0.904**	0.124	**0.336**
	SM-25	296	286	2.34	2.02	0.794	0.705
	SM-40	254	**297**	1.66	3.08	0.649	1.037
	SM-41	244	**299**	3.34	4.73	1.42	1.58
Bel Marin Creek	All	143	166	1.39	2.22	0.934	1.28
	BM-48	44	**69**	0.273	0.226	0.636	0.327
	BM-49	**242**	118	2.37	0.246	0.926	0.212
	BM-50	146	**237**	4.30	9.84	2.86	4.82
	BM-51	178	**365**	0.044	**0.686**	0.025	**0.194**
	BM-59	**116**	78	1.10	0.139	0.873	0.185
	BM-60	148	136	0.949	**2.61**	0.655	**2.05**
	BM-61	126	**158**	0.693	1.78	0.568	1.15

[1]Based on statistical comparisons of wet and dry seasons, bold indicates significantly greater mean ($P < 0.05$)

over demethylation, and differences in higher organism exposure, make it impossible to predict the extent of seasonal variations in mobilization and uptake of mercury without creating a body of region- and ecosystem-specific data. Increases and decreases in mercury tissue levels of invertebrates and fish have both been reported during the same season. For example, killifish, *Fundulus heteroclitus*, monitored in Berry's Creek, New Jersey, a highly mercury-contaminated saltwater marsh, showed a five-fold increase in mercury levels during the summer (Weis et al. 1986). In contrast, bay mussels, *Mytilus edulis*, monitored over a two-year period in the estuary and Gulf of St. Lawrence showed a marked decrease in tissue mercury content during the summer months (Cossa and Rondeau 1985).

Conclusions

Total mercury concentrations in surficial soils and sediments at seven locations bordering the HAAF Wetlands Restoration Site and at a near-by reference saltmarsh (China Camp) in San Pablo Bay, CA, were mostly similar during the dry season of 2001 and the wet season of 2003. Methylmercury in the same samples increased an average of three-fold during the wet season. Highest THg was consistently found in samples at the intertidal zone (Bay Edge) but MeHg was increased less than two-fold in the same samples during the wet season. Highest methylation occurred in samples taken closer to the levee and less influenced by tidal fluctuation. In the Mid Marsh and High Marsh samples, MeHg in THg averaged up to nine percent, and MeHg concentrations were as high as 23.5 ng g^{-1} in soil, suggesting that meteorological or surface water play a role in Hg methylation of the higher marsh areas.

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Appendix A. Analytical Results

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Sample Results for Mercury and Methylmercury
Project Name: San Francisco Bay System Wetland Testing
Project No.: 6836

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030083-001	SM-3W A	03 Feb 03			11 Mar 03	13.5			
M030083-002	SM-13W A	04 Feb 03			11 Mar 03	11			
M030083-003	SM-3W B	03 Feb 03			11 Mar 03	12.2			
M030083-004	SM-3W C	03 Feb 03			11 Mar 03	12.1			
M030083-005	SM-3W D	03 Feb 03			11 Mar 03	12.4			
M030083-006	SM-3W E	03 Feb 03			11 Mar 03	15.5			
M030083-007	SM-13W B	04 Feb 03			11 Mar 03	5.9			
M030083-008	SM-13W C	04 Feb 03			11 Mar 03	11.2			
M030083-009	SM-13W D	04 Feb 03			11 Mar 03	10.4			
M030083-010	SM-13W E	04 Feb 03			11 Mar 03	6.2			
M030084-001	SM-1W A	03 Feb 03	49.6	19 Feb 03	20 Feb 03	267	20 Mar 03	20 Mar 03	1.58
M030084-002	SM-3W A	03 Feb 03	39.6	19 Feb 03	20 Feb 03.	438	17 Apr 03	17 Apr 03	0.509

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-003	SM-2W A	03 Feb 03	43.6	19 Feb 03	20 Feb 03	327	12 Mar 03	12 Mar 03	0.592
M030084-004	SM-7W A	03 Feb 03	60.3	19 Feb 03	20 Feb 03	349	13 Mar 03	13 Mar 03	0.69
M030084-005	SM-42W A	03 Feb 03	25.4	19 Feb 03	20 Feb 03	255	16 Apr 03	16 Apr 03	2.75
M030084-006	SM-6W A	03 Feb 03	48.0	19 Feb 03	20 Feb 03	362	23 May 03	23 May 03	0.93
M030084-007	SM-9W A	03 Feb 03	34.3	19 Feb 03	20 Feb 03	278	23 May 03	23 May 03	13.6
M030084-008	SM-8W A	03 Feb 03	37.4	19 Feb 03	20 Feb 03	300	13 Mar 03	13 Mar 03	11.0
M030084-009	SM-5W A	03 Feb 03	47.2	25 Feb 03	26 Feb 03	303	27 Mar 03	27 Mar 03	1.44
M030084-010	SM-4W A	03 Feb 03	46.2	25 Feb 03	26 Feb 03	294	23 Jun 03	23 Jun 03	1.25
M030084-011	SM-10W A	03 Feb 03	27.3	25 Feb 03	26 Feb 03	494	02 May 03	02 May 03	18.4
M030084-012	SM-11W A	03 Feb 03	27.8	25 Feb 03	26 Feb 03	228	27 Mar 03	27 Mar 03	2.3
M030084-013	SM-12W A	03 Feb 03	28.5	25 Feb 03	26 Feb 03	282	12 Mar 03	12 Mar 03	7.97
M030084-014	SM-17W A	03 Feb 03	40.0	28 Feb 03	01 Mar 03	375	20 Mar 03	20 Mar 03	7.34
M030084-015	SM-16W A	03 Feb 03	35.6	28 Feb 03	01 Mar 03	294	11 Mar 03	11 Mar 03	2.06
M030084-016	SM-18W A	03 Feb 03	34.2	28 Feb 03	01 Mar 03	286	02 May 03	02 May 03	10.8
M030084-017	SM-13W A	04 Feb 03	41.8	28 Feb 03	01 Mar 03	338	23 Jun 03	23 Jun 03	0.80
M030084-018	SM-14W A	04 Feb 03	34.3	28 Feb 03	01 Mar 03	317	18 Apr 03	18 Apr 03	2.56
M030084-019	SM-15W A	04 Feb 03	23.8	28 Feb 03	01 Mar 03	253	16 Apr 03	16 Apr 03	10.3
M030084-020	SM-20W A	04 Feb 03	31.9	28 Feb 03	01 Mar 03	258	12 Jun 03	12 Jun 03	38.9
M030084-021	SM-19W A	04 Feb 03	17.7	28 Feb 03	01 Mar 03	776	20 Jun 03	20 Jun 03	4.38
M030084-022	SM-21W A	04 Feb 03	42.3	04 Mar 03	05 Mar 03	475	08 Apr 03	08 Apr 03	2.56
M030084-023	SM-22W A	04 Feb 03	39.8	04 Mar 03	05 Mar 03	218	08 Apr 03	08 Apr 03	0.94

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-024	SM-23W A	04 Feb 03	49.5	04 Mar 03	05 Mar 03	419	27 Mar 03	27 Mar 03	1.62
M030084-025	SM-24W A	04 Feb 03	33.7	04 Mar 03	05 Mar 03	282	27 Mar 03	27 Mar 03	2.93
M030084-026	SM-25W A	04 Feb 03	39.2	04 Mar 03	05 Mar 03	284	28 Mar 03	28 Mar 03	2.29
M030084-027	SM-38W A	04 Feb 03	58.5	04 Mar 03	05 Mar 03	411	17 Apr 03	17 Apr 03	0.49
M030084-028	SM-39W A	04 Feb 03	51.0	06 Mar 03	07 Mar 03	438	11 Mar 03	11 Mar 03	1.05
M030084-029	SM-40W A	04 Feb 03	42.0	06 Mar 03	07 Mar 03	284	18 Jun 03	18 Jun 03	3.43
M030084-030	SM-41W A	04 Feb 03	37.6	06 Mar 03	07 Mar 03	297	09 Apr 03	09 Apr 03	4.49
M030084-031	AF-29W A	05 Feb 03	83.3	06 Mar 03	07 Mar 03	50.5	30 Jun 03	30 Jun 03	0.17
M030084-032	AF-30W A	05 Feb 03	22.2	06 Mar 03	07 Mar 03	295	09 Apr 03	09 Apr 03	0.77
M030084-033	AF-31W A	05 Feb 03	53.5	06 Mar 03	07 Mar 03	279	30 Jun 03	30 Jun 03	0.21
M030084-034	AF-26W A	05 Feb 03	68.7	06 Mar 03	07 Mar 03	270	13 Jun 03	13 Jun 03	1.11
M030084-035	AF-27W A	05 Feb 03	68.7	06 Mar 03	07 Mar 03	303	02 Jul 03	02 Jul 03	0.64
M030084-036	AF-36W A	05 Feb 03	48.5	10 Mar 03	11 Mar 03	235	27 Jun 03	27 Jun 03	13.1
M030084-037	AF-35W A	05 Feb 03	15.3	10 Mar 03	11 Mar 03	250	28 Mar 03	28 Mar 03	3.36
M030084-038	AF-34W A	05 Feb 03	40.2	10 Mar 03	11 Mar 03	263	20 Jun 03	20 Jun 03	1.20
M030084-039	AF-28W A	05 Feb 03	64.1	10 Mar 03	11 Mar 03	284	18 Apr 03	18 Apr 03	0.298
M030084-040	AF-37W A	05 Feb 03	37.9	10 Mar 03	11 Mar 03	260	15 Apr 03	15 Apr 03	4.45
M030084-041	AF-33W A	05 Feb 03	57.5	10 Mar 03	11 Mar 03	282	14 Mar 03	14 Mar 03	0.303
M030084-042	AF-32W A	05 Feb 03	66.1	10 Mar 03	11 Mar 03	271	14 Mar 03	14 Mar 03	0.47
M030084-043	R-43W A	05 Feb 03	44.3	10 Mar 03	11 Mar 03	307	20 Mar 03	20 Mar 03	7.54
M030084-044	R-44W A	05 Feb 03	38.3	13 Mar 03	14 Mar 03	321	11 Apr 03	11 Apr 03	11.1

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-045	R-45W A	05 Feb 03	41.9	13 Mar 03	14 Mar 03	291	10 Apr 03	10 Apr 03	0.83
M030084-046	R-46W A	05 Feb 03	40.0	13 Mar 03	14 Mar 03	294	02 May 03	02 May 03	1.59
M030084-047	R-47W A	05 Feb 03	37.8	13 Mar 03	14 Mar 03	322	10 Apr 03	10 Apr 03	5.3
M030084-048	BM-56W A	06 Feb 03	69.5	13 Mar 03	14 Mar 03	389	27 Jun 03	27 Jun 03	<0.05
M030084-049	BM-57W A	06 Feb 03	55.8	13 Mar 03	14 Mar 03	356	25 Jun 03	25 Jun 03	1.25
M030084-050	BM-58W A	06 Feb 03	38.5	13 Mar 03	14 Mar 03	223	13 Jun 03	13 Jun 03	6.83
M030084-051	BM-48W A	06 Feb 03	55.8	18 Mar 03	19 Mar 03	77.3	27 Mar 03	27 Mar 03	0.34
M030084-052	BM-60W A	06 Feb 03	46.8	18 Mar 03	19 Mar 03	111	01 Jul 03	01 Jul 03	2.45
M030084-053	BM-61W A	06 Feb 03	48.4	18 Mar 03	19 Mar 03	145	18 Jun 03	18 Jun 03	2.24
M030084-054	BM-49W A	06 Feb 03	67.9	18 Mar 03	19 Mar 03	142	17 Jun 03	17 Jun 03	0.418
M030084-055	BM-50W A	06 Feb 03	69.4	18 Mar 03	19 Mar 03	171	17 Jun 03	17 Jun 03	7.91
M030084-056	BM-51W A	06 Feb 03	60.6	18 Mar 03	19 Mar 03	356	26 Jun 03	26 Jun 03	2.09
M030084-057	BM-59W A	06 Feb 03	51.0	18 Mar 03	19 Mar 03	84	25 Jun 03	25 Jun 03	0.018
M030084-058	BM-52W A	06 Feb 03	48.4	18 Mar 03	19 Mar 03	278	26 Jun 03	26 Jun 03	0.246
M030084-059	BM-53W A	06 Feb 03	71.6	20 Mar 03	21 Mar 03	262	12 Jun 03	12 Jun 03	0.38
M030084-060	BM-54W A	06 Feb 03	69.0	20 Mar 03	21 Mar 03	253	16 Jun 03	16 Jun 03	0.21
M030084-061	BM-55W A	06 Feb 03	75.9	20 Mar 03	21 Mar 03	266	16 Jun 03	16 Jun 03	<0.05
M030084-062	SM-1W B	03 Feb 03	48.1	19 Feb 03	20 Feb 03	272	11 Apr 03	11 Apr 03	0.34
M030084-063	SM-1W C	03 Feb 03	48.7	19 Feb 03	20 Feb 03	284	11 Apr 03	11 Apr 03	0.46
M030084-064	SM-1W D	03 Feb 03	53.1	19 Feb 03	20 Feb 03	273	11 Apr 03	11 Apr 03	2.35
M030084-065	SM-1W E	03 Feb 03	51.0	19 Feb 03	20 Feb 03	267	20 Mar 03	20 Mar 03	1.06

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-066	SM-3W B	03 Feb 03	42.4	19 Feb 03	20 Feb 03	472	17 Apr 03	17 Apr 03	1.98
M030084-067	SM-3W C	03 Feb 03	43.6	19 Feb 03	20 Feb 03	513	17 Apr 03	17 Apr 03	9.87
M030084-068	SM-3W D	03 Feb 03	44.1	19 Feb 03	20 Feb 03	517	17 Apr 03	17 Apr 03	2.21
M030084-069	SM-3W E	03 Feb 03	44.6	19 Feb 03	20 Feb 03	533	17 Apr 03	17 Apr 03	5.60
M030084-070	SM-2W B	03 Feb 03	40.4	19 Feb 03	20 Feb 03	312	12 Mar 03	12 Mar 03	0.49
M030084-071	SM-2W C	03 Feb 03	42.4	19 Feb 03	20 Feb 03	301	12 Mar 03	12 Mar 03	0.38
M030084-072	SM-2W D	03 Feb 03	39.2	19 Feb 03	20 Feb 03	312	12 Mar 03	12 Mar 03	
M030084-073	SM-2W E	03 Feb 03	43.3	19 Feb 03	20 Feb 03	306	12 Mar 03	12 Mar 03	1.06
M030084-074	SM-7W B	03 Feb 03	55.1	19 Feb 03	20 Feb 03	329	13 Mar 03	13 Mar 03	0.66
M030084-075	SM-7W C	03 Feb 03	58.3	19 Feb 03	20 Feb 03	329	13 Mar 03	13 Mar 03	0.83
M030084-076	SM-7W D	03 Feb 03	60.7	19 Feb 03	20 Feb 03	326	13 Mar 03	13 Mar 03	1.50
M030084-077	SM-7W E	03 Feb 03	59.8	19 Feb 03	20 Feb 03	343	13 Mar 03	13 Mar 03	0.42
M030084-078	SM-42W B	03 Feb 03	24.9	19 Feb 03	20 Feb 03	264	16 Apr 03	16 Apr 03	1.23
M030084-079	SM-42W C	03 Feb 03	28.0	19 Feb 03	20 Feb 03	258	16 Apr 03	16 Apr 03	1.94
M030084-080	SM-42W D	03 Feb 03	23.4	19 Feb 03	20 Feb 03	251	16 Apr 03	16 Apr 03	2.65
M030084-081	SM-42W E	03 Feb 03	23.6	19 Feb 03	20 Feb 03	235	16 Apr 03	16 Apr 03	5.55
M030084-082	SM-6W B	03 Feb 03	46.6	19 Feb 03	20 Feb 03	340	23 May 03	23 May 03	2.44
M030084-083	SM-6W C	03 Feb 03	46.3	19 Feb 03	20 Feb 03	330	23 May 03	23 May 03	6.71
M030084-084	SM-6W D	03 Feb 03	47.8	19 Feb 03	20 Feb 03	331	23 May 03	23 May 03	1.82
M030084-085	SM-6W E	03 Feb 03	45.3	19 Feb 03	20 Feb 03	340	23 May 03	23 May 03	6.37
M030084-086	SM-9W B	03 Feb 03	34.9	19 Feb 03	20 Feb 03	279	23 May 03	23 May 03	14.3

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-087	SM-9W C	03 Feb 03	36.7	19 Feb 03	20 Feb 03	265	23 May 03	23 May 03	23.6
M030084-088	SM-9W D	03 Feb 03	35.1	19 Feb 03	20 Feb 03	287	23 May 03	23 May 03	17.6
M030084-089	SM-9W E	03 Feb 03	34.5	19 Feb 03	20 Feb 03	291	23 May 03	23 May 03	8.97
M030084-090	SM-8W B	03 Feb 03	35.2	19 Feb 03	20 Feb 03	289	13 Mar 03	13 Mar 03	5.53
M030084-091	SM-8W C	03 Feb 03	36.8	19 Feb 03	20 Feb 03	305	13 Mar 03	13 Mar 03	7.0
M030084-092	SM-8W D	03 Feb 03	34.7	19 Feb 03	20 Feb 03	305	11 Jun 03	11 Jun 03	2.32
M030084-093	SM-8W E	03 Feb 03	36.5	19 Feb 03	20 Feb 03	299	13 Mar 03	13 Mar 03	5.16
M030084-094	SM-5W B	03 Feb 03	44.1	25 Feb 03	26 Feb 03	311	11 Jun 03	11 Jun 03	1.23
M030084-095	SM-5W C	03 Feb 03	52.5	25 Feb 03	26 Feb 03	304	11 Jun 03	11 Jun 03	8.12
M030084-096	SM-5W D	03 Feb 03	50.1	25 Feb 03	26 Feb 03	308	11 Jun 03	11 Jun 03	5.50
M030084-097	SM-5W E	03 Feb 03	49.2	25 Feb 03	26 Feb 03	307	11 Jun 03	11 Jun 03	15.2
M030084-098	SM-4W B	03 Feb 03	41.4	25 Feb 03	26 Feb 03	306	23 Jun 03	23 Jun 03	6.23
M030084-099	SM-4W C	03 Feb 03	46.5	25 Feb 03	26 Feb 03	305	23 Jun 03	23 Jun 03	7.33
M030084-100	SM-4W D	03 Feb 03	47.1	25 Feb 03	26 Feb 03	301	23 Jun 03	23 Jun 03	1.24
M030084-101	SM-4W E	03 Feb 03	46.8	25 Feb 03	26 Feb 03	333	23 Jun 03	23 Jun 03	2.88
M030084-102	SM-10W B	03 Feb 03	26.3	25 Feb 03	26 Feb 03	559	02 May 03	02 May 03	74.7
M030084-103	SM-10W C	03 Feb 03	29.4	25 Feb 03	26 Feb 03	473	27 Mar 03	27 Mar 03	1.35
M030084-104	SM-10W D	03 Feb 03	27.6	25 Feb 03	26 Feb 03	433	02 May 03	02 May 03	21.3
M030084-105	SM-10W E	03 Feb 03	29.1	25 Feb 03	26 Feb 03	416	02 May 03	02 May 03	24.4
M030084-106	SM-11W B	03 Feb 03	25.8	25 Feb 03	26 Feb 03	244	11 Jun 03	11 Jun 03	8.85
M030084-107	SM-11W C	03 Feb 03	31.8	25 Feb 03	26 Feb 03	265	11 Jun 03	11 Jun 03	4.93

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-108	SM-11W D	03 Feb 03	30.9	25 Feb 03	26 Feb 03	253	11 Jun 03	11 Jun 03	2.9
M030084-109	SM-11W E	03 Feb 03	26.7	25 Feb 03	26 Feb 03	232	11 Jun 03	11 Jun 03	17.3
M030084-110	SM-12W B	03 Feb 03	32.1	25 Feb 03	26 Feb 03	281	12 Mar 03	12 Mar 03	8.45
M030084-111	SM-12W C	03 Feb 03	32.2	25 Feb 03	26 Feb 03	289	12 Mar 03	12 Mar 03	8.5
M030084-112	SM-12W D	03 Feb 03	31.5	25 Feb 03	26 Feb 03	282	12 Mar 03	12 Mar 03	10.3
M030084-113	SM-12W E	03 Feb 03	31.9	25 Feb 03	26 Feb 03	296	12 Mar 03	12 Mar 03	1.71
M030084-114	SM-17W B	03 Feb 03	41.2	28 Feb 03	01 Mar 03	369	11 Apr 03	11 Apr 03	11.0
M030084-115	SM-17W C	03 Feb 03	41.7	28 Feb 03	01 Mar 03	397	11 Apr 03	11 Apr 03	37.7
M030084-116	SM-17W D	03 Feb 03	41.6	28 Feb 03	01 Mar 03	376	11 Jun 03	11 Jun 03	10.6
M030084-117	SM-17W E	03 Feb 03	40.4	28 Feb 03	01 Mar 03	362	20 Mar 03	20 Mar 03	1.93
M030084-118	SM-16W B	03 Feb 03	36.7	28 Feb 03	01 Mar 03	285	11 Mar 03	11 Mar 03	1.55
M030084-119	SM-16W C	03 Feb 03	37.2	28 Feb 03	01 Mar 03	287	11 Mar 03	11 Mar 03	10.5
M030084-120	SM-16W D	03 Feb 03	35.6	28 Feb 03	01 Mar 03	316	11 Mar 03	11 Mar 03	11.4
M030084-121	SM-16W E	03 Feb 03	34.6	28 Feb 03	01 Mar 03	297	11 Mar 03	11 Mar 03	11.4
M030084-122	SM-18W B	03 Feb 03	34.4	28 Feb 03	01 Mar 03	283	02 May 03	02 May 03	12.3
M030084-123	SM-18W C	03 Feb 03	35.7	28 Feb 03	01 Mar 03	285	02 May 03	02 May 03	17.7
M030084-124	SM-18W D	03 Feb 03	33.1	28 Feb 03	01 Mar 03	298	02 May 03	02 May 03	7.55
M030084-125	SM-18W E	03 Feb 03	33.7	28 Feb 03	01 Mar 03	294	02 May 03	02 May 03	18.1
M030084-126	SM-13W B	04 Feb 03	35.3	28 Feb 03	01 Mar 03	356	23 Jun 03	23 Jun 03	0.79
M030084-127	SM-13W C	04 Feb 03	39.1	28 Feb 03	01 Mar 03	348	23 Jun 03	23 Jun 03	0.9
M030084-128	SM-13W D	04 Feb 03	37.0	28 Feb 03	01 Mar 03	335	23 Jun 03	23 Jun 03	1.70

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-129	SM-13W E	04 Feb 03	43.0	28 Feb 03	01 Mar 03	611	23 Jun 03	23 Jun 03	0.63
M030084-130	SM-14W B	04 Feb 03	38.0	28 Feb 03	01 Mar 03	282	18 Apr 03	18 Apr 03	12.3
M030084-131	SM-14W C	04 Feb 03	37.0	28 Feb 03	01 Mar 03	286	18 Apr 03	18 Apr 03	27.1
M030084-132	SM-14W D	04 Feb 03	28.4	28 Feb 03	01 Mar 03	289	18 Apr 03	18 Apr 03	3.83
M030084-133	SM-14W E	04 Feb 03	38.4	28 Feb 03	01 Mar 03	295	18 Apr 03	18 Apr 03	11.3
M030084-134	SM-15W B	04 Feb 03	22.4	28 Feb 03	01 Mar 03	234	16 Apr 03	16 Apr 03	23.3
M030084-135	SM-15W C	04 Feb 03	24.1	28 Feb 03	01 Mar 03	259	16 Apr 03	16 Apr 03	9.9
M030084-136	SM-15W D	04 Feb 03	25.2	28 Feb 03	01 Mar 03	258	16 Apr 03	16 Apr 03	4.09
M030084-137	SM-15W E	04 Feb 03	26.5	28 Feb 03	01 Mar 03	257	16 Apr 03	16 Apr 03	3.14
M030084-138	SM-20W B	04 Feb 03	31.8	28 Feb 03	01 Mar 03	249	12 Jun 03	12 Jun 03	15.3
M030084-139	SM-20W C	04 Feb 03	30.1	28 Feb 03	01 Mar 03	257	12 Jun 03	12 Jun 03	7.29
M030084-140	SM-20W D	04 Feb 03	31.9	28 Feb 03	01 Mar 03	249	12 Jun 03	12 Jun 03	23.6
M030084-141	SM-20W E	04 Feb 03	31.9	28 Feb 03	01 Mar 03	282	12 Jun 03	12 Jun 03	32.2
M030084-142	SM-19W B	04 Feb 03	29.8	28 Feb 03	01 Mar 03	694	20 Jun 03	20 Jun 03	6.19
M030084-143	SM-19W C	04 Feb 03	27.9	28 Feb 03	01 Mar 03	752	20 Jun 03	20 Jun 03	1.8
M030084-144	SM-19W D	04 Feb 03	19.1	28 Feb 03	01 Mar 03	900	20 Jun 03	20 Jun 03	4.64
M030084-145	SM-19W E	04 Feb 03	28.7	28 Feb 03	01 Mar 03	774	20 Jun 03	20 Jun 03	3.44
M030084-146	SM-21W B	04 Feb 03	42.5	04 Mar 03	05 Mar 03	480	08 Apr 03	08 Apr 03	2.17
M030084-147	SM-21W C	04 Feb 03	44.7	04 Mar 03	05 Mar 03	484	08 Apr 03	08 Apr 03	1.16
M030084-148	SM-21W D	04 Feb 03	46.2	04 Mar 03	05 Mar 03	495	08 Apr 03	08 Apr 03	1.09
M030084-149	SM-21W E	04 Feb 03	44.1	04 Mar 03	05 Mar 03	486	08 Apr 03	08 Apr 03	2.14

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-150	SM-22W B	04 Feb 03	44.1	04 Mar 03	05 Mar 03	330	08 Apr 03	08 Apr 03	1.01
M030084-151	SM-22W C	04 Feb 03	42.9	04 Mar 03	05 Mar 03	280	08 Apr 03	08 Apr 03	0.60
M030084-152	SM-22W D	04 Feb 03	50.5	04 Mar 03	05 Mar 03	282	08 Apr 03	08 Apr 03	0.67
M030084-153	SM-22W E	04 Feb 03	46.6	04 Mar 03	05 Mar 03	266	08 Apr 03	08 Apr 03	1.30
M030084-154	SM-23W B	04 Feb 03	49.3	04 Mar 03	05 Mar 03	418	27 Mar 03	27 Mar 03	2.05
M030084-155	SM-23W C	04 Feb 03	44.0	04 Mar 03	05 Mar 03	397	02 Jul 03	02 Jul 03	3.19
M030084-156	SM-23W D	04 Feb 03	50.7	04 Mar 03	05 Mar 03	374	02 Jul 03	02 Jul 03	0.69
M030084-157	SM-23W E	04 Feb 03	52.2	04 Mar 03	05 Mar 03	460	02 Jul 03	02 Jul 03	4.5
M030084-158	SM-24W B	04 Feb 03	32.0	04 Mar 03	05 Mar 03	283	01 Jul 03	01 Jul 03	10.3
M030084-159	SM-24W C	04 Feb 03	35.6	04 Mar 03	05 Mar 03	295	01 Jul 03	01 Jul 03	2.43
M030084-160	SM-24W D	04 Feb 03	31.4	04 Mar 03	05 Mar 03	298	01 Jul 03	01 Jul 03	8.37
M030084-161	SM-24W E	04 Feb 03	36.2	04 Mar 03	05 Mar 03	284	01 Jul 03	01 Jul 03	5.07
M030084-162	SM-25W B	04 Feb 03	38.9	04 Mar 03	05 Mar 03	285	28 Mar 03	28 Mar 03	1.83
M030084-163	SM-25W C	04 Feb 03	45.3	04 Mar 03	05 Mar 03	292	28 Mar 03	28 Mar 03	2.0
M030084-164	SM-25W D	04 Feb 03	40.8	04 Mar 03	05 Mar 03	270	28 Mar 03	28 Mar 03	1.80
M030084-165	SM-25W E	04 Feb 03	36.8	04 Mar 03	05 Mar 03	297	28 Mar 03	28 Mar 03	2.16
M030084-166	SM-38W B	04 Feb 03	57.8	04 Mar 03	05 Mar 03	403	17 Apr 03	17 Apr 03	1.21
M030084-167	SM-38W C	04 Feb 03	60.5	04 Mar 03	05 Mar 03	381	17 Apr 03	17 Apr 03	1.1
M030084-168	SM-38W D	04 Feb 03	55.4	04 Mar 03	05 Mar 03	375	17 Apr 03	17 Ap;r 03	1.86
M030084-169	SM-38W E	04 Feb 03	55.5	04 Mar 03	05 Mar 03	390	17 Apr 03	17 Apr 03	0.68
M030084-170	SM-39W B	04 Feb 03	38.6	06 Mar 03	07 Mar 03	512	11 Mar 03	11 Mar 03	2.08

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-171	SM-39W C	04 Feb 03	51.1	06 Mar 03	07 Mar 03	479	11 Mar 03	11 Mar 03	1.8
M030084-172	SM-39W D	04 Feb 03	52.4	06 Mar 03	07 Mar 03	454	11 Mar 03	11 Mar 03	1.08
M030084-173	SM-39W E	04 Feb 03	56.0	06 Mar 03	07 Mar 03	437	11 Mar 03	11 Mar 03	2.26
M030084-174	SM-40W B	04 Feb 03	41.3	06 Mar 03	07 Mar 03	316	18 Jun 03	18 Jun 03	5.71
M030084-175	SM-40W C	04 Feb 03	41.9	06 Mar 03	07 Mar 03	290	18 Jun 03	18 Jun 03	0.57
M030084-176	SM-40W D	04 Feb 03	41.4	06 Mar 03	07 Mar 03	289	18 Jun 03	18 Jun 03	3.15
M030084-177	SM-40W E	04 Feb 03	41.8	06 Mar 03	07 Mar 03	306	18 Jun 03	18 Jun 03	2.55
M030084-178	SM-41W B	04 Feb 03	36.3	06 Mar 03	07 Mar 03	300	09 Apr 03	09 Apr 03	2.53
M030084-179	SM-41W C	04 Feb 03	33.6	06 Mar 03	07 Mar 03	296	09 Apr 03	09 Apr 03	6.90
M030084-180	SM-41W D	04 Feb 03	35.7	06 Mar 03	07 Mar 03	302	09 Apr 03	09 Apr 03	4.70
M030084-181	SM-41W E	04 Feb 03	37.3	06 Mar 03	07 Mar 03	299	09 Apr 03	09 Apr 03	5.01
M030084-182	AF-29W B	05 Feb 03	85.0	06 Mar 03	07 Mar 03	48	30 Jun 03	30 Jun 03	0.17
M030084-183	AF-29W C	05 Feb 03	77.8	06 Mar 03	07 Mar 03	73	30 Jun 03	30 Jun 03	0.22
M030084-184	AF-29W D	05 Feb 03	80.7	06 Mar 03	07 Mar 03	43	30 Jun 03	30 Jun 03	0.14
M030084-185	AF-29W E	05 Feb 03	81.8	06 Mar 03	07 Mar 03	46	30 Jun 03	30 Jun 03	0.19
M030084-186	AF-30W B	05 Feb 03	28.4	06 Mar 03	07 Mar 03	326	09 Apr 03	09 Apr 03	1.09
M030084-187	AF-30W C	05 Feb 03	53.8	06 Mar 03	07 Mar 03	293	09 Apr 03	09 Apr 03	0.50
M030084-188	AF-30W D	05 Feb 03	23.7	06 Mar 03	07 Mar 03	371	09 Apr 03	09 Apr 03	1.18
M030084-189	AF-30W E	05 Feb 03	54.7	06 Mar 03	07 Mar 03	314	09 Apr 03	09 Apr 03	0.33
M030084-190	AF-31W B	05 Feb 03	53.7	06 Mar 03	07 Mar 03	282	30 Jun 03	30 Jun 03	0.32
M030084-191	AF-31W C	05 Feb 03	56.2	06 Mar 03	07 Mar 03	265	30 Jun 03	30 Jun 03	0.8

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-192	AF-31W D	05 Feb 03	52.2	06 Mar 03	07 Mar 03	291	30 Jun 03	30 Jun 03	0.44
M030084-193	AF-31W E	05 Feb 03	48.7	06 Mar 03	07 Mar 03	291	30 Jun 03	30 Jun 03	0.59
M030084-194	AF-26W B	05 Feb 03	68.6	06 Mar 03	07 Mar 03	285	13 Jun 03	13 Jun 03	2.03
M030084-195	AF-26W C	05 Feb 03	67.1	06 Mar 03	07 Mar 03	296	13 Jun 03	13 Jun 03	1.97
M030084-196	AF-26W D	05 Feb 03	67.2	06 Mar 03	07 Mar 03	283	13 Jun 03	13 Jun 03	3.07
M030084-197	AF-26W E	05 Feb 03	67.8	06 Mar 03	07 Mar 03	297	13 Jun 03	13 Jun 03	2.22
M030084-198	AF-27W B	05 Feb 03	63.5	06 Mar 03	07 Mar 03	265	02 Jul 03	02 Jul 03	0.61
M030084-199	AF-27W C	05 Feb 03	64.7	06 Mar 03	07 Mar 03	279	02 Jul 03	02 Jul 03	0.39
M030084-200	AF-27W D	05 Feb 03	64.5	06 Mar 03	07 Mar 03	293	02 Jul 03	02 Jul 03	0.31
M030084-201	AF-27W E	05 Feb 03	64.1	06 Mar 03	07 Mar 03	296	02 Jul 03	02 Jul 03	0.40
M030084-202	AF-36W B	05 Feb 03	44.7	10 Mar 03	11 Mar 03	268	27 Jun 03	27 Jun 03	9.10
M030084-203	AF-36W C	05 Feb 03	55.9	10 Mar 03	11 Mar 03	281	27 Jun 03	27 Jun 03	4.66
M030084-204	AF-36W D	05 Feb 03	24.8	10 Mar 03	11 Mar 03	227	27 Jun 03	27 Jun 03	10.8
M030084-205	AF-36W E	05 Feb 03	50.0	10 Mar 03	11 Mar 03	225	27 Jun 03	27 Jun 03	7.38
M030084-206	AF-35W B	05 Feb 03	30.7	10 Mar 03	11 Mar 03	245	28 Mar 03	28 Mar 03	0.99
M030084-207	AF-35W C	05 Feb 03	58.4	10 Mar 03	11 Mar 03	305	28 Mar 03	28 Mar 03	2.23
M030084-208	AF-35W D	05 Feb 03	56.0	10 Mar 03	11 Mar 03	289	28 Mar 03	28 Mar 03	1.41
M030084-209	AF-35W E	05 Feb 03	47.4	10 Mar 03	11 Mar 03	271	28 Mar 03	28 Mar 03	0.86
M030084-210	AF-34W B	05 Feb 03	33.0	10 Mar 03	11 Mar 03	269	20 Jun 03	20 Jun 03	1.99
M030084-211	AF-34W C	05 Feb 03	44.7	10 Mar 03	11 Mar 03	288	20 Jun 03	20 Jun 03	2.24
M030084-212	AF-34W D	05 Feb 03	47.4	10 Mar 03	11 Mar 03	281	20 Jun 03	20 Jun 03	1.64

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-213	AF-34W E	05 Feb 03	40.7	10 Mar 03	11 Mar 03	265	20 Jun 03	20 Jun 03	2.43
M030084-214	AF-28W B	05 Feb 03	68.7	10 Mar 03	11 Mar 03	267	18 Apr 03	18 Apr 03	0.40
M030084-215	AF-28W C	05 Feb 03	66.3	10 Mar 03	11 Mar 03	297	18 Apr 03	18 Apr 03	0.44
M030084-216	AF-28W D	05 Feb 03	71.9	10 Mar 03	11 Mar 03	291	18 Apr 03	18 Apr 03	0.45
M030084-217	AF-28W E	05 Feb 03	64.7	10 Mar 03	11 Mar 03	277	18 Apr 03	18 Apr 03	0.46
M030084-218	AF-37W B	05 Feb 03	58.2	10 Mar 03	11 Mar 03	278	15 Apr 03	15 Apr 03	3.49
M030084-219	AF-37W C	05 Feb 03	60.1	10 Mar 03	11 Mar 03	277	15 Apr 03	15 Apr 03	2.31
M030084-220	AF-37W D	05 Feb 03	35.4	10 Mar 03	11 Mar 03	276	15 Apr 03	15 Apr 03	1.76
M030084-221	AF-37W E	05 Feb 03	55.1	10 Mar 03	11 Mar 03	276	15 Apr 03	15 Apr 03	5.16
M030084-222	AF-33W B	05 Feb 03	61.4	10 Mar 03	11 Mar 03	261	14 Mar 03	14 Mar 03	0.65
M030084-223	AF-33W C	05 Feb 03	61.0	10 Mar 03	11 Mar 03	269	14 Mar 03	14 Mar 03	0.71
M030084-224	AF-33W D	05 Feb 03	62.2	10 Mar 03	11 Mar 03	279	14 Mar 03	14 Mar 03	0.87
M030084-225	AF-33W E	05 Feb 03	61.3	10 Mar 03	11 Mar 03	282	14 Mar 03	14 Mar 03	0.66
M030084-226	AF-32W B	05 Feb 03	73.4	10 Mar 03	11 Mar 03	277	14 Mar 03	14 Mar 03	0.31
M030084-227	AF-32W C	05 Feb 03	67.7	10 Mar 03	11 Mar 03	282	14 Mar 03	14 Mar 03	0.4
M030084-228	AF-32W D	05 Feb 03	64.7	10 Mar 03	11 Mar 03	256	14 Mar 03	14 Mar 03	0.57
M030084-229	AF-32W E	05 Feb 03	63.1	10 Mar 03	11 Mar 03	258	14 Mar 03	14 Mar 03	0.51
M030084-230	R-43W B	05 Feb 03	37.7	10 Mar 03	11 Mar 03	306	15 Apr 03	15 Apr 03	2.42
M030084-231	R-43W C	05 Feb 03	32.5	10 Mar 03	11 Mar 03	281	15 Apr 03	15 Apr 03	18.6
M030084-232	R-43W D	05 Feb 03	33.2	10 Mar 03	11 Mar 03	301	15 Apr 03	15 Apr 03	3.83
M030084-233	R-43W E	05 Feb 03	44.2	10 Mar 03	11 Mar 03	320	15 Apr 03	15 Apr 03	5.47

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-234	R-44W B	05 Feb 03	41.8	13 Mar 03	14 Mar 03	283	11 Apr 03	11 Apr 03	13.7
M030084-235	R-44W C	05 Feb 03	40.1	13 Mar 03	14 Mar 03	297	11 Apr 03	11 Apr 03	1.93
M030084-236	R-44W D	05 Feb 03	42.7	13 Mar 03	14 Mar 03	292	20 Mar 03	20 Mar 03	1.13
M030084-237	R-44W E	05 Feb 03	39.8	13 Mar 03	14 Mar 03	325	11 Apr 03	11 Apr 03	4.37
M030084-238	R-45W B	05 Feb 03	42.7	13 Mar 03	14 Mar 03	313	10 Apr 03	10 Apr 03	6.50
M030084-239	R-45W C	05 Feb 03	42.4	13 Mar 03	14 Mar 03	318	20 Mar 03	20 Mar 03	1.66
M030084-240	R-45W D	05 Feb 03	42.6	13 Mar 03	14 Mar 03	316	11 Apr 03	11 Apr 03	4.82
M030084-241	R-45W E	05 Feb 03	43.6	13 Mar 03	14 Mar 03	297	20 Mar 03	20 Mar 03	1.74
M030084-242	R-46W B	05 Feb 03	42.5	13 Mar 03	14 Mar 03	299	10 Apr 03	10 Apr 03	2.42
M030084-243	R-46W C	05 Feb 03	44.5	13 Mar 03	14 Mar 03	292	10 Apr 03	10 Apr 03	1.59
M030084-244	R-46W D	05 Feb 03	43.7	13 Mar 03	14 Mar 03	289	10 Apr 03	10 Apr 03	3.11
M030084-245	R-46W E	05 Feb 03	45.9	13 Mar 03	14 Mar 03	290	10 Apr 03	10 Apr 03	2.90
M030084-246	R-47W B	05 Feb 03	38.6	13 Mar 03	14 Mar 03	340	20 Mar 03	20 Mar 03	1.76
M030084-247	R-47W C	05 Feb 03	37.8	13 Mar 03	14 Mar 03	330	10 Apr 03	10 Apr 03	12.4
M030084-248	R-47W D	05 Feb 03	39.5	13 Mar 03	14 Mar 03	333	10 Apr 03	10 Apr 03	1.03
M030084-249	R-47W E	05 Feb 03	37.7	13 Mar 03	14 Mar 03	315	20 Mar 03	20 Mar 03	3.8
M030084-250	BM-56W B	06 Feb 03	71.5	13 Mar 03	14 Mar 03	373	27 Jun 03	27 Jun 03	0.30
M030084-251	BM-56W C	06 Feb 03	71.2	13 Mar 03	14 Mar 03	368	27 Jun 03	27 Jun 03	0.30
M030084-252	BM-56W D	06 Feb 03	72.0	13 Mar 03	14 Mar 03	389	27 Jun 03	27 Jun 03	0.32
M030084-253	BM-56W E	06 Feb 03	69.2	13 Mar 03	14 Mar 03	378	27 Jun 03	27 Jun 03	0.40
M030084-254	BM-57W B	06 Feb 03	64.8	13 Mar 03	14 Mar 03	372	25 Jun 03	25 Jun 03	5.84

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-255	BM-57W C	06 Feb 03	66.2	13 Mar 03	14 Mar 03	412	25 Jun 03	25 Jun 03	1.7
M030084-256	BM-57W D	06 Feb 03	65.5	13 Mar 03	14 Mar 03	386	25 Jun 03	25 Jun 03	4.92
M030084-257	BM-57W E	06 Feb 03	67.4	13 Mar 03	14 Mar 03	384	25 Jun 03	25 Jun 03	1.28
M030084-258	BM-58W B	06 Feb 03	35.9	13 Mar 03	14 Mar 03	273	13 Jun 03	13 Jun 03	4.85
M030084-259	BM-58W C	06 Feb 03	45.7	13 Mar 03	14 Mar 03	328	13 Jun 03	13 Jun 03	7.7
M030084-260	BM-58W D	06 Feb 03	54.6	13 Mar 03	14 Mar 03	414	13 Jun 03	13 Jun 03	0.93
M030084-261	BM-58W E	06 Feb 03	24.7	13 Mar 03	14 Mar 03	333	13 Jun 03	13 Jun 03	4.24
M030084-262	BM-48W B	06 Feb 03	64.4	18 Mar 03	19 Mar 03	63.5	01 Jul 03	01 Jul 03	0.30
M030084-263	BM-48W C	06 Feb 03	65.8	18 Mar 03	19 Mar 03	69.4	27 Mar 03	27 Mar 03	0.09
M030084-264	BM-48W D	06 Feb 03	59.9	18 Mar 03	19 Mar 03	65.1	01 Jul 03	01 Jul 03	0.16
M030084-265	BM-48W E	06 Feb 03	65.8	18 Mar 03	19 Mar 03	69.6	01 Jul 03	01 Jul 03	0.24
M030084-266	BM-60W B	06 Feb 03	48.3	18 Mar 03	19 Mar 03	144	01 Jul 03	01 Jul 03	2.90
M030084-267	BM-60W C	06 Feb 03	54.3	18 Mar 03	19 Mar 03	165	01 Jul 03	01 Jul 03	2.20
M030084-268	BM-60W D	06 Feb 03	53.6	18 Mar 03	19 Mar 03	109	27 Mar 03	27 Mar 03	4.08
M030084-269	BM-60W E	06 Feb 03	49.1	18 Mar 03	19 Mar 03	149	27 Mar 03	27 Mar 03	1.40
M030084-270	BM-61W B	06 Feb 03	46.2	18 Mar 03	19 Mar 03	173	18 Jun 03	18 Jun 03	1.75
M030084-271	BM-61W C	06 Feb 03	44.4	18 Mar 03	19 Mar 03	158	18 Jun 03	18 Jun 03	2.6
M030084-272	BM-61W D	06 Feb 03	43.9	18 Mar 03	19 Mar 03	141	18 Jun 03	18 Jun 03	1.79
M030084-273	BM-61W E	06 Feb 03	40.9	18 Mar 03	19 Mar 03	173	18 Jun 03	18 Jun 03	0.52
M030084-274	BM-49W B	06 Feb 03	70.5	18 Mar 03	19 Mar 03	135	17 Jun 03	17 Jun 03	0.05
M030084-275	BM-49W C	06 Feb 03	72.1	18 Mar 03	19 Mar 03	122	17 Jun 03	17 Jun 03	0.30

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-276	BM-49W D	06 Feb 03	72.0	18 Mar 03	19 Mar 03	104	17 Jun 03	17 Jun 03	0.21
M030084-277	BM-49W E	06 Feb 03	73.4	18 Mar 03	19 Mar 03	88.5	17 Jun 03	17 Jun 03	0.25
M030084-278	BM-50W B	06 Feb 03	59.4	18 Mar 03	19 Mar 03	237	17 Jun 03	17 Jun 03	16.3
M030084-279	BM-50W C	06 Feb 03	64.4	18 Mar 03	19 Mar 03	377	17 Jun 03	17 Jun 03	2.1
M030084-280	BM-50W D	06 Feb 03	60.0	18 Mar 03	19 Mar 03	223	17 Jun 03	17 Jun 03	8.37
M030084-281	BM-50W E	06 Feb 03	58.0	18 Mar 03	19 Mar 03	175	17 Jun 03	17 Jun 03	14.5
M030084-282	BM-51W B	06 Feb 03	59.2	18 Mar 03	19 Mar 03	294	26 Jun 03	26 Jun 03	0.44
M030084-283	BM-51W C	06 Feb 03	57.9	18 Mar 03	19 Mar 03	399	26 Jun 03	26 Jun 03	0.3
M030084-284	BM-51W D	06 Feb 03	58.6	18 Mar 03	19 Mar 03	366	26 Jun 03	26 Jun 03	0.33
M030084-285	BM-51W E	06 Feb 03	50.1	18 Mar 03	19 Mar 03	412	26 Jun 03	26 Jun 03	0.27
M030084-286	BM-59W B	06 Feb 03	65.8	18 Mar 03	19 Mar 03	82.6	25 Jun 03	25 Jun 03	<0.05
M030084-287	BM-59W C	06 Feb 03	67.5	18 Mar 03	19 Mar 03	73.9	25 Jun 03	25 Jun 03	0.29
M030084-288	BM-59W D	06 Feb 03	66.1	18 Mar 03	19 Mar 03	71.3	25 Jun 03	25 Jun 03	0.12
M030084-289	BM-59W E	06 Feb 03	67.7	18 Mar 03	19 Mar 03	76.6	25 Jun 03	25 Jun 03	0.24
M030084-290	BM-52W B	06 Feb 03	61.9	18 Mar 03	19 Mar 03	279	26 Jun 03	26 Jun 03	0.42
M030084-291	BM-52W C	06 Feb 03	55.6	18 Mar 03	19 Mar 03	305	26 Jun 03	26 Jun 03	0.32
M030084-292	BM-52W D	06 Feb 03	61.4	18 Mar 03	19 Mar 03	295	26 Jun 03	26 Jun 03	0.34
M030084-293	BM-52W E	06 Feb 03	59.2	18 Mar 03	19 Mar 03	279	26 Jun 03	26 Jun 03	0.28
M030084-294	BM-53W B	06 Feb 03	72.5	20 Mar 03	21 Mar 03	255	12 Jun 03	12 Jun 03	0.53
M030084-295	BM-53W C	06 Feb 03	72.4	20 Mar 03	21 Mar 03	253	12 Jun 03	12 Jun 03	0.7
M030084-296	BM-53W D	06 Feb 03	74.5	20 Mar 03	21 Mar 03	262	12 Jun 03	12 Jun 03	1.09

ECB Sample ID	Client Sample ID	Sample Date	% Solids	Hg Digestion Date	Hg Analysis Date	Hg Result (ng/g)	MeHg Distillation Date	MeHg Analysis Date	MeHg Result (ng/g)
M030084-297	BM-53W E	06 Feb 03	69.5	20 Mar 03	21 Mar 03	255	12 Jun 03	12 Jun 03	0.80
M030084-298	BM-54W B	06 Feb 03	68.5	20 Mar 03	21 Mar 03	244	16 Jun 03	16 Jun 03	0.16
M030084-299	BM-54W C	06 Feb 03	67.6	20 Mar 03	21 Mar 03	284	16 Jun 03	16 Jun 03	0.1
M030084-300	BM-54W D	06 Feb 03	69.0	20 Mar 03	21 Mar 03	283	16 Jun 03	16 Jun 03	<0.05
M030084-301	BM-54W E	06 Feb 03	68.2	20 Mar 03	21 Mar 03	274	16 Jun 03	16 Jun 03	0.03
M030084-302	BM-55W B	06 Feb 03	74.6	20 Mar 03	21 Mar 03	287	16 Jun 03	16 Jun 03	<0.05
M030084-303	BM-55W C	06 Feb 03	75.0	20 Mar 03	21 Mar 03	268	16 Jun 03	16 Jun 03	<0.05
M030084-304	BM-55W D	06 Feb 03	74.5	20 Mar 03	21 Mar 03	296	16 Jun 03	16 Jun 03	<0.05
M030084-305	BM-55W E	06 Feb 03	76.1	20 Mar 03	21 Mar 03	277	16 Jun 03	16 Jun 03	<0.05

Total Mercury QC

Project Name: San Francisco Bay System Wetland Testing
Project No.: 6836

Sample ID	Lab ID	Received	Digested	Analyzed	SQL	Batch	Units	Analyte	Result	%Rec	RPD
WG12037-1	Method Blank	2/12/2003	2/19/2003	2/20/2003	0.005	WG12037	mg/kg	Mercury	<0.005		
WG12037-2	Laboratory Control S	2/12/2003	2/19/2003	2/20/2003	0.005	WG12037	mg/kg	Mercury	0.2	100	
WG12037-3	Laboratory Matrix Du	2/12/2003	2/19/2003	2/20/2003	0.005	WG12037	mg/kg	Mercury	0.34		2
WG12037-4	Matrix Spike	2/12/2003	2/19/2003	2/20/2003	0.005	WG12037	mg/kg	Mercury	0.5	80	0
WG12037-5	Matrix Spike Duplica	2/12/2003	2/19/2003	2/20/2003	0.005	WG12037	mg/kg	Mercury	0.5	79	0
WG12038-1	Method Blank	2/12/2003	2/19/2003	2/20/2003	0.005	WG12038	mg/kg	Mercury	<0.005		
WG12038-2	Laboratory Control S	2/12/2003	2/19/2003	2/20/2003	0.005	WG12038	mg/kg	Mercury	0.21	106	

Sample ID	Lab ID	Received	Digested	Analyzed	SQL	Batch	Units	Analyte	Result	%Rec	RPD
WG12038-3	Laboratory Matrix Du	2/12/2003	2/19/2003	2/20/2003	0.005	WG12038	mg/kg	Mercury	0.3		1
WG12038-4	Matrix Spike	2/12/2003	2/19/2003	2/20/2003	0.005	WG12038	mg/kg	Mercury	0.51	105	1
WG12038-5	Matrix Spike Duplica	2/12/2003	2/19/2003	2/20/2003	0.005	WG12038	mg/kg	Mercury	0.5	102	1
WG12068-1	Method Blank	2/12/2003	2/25/2003	2/26/2003	0.005	WG12068	mg/kg	Mercury	<0.005		
WG12068-2	Laboratory Control S	2/12/2003	2/25/2003	2/26/2003	0.005	WG12068	mg/kg	Mercury	0.2	102	
WG12068-3	Laboratory Matrix Du	2/12/2003	2/25/2003	2/26/2003	0.005	WG12068	mg/kg	Mercury	0.24		3
WG12068-4	Matrix Spike	2/12/2003	2/25/2003	2/26/2003	0.005	WG12068	mg/kg	Mercury	0.44	103	7
WG12068-5	Matrix Spike Duplica	2/12/2003	2/25/2003	2/26/2003	0.005	WG12068	mg/kg	Mercury	0.41	89	7
WG12069-1	Method Blank	2/12/2003	2/25/2003	2/26/2003	0.005	WG12069	mg/kg	Mercury	<0.005		
WG12069-2	Laboratory Control S	2/12/2003	2/25/2003	2/26/2003	0.005	WG12069	mg/kg	Mercury	0.21	107	
WG12069-3	Laboratory Matrix Du	2/12/2003	2/25/2003	2/26/2003	0.005	WG12069	mg/kg	Mercury	0.0093		11
WG12069-4	Matrix Spike	2/12/2003	2/25/2003	2/26/2003	0.005	WG12069	mg/kg	Mercury	0.22	103	2
WG12069-5	Matrix Spike Duplica	2/12/2003	2/25/2003	2/26/2003	0.005	WG12069	mg/kg	Mercury	0.22	106	2
WG12086-1	Method Blank	2/12/2003	2/28/2003	3/1/2003	0.005	WG12086	mg/kg	Mercury	<0.005		
WG12086-2	Laboratory Control S	2/12/2003	2/28/2003	3/1/2003	0.005	WG12086	mg/kg	Mercury	0.2	101	
WG12086-3	Laboratory Matrix Du	2/12/2003	2/28/2003	3/1/2003	0.005	WG12086	mg/kg	Mercury	0.38		47
WG12086-4	Matrix Spike	2/12/2003	2/28/2003	3/1/2003	0.005	WG12086	mg/kg	Mercury	0.66	25	11
WG12086-5	Matrix Spike Duplica	2/12/2003	2/28/2003	3/1/2003	0.005	WG12086	mg/kg	Mercury	0.59	0	11
WG12087-1	Method Blank	2/12/2003	2/28/2003	3/1/2003	0.005	WG12087	mg/kg	Mercury	<0.005		
WG12087-2	Laboratory Control S	2/12/2003	2/28/2003	3/1/2003	0.005	WG12087	mg/kg	Mercury	0.21	103	
WG12087-3	Laboratory Matrix Du	2/12/2003	2/28/2003	3/1/2003	0.005	WG12087	mg/kg	Mercury	0.81		4
WG12087-4	Matrix Spike	2/12/2003	2/28/2003	3/1/2003	0.005	WG12087	mg/kg	Mercury	1	118	3
WG12087-5	Matrix Spike Duplica	2/12/2003	2/28/2003	3/1/2003	0.005	WG12087	mg/kg	Mercury	0.98	105	3
WG12089-1	Method Blank	2/12/2003	3/4/2003	3/5/2003	0.005	WG12089	mg/kg	Mercury	<0.005		
WG12089-2	Laboratory Control S	2/12/2003	3/4/2003	3/5/2003	0.005	WG12089	mg/kg	Mercury	0.2	98	
WG12089-3	Laboratory Matrix Du	2/12/2003	3/4/2003	3/5/2003	0.005	WG12089	mg/kg	Mercury	0.03		8

Sample ID	Lab ID	Received	Digested	Analyzed	SQL	Batch	Units	Analyte	Result	%Rec	RPD
WG12089-4	Matrix Spike	2/12/2003	3/4/2003	3/5/2003	0.005	WG12089	mg/kg	Mercury	0.23	97	6
WG12089-5	Matrix Spike Duplica	2/12/2003	3/4/2003	3/5/2003	0.005	WG12089	mg/kg	Mercury	0.24	104	6
WG12090-1	Method Blank	2/12/2003	3/4/2003	3/5/2003	0.005	WG12090	mg/kg	Mercury	<0.005		
WG12090-2	Laboratory Control S	2/12/2003	3/4/2003	3/5/2003	0.005	WG12090	mg/kg	Mercury	0.2	102	
WG12090-3	Laboratory Matrix Du	2/12/2003	3/4/2003	3/5/2003	0.005	WG12090	mg/kg	Mercury	0.41		4
WG12090-4	Matrix Spike	2/12/2003	3/4/2003	3/5/2003	0.005	WG12090	mg/kg	Mercury	0.63	118	4
WG12090-5	Matrix Spike Duplica	2/12/2003	3/4/2003	3/5/2003	0.005	WG12090	mg/kg	Mercury	0.6	104	4
WG12107-1	Method Blank	2/12/2003	3/6/2003	3/7/2003	0.005	WG12107	mg/kg	Mercury	<0.005		
WG12107-2	Laboratory Control S	2/12/2003	3/6/2003	3/7/2003	0.005	WG12107	mg/kg	Mercury	0.21	103	
WG12107-3	Laboratory Matrix Du	2/12/2003	3/6/2003	3/7/2003	0.005	WG12107	mg/kg	Mercury	0.042		8
WG12107-4	Matrix Spike	2/12/2003	3/6/2003	3/7/2003	0.005	WG12107	mg/kg	Mercury	0.24	95	10
WG12107-5	Matrix Spike Duplica	2/12/2003	3/6/2003	3/7/2003	0.005	WG12107	mg/kg	Mercury	0.26	107	10
WG12108-1	Method Blank	2/12/2003	3/6/2003	3/7/2003	0.005	WG12108	mg/kg	Mercury	<0.005		
WG12108-2	Laboratory Control S	2/12/2003	3/6/2003	3/7/2003	0.005	WG12108	mg/kg	Mercury	0.2	102	
WG12108-3	Laboratory Matrix Du	2/12/2003	3/6/2003	3/7/2003	0.005	WG12108	mg/kg	Mercury	0.31		5
WG12108-4	Matrix Spike	2/12/2003	3/6/2003	3/7/2003	0.005	WG12108	mg/kg	Mercury	0.49	99	5
WG12108-5	Matrix Spike Duplica	2/12/2003	3/6/2003	3/7/2003	0.005	WG12108	mg/kg	Mercury	0.52	111	5
WG12123-1	Method Blank	2/12/2003	3/10/2003	3/11/2003	0.005	WG12123	mg/kg	Mercury	<0.005		
WG12123-2	Laboratory Control S	2/12/2003	3/10/2003	3/11/2003	0.005	WG12123	mg/kg	Mercury	0.2	101	
WG12123-3	Laboratory Matrix Du	2/12/2003	3/10/2003	3/11/2003	0.005	WG12123	mg/kg	Mercury	0.29		4
WG12123-4	Matrix Spike	2/12/2003	3/10/2003	3/11/2003	0.005	WG12123	mg/kg	Mercury	0.5	110	5
WG12123-5	Matrix Spike Duplica	2/12/2003	3/10/2003	3/11/2003	0.005	WG12123	mg/kg	Mercury	0.47	97	5
WG12124-1	Method Blank	2/12/2003	3/10/2003	3/11/2003	0.005	WG12124	mg/kg	Mercury	<0.005		
WG12124-2	Laboratory Control S	2/12/2003	3/10/2003	3/11/2003	0.005	WG12124	mg/kg	Mercury	0.2	102	
WG12124-3	Laboratory Matrix Du	2/12/2003	3/10/2003	3/11/2003	0.005	WG12124	mg/kg	Mercury	0.32		1
WG12124-4	Matrix Spike	2/12/2003	3/10/2003	3/11/2003	0.005	WG12124	mg/kg	Mercury	0.53	104	1

Sample ID	Lab ID	Received	Digested	Analyzed	SQL	Batch	Units	Analyte	Result	%Rec	RPD
WG12124-5	Matrix Spike Duplica	2/12/2003	3/10/2003	3/11/2003	0.005	WG12124	mg/kg	Mercury	0.52	101	1
WG12147-1	Method Blank	2/12/2003	3/13/2003	3/14/2003	0.005	WG12147	mg/kg	Mercury	<0.005		
WG12147-2	Laboratory Control S	2/12/2003	3/13/2003	3/14/2003	0.005	WG12147	mg/kg	Mercury	0.2	102	
WG12147-3	Laboratory Matrix Du	2/12/2003	3/13/2003	3/14/2003	0.005	WG12147	mg/kg	Mercury	0.32		0
WG12147-4	Matrix Spike	2/12/2003	3/13/2003	3/14/2003	0.005	WG12147	mg/kg	Mercury	0.52	101	7
WG12147-5	Matrix Spike Duplica	2/12/2003	3/13/2003	3/14/2003	0.005	WG12147	mg/kg	Mercury	0.48	84	7
WG12148-1	Method Blank	2/12/2003	3/13/2003	3/14/2003	0.005	WG12148	mg/kg	Mercury	<0.005		
WG12148-2	Laboratory Control S	2/12/2003	3/13/2003	3/14/2003	0.005	WG12148	mg/kg	Mercury	0.2	101	
WG12148-3	Laboratory Matrix Du	2/12/2003	3/13/2003	3/14/2003	0.005	WG12148	mg/kg	Mercury	0.33		2
WG12148-4	Matrix Spike	2/12/2003	3/13/2003	3/14/2003	0.005	WG12148	mg/kg	Mercury	0.53	97	1
WG12148-5	Matrix Spike Duplica	2/12/2003	3/13/2003	3/14/2003	0.005	WG12148	mg/kg	Mercury	0.53	100	1
WG12178-1	Method Blank	2/12/2003	3/18/2003	3/19/2003	0.005	WG12178	mg/kg	Mercury	<0.005		
WG12178-2	Laboratory Control S	2/12/2003	3/18/2003	3/19/2003	0.005	WG12178	mg/kg	Mercury	0.21	103	
WG12178-3	Laboratory Matrix Du	2/12/2003	3/18/2003	3/19/2003	0.005	WG12178	mg/kg	Mercury	0.09		2
WG12178-4	Matrix Spike	2/12/2003	3/18/2003	3/19/2003	0.005	WG12178	mg/kg	Mercury	0.29	98	2
WG12178-5	Matrix Spike Duplica	2/12/2003	3/18/2003	3/19/2003	0.005	WG12178	mg/kg	Mercury	0.28	96	2
WG12179-1	Method Blank	2/12/2003	3/18/2003	3/19/2003	0.005	WG12179	mg/kg	Mercury	<0.005		
WG12179-2	Laboratory Control S	2/12/2003	3/18/2003	3/19/2003	0.005	WG12179	mg/kg	Mercury	0.21	105	
WG12179-3	Laboratory Matrix Du	2/12/2003	3/18/2003	3/19/2003	0.005	WG12179	mg/kg	Mercury	0.3		8
WG12179-4	Matrix Spike	2/12/2003	3/18/2003	3/19/2003	0.005	WG12179	mg/kg	Mercury	0.49	106	2
WG12179-5	Matrix Spike Duplica	2/12/2003	3/18/2003	3/19/2003	0.005	WG12179	mg/kg	Mercury	0.5	112	2
WG12194-1	Method Blank	2/12/2003	3/20/2003	3/21/2003	0.005	WG12194	mg/kg	Mercury	<0.005		
WG12194-2	Laboratory Control S	2/12/2003	3/20/2003	3/21/2003	0.005	WG12194	mg/kg	Mercury	0.21	104	
WG12194-3	Laboratory Matrix Du	2/12/2003	3/20/2003	3/21/2003	0.005	WG12194	mg/kg	Mercury	0.27		1
WG12194-4	Matrix Spike	2/12/2003	3/20/2003	3/21/2003	0.005	WG12194	mg/kg	Mercury	0.49	108	3
WG12194-5	Matrix Spike Duplica	2/12/2003	3/20/2003	3/21/2003	0.005	WG12194	mg/kg	Mercury	0.48	102	3

Methylmercury QC

Project Name: San Francisco Bay System Wetland Testing
Project No.: 6836

Date	Distillation Blank Result ng/g	LCS pg	LCS % Rec	CCV pg	CCV % Rec	Matrix Spike Sample	Matrix Spike % Rec	Matrix Spike Duplicate Sample	Matrix Spike Duplicate % Rec	LCS pg	LCS % Rec	CCV pg	CCV % Rec
3/11/2003	0.3	500	67	500	118	M030084-121	107	M030084-121		500	63	500	108
3/12/2003	<0.05	500	82	500	115	M030084-073	54	M030084-073	51	500	68	500	118
3/13/2003	0.21	500	109	500	123	M030084-077	30	M030084-077	50	500	93	500	126
3/14/2003	<0.05	500	58	500	77	M030084-225	20	M030084-225		500	64	500	99
3/20/2003	<0.05	500	75	500	101	M030084-014	136	M030084-014	360	500	71	500	101
3/27/2003	0.05	500	28	500	2	M030084-009	25	M030084-009	30			500	95
3/28/2003	<0.05	500	37	500	92	M030084-209	40	M030084-209	40	500	29	500	84
4/8/2003	0.07	500	62	500	103	M030084-150	82	M030084-150	79	500	71	500	101
4/9/2003	<0.05	500	72	500	107	M030084-181	94	M030084-181	86	500	74	500	97
4/10/2003	<0.05	500		500	99	M030084-245	85	M030084-245	99	500	85	500	95
4/11/2003	<0.05	500	69	500	111	M030084-240	44	M030084-240	90	500	75	500	110
4/15/2003	<0.05	500	39	500	101	M030084-221	56	M030084-221	85	500	75	500	96
4/16/2003	<0.05	500	58	500	94	M030084-081	98	M030084-081	67	500	97	500	101
4/17/2003	<0.05	500	39	500	96	M030084-069	49	M030084-069	4	500	81	500	89
4/18/2003	0.08	500	81	500	86	M030084-217	90	M030084-217	87	500	86	500	92
5/2/2003	0.13	500	87	1000	87	M030084-125	57	M030084-125	117	500	92	500	84
5/23/2003	<0.05	500	91	1000	96	M030084-085	78	M030084-085	112	500	67	500	122
6/11/2003	<0.05	500	83	1000	100	M030084-097	89	M030084-097	11	500	93	500	101

Date	Distillation Blank	LCS		CCV		Matrix Spike		Matrix Spike Duplicate		LCS		CCV	
	Result ng/g	pg	% Rec	pg	% Rec	Sample	% Rec	Sample	% Rec	pg	% Rec	pg	% Rec
6/12/2003	0.1	500	86	1000	96	M030084-141	26	M030084-141		1000	66	500	86
6/13/2003	<0.05	1000	96	2000	72	M030084-197	82	M030084-197	95	1000	122	1000	83
6/16/2003	<0.05	1000		500	110	M030084-305		M030084-305		1000		1000	97
6/17/2003	<0.05	1000	57	1000	95	M030084-277	98	M030084-277	97	1000	66	500	87
6/18/2003	<0.05	1000	31	1000	86	M030084-177	120	M030084-177	156	1000	111	500	86
6/20/2003	<0.05	1000	107	1000	99	M030084-213	124	M030084-213	92	1000	123	500	101
6/23/2003	<0.05	1000	85	1000	82	M030084-101	121	M030084-101	104	1000	109	500	40
6/25/2003	<0.05	1000	7	1000	75	M030084-289	112	M030084-289	75	1000	94	500	89
6/26/2003	<0.05	1000	54	1000	87	M030084-293	108	M030084-293	111	1000	88	500	73
6/27/2003	<0.05	1000	91	1000	100	M030084-205	52	M030084-205	113	1000	104	500	83
6/30/2003	<0.05	1000	92	1000	84	M030084-185	103	M030084-185	107	1000	125	500	78
7/1/2003	<0.05	1000		1000	98	M030084-052	109	M030084-052	130	1000	81	500	84
7/2/2003	<0.05	1000	76	1000	77	M030084-201	93	M030084-201	107	1000	110	500	87