GUADALUPE RIVER WATERSHED MERCURY TMDL PROJECT

AGREEMENT NO. A2643G

TECHNICAL MEMORANDUM 5.3.2

DATA COLLECTION REPORT

VOLUME II

Prepared for

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

Prepared by

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APPENDIX A SAMPLING LOCATIONS

WET SEASON

Station ID	Station Name	Date	Time	Latitude	Longitude	Media Type
E1-7S	Mine Hill Tributary to Jacques Gulch	3/2/2004	15:30	37.16406667	-121.84665	Sediment
E1-9S	N. Los Capitancillos Creek	3/3/2004	9:55	37.18531667	-121.8707833	Sediment
E2-13SA	Gravel bar on Alamitos Ck.at Confluence with Almaden Lake	3/3/2004	12:34	37.23855	-121.8710833	Sediment
E2-13SG	Gravel bar where Guadalupe Ck. Joins Alamitos Ck.	3/3/2004	13:15	37.24433333	-121.8726167	Sediment
E5-2	Guadalupe River below Alamitos Drop Structure	3/8/2004	11:30	37.2473	-121.8698667	Sediment
E5-5	Guadalupe River at HWY 237	3/8/2004	13:05	37.41085	-121.9608833	Sediment
E5-1	Guadalupe River above Alamitos Drop Structure	3/8/2004	10:15	37.24701667	-121.8703333	Sediment
E5-3	Guadalupe River at Blossom Hill Rd.	3/8/2004	11:07	37.25026667	-121.8704333	Sediment
E5-4	Guadalupe River at Highway 101	3/8/2004	15:10	37.37335	-121.9322333	Sediment
E2-19S	McAbee Creek below Senador Mine entrance to ACQP	4/23/2004	12:20	37.21503333	-121.8816667	Sediment
E1-1a	Almaden Reservoir Outlet	3/2/2004	12:00	37.16586667	-121.8284	Water
E1-1b	Almaden Reservoir Outlet	3/8/2004	14:00	37.16578333	-121.8283833	Water
E1-1c	Almaden Reservoir Outlet	4/14/2004	10:10	37.16578333	-121.8283833	Water
E1-2	Herbert Creek	3/2/2004	15:10	37.15596667	-121.8444667	Water
E1-3	Jacques Gulch above Mine Hill Tributary	3/2/2004	15:00	37.16425	-121.8496167	Water
E1-3	Jacques Gulch above Mine Hill Tributary	3/26/2004	9:30	37.16446667	-121.8507667	Water
E1-4	Barret Canyon	3/2/2004	15:35	37.15585	-121.8440667	Water
E1-5	Larrabee Gulch	3/2/2004	13:35	37.1585	-121.8295667	Water
E1-6	W. Tributary from Mine Hill to Reservoir	3/2/2004	14:30	37.16323333	-121.8402167	Water
E1-7a	Mine Hill Tributary to Jacques	3/2/2004	15:30	37.16406667	-121.84665	Water

Station ID	Station Name	Date	Time	Latitude	Longitude	Media Type
	Gulch					
E1-7b	Mine Hill Tributary to Jacques Gulch	3/26/2004	10:31	37.16403333	-121.8465833	Water
E1-8a	Guadalupe Reservoir Outlet	3/2/2004	13:35	37.19935	-121.8811167	Water
E1-8b	Guadalupe Reservoir Outlet	3/8/2004	14:50	37.19966667	-121.88075	Water
E1-8c	Guadalupe Reservoir Outlet	4/14/2004	9:18	37.19966667	-121.88075	Water
E1-9	N. Los Capitancillos Creek	3/26/2004	9:00	37.18536667	-121.8708333	Water
E1-9	N. Los Capitancillos Creek	3/3/2004	9:55	37.18531667	-121.8707833	Water
E1-10	Upper Guadalupe Creek	3/2/2004	14:15	37.18076667	-121.8736333	Water
E1-11	Rincon Creek	3/2/2004	13:55	37.18248333	-121.8736333	Water
E1-12a	Calero Reservoir Outlet	3/2/2004	9:55	37.18573333	-121.7931	Water
E1-12b	Calero Reservoir Outlet	3/8/2004	13:10	37.18553333	-121.7934	Water
E1-12c	Calero Reservoir Outlet	4/14/2004	9:15	37.18553333	-121.7934	Water
E1-13	Cherry Canyon	3/2/2004	9:25	37.17228333	-121.7926833	Water
E1-14	Pine Tree Canyon	3/2/2004	10:30	37.17693333	-121.7610333	Water
E1-15a	Inlet to Almaden-Calero Canal	3/2/2004	11:30	37.16738333	-121.8274333	Water
E1-15b	Inlet to Almaden-Calero Canal	3/3/2004	11:03	37.16545	-121.82815	Water
E1-16a	Outlet to Almaden-Calero Canal	3/2/2004	8:25	37.18045	-121.791	Water
E1-16b	Outlet to Almaden-Calero Canal	3/3/2004	11:34	37.18043333	-121.7907333	Water
E1-17a	Lexington Reservoir Outlet	3/2/2004	9:10	37.20416667	-121.99	Water
E1-17b	Lexington Reservoir Outlet	3/8/2004	9:45	37.2044	-121.99015	Water
E1-17c	Lexington Reservoir Outlet	4/20/2004	7:30	37.20428333	-121.9901667	Water
E1-18	Limekiln Canyon	3/2/2004	9:45	37.20106667	-121.9796333	Water
E1-19	Soda Spring	3/2/2004	10:15	37.18528333	-121.9782833	Water
E1-20	Briggs Creek at CDF	3/2/2004	12:25	37.18201667	-121.9902333	Water
E1-20up	Briggs Creek at Bear Creek Road	3/8/2004	8:30	37.18521667	-122.0032	Water
E1-21	Upper Los Gatos Creek	3/2/2004	11:50	37.17071667	-121.9801833	Water
E1-22	Lyndon Canyon	3/2/2004	11:00	37.19501667	-122.0040333	Water
E2-1	Guadalupe Creek upstream of Cherry Springs Creek	4/14/2004	8:59	37.2047	-121.89605	Water
E2-2	Cherry Springs Creek	4/14/2004	8:48	37.20508333	-121.8968667	Water
E2-3	Pheasant Creek	4/14/2004	8:22	37.2134	-121.9124667	Water
E2-4	Shannon Creek	4/14/2004	7:58	37.22	-121.9238	Water
E2-5a	Guadalupe Creek @ Old Gauge	4/14/2004	7:37	37.21771667	-121.9103667	Water
E2-5b	Guadalupe Creek @ Old Gauge	4/20/2004	10:59	37.21778333	-121.9100833	Water
E2-6	Guadalupe Creek below Masson Dam	4/20/2004	7:45	37.2329	-121.8987167	Water
E2-6	Guadalupe Creek below Masson Dam	4/19/2004	12:30	37.23296667	-121.89865	Water
E2-7a	Guadalupe Creek above Almaden Expressway	3/8/2004	11:50	37.24363333	-121.8753	Water
E2-7b	Guadalupe Creek above Almaden Expwy	4/19/2004	10:50	37.24361667	-121.8751833	Water
E2-7	Guadalupe River above Almaden	4/20/2004	9:49	37.24363333	-121.8752167	Water

Station ID	Station Name	Date	Time	Latitude	Longitude	Media Type
	Expwy					
E2-8	Deep Gulch at previously-used site	3/26/2004	11:00	37.164	-121.84655	Water
E2-9	Alamitos Creek @ Almaden Road Bridge near AQC Park	4/20/2004	13:30	37.17365	-121.8247167	Water
E2-10a	Alamitos Creek @ Harry Road	4/19/2004	14:29	37.20163333	-121.8293667	Water
E2-10b	Alamitos Creek @ Harry Road	4/20/2004	12:50	37.20125	-121.8289	Water
E2-11a	Alamitos Creek at Greystone Lane	4/19/2004	13:15	37.22243333	-121.8507333	Water
E2-11b	Alamitos Creek @ Greystone Lane	4/20/2004	12:20	37.22223333	-121.8508833	Water
E2-12a	Alamitos Creek above Almaden Lake	3/8/2004	12:25	37.23823333	-121.8711	Water
E2-12b	Alamitos Creek above Almaden Lake	4/19/2004	11:50	37.2383	-121.8711833	Water
E2-12c	Alamitos Creek above Almaden Lake	4/20/2004	10:31	37.23831667	-121.8711167	Water
E2-13a	Almaden Lake Outlet	4/19/2004	11:27	37.24435	-121.8723	Water
E2-13b	Almaden Lake Outlet	4/20/2004	10:09	37.24435	-121.8723	Water
E2-14	Golf Creek upstream of Alamitos Cr (below Camden Ave)	4/23/2004	1:00	37.22286667	-121.8742333	Water
E2-15	Greystone Creek upstream of Alamitos Creek	4/19/2004	13:35	37.22451667	-121.8581667	Water
E2-16	Randol Creek upstream of Alamitos Creek	4/19/2004	14:00	37.19828333	-121.84475	Water
E2-17	Santa Teresa Creek upstream of Calero Creek	4/14/2004	8:45	37.20913333	-121.8230167	Water
E2-18	Calero Creek @ Harry Road	4/14/2004	7:45	37.20661667	-121.8225667	Water
E3-1a	Ross Creek upstream of Guadalupe River	3/8/2004	10:45	37.26521667	-121.8781167	Water
E3-1b	Ross Creek upstream of River (below Cherry Ave.)	4/23/2004	11:30	37.2636	-121.8854833	Water
E3-1	Ross Creek upstream of Guadalupe River (replicate)	2/27/2004	14:00	37.2655	-121.8786	Water
E3-2a	Canoas Creek at Lean Avenue	2/27/2004	14:45	37.23506667	-121.81665	Water
E3-2b	Canoas Creek @ Lean Ave	4/20/2004	11:40	37.23513333	-121.81705	Water
E3-3	Canoas Creek at Dow Drive	2/27/2004	13:00	37.28026667	-121.8684833	Water
E3-4a	Canoas Creek upstream of Guadalupe River	2/27/2004	12:05	37.2869	-121.87575	Water
E3-4b	Canoas Creek upstream of Guadalupe River	3/8/2004	9:19	37.28685	-121.8758167	Water
E3-4c	Canoas Creek upstream of Guadalupe River	4/20/2004	9:25	37.28681667	-121.8757	Water
E3-5a	Los Gatos Creek below Vasona Reservoir Outlet	2/27/2004	8:35	37.2473	-121.96515	Water
E3-5b	Los Gatos Creek below Vasona Reservoir Outlet	4/20/2004	8:10	37.24741667	-121.9652833	Water
E3-6	Los Gatos Creek at Camden Avenue	2/27/2004	9:30	37.27433333	-121.9477	Water
E3-7a	Los Gatos Creek above Guadalupe River	2/27/2004	10:20	37.33363333	-121.8991667	Water

Station ID	Station Name	Date	Time	Latitude	Longitude	Media Type
E3-7b	Los Gatos Creek above Guadalupe River	3/8/2004	8:45	37.3338	-121.8990333	Water
E3-7c	Los Gatos Creek upstream of Guadalupe River	4/20/2004	8:50	37.33355	-121.8985667	Water
E4-1a	Guadalupe River above Alamitos Drop Structure	2/26/2004	8:50	37.24655	-121.8709167	Water
E4-1b	Guadalupe River above Alamitos Drop Structure	4/20/2004	8:40	37.24663333	-121.8708167	Water
E4-2a	Guadalupe River below Alamitos Drop Structure	2/26/2004	9:25	37.24731667	-121.8698167	Water
E4-2b	Guadalupe River below Alamitos Drop Structure	3/8/2004	11:30	37.2473	-121.8698667	Water
E4-2c	Guadalupe River below Alamitos Drop Structure	4/20/2004	9:08	37.24726667	-121.8698833	Water
E4-3a	Guadalupe River at Blossom Hill Rd.	2/27/2004	9:15	37.2502	-121.87	Water
E4-3b	Guadalupe River at Blossom Hill Road	4/20/2014	8:20	37.24925	-121.8703667	Water
E4-4a	Guadalupe River upstream of Ross Creek Inflow	2/27/2004	10:10	37.2632	-121.875	Water
E4-4b	Guadalupe River upstream of Ross Creek	3/8/2004	11:10	37.26321667	-121.8751833	Water
E4-4c	Guadalupe River upstream of Ross Creek Inflow	4/20/2004	10:40	37.2631	-121.8753167	Water
E4-5a	Guadalupe River upstream of Canoas Creek Inflow	2/27/2004	10:30	37.281	-121.88	Water
E4-5b	Guadalupe River upstream of Canoas Creek Inflow	3/8/2004	9:42	37.28088333	-121.88005	Water
E4-5c	Guadalupe River upstream of Canoas Creek Inflow	4/20/2004	9:55	37.28511667	-121.88265	Water
E4-6a	Guadalupe River at San Carlos St.	2/27/2004	11:10	37.3277	-121.891	Water
E4-6b	Guadalupe River at San Carlos Street	4/20/2004	11:55	37.3277	-121.8911167	Water
E4-7a	Guadalupe River at Highway 101	2/26/2004	10:25	37.37328333	-121.9326167	Water
E4-7b	Guadalupe River at Hwy 101	4/20/2004	12:25	37.37351667	-121.9320333	Water
E4-7	Guadalupe River at Highway 101	3/8/2004	15:10	37.37335	-121.9322333	Water
E4-8a	Guadalupe River at HWY 237	2/27/2004	12:00	37.3277	-121.968	Water
E4-8b	Guadalupe River at Hwy 237	4/20/2004	13:00	37.40973333	-121.9607167	Water

DRY SEASON

Station ID	Station Name	Depth, ft	Latitude	Longitude	Media Type
E7-4	Almaden Reservoir - epilimnion	1	37.1641	-121.8292	Water
E7-5	Almaden Reservoir - hypolimnion	50	37.1641	-121.8292	Water
E7-6	Almaden Reservoir Outlet	surface	37.1659	-121.8284	Water
E7-1	Guadalupe Reservoir - epilimnion	1	37.1979	-121.8775	Water
E7-2	Guadalupe Reservoir - hypolimnion	50	37.1979	-121.8775	Water
E7-3	Guadalupe Reservoir Outlet	surface	37.1994	-121.8811	Water

Multiple depth samples were collected on two dates: July 15 and August 2, 2004.

APPENDIX B QA/QC SUMMARY

WET SEASON

A QA/QC Plan (QAPP) (Tetra Tech, 2003e) was prepared to guide the field programs and laboratory analyses. The results of the laboratory QA/QC program are summarized here for the water and sediment analyses.

Aqueous Samples

QA/QC procedures in the Data Collection Plan and QAPP (Tetra Tech, 2004a and 2003e) for collecting and analyzing water samples were followed. The QA/QC results for the mercury analyses showed that the desired detection limits were achieved and verified with method blank analyses. The resulting method detection limits (MDL)s were 0.2 ng/L for total mercury and 0.018 ng/L for methylmercury for one data set (February and March samples) and 0.13 ng/L and 0.019 ng/L for the second data set (April samples). Ten filter blanks were run; one had high concentrations in the filtrate, indicating possible contamination. The total mercury in the blank was less than the filtrate, so it was considered an outlier. The measured total mercury samples had higher mercury than this blank sample. The actual filtered mercury concentrations were much less than in the blank, indicating that this filter blank was not representative. Two laboratory duplicates of five samples were analyzed to check precision of the water analyses for all the mercury species. The relative percent difference (RPD) for total mercury in these duplicates ranged from 2.6 to 22.9 percent, which is within the acceptable range of plus or minus 25 percent. The RPDs for methylmercury ranged from 6.1 to 22.9 percent, which is within the desired limits of 30 percent for methylmercury. Six matrix spike samples were analyzed for all the mercury species; percent recoveries for total mercury ranged from 89.4 to 111.5 percent, while the RPDs were from 0.0 to 5.3 percent, both within acceptable limits. Six analyses of certified reference materials were also performed: the materials used were NIST-1641 for total mercury and DORM-2 for methylmercury. The percent recoveries for total mercury varied from 90.1 to 95.4 percent and 84.5 to 126 percent for methylmercury, which are within the desired limits of 25 percent for total mercury and 30 percent for methylmercury.

In addition to the above laboratory analyses, seven field replicates were collected and analyzed to provide information on the variability contributed by differing field conditions. One replicate sample was considered an outlier by the laboratory, sample E2-2B from Cherry Springs Creek, which had much higher total mercury than the replicate, even though both samples had low suspended solids (1.1 and 1.2 mg/L). The dissolved mercury and methylmercury were similar. Only one bottle was collected in the field; this sample is then split into two bottles so that one part can be filtered in the laboratory. Because the other mercury species were similar, the possible contamination is considered to be from the laboratory, rather than the field. The results for this sample and the calculated particulate fraction was not used for data analysis. All other mercury data were considered usable.

Sulfate and sulfide were analyzed in three water samples; one was a replicate. The MDL for sulfate was 1 mg/L, which was much less than the actual samples (34 to 87 mg/L). The replicate samples were within 1.2 percent. No sulfide was detected in any of the three water samples. The MDL for sulfide was 0.01 mg/L. Both of these analyses met the respective QA/QC criteria.

Sediment

The QA/QC analyses for mercury species in sediment were discussed in Section 6, since all the sediment results were included in the same section. The coarse samples with a significant sand and gravel fraction are quite heterogeneous due to grain size. With such samples, a further complication is that the mineral components are larger, and thus less susceptible to reaction by the digestion agents. One method sometimes used is to grind the samples first to obtain a more uniform grain size distribution of smaller particles. However, there is a potential of loss of mercury by retention on surfaces and loss of any elemental mercury. An alternative digestion method with HF and HCl was tested instead of aqua regia on some of the coarse samples, but the test was not conclusive since neither method extracted higher mercury in all the samples. The variability of results on these samples is partly a function of their differing sources, cinnabar from mine wastes and weathered more soluble compounds from non-mercury enriched soils and other sources in urban runoff.

Sulfate and sulfide were analyzed in four sediment samples; one was a replicate. The MDL for sulfate was 10 mg/kg, which was much less than the actual samples (100 to 450 mg/kg). The RPD for one laboratory duplicate was 8.2 percent, and the matrix spike recoveries ranged from 96.9 to 100.9 percent with a RPD of 2.66 percent. Both of these analyses met the respective QA/QC criteria. The replicate samples were quite different (100 and 450 mg/kg), thought to be due to sample heterogeneity, since the lab variability is low. As explained in Section 6, variations in grain size can be one cause of sample heterogeneity.

DRY SEASON

A QA/QC Plan (QAPP) (Tetra Tech, 2003e) was prepared to guide the field programs and laboratory analyses. The results of the laboratory QA/QC program are summarized here for the water analyses.

Aqueous Samples

QA/QC procedures in the Data Collection Plan and QAPP (Tetra Tech, 2004 and 2003e) for collecting and analyzing water samples were followed. The QA/QC results for the mercury analyses showed that the desired detection limits were achieved and verified with method blank analyses. The resulting reporting limits were 0.15 ng/L for total mercury and 0.025 ng/L for methylmercury for most data sets (July 15, August 2, 12, and 31 samples). The mean total mercury and methylmercury concentrations were 0.08 ng/L and 0.04 ng/L, respectively for the June samples, and 0.15 ng/L and 0.019 ng/L for the May samples. For the May and June samples, two of the seven blanks for methylmercury had higher values (0.106 and 0.087 ng/L); these were excluded from the mean calculation by the laboratory. Two filter blanks were run; one had the same reporting limits as the blank samples. The other sample had higher concentrations in the filtrate (0.57 ng/L) than the unfiltered portion (0.25 ng/L), but both were less than the actual filtered mercury concentrations. This high filtrate was considered an outlier, because the filtered equipment blank that was run on the same date, had the same concentration of total mercury as the filter blank (0.25 ng/L). Two equipment blanks were run. The sample at the beginning of the summer had low total and dissolved mercury (0.22 ng/L and 0.25 ng/L), but no methylmercury (<0.025 ng/L). The sample at the end of the summer had low total mercury (0.54 ng/L), and no dissolved mercury (<0.15 ng/L) and no methylmercury (<0.025 ng/L). Thus, the pump and tubing equipment is not considered to be contaminating the samples.

Two laboratory duplicates of one or two samples per sampling event were analyzed to check precision of the water analyses for all the mercury species. The relative percent difference (RPD) for total mercury in these duplicates ranged from 0.0 to 9.0 percent, which is within the acceptable range of plus or minus 25 percent. The RPDs for methylmercury ranged from 0.1 to 13.9 percent, which is within the desired limits of 30 percent for methylmercury. There was one replicate sample with a high RPD for methylmercury (41.1 percent for QC2 on 8/2/04); this sample was not a freshwater sample from the study reservoirs, and it had low concentrations (0.06 to 0.09 ng/L). Because the difference was less than two times the reporting limit, it was not considered significant with respect to the actual samples. A total of 11 matrix spike samples were analyzed for total and methylmercury; percent recoveries for total mercury ranged from 95.9 to 110.9 percent, while the RPDs were from 0.0 to 9.7 percent, both within acceptable limits. Six analyses of certified reference materials were also performed: the materials used were NIST-1641d for total mercury and DORM-2 for methylmercury. The percent recoveries for total mercury varied from 84.8 to 103.0 percent and 81.0 to 121.4 percent for methylmercury, which are within the desired limits of 25 percent for total mercury and 30 percent for methylmercury.

In addition to the above laboratory analyses, six field replicates were collected and analyzed to provide information on the variability contributed by differing field conditions. The variability increased when more suspended solids (> 5 mg/L) were present. All mercury data were considered usable.

For the other water quality parameters, method blank samples, duplicates, blank spike, and matrix spike samples were analyzed. The parameters were nutrients (ammonia, nitrate, nitrite, total Kjeldahl nitrogen, total phosphorus, and chlorophyll-a), DOC, sulfate, and sulfide. All method blanks for these parameters were not detected. The method detection limit for sulfate was 1 mg/L, which was less than the actual samples (12 to 19 mg/L). The replicate samples for sulfate were equal for all six pairs. The method detection limit for sulfide was 0.01 mg/L. Both sulfate and sulfide analyses met the respective QA/QC criteria. There were two total phosphorus samples that were rechecked by the laboratory and then rerun from one date (8/2/04), because the results were not representative. The rerun results were an order of magnitude less, similar to the other concentrations. Both data sets are reported, but the unusual high values from the original data were not used for the data analyses. The laboratory did not achieve the desired low detection limit for chlorophyll-a; the results were discussed with the laboratory, but a reason was not provided. Nitrite was not detected in any of the water samples, but the QA/QC criteria were met. The QA/QC criteria for the other parameters were acceptable.

APPENDIX C 2004 MERCURY DATA

WET SEASON

Aqueous Mercury Speciation in Guadalupe River System, Winter 2004 (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA phone: 206-622-6960

total Hg by BrCl digestion + $SnCl_2$ reduction, dual amalgamation CVAFS; CH_3Hg by HBr/CH_2Cl_2 extraction + aqueous ethylation + GC-CVAFS

				TOTAL MERCURY					METHYL MERCURY					
	Sampling		TSS	Analysis	Unfiltered	0.4 μ filt	Susp Frac		analysis	UF	0.4 μ filt	Susp Frac		
Sample ID	date	time	mg L-1	Date	ng/L	ng/L	ng/g	log Kd	date	ng/L	ng/L	ng/g	log Kd	comments
E1-01	3/2/2004	12:00	11.1	8-Mar-04	36.6	8.25	2,551	5.49	10-Mar-04	0.328	0.149	16.11	5.03	
E1-01	3/8/2004	14:00	8.9	15-Mar-04	37.5	5.56	3,591	5.81	19-Mar-04	0.233	0.156	8.65	4.74	
E1-02	3/2/2004	15:10	3.7	8-Mar-04	3.47	0.98	682	5.84	12-Mar-04	0.051				
E1-03	3/2/2004	15:00	2	8-Mar-04	8.74	1.19	3,775	6.5	16-Mar-04	0.029				
E1-03-A	3/26/2004	9:30	2	29-Mar-04	2.06	0.79	635	5.91	28-Mar-04	0.144				
E1-03-B	3/26/2004	9:30	2	29-Mar-04	2.03	0.59	720	6.09	28-Mar-04	0.03				
E1-04	3/2/2004	15:35	3.3	8-Mar-04	4.68	0.91	1,160	6.11	12-Mar-04	0.042				
E1-05	3/2/2004	13:35	1.4	8-Mar-04	6.17	3.94	1,593	5.61	12-Mar-04	0.061				
E1-06	3/2/2004	14:30	2.4	8-Mar-04	82.2	11.5	29,463	6.41	12-Mar-04	0.189				
E1-07	3/2/2004	15:30	0.4	8-Mar-04	45.6	24.2	61,257	6.4	16-Mar-04	0.086				
E1-07	3/26/2004	10:31	0.4	29-Mar-04	42.2	23.5	46,725	6.3	28-Mar-04	0.055				
E1-08	3/2/2004	13:35	47.5	8-Mar-04	77.4	6.25	1,498	5.38	10-Mar-04	0.319	0.152	3.52	4.36	
E1-08	3/8/2004	14:50	32.3	15-Mar-04	38.4	5.41	1,022	5.28	19-Mar-04	0.287	0.149	4.28	4.46	
E1-09-A	3/3/2004	9:55	18.9	8-Mar-04	35.1	8.3	1,421	5.23	10-Mar-04	0.185				
E1-09-B	3/3/2004	9:55	18.4	8-Mar-04	18.2	6.68	630	4.97	10-Mar-04	0.199				
E1-09	3/26/2004	9:00	3.2	29-Mar-04	13.4	6.57	2,128	5.51	28-Mar-04	0.047				
E1-10	3/2/2004	14:15	1.3	8-Mar-04	3.33	1.31	1,616	6.09	12-Mar-04	0.035				
E1-11	3/2/2004	13:55	3	8-Mar-04	2.52	1.1	473	5.63	12-Mar-04	0.05				
E1-12	3/2/2004	9:55	17.4	8-Mar-04	19.8	5.04	847	5.23	10-Mar-04	0.103	0.085	1.03	4.08	
E1-12	3/8/2004	13:10	11.8	15-Mar-04	12.92	4.48	715	5.2	19-Mar-04	0.136	0.079	4.83	4.79	
E1-13	3/2/2004	9:25	1.5	8-Mar-04	3.96	2.29	1,152	5.7	12-Mar-04	0.034				
E1-14	3/2/2004	10:30	4.8	8-Mar-04	6.98	3.9	648	5.22	12-Mar-04	0.151				
E1-15	3/2/2004	11:30	12.2	8-Mar-04	32.85	8.61	1,995	5.36	10-Mar-04	0.251	0.11	11.6	5.02	
E1-15	3/3/2004	11:03	10	8-Mar-04	28.83	7.71	2,123	5.44	10-Mar-04	0.257	0.125	13.27	5.03	
E1-16	3/2/2004	8:25	7.7	8-Mar-04	24.67	8.16	2,158	5.42	10-Mar-04	0.216	0.153	8.24	4.73	
E1-16	3/3/2004	11:34	17.9	8-Mar-04	90.54	6.49	4,709	5.86	10-Mar-04	0.289	0.096	10.81	5.05	
E1-17	3/2/2004	9:10	97.6	8-Mar-04	16.44	2.23	146	4.82	10-Mar-04	0.072	0.023	0.5	4.34	
E1-17	3/8/2004	9:45	52.8	15-Mar-04	9.26	1.95	139	4.85	19-Mar-04	0.057	0.01	0.89	4.95	
E1-18	3/2/2004	9:45	3.5	8-Mar-04	2.79	1.63	334	5.31	12-Mar-04	0.032				
E1-19	3/2/2004	10:15	1.2	8-Mar-04	1.96	1.27	575	5.66	12-Mar-04	0.017				
E1-20	3/2/2004	12:25	31.8	8-Mar-04	6.98	1.82	162	4.95	12-Mar-04	0.085				
E1-20up	3/8/2004	8:30	2.6	15-Mar-04	1.92	1.68	114	4.84	19-Mar-04	0.014				
E1-21	3/2/2004	11:50	15.2	8-Mar-04	4.1	0.95	207	5.34	12-Mar-04	0.027				
E1-22	3/2/2004	11:00	54.1	8-Mar-04	13.54	1.24	227	5.26	12-Mar-04	0.141				
E2-07	3/8/2004	11:50	8.4	15-Mar-04	13.82	4.42	1,119	5.4	19-Mar-04	0.242	0.139	12.26	4.95	
E2-08	3/26/2004	11:00	1.1	29-Mar-04	13.41	5.86	7,190	6.09	27-Mar-04	0.057				
E2-12	3/8/2004	12:25	3.3	15-Mar-04	86.49	12.42	22,445	6.26	16-Mar-04	0.275	0.19	25.76	5.13	
E3-01-A	2/27/2004	14:00	24.5	8-Mar-04	18.47	6.09	505	4.92	9-Mar-04	0.229	0.089	5.71	4.81	
E3-01-B	2/27/2004	14:00	22.9	3-Mar-04	16.24	6.64	419	4.8	9-Mar-04	0.176	0.101	3.28	4.51	

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	date	time	mg L-1	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
E3-01	3/8/2004	10:45	4	15-Mar-04	5.3	1.97	833	5.63	16-Mar-04	0.062	0.016	11.5	5.86	
E3-02	2/27/2004	14:45	45.6	3-Mar-04	25.21	18.99	136	3.86	10-Mar-04	0.31				
E3-03	2/27/2004	13:00	17.7	3-Mar-04	18.08	9.09	508	4.75	16-Mar-04	0.185				
E3-04	2/27/2004	12:05	12	3-Mar-04	12.28	8.12	347	4.63	9-Mar-04	0.184	0.13	4.5	4.54	
E3-04	3/8/2004	9:19	2.7	15-Mar-04	4.14	2.15	751	5.54	16-Mar-04	0.004	-0.009	nc	nc	
E3-05	2/27/2004	8:35	90.4	3-Mar-04	29.83	5.23	272	4.72	9-Mar-04	0.231	0.044	2.07	4.67	
E3-06	2/27/2004	9:30	74.8	3-Mar-04	28	3.97	321	4.91	9-Mar-04	0.176				
E3-07	2/27/2004	10:20	49.3	3-Mar-04	21.81	4.76	346	4.86	9-Mar-04	0.159	0.038	2.45	4.81	
E3-07	3/8/2004	8:45	2.5	15-Mar-04	2.04	0.99	420	5.63	16-Mar-04	0.017	0.003	5.6	6.27	
E4-01	2/26/2004	8:50	96.4	3-Mar-04	394.4	20.05	3,883	5.29	9-Mar-04	0.915				
E4-02	2/26/2004	9:25	96.1	3-Mar-04	464.6	19.26	4,634	5.38	9-Mar-04	0.737				
E4-02	3/8/2004	11:30	5	15-Mar-04	78.6	11.47	13,426	6.07	16-Mar-04	0.309	0.136	34.6	5.41	
E4-03	2/27/2004	9:15	49.2	3-Mar-04	258.4	20.42	4,837	5.37	9-Mar-04	0.563				
E4-04	2/27/2004	10:10	49.6	3-Mar-04	263	22.22	4,854	5.34	9-Mar-04	0.649				
E4-04	3/8/2004	11:10	6.5	15-Mar-04	66	11.93	8,318	5.84	16-Mar-04	0.292	0.154	21.23	5.14	
E4-05	2/27/2004	10:30	46.1	3-Mar-04	242.7	20.19	4,827	5.38	9-Mar-04	0.603				
E4-05	3/8/2004	9:42	7.7	15-Mar-04	71.43	9.17	8,086	5.95	16-Mar-04	0.302	0.149	19.87	5.13	
E4-06	2/27/2004	11:10	47.6	3-Mar-04	226.5	15.88	4,425	5.45	9-Mar-04	0.594				
E4-07	2/26/2004	10:25	118.6	3-Mar-04	363.9	11.67	2,970	5.41	10-Mar-04	0.748	0.101	5.46	4.73	
E4-07-A	3/8/2004	15:10	5.2	15-Mar-04	19.58	3.84	3,027	5.9	19-Mar-04	0.158	0.088	13.46	5.18	
E4-07-B	3/8/2004	15:10	5.3	15-Mar-04	22.09	3.18	3,568	6.05	19-Mar-04	0.164	0.093	13.4	5.16	
E4-08	2/27/2004	12:00	74.4	3-Mar-04	182.5	10.32	2,314	5.35	9-Mar-02	0.506	0.082	5.7	4.84	
blank-01			-0.25	3-Mar-04	-0.06				9-Mar-04	-0.005				
blank-02			0	3-Mar-04	-0.12				9-Mar-04	0.004				
blank-03			-0.4	3-Mar-04	-0.13				9-Mar-04	0.011				
blank-04			-0.05	3-Mar-04	-0.13				10-Mar-04	0.002				
blank-05			0.05	4-Mar-04	-0.04				10-Mar-04	-0.001				
blank-06			-0.05	4-Mar-04	-0.05				10-Mar-04	0.006				
blank-07			-0.05	4-Mar-04	-0.08				12-Mar-04	-0.003				
blank-08			0	4-Mar-04	-0.04				12-Mar-04	-0.003				
blank-09			0	8-Mar-04	0.04				12-Mar-04	0.003				
blank-10			0	8-Mar-04	0.01				19-Mar-04	0				
blank-11			0	8-Mar-04	-0.02				19-Mar-04	0.001				
blank-12			0	8-Mar-04	-0.02				19-Mar-04	0.004				
blank-13			0.1	15-Mar-04	-0.08				16-Mar-04	0.004				
blank-14				15-Mar-04	-0.04				16-Mar-04	0.001				
blank-15				15-Mar-04	-0.08				16-Mar-04	0.007				
blank-16				15-Mar-04	-0.08				28-Mar-04	0.001				
blank-17				29-Mar-04	0.14				28-Mar-04	0.003				
blank-18				29-Mar-04	0.04				28-Mar-04	0.012				
blank-19				29-Mar-04	0.02				28-Mar-04	0.021				
mean			-0.05		-0.04					0.004				
eMDL			0.4		0.2					0.018				

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	date	time	mg L-1	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
filter blank-1				3-Mar-04	nd	1.03			9-Mar-04	nd	-0.005			
filter blank-2				3-Mar-04	nd	0.72			9-Mar-04	nd	-0.001			
filter blank-3				8-Mar-04	nd	0.25			19-Mar-04	-0.005	-0.005			
filter blank-4				8-Mar-04	0.5	0.28			12-Mar-04	0.001	0.02			
filter blank-5				15-Mar-04	0.73	26.6								
filter blank-6				29-Mar-04	0.01	0.09								
dup. sample			E1-12		E3-07 UF	E3-06 UF				E4-02 UF	E1-9A UF			
replicate 1			17.25	3-Mar-04	17.32	27.12			9-Mar-04	0.759	0.215			
replicate 2			17.6	3-Mar-04	21.81	28.88			9-Mar-04	0.714	0.155			
mean			17.43	3-Mar-04	19.57	28			9-Mar-04	0.737	0.185			
RPD (%)			2	3-Mar-04	22.9	6.3			9-Mar-04	6.1	32.4			
dup. sample			E4-7 FD		E4-02 UF	E1-17 UF				E1-10 UF	E4-7 UF			
replicate 1			5.15	4-Mar-04	470.7	16.64			12-Mar-04	0.031	0.163			
replicate 2			5.3	4-Mar-04	458.6	16.24			12-Mar-04	0.039	0.152			
mean			5.23	4-Mar-04	464.7	16.44			12-Mar-04	0.035	0.158			
RPD (%)			2.9	4-Mar-04	2.6	2.4			12-Mar-04	22.9	7			
dup. sample			E2-8		E1-06 UF	E4-02 UF				E4-4 UF				
replicate 1			1.1	8-Mar-04	80.5	76.9			16-Mar-04	0.268	0.043			
replicate 2			1	8-Mar-04	83.9	80.3			16-Mar-04	0.316	0.051			
mean			1.1	8-Mar-04	82.2	78.6			16-Mar-04	0.292	0.047			
RPD (%)			9.5	8-Mar-04	4.1	4.3			16-Mar-04	16.4	17			
spiked sample					E3-07 UF	E3-07 UF				E4-02 UF	E1-16B UF			
spike level				3-Mar-04	206.2	51.55			9-Mar-04	5	1.667			
sample + spike				3-Mar-04	223.7	72.4			9-Mar-04	5.598	1.983			
% recovery				3-Mar-04	99	102.5			9-Mar-04	97.2	101.6			
spl + spike dup				3-Mar-04	216	68.95			9-Mar-04	5.626	1.794			
% recovery				3-Mar-04	95.3	95.8			9-Mar-04	97.8	90.3			
mean				3-Mar-04	219.9	70.68			9-Mar-04	5.612	1.889			
RPD (%)				3-Mar-04	3.5	4.9			9-Mar-04	0.5	10			
spiked sample					E4-02 UF	E1-04 UF				E1-10 UF	E4-7 UF			
spike level				4-Mar-04	1,031	20.62			12-Mar-04	1.667	1.667			
sample + spike				4-Mar-04	1,640	24.58			12-Mar-04	2.074	1.869			
% recovery				4-Mar-04	114	96.5			12-Mar-04	122.3	102.6			
spl + spike dup				4-Mar-04	1,614	26.66			12-Mar-04	2.163	1.793			
% recovery				4-Mar-04	111.5	106.6			12-Mar-04	128.3	98.1			
mean				4-Mar-04	1,627	25.62			12-Mar-04	2.119	1.831			
RPD (%)				4-Mar-04	1.6	8.1			12-Mar-04	4.2	4.2			

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	date	time	mg L-1	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
spiked sample					E1-06 UF	E4-2 UF				E4-5 UF				
spike level				8-Mar-04	206	103			16-Mar-04	1.667				
sample + spike				8-Mar-04	289	191			16-Mar-04	2.056				
% recovery				8-Mar-04	100.3	109.2			16-Mar-04	105.2				
spl + spike dup				8-Mar-04	301	203			16-Mar-04	2.138				
% recovery				8-Mar-04	106.3	120.8			16-Mar-04	110.1				
mean				8-Mar-04	295	197			16-Mar-04	2.097				
RPD (%)				8-Mar-04	4.2	6			16-Mar-04	3.9				
spiked sample					E1-3A filt									
spike level				29-Mar-04	5.05									
sample + spike				29-Mar-04	5.81									
% recovery				29-Mar-04	99.4									
spl+ spike dup				29-Mar-04	5.51									
% recovery				29-Mar-04	93.5									
mean				29-Mar-04	5.66									
RPD (%)				29-Mar-04	5.3									
ref. material					NIST-1641	NIST-1641				DORM-2	DORM-2			
measured				4-Mar-04	7,576	6,830			9-Mar-04	4,524	4,680			
certified				4-Mar-04	8,010	8,010			9-Mar-04	4,470	4,470			
% recovery				4-Mar-04	94.6	85.3			9-Mar-04	101.2	104.7			
ref. material					NIST-1641	NIST-1641				DORM-2	DORM-2			
measured				8-Mar-04	7,218	7,450			12-Mar-04	5,632	4,134			
certified				8-Mar-04	8,010	8,010			12-Mar-04	4,470	4,470			
% recovery				8-Mar-04	90.1	93			12-Mar-04	126	92.5			
ref. material					NIST-1641	NIST-1641				DORM-2	DORM-2			
measured				15-Mar-04	7,427	7,784			19-Mar-04	4,087	3,984			
certified				15-Mar-04	8,010	8,010			19-Mar-04	4,470	4,470			
% recovery				15-Mar-04	92.7	97.2			19-Mar-04	91.4	89.1			
spl. replicated			E1-01		E1-3A filt									
replicate #1			13.7	29-Mar-04	0.78									
replicate #2			6.8	29-Mar-04	0.8									
replicate #3			12.9											
mean			11.1	29-Mar-04	0.79									
RSD (%)			33.8	29-Mar-04	2.5									
spl. replicated			E1-22											
replicate #1			53.1											
replicate #2			53.2											
replicate #3			56.1											

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	date	time	mg L-1	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
mean			54.1											
RSD (%)			3.2											
spl. replicated			E4-08											
replicate #1			74											
replicate #2			73.8											
replicate #3			75.4											
mean			74.4											
RSD (%)			1.2											

Aqueous Mercury Speciation in Guadalupe River System, Spring 2004 (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA phone: 206-622-6960

total Hg by BrCl digestion + $SnCl_2$ reduction, dual amalgamation CVAFS; CH_3Hg by distillation + aqueous ethylation + GC-CVAFS

				TOTAL MERCURY					METHYL MERCURY					
	Sampling		TSS	Analysis	Unfiltered	0.4 μ filt	Susp Frac		analysis	UF	0.4 μ filt	Susp Frac		
Sample ID	Date	Time	mg/L	Date	ng/L	ng/L	ng/g	log Kd	date	ng/L	ng/L	ng/g	log Kd	comments
E1-01	14-Apr-04	10:10	15.9	19-Apr-04	38.79	3.59	2,214	5.79	22-Apr-04	0.29	0.114	11.07	4.99	
E1-08	14-Apr-04	9:18	12.3	19-Apr-04	23.56	4.82	1,524	5.5	22-Apr-04	0.704	0.179	42.68	5.38	
E1-12	14-Apr-04	9:15	6.3	19-Apr-04	7.03	3.35	584	5.24	22-Apr-04	0.163	0.102	9.68	4.98	
E1-17	20-Apr-04	7:30	23	23-Apr-04	5.86	1.45	192	5.12	24-Apr-04	0.063	0.022	1.78	4.91	
E2-01	14-Apr-04	8:59	12.7	19-Apr-04	32.99	4.37	2,254	5.71	22-Apr-04	0.498				
E2-02A	14-Apr-04	8:48	1.1	19-Apr-04	2.45	1.58	829	5.72	22-Apr-04	0.021				
E2-02B	14-Apr-04	8:48	1.2	19-Apr-04	31.91	1.66	26,304	7.2	22-Apr-04	0.031				high total result verified; possible
E2-03	14-Apr-04	8:22	0.9	19-Apr-04	2.01	0.95	1,247	6.12	22-Apr-04	0.058				contamination of bottle
E2-04	14-Apr-04	7:58	1.8	19-Apr-04	2.74	1.42	754	5.73	22-Apr-04	0.032				
E2-05	14-Apr-04	7:37	13.4	19-Apr-04	32.08	6.34	1,921	5.48	22-Apr-04	0.311	0.164	10.97	4.83	
E2-05	20-Apr-04	10:59	5.6	22-Apr-04	28.07	3.11	4,457	6.16	24-Apr-04	0.355	0.218	24.46	5.05	
E2-06	20-Apr-04	7:45	8.6	22-Apr-04	40.3	4.6	4,151	5.96	28-Apr-04	0.568				
E2-06A	19-Apr-04	12:30	5.8	22-Apr-04	14.66	5.02	1,662	5.52	24-Apr-04	0.456				
E2-06B	19-Apr-04	12:30	6.4	22-Apr-04	15.71	4.67	1,725	5.57	24-Apr-04	0.489				
E2-07	19-Apr-04	10:50	2	22-Apr-04	32.75	3.12	14,815	6.68	22-Apr-04	0.409	0.292	58.5	5.3	
E2-07A	20-Apr-04	9:49	2.2	22-Apr-04	16.06	3.23	5,967	6.27	28-Apr-04	0.386	0.205	84.19	5.61	
E2-07B	20-Apr-04	9:49	2.4	23-Apr-04	15.87	3.11	5,317	6.23	24-Apr-04	0.362	0.243	49.58	5.31	
E2-09	20-Apr-04	13:30	9.1	22-Apr-04	139.5	13.76	13,894	6	24-Apr-04	0.51	0.334	19.45	4.77	
E2-10	19-Apr-04	14:29	4	22-Apr-04	97.33	18.67	19,665	6.02	24-Apr-04	0.486				
E2-10	20-Apr-04	12:50	4.6	23-Apr-04	125.2	16.72	23,842	6.15	28-Apr-04	0.553				
E2-11	19-Apr-04	13:15	2.2	22-Apr-04	34.29	11.56	10,332	5.95	24-Apr-04	0.26				
E2-11	20-Apr-04	12:20	2.6	23-Apr-04	40.32	11.27	11,392	6	28-Apr-04	0.288				
E2-12	19-Apr-04	11:50	2.4	22-Apr-04	39.32	10.94	12,077	6.04	24-Apr-04	0.31	0.165	61.7	5.57	
E2-12	20-Apr-04	10:31	2.8	23-Apr-04	39.19	9.1	10,942	6.08	24-Apr-04	0.282	0.147	49.09	5.52	
E2-13	19-Apr-04	11:27	11.2	22-Apr-04	49.54	4.6	4,030	5.94	22-Apr-04	0.28	0.049	20.72	5.63	
E2-13	20-Apr-04	10:09	12.3	23-Apr-04	36.55	4.57	2,611	5.76	24-Apr-04	0.325	0.042	23.1	5.74	
E2-15	19-Apr-04	13:35	1.1	22-Apr-04	7.89	4.92	2,700	5.74	24-Apr-04	0.182				
E2-16	19-Apr-04	14:00	1.1	22-Apr-04	3.64	2.43	1,152	5.68	24-Apr-04	0.119				
E2-17	14-Apr-04	8:20	3.8	19-Apr-04	4.51	1.82	708	5.59	22-Apr-04	0.15				
E2-18	14-Apr-04	7:45	16.9	19-Apr-04	13.46	1.92	683	5.55	22-Apr-04	0.224				
E3-02	20-Apr-04	11:40	3.9	19-Apr-04	27.97	14.14	3,546	5.4	28-Apr-04	0.346				
E3-04	20-Apr-04	9:25	9.4	19-Apr-04	7.01	2.2	512	5.37	24-Apr-04	0.153	0.016	14.59	5.96	
E3-05	20-Apr-04	8:10	22.9	23-Apr-04	5.85	0.98	213	5.34	24-Apr-04	0.07	0.011	2.58	5.37	
E3-07	20-Apr-04	8:50	2.9	19-Apr-04	2.85	0.64	762	6.08	28-Apr-04	0.015	0.004	3.79	5.98	
E4-01	20-Apr-04	8:40	12.2	19-Apr-04	50.9	4.74	3,784	5.9	28-Apr-04	0.464				
E4-02	20-Apr-04	9:08	13.1	19-Apr-04	65.75	4.91	4,644	5.98	29-Apr-04	0.505	0.078	32.6	5.62	
E4-03	20-Apr-04	8:20	12.9	23-Apr-04	352.3	4.57	27,061	6.77	28-Apr-04	0.632				
E4-04	20-Apr-04	10:40	9.3	23-Apr-04	49.62	4.46	4,856	6.04	28-Apr-04	0.539				
E4-05	20-Apr-04	9:55	7.1	23-Apr-04	40.38	4.27	5,122	6.08	28-Apr-04	0.533				

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	Date	Time	mg/L	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
E4-06	20-Apr-04	11:55	7.9	23-Apr-04	40.74	4.63	4,600	6	28-Apr-04	0.595				
E4-07	20-Apr-04	12:25	6.6	19-Apr-04	14.48	1.63	1,962	6.08	24-Apr-04	0.23	0.061	25.8	5.63	
E4-08	20-Apr-04	1:00	17.7	23-Apr-04	32.83	1.93	1,746	5.96	28-Apr-04	0.294	0.072	12.54	5.24	
E3-01	23-Apr-04		1.1	27-Apr-04	5.35	2.83	2,400	5.93	29-Apr-04	0.36	0.248	106.7	5.63	
E2-14	23-Apr-04		2.8	27-Apr-04	37.06	15.26	7,786	5.71	29-Apr-04	0.426				
filter blank	15-Apr-04			19-Apr-04	0.19	0.16			22-Apr-04	-0.007	-0.004			
filter blank	20-Apr-04			22-Apr-04	0.15	0.03			24-Apr-04	-0.006	-0.006			
filter blank	21-Apr-04			23-Apr-04	na	0.33			28-Apr-04	na	-0.01			
filter blank	24-Apr-04			27-Apr-04	0.26	0.11			29-Apr-04	-0.014	-0.012			
blank-01			0	19-Apr-04	0.03				22-Apr-04	0.013				
blank-02			0.2	19-Apr-04	0.57				22-Apr-04	0.001				
blank-03			0.1	19-Apr-04	0.13				22-Apr-04	0.007				
blank-04			-0.1	19-Apr-04	0.08				24-Apr-04	0.014				
blank-05			0	22-Apr-04	-0.01				24-Apr-04	0.008				
blank-06			0	22-Apr-04	0.01				24-Apr-04	0.014				
blank-07				22-Apr-04	0				28-Apr-04	0.025				
blank-08				22-Apr-04	0.01				28-Apr-04	0.007				
blank-09				23-Apr-04	-0.01				28-Apr-04	0.009				
blank-10				23-Apr-04	0				29-Apr-04	0.019				
blank-11				23-Apr-04	0				29-Apr-04	0.014				
blank-12				23-Apr-04	0				29-Apr-04	0.002				
blank-13				27-Apr-04	0.12									
blank-14				27-Apr-04	0.07									
blank-15				27-Apr-04	0.03									
blank-16				27-Apr-04	0.05									
mean			0.03		0.03					0.011				
SD			0.08		0.05					0.007				
estimated MDL			0.21		0.13					0.019				
duplicated sample				19-Apr-04	E2-1 filt	E2-15 filt			22-Apr-04	E1-12 UF	E2-10 UF			
replicate 1				19-Apr-04	4.23	4.82			22-Apr-04	0.169	0.556			
replicate 2				19-Apr-04	4.51	5.02			22-Apr-04	0.156	0.551			
mean				19-Apr-04	4.37	4.92			22-Apr-04	0.163	0.554			
RPD (%)				19-Apr-04	6.4	4.1			22-Apr-04	8	0.9			
spiked sample				19-Apr-04	E2-1 filt	E2-15 filt			22-Apr-04	E2-3 UF	E4-3 UF			
spike level				19-Apr-04	20.2	20.2			22-Apr-04	1.667	1.667			
sample + MS				19-Apr-04	25.14	25.73			22-Apr-04	1.805	2.506			
% recovery				19-Apr-04	102.8	103			22-Apr-04	104.8	112.4			
sample + MSD				19-Apr-04	23.88	26.47			22-Apr-04	1.75	2.302			
% recovery				19-Apr-04	96.6	106.7			22-Apr-04	101.5	100.2			
mean				19-Apr-04	24.51	26.1			22-Apr-04	1.778	2.404			

	Sampling		TSS	TOTAL MERCURY					METHYL MERCURY					
Sample ID	Date	Time	mg/L	Analysis Date	Unfiltered ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	analysis date	UF ng/L	0.4 μ filt ng/L	Susp Frac ng/g	log Kd	comments
RPD (%)				19-Apr-04	5.1	2.8			22-Apr-04	3.1	8.5			
duplicated sample				23-Apr-04	E1-17 UF	E2-10 UF			24-Apr-04	E2-6B UF	E3-2 UF			
replicate 1				23-Apr-04	5.62	132.3			24-Apr-04	0.471	0.487			
replicate 2				23-Apr-04	6.1	118			24-Apr-04	0.507	0.522			
mean				23-Apr-04	5.86	125.2			24-Apr-04	0.489	0.505			
RPD (%)				23-Apr-04	8.2	11.4			24-Apr-04	7.4	6.9			
spiked sample				23-Apr-04	E1-17 UF	E3-5 UF			24-Apr-04	E2-6A UF	Ross filt			
spike level				23-Apr-04	20.2	20.2			24-Apr-04	1.667	1.667			
sample + MS				23-Apr-04	23.92	23.68			24-Apr-04	2.196	2.116			
% recovery				23-Apr-04	89.4	88.3			24-Apr-04	104.4	105.3			
sample + MSD				23-Apr-04	23.92	22.92			24-Apr-04	2.101	2.116			
% recovery				23-Apr-04	89.4	84.5			24-Apr-04	98.7	105.3			
mean				23-Apr-04	23.92	23.3			24-Apr-04	2.149	2.116			
RPD (%)				23-Apr-04	0	3.3			24-Apr-04	4.4	0			
CRM				19-Apr-04	NIST-1641				22-Apr-04	DORM-2	DORM-2			
observed				19-Apr-04	7,470				22-Apr-04	4,228	3,877			
certified				19-Apr-04	8,010				22-Apr-04	4,470	4,471			
% recovery				19-Apr-04	93.3				22-Apr-04	94.6	86.7			
CRM				22-Apr-04	NIST-1641				24-Apr-04	DORM-2				
observed				22-Apr-04	7,645				24-Apr-04	3,778				
certified				22-Apr-04	8,010				24-Apr-04	4,470				
% recovery				22-Apr-04	95.4				24-Apr-04	84.5				
CRM				23-Apr-04	NIST-1641	NIST-1641			28-Apr-04	DORM-2				
observed				23-Apr-04	7,685	6,828			28-Apr-04	4,055				
certified				23-Apr-04	8,010	8,011			28-Apr-04	4,470				
% recovery				23-Apr-04	95.9	85.2			28-Apr-04	90.7				

Mercury Speciation in Guadalupe River Sediments (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Research Group 414 Pontius North Seattle, WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

total Hg by aqua regia digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by HBr/CH2Cl2 extraction + aqueous ethylation + GC-CVAFS

	dry	mercury concentrations, as measured				[Hg], ng/g dry basis		percent	
sample	fraction	anal. date	[Hg], ng/g	anal. date	[CH3Hg], ng/g	[Hg]	[CH3Hg]	CH3Hg	comments
E1-9SA	0.719	22-Mar-04	848	18-Mar-04	0.040	1,179	0.056	0.0047	
E1-9SB	0.750	22-Mar-04	135	18-Mar-04	0.040	180	0.053	0.0296	
E2-13 SA	0.898	22-Mar-04	14,772	18-Mar-04	0.058	16,450	0.065	0.0004	
E2-13 SG	0.895	22-Mar-04	16,804	18-Mar-04	0.266	18,775	0.297	0.0016	
E5-1	0.667	24-Mar-04	7,551	24-Mar-04	1.596	11,321	2.393	0.0211	QC sample
E5-2 bank A	0.857	22-Mar-04	21,593	18-Mar-04	1.492	25,196	1.741	0.0069	
E5-2 bank B	0.824	22-Mar-04	15,745	18-Mar-04	1.561	19,108	1.894	0.0099	
E5-2 bottom A	0.692	22-Mar-04	27,181	18-Mar-04	1.467	39,279	2.120	0.0054	
E5-2 bottom B	0.683	22-Mar-04	5,921	18-Mar-04	2.209	8,669	3.234	0.0373	
E5-3 bank A	0.899	24-Mar-04	2,843	24-Mar-04	0.436	3,162	0.485	0.0153	
E5-3 bank B	0.841	24-Mar-04	4,688	24-Mar-04	1.331	5,574	1.583	0.0284	
E5-3 bottom A	0.788	24-Mar-04	51.1	24-Mar-04	0.037	64.8	0.047	0.0724	
E5-3 bottom B	0.725	24-Mar-04	88.5	24-Mar-04	0.031	122	0.043	0.0350	
E5-4 Bank A	0.819	22-Mar-04	2,419	18-Mar-04	1.677	2,954	2.048	0.0693	
E5-4 bank B	0.881	22-Mar-04	2,313	18-Mar-04	1.809	2,625	2.053	0.0782	
E5-4 bank C	0.812	22-Mar-04	2,712	18-Mar-04	1.856	3,340	2.286	0.0684	
E5-4 bank D	0.838	22-Mar-04	2,308	18-Mar-04	1.687	2,754	2.013	0.0731	QC sample
E5-4 bottom A	0.722	22-Mar-04	2,025	18-Mar-04	0.329	2,805	0.456	0.0162	
E5-4 bottom B	0.735	22-Mar-04	216	18-Mar-04	0.465	293	0.633	0.2158	
E5-4 bottom C	0.720	22-Mar-04	269	18-Mar-04	1.423	374	1.976	0.5290	
E5-4 bottom D	0.756	22-Mar-04	312	18-Mar-04	0.520	413	0.688	0.1666	
E5-5 bank A	0.571	24-Mar-04	380	24-Mar-04	0.581	665	1.018	0.1531	
E5-5 bank B	0.615	24-Mar-04	363	24-Mar-04	0.536	590	0.872	0.1476	QC sample
E5-5 bottom A	0.673	24-Mar-04	227	24-Mar-04	0.142	337	0.211	0.0626	
E5-5 bottom B	0.643	24-Mar-04	497	24-Mar-04	0.546	772	0.849	0.1099	
E1-7S	0.726	22-Mar-04	4,797	18-Mar-04	0.104	6,607	0.143	0.0022	

Mercury Speciation in Guadalupe River Sediments (Tetra-Tech)

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total Hg by aqua regia digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by HBr/CH2Cl2 extraction + aqueous ethylation + GC-CVAFS

		mercury concentrations, as measured				[Hg], ng/g dry basis			
sample	dry fraction	anal. date	[Hg], ng/g	anal. date	[CH3Hg], ng/g	[Hg]	[CH3Hg]	percent CH3Hg	comments
blank-1		22-Mar-04	0.13	24-Mar-04	0.002				
blank-2		22-Mar-04	0.01	24-Mar-04	0.001				
blank-3		22-Mar-04	-0.01	24-Mar-04	0.004				
blank-4		22-Mar-04	0.02	24-Mar-04	0.009				
blank-5		24-Mar-04	0.14	18-Mar-04	0.001				
blank-6		24-Mar-04	0.01	19-Mar-04	0.002				
blank-7		24-Mar-04	-0.03	20-Mar-04	0.004				
blank-8		24-Mar-04	-0.04	21-Mar-04	0.010				
mean			0.03		0.004				
eMDL			0.21		0.011				
duplicated sample			E5-4 bank D		E5-4 bank D				
replicate #1		22-Mar-04	2,132	18-Mar-04	1.518				
replicate #2		22-Mar-04	2,484	18-Mar-04	1.856				
mean			2,308		1.687				
RPD (%)			15.3		20.0				
spiked sample			E5-4 bank D		E5-4 bank D				
matrix spike			4,936		4.895				
sample + matrix spike		22-Mar-04	6,492	18-Mar-04	8.252				
% recovery			84.8		134.1				
matrix spike dup			4,817		4.951				
sample + matrix spike dup		22-Mar-04	6,775	18-Mar-04	7.279				
% recovery			92.7		112.9				
mean			88.7		123.5				
RPD (%)			9.0		17.1				

Mercury Speciation in Guadalupe River Sediments (Tetra-Tech)

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total Hg by aqua regia digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by HBr/CH2Cl2 extraction + aqueous ethylation + GC-CVAFS

		mercury concentrations, as measured				[Hg], ng/g dry basis			
sample	dry fraction	anal. date	[Hg], ng/g	anal. date	[CH3Hg], ng/g	[Hg]	[CH3Hg]	percent CH3Hg	comments
duplicated sample			E5-1		E5-1				
replicate #1		24-Mar-04	6,272	24-Mar-04	1.751				
replicate #2		24-Mar-04	8,829	24-Mar-04	1.441				
mean			7,551		1.596				
RPD (%)			33.9		19.4				
spiked sample			E5-1		E5-1				
matrix spike			16,502		4.735				
sample + matrix spike		24-Mar-04	41,068	24-Mar-04	7.690				
% recovery			203.1		128.7				
matrix spike dup			19,175		4.630				
sample + matrix spike dup		24-Mar-04	39,064	24-Mar-04	8.422				
% recovery			164.3		147.4				
mean			183.7		138.1				
RPD (%)			21.1		13.6				
analytical duplicate			E5-5 bank B						
replicate #1		24-Mar-04	363						
replicate #2		24-Mar-04	399						
mean			381						
RPD (%)			9.4						
analytical spike			E5-5 bank B						
matrix spike			1,122						
sample + matrix spike		24-Mar-04	1,536						
% recovery			102.9						
matrix spike dup			1,122						

Mercury Speciation in Guadalupe River Sediments (Tetra-Tech)

analyzed by

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total Hg by aqua regia digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by HBr/CH2Cl2 extraction + aqueous ethylation + GC-CVAFS

sample	dry fraction	mercury concentrations, as measured				[Hg], ng/g dry basis		percent CH3Hg	comments
		anal. date	[Hg], ng/g	anal. date	[CH3Hg], ng/g	[Hg]	[CH3Hg]		
sample + matrix spike dup		24-Mar-04	1,600						
% recovery			108.6						
mean			105.8						
RPD (%)			5.4						
reference material			NIST-2709		IAEA-405				
certified value			1,400		5.49				
measured value		22-Mar-04	1,387	24-Mar-04	5.90				
% recovery			99.1		107.5				
measured value		24-Mar-04	1,414	18-Mar-04	5.75				
% recovery			101.0		104.8				
mean			1,401		5.83				
RPD (%)			1.9		2.6				

Sequential Selective Extractions of Mercury in Guadalupe River Sediments (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA

phone: 206-622-6960 fax: 206-62-6870

samples analyzed according to Bloom, Preus and Katon Anal. Chim. Acta. 479 pp 233-248 (2003)

	dry	Mercury Concentrations, ng/g (ppb)						
sample ID	**fraction**	**F1 (DDW)**	**F2 (pH 2)**	**F3 (KOH)**	**F4 (HNO3)**	**F5 (AQR)**	**sum**	**comments**
E1-7S	0.754	8.09	0.78	209	434	12,074	12,725	*QC sample*
dry basis		10.7	1.03	277	575	16,013	16,877	
% in fraction		0.06	0.01	1.64	3.41	94.9	100.0	
E1-9SA	0.775	1.18	-0.04	36.4	38.9	25.7	102.1	
dry basis		1.52	-0.05	46.9	50.2	33.1	131.8	
% in fraction		1.16	-0.04	35.6	38.1	25.2	100.0	
E1-9SB	0.796	1.07	0.16	33.0	47.2	1,055	1,136	
dry basis		1.34	0.20	41.4	59.3	1,325	1,428	
% in fraction		0.09	0.01	2.90	4.16	92.8	100.0	
E5-1	0.704	31.0	0.60	811	213	2,015	3,070	
dry basis		44.0	0.85	1,152	302	2,862	4,361	
% in fraction		1.01	0.02	26.4	6.93	65.6	100.0	
E5-2 bank	0.818	10.7	0.57	1,012	501	4,255	5,779	
dry basis		13.0	0.70	1,237	612	5,202	7,065	
% in fraction		0.18	0.01	17.51	8.67	73.6	100.0	
E5-2 bottom	0.691	11.6	0.60	873	442	20,243	21,571	
dry basis		16.7	0.87	1,264	640	29,295	31,217	
% in fraction		0.05	0.00	4.05	2.05	93.8	100.0	

Sequential Selective Extractions of Mercury in Guadalupe River Sediments (Tetra-Tech)

analyzed by

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samples analyzed according to Bloom, Preus and Katon Anal. Chim. Acta. 479 pp 233-248 (2003)

	dry	Mercury Concentrations, ng/g (ppb)						
sample ID	**fraction**	**F1 (DDW)**	**F2 (pH 2)**	**F3 (KOH)**	**F4 (HNO3)**	**F5 (AQR)**	**sum**	**comments**
E5-4 bank A	0.757	4.32	0.43	349	344	898	1,596	
dry basis		5.71	0.57	461	455	1187	2,109	
% in fraction		0.27	0.03	21.9	21.6	56.3	100.0	
E5-4 bank B	0.764	3.99	0.62	336	382	1,584	2,306	*QC sample*
dry basis		5.22	0.81	439	499	2,073	3,018	
% in fraction		0.17	0.03	14.6	16.5	68.7	100.0	
E5-4 bottom A	0.742	1.83	0.08	64.3	35.5	28.7	130	
dry basis		2.47	0.11	86.7	47.9	38.6	176	
% in fraction		1.40	0.06	49.3	27.2	22.0	100.0	
E5-4 bottom B	0.743	1.35	0.10	70.9	45.2	67.9	185	
dry basis		1.82	0.13	95.4	60.9	91.4	250	
% in fraction		0.73	0.05	38.2	24.4	36.6	100.0	
E5-5 bank	0.658	0.99	0.88	98.8	165	2,900	3,165	
dry basis		1.50	1.34	150	250	4,407	4,810	
% in fraction		0.03	0.03	3.12	5.20	91.6	100.0	
E5-5 bottom	0.604	1.07	0.24	85.9	29.8	354	471	
dry basis		1.77	0.40	142	49.4	587	780	
% in fraction		0.23	0.05	18.2	6.33	75.2	100.0	
blank-1		0.02	0.13	1.5	-0.2	-1.3	0.1	

Sequential Selective Extractions of Mercury in Guadalupe River Sediments (Tetra-Tech)

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samples analyzed according to Bloom, Preus and Katon Anal. Chim. Acta. 479 pp 233-248 (2003)

	dry	Mercury Concentrations, ng/g (ppb)						
sample ID	**fraction**	**F1 (DDW)**	**F2 (pH 2)**	**F3 (KOH)**	**F4 (HNO3)**	**F5 (AQR)**	**sum**	**comments**
blank-2		0.00	0.11	1.7	1.4	-1.4	1.8	
blank-3		0.05	0.25	1.8	2.0	-0.6	3.5	
blank-4		0.07	0.18	1.5	0.4	-0.7	1.4	
mean		0.04	0.17	1.6	0.9	-1.0	1.7	
estimated MDL		**0.09**	**0.19**	**0.5**	**3.0**	**1.2**	**4.2**	
matrix replicate		E5-4 bank B	E5-4 bank B	E5-4 bank B	E5-4 bank B	E5-4 bank B	E5-4 bank B	
replicate #1		4.40	0.74	330	359	2,049	2,743	
replicate #2		3.57	0.50	341	404	1,119	1,868	
mean		3.99	0.62	335	382	1,584	2,306	
RPD (%)		20.8	38.7	3.2	11.8	58.7	38.0	
analytical replicate		E1-7S	E1-7S	E1-7S	E1-7S	E5-4 bank A		
replicate #1		8.50	0.78	210	445	904		
replicate #2		7.67	0.65	208	422	893		
mean		8.09	0.72	209	434	898		
RPD (%)		10.3	18.2	0.7	5.3	1.3		
analytical spiked		E1-7S	E1-7S	E1-7S	E1-7S	E5-4 bank A		
spike level		22.9	3.06	611	917	1,995		
E1-75 + AS		31.6	3.83	874	1,318	2,820		
% recovery		102.7	101.8	108.9	96.4	96.3		
E1-75 + ASD		31.3	4.17	870	1,443	2,928		
% recovery		101.2	112.9	108.1	110.1	101.7		
mean		31.5	4.0	872	1,381	2,874		

Sequential Selective Extractions of Mercury in Guadalupe River Sediments (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA

phone: 206-622-6960 fax: 206-62-6870

samples analyzed according to Bloom, Preus and Katon Anal. Chim. Acta. 479 pp 233-248 (2003)

sample ID	dry fraction	Mercury Concentrations, ng/g (ppb) F1 (DDW)	F2 (pH 2)	F3 (KOH)	F4 (HNO3)	F5 (AQR)	sum	comments
RPD (%)		1.1	8.5	0.5	9.1	3.8		
NIST-2710		217	23.3	684	15,443	14,286	30,653	*certified total*
% in fraction		0.71	0.08	2.23	50.38	46.6	100.0	*32,700 +/- 1,600 ng/g*
HgCl2 rep 1		6,819,227	373,195	476,535	242,813	20,550	7,932,320	*expected total*
HgCl2 rep 2		6,072,190	371,661	457,731	235,272	20,243	7,157,097	*8,716,000 +/- 668,000 ng/g*
mean		6,445,709	372,428	467,133	239,043	20,397	7,544,709	
RPD (%)		11.6	0.4	4.0	3.2	1.5	10.3	
% in fraction		85.4	4.94	6.19	3.17	0.27	100.0	
Hgo		36,273	88,657	263,524	7,931,192	13,331	8,332,977	*expected total*
% in fraction		0.44	1.06	3.16	95.2	0.16	100.0	*7,779,000 +/- 644,000 ng/g*
HgS		132.3	515.7	247.6	1,354	868,157	870,407	*expected total*
% in fraction		0.02	0.06	0.03	0.16	99.7	100.0	*943,000 +/- 28,000 ng/g*
date analyzed		25-Mar-04	26-Mar-04	28-Mar-04	28-Mar-04	31-Mar-04		

Bioavailable Hg (F1 + F2 + F3) leached from 10 gram samples of Coarse Inhomogeneous Material		
analyzed by		
Frontier Geosciences Aquatic Research Group 414 Pontius North Seattle, WA 98109 USA		
phone: 206-622-6960 fax: 206-622-6870		
sample ID	[Hg], ng/g	comments
E5-3 bottom	6.74	
E5-5 Bank A	142.3	*sum of F1-F3 = 100.7 ng/g*
E5-4 Bank-B	302.7	*sum of F1-F3 = 340.1 ng/g*
E2-13SA	231.2	
E5-3 Bank A	48.8	
E5-3 Bank A MD	54.7	
Blank-1	0.2	
Blank-2	0.1	
Blank-3	0.6	
mean	0.3	
estimated MDL	0.8	
E5-3 Bank A rep 1	49.5	
E5-3 Bank A rep 2	48.0	
mean	48.8	
RPD (%)	2.9	
analytical spike level	113.1	
E5-3 Bank A + AS	168.1	
% recovery	105.5	
E5-3 Bank A + ASD	164.8	
% recovery	102.6	
mean	166.4	
RPD (%)	2.0	
NIST-1641d	7.36	aquatic reference material (total Hg in river water)
certified value	8.01	
% recovery	91.9	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
2-Mar-04	E1-75	> 2 mm	no	7-Apr-04	1,503	*(43 samples)*
2-Mar-04	E1-75	850 mm - 2 mm	no	8-Apr-04	4,539	
3-Mar-04	E1-9-SA	> 2 mm	no	7-Apr-04	149	
3-Mar-04	E1-9-SA	850 mm - 2 mm	no	7-Apr-04	158	
3-Mar-04	E1-9-SB	500 mm - 850 mm	no	8-Apr-04	230	
3-Mar-04	E1-9-SB	850 mm - 2 mm	no	8-Apr-04	138	
8-Mar-04	E2-13-SA	> 2 mm	no	7-Apr-04	541	*value double checked*
8-Mar-04	E2-13-SA	> 2 mm	yes	7-Apr-04	13,815	*value double checked*
8-Mar-04	E2-13-SA	850 mm - 2 mm	no	7-Apr-04	11,286	*value double checked*
8-Mar-04	E2-13-SA	850 mm - 2 mm	yes	7-Apr-04	9,529	*value double checked*
8-Mar-04	E2-13-SA	whole	yes	7-Apr-04	862	*value double checked*
3-Mar-04	E2-13-SG	> 2 mm	no	7-Apr-04	158	
3-Mar-04	E2-13-SG	850 mm - 2 mm	no	8-Apr-04	53,500	
3-Mar-04	E2-13-SG	850 mm - 2 mm	yes	8-Apr-04	44,311	
3-Mar-04	E2-13-SG	> 2 mm	yes	7-Apr-04	6,210	
3-Mar-04	E2-13 SG	whole	yes	15-Apr-04	52,075	
8-Mar-04	E5-1	850 mm - 2 mm	no	15-Apr-04	91,855	*value double checked*
8-Mar-04	E5-1	500 mm - 850 mm	no	9-Apr-04	9,235	
8-Mar-04	E5-2 bank A	250 mm - 500 mm	no	7-Apr-04	7,738	
8-Mar-04	E5-2 bank A	500 mm - 850 mm	no	7-Apr-04	13,112	
8-Mar-04	E5-2 bottom A	500 mm - 850 mm	no	9-Apr-04	7,827	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
8-Mar-04	E5-2 bottom A	250 mm - 500 mm	no	8-Apr-04	40,886	
8-Mar-04	E5-3 bank A	> 2 mm	no	7-Apr-04	105	
8-Mar-04	E5-3 bank A	850 mm - 2 mm	no	7-Apr-04	110	
8-Mar-04	E5-3 bank A	whole	yes	7-Apr-04	831	
8-Mar-04	E5-3 bank B	whole	yes	7-Apr-04	1,340	
8-Mar-04	E5-3 bottom A	850 mm - 2 mm	no	15-Apr-04	706	
8-Mar-04	E5-3 bottom A	whole	yes	7-Apr-04	150	
8-Mar-04	E5-3 bottom A	> 2 mm	no	7-Apr-04	42	
8-Mar-04	E5-4 bank A	5 mm - 50 mm	no	9-Apr-04	2,741	
8-Mar-04	E5-4 bank A	50 mm - 100 mm	no	8-Apr-04	2,105	
8-Mar-04	E5-4 bank B	50 mm - 100 mm	no	7-Apr-04	3,693	
8-Mar-04	E5-4 bank B	5 mm - 50 mm	no	7-Apr-04	5,539	*value double checked*
8-Mar-04	E5-4 bottom A	500 mm - 850 mm	no	8-Apr-04	232	
8-Mar-04	E5-4 bottom A	whole	yes	7-Apr-04	263	
8-Mar-04	E5-4 bottom A	500 mm - 850 mm	no	8-Apr-04	215	
8-Mar-04	E5-4 bottom A	850 mm - 2 mm	no	8-Apr-04	810	
8-Mar-04	E5-4 bottom B	500 mm - 850 mm	no	8-Apr-04	245	
8-Mar-04	E5-4 bottom B	850 mm - 2 mm	no	15-Apr-04	291	
8-Mar-04	E5-5 bank A	5 mm - 50 mm	no	9-Apr-04	599	
8-Mar-04	E5-5 bank A	50 mm - 100 mm	no	9-Apr-04	795	
8-Mar-04	E5-5 bottom A	5 mm - 50 mm	no	9-Apr-04	563	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
8-Mar-04	E5-5 bottom A	50 mm - 100 mm	no	7-Apr-04	423	
	blank-1			7-Apr-04	-0.1	
	blank-2			7-Apr-04	-0.1	
	blank-3			7-Apr-04	0.0	
	blank-4			7-Apr-04	-0.1	
	mean				-0.1	
	eMDL				0.2	
	certified value				1,400	
	NIST-2709	whole	no	9-Apr-04	1,473	*NIST reference soil*
	% recovery				105.2	
	NIST-2709	whole	no	7-Apr-04	1,338	
	% recovery				95.6	
	mean				1,406	
	RPD (%)				9.6	
3-Mar-04	E2-13-SG rep 1	> 2 mm	yes	7-Apr-04	6,617	*digestion replicates*
3-Mar-04	E2-13-SG rep 2	> 2 mm	yes	7-Apr-04	5,802	*digestion replicates*
	mean				6,210	
	RPD (%)				13.1	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
	matrix spike level				18,416	
3-Mar-04	E2-13-SG + MS	> 2 mm	yes	7-Apr-04	27,842	*digestion spikes*
	% recovery				117.5	
	matrix spike dup level				19,802	
3-Mar-04	E2-13-SG MSD	> 2 mm	yes	7-Apr-04	28,889	*digestion spikes*
	% recovery				114.5	
	mean				116.0	
	RPD (%)				2.5	
8-Mar-04	E5-2 bottom A rep 1	250 mm - 500 mm	no	8-Apr-04	70,393	*digestion replicates*
8-Mar-04	E5-2 bottom A rep 2	250 mm - 500 mm	no	8-Apr-04	11,378	*(coarse, inhomogeneous sample)*
	mean				40,886	
	RPD (%)				144.3	
	matrix spike level				194,175	
8-Mar-04	E5-2 bottom A MS	250 mm - 500 mm	no	8-Apr-04	204,185	*digestion spikes*
	% recovery				84.1	
	matrix spike dup level				187,970	
8-Mar-04	E5-2 bottom A MSD	250 mm - 500 mm	no	8-Apr-04	190,995	*digestion spikes*
	% recovery				79.9	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
	mean				82.0	
	RPD (%)				5.2	
8-Mar-04	E2-13-SA rep 1	> 2 mm	no	7-Apr-04	451	*analytical replicates*
8-Mar-04	E2-13-SA rep 2	> 2 mm	no	15-Apr-04	631	*analytical replicates*
	mean				541	
	RPD (%)				33.3	
8-Mar-04	E2-13-SA rep 1	> 2 mm	yes	7-Apr-04	11,909	*analytical replicates*
8-Mar-04	E2-13-SA rep 2	> 2 mm	yes	15-Apr-04	15,720	*analytical replicates*
	mean				13,815	
	RPD (%)				27.6	
8-Mar-04	E2-13-SA rep 1	850 mm - 2 mm	no	7-Apr-04	11,157	*analytical replicates*
8-Mar-04	E2-13-SA rep 2	850 mm - 2 mm	yes	7-Apr-04	11,415	*analytical replicates*
	mean				11,286	
	RPD (%)				2.3	
8-Mar-04	E2-13-SA rep 1	850 mm - 2 mm	yes	7-Apr-04	8,907	*analytical replicates*
8-Mar-04	E2-13-SA rep 2	850 mm - 2 mm	yes	15-Apr-04	10,151	*analytical replicates*
	mean				9,529	

Total Hg in Ground and Size Fractioned Sediments (Tetra-Tech Guadalupe River)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North, Seattle WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample were digested using cold aqua regia, and analyzed by dual amalgamation CVAFS

sample date	site	size	ground	analysis date	[Hg], ng/g	comments
	RPD (%)				13.1	
8-Mar-04	E2-13-SA rep 1	whole	yes	7-Apr-04	860	*analytical replicates*
8-Mar-04	E2-13-SA rep 2	whole	yes	8-Apr-04	860	*analytical replicates*
8-Mar-04	E2-13-SA rep 3	whole	yes	15-Apr-04	868	
	mean				862	
	RSD (%)				0.5	
8-Mar-04	E5-1 rep 1	850 mm - 2 mm	no	15-Apr-04	94,577	*analytical replicates*
8-Mar-04	E5-1 rep 2	850 mm - 2 mm	no	9-Apr-04	89,132	*analytical replicates*
	mean				91,855	
	RPD (%)				5.9	
8-Mar-04	E5-4 bank B rep 1	5 mm - 50 mm	no	7-Apr-04	5,503	*analytical replicates*
8-Mar-04	E5-4 bank B rep 2	5 mm - 50 mm	no	15-Apr-04	5,574	*analytical replicates*
	mean				5,539	
	RPD (%)				1.3	

Total Hg in Guadalupe River Sediments Digestion Comparison (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA
phone: 206-622-6960 fax: 206-622-6870

sample ID	prep'n	dry fraction	[Hg], ng/g dry basis AQR	HF	comments
E2-13-SA rep 1	ground	1.000	833	1,060	*note: values in red were from*
E2-13-SA rep 2	ground	1.000	862	1,028	*previous data sets*
mean			**847**	**1044**	
RPD (%)			**3.5**	**3.1**	*"AQR" was digested over night*
AQR/HF			**0.81**		*at room temperature in a mixture of 7:3 $HCl + HNO_3$ (aqua regia)*
E2-13-SA rep 1	whole	0.898	522	2,195	
E2-13-SA rep 2	whole	0.898	16,450	32,327	*"HF" was digested over night at*
mean			**8,486**	**17,261**	*$125^o C$ in a mixture of 6:3:1 HNO_3 +*
RPD (%)			**187.7**	**174.6**	*HF + HCl*
AQR/HF			**0.49**		
E2-13-SG rep 1	ground	1.000	55,264	59,618	
E2-13-SG rep 2	ground	1.000	52,075	57,460	
mean			**53,670**	**58,539**	
RPD (%)			**5.9**	**3.7**	
AQR/HF			**0.92**		
E2-13-SG rep 1	whole	0.895	1,214	5,799	
E2-13-SG rep 2	whole	0.895	18,755	7,366	
mean			**9,985**	**6,583**	
RPD (%)			**175.7**	**23.8**	
AQR/HF			**1.52**		
E5-5 bottom A rep 1	whole	0.604	1,001	504	
E5-5 bottom A rep 2	whole	0.604	780	513	
mean			**891**	**509**	
RPD (%)			**24.8**	**1.8**	
AQR/HF			**1.75**		
McAbee Creek channel rep 1	whole	0.532	9,398	6,855	McAbee Creek is Sample E2-19S bottom.
McAbee Creek channel rep 2	whole	0.532	4,821	27,180	
mean			**7,110**	**17,018**	
RPD (%)			**64.4**	**119.4**	
AQR/HF			**0.42**		
McAbee Creek bank	whole	0.834	18,655	8,258	McAbee Creek is Sample E2-19S bank.
AQR/HF			**2.26**		
NIST-2709 rep 1	ground	1.000	1,396	1,347	
NIST-2709 rep 2	ground	1.000	1,387		
NIST-2709 rep 3	ground	1.000	1,414		
NIST-2709 rep 4	ground	1.000	1,473		

Total Hg in Guadalupe River Sediments Digestion Comparison (Tetra-Tech)

analyzed by

Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA

phone: 206-622-6960 fax: 206-622-6870

sample ID	prep'n	dry fraction	[Hg], ng/g dry basis AQR	HF	comments
NIST-2709 rep 5	ground	1.000	1,338		
mean			1,402	1,347	
SD			49		
RSD (%)			3.5		
certified value			1,400	1,400	
% recovery			100.1	96.2	
AQR/HF				**1.04**	
mean AQR/HF (all)				**1.15**	
SD				**0.64**	
mean AQR/HF (ground)				**0.91**	
SD				**0.11**	
mean AQR/HF (whole)				**1.29**	
SD				**0.81**	
MS level			18,557	35,872	
McAbee Creek channel + MS	whole	0.532	21,857	42,573	
% recovery			79.5	71.2	
MSD level			18,556	35,701	
McAbee Creek channel + MSD	whole	0.532	36,120	48,563	
% recovery			156.3	88.4	
mean recovery			117.9	79.8	
RPD (%)			65.2	21.5	
AS level			1,680		
E2-13-SG + AS	whole	0.895	3,148		
% recovery			115.1		
ASD level			1,680		
E2-13-SG + ASD	whole	0.895	2,886		
% recovery			99.5		
mean recovery			107.3		
RPD (%)			14.5		
blank-1			-0.06	-0.06	
blank-2			0.08	0.40	
blank-3			-0.01	-0.16	
mean			0.00	0.06	
eMDL			0.21	0.90	
date analyzed			7-May-04	7-May-04	

DRY SEASON

The mercury sampling results for water and fish samples from the laboratory are provided here for the dry season samples from the reservoirs collected in 2004.

Aqueous Mercury Speciation in Guadalupe River System, Spring 2004 (Tetra-Tech)
analyzed by
Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA phone: 206-622-6960 e-mail: nicolasb@nickslab.org
total Hg by BrCl digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by distillation extraction + aqueous ethylation + GC-CVAFS

	sampling			TOTAL MERCURY					METHYL MERCURY					
sample ID	date	time	TSS mg L^{-1}	analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	comments
E7-03a	11-May-04	14:00	9.4	14-May-04	34.0	4.35	3,167	5.86	14-May-04	0.853	0.552	32.2	4.77	
E7-03b	11-May-04	14:00	10.7	14-May-04	21.1	4.01	1,596	5.60	14-May-04	0.972	0.633	31.7	4.70	
E7-01	11-May-04	8:30	1.9	14-May-04	13.7	2.19	6,047	6.44	14-May-04	0.566	0.171	208	6.08	
E7-02	11-May-04	8:30	6.1	14-May-04	18.4	5.25	2,162	5.61	14-May-04	0.463	0.247	35.4	5.16	
E7-04	11-May-04	11:55	0.8	14-May-04	3.54	1.86	2,100	6.05	14-May-04	0.336	0.164	215	6.12	
E7-05	11-May-04	12:20	1.3	14-May-04	4.10	1.72	1,859	6.03	14-May-04	0.518	0.298	172	5.76	
E7-06	11-May-04	10:25	1.4	14-May-04	7.69	3.47	2,951	5.93	14-May-04	2.271	1.219	736	5.78	
E-Blank	11-May-04	4:45	0.0	14-May-04	0.22	0.25			14-May-04	-0.026	-0.037			
blank-01			0.00	14-May-04	0.02				14-May-04	*0.106*				*blank excluded from mean*
blank-02			0.00	14-May-04	-0.01				14-May-04	0.025				
blank-03			0.00	14-May-04	0.03				14-May-04	0.045				
blank-04			-0.05	14-May-04	0.01				14-May-04	*nd*				
mean			-0.01		0.01					0.035				
eMDL			0.08		0.05					0.042				
filter blank				14-May-04	0.25	0.57			14-May-04	0.024	-0.035			

	sampling			TOTAL MERCURY					METHYL MERCURY					
sample ID	date	time	TSS mg L^{-1}	analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	comments
dup. sample			E7-06		E7-03b					E7-06				
replicate 1			1.45	14-May-04	21.8				14-May-04	2.303				
replicate 2			1.40	14-May-04	20.4				14-May-04	2.238				
mean			1.43	14-May-04	21.1				14-May-04	2.271				
RPD (%)			3.5	14-May-04	6.7				14-May-04	2.9				
spiked sample					E7-06					E7-06 diss				
spike level				14-May-04	20.20				14-May-04	1.667				
sample + spike				14-May-04	27.24				14-May-04	2.658				
% recovery				14-May-04	96.8				14-May-04	86.3				
spl + spike dup				14-May-04	27.07				14-May-04	2.929				
% recovery				14-May-04	95.9				14-May-04	102.6				
mean				14-May-04	27.16				14-May-04	2.79				
RPD (%)				14-May-04	0.6				14-May-04	9.7				
ref. material					NIST-1641					DORM -2				
measured				14-May-04	6,790				14-May-04	4,016				
certified				14-May-04	8,010				14-May-04	4,470				
% recovery				14-May-04	84.8				14-May-04	89.8				

Aqueous Mercury Speciation in Guadalupe River System, June 2004 (Tetra-Tech)
analyzed by
Frontier Geosciences Aquatic Geochemistry Group 414 Pontius North Seattle, WA 98109 USA phone: 206-622-6960 e-mail: nicolasb@nickslab.org
total Hg by aqua regia digestion + SnCl2 reduction, dual amalgamation CVAFS; CH3Hg by HBr/CH2Cl2 extraction + aqueous ethylation + GC-CVAFS

	sampling			TOTAL MERCURY					METHYL MERCURY					
sample ID	date	time	TSS mg L^{-1}	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	comments
E7-1	10-Jun-04	12:22	4.1	14-Jun-04	42.8	1.73	10,017	6.76	22-Jun-04	0.472	0.157	76.83	5.69	
E7-2	10-Jun-04	12:30	2.5	14-Jun-04	19.7	3.29	6,564	6.30	22-Jun-04	0.424	0.226	79.20	5.54	
E7-3	10-Jun-04	13:41	7.8	14-Jun-04	33.4	3.36	3,851	6.06	22-Jun-04	1.240	0.772	60.00	4.89	
E7-4	10-Jun-04	14:45	1.4	14-Jun-04	4.09	1.32	1,979	6.18	22-Jun-04	0.506	0.333	123.6	5.57	
E7-5	10-Jun-04	14:45	3.4	14-Jun-04	4.68	2.22	724	5.51	22-Jun-04	1.287	0.817	138.2	5.23	
E7-6a	10-Jun-04	16:45	2.4	14-Jun-04	7.82	2.65	2,154	5.91	22-Jun-04	2.771	1.584	494.6	5.49	
E7-6b	10-Jun-04	16:45	2.5	14-Jun-04	7.25	2.29	1,984	5.94	22-Jun-04	2.909	1.515	557.6	5.57	
blank-01			0.07	14-Jun-04	0.03				22-Jun-04	*0.087*				methyl blank-1 excluded from mean blank calculation
blank-02			0.13	14-Jun-04	0.04				22-Jun-04	0.046				
blank-03			0.03	14-Jun-04	0.04				22-Jun-04	0.037				
blank-04			*n/a*	14-Jun-04	0.02					*n/a*				
mean			0.08		0.03					0.041				
eMDL			0.15		0.03					0.019				
dup. sample			E7-4		E7-2 UF					E7-6a UF				
replicate 1			1.47	14-Jun-04	20.60				22-Jun-04	2.891				
replicate 2			1.33	14-Jun-04	18.83				22-Jun-04	2.652				
mean			1.40		19.71					2.771				
RPD (%)			9.5		9.0					8.6				

	sampling			TOTAL MERCURY					METHYL MERCURY					
sample ID	date	time	TSS mg L^{-1}	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	Analysis date	UF ng L^{-1}	0.4 µ filt ng L^{-1}	Susp ng g^{-1}	log K_d	comments
spiked sample					E7-2 UF					E7-6b				
spike level (MS)					60.61					2.000				
sample + spike				14-Jun-04	84.82				22-Jun-04	5.064				
% recovery					107.4					107.8				
spike level (MSD)					60.61					2.101				
spl + spike dup				14-Jun-04	84.49				22-Jun-04	5.350				
% recovery					106.9					116.2				
mean % recovery					107.2					112.0				
RPD (%)				14-Jun-04	0.4					7.5				
ref. material					NIST-1641d					DORM-2				
measured				14-Jun-04	7,273				22-Jun-04	3,619				
certified					8,010					4,470				
% recovery					90.8					81.0				

Mercury Speciation Results for Tetra Tech - Karen Summers

Reported August 16, 2004

Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Sample Results

Sample ID	Date Collected	Total Hg (ng/L)	Dissolved Total Hg (ng/L)	Methyl Hg (ng/L)	Dissolved Methyl Hg (ng/L)	TSS
E7-1a	7/15/04	19.5	2.25	0.299	0.123	4.0
E7-1b	7/15/04	17.6	2.08	0.267	0.117	4.0
E7-2	7/15/04	14.6	3.27	0.965	0.802	1.0
E7-3	7/15/04	19.1	3.77	1.54	1.01	4.5
E7-7	7/15/04	26.4	2.23	0.338	0.133	4.0
E7-8	7/15/04	24.6	2.25	0.572	0.160	3.5
E7-9	7/15/04	14.6	1.84	0.413	0.193	3.0
E7-10	7/15/04	12.4	2.30	0.697	0.488	2.5
E7-4	7/15/04	4.38	2.16	0.446	0.266	1.0
E7-5	7/15/04	11.2	2.57	2.30	1.14	3.0
E7-6	7/15/04	15.6	2.33	4.72	1.11	2.0
E7-11	7/15/04	4.81	1.33	0.513	0.211	1.0
E7-12	7/15/04	4.08	1.21	0.431	0.226	1.0
E7-13	7/15/04	4.10	1.17	0.695	0.190	3.5
E7-14	7/15/04	5.25	1.00	0.489	0.245	2.5
unfiltered blank	-	< 0.15	-	< 0.025	-	-
filtered blank	-	-	< 0.15	-	< 0.025	-

Mercury Speciation Results for Tetra Tech - Karen Summers

Reported August 16, 2004

Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Sample Results

Quality Control Data - Matrix Duplicate Report

Analyte (ng/L)	Sample QC'd	Rep. 1	Rep. 2	Mean	RPD
Total Hg	E7-2 (total)	14.58	14.91	14.74	2.2
	E7-3 (total)	19.12	19.12	19.12	0.0
Methyl Hg	E7-6 (total)	4.719	4.859	4.789	2.9
	E7-1a (dissolved)	0.123	0.144	0.134	15.7
TSS	E7-7	4.0	4.0	4.0	0.0
	E7-14	14.9	14.9	14.9	0.0

Quality Control Data - Matrix Spike / Matrix Spike Duplicate Report

Analyte (ng/L)	Sample QC'd	Sample Mean	Spike Level	MS	% Rec.	MSD	% Rec.	RPD
Total Hg	E7-1b (total)	17.60	52.63	69.92	99.4	69.92	99.4	0.0
	E7-6 (total)	15.62	52.63	64.72	93.3	67.32	98.2	3.9
Methyl Hg	E7-6 (total)	4.789	5.000	8.882	81.9	9.069	85.6	2.1
	E7-1b (dissolved)	0.117	1.666	1.709	95.6	1.901	107.1	10.6

MS = Matrix Spike

MSD = Matrix Spike Duplicate

RPD = Relative Percent Difference

Quality Control Data - Preparation Blank Report

Analyte (ng/L)	PBW1	PBW2	PBW3	Mean	St. Dev.	R.L.
Total Hg	0.04	0.06	0.04	0.04	0.01	0.15
Methyl Hg	0.002	0.011	0.000	0.004	0.006	0.025
	0.001	0.005	0.001	0.002	0.002	0.025
TSS	-0.5	-0.5	0.0	0.0	0.3	1.0

St. Dev. = Standard Deviation

R.L.= Reporting Limit

Quality Control Data - Certified Reference Materials Report

Analyte (ng/L)	CRM Identity	Cert. Value	Obs. Value	% Rec.
Total Hg	NIST 1641d	1601000	1529000	95.5
Methyl Hg	DORM-2	4470	3850	86.1
	DORM-2	4470	4402	98.5

CRM Identity = Certified reference material identity

Cert. Value = Certified value

Obs. Value = Experimental result

% Rec. = Percent recovery

Mercury Speciation Results for Tetra Tech
Reported September 1, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109
Revised on October 5, 2004

Sample Results

Sample ID	Date Collected	Batch ID	Total Hg (ng/L)	Dissolved Total Hg (ng/L)	Batch ID	Methyl Hg (ng/L)	Dissolved Methyl Hg (ng/L)	Batch ID	TSS (mg/L)
E7-1	8/2/04	A	11.0	1.50	B	0.204	0.128	E	3.0
E7-2	8/2/04	A	6.55	3.60	B	3.81	3.58	E	2.0
E7-3	8/2/04	A	14.7	4.40	D,Ba	6.43	3.73	E	6.0
E7-4a	8/2/04	A	4.17	1.62	B	0.582	0.287	E	1.7
E7-4b	8/2/04	A	4.22	1.35	B	0.511	0.233	E	2.0
E7-5	8/2/04	A	4.07	1.33	B	2.07	1.07	E	3.5
E7-6	8/2/04	A	20.8	2.33	B	4.15	2.38	E	3.0
E7-7	8/2/04		-b	-b		-b	-b	E	10.0
E7-8	8/2/04	A	18.2	2.91	C	0.360	0.152	E	3.0
E7-9	8/2/04	A	31.0	4.76	C	0.585	0.145	E	2.0
E7-10	8/2/04	A	29.3	7.11	C	4.99	4.15	E	8.0
E7-11	8/2/04	A	4.92	1.66	C	0.644	0.272	E	2.3
E7-12	8/2/04	A	15.1	4.22	C	0.585	0.250	E	1.0
E7-13	8/2/04	A	4.71	2.83	C	0.526	0.357	E	< 1.0
E7-14	8/2/04	A	19.8	1.79	C	0.985	0.684	E	1.5

a Sample E7-3 for total Methyl Mercury was analyzed by batch D, the dissolved fraction by Batch B. Please see the analytical issues section of the case narative.

b No sample submitted. Please see Chain of Custody

Mercury Speciation Results for Tetra Tech
Reported September 1, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Quality Control Data - Matrix Duplicate Report

Analyte (ng/L)	Batch	Sample QC'd	Rep. 1	Rep. 2	Mean	RPD
Total Hg	A	E7-4a-T	4.17	4.14	4.16	0.8
	A	E7-8-T	18.22	18.26	18.24	0.2
Methyl Hg	B	E7-1-T	0.204	0.233	0.219	13.2
	C	E7-8-T	0.360	0.413	0.387	13.9
	D	Batch QC1	1.526	1.527	1.527	0.1
	D	Batch QC2	0.091	0.060	0.076	41.1[a]
TSS	E	E7-1	3.0	2.5	2.8	18.2
	E	E7-10	8.0	9.0	8.5	11.8

RPD = Relative Percent Difference between Replicate results
[a] RPD is above the control limit of 25%. Please see the analytical issues section of the case narative.
QC2 sample was not freshwater, difference was less than 2X RL, so not analytically significant.

Quality Control Data - Matrix Spike / Matrix Spike Duplicate Report

Analyte (ng/L)	Batch	Sample QC'd	Sample Mean	Spike Level	MS	% Rec.	Spike Level	MSD	% Rec.	RPD
Total Hg	A	E7-5-T	4.07	20.41	26.53	110.1	20.41	26.43	109.6	0.5
	A	E7-10-T	29.25	81.63	119.8	110.9	81.63	119.4	110.4	0.5
Methyl Hg	B	E7-2-T	3.806	1.669	5.408	96.0	1.661	5.713	114.8	17.8
	C	E7-13-T	0.526	1.666	2.118	95.6	1.666	2.071	92.7	3.0
	D	Batch QC1	1.527	7.895	7.499	75.6	9.336	8.869	78.6	3.9
	D	Batch QC2	0.075	9.375	8.810	93.2	9.375	8.534	90.2	3.2

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference between % Recovery values

Quality Control Data - Preparation Blank Report

Analyte (ng/L)	Batch	PBW1	PBW2	PBW3	Mean	St. Dev.	R.L.
Total Hg	A	-0.03	0.09	0.11	0.06	0.08	0.15
Methyl Hg	B	-0.001	0.000	0.000	0.000	0.001	0.025
	C	0.010	0.011	0.007	0.010	0.002	0.025
	D	0.003	0.003	0.003	0.003	0.000	0.025
TSS	E	0.0	0.2	0.2	0.11	0.1	1.0

St. Dev. = Standard Deviation
R.L. = Reporting Limit

Quality Control Data - Certified Reference Materials Report

Analyte (ng/L)	Batch	CRM Identity	Cert. Value	Obs. Value	% Rec.
Total Hg	A	NIST 1641d	1601000	1575000	98.4
Methyl Hg	B	DORM-2	4470	4297	96.1
	C	DORM-2	4470	4368	97.7
	D	DORM-2	4470	4137	92.6

CRM Identity = Certified reference material identity
Cert. Value = Certified value
Obs. Value = Experimental result
% Rec. = Percent recovery

Mercury Speciation Results for Tetra Tech
Reported September 11, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Sample Results

		Total Hg (ng/L)		Methyl Hg (ng/L)		
Sample ID	**Date Collected**	**Total**	**Dissolved**	**Total**	**Dissolved**	**TSS (mg/L)**
E7-1	8/12/04	13.2	1.44	0.324	0.117	3.5
E7-2A	8/12/04	32.3	9.88	11.0	8.27	7.5
E7-2B	8/12/04	26.0	7.32	5.09	5.47	7.0
E7-3	8/12/04	19.8	8.60	8.10	6.08	4.5
E7-4	8/12/04	3.25	1.12	0.466	0.237	1.3
E7-5	8/12/04	10.5	4.06	1.83	2.81	3.0
E7-6	8/12/04	12.7	1.85	7.20	4.29	4.0

Mercury Speciation Results for Tetra Tech
Reported September 11, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Quality Control Data- Matrix Duplicate Report

Analyte (ng/L)	Sample QC'd	Rep.1	Rep. 2	Mean	RPD
Total Hg	E7-2A	32.32	33.14	32.73	2.5
Methyl Hg	E7-2A	10.99	9.831	10.41	11.2
TSS	E7-5	3.0	3.0	3.0	0.0

Quality Control Data- Matrix Spike / Matrix Spike Duplicate Report

Analyte (ng/L)	Sample Qc'd	Sample Mean	Spike Level	MS	%Rec.	MSD	%Rec.	RPD
Total Hg	E7-2B	26.00	80.81	103.7	96.2	104.2	96.7	0.4
Methyl Hg	E7-3	8.104	8.832	15.58	84.7	16.54	95.5	6.0

MS = Matrix Spke
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

Mercury Speciation Results for Tetra Tech
Reported September 11, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Quality Control Data – Preparation Blank Report

Analyte (ng/L)	PBW1	PBW2	PBW3	Mean	St. Dev.	R.L.
Total Hg	0.06	0.04	0.05	0.05	0.01	0.15
Methyl Hg	0.015	0.011	0.013	0.013	0.002	0.025
TSS	0.0	0.2	0.2	0.0	0.1	1.0

St. Dev. = Standard Deviation
R.L. = Reporting Limit

Quality Control Data – Certified Reference Materials Report

Analyte (ng/L)	CRM Identity	Cert. Value	Obs. Value	% Rec.
Total Hg	NIST 1641d	1601000	1649000	103.0
Methyl Hg	DORM-2	4470	5427	121.4

CRM Identity = Certified reference material identity
Cert. Value = Certified value
Obs. Value = Experimental result
%Rec. = Percent recovery

Mercury Speciation Results for Tetra Tech
Reported September 30, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109
Revised on October 5, 2004

Sample Results

		Total Hg (mg/L)		Methyl Hg (mg/L)		
Sample ID	Date Collected	Total	Dissolved	Total	Dissolved	TSS (mg/L)
E7-1	8/31/04	11.8	1.00	0.272	0.085	4.5
E7-2	8/31/04	39.4	11.0	11.5	7.20	9.0
E7-3	8/31/04	49.2	12.2	12.8	7.24	11.5
E7-4	8/31/04	2.93	1.12	0.369	0.277	4.0
E7-5a	8/31/04	12.3	3.08	5.49	3.09	4.0
E7-5b	8/31/04	11.0	3.53	5.09	2.68	2.0
E7-0	8/31/04	0.54	<0.15	<0.025	<0.025	<1.0
E7-6	8/31/04	14.3	3.48	6.47	3.69	3.5

Mercury Speciation Results for Tetra Tech
Reported September 30, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Quality Control Data – Matrix Duplicate Report

Analyte (ng/L)	Sample QC'd	Rep.1	Rep.2	Mean	RPD
Total Hg	E7-2	39.36	37.60	38.48	4.6
Methyl Hg	E7-2	11.47	11.46	11.46	0.1
TSS	E7-2	90.0	95.0	92.5	5.4

Quality Control Data – Matrix Spike / Matrix Spike Duplicate Report

Analyte (ng/L)	Sample QC'd	Sample Mean	Spike Level	MS	%Rec.	MSD	%Rec.	RPD
Total Hg	E7-6	14.26	52.63	67.71	101.5	65.76	97.8	2.9
Methyl Hg	E7-3	12.83	17.75	32.50	103.4	26.77	78.5	15.3

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

Mercury Speciation Results for Tetra Tech
Reported September 30, 2004
Frontier Geosciences Inc., 414 Pontius Ave. N, Seattle WA 98109

Quality Control Data – Preparation Blank Report

Analyte (ng/L)	PBW1	PBW2	PBW3	Mean	St. Dev.	R.L.
Total Hg	0.08	0.06	0.07	0.07	0.01	0.15
Methyl Hg	0.006	0.009	0.002	0.006	0.004	0.025
TSS	0.0	-2.5	2.5	0.0	2.5	1.0

St. Dev. = Standard Deviation
R.L. = Reporting Limit

Quality Control Data – Certified Reference Materials Report

Analyte (ng/L)	CRM Identity	Cert. Value	Obs. Value	%Rec.
Total Hg	NIST 1641d	1601000	1527000	95.4
Methyl Hg	DORM-2	4470	5034	112.6

CRM Identity = Certified reference material identity
Cert. Value = Certified Value
Obs. Value = Experimental result
% Rec. = Percent recovery

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252A
Reported: 10/06/04 11:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
LA-01	0409026-01	Tissue	08/31/04 13:00	09/08/04 19:30
LA-02	0409026-02	Tissue	08/31/04 13:00	09/08/04 19:30
LA-03	0409026-03	Tissue	08/31/04 13:00	09/08/04 19:30
LA-04	0409026-04	Tissue	08/31/04 13:00	09/08/04 19:30
LA-05	0409026-05	Tissue	08/31/04 13:00	09/08/04 19:30
LA-06	0409026-06	Tissue	08/31/04 13:00	09/08/04 19:30
LA-07	0409026-07	Tissue	08/31/04 13:00	09/08/04 19:30
LA-08	0409026-08	Tissue	08/31/04 13:00	09/08/04 19:30
LA-09	0409026-09	Tissue	08/31/04 13:00	09/08/04 19:30
LA-10	0409026-10	Tissue	08/31/04 13:00	09/08/04 19:30
LA-11	0409026-11	Tissue	08/31/04 13:00	09/08/04 19:30
LA-12	0409026-12	Tissue	08/31/04 13:00	09/08/04 19:30
LA-13	0409026-13	Tissue	08/31/04 13:00	09/08/04 19:30
LA-14	0409026-14	Tissue	08/31/04 13:00	09/08/04 19:30
LA-15	0409026-15	Tissue	08/31/04 13:00	09/08/04 19:30
LA-16	0409026-16	Tissue	08/31/04 13:00	09/08/04 19:30
LA-17	0409026-17	Tissue	08/31/04 13:00	09/08/04 19:30
LA-18	0409026-18	Tissue	08/31/04 13:00	09/08/04 19:30
LA-19	0409026-19	Tissue	08/31/04 13:00	09/08/04 19:30
LA-20	0409026-20	Tissue	08/31/04 13:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252A
Reported: 10/06/04 11:03

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409026-01								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-01								Metals by EPA 6000/7000 Series Methods
Mercury	**18**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-02								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-02								Metals by EPA 6000/7000 Series Methods
Mercury	**12**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**20**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-03								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-03								Metals by EPA 6000/7000 Series Methods
Mercury	**7.9**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-04								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-04								Metals by EPA 6000/7000 Series Methods
Mercury	**8.4**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-05								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-05								Metals by EPA 6000/7000 Series Methods
Mercury	**5.3**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-06								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-06								Metals by EPA 6000/7000 Series Methods
Mercury	**6.8**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-07								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-07								Metals by EPA 6000/7000 Series Methods
Mercury	**8.8**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-08								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-08								Metals by EPA 6000/7000 Series Methods
Mercury	**8.9**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-09								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-09								Metals by EPA 6000/7000 Series Methods
Mercury	**5.7**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 11:03
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409026-10								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-10								Metals by EPA 6000/7000 Series Methods
Mercury	**9.2**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-11								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-11								Metals by EPA 6000/7000 Series Methods
Mercury	**12**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-12								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-12								Metals by EPA 6000/7000 Series Methods
Mercury	**13**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-13								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-13								Metals by EPA 6000/7000 Series Methods
Mercury	**17**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-14								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-14								Metals by EPA 6000/7000 Series Methods
Mercury	**11**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-15								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-15								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-16								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-16								Metals by EPA 6000/7000 Series Methods
Mercury	**14**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-17								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-17								Metals by EPA 6000/7000 Series Methods
Mercury	**15**		**0.11**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**22**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-18								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-18								Metals by EPA 6000/7000 Series Methods
Mercury	**13**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 11:03
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409026-19								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-19								Metals by EPA 6000/7000 Series Methods
Mercury	**12**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**20**			%	B4I0157	09/29/04	10/01/04	% calculation
Lab ID: 0409026-20								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-20								Metals by EPA 6000/7000 Series Methods
Mercury	**10**		**0.12**	mg/kg dry	B4I0148	09/29/04	09/29/04	7473/SOP535
% Solids	**21**			%	B4I0157	09/29/04	10/01/04	% calculation

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 11:03
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 09/29/04	
Batch B4I0148 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4I0148-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4I0148-DUP1)	**Source: 0409026-06**									
Mercury	6.7		0.11	mg/kg dry		6.8			1	20
Duplicate (B4I0148-DUP2)	**Source: 0409026-20**									
Mercury	10		0.12	mg/kg dry		10			0	20
Reference (B4I0148-SRM1)										
Mercury	1.2		0.025	mg/kg wet	1.04		115	80-120		
Reference (B4I0148-SRM2)										
Mercury	0.46		0.025	mg/kg wet	0.433		106	80-120		
									Prepared: 09/29/04 Analyzed: 10/01/04	
Batch B4I0157 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4I0157-BLK1)										
% Solids	0			%						
Duplicate (B4I0157-DUP1)	**Source: 0409026-07**									
% Solids	21			%		22			5	20
Duplicate (B4I0157-DUP2)	**Source: 0409026-14**									
% Solids	21			%		21			0	20

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:**	04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:**	10/06/04 11:03
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**		

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252A

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252A
Reported: 10/14/04 10:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
LA-21	0409026-21	Tissue	08/31/04 13:00	09/08/04 19:30
LA-22	0409026-22	Tissue	08/31/04 13:00	09/08/04 19:30
LA-23	0409026-23	Tissue	08/31/04 13:00	09/08/04 19:30
LA-24	0409026-24	Tissue	08/31/04 13:00	09/08/04 19:30
LA-25	0409026-25	Tissue	08/31/04 13:00	09/08/04 19:30
LA-26	0409026-26	Tissue	08/31/04 13:00	09/08/04 19:30
LA-27	0409026-27	Tissue	08/31/04 13:00	09/08/04 19:30
LA-28	0409026-28	Tissue	08/31/04 13:00	09/08/04 19:30
LA-29	0409026-29	Tissue	08/31/04 13:00	09/08/04 19:30
LA-30	0409026-30	Tissue	08/31/04 13:00	09/08/04 19:30
LA-31	0409026-31	Tissue	08/31/04 13:00	09/08/04 19:30
LA-32	0409026-32	Tissue	08/31/04 13:00	09/08/04 19:30
LA-33	0409026-33	Tissue	08/31/04 13:00	09/08/04 19:30
LA-34	0409026-34	Tissue	08/31/04 13:00	09/08/04 19:30
LA-35	0409026-35	Tissue	08/31/04 13:00	09/08/04 19:30
LA-36	0409026-36	Tissue	08/31/04 13:00	09/08/04 19:30
LA-37	0409026-37	Tissue	08/31/04 13:00	09/08/04 19:30
LA-38	0409026-38	Tissue	08/31/04 13:00	09/08/04 19:30
LA-39	0409026-39	Tissue	08/31/04 13:00	09/08/04 19:30
LA-40	0409026-40	Tissue	08/31/04 13:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252A
Reported: 10/14/04 10:21

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409026-21								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-21								Metals by EPA 6000/7000 Series Methods
Mercury	**2.4**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-22								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-22								Metals by EPA 6000/7000 Series Methods
Mercury	**1.7**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-23								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-23								Metals by EPA 6000/7000 Series Methods
Mercury	**2.4**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-24								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-24								Metals by EPA 6000/7000 Series Methods
Mercury	**1.8**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-25								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-25								Metals by EPA 6000/7000 Series Methods
Mercury	**1.6**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-26								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-26								Metals by EPA 6000/7000 Series Methods
Mercury	**1.8**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-27								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-27								Metals by EPA 6000/7000 Series Methods
Mercury	**1.8**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-28								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-28								Metals by EPA 6000/7000 Series Methods
Mercury	**2.1**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: 0409026-29								Tissue - Sampled: 08/31/04 13:00
Sample ID: LA-29								Metals by EPA 6000/7000 Series Methods
Mercury	**1.4**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0057	10/12/04	10/13/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:21
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409026-30**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-30**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.9**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**23**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-31**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-31**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.6**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-32**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-32**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.0**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-33**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-33**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.3**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-34**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-34**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.3**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-35**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-35**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.4**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-36**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-36**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.0**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-37**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-37**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.8**		**0.11**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-38**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-38**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.6**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:21
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409026-39**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-39**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.7**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation
Lab ID: **0409026-40**								Tissue - Sampled: 08/31/04 13:00
Sample ID: **LA-40**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.7**		**0.12**	mg/kg dry	B4J0047	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0057	10/12/04	10/13/04	% calculation

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:21
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
										Prepared & Analyzed: 10/11/04
Batch B4J0047 - - General Metals - Mercury										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B4J0047-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4J0047-DUP1)	**Source: 0409026-27**									
Mercury	1.9		0.12	mg/kg dry		1.8			5	20
Duplicate (B4J0047-DUP2)	**Source: 0409026-36**									
Mercury	0.88		0.12	mg/kg dry		1.0			13	20
Reference (B4J0047-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4J0047-SRM2)										
Mercury	0.41		0.025	mg/kg wet	0.433		95	80-120		
										Prepared: 10/12/04 Analyzed: 10/13/04
Batch B4J0057 - - General Inorganic - Solids, Dry Weight										Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
Blank (B4J0057-BLK1)										
% Solids	0			%						
Duplicate (B4J0057-DUP1)	**Source: 0409026-39**									
% Solids	21			%		21			0	20

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252A
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:21
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252B

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252B
Reported: 10/05/04 10:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
CR-01	0409027-01	Tissue	08/31/04 09:00	09/08/04 19:30
CR-02	0409027-02	Tissue	08/31/04 09:00	09/08/04 19:30
CR-03	0409027-03	Tissue	08/31/04 09:00	09/08/04 19:30
CR-04	0409027-04	Tissue	08/31/04 09:00	09/08/04 19:30
CR-05	0409027-05	Tissue	08/31/04 09:00	09/08/04 19:30
CR-06	0409027-06	Tissue	08/31/04 09:00	09/08/04 19:30
CR-07	0409027-07	Tissue	08/31/04 09:00	09/08/04 19:30
CR-08	0409027-08	Tissue	08/31/04 09:00	09/08/04 19:30
CR-09	0409027-09	Tissue	08/31/04 09:00	09/08/04 19:30
CR-10	0409027-10	Tissue	08/31/04 09:00	09/08/04 19:30
CR-11	0409027-11	Tissue	08/31/04 09:00	09/08/04 19:30
CR-12	0409027-12	Tissue	08/31/04 09:00	09/08/04 19:30
CR-13	0409027-13	Tissue	08/31/04 09:00	09/08/04 19:30
CR-14	0409027-14	Tissue	08/31/04 09:00	09/08/04 19:30
CR-15	0409027-15	Tissue	08/31/04 09:00	09/08/04 19:30
CR-16	0409027-16	Tissue	08/31/04 09:00	09/08/04 19:30
CR-17	0409027-17	Tissue	08/31/04 09:00	09/08/04 19:30
CR-18	0409027-18	Tissue	08/31/04 09:00	09/08/04 19:30
CR-19	0409027-19	Tissue	08/31/04 09:00	09/08/04 19:30
CR-20	0409027-20	Tissue	08/31/04 09:00	09/08/04 19:30

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Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/05/04 10:00
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409027-01**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-01**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.8**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-02**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-02**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.5**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-03**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-03**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.7**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-04**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-04**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.9**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**20**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-05**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-05**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.5**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-06**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-06**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.4**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-07**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-07**								Metals by EPA 6000/7000 Series Methods
Mercury	**6.2**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-08**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-08**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-09**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-09**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.3**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252B
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/05/04 10:00
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409027-10**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-10**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.2**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-11**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-11**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-12**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-12**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.2**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-13**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-13**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.7**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-14**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-14**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.4**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-15**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-15**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.9**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-16**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-16**								Metals by EPA 6000/7000 Series Methods
Mercury	**6.9**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-17**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-17**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.3**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-18**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-18**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.0**		**0.12**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0146	09/28/04	09/30/04	% calculation

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252B
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/05/04 10:00
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409027-19**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-19**								Metals by EPA 6000/7000 Series Methods
Mercury	**7.1**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: **0409027-20**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-20**								Metals by EPA 6000/7000 Series Methods
Mercury	**6.2**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation

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Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/05/04 10:00
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 09/28/04	
Batch B4I0141 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4I0141-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4I0141-DUP1)	**Source: 0409027-02**									
Mercury	4.5		0.11	mg/kg dry		4.5			0	20
Duplicate (B4I0141-DUP2)	**Source: 0409027-11**									
Mercury	5.1		0.12	mg/kg dry		5.0			2	20
Reference (B4I0141-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4I0141-SRM2)										
Mercury	0.40		0.025	mg/kg wet	0.433		92	80-120		
									Prepared: 09/28/04 Analyzed: 09/30/04	
Batch B4I0146 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4I0146-BLK1)										
% Solids	0			%						

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Project Number:	R04W05	**75 Hawthorne Street**	**Reported:**	10/05/04 10:00
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**		

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252B

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

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Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252B
Reported: 10/13/04 15:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
CR-19	0409027-19	Tissue	08/31/04 09:00	09/08/04 19:30
CR-20	0409027-20	Tissue	08/31/04 09:00	09/08/04 19:30
CR-21	0409027-21	Tissue	08/31/04 09:00	09/08/04 19:30
CR-22	0409027-22	Tissue	08/31/04 09:00	09/08/04 19:30
CR-23	0409027-23	Tissue	08/31/04 09:00	09/08/04 19:30
CR-24	0409027-24	Tissue	08/31/04 09:00	09/08/04 19:30
CR-25	0409027-25	Tissue	08/31/04 09:00	09/08/04 19:30
CR-26	0409027-26	Tissue	08/31/04 09:00	09/08/04 19:30
CR-27	0409027-27	Tissue	08/31/04 09:00	09/08/04 19:30
CR-28	0409027-28	Tissue	08/31/04 09:00	09/08/04 19:30
CR-29	0409027-29	Tissue	08/31/04 09:00	09/08/04 19:30
CR-30	0409027-30	Tissue	08/31/04 09:00	09/08/04 19:30
CR-31	0409027-31	Tissue	08/31/04 09:00	09/08/04 19:30
CR-32	0409027-32	Tissue	08/31/04 09:00	09/08/04 19:30
CR-33	0409027-33	Tissue	08/31/04 09:00	09/08/04 19:30
CR-34	0409027-34	Tissue	08/31/04 09:00	09/08/04 19:30
CR-35	0409027-35	Tissue	08/31/04 09:00	09/08/04 19:30
CR-36	0409027-36	Tissue	08/31/04 09:00	09/08/04 19:30
CR-37	0409027-37	Tissue	08/31/04 09:00	09/08/04 19:30
CR-38	0409027-38	Tissue	08/31/04 09:00	09/08/04 19:30
CR-39	0409027-39	Tissue	08/31/04 09:00	09/08/04 19:30
CR-40	0409027-40	Tissue	08/31/04 09:00	09/08/04 19:30

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Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409027-19								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-19								Metals by EPA 6000/7000 Series Methods
Mercury	**7.1**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: 0409027-20								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-20								Metals by EPA 6000/7000 Series Methods
Mercury	**6.2**		**0.11**	mg/kg dry	B4I0141	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0146	09/28/04	09/30/04	% calculation
Lab ID: 0409027-21								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-21								Metals by EPA 6000/7000 Series Methods
Mercury	**1.1**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-22								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-22								Metals by EPA 6000/7000 Series Methods
Mercury	**0.78**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-23								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-23								Metals by EPA 6000/7000 Series Methods
Mercury	**1.9**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-24								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-24								Metals by EPA 6000/7000 Series Methods
Mercury	**1.5**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-25								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-25								Metals by EPA 6000/7000 Series Methods
Mercury	**0.57**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-26								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-26								Metals by EPA 6000/7000 Series Methods
Mercury	**0.64**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: 0409027-27								Tissue - Sampled: 08/31/04 09:00
Sample ID: CR-27								Metals by EPA 6000/7000 Series Methods
Mercury	**0.83**		**0.13**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0050	10/11/04	10/12/04	% calculation

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Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/13/04 15:10
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409027-28**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-28**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.9**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-29**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-29**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.0**		**0.13**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-30**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-30**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.96**		**0.11**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-31**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-31**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.88**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-32**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-32**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.65**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-33**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-33**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.93**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-34**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-34**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.77**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-35**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-35**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.77**		**0.14**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**18**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-36**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-36**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.1**		**0.14**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**18**			%	B4J0050	10/11/04	10/12/04	% calculation

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252B
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/13/04 15:10
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409027-37**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-37**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.2**		**0.15**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**17**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-38**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-38**								Metals by EPA 6000/7000 Series Methods
Mercury	**1.2**		**0.14**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**18**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-39**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-39**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.50**		**0.12**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0050	10/11/04	10/12/04	% calculation
Lab ID: **0409027-40**								Tissue - Sampled: 08/31/04 09:00
Sample ID: **CR-40**								Metals by EPA 6000/7000 Series Methods
Mercury	**0.92**		**0.13**	mg/kg dry	B4J0034	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0050	10/11/04	10/12/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252B
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/13/04 15:10
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 10/07/04	
Batch B4J0034 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4J0034-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4J0034-DUP1)	**Source: 0409027-23**									
Mercury	1.8		0.12	mg/kg dry		1.9			5	20
Duplicate (B4J0034-DUP2)	**Source: 0409027-35**									
Mercury	0.78		0.14	mg/kg dry		0.77			1	20
Reference (B4J0034-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4J0034-SRM2)										
Mercury	0.47		0.025	mg/kg wet	0.433		109	80-120		
									Prepared: 10/11/04 Analyzed: 10/12/04	
Batch B4J0050 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4J0050-BLK1)										
% Solids	0			%						
Duplicate (B4J0050-DUP1)	**Source: 0409027-23**									
% Solids	20			%		20			0	20

United States Environmental Protection Agency

Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252B
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/13/04 15:10
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252C

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252C
Reported: 10/06/04 10:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
AR-01	0409028-01	Tissue	09/01/04 09:00	09/08/04 19:30
AR-02	0409028-02	Tissue	09/01/04 09:00	09/08/04 19:30
AR-03	0409028-03	Tissue	09/01/04 09:00	09/08/04 19:30
AR-04	0409028-04	Tissue	09/01/04 09:00	09/08/04 19:30
AR-05	0409028-05	Tissue	09/01/04 09:00	09/08/04 19:30
AR-06	0409028-06	Tissue	09/01/04 09:00	09/08/04 19:30
AR-07	0409028-07	Tissue	09/01/04 09:00	09/08/04 19:30
AR-08	0409028-08	Tissue	09/01/04 09:00	09/08/04 19:30
AR-09	0409028-09	Tissue	09/01/04 09:00	09/08/04 19:30
AR-10	0409028-10	Tissue	09/01/04 09:00	09/08/04 19:30
AR-11	0409028-11	Tissue	09/01/04 09:00	09/08/04 19:30
AR-12	0409028-12	Tissue	09/01/04 09:00	09/08/04 19:30
AR-13	0409028-13	Tissue	09/01/04 09:00	09/08/04 19:30
AR-14	0409028-14	Tissue	09/01/04 09:00	09/08/04 19:30
AR-15	0409028-15	Tissue	09/01/04 09:00	09/08/04 19:30
AR-16	0409028-16	Tissue	09/01/04 09:00	09/08/04 19:30
AR-17	0409028-17	Tissue	09/01/04 09:00	09/08/04 19:30
AR-18	0409028-18	Tissue	09/01/04 09:00	09/08/04 19:30
AR-19	0409028-19	Tissue	09/01/04 09:00	09/08/04 19:30
AR-20	0409028-20	Tissue	09/01/04 09:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 10:49
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409028-01**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-01**								Metals by EPA 6000/7000 Series Methods
Mercury	**22**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**23**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-02**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-02**								Metals by EPA 6000/7000 Series Methods
Mercury	**16**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-03**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-03**								Metals by EPA 6000/7000 Series Methods
Mercury	**22**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-04**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-04**								Metals by EPA 6000/7000 Series Methods
Mercury	**23**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-05**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-05**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-06**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-06**								Metals by EPA 6000/7000 Series Methods
Mercury	**25**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-07**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-07**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-08**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-08**								Metals by EPA 6000/7000 Series Methods
Mercury	**18**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-09**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-09**								Metals by EPA 6000/7000 Series Methods
Mercury	**17**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 10:49
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409028-10								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-10								Metals by EPA 6000/7000 Series Methods
Mercury	**21**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-11								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-11								Metals by EPA 6000/7000 Series Methods
Mercury	**14**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-12								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-12								Metals by EPA 6000/7000 Series Methods
Mercury	**35**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-13								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-13								Metals by EPA 6000/7000 Series Methods
Mercury	**25**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-14								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-14								Metals by EPA 6000/7000 Series Methods
Mercury	**18**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-15								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-15								Metals by EPA 6000/7000 Series Methods
Mercury	**12**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-16								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-16								Metals by EPA 6000/7000 Series Methods
Mercury	**9.8**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-17								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-17								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: 0409028-18								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-18								Metals by EPA 6000/7000 Series Methods
Mercury	**26**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 10:49
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409028-19**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-19**								Metals by EPA 6000/7000 Series Methods
Mercury	**12**		**0.12**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**21**			%	B4I0153	09/29/04	09/30/04	% calculation
Lab ID: **0409028-20**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-20**								Metals by EPA 6000/7000 Series Methods
Mercury	**15**		**0.11**	mg/kg dry	B4I0143	09/28/04	09/28/04	7473/SOP535
% Solids	**22**			%	B4I0153	09/29/04	09/30/04	% calculation

United States Environmental Protection Agency
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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/06/04 10:49
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
										Prepared & Analyzed: 09/28/04
Batch B4I0143 - - General Metals - Mercury										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B4I0143-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4I0143-DUP1)	**Source: 0409028-02**									
Mercury	17		0.11	mg/kg dry		16			6	20
Duplicate (B4I0143-DUP2)	**Source: 0409028-12**									
Mercury	35		0.12	mg/kg dry		35			0	20
Reference (B4I0143-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4I0143-SRM3)										
Mercury	0.48		0.025	mg/kg wet	0.433		111	80-120		
										Prepared: 09/29/04 Analyzed: 09/30/04
Batch B4I0153 - - General Inorganic - Solids, Dry Weight										Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
Blank (B4I0153-BLK1)										
% Solids	0			%						
Duplicate (B4I0153-DUP1)	**Source: 0409028-01**									
% Solids	22			%		23			4	20

United States Environmental Protection Agency

Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:**	04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:**	10/06/04 10:49
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**		

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252C

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252C
Reported: 10/14/04 10:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
AR-21	0409028-21	Tissue	09/01/04 09:00	09/08/04 19:30
AR-22	0409028-22	Tissue	09/01/04 09:00	09/08/04 19:30
AR-23	0409028-23	Tissue	09/01/04 09:00	09/08/04 19:30
AR-24	0409028-24	Tissue	09/01/04 09:00	09/08/04 19:30
AR-25	0409028-25	Tissue	09/01/04 09:00	09/08/04 19:30
AR-26	0409028-26	Tissue	09/01/04 09:00	09/08/04 19:30
AR-27	0409028-27	Tissue	09/01/04 09:00	09/08/04 19:30
AR-28	0409028-28	Tissue	09/01/04 09:00	09/08/04 19:30
AR-29	0409028-29	Tissue	09/01/04 09:00	09/08/04 19:30
AR-30	0409028-30	Tissue	09/01/04 09:00	09/08/04 19:30
AR-31	0409028-31	Tissue	09/01/04 09:00	09/08/04 19:30
AR-32	0409028-32	Tissue	09/01/04 09:00	09/08/04 19:30
AR-33	0409028-33	Tissue	09/01/04 09:00	09/08/04 19:30
AR-34	0409028-34	Tissue	09/01/04 09:00	09/08/04 19:30
AR-35	0409028-35	Tissue	09/01/04 09:00	09/08/04 19:30
AR-36	0409028-36	Tissue	09/01/04 09:00	09/08/04 19:30
AR-37	0409028-37	Tissue	09/01/04 09:00	09/08/04 19:30
AR-38	0409028-38	Tissue	09/01/04 09:00	09/08/04 19:30
AR-39	0409028-39	Tissue	09/01/04 09:00	09/08/04 19:30
AR-40	0409028-40	Tissue	09/01/04 09:00	09/08/04 19:30

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Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252C
Reported: 10/14/04 10:27

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409028-21**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-21**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.2**		**0.13**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**19**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-22**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-22**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.2**		**0.14**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**18**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-23**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-23**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.3**		**0.14**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**18**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-24**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-24**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-25**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-25**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.2**		**0.11**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**22**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-26**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-26**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-27**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-27**								Metals by EPA 6000/7000 Series Methods
Mercury	**7.3**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-28**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-28**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.3**		**0.13**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**19**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: **0409028-29**								Tissue - Sampled: 09/01/04 09:00
Sample ID: **AR-29**								Metals by EPA 6000/7000 Series Methods
Mercury	**6.3**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252C
Reported: 10/14/04 10:27

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409028-30								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-30								Metals by EPA 6000/7000 Series Methods
Mercury	**3.7**		**0.13**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**19**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-31								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-31								Metals by EPA 6000/7000 Series Methods
Mercury	**7.1**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-32								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-32								Metals by EPA 6000/7000 Series Methods
Mercury	**3.3**		**0.14**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**18**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-33								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-33								Metals by EPA 6000/7000 Series Methods
Mercury	**6.0**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-34								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-34								Metals by EPA 6000/7000 Series Methods
Mercury	**5.8**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-35								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-35								Metals by EPA 6000/7000 Series Methods
Mercury	**4.2**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-36								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-36								Metals by EPA 6000/7000 Series Methods
Mercury	**5.5**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-37								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-37								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**21**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-38								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-38								Metals by EPA 6000/7000 Series Methods
Mercury	**4.6**		**0.13**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**19**			%	B4J0058	10/12/04	10/13/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:27
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409028-39								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-39								Metals by EPA 6000/7000 Series Methods
Mercury	**3.9**		**0.12**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**20**			%	B4J0058	10/12/04	10/13/04	% calculation
Lab ID: 0409028-40								Tissue - Sampled: 09/01/04 09:00
Sample ID: AR-40								Metals by EPA 6000/7000 Series Methods
Mercury	**3.7**		**0.13**	mg/kg dry	B4J0049	10/11/04	10/11/04	7473/SOP535
% Solids	**19**			%	B4J0058	10/12/04	10/13/04	% calculation

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252C
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:27
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 10/11/04	
Batch B4J0049 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4J0049-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4J0049-DUP1)	**Source: 0409028-30**									
Mercury	3.9		0.13	mg/kg dry		3.7			5	20
Duplicate (B4J0049-DUP2)	**Source: 0409028-33**									
Mercury	5.8		0.12	mg/kg dry		6.0			3	20
Reference (B4J0049-SRM1)										
Mercury	1.0		0.025	mg/kg wet	1.04		96	80-120		
Reference (B4J0049-SRM2)										
Mercury	0.47		0.025	mg/kg wet	0.433		109	80-120		
									Prepared: 10/12/04 Analyzed: 10/13/04	
Batch B4J0058 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4J0058-BLK1)										
% Solids	0			%						
Duplicate (B4J0058-DUP1)	**Source: 0409028-37**									
% Solids	21			%		21			0	20

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Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 10:27
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252D

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252D
Reported: 10/07/04 13:39

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GR-01	0409029-01	Tissue	09/08/04 10:00	09/08/04 19:30
GR-02	0409029-02	Tissue	09/08/04 10:00	09/08/04 19:30
GR-03	0409029-03	Tissue	09/08/04 10:00	09/08/04 19:30
GR-04	0409029-04	Tissue	09/08/04 10:00	09/08/04 19:30
GR-05	0409029-05	Tissue	09/08/04 10:00	09/08/04 19:30
GR-06	0409029-06	Tissue	09/08/04 10:00	09/08/04 19:30
GR-07	0409029-07	Tissue	09/08/04 10:00	09/08/04 19:30
GR-08	0409029-08	Tissue	09/08/04 10:00	09/08/04 19:30
GR-09	0409029-09	Tissue	09/08/04 10:00	09/08/04 19:30
GR-10	0409029-10	Tissue	09/08/04 10:00	09/08/04 19:30
GR-11	0409029-11	Tissue	09/08/04 10:00	09/08/04 19:30
GR-12	0409029-12	Tissue	09/08/04 10:00	09/08/04 19:30
GR-13	0409029-13	Tissue	09/08/04 10:00	09/08/04 19:30
GR-14	0409029-14	Tissue	09/08/04 10:00	09/08/04 19:30
GR-15	0409029-15	Tissue	09/08/04 10:00	09/08/04 19:30
GR-16	0409029-16	Tissue	09/08/04 10:00	09/08/04 19:30
GR-17	0409029-17	Tissue	09/08/04 10:00	09/08/04 19:30
GR-18	0409029-18	Tissue	09/08/04 10:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:39
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409029-01**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-01**								Metals by EPA 6000/7000 Series Methods
Mercury	**35**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-02**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-02**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-03**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-03**								Metals by EPA 6000/7000 Series Methods
Mercury	**14**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-04**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-04**								Metals by EPA 6000/7000 Series Methods
Mercury	**19**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-05**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-05**								Metals by EPA 6000/7000 Series Methods
Mercury	**19**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**20**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-06**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-06**								Metals by EPA 6000/7000 Series Methods
Mercury	**21**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**20**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-07**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-07**								Metals by EPA 6000/7000 Series Methods
Mercury	**65**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**20**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-08**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-08**								Metals by EPA 6000/7000 Series Methods
Mercury	**47**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-09**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-09**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:39
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409029-10**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-10**								Metals by EPA 6000/7000 Series Methods
Mercury	**22**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-11**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-11**								Metals by EPA 6000/7000 Series Methods
Mercury	**36**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-12**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-12**								Metals by EPA 6000/7000 Series Methods
Mercury	**26**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-13**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-13**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-14**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-14**								Metals by EPA 6000/7000 Series Methods
Mercury	**32**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**20**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-15**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-15**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.12**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-16**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-16**								Metals by EPA 6000/7000 Series Methods
Mercury	**26**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-17**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-17**								Metals by EPA 6000/7000 Series Methods
Mercury	**34**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation
Lab ID: **0409029-18**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-18**								Metals by EPA 6000/7000 Series Methods
Mercury	**24**		**0.11**	mg/kg dry	B4I0164	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0168	09/30/04	10/01/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252D	
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:39	
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**		

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 09/30/04	
Batch B4I0164 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4I0164-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4I0164-DUP1)	**Source: 0409029-07**									
Mercury	65		0.12	mg/kg dry		65			0	20
Duplicate (B4I0164-DUP2)	**Source: 0409029-15**									
Mercury	24		0.12	mg/kg dry		24			0	20
Reference (B4I0164-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4I0164-SRM2)										
Mercury	0.46		0.025	mg/kg wet	0.433		106	80-120		
									Prepared: 09/30/04 Analyzed: 10/01/04	
Batch B4I0168 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4I0168-BLK1)										
% Solids	0			%						
Duplicate (B4I0168-DUP1)	**Source: 0409029-08**									
% Solids	21			%		21			0	20
Duplicate (B4I0168-DUP2)	**Source: 0409029-11**									
% Solids	21			%		21			0	20

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:39
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252D

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252D
Reported: 10/14/04 17:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
GR-21	0409029-19	Tissue	09/08/04 10:00	09/08/04 19:30
GR-22	0409029-20	Tissue	09/08/04 10:00	09/08/04 19:30
GR-23	0409029-21	Tissue	09/08/04 10:00	09/08/04 19:30
GR-24	0409029-22	Tissue	09/08/04 10:00	09/08/04 19:30
GR-25	0409029-23	Tissue	09/08/04 10:00	09/08/04 19:30
GR-26	0409029-24	Tissue	09/08/04 10:00	09/08/04 19:30
GR-27	0409029-25	Tissue	09/08/04 10:00	09/08/04 19:30
GR-28	0409029-26	Tissue	09/08/04 10:00	09/08/04 19:30
GR-29	0409029-27	Tissue	09/08/04 10:00	09/08/04 19:30
GR-30	0409029-28	Tissue	09/08/04 10:00	09/08/04 19:30
GR-31	0409029-29	Tissue	09/08/04 10:00	09/08/04 19:30
GR-32	0409029-30	Tissue	09/08/04 10:00	09/08/04 19:30
GR-33	0409029-31	Tissue	09/08/04 10:00	09/08/04 19:30
GR-34	0409029-32	Tissue	09/08/04 10:00	09/08/04 19:30
GR-35	0409029-33	Tissue	09/08/04 10:00	09/08/04 19:30
GR-36	0409029-34	Tissue	09/08/04 10:00	09/08/04 19:30
GR-37	0409029-35	Tissue	09/08/04 10:00	09/08/04 19:30
GR-38	0409029-36	Tissue	09/08/04 10:00	09/08/04 19:30
GR-39	0409029-37	Tissue	09/08/04 10:00	09/08/04 19:30
GR-40	0409029-38	Tissue	09/08/04 10:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 17:26
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409029-19**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-21**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.3**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-20**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-22**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.4**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**20**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-21**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-23**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.0**		**0.14**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**18**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-22**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-24**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.5**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**20**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-23**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-25**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.7**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**20**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-24**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-26**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.6**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**20**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-25**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-27**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.5**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-26**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-28**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.0**		**0.16**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**16**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-27**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-29**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.7**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 17:26
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409029-28**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-30**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.0**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**20**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-29**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-31**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.0**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**21**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-30**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-32**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.8**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**21**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-31**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-33**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.4**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-32**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-34**								Metals by EPA 6000/7000 Series Methods
Mercury	**5.3**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**21**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-33**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-35**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.1**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-34**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-36**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.1**		**0.12**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**21**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-35**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-37**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.1**		**0.16**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**16**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: **0409029-36**								Tissue - Sampled: 09/08/04 10:00
Sample ID: **GR-38**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.3**		**0.11**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**22**			%	B4J0064	10/13/04	10/14/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 17:26
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409029-37								Tissue - Sampled: 09/08/04 10:00
Sample ID: GR-39								Metals by EPA 6000/7000 Series Methods
Mercury	**5.3**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation
Lab ID: 0409029-38								Tissue - Sampled: 09/08/04 10:00
Sample ID: GR-40								Metals by EPA 6000/7000 Series Methods
Mercury	**4.7**		**0.13**	mg/kg dry	B4J0054	10/12/04	10/12/04	7473/SOP535
% Solids	**19**			%	B4J0064	10/13/04	10/14/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252D
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/14/04 17:26
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 10/12/04	
Batch B4J0054 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4J0054-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4J0054-DUP1)	**Source: 0409029-25**									
Mercury	3.7		0.13	mg/kg dry		3.5			6	20
Duplicate (B4J0054-DUP2)	**Source: 0409029-34**									
Mercury	3.9		0.12	mg/kg dry		4.1			5	20
Reference (B4J0054-SRM1)										
Mercury	1.2		0.025	mg/kg wet	1.04		115	80-120		
Reference (B4J0054-SRM2)										
Mercury	0.44		0.025	mg/kg wet	0.433		102	80-120		
									Prepared: 10/13/04 Analyzed: 10/14/04	
Batch B4J0064 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4J0064-BLK1)										
% Solids	0			%						
Duplicate (B4J0064-DUP1)	**Source: 0409029-21**									
% Solids	18			%		18			0	20

United States Environmental Protection Agency

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:**	04252D
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:**	10/14/04 17:26
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**		

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject:	**Analytical Testing Results - Project R04W05** **SDG: 04252E**
From:	**Brenda Bettencourt, Director** **EPA Region 9 Laboratory** **PMD-2**
To:	**Luisa Valiela** **Northern California Office** **WTR-3**

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

A full documentation package for these data, including raw data and sample custody documentation, is on file at the EPA Region 9 Laboratory. If you would like to request additional review and/or validation of the data, please contact Vance Fong at the Region 9 Quality Assurance Office.

If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252E
Reported: 10/07/04 13:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
LR-01	0409030-01	Tissue	09/08/04 15:00	09/08/04 19:30
LR-02	0409030-02	Tissue	09/08/04 15:00	09/08/04 19:30
LR-03	0409030-03	Tissue	09/08/04 15:00	09/08/04 19:30
LR-04	0409030-04	Tissue	09/08/04 15:00	09/08/04 19:30
LR-05	0409030-05	Tissue	09/08/04 15:00	09/08/04 19:30
LR-06	0409030-06	Tissue	09/08/04 15:00	09/08/04 19:30
LR-07	0409030-07	Tissue	09/08/04 15:00	09/08/04 19:30
LR-08	0409030-08	Tissue	09/08/04 15:00	09/08/04 19:30
LR-09	0409030-09	Tissue	09/08/04 15:00	09/08/04 19:30
LR-10	0409030-10	Tissue	09/08/04 15:00	09/08/04 19:30
LR-11	0409030-11	Tissue	09/08/04 15:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252E
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:40
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: **0409030-01**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-01**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.2**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-02**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-02**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.5**		**0.12**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-03**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-03**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.9**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-04**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-04**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.3**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-05**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-05**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.2**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-06**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-06**								Metals by EPA 6000/7000 Series Methods
Mercury	**4.6**		**0.12**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**21**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-07**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-07**								Metals by EPA 6000/7000 Series Methods
Mercury	**3.5**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-08**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-08**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.4**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: **0409030-09**								Tissue - Sampled: 09/08/04 15:00
Sample ID: **LR-09**								Metals by EPA 6000/7000 Series Methods
Mercury	**2.5**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation

United States Environmental Protection Agency
Region 9 Laboratory

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252E
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:40
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409030-10								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-10								Metals by EPA 6000/7000 Series Methods
Mercury	**2.2**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation
Lab ID: 0409030-11								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-11								Metals by EPA 6000/7000 Series Methods
Mercury	**2.0**		**0.11**	mg/kg dry	B4I0160	09/30/04	09/30/04	7473/SOP535
% Solids	**22**			%	B4I0167	09/30/04	10/01/04	% calculation

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Project Manager: Luisa Valiela	**Northern California Office**	**SDG:** 04252E
Project Number: R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:40
Project: South Bay Mercury TMDL	**San Francisco CA, 94105**	

R9

Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
										Prepared & Analyzed: 09/30/04
Batch B4I0160 - - General Metals - Mercury										Metals by EPA 6000/7000 Series Methods - Quality Control
Blank (B4I0160-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4I0160-DUP1)	**Source: 0409030-06**									
Mercury	4.7		0.12	mg/kg dry		4.6			2	20
Duplicate (B4I0160-DUP2)	**Source: 0409030-11**									
Mercury	2.1		0.11	mg/kg dry		2.0			5	20
Reference (B4I0160-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4I0160-SRM2)										
Mercury	0.43		0.025	mg/kg wet	0.433		99	80-120		
										Prepared: 09/30/04 Analyzed: 10/01/04
Batch B4I0167 - - General Inorganic - Solids, Dry Weight										Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
Blank (B4I0167-BLK1)										
% Solids	0			%						
Duplicate (B4I0167-DUP1)	**Source: 0409030-03**									
% Solids	22			%		22			0	20
Duplicate (B4I0167-DUP2)	**Source: 0409030-10**									
% Solids	22			%		22			0	20

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Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252E
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/07/04 13:40
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Qualifiers and Comments

U	Not Detected
NR	Not Reported

United States Environmental Protection Agency

Region 9 Laboratory

1337 S. 46th Street Building 201

Richmond, CA 94804

Subject: **Analytical Testing Results - Project R04W05**
SDG: 04252E

From: **Brenda Bettencourt, Director**
EPA Region 9 Laboratory
PMD-2

To: **Luisa Valiela**
Northern California Office
WTR-3

Attached are the results from the analysis of samples from the **South Bay Mercury TMDL** project. These data have been reviewed in accordance with EPA Region 9 Laboratory policy.

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If you have any questions, please ask for Richard Bauer, the Lab Project Manager at (510)412-2300.

Analyses included in this report:

Mercury	Solids, Dry Weight

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Region 9 Laboratory

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Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager: Luisa Valiela
Project Number: R04W05
Project: South Bay Mercury TMDL

Northern California Office
75 Hawthorne Street
San Francisco CA, 94105

SDG: 04252E
Reported: 10/13/04 15:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
LR-21	0409030-12	Tissue	09/08/04 15:00	09/08/04 19:30
LR-22	0409030-13	Tissue	09/08/04 15:00	09/08/04 19:30
LR-23	0409030-14	Tissue	09/08/04 15:00	09/08/04 19:30
LR-24	0409030-15	Tissue	09/08/04 15:00	09/08/04 19:30
LR-25	0409030-16	Tissue	09/08/04 15:00	09/08/04 19:30
LR-26	0409030-17	Tissue	09/08/04 15:00	09/08/04 19:30
LR-27	0409030-18	Tissue	09/08/04 15:00	09/08/04 19:30
LR-28	0409030-19	Tissue	09/08/04 15:00	09/08/04 19:30
LR-29	0409030-20	Tissue	09/08/04 15:00	09/08/04 19:30
LR-30	0409030-21	Tissue	09/08/04 15:00	09/08/04 19:30
LR-31	0409030-22	Tissue	09/08/04 15:00	09/08/04 19:30
LR-32	0409030-23	Tissue	09/08/04 15:00	09/08/04 19:30
LR-33	0409030-24	Tissue	09/08/04 15:00	09/08/04 19:30
LR-34	0409030-25	Tissue	09/08/04 15:00	09/08/04 19:30
LR-35	0409030-26	Tissue	09/08/04 15:00	09/08/04 19:30
LR-36	0409030-27	Tissue	09/08/04 15:00	09/08/04 19:30
LR-37	0409030-28	Tissue	09/08/04 15:00	09/08/04 19:30
LR-38	0409030-29	Tissue	09/08/04 15:00	09/08/04 19:30
LR-39	0409030-30	Tissue	09/08/04 15:00	09/08/04 19:30
LR-40	0409030-31	Tissue	09/08/04 15:00	09/08/04 19:30

United States Environmental Protection Agency
Region 9 Laboratory

1337 S. 46th Street, Building 201, Richmond, CA 94804
Phone:(510) 412-2300 Fax:(510) 412-2302

Project Manager:	Luisa Valiela	**Northern California Office**	**SDG:** 04252E
Project Number:	R04W05	**75 Hawthorne Street**	**Reported:** 10/13/04 15:04
Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409030-12								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-21								Metals by EPA 6000/7000 Series Methods
Mercury	**0.33**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-13								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-22								Metals by EPA 6000/7000 Series Methods
Mercury	**0.42**		**0.13**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-14								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-23								Metals by EPA 6000/7000 Series Methods
Mercury	**0.55**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-15								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-24								Metals by EPA 6000/7000 Series Methods
Mercury	**0.53**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**23**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-16								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-25								Metals by EPA 6000/7000 Series Methods
Mercury	**0.40**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**23**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-17								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-26								Metals by EPA 6000/7000 Series Methods
Mercury	**0.42**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-18								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-27								Metals by EPA 6000/7000 Series Methods
Mercury	**0.52**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-19								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-28								Metals by EPA 6000/7000 Series Methods
Mercury	**0.40**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-20								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-29								Metals by EPA 6000/7000 Series Methods
Mercury	**0.47**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0051	10/11/04	10/12/04	% calculation

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Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409030-21								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-30								Metals by EPA 6000/7000 Series Methods
Mercury	**0.45**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-22								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-31								Metals by EPA 6000/7000 Series Methods
Mercury	**0.50**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**23**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-23								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-32								Metals by EPA 6000/7000 Series Methods
Mercury	**0.39**		**0.13**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-24								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-33								Metals by EPA 6000/7000 Series Methods
Mercury	**0.35**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-25								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-34								Metals by EPA 6000/7000 Series Methods
Mercury	**0.47**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-26								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-35								Metals by EPA 6000/7000 Series Methods
Mercury	**0.32**		**0.14**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**18**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-27								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-36								Metals by EPA 6000/7000 Series Methods
Mercury	**0.52**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**21**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-28								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-37								Metals by EPA 6000/7000 Series Methods
Mercury	**0.34**		**0.13**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**19**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-29								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-38								Metals by EPA 6000/7000 Series Methods
Mercury	**0.51**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation

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Project:	South Bay Mercury TMDL	**San Francisco CA, 94105**	

Sample Results

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Batch	Prepared	Analyzed	Method
Lab ID: 0409030-30								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-39								Metals by EPA 6000/7000 Series Methods
Mercury	**0.70**		**0.12**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**20**			%	B4J0051	10/11/04	10/12/04	% calculation
Lab ID: 0409030-31								Tissue - Sampled: 09/08/04 15:00
Sample ID: LR-40								Metals by EPA 6000/7000 Series Methods
Mercury	**0.37**		**0.11**	mg/kg dry	B4J0039	10/07/04	10/07/04	7473/SOP535
% Solids	**22**			%	B4J0051	10/11/04	10/12/04	% calculation

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Quality Control

Analyte	Result	Qualifiers / Comments	Quantitation Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
									Prepared & Analyzed: 10/07/04	
Batch B4J0039 - - General Metals - Mercury									Metals by EPA 6000/7000 Series Methods - Quality Control	
Blank (B4J0039-BLK1)										
Mercury	ND	U	0.025	mg/kg wet						
Duplicate (B4J0039-DUP1)	**Source: 0409030-15**									
Mercury	0.57		0.11	mg/kg dry		0.53			7	20
Duplicate (B4J0039-DUP2)	**Source: 0409030-27**									
Mercury	0.56		0.12	mg/kg dry		0.52			7	20
Reference (B4J0039-SRM1)										
Mercury	1.1		0.025	mg/kg wet	1.04		106	80-120		
Reference (B4J0039-SRM2)										
Mercury	0.45		0.025	mg/kg wet	0.433		104	80-120		
									Prepared: 10/11/04 Analyzed: 10/12/04	
Batch B4J0051 - - General Inorganic - Solids, Dry Weight									Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control	
Blank (B4J0051-BLK1)										
% Solids	0			%						
Duplicate (B4J0051-DUP1)	**Source: 0409030-12**									
% Solids	23			%		21			9	20

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Qualifiers and Comments

U	Not Detected
NR	Not Reported