3.0 REFERENCE ENVELOPE TOLERANCE LIMITS FOR SEDIMENT TOXICITY

3.1 Statistical Analysis in Support of Program Goals

Monitoring and assessment data are generally collected and analyzed to provide information necessary for resource management, with the selection of study designs and statistical analyses based on program objectives. One of the primary objectives of the Bay Protection and Toxic Cleanup Program (BPTCP) is to identify and prioritize toxic hot spots, localized areas where pollution impacts are greater than in surrounding water bodies. To accomplish this objective in San Francisco Bay, the program has sought to characterize potential hot spot sites, to characterize the optimal ambient condition of the surrounding water body, and to develop a statistical approach to determine whether conditions at test sites are significantly worse than those expected in less affected areas of the Bay. Using reference site toxicity data to characterize optimal ambient conditions in the San Francisco Bay, we have investigated the use of Reference Envelope tolerance limits to determine which test sites were significantly more toxic than expected of Bay reference conditions. The tolerance limits based solely on reference site data were used as a relative standard against which to compare the mean toxicity test result from test samples. The mechanics of this approach are described in Methods Section (10.4).

This approach is distinct from those used for other monitoring objectives. For many objectives, such as determining the general state of an entire water body, or to simply determine whether a test sediment will have an adverse effect on test organisms, sample toxicity test results can be compared to those from control sediments using simple t-tests or other standard statistical methods (e.g., Schimmel et al., 1994). These tests often consider only the variance among laboratory replicates in determining the statistical significance of differences between samples and controls. The reference envelope method considers variance from all factors that might affect test results, including anything affecting differences among sites and among sampling events. If reference sites can be assumed to be free of anthropogenic chemicals at concentrations affecting test results, then any difference between test sites and reference sites detected by this approach should be due to pollution effects at test sites. For this reason, selection and evaluation of reference sites is critical to the usefulness of the Reference Envelope approach.

3.2 Evaluation of Factors Affecting Tolerance Limit Calculations

Tolerance limits varied widely depending on the toxicity test protocol, the tolerance limit "p" value, the mean and variance in the reference site data set, the distribution of variance (among space, time, interaction and replicate components), the exclusion of outliers, and the number of data points (n) included in the analysis (Figures 27 through 39). Many of these factors are interconnected, as in cases where certain protocols produced more highly variable data and lower

mean response. The effects of various data characteristics on resulting tolerance limits are considered in Results Section 4.

3.3 Constraints on Application of the Reference Envelope

Data from some toxicity test protocols used in this study produced tolerance limits that were either too low or too high to be considered useful. In cases of extremely high variance, negative values were generated for some tolerance limits (e.g., Figure 30), meaning that no possible test result could be considered significantly toxic. Applying such tolerance limits in support of management decisions is clearly inappropriate. In the case of Figure 30, the test protocol was not intended for monitoring applications (and was likely affected by the presence of predators in the intact cores), and the resulting tolerance limits should be disregarded on that basis. Similarly unacceptable tolerance limits could be produced in water bodies lacking unpolluted conditions, where any possible "reference sites" would produce samples causing toxic effects on test organisms. A water body that is uniformly toxic should not be considered free of toxic hot spots based on misapplication of the Reference Envelope approach.

In cases where tolerance limits are very high (such as in Figure 33), it is possible that statistically significant distinctions could be made where there is little reason to believe biologically significant differences exist. A tolerance limit of 95% of the control is indicative of low variability in response among reference sites, but may be too high to be useful in identifying toxic sites. In such cases, the "detectable difference" specific to the test protocol is a reasonable alternative standard for identifying sample toxicity (Thursby et al., 1997). This detectable difference is the difference from the control that a given protocol is capable of detecting as statistically significant in 90% of the samples tested. Thursby et al. (1997) identify a value of 80% of the control as the detectable difference for the *Ampelisca* test, and similar values have been derived for BPTCP test data. Current BPTCP detectable difference (90th percentile MSD) values for some tests used in the BPTCP include: 75% of control for *Eohaustorius*, 77% of control for *Rhepoxynius*, 78% of control for sea urchin embryo/larval development, 59% of control for sea urchin embryo/larval development in SWI exposures, 80% of control for mussel embryo/larval development, 64% of control for *Neanthes* survival, and 44% of control for *Neanthes* growth and 90% of control for abalone embryo/larval development (MPSL data for data sets ranging from 109 to 720 sediment tests, depending on protocol).

The number of reference site data points is a major factor affecting the tolerance limit calculation. For studies with a single source of variance, such as for a number of sites sampled at a single time, examination of the Reference Envelope "g" statistic indicates that a minimum of six

reference site data points is probably necessary for calculation of reasonable tolerance limits. However, tolerance limits based on less than 20 reference site samples should be considered with caution, since smaller data sets result in increasingly lower tolerance limits. For tolerance limits calculated from data sets with multiple sources of variation, such as multiple sites sampled over multiple times, as is often the case, the tolerance limit calculations depend on bootstrapping techniques, and it would be difficult to estimate the minimum number of reference site samples necessary for calculation of reasonable tolerance limits. The tolerance limits in the present study were calculated for data sets with from 6 to 60 samples (*Eohaustorius* in intact cores and in homogenized sediment, respectively; Figures 30 and 29).

3.4 Treatment of Outliers

Variation among reference site results is another major factor affecting tolerance limit values, and this can be strongly influenced by the presence or removal of outliers in the data set (Figure 34a, b, and c). Sediment toxicity has been observed in many studies where concentrations of measured chemicals were low relative to known toxic concentrations (e.g. Long et al., 1990; USEPA, 1986), and low test results from reference sites were observed in the BPTCP screening surveys included here, especially in sea urchin pore water tests. These outliers were identified using a conservative technique for extreme outliers (Tukey, 1997; Methods Section 10.4.4). In some cases, determination of appropriate tolerance limits may depend on outlier removal. A test site that produced a low toxicity test value would not likely be identified as a hot spot on the basis of a single measurement, and subsequent non-toxic results would generally establish the single low value as an outlier, reducing regulatory concern for that site. Similar removal of outliers from the reference population is probably necessary to adequately characterize reference site conditions and allow calculation of reasonable tolerance limits.

3.5 Selection of Reference Envelope "p" Values

The Reference Envelope "p" value determines what percentile of the reference distribution is designated as unacceptably toxic. A "p" value of 10 establishes the tolerance limit such that there is 95% certainty that a value lower than the tolerance limit would be in (or below) the most toxic 10% of samples collected from the water body that was characterized by the reference sites. An advantage of the Reference Envelope approach is that resource managers may select the percentile considered unacceptable for a given assessment situation. Selection of the "p" value should be based on the overall level of pollution in the entire water body, on the degree of certainty that available reference sites adequately characterize optimal conditions existing in the water body, and on the social impacts of decisions regarding site characterization. If the entire water body is known to be affected by anthropogenic chemicals, the extreme situation would be to designate

the entire water body for management attention. This clearly would not require statistical analysis. The less extreme case would be to use a high "p" value, such that the most toxic 20% or more would be considered worthy of regulation. In the opposite case, where the water body is generally very free from pollution, a low "p" value (such as 1) would be appropriate to identify only the very few sites where pollution impacts may be worth investigating.

If reference conditions are well characterized, with numerous reference sites sampled under a variety of conditions, then there will be more confidence that the "p" value chosen will allow accurate discrimination at the chosen level of concern. If there is greater uncertainty regarding reference conditions, "p" values may have to be adjusted up or down, depending on the environmental or economic consequences of mistakenly characterizing test sites. If the water body contained critical habitat for endangered species, for example, and reference sites were poorly characterized, managers might choose to investigate a greater number of sites (higher "p" value) then would be necessary if more were known about optimal water body conditions. On the other hand, if social costs for investigation, litigation, and/or cleanup of designated sites were very high, uncertainty about optimal ambient conditions might warrant adjusting "p" values down to limit the number of sites considered.

While considering all of these factors in the designation of a component of a statistical test ("p") may seem unusual, it is no more subjective than selecting the sample size, level of replication, and alpha values that determine the results of more commonly used statistical tests. In the Reference Envelope calculation, however, this decision can be made deliberately, based on program objectives, rather than left unintentionally to statistical convention or logistical constraints.

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Appendix A

Analytical Chemistry

Section I

Sampling Data

BPTCP Sampling Dates, and Location

STANUM	STATION	IDORG	DATE	LEG	LATITUDE	LONGITUDE	GISLAT	GISLONG
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	37,55,42N	122,40,57W	37.92842300	122.68259999
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	37,55,41N	122,40,57W	37.92814500	122.68259999
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	37,55,40N	122,40,57W	37.92786667	122.68259999
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	37,53,93N	122,27,86W	37.89883300	122.46433300
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	37,53,95N	122,27,85W	37.89916700	122.46416700
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	37,54,01N	122,27,91W	37.90016700	122.46516700
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	38,08,35N	122,52,47W	38.13916700	122.87450000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	38,08,36N	122,52,48W	38.13933300	122.87466700
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	38,08,40N	122,52,46W	38.14000000	122.87433300
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	38,06,87N	122,25,18W	38.11450000	122.41966700
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	38,06,87N	122,25,16W	38.11450000	122.41933300
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	38,06,87N	122,25,12W	38.11450000	122.41666700
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	38,06,66N	122,19,71W	38.11100000	122.32850000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	38,06,72N	122,19,71W	38.11200000	122.32850000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	38,06,73N	122,19,77W	38.11216700	122.32950000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	38,08,37N	122,52,42W	38.13950000	122.87366667
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	38,08,36N	122,52,46W	38.13933333	122.87433333
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	38,08,35N	122,52,40W	38.13916667	122.87333333
20011.0	ISLAIS CREEK	1411	9/6/94	35	37,44,90N	122,23,51W	37.74833333	122.39183333
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	37,53,94N	122,27,82W	37.89900000	122.46366667
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	37,53,97N	122,27,87W	37.89950000	122.46450000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	37,54,00N	122,27,92W	37.90000000	122.46533333
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	38,06,66N	122,19,71W	38.11100000	122.32850000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	38,06,69N	122,19,71W	38.11150000	122.32850000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	38,06,71N	122,19,75W	38.11183333	122.32916667
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	38,06,82N	122,25,16W	38.11366667	122.41933333
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	38,06,87N	122,25,16W	38.11450000	122.41933333
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	38,06,82N	122,25,19W	38.11366667	122.41983333
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	37,57,26N	122,24,09W	37.95433333	122.40150000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	37,53,931N	122,27,818W	37.89885000	122.46363333
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	37,53,891N	122,27,841W	37.89818333	122.46401667
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	37,53,978N	122,27,972W	37.89963333	122.46620000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	37,34,296N	122,08,990W	37.57160000	122.14983333
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	37,34,270N	122,08,934W	37.57116667	122.14890000
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	37,34,239N	122,08,983W	37.57065000	122.14971667
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	37,48,862N	122,21,858W	37.81436667	122.36430000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	37,32,153N	122,07,139W	37.53588333	122.11898333
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	37,32,183N	122,07,161W	37.53638333	122.11935000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	37,32,193N	122,07,169W	37.53655000	122.11948333
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	38,08,364N	122,52,478W	38.13940000	122.87463333
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	38,06,869N	122,25,134W	38.11448333	122.41890000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	38,06,834N	122,25,172W	38.11390000	122.41953333
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	38,06,839N	122,25,089W	38.11398333	122.41815000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	38,06,726N	122,19,700W	38.11210000	122.32833333
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	38,06,770N	122,19,704W	38.11283333	122.32840000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	38,06,807N	122,19,699W	38.11345000	122.32831667

Section II

Grain Size and Total Organic Carbon

San Francisco Reference Site Study Grain SizeData

STANUM	IDORG	LEG	TYPE	COARSE SAND	MED/FINE SAND	COARSE SILT	MED/FINE SILT	CLAY/ COLLOID	%FINES	%DEBRIS	TOC
20005.0	1219	31	SAM	0.85	7.01	8.53	54.48	29.13	92.14	0.00	1.13
20005.0	1220	31	FR	0.71	8.27	8.04	53.60	29.38	91.02	0.00	1.09
20005.0	1221	31	FR	0.22	5.06	8.18	54.00	32.54	94.72	0.14	1.13
20006.0	1222	31	SAM	0.22	0.27	5.44	55.36	38.71	99.51	0.00	1.43
20006.0	1223	31	FR	0.16	0.31	4.54	47.55	47.44	99.53	0.00	1.36
20006.0	1224	31	FR	0.17	0.54	3.93	42.29	53.06	99.29	0.07	1.35
20007.0	1225	31	SAM	0.00	1.00	6.99	62.41	29.60	99.00	0.27	0.86
20007.0	1226	31	FR	0.00	1.20	7.14	60.53	31.13	98.80	0.27	1.05
20007.0	1227	31	FR	0.00	0.81	4.76	62.32	32.11	99.19	0.23	1.03
20008.0	1228	31	SAM	0.34	40.18	6.00	35.03	18.45	59.48	0.00	1.26
20008.0	1229	31	FR	0.65	27.53	12.40	40.28	19.13	71.81	0.20	1.85
20008.0	1230	31	FR	2.69	38.19	4.81	39.00	15.30	59.12	0.11	1.26
20009.0	1231	31	SAM	0.17	0.73	1.35	29.26	68.49	99.10	0.10	2.39
20009.0	1232	31	FR	0.18	0.64	0.67	34.74	63.77	99.18	0.08	2.23
20009.0	1233	31	FR	0.09	0.24	0.67	39.81	59.19	99.67	0.14	2.23
20005.0	1398	35	SAM	0.17	4.47	8.29	60.97	26.09	95.35	0.00	1.24
20005.0	1399	35	FR	0.14	3.78	7.69	48.27	40.12	96.08	0.00	1.16
20005.0	1400	35	FR	0.36	3.43	9.60	51.94	34.66	96.21	0.00	1.23
20006.0	1401	35	SAM	0.27	0.48	1.55	64.50	33.20	99.25	0.00	1.37
20006.0	1402	35	FR	0.16	0.32	3.16	64.82	31.53	99.51	0.00	1.47
20006.0	1403	35	FR	0.90	0.37	7.72	57.67	33.34	98.73	0.00	1.40
20007.0	1404	35	SAM	0.68	1.33	6.74	66.20	25.06	97.99	0.00	0.98
20007.0	1405	35	FR	0.57	0.81	6.20	66.83	25.59	98.62	0.00	0.95
20007.0	1406	35	FR	0.94	1.32	7.61	60.17	29.96	97.73	0.00	1.03
20009.0	1407	35	SAM	0.25	0.74	6.78	68.55	23.69	99.01	0.00	2.34
20009.0	1408	35	FR	1.03	0.59	1.03	61.58	35.76	98.38	0.00	2.31
20009.0	1409	35	FR	0.46	2.22	1.72	65.95	29.65	97.32	0.00	2.31
20010.0	1410	35	SAM	0.70	2.08	5.84	56.92	34.46	97.22	0.00	1.43
20011.0	1411	35	SAM	1.13	6.15	6.89	66.54	19.29	92.72	0.00	4.32
20005.0	1461	37	SAM	0.23	4.72	3.42	54.88	36.75	95.05	0.31	
20005.0	1462	37	FR	0.16	4.24	10.79	46.51	38.29	95.59	0.01	1.08
20005.0	1463	37	FR	0.20	6.66	10.89	50.26	31.99	93.14	0.01	0.96
20007.0	1464	37	SAM	0.09	0.37	5.48	76.43	17.62	99.53	0.00	
20007.0	1465	37	FR	0.08	0.46	5.00	80.34	14.12	99.46	0.00	0.74
20007.0	1466	37	FR	0.08	0.37	6.98	71.07	21.51	99.56	0.00	1.06
20006.0	1467	37	SAM	0.19	0.38	2.56	54.35	42.52	99.43	0.03	
20006.0	1468	37	FR	0.40	0.71	0.00	37.78	61.11	98.89	0.13	1.37
20006.0	1469	37	FR	0.24	0.83	1.24	66.58	31.11	98.93	0.00	1.44
20009.0	1470	37	SAM	1.13	0.79	0.00	36.03	62.05	98.08	0.68	2.24
20012.0	1471	37	SAM	1.36	31.22	2.17	43.03	22.22	67.42	0.05	1.10
20013.0	1472	37	SAM	0.81	8.22	1.99	67.87	21.11	90.97	0.04	1.30
20013.0	1473	37	FR	0.71	9.69	6.71	58.25	24.64	89.60	0.04	1.26
20013.0	1474	37	FR	1.47	10.88	3.62	64.51	19.52	87.65	0.00	1.21
20014.0	1475	37	SAM	0.57	17.90	8.46	54.38	18.69	81.53	0.05	0.92
20014.0	1476	37	FR	0.60	17.11	9.35	55.34	17.59	82.28	0.13	0.88
20014.0	1477	37	FR	0.67	18.33	10.76	55.34	14.90	81.00	0.09	0.86

Section III

Trace Metal Concentrations

Trace Metal Analysis (ppm-ug/g)

STANUM	STATION	IDORG	DATE	LEG	TMMOIST	ALUMINUM	ANTIMONY	ARSENIC	CADMIUM	CHROMIUM	COPPER
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	61.4	52300.00	1.440	12.000	0.2680	238.000	56.50
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	61.0	56800.00	1.100	11.000	0.2050	219.000	50.40
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	68.4	52500.00	1.260	8.500	0.2000	222.000	50.10
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	66.7	68600.00	1.740	11.000	0.1970	207.000	65.90
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	64.7	57600.00	1.710	8.700	0.1950	195.000	60.60
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	64.8	57400.00	1.380	6.900	0.2060	198.000	58.80
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	47.9	51500.00	1.200	14.000	0.2430	194.000	49.80
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	50.5	52600.00	1.520	13.000	0.2500	202.000	52.80
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	49.5	57600.00	1.650	14.000	0.2630	195.000	54.40
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	55.1	76300.00	0.966	11.000	0.2010	196.000	47.20
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	56.7	59600.00	0.859	7.220	0.1500	181.000	39.90
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	56.9	64200.00	0.981	6.090	0.1840	186.000	38.90
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	55.3	70000.00	0.881	6.490	0.2320	193.000	37.80
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	49.5	92000.00	0.641	8.540	0.1270	212.000	33.70
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	46.4	69000.00	0.623	8.780	0.1520	213.000	32.10
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	45.9	78100.00	0.659	9.110	0.1440	206.000	33.30
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	62.0	83700.00	1.120	9.580	0.2810	209.000	65.80
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	48.5	93500.00	0.980	12.700	0.2370	181.000	46.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.0	-9.00	-9.000	-9.000	-9.0000	-9.000	-9.00

Trace Metal Analysis (ppm-ug/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	IRON	LEAD	MANGANESE	MERCURY	NICKEL	SILVER	SELENIUM	TIN	ZINC
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	47900.0	25.200	523.00	0.3510	107.000	0.3300	0.250	3.6500	154.0000
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	43300.0	21.500	519.00	0.2640	93.000	0.2720	0.220	2.9500	137.0000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	49900.0	20.800	664.00	0.2470	104.000	0.3470	-8.000	2.5900	137.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	54100.0	28.900	948.00	0.3190	123.000	0.2720	0.230	3.4200	180.0000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	51000.0	26.500	863.00	0.2680	113.000	0.2500	-8.000	2.9700	163.0000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	52500.0	26.000	861.00	0.2890	117.000	0.2630	-8.000	3.0200	156.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	46000.0	22.300	655.00	0.2510	73.000	0.2270	-8.000	2.4000	141.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	45600.0	24.300	701.00	0.2690	76.000	0.2640	-8.000	2.3300	151.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	45800.0	25.600	645.00	0.2580	73.000	0.2660	-8.000	2.0600	146.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	43000.0	23.600	483.00	0.2560	97.800	0.2600	0.181	3.0200	138.0000
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	45100.0	24.200	644.00	0.2630	102.000	0.2850	0.166	3.0600	134.0000
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	44700.0	22.900	589.00	0.2160	98.100	0.3010	0.156	2.8100	136.0000
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	48200.0	23.100	565.00	0.2590	96.300	0.2710	0.171	2.7800	127.0000
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	43300.0	23.500	534.00	0.2020	85.400	0.2560	0.185	2.5100	122.0000
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	42200.0	24.000	543.00	0.1960	83.300	0.2590	0.294	2.5400	109.0000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	42900.0	22.600	534.00	0.1880	82.900	0.2730	0.204	2.0700	107.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	56900.0	31.500	743.00	0.3850	135.000	0.3080	0.168	3.8000	177.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	44800.0	22.200	740.00	0.2790	102.000	0.2220	0.166	2.4300	139.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.0	-9.000	-9.00	-9.0000	-9.000	-9.0000	-9.000	-9.0000	-9.0000

Trace Metal Analysis (ppm-ug/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	ASBATCH	SEBATCH	TMBATCH	TMDATAQC
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.0	-9.0	-9.0	-9
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.0	-9.0	-9.0	-9
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	11.1	11.1	11.1	-4
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	11.1	11.1	11.1	-4
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	11.1	11.1	11.1	-4
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.0	-9.0	-9.0	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.0	-9.0	-9.0	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	11.1	11.1	11.1	-4
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	11.1	11.1	11.1	-4
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	11.1	11.1	11.1	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	11.1	11.1	11.1	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	11.1	11.1	11.1	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	11.1	11.1	11.1	-4
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.0	-9.0	-9.0	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.0	-9.0	-9.0	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.0	-9.0	-9.0	-9
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.0	-9.0	-9.0	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.0	-9.0	-9.0	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.0	-9.0	-9.0	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.0	-9.0	-9.0	-9
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	15.1	15.1	15.1	-4
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.0	-9.0	-9.0	-9
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.0	-9.0	-9.0	-9
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	15.1	15.1	15.1	-4
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	15.1	15.1	15.1	-4
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	15.1	15.1	15.1	-4
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.0	-9.0	-9.0	-9
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	15.1	15.1	15.1	-4
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	15.1	15.1	15.1	-4
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	15.1	15.1	15.1	-4
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	15.1	15.1	15.1	-4
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.0	-9.0	-9.0	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.0	-9.0	-9.0	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	15.1	15.1	15.1	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.0	-9.0	-9.0	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.0	-9.0	-9.0	-9

Section IV

Pesticide Concentrations

Pesticide Analysis (ppb-ng/g)

STANUM	STATION	IDORG	DATE	LEG	SOWEIGHT	SOMOIST	ALDRIN	CCHLOR	TCHLOR	ACDEN	GCDEN	CLPYR	DACTH	OPDDD	PPDDD
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	10.71	56.44	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	1.16	2.300
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	10.24	54.06	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	1.35	1.500
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	10.09	61.52	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	1.40	0.860
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	10.69	58.67	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	0.850
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	10.45	59.81	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	2.080
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	11.48	58.75	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	0.216	-8.00	2.080
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	10.14	48.72	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.930
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	10.61	50.05	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	2.200
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	10.02	54.50	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.960
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	10.82	52.12	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	2.580
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	10.40	57.16	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.040
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	10.03	56.70	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.030
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	10.15	55.91	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.020
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	10.10	48.62	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.740
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	10.36	46.15	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	1.210
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	10.26	45.61	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	0.840
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	10.28	52.75	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	2.620
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	10.81	46.83	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.00	5.320
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.00	-9.000

Pesticide Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	OPDDE	PPDDE	PPDDMS	PPDDMU	OPDDT	PPDDT	DICLB	DIELDRIN	ENDO_I	ENDO_II	ESO4
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	-8.00	2.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	-8.00	2.12	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	-8.00	2.02	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	-8.00	2.89	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	-8.00	2.16	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	-8.00	2.10	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.00	1.83	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.00	1.87	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	-8.00	1.99	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	-8.00	1.92	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	-8.00	1.57	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	-8.00	1.36	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	-8.00	1.41	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	-8.00	1.02	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	-8.00	1.99	-8.00	-8.00	-8.00	-8.00	-8.00	-8.000	-8.000	-8.00	-8.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.00	6.86	-8.00	-8.00	-8.00	58.10	-8.00	-8.000	-8.000	-8.00	-8.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.000	-9.000	-9.00	-9.00

Pesticide Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	ENDRIN	HCHA	HCHB	HCHG	HCHD	HEPTACHLOR	HE	HCB	METHOXY	MIREX	CNONA
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.346	-8.00	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.269	-8.00	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.240	-8.00	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.236	-8.00	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.258	-8.00	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.411	-8.00	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.309	-8.00	-8.000	-8.000
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	-8.000	-8.00	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.332	-8.00	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.00	-8.000	-8.00	-8.000	-8.000	-8.000	-8.000	0.579	-8.00	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.000	-9.00	-9.000	-9.000	-9.000	-9.000	-9.000	-9.00	-9.000	-9.000

Section V

PAH Concentrations

PAH Analysis (ppb-ng/g)

STANUM	STATION	IDORG	DATE	LEG	ACY	ACE	ANT	BAA	BAP	BBF	BKF	BGP	BEP	BPH	CHR	DBA	DMN	FLA
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	8.67	7.93	28.10	88.00	298.00	267.00	83.90	234.00	144.00	11.80	94.70	30.20	-8.00	265.00
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	8.22	8.71	28.20	86.10	251.00	224.00	71.70	195.00	124.00	11.10	99.50	26.00	-8.00	230.00
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	8.46	7.51	23.00	83.70	242.00	234.00	73.90	180.00	124.00	11.20	85.00	24.90	-8.00	313.00
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	5.37	-8.00	11.70	47.40	166.00	150.00	44.40	138.00	86.20	8.74	42.30	18.00	-8.00	142.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	6.26	5.15	14.30	51.80	169.00	149.00	44.20	139.00	85.80	8.60	44.80	18.50	-8.00	148.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	-8.00	-8.00	14.10	48.90	167.00	148.00	44.30	134.00	84.60	8.72	43.00	17.90	-8.00	139.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.00	-8.00	7.13	39.50	118.00	105.00	32.60	95.90	61.80	6.51	33.40	13.30	-8.00	112.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.00	-8.00	12.00	40.10	121.00	107.00	32.50	98.60	63.70	6.11	43.30	13.40	-8.00	113.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	5.66	5.06	12.80	58.50	154.00	134.00	43.50	131.00	83.80	7.46	50.20	18.00	-8.00	161.00
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	31.40	12.40	44.30	351.00	663.00	967.00	422.00	524.00	520.00	11.10	372.00	136.00	5.02	391.00
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	6.95	5.61	24.10	60.00	182.00	170.00	70.70	156.00	99.40	9.87	65.80	23.30	-8.00	172.00
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	7.72	8.98	24.60	75.70	227.00	203.00	82.70	188.00	120.00	8.92	80.20	44.50	-8.00	201.00
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	8.37	5.59	27.30	69.10	207.00	186.00	77.80	178.00	111.00	8.96	71.40	30.50	-8.00	192.00
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	9.83	8.98	38.30	101.00	263.00	227.00	87.20	185.00	130.00	8.70	95.00	30.00	-8.00	261.00
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	13.60	9.78	55.40	125.00	287.00	244.00	96.60	195.00	140.00	8.86	122.00	34.60	-8.00	315.00
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	15.30	9.01	49.10	124.00	278.00	236.00	95.60	194.00	140.00	9.40	115.00	34.10	-8.00	316.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	5.72	-8.00	20.10	56.30	168.00	146.00	64.50	138.00	92.30	8.37	58.60	23.10	-8.00	161.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.00	-8.00	12.10	48.40	122.00	111.00	47.90	108.00	70.50	6.51	56.10	19.90	-8.00	146.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00

PAH Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	FLU	IND	MNP1	MNP2	MPH1	NPH	PHN	PER	PYR	TMN	PAHBATCH	SODATAQC
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	9.80	239.00	8.33	15.40	16.10	32.60	105.00	94.10	309.00	-8.00	73.36	-4
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	9.84	201.00	7.71	14.00	15.00	30.70	101.00	91.80	276.00	-8.00	73.36	-4
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	10.60	189.00	7.97	14.50	15.00	26.80	111.00	89.80	320.00	-8.00	73.36	-4
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	7.41	136.00	7.01	12.70	8.93	21.10	56.50	96.10	176.00	-8.00	73.36	-4
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	8.37	139.00	6.81	13.50	11.50	21.50	68.20	93.40	182.00	-8.00	73.36	-4
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	6.81	132.00	6.95	13.40	9.28	19.80	54.10	91.90	172.00	-8.00	73.36	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.00	94.50	5.22	10.30	7.12	15.90	41.00	64.70	137.00	-8.00	73.36	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	5.27	95.10	5.62	10.80	7.91	14.90	47.10	62.50	137.00	-8.00	73.36	-4
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	6.75	128.00	7.15	11.60	10.50	21.90	70.20	75.50	187.00	-8.00	73.37	-4
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	14.80	548.00	10.50	19.10	15.60	38.60	119.00	183.00	767.00	-8.00	74.50	-5
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	9.18	165.00	7.28	13.40	11.60	27.60	85.50	59.00	213.00	-8.00	74.50	-5
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	9.57	220.00	7.24	12.60	11.10	25.50	90.30	66.80	250.00	-8.00	74.50	-5
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	9.53	194.00	6.57	12.50	13.90	25.10	95.20	60.80	238.00	-8.00	74.50	-5
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	9.84	206.00	5.96	11.60	13.60	26.10	114.00	68.30	324.00	-8.00	74.50	-5
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	12.90	217.00	7.01	12.50	20.80	29.20	161.00	74.70	388.00	-8.00	74.50	-5
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	13.80	213.00	8.04	14.30	21.90	34.10	167.00	72.10	396.00	-8.00	74.50	-5
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	7.70	145.00	6.61	12.60	9.96	21.30	69.10	93.70	205.00	-8.00	74.50	-5
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	5.46	108.00	5.55	10.80	6.81	18.40	56.00	71.90	176.00	-8.00	74.50	-5
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9.00	-9

Section VI

PCB Concentrations

PCB Congener Analysis (ppb-ng/g)

STANUM	STATION	IDORG	DATE	LEG	PCB5	PCB8	PCB15	PCB18	PCB27	PCB28	PCB29	PCB31	PCB44	PCB49	PCB52	PCB66	PCB70	PCB74
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.000	-8.000	-8.000	-8.000
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000

PCB Congener Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	PCB87	PCB95	PCB97	PCB99	PCB101	PCB105	PCB110	PCB118	PCB128	PCB132	PCB137	PCB138
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	-8.000	0.714	-8.000	0.516	0.943	-8.000	1.210	0.886	-8.000	-8.000	-8.000	2.090
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	-8.000	0.568	-8.000	-8.000	0.729	-8.000	0.988	0.714	-8.000	-8.000	-8.000	1.750
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	-8.000	0.574	-8.000	-8.000	0.725	-8.000	0.980	0.678	-8.000	-8.000	-8.000	1.760
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	-8.000	-8.000	-8.000	-8.000	0.513	-8.000	0.714	0.511	-8.000	-8.000	-8.000	1.350
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.647	-8.000	-8.000	-8.000	-8.000	1.290
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	-8.000	-8.000	-8.000	-8.000	0.509	-8.000	0.684	-8.000	-8.000	-8.000	-8.000	1.390
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.523	-8.000	-8.000	-8.000	-8.000	1.030
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.563	-8.000	-8.000	-8.000	-8.000	1.030
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.633	-8.000	-8.000	-8.000	-8.000	1.200
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	-8.000	0.769	-8.000	0.581	0.998	-8.000	1.130	0.800	-8.000	-8.000	-8.000	2.180
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	-8.000	-8.000	-8.000	-8.000	0.579	-8.000	0.670	0.822	-8.000	-8.000	-8.000	1.620
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	-8.000	-8.000	-8.000	-8.000	0.697	-8.000	0.818	0.961	-8.000	-8.000	-8.000	1.690
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	-8.000	-8.000	-8.000	-8.000	0.553	-8.000	0.717	0.853	-8.000	-8.000	-8.000	1.630
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	-8.000	-8.000	-8.000	-8.000	0.539	-8.000	0.769	0.722	-8.000	-8.000	-8.000	1.700
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	-8.000	-8.000	-8.000	-8.000	0.544	-8.000	0.769	0.680	-8.000	-8.000	-8.000	1.650
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	-8.000	-8.000	-8.000	0.541	0.574	-8.000	0.851	0.748	-8.000	-8.000	-8.000	1.810
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	-8.000	0.506	-8.000	-8.000	0.711	-8.000	0.944	0.754	-8.000	-8.000	-8.000	1.680
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.955
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000

PCB Congener Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	PCB149	PCB151	PCB153	PCB156	PCB157	PCB158	PCB170	PCB174	PCB177	PCB180	PCB183
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	1.270	-8.000	1.830	-8.000	-8.000	-8.000	0.549	-8.000	-8.000	1.330	-8.000
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	1.040	-8.000	1.530	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	1.140	-8.000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	1.040	-8.000	1.470	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.928	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.769	-8.000	1.110	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.656	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.712	-8.000	1.070	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.622	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.802	-8.000	1.180	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	1.020	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.632	-8.000	0.911	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.673	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.617	-8.000	0.911	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.561	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.692	-8.000	1.050	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.622	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	1.540	0.512	1.770	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	1.060	-8.000
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.784	-8.000	1.520	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.866	-8.000
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.818	-8.000	1.550	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.836	-8.000
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.785	-8.000	1.530	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.828	-8.000
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.973	-8.000	1.420	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.847	-8.000
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.960	-8.000	1.360	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.784	-8.000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	1.030	-8.000	1.420	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.807	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	1.010	-8.000	1.240	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.633	-8.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.585	-8.000	0.764	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000

PCB Congener Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	PCB187	PCB189	PCB194	PCB195	PCB201	PCB203	PCB206	PCB209	ARO1248	ARO1254	ARO1260
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.790	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	20.000	13.000
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.653	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	17.000	11.000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.582	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	17.000	9.500
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	13.000	7.900
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	12.000	7.400
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.645	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	13.000	12.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	10.000	8.500
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	10.000	6.400
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	11.000	6.400
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.727	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	17.000	14.000
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.616	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	14.000	10.000
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.630	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	16.000	9.600
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.612	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	14.000	9.600
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.588	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	17.000	9.000
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.544	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	0.000	0.000	0.000
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.574	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	16.000	9.400
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.000	-9.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	-8.000	8.200	6.300
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000	-9.000

PCB Congener Analysis (ppb-ng/g) (con't.)

STANUM	STATION	IDORG	DATE	LEG	ARO5460	PCBBATCH
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	12.000	73.36
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	11.000	73.36
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	10.000	73.36
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	12.000	73.36
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	9.000	73.36
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	9.000	73.36
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	7.000	73.36
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	10.000	73.36
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	8.000	73.37
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.00
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.00
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.00
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.00
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.000	-9.00
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	-8.000	74.50
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.00
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.00
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	6.370	74.50
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	6.000	74.50
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	7.000	74.50
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.00
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	-8.000	74.50
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	-8.000	74.50
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	-8.000	74.50
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	5.180	74.50
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	-8.000	74.50
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.00

Section VII

Chemistry Summations and Quotients

Chemistry Summations and Quotients

STANUM	STATION	IDORG	DATE	LEG	TTL_CHLR	TTL_DDT	TTL_PCB	LMW_PAH	HMW_PAH	TTL_PAH	ANTIMOQE	ARSENIQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	1.750	6.96	11.168	248.73	2146.90	2395.63	0.576	0.171
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	1.750	6.47	9.516	239.48	1876.10	2115.58	0.440	0.157
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	1.750	5.78	9.143	241.04	1959.30	2200.34	0.504	0.121
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	1.750	5.74	7.390	146.96	1242.40	1389.36	0.696	0.157
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	1.750	6.24	6.732	169.19	1264.50	1433.69	0.684	0.124
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	1.750	6.18	7.994	143.16	1222.60	1365.76	0.552	0.099
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	1.750	5.76	6.364	105.68	907.70	1013.38	0.480	0.200
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	1.750	6.07	6.252	119.71	927.20	1046.91	0.608	0.186
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	1.750	5.95	6.622	164.08	1224.50	1388.58	0.660	0.200
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	1.750	6.50	10.924	324.32	5844.00	6168.32	0.386	0.157
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	1.750	4.61	9.023	206.09	1436.20	1642.29	0.344	0.103
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	1.750	4.39	9.364	211.53	1758.90	1970.43	0.392	0.087
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	1.750	4.43	9.006	218.02	1615.60	1833.62	0.352	0.093
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	1.750	4.76	8.816	251.91	1977.50	2229.41	0.256	0.122
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	1.750	3.71	8.562	336.05	2238.90	2574.95	0.249	0.125
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	1.750	3.34	8.933	346.95	2213.80	2560.75	0.264	0.130
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	1.750	6.61	8.268	168.96	1351.50	1520.46	0.448	0.137
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	1.750	71.78	5.719	131.63	1085.70	1217.33	0.392	0.181
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.00	-9.000	-9.00	-9.00	-9.00	-9.000	-9.000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	ARSENIQP	CADMIUQE	CADMIUQP	CHROMIQE	CHROMIQP	COPPERQE	COPPERQP	LEADQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.288	0.0279	0.0637	0.643	1.484	0.21	0.52	0.116
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.264	0.0214	0.0487	0.592	1.365	0.19	0.47	0.099
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.204	0.0208	0.0475	0.600	1.384	0.19	0.46	0.095
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.264	0.0205	0.0468	0.559	1.291	0.24	0.61	0.133
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.209	0.0203	0.0463	0.527	1.216	0.22	0.56	0.122
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.166	0.0215	0.0489	0.535	1.234	0.22	0.54	0.119
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.337	0.0253	0.0577	0.524	1.209	0.18	0.46	0.102
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.313	0.0260	0.0594	0.546	1.259	0.20	0.49	0.111
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.337	0.0274	0.0625	0.527	1.216	0.20	0.50	0.117
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.264	0.0209	0.0477	0.530	1.222	0.17	0.44	0.108
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.174	0.0156	0.0356	0.489	1.128	0.15	0.37	0.111
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.146	0.0192	0.0437	0.503	1.160	0.14	0.36	0.105
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.156	0.0242	0.0551	0.522	1.203	0.14	0.35	0.106
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.205	0.0132	0.0302	0.573	1.322	0.12	0.31	0.108
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.211	0.0158	0.0361	0.576	1.328	0.12	0.30	0.110
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.219	0.0150	0.0342	0.557	1.284	0.12	0.31	0.104
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.230	0.0293	0.0667	0.565	1.303	0.24	0.61	0.144
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.305	0.0247	0.0563	0.489	1.128	0.17	0.43	0.102
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.00	-9.00	-9.000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	LEADQP	MERCURQE	MERCURQP	NICKELQE	NICKELQP	SILVERQE	SILVERQP	ZINCQE	ZINCQP
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.225	0.4944	0.5043	2.074	2.500	0.0892	0.1864	0.3756	0.5683
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.192	0.3718	0.3793	1.802	2.173	0.0735	0.1537	0.3341	0.5055
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.185	0.3479	0.3549	2.016	2.430	0.0938	0.1960	0.3341	0.5055
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.258	0.4493	0.4583	2.384	2.874	0.0735	0.1537	0.4390	0.6642
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.236	0.3775	0.3851	2.190	2.640	0.0676	0.1412	0.3976	0.6015
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.232	0.4070	0.4152	2.267	2.734	0.0711	0.1486	0.3805	0.5756
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.199	0.3535	0.3606	1.415	1.706	0.0614	0.1282	0.3439	0.5203
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.217	0.3789	0.3865	1.473	1.776	0.0714	0.1492	0.3683	0.5572
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.228	0.3634	0.3707	1.415	1.706	0.0719	0.1503	0.3561	0.5387
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.210	0.3606	0.3678	1.895	2.285	0.0703	0.1469	0.3366	0.5092
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.216	0.3704	0.3779	1.977	2.383	0.0770	0.1610	0.3268	0.4945
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.204	0.3042	0.3103	1.901	2.292	0.0814	0.1701	0.3317	0.5018
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.206	0.3648	0.3721	1.866	2.250	0.0732	0.1531	0.3098	0.4686
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.209	0.2845	0.2902	1.655	1.995	0.0692	0.1446	0.2976	0.4502
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.214	0.2761	0.2816	1.614	1.946	0.0700	0.1463	0.2659	0.4022
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.201	0.2648	0.2701	1.607	1.937	0.0738	0.1542	0.2610	0.3948
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.281	0.5423	0.5532	2.616	3.154	0.0832	0.1740	0.4317	0.6531
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.198	0.3930	0.4009	1.977	2.383	0.0600	0.1254	0.3390	0.5129
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.000	-9.0000	-9.0000	-9.000	-9.000	-9.0000	-9.0000	-9.0000	-9.0000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	METSUMQE	METSUMQP	TTLCHLQE	TTLCHLQP	PPDDEQE	PPDDEQP	PPDDTQP	TTLDDTQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4 25 94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 1	1219	4 25 94	31	4.7771	6.3397	0.292	0.365	0.07407	0.00534	0.10482	0.15
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	4.0808	5.5512	0.292	0.365	0.07852	0.00567	0.10482	0.14
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	4.3226	5.7669	0.292	0.365	0.07481	0.00540	0.10482	0.13
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26 94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26 94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26 94	31	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26 94	31	5.1513	6.6200	0.292	0.365	0.10704	0.00772	0.10482	0.12
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	4.7300	6.0351	0.292	0.365	0.08000	0.00577	0.10482	0.14
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	4.6721	6.0943	0.292	0.365	0.07778	0.00561	0.10482	0.13
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4 27 94	31	3.6851	4.9778	0.292	0.365	0.06778	0.00489	0.10482	0.12
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27 94	31	3.9686	5.2073	0.292	0.365	0.06926	0.00500	0.10482	0.13
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	3.9378	5.1092	0.292	0.365	0.07370	0.00532	0.10482	0.13
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20011.0	ISLAIS CREEK	1411	9/6 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 1	1398	9/7 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 2	1399	9/7 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 3	1400	9/7 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20010.0	CASTRO COVE-EVS04	1410	9/8 94	35	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 1	1461	3/6 95	37	4.0344	5.4926	0.292	0.365	0.07111	0.00513	0.10482	0.14
20005.0	PARADISE COVE-REP 2	1462	3/6 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20005.0	PARADISE COVE-REP 3	1463	3/6 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	3.9638	5.3400	0.292	0.365	0.05815	0.00420	0.10482	0.10
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	3.8645	5.1879	0.292	0.365	0.05037	0.00363	0.10482	0.10
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6 95	37	3.8510	5.2139	0.292	0.365	0.05222	0.00377	0.10482	0.10
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20014.0	S. SOUTH BAY REF.-REP 1	1475	3 7 95	37	3.4985	4.9562	0.292	0.365	0.03778	0.00273	0.10482	0.10
20014.0	S. SOUTH BAY REF.-REP 2	1476	3 7 95	37	3.4218	4.8652	0.292	0.365	0.01852	0.00134	0.10482	0.08
20014.0	S. SOUTH BAY REF.-REP 3	1477	3 7 95	37	3.3966	4.8043	0.292	0.365	0.01852	0.00134	0.10482	0.07
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3 8 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4 4 95	37	5.2365	7.0250	0.292	0.365	0.07370	0.00532	0.10482	0.14
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4 4 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4 4 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4 4 95	37	4.1277	5.5395	0.292	0.365	0.25407	0.01833	12.18029	1.56
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4 4 95	37	-9.0000	-9.0000	-9.000	-9.000	-9.00000	-9.00000	-9.00000	-9.00

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	TTLDDTQP	DIELDRQE	DIELDRQP	ENDRINQE	LINDANEQP	TTLPCBQE	TTLPCBQP	ACYQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.13	0.031	0.058	0.02222	0.101	0.062	0.059	0.01355
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.13	0.031	0.058	0.02222	0.101	0.053	0.050	0.01284
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.11	0.031	0.058	0.02222	0.101	0.051	0.048	0.01322
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.11	0.031	0.058	0.02222	0.101	0.041	0.039	0.00839
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.12	0.031	0.058	0.02222	0.101	0.037	0.036	0.00978
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.12	0.031	0.058	0.02222	0.101	0.044	0.042	0.00391
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.11	0.031	0.058	0.02222	0.101	0.035	0.034	0.00391
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.12	0.031	0.058	0.02222	0.101	0.035	0.033	0.00391
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.12	0.031	0.058	0.02222	0.101	0.037	0.035	0.00884
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20010.0	CASTRO COVE-EVSO4	1410	9/8/94	35	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.13	0.031	0.058	0.02222	0.101	0.061	0.058	0.04906
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.09	0.031	0.058	0.02222	0.101	0.050	0.048	0.01086
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.08	0.031	0.058	0.02222	0.101	0.052	0.050	0.01206
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.09	0.031	0.058	0.02222	0.101	0.050	0.048	0.01308
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.09	0.031	0.058	0.02222	0.101	0.049	0.047	0.01536
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.07	0.031	0.058	0.02222	0.101	0.048	0.045	0.02125
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.06	0.031	0.058	0.02222	0.101	0.050	0.047	0.02391
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.13	0.031	0.058	0.02222	0.101	0.046	0.044	0.00894
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	1.39	0.031	0.058	0.02222	0.101	0.032	0.030	0.00391
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00	-9.000	-9.000	-9.00000	-9.000	-9.000	-9.000	-9.00000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	ACYQP	ACEQE	ACEQP	ANTQE	ANTQP	BAAQE	BAAQP	BAPQE	BAPQP	CHRQE	CHRQP	DBAQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.06779	0.01586	0.08920	0.02555	0.11469	0.05500	0.12707	0.18625	0.39045	0.03382	0.11194	0.11615
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.06427	0.01742	0.09798	0.02564	0.11510	0.05381	0.12433	0.15688	0.32887	0.03554	0.11762	0.10000
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.06615	0.01502	0.08448	0.02091	0.09388	0.05231	0.12086	0.15125	0.31708	0.03036	0.10048	0.09577
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.04199	0.00500	0.02812	0.01064	0.04776	0.02963	0.06844	0.10375	0.21750	0.01511	0.05000	0.06923
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.04895	0.01030	0.05793	0.01300	0.05837	0.03238	0.07480	0.10563	0.22143	0.01600	0.05296	0.07115
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.01955	0.00500	0.02812	0.01282	0.05755	0.03056	0.07061	0.10438	0.21881	0.01536	0.05083	0.06885
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.01955	0.00500	0.02812	0.00648	0.02910	0.02469	0.05704	0.07375	0.15461	0.01193	0.03948	0.05115
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.01955	0.00500	0.02812	0.01091	0.04898	0.02506	0.05790	0.07563	0.15854	0.01546	0.05118	0.05154
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.04426	0.01012	0.05692	0.01164	0.05224	0.03656	0.08447	0.09625	0.20178	0.01793	0.05934	0.06923
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.24552	0.02480	0.13948	0.04027	0.18082	0.21938	0.50684	0.41438	0.86869	0.13286	0.43973	0.52308
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.05434	0.01122	0.06310	0.02191	0.09837	0.03750	0.08664	0.11375	0.23846	0.02350	0.07778	0.08962
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.06036	0.01796	0.10101	0.02236	0.10041	0.04731	0.10931	0.14188	0.29742	0.02864	0.09480	0.17115
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.06545	0.01118	0.06288	0.02482	0.11143	0.04319	0.09978	0.12938	0.27122	0.02550	0.08440	0.11731
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.07686	0.01796	0.10101	0.03482	0.15633	0.06313	0.14584	0.16438	0.34459	0.03393	0.11230	0.11538
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.10634	0.01956	0.11001	0.05036	0.22612	0.07813	0.18050	0.17938	0.37604	0.04357	0.14421	0.13308
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.11963	0.01802	0.10135	0.04464	0.20041	0.07750	0.17905	0.17375	0.36425	0.04107	0.13594	0.13115
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.04473	0.00500	0.02812	0.01827	0.08204	0.03519	0.08130	0.10500	0.22012	0.02093	0.06927	0.08885
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.01955	0.00500	0.02812	0.01100	0.04939	0.03025	0.06989	0.07625	0.15985	0.02004	0.06631	0.07654
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	DBAQP	FLAQE	FLAQP	FLUQE	FLUQP	MNP2QE	MNP2QP	NPHQE	NPHQP	PHNQE	PHNQP	PYRQE
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.22435	0.05196	0.17743	0.01815	0.06789	0.02299	0.07651	0.01552	0.08345	0.07000	0.19318	0.11885
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.19315	0.04510	0.15400	0.01822	0.06817	0.02090	0.06955	0.01462	0.07859	0.06733	0.18582	0.10615
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.18498	0.06137	0.20957	0.01963	0.07343	0.02164	0.07204	0.01276	0.06861	0.07400	0.20422	0.12308
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.13372	0.02784	0.09508	0.01372	0.05133	0.01896	0.06310	0.01005	0.05401	0.03767	0.10395	0.06769
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.13743	0.02902	0.09909	0.01550	0.05798	0.02015	0.06707	0.01024	0.05504	0.04547	0.12548	0.07000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.13298	0.02725	0.09307	0.01261	0.04718	0.02000	0.06657	0.00943	0.05069	0.03607	0.09953	0.06615
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.09880	0.02196	0.07499	0.00463	0.01732	0.01537	0.05117	0.00757	0.04070	0.02733	0.07543	0.05269
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.09955	0.02216	0.07566	0.00976	0.03651	0.01612	0.05366	0.00710	0.03814	0.03140	0.08666	0.05269
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.13372	0.03157	0.10780	0.01250	0.04676	0.01731	0.05763	0.01043	0.05606	0.04680	0.12916	0.07192
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	1.01033	0.07667	0.26179	0.02741	0.10253	0.02851	0.09489	0.01838	0.09881	0.07933	0.21894	0.29500
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.17309	0.03373	0.11516	0.01700	0.06360	0.02000	0.06657	0.01314	0.07065	0.05700	0.15731	0.08192
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.33058	0.03941	0.13458	0.01772	0.06630	0.01881	0.06260	0.01214	0.06528	0.06020	0.16614	0.09615
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.22658	0.03765	0.12855	0.01765	0.06602	0.01866	0.06210	0.01195	0.06425	0.06347	0.17515	0.09154
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.22287	0.05118	0.17475	0.01822	0.06817	0.01731	0.05763	0.01243	0.06681	0.07600	0.20974	0.12462
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.25704	0.06176	0.21091	0.02389	0.08937	0.01866	0.06210	0.01390	0.07475	0.10733	0.29621	0.14923
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.25332	0.06196	0.21158	0.02556	0.09560	0.02134	0.07105	0.01624	0.08729	0.11133	0.30725	0.15231
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.17161	0.03157	0.10780	0.01426	0.05334	0.01881	0.06260	0.01014	0.05453	0.04607	0.12713	0.07885
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.14783	0.02863	0.09775	0.01011	0.03782	0.01612	0.05366	0.00876	0.04710	0.03733	0.10303	0.06769
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000

Chemistry Summations and Quotients (con't.)

STANUM	STATION	IDORG	DATE	LEG	PYRQP	LMWPAHQE	LMWPAHQP	HMWPAHQE	HMWPAHQP	TTLPAHQE	TTLPAHQP	ERMQ	PELQ
20008.0	BOLINAS-AUDUBON CYN.-REP 1	1228	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 2	1229	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20008.0	BOLINAS-AUDUBON CYN.-REP 3	1230	4/25/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1219	4/25/94	31	0.22109	0.07871	0.17249	0.22364	0.32158	0.05348	0.14285	5.637	7.759
20005.0	PARADISE COVE-REP 2	1220	4/25/94	31	0.19748	0.07578	0.16607	0.19543	0.28102	0.04723	0.12615	4.890	6.914
20005.0	PARADISE COVE-REP 3	1221	4/25/94	31	0.22896	0.07628	0.16716	0.20409	0.29348	0.04912	0.13120	5.129	7.122
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1231	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1232	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1233	4/26/94	31	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.- REP 1	1222	4/26/94	31	0.12593	0.04651	0.10191	0.12942	0.18610	0.03102	0.08285	5.833	7.793
20006.0	SAN PABLO BAY-TUBBS IS.- REP 2	1223	4/26/94	31	0.13022	0.05354	0.11733	0.13172	0.18941	0.03201	0.08549	5.437	7.234
20006.0	SAN PABLO BAY-TUBBS IS.- REP 3	1224	4/26/94	31	0.12307	0.04530	0.09928	0.12735	0.18313	0.03049	0.08144	5.364	7.275
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1225	4/27/94	31	0.09803	0.03344	0.07329	0.09455	0.13596	0.02262	0.06043	4.313	6.067
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1226	4/27/94	31	0.09803	0.03788	0.08302	0.09658	0.13888	0.02337	0.06243	4.613	6.318
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1227	4/27/94	31	0.13380	0.05192	0.11379	0.12755	0.18341	0.03100	0.08280	4.629	6.297
20009.0	TOMALES BAY-MARCONI COVE-REP 1	1407	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1408	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20009.0	TOMALES BAY-MARCONI COVE-REP 3	1409	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20011.0	ISLAIS CREEK	1411	9/6/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1398	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 2	1399	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1400	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1404	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1405	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1406	9/7/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1401	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1402	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1403	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20010.0	CASTRO COVE-EVS04	1410	9/8/94	35	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 1	1461	3/6/95	37	0.54880	0.10263	0.22491	0.60875	0.87536	0.13771	0.36781	5.292	7.517
20005.0	PARADISE COVE-REP 2	1462	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20005.0	PARADISE COVE-REP 3	1463	3/6/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20013.0	N. SOUTH BAY REF.-REP 1	1472	3/6/95	37	0.15240	0.06522	0.14292	0.14960	0.21512	0.03666	0.09793	4.674	6.572
20013.0	N. SOUTH BAY REF.-REP 2	1473	3/6/95	37	0.17888	0.06694	0.14669	0.18322	0.26346	0.04399	0.11749	4.612	6.464
20013.0	N. SOUTH BAY REF.-REP 3	1474	3/6/95	37	0.17029	0.06899	0.15119	0.16829	0.24200	0.04094	0.10934	4.584	6.481
20012.0	TREASURE ISLAND-CLIPPER COVE	1471	3/7/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20014.0	S. SOUTH BAY REF.-REP 1	1475	3/7/95	37	0.23183	0.07972	0.17469	0.20599	0.29620	0.04977	0.13294	4.278	6.300
20014.0	S. SOUTH BAY REF.-REP 2	1476	3/7/95	37	0.27762	0.10634	0.23304	0.23322	0.33536	0.05749	0.15354	4.235	6.285
20014.0	S. SOUTH BAY REF.-REP 3	1477	3/7/95	37	0.28334	0.10979	0.24060	0.23060	0.33160	0.05717	0.15269	4.202	6.220
20009.0	TOMALES BAY-MARCONI COVE-REP 2	1470	3/8/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 1	1467	4/4/95	37	0.14668	0.05347	0.11717	0.14078	0.20244	0.03394	0.09066	5.962	8.255
20006.0	SAN PABLO BAY-TUBBS IS.-REP 2	1468	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20006.0	SAN PABLO BAY-TUBBS IS.-REP 3	1469	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 1	1464	4/4/95	37	0.12593	0.04166	0.09128	0.11309	0.16262	0.02718	0.07259	6.220	7.949
20007.0	SAN PABLO BAY-ISLAND #1-REP 2	1465	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000
20007.0	SAN PABLO BAY-ISLAND #1-REP 3	1466	4/4/95	37	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.00000	-9.000	-9.000

Appendix B

Toxicity Data

San Francisco Reference Site Study Toxicity Data

STANUM	IDORG	LEG	TYPE	AA_MN	AA_SD	AA_BATCH	AAQC	AA_ONH4	AA_ONH3	AA_OH2S	AA_INH4	AA_INH3	AA_IH2S	EE_MN	EE_SD	EE_BATCH	EEQC	EE_ONH4
20005.0	1219	31	SAM	82	17	b031aasa01	-5	0.440	0.028	nd	1.840	0.022	0.0080	79	13	b031eesa02	-4	0.210
20005.0	1220	31	FR	85	9	b031aasa01	-5	0.500	0.023	nd	1.960	0.024	0.0153	75	6	b031eesa02	-4	0.310
20005.0	1221	31	FR	80	20	b031aasa01	-5	0.560	0.019	0.0005	2.270	0.026	0.0134	79	11	b031eesa02	-4	0.540
20006.0	1222	31	SAM	94	11	b031aasa01	-5	0.890	0.023	0.0001	2.210	0.032	0.0046	72	8	b031eesa02	-4	0.710
20006.0	1223	31	FR	95	7	b031aasa01	-5	0.720	0.020	0.0017	2.260	0.032	0.0171	70	6	b031eesa02	-4	0.650
20006.0	1224	31	FR	89	10	b031aasa01	-5	0.870	0.023	0.0010	2.220	0.033	0.0126	78	6	b031eesa02	-4	0.660
20007.0	1225	31	SAM	85	17	b031aasa01	-5	0.610	0.022	nd	1.310	0.025	0.0042	90	12	b031eesa02	-4	0.410
20007.0	1226	31	FR	82	10	b031aasa01	-5	0.640	0.020	0.0003	1.350	0.021	0.0048	85	4	b031eesa02	-4	0.340
20007.0	1227	31	FR	92	9	b031aasa01	-5	0.730	0.030	nd	1.470	0.016	0.0141	95	7	b031eesa02	-4	0.380
20008.0	1228	31	SAM	82	8	b031aasa01	-5	0.630	0.020	0.0005	2.900	0.062	0.0064	83	10	b031eesa02	-4	0.370
20008.0	1229	31	FR	77	26	b031aasa01	-5	0.710	0.023	0.0012	3.400	0.024	0.0104	90	11	b031eesa02	-4	0.280
20008.0	1230	31	FR	80	15	b031aasa01	-5	0.580	0.019	0.0011	2.830	0.027	0.0564	75	22	b031eesa02	-4	1.200
20009.0	1231	31	SAM	73	10	b031aasa01	-5	0.550	0.016	nd	1.920	0.021	0.0128	32	31	b031eesa02	-4	0.480
20009.0	1232	31	FR	76	11	b031aasa01	-5	0.670	0.021	nd	1.990	0.031	0.0260	53	19	b031eesa02	-4	0.440
20009.0	1233	31	FR	73	37	b031aasa01	-5	0.520	0.019	nd	1.580	0.025	0.0202	65	7	b031eesa02	-4	3.400
	0	31	C1	85	12	b031aasa01	-5	0.160	0.007	0.0005				93	8	b031eesa02	-4	0.320
20005.0	1398	35	SAM	69	10	b035aasa01	-5	0.710	0.021	nd	1.470	0.004	nd	82	6	b035eesa01	-3	1.240
20005.0	1399	35	FR	76	12	b035aasa01	-5	0.380	0.022	nd	2.270	0.006	nd	81	16	b035eesa01	-3	0.280
20005.0	1400	35	FR	89	5	b035aasa01	-5	0.190	0.011	nd	1.750	0.005	nd	84	13	b035eesa01	-4	0.250
20006.0	1401	35	SAM	55	18	b035aasa01	-5	0.250	0.014	nd	1.970	0.035	nd	66	39	b035eesa01	-4	0.250
20006.0	1402	35	FR	79	5	b035aasa01	-5	0.210	0.015	nd	2.050	0.016	nd	62	35	b035eesa01	-3	0.300
20006.0	1403	35	FR	69	28	b035aasa01	-5	0.280	0.025	nd	1.880	0.011	nd	72	18	b035eesa01	-4	0.320
20007.0	1404	35	SAM	74	8	b035aasa01	-5	0.330	0.029	nd	2.520	0.013	nd	88	12	b035eesa01	-4	0.380
20007.0	1405	35	FR	74	4	b035aasa01	-5	0.380	0.027	nd	2.540	0.014	nd	86	12	b035eesa01	-4	0.360
20007.0	1406	35	FR	61	8	b035aasa01	-5	0.400	0.036	nd	2.850	0.018	nd	80	6	b035eesa01	-4	0.350
20009.0	1407	35	SAM	79	7	b035aasa01	-5	0.410	0.029	nd	3.710	0.014	nd	78	10	b035eesa01	-4	0.310
20009.0	1408	35	FR	82	6	b035aasa01	-5	0.460	0.027	nd	6.460	0.029	nd	54	32	b035eesa01	-3	0.520
20009.0	1409	35	FR	78	10	b035aasa01	-5	0.650	0.047	nd	4.750	0.029	nd	85	11	b035eesa01	-4	0.790
20010.0	1410	35	SAM	29	14	b035aasa01	-5	0.640	0.037	nd	3.600	0.017	nd	33	3	b035eesa01	-4	0.710
20011.0	1411	35	SAM	54	19	b035aasa01	-5	6.600	0.721	0.0070	35.800	0.149	0.8420	57	14	b035eesa01	-4	6.300
	0	35	C1	81	10	b035aasa01	-5	1.800	0.104			nd	nd	95	4	b035eesa01	-4	0.150
20005.0	1461	37	SAM	97	4	b037aasa01	-5	0.470	0.021	0.0060	2.100	0.011	nd	82	11	b037eesa01	-3	0.293
20005.0	1462	37	FR	97	4	b037aasa01	-5	0.390	0.012	nd	1.900	0.015	nd	86	13	b037eesa01	-3	0.334
20005.0	1463	37	FR	94	7	b037aasa01	-5	0.440	0.008	0.0110	2.200	0.020	nd	85	8	b037eesa01	-3	0.331
20007.0	1464	37	SAM	89	7	b037aasa02	-3	1.000	0.022	nd	0.750	0.030	nd	85	10	b037eesa03	-3	1.100
20007.0	1465	37	FR	94	11	b037aasa02	-3	0.920	0.019	nd	0.850	0.019	nd	90	5	b037eesa03	-3	1.100
20007.0	1466	37	FR	92	8	b037aasa02	-3	0.860	0.019	nd	0.800	0.022	nd	77	12	b037eesa03	-4	1.200
20006.0	1467	37	SAM	79	10	b037aasa02	-3	0.730	0.015	nd	0.520	0.017	nd	80	4	b037eesa03	-3	0.780
20006.0	1468	37	FR	81	10	b037aasa02	-3	0.620	0.014	nd	0.490	0.012	nd	80	10	b037eesa03	-3	0.620
20006.0	1469	37	FR	82	10	b037aasa02	-3	0.610	0.012	nd	0.520	0.013	nd	81	5	b037eesa03	-3	0.630
20009.0	1470	37	SAM	91	11	b037aasa01	-5	0.490	0.015	nd	2.000	0.014	nd	67	8	b037eesa01	-3	0.372
20012.0	1471	37	SAM	90	7	b037aasa01	-5	0.580	0.010	nd	2.900	0.019	0.0140	80	15	b037eesa01	-3	0.564
20013.0	1472	37	SAM	83	14	b037aasa01	-5	1.300	0.058	0.0030	7.900	0.108	nd	76	11	b037eesa01	-3	2.320
20013.0	1473	37	FR	98	3	b037aasa01	-5	1.800	0.088	0.0040	6.900	0.061	0.0030	82	14	b037eesa01	-3	1.820
20013.0	1474	37	FR	95	5	b037aasa01	-5	1.800	0.062	0.0040	7.100	0.064	0.0170	70	17	b037eesa01	-3	1.590
20014.0	1475	37	SAM	87	14	b037aasa01	-5	0.870	0.033	0.0010	1.400	0.029	nd	57	34	b037eesa01	-3	0.304
20014.0	1476	37	FR	86	9	b037aasa01	-5	0.420	0.017	0.0010	1.400	0.039	nd	89	4	b037eesa01	-3	0.201
20014.0	1477	37	FR	84	11	b037aasa01	-5	0.890	0.036	nd	1.300	0.014	nd	68	39	b037eesa01	-3	0.157
	0	37	C1	91	9	b037aasa01	-5	nd	nd	nd	nd	nd	nd	92	7	b037eesa01	-3	nd
	0	37	C2	96	5	b037aasa02	-5	0.840	0.012	nd	5.400	0.019	nd	97	7	b037eesa03	-3	nd

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STANUM	IDORG	LEG	TYPE	EE_ONH3	EE_OH2S	EE_INH4	EE_INH3	EE_IH2S	EEP_MN	EEP_SD	EEP_BATCH	EEPQC	EEP_INH4	EEP_INH3	EEP_IH2S	EEI_MN	EEI_SD
20005.0	1219	31	SAM	0.020	0.0018	1.840	0.015	0.0092	76	9	b031eesa01	-4	1.300	0.067	0.0034	63	29
20005.0	1220	31	FR	0.006	0.0033	1.960	0.035	0.0040	56	30	b031eesa01	-4	0.954	0.050	0.0024		
20005.0	1221	31	FR	0.009	0.0007	2.270	0.018	0.0087	84	17	b031eesa01	-4	1.300	0.077	0.0049		
20006.0	1222	31	SAM	0.065	0.0013	2.210	0.046	0.0053	76	26	b031eesa01	-4	0.894	0.107	0.0061	70	12
20006.0	1223	31	FR	0.018	0.0033	2.260	0.022	0.0198	68	23	b031eesa01	-4	0.880	0.099	0.0068		
20006.0	1224	31	FR	0.014	0.0024	2.220	0.023	0.0157	68	23	b031eesa01	-4	0.810	0.101	0.0035		
20007.0	1225	31	SAM	0.009	0.0026	1.400	0.017	0.0049	68	23	b031eesa01	-4	0.798	0.113	0.0061	90	9
20007.0	1226	31	FR	0.009	0.0013	1.350	0.158	0.0031	72	11	b031eesa01	-4	0.850	0.086	0.0074		
20007.0	1227	31	FR	0.011	0.0055	1.800	0.025	0.0162	76	22	b031eesa01	-4	0.993	0.174	0.0100		
20008.0	1228	31	SAM	0.009	0.0022	2.120	0.020	0.0090	80	20	b031eesa01	-4	0.208	0.058	0.0021	45	25
20008.0	1229	31	FR	0.006	0.0013	3.400	0.164	0.0119	76	9	b031eesa01	-4	0.770	0.139	0.0025		
20008.0	1230	31	FR	0.040	0.0030	3.900	0.025	0.0199	76	26	b031eesa01	-4	1.800	0.079	0.0020		
20009.0	1231	31	SAM	0.010	0.0078	1.920	0.065	0.0046	68	23	b031eesa01	-4	0.930	0.073	0.0034	53	29
20009.0	1232	31	FR	0.006	0.0019	1.990	0.020	0.0085	68	18	b031eesa01	-4	0.970	0.146	0.0071		
20009.0	1233	31	FR	0.044	0.0030	1.580	0.017	0.0080	52	23	b031eesa01	-4	1.100	0.124	0.0055		
	0	31	C1	0.007	0.0025				80	14	b031eesa01	-4	0.538	0.019		97	5
20005.0	1398	35	SAM	0.014	0.0140	1.330	0.012	0.0060	82	6	b035eesa02	-4	1.500	0.072	nd	60	31
20005.0	1399	35	FR	0.005	0.0110	1.730	0.009	0.0080	81	16	b035eesa02	-4	1.500	0.041	nd		
20005.0	1400	35	FR	0.004	0.0040	1.410	0.007	0.0070	84	13	b035eesa02	-4	1.500	0.048	nd		
20006.0	1401	35	SAM	0.004	0.0150	1.860	0.017	0.0050	66	39	b035eesa02	-4	1.400	0.040	nd	19	37
20006.0	1402	35	FR	0.005	0.0110	1.960	0.016	0.0140	62	35	b035eesa02	-4	1.900	0.048	nd		
20006.0	1403	35	FR	0.007	0.0120	1.850	0.016	0.0070	72	18	b035eesa02	-4	1.700	0.048	nd		
20007.0	1404	35	SAM	0.004	0.0120	2.440	0.024	0.0020	88	12	b035eesa02	-4	2.140	0.049	nd	72	16
20007.0	1405	35	FR	0.004	0.0190	2.420	0.024	0.0040	86	12	b035eesa02	-4	2.000	0.056	nd		
20007.0	1406	35	FR	0.011	0.0120	2.830	0.028	0.0030	80	6	b035eesa02	-4	2.400	0.059	nd		
20009.0	1407	35	SAM	0.009	0.0130	3.610	0.020	0.0110	78	10	b035eesa02	-3	2.900	0.056	0.0090	82	13
20009.0	1408	35	FR	0.016	0.0120	12.000	0.093	0.0260	54	32	b035eesa02	-3	2.500	0.062	0.0070		
20009.0	1409	35	FR	0.009	0.0150	4.140	0.021	0.0240	85	11	b035eesa02	-3	3.100	0.068	0.0090		
20010.0	1410	35	SAM	0.009	0.0160	3.290	0.024	0.0150	33	3	b035eesa02	-3	2.900	0.076		34	22
20011.0	1411	35	SAM	0.330	0.0100	37.000	0.261	0.9700	57	14	b035eesa02	-3	26.300	1.204	0.0670	41	27
	0	35	C1	0.012	0.0210	nd	nd	nd	95	4	b035eesa02	-4	3.100	0.062	nd		
20005.0	1461	37	SAM	0.003	nd	1.400	0.014	nd	84	26	b037eesa02	-3	0.650	0.016	nd		
20005.0	1462	37	FR	0.004	nd	1.400	0.013	nd	76	17	b037eesa02	-4	0.670	0.016	nd		
20005.0	1463	37	FR	0.004	nd	1.300	0.008	nd	60	32	b037eesa02	-4	0.850	0.020	nd		
20007.0	1464	37	SAM	0.014	nd	0.710	0.011	nd	92	11	b037eesa04	-3	0.690	0.009	nd		
20007.0	1465	37	FR	0.013	nd	0.790	0.013	nd	96	9	b037eesa04	-3	0.660	0.010	0.0030		
20007.0	1466	37	FR	0.013	nd	1.000	0.017	nd	96	9	b037eesa04	-3	0.800	0.013	nd		
20006.0	1467	37	SAM	0.010	nd	0.560	0.011	nd	80	20	b037eesa04	-3	0.650	0.008	0.0040		
20006.0	1468	37	FR	0.007	nd	0.490	0.009	nd	92	11	b037eesa04	-3	0.440	0.006	nd		
20006.0	1469	37	FR	0.010	nd	0.510	0.012	nd	96	9	b037eesa04	-3	0.400	0.006	0.0020		
20009.0	1470	37	SAM	0.005	nd	0.930	0.010	nd	52	27	b037eesa02	-4	1.300	0.031	nd		
20012.0	1471	37	SAM	0.009	nd	1.600	0.017	nd	48	23	b037eesa02	-4	1.500	0.040	nd		
20013.0	1472	37	SAM	0.035	nd	5.100	0.054	nd	64	17	b037eesa02	-4	1.900	0.049	nd		
20013.0	1473	37	FR	0.033	nd	4.700	0.037	nd	52	36	b037eesa02	-3	2.200	0.063	nd		
20013.0	1474	37	FR	0.021	nd	4.200	0.035	nd	84	26	b037eesa02	-4	1.800	0.050	nd		
20014.0	1475	37	SAM	0.004	nd	0.460	0.007	nd	72	18	b037eesa02	-4	0.520	0.014	nd		
20014.0	1476	37	FR	0.003	nd	0.430	0.008	nd	72	11	b037eesa02	-4	0.470	0.012	nd		
20014.0	1477	37	FR	0.003	nd	0.380	0.006	nd	64	9	b037eesa02	-3	1.000	0.024	nd		
	0	37	C1	nd	nd	nd	nd	nd	48	23	b037eesa02	-4	0.310	0.005	nd		
	0	37	C2	nd	nd	nd	nd	nd	84	9	b037eesa02	-4	0.320	0.005	nd		

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STANUM	IDORG	LEG	TYPE	EEI_BATCH	EEIQC	EEI_ONH4	EEI_ONH3	EEI_OH2S	EEI_INH4	EEI_INH3	EEI_IH2S	SPPD100_MN	SPPD100_SD	SPPD_BATCH	SPPDQC	SPD_INH4
20005.0	1219	31	SAM	b031eesa03	-4	nd	nd	0.0020	6.000	0.039	0.0231	92	4	b031spda01	-4	0.848
20005.0	1220	31	FR									90	4	b031spda01	-4	0.745
20005.0	1221	31	FR									93	6	b031spda01	-4	0.788
20006.0	1222	31	SAM	b031eesa03	-4	nd	nd	0.0032	1.500	0.035	0.0037	96	2	b031spda01	-4	0.657
20006.0	1223	31	FR									97	1	b031spda01	-4	0.698
20006.0	1224	31	FR									95	2	b031spda01	-4	0.702
20007.0	1225	31	SAM	b031eesa03	-4	nd	nd	0.0015	1.200	0.063	0.0027	98	1	b031spda01	-4	0.678
20007.0	1226	31	FR									96	3	b031spda01	-4	0.630
20007.0	1227	31	FR									94	3	b031spda01	-4	0.684
20008.0	1228	31	SAM	b031eesa03	-4	0.180	0.011	0.0023	1.400	0.062	0.0084	95	3	b031spda01	-4	0.202
20008.0	1229	31	FR									95	4	b031spda01	-4	0.613
20008.0	1230	31	FR									95	2	b031spda01	-4	0.539
20009.0	1231	31	SAM	b031eesa03	-4	nd	nd	0.0016	4.300	0.132	0.0047	97	2	b031spda01	-4	0.700
20009.0	1232	31	FR									92	7	b031spda01	-4	0.657
20009.0	1233	31	FR									72	41	b031spda01	-4	0.672
	0	31	C1	b031eesa03	-4	nd	nd	0.0009				95	2	b031spda01	-4	nd
20005.0	1398	35	SAM	b035eesa03	-3	0.190	0.003	nd	0.410	0.004	nd	94	5	b035spda01	-3	1.000
20005.0	1399	35	FR									96	2	b035spda01	-3	0.970
20005.0	1400	35	FR									96	3	b035spda01	-3	0.950
20006.0	1401	35	SAM	b035eesa03	-3	0.100	0.004	nd	0.510	0.004	nd	96	3	b035spda01	-3	1.200
20006.0	1402	35	FR									97	2	b035spda01	-3	1.200
20006.0	1403	35	FR									97	1	b035spda01	-3	1.100
20007.0	1404	35	SAM	b035eesa03	-3	0.106	0.001	nd	0.560	0.004	nd	97	1	b035spda01	-3	1.500
20007.0	1405	35	FR									94	3	b035spda01	-3	1.500
20007.0	1406	35	FR									97	2	b035spda01	-3	1.300
20009.0	1407	35	SAM	b035eesa03	-3	0.470	0.018	nd	2.840	0.018	nd	82	4	b035spda01	-3	3.100
20009.0	1408	35	FR									64	20	b035spda01	-3	2.700
20009.0	1409	35	FR									71	7	b035spda01	-3	2.900
20010.0	1410	35	SAM	b035eesa03	-3	0.240	0.008	nd	2.340	0.013	nd	96	1	b035spda01	-3	2.200
20011.0	1411	35	SAM	b035eesa03	-3	9.200	0.135	0.0190	12.000	0.137	0.6930	0	0	b035spda01	-3	26.000
	0	35	C1									96	2	b035spda01	-3	
20005.0	1461	37	SAM									95	2	b037spda01	-4	0.640
20005.0	1462	37	FR									97	1	b037spda01	-4	0.650
20005.0	1463	37	FR									98	1	b037spda01	-4	0.890
20007.0	1464	37	SAM									95	2	b037spda03	-3	0.340
20007.0	1465	37	FR									98	2	b037spda03	-3	0.350
20007.0	1466	37	FR									96	1	b037spda03	-3	0.330
20006.0	1467	37	SAM									98	1	b037spda03	-3	0.170
20006.0	1468	37	FR									96	3	b037spda03	-3	0.170
20006.0	1469	37	FR									97	1	b037spda03	-3	0.160
20009.0	1470	37	SAM									91	7	b037spda01	-4	1.000
20012.0	1471	37	SAM									94	3	b037spda01	-4	1.400
20013.0	1472	37	SAM									94	3	b037spda01	-4	1.510
20013.0	1473	37	FR									98	1	b037spda01	-4	1.800
20013.0	1474	37	FR									95	4	b037spda01	-4	2.000
20014.0	1475	37	SAM									98	0	b037spda01	-4	1.700
20014.0	1476	37	FR									99	1	b037spda01	-4	1.500
20014.0	1477	37	FR									97	1	b037spda01	-4	1.400
	0	37	C1									98	2	b037spda01	-4	nd
	0	37	C2									99	2	b037spda01	-4	0.630

San Francisco Reference Site Study Toxicity Data

STANUM	IDORG	LEG	TYPE	MEP100_SD	MEP_BATCH	MEPQC	MEP_INH4	MEP_INH3	MEP_IH2S	NP_MN	NP_SD	NP_BATCH	NPQC	NP_ONH4	NP_ONH3	NP_OH2S	NP_INH4
20005.0	1219	31	SAM	20	b031mesa01	-4	0.905	0.012	0.0065								
20005.0	1220	31	FR	12	b031mesa01	-4	0.917	0.013	0.0042								
20005.0	1221	31	FR	5	b031mesa01	-4	1.060	0.018	0.0069								
20006.0	1222	31	SAM	9	b031mesa01	-4	0.768	0.012	0.0051								
20006.0	1223	31	FR	13	b031mesa01	-4	0.758	0.011	0.0028								
20006.0	1224	31	FR	2	b031mesa01	-4	0.717	0.013	0.0018								
20007.0	1225	31	SAM	11	b031mesa01	-4	0.698	0.011	0.0062								
20007.0	1226	31	FR	9	b031mesa01	-4	0.695	0.016	0.0022								
20007.0	1227	31	FR	11	b031mesa01	-4	0.931	0.021	0.0030								
20008.0	1228	31	SAM	10	b031mesa01	-4	0.195	0.004	0.0054								
20008.0	1229	31	FR	11	b031mesa01	-4	0.686	0.013	0.0091								
20008.0	1230	31	FR	10	b031mesa01	-4	0.509	0.009	0.0015								
20009.0	1231	31	SAM	9	b031mesa01	-4	0.698	0.014	0.0110								
20009.0	1232	31	FR	12	b031mesa01	-4	0.680	0.012	0.0057								
20009.0	1233	31	FR	12	b031mesa01	-4	0.586	0.012	0.0101								
	0	31	C1	8	b031mesa01	-4	nd	nd									
20005.0	1398	35	SAM							100	0	b035npsa01	-4	0.420	0.027	nd	2.100
20005.0	1399	35	FR														
20005.0	1400	35	FR														
20006.0	1401	35	SAM							93	11	b035npsa01	-4	0.530	0.021	nd	2.400
20006.0	1402	35	FR														
20006.0	1403	35	FR														
20007.0	1404	35	SAM							95	6	b035npsa01	-4	0.500	0.013	nd	2.300
20007.0	1405	35	FR														
20007.0	1406	35	FR														
20009.0	1407	35	SAM							97	3	b035npsa01	-4	0.700	0.020	nd	4.100
20009.0	1408	35	FR														
20009.0	1409	35	FR														
20010.0	1410	35	SAM							100	0	b035npsa01	-4	0.750	0.021	nd	3.400
20011.0	1411	35	SAM							97	4	b035npsa01	-4	6.500	0.000	nd	33.000
	0	35	C1							100	0	b035npsa01	-4	0.210	0.014		nd
20005.0	1461	37	SAM	3	b037mesa01	-4	0.830	0.021	nd	65	15	b037npsa01	-5	0.250	0.005	nd	2.200
20005.0	1462	37	FR	3	b037mesa01	-4	0.930	0.023	nd								
20005.0	1463	37	FR	7	b037mesa01	-4	1.100	0.028	nd								
20007.0	1464	37	SAM	9	b037mesa02	-4	0.450	0.004	0.0010								
20007.0	1465	37	FR	7	b037mesa02	-4	0.400	0.005	nd								
20007.0	1466	37	FR	8	b037mesa02	-3	0.550	0.009	nd								
20006.0	1467	37	SAM	8	b037mesa02	-4	0.300	0.007	nd								
20006.0	1468	37	FR	6	b037mesa02	-4	0.280	0.009	nd								
20006.0	1469	37	FR	6	b037mesa02	-4	0.220	0.004	nd								
20009.0	1470	37	SAM	6	b037mesa01	-4	1.100	0.024	nd	81	5	b037npsa01	-5	0.700	0.011	nd	1.300
20012.0	1471	37	SAM	5	b037mesa01	-4	1.400	0.039	nd	72	17	b037npsa01	-5	0.600	0.012	nd	2.600
20013.0	1472	37	SAM	5	b037mesa01	-4	1.600	0.049	nd	69	10	b037npsa01	-5	102.000	1.835	nd	5.600
20013.0	1473	37	FR	7	b037mesa01	-4	1.700	0.057	nd								
20013.0	1474	37	FR	20	b037mesa01	-4	1.900	0.043	nd								
20014.0	1475	37	SAM	6	b037mesa01	-4	1.100	0.030	nd	70	16	b037npsa01	-5	0.200	0.005	nd	1.700
20014.0	1476	37	FR	5	b037mesa01	-4	1.000	0.028	nd								
20014.0	1477	37	FR	4	b037mesa01	-4	1.000	0.019	nd								
	0	37	C1	7	b037mesa01	-4	0.280	0.010	nd	85	4	b037npsa01	-5	nd	nd	nd	
	0	37	C2	10	b037mesa02	-4	0.340	0.014	nd								

San Francisco Reference Site Study Toxicity Data

STANUM	IDORG	LEG	TYPE	SPD_INH3	SPD_IH2S	SPDI_MN	SPDI_SD	SPDI_BATCH	SPDIQC	SPDI_ONH4	SPDI_ONH3	SPDI_OH2S	SPDI_INH4	SPDI_INH3	SPDI_IH2S	MEP100_MN
20005.0	1219	31	SAM	0.007	0.0062	92	3	b031spda02	-4	0.670	0.012	0.0012				69
20005.0	1220	31	FR	0.006	0.0051											65
20005.0	1221	31	FR	0.006	0.0048											77
20006.0	1222	31	SAM	0.007	0.0075	95	2	b031spda02	-4	1.700	0.022	0.0077				83
20006.0	1223	31	FR	0.007	0.0062											77
20006.0	1224	31	FR	0.012	0.0073											93
20007.0	1225	31	SAM	0.007	0.0167	93	2	b031spda02	-4	0.580	0.013	0.0018				79
20007.0	1226	31	FR	0.009	0.0085											83
20007.0	1227	31	FR	0.015	0.0236											81
20008.0	1228	31	SAM	0.002	0.0065	95	4	b031spda02	-4	0.300	0.004	0.0024				85
20008.0	1229	31	FR	0.004	0.0111											79
20008.0	1230	31	FR	0.003	0.0082											86
20009.0	1231	31	SAM	0.015	0.0123	84	25	b031spda02	-4	0.680	0.008	0.0043				72
20009.0	1232	31	FR	0.012	0.0229											78
20009.0	1233	31	FR	0.007	0.0036											83
	0	31	C1	nd		99	1	b031spda02	-4	nd	nd	0.0006				76
20005.0	1398	35	SAM	0.008	nd	95	2	b035spda02	-4							
20005.0	1399	35	FR	0.008	nd											
20005.0	1400	35	FR	0.009	nd											
20006.0	1401	35	SAM	0.012	nd	94	2	b035spda02	-4							
20006.0	1402	35	FR	0.012	nd											
20006.0	1403	35	FR	0.020	nd											
20007.0	1404	35	SAM	0.019	nd	98	2	b035spda02	-4	0.130	0.001	nd				
20007.0	1405	35	FR	0.029	nd											
20007.0	1406	35	FR	0.024	nd											
20009.0	1407	35	SAM	0.049	nd	77	43	b035spda02	-4	0.400	0.004	nd				
20009.0	1408	35	FR	0.027	nd											
20009.0	1409	35	FR	0.029	nd											
20010.0	1410	35	SAM	0.037	nd	97	3	b035spda02	-4	4.100	0.038	nd				
20011.0	1411	35	SAM	0.478	0.0620	0	0	b035spda02	-4	8.900	0.083	0.0080				
	0	35	C1			93	2	b035spda02	-4			nd				
20005.0	1461	37	SAM	0.006	nd	96	1	b037spda02	-4	0.250	0.005	nd	2.200	0.016	nd	93
20005.0	1462	37	FR	0.005	nd											89
20005.0	1463	37	FR	0.014	nd											78
20007.0	1464	37	SAM	0.006	nd	84	7	b037spda04	-3	0.960	0.010	nd	2.800	0.019	nd	78
20007.0	1465	37	FR	0.005	nd											76
20007.0	1466	37	FR	0.006	nd											78
20006.0	1467	37	SAM	0.003	nd	93	4	b037spda04	-3	0.660	0.009	nd	8.800	0.039	nd	78
20006.0	1468	37	FR	0.003	nd											76
20006.0	1469	37	FR	0.002	nd											78
20009.0	1470	37	SAM	0.018	nd	96	2	b037spda02	-4	0.700	0.011	nd	1.300	0.014	nd	85
20012.0	1471	37	SAM	0.014	nd	95	5	b037spda02	-4	0.600	0.012	nd	2.600	0.022	0.0220	92
20013.0	1472	37	SAM	0.023	nd	97	1	b037spda02	-4	1.300	0.022	nd	8.100	0.079	0.0135	89
20013.0	1473	37	FR	0.018	nd											90
20013.0	1474	37	FR	0.030	nd											82
20014.0	1475	37	SAM	0.033	nd	98	1	b037spda02	-4	0.200	0.005	nd	1.700	0.033	nd	90
20014.0	1476	37	FR	0.033	nd											92
20014.0	1477	37	FR	0.021	nd											87
	0	37	C1	nd	nd	98	1	b037spda02	-4	nd	nd	nd				94
	0	37	C2	0.010	nd	93	1	b037spda04	-4							84

San Francisco Reference Site Study Toxicity Data

STANUM	IDORG	LEG	TYPE	NP_INH3	NP_IH2S	NASURV_MN	NASURV_SD	NAWT_MN	NAWT_SD	NA_BATCH	NAQC	NA_ONH4	NA_ONH3	NA_OH2S	NA_INH4	NA_INH3	NA_IH2S
20005.0	1219	31	SAM							b031nasa01	-4						
20005.0	1220	31	FR							b031nasa01	-4						
20005.0	1221	31	FR							b031nasa01	-4						
20006.0	1222	31	SAM							b031nasa01	-4						
20006.0	1223	31	FR							b031nasa01	-4						
20006.0	1224	31	FR							b031nasa01	-4						
20007.0	1225	31	SAM							b031nasa01	-4						
20007.0	1226	31	FR							b031nasa01	-4						
20007.0	1227	31	FR							b031nasa01	-4						
20008.0	1228	31	SAM							b031nasa01	-4						
20008.0	1229	31	FR							b031nasa01	-4						
20008.0	1230	31	FR							b031nasa01	-4						
20009.0	1231	31	SAM							b031nasa01	-4						
20009.0	1232	31	FR							b031nasa01	-4						
20009.0	1233	31	FR							b031nasa01	-4						
	0	31	C1							b031nasa01	-4						
20005.0	1398	35	SAM	0.012	nd	88	27	11.1	3.6	b035nasa01	-3	0.680	0.055	nd	1.800	0.012	0.0130
20005.0	1399	35	FR			60	42	13.1	4.0	b035nasa01	-3	1.600	0.040	nd	1.700	0.008	0.0127
20005.0	1400	35	FR			92	18	9.9	3.6	b035nasa01	-3	1.400	0.038	nd	2.000	0.011	0.0188
20006.0	1401	35	SAM	0.020	nd	76	43	11.6	1.3	b035nasa01	-3	1.300	0.032	nd	2.000	0.016	0.0070
20006.0	1402	35	FR			80	28	11.8	3.4	b035nasa01	-3	2.200	0.040	0.0005	1.900	0.016	0.0087
20006.0	1403	35	FR			96	9	12.2	2.4	b035nasa01	-3	2.500	0.126	0.0021	2.700	0.019	0.0209
20007.0	1404	35	SAM	0.021	0.0052	100	0	11.2	1.2	b035nasa01	-3	2.400	0.050	0.0012	2.700	0.028	0.0044
20007.0	1405	35	FR			100	0	12.4	2.8	b035nasa01	-3	2.700	0.056	0.0005	2.300	0.024	0.0163
20007.0	1406	35	FR			76	43	13.7	4.4	b035nasa01	-3	2.800	0.054	nd	3.600	0.029	0.0164
20009.0	1407	35	SAM	0.026	nd	56	30	12.2	5.1	b035nasa01	-3	3.400	0.082	0.0015	6.600	0.056	0.0287
20009.0	1408	35	FR			96	9	10.3	3.1	b035nasa01	-3	6.300	0.224	0.0008	14.000	0.098	0.0298
20009.0	1409	35	FR			80	45	10.2	3.0	b035nasa01	-3	5.100	0.130	0.0011	7.800	0.053	0.0422
20010.0	1410	35	SAM	0.024	nd	100	0	12.5	3.5	b035nasa01	-3	3.800	0.081	nd	4.200	0.028	0.0183
20011.0	1411	35	SAM	0.154	1.7566	100	0	11.3	4.1	b035nasa01	-3	8.300	0.290	0.0033	35.000	0.170	1.6459
	0	35	C1	nd	nd	100	0	12.7	2.5	b035nasa01	-3	4.700	0.185	0.0006	nd	nd	nd
20005.0	1461	37	SAM	0.016	nd	80	45	13.4	2.9	b037nasa01	-5	3.330	0.050	nd	1.900	0.020	0.0020
20005.0	1462	37	FR							b037nasa01	-5						
20005.0	1463	37	FR							b037nasa01	-5						
20007.0	1464	37	SAM			100	0	12.6	2.8	b037nasa02	-4	9.300	0.138	nd	11.800	0.122	0.0276
20007.0	1465	37	FR							b037nasa02	-4						
20007.0	1466	37	FR							b037nasa02	-4						
20006.0	1467	37	SAM			100	0	14.1	0.1	b037nasa02	-4	14.900	0.272	nd	7.170	0.146	nd
20006.0	1468	37	FR							b037nasa02	-4						
20006.0	1469	37	FR							b037nasa02	-4						
20009.0	1470	37	SAM	0.009	nd	100	0	10.4	2.3	b037nasa01	-5	1.100	0.023	nd	1.800	0.022	nd
20012.0	1471	37	SAM	0.022	nd	100	0	10.5	1.9	b037nasa01	-5	0.520	0.011	nd	4.200	0.039	0.0121
20013.0	1472	37	SAM	0.078	nd	96	9	12.8	3.2	b037nasa01	-5	1.800	0.067	nd	7.500	0.112	nd
20013.0	1473	37	FR							b037nasa01	-5						
20013.0	1474	37	FR							b037nasa01	-5						
20014.0	1475	37	SAM	0.033	nd	92	11	15.3	4.5	b037nasa01	-5	0.900	0.026	nd	1.800	0.058	nd
20014.0	1476	37	FR							b037nasa01	-5						
20014.0	1477	37	FR							b037nasa01	-5						
	0	37	C1			88	11	15.7	1.4	b037nasa01	-5	4.300	0.072	nd			
	0	37	C2			100	0	21.4	2.1	b037nasa02	-5	14.300	0.290		3.800	0.030	

Appendix C

Data Base Description

DATA BASE DESCRIPTION

for the

SAN FRANCISCO BAY REFERENCE STUDY PROJECT
BPTCP LEGS 31, 35, & 37

A Report prepared for the

California State Water Resources Control Board
Bays and Estuaries Unit
Bay Protection and Toxic Cleanup Program

by the

California Department of Fish and Game
Marine Pollution Studies Laboratories
7711 Sandholdt Road
Moss Landing, CA 95039

OCTOBER, 1995

I. OVERVIEW OF THE BAY PROTECTION PROGRAM

The California State Water Resources Control Board (SWRCB) has contracted the California Department of Fish and Game (CDFG) to coordinate the scientific aspects of the Bay Protection and Toxic Cleanup Program (BPTCP), a SWRCB program mandated by the California Legislature. The BPTCP is a comprehensive, long-term effort to regulate toxic pollutants in California's enclosed bays and estuaries. The program consists of both short-term and long-term activities. The short-term activities include the identification and priority ranking of toxic hot spots, development and implementation of regional monitoring programs designed to identify toxic hot spots, development of narrative sediment quality objectives, development and implementation of cleanup plans, revision of waste discharge requirements as needed to alleviate impacts of toxic pollutants, and development of a comprehensive database containing information pertinent to describing and managing toxic hot spots. The long-term activities include development of numeric sediment quality objectives; development and implementation of strategies to prevent the formation of new toxic hot spots and to reduce the severity of effects from existing toxic hot spots; revision of water quality control plans, cleanup plans, and monitoring programs; and maintenance of the comprehensive database.

Actual field and laboratory work is performed under contract by the California Department of Fish and Game (CDFG). The CDFG subcontracts the toxicity testing to Dr. Ron Tjeerdema at the University of California at Santa Cruz (UCSC) and the laboratory testing is performed at the CDFG toxicity testing laboratory at Granite Canyon, south of Carmel. The CDFG contracts the majority of the sample collection activities to Dr. John Oliver of San Jose State University at the Moss Landing Marine Laboratories (MLML) in Moss Landing. Dr. Oliver also is subcontracted to perform the TOC and grain size analyses, as well as to perform the benthic community analyses. CDFG personnel perform the trace metals analyses at the trace metals facility at Moss Landing Marine Laboratories in Moss Landing. The synthetic organic pesticides, PAHs and PCBs are contracted by CDFG to Dr. Ron Tjeerdema at the UCSC trace organics facility at Long Marine Laboratory in Santa Cruz. MLML currently maintains the Bay Protection and Toxic Cleanup Database for the SWRCB. Described below is a description of that database system.

II. DESCRIPTION OF COMPUTER FILES

The sample collection/field information, chemical, and toxicity data are stored on hard copy, computer disks and on a 486DX PC at Moss Landing Marine Laboratories. Access is limited to Russell Fairey. Contact Russell Fairey at (408) 633-6035 for copies of data. The data are stored in a dBase 4 program and can be exported to a variety of formats. There are three backups of this database stored in two different laboratories. The data are entered into 1 of 2 files. CHM31_37.DBF file contains all the

collection and chemical data. TOX31_37.DBF file contains all the collection and toxicity test data. A hardcopy printout of the dBase database structure is attached, showing precise characteristics of each field.

The CHM31_37.DBF file is the chemistry data file which contains the following fields (the number at the start of each field is the field number):

1. STANUM. This numeric field is 7 characters wide with 1 decimal place and contains the CDFG station numbers that are used statewide. The format is YXXXX.Z where Y is the Regional Water Quality Control Board Region number and XXXX is the number that corresponds to a given location or site and Z is the number of the station within that site. An example is San Pablo Bay- Island #1, in San Francisco Bay, where the STANUM is 20007.0. The 2 indicates Region 2. The 0007 indicates that it is Site 7 and the .0 is the replicate (if any) at the station within Site 7.

2. STATION. This character field is 30 characters wide and contains the exact name of the station.

3. IDORG. This numeric field is 8 characters wide and contains the unique i.d. organizational number for the sample. For each station collected on a unique date, an idorg sample number is assigned. This should be the field that links the collection, toxicity, chemical, and other data bases.

4. DATE. This date field is 8 characters long and is the date that each sample was collected in the field. It is listed as MM/DD/YY.

5. LEG. This numeric field is 6 characters wide and is the leg number of the project in which the sample was collected.

6. LATITUDE. This character field is 12 characters wide and contains the latitude of the center of the station sampled. The format is a character field as follows: XX,YY,ZZ, where XX is in degrees, YY is in minutes, and ZZ is in seconds or hundreds.

7. LONGITUDE. This character field is 14 characters wide and contains the longitude of the center of the station sampled. The format is a character field as follows: XX,YY,ZZ, where XXX is in degrees, YY is in minutes, and ZZ is in seconds or hundreds.

8. HUND_SECS. This character is 1 character wide and contains the designation "h" if the latitude and longitude are given in degrees, minutes, hundreths of a minute. The

designation "s" is given when latitude and longitude are given in degrees, minutes, seconds.

9. GISLAT. This numeric field is 12 characters wide with 8 decimal places and contains the latitude of the station sampled in Geographical Information System format. The format is a numeric field as follows: XX.YYYYYYYY, where XX is in degrees and YYYYYYYY is a decimal fraction of the preceding degree.

10. GISLONG. This character field is 14 characters wide with 8 decimal places and contains the longitude of the station sampled. The format is a character field as follows: XXXX.YYYYYYYY where XXXX is in degrees and YYYYYYYY is a decimal fraction of the preceding degree.

11. DEPTH. This character field is 4 characters wide and contains the depth at which the sediment sample was collected, in meters to the nearest one half meter.

12. METADATA. This is an index directing the user to tables or files of ancillary data pertinent to associated test. Character field, width 12.

TRACE METALS IN SEDIMENT are presented in fields 13 through 32. All sediment trace metal results are reported on a dry weight basis in parts per million (ppm).

A. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed.
B. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected.

Sediment trace metals are numeric fields of varying character width, and including the following elements, listed by field number, then field name as it appears in the database, then numeric character width and number of decimal places:

13. TMMOIST. 6.2
14. ALUMINUM. 9.2
15. ANTIMONY. 7.3
16. ARSENIC. 6.3
17. CADMIUM. 7.4
18. CHROMIUM. 8.3
19. COPPER. 7.2
20. IRON. 7.1
21. LEAD. 6.3
22. MANGANESE. 7.2
23. MERCURY. 7.4
24. NICKEL. 7.3
25. SILVER. 7.4

26. SELENIUM. 6.3
27. TIN. 8.4
28. ZINC. 9.4
29. ASBATCH. 5.1
30. SEBATCH. 5.1
31. TMBATCH. The Batch number that the sample was digested in, numeric character width 5 and 1 decimal places.
32. TMDATAQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 3. Data qualifier codes are as follows:

A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, QA evaluations should be consulted before using the data.
C. When QA samples have major exceedences of control criteria requirements and the data are not usable for most assessments and reporting purposes, the value is reported as "-6".
D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

SYNTHETIC ORGANICS are presented in fields 33 through 147. All synthetic organic results are reported on a dry weight basis in parts per billion (ppb or ng/g).

A. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed.
B. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected.

Synthetic organics are reported on a dry weight basis in parts per billion (ppb or ng/g) and are numeric fields of varying character width, and include the following compounds, listed by field number, then field name as it appears in database (and followed by the compound name if not obvious), and then finally, the numeric character width and number of decimal places is given:

33. SOWEIGHT. This numeric field is 6 characters wide with 2 decimal places and contains the weight of the sample extracted for analysis.
34. SOMOIST. This numeric field is 6 characters wide with 2 decimal places and contains the percent moisture of the sample extracted.
35. ALDRIN. 9.3
36. CCHLOR. cis-Chlordane. 9.3

37. TCHLOR. trans-Chlordane. 9.3
38. ACDEN. alpha-Chlordene. 9.3
39. GCDEN. gamma-Chlordene. 9.3
40. CLPYR. Chlorpyrifos. 8.2
41. DACTH. Dacthal. 9.3
42. OPDDD. o,p'-DDD. 8.2
43. PPDDD. p,p'-DDD. 9.3
44. OPDDE. o,p'-DDE. 8.2
45. PPDDE. p,p'-DDE. 8.2
46. PPDDMS. p,p'-DDMS. 8.2
47. PPDDMU. p,p'-DDMU. 8.2
48. OPDDT. o,p'-DDT. 8.2
49. PPDDT. p,p'-DDT. 8.2
50. DICLB. p,p'-Dichlorobenzophenone. 8.2
51. DIELDRIN. 9.3
52. ENDO_I. Endosulfan I. 9.3
53. ENDO_II. Endosulfan II. 8.2
54. ESO4. Endosulfan sulfate. 8.2
55. ENDRIN. 8.2
56. HCHA. alpha HCH 9.3
57. HCHB. beta HCH 8.2
58. HCHG. gamma HCH (Lindane) 9.3
59. HCHD. delta HCH 9.3
60. HEPTACHLOR. 9.3
61. HE. Heptachlor Epoxide. 9.3
62. HCB. Hexachlorobenzene. 9.3
63. METHOXY. Methoxychlor. 8.2
64. MIREX. 9.3
65. CNONA. cis-Nonachlor. 9.3
66. TNONA. trans-nonachlor. 9.3
67. OXAD. Oxadiazon. 8.2
68. OCDAN. Oxychlordane. 9.3
69. TOXAPH. Toxaphene. 7.2
70. TBT. tributyltin. 8.4
71. PESBATCH.The batch number that the sample was extracted in, numeric character width 6 and 2 decimal places.
72. PCB5. 9.3
73. PCB8. 9.3
74. PCB15. 9.3
75. PCB18. 9.3
76. PCB27. 9.3
77. PCB28. 9.3
78. PCB29. 9.3
79. PCB31. 9.3
80. PCB44. 9.3
81. PCB49. 9.3
82. PCB52. 9.3
83. PCB66. 9.3
84. PCB70. 9.3
85. PCB74. 9.3
86. PCB87. 9.3
87. PCB95. 9.3
88. PCB97. 9.3
89. PCB99. 9.3

90. PCB101. 9.3
91. PCB105. 9.3
92. PCB11O. 9.3
93. PCB118. 9.3
94. PCB128. 9.3
95. PCB132. 9.3
96. PCB137. 9.3
97. PCB138. 9.3
98. PCB149. 9.3
99. PCB151. 9.3
100. PCB153. 9.3
101. PCB156. 9.3
102. PCB157. 9.3
103. PCB158. 9.3
104. PCB170. 9.3
105. PCB174. 9.3
106. PCB177. 9.3
107. PCB180. 9.3
108. PCB183. 9.3
109. PCB187. 9.3
110. PCB189. 9.3
111. PCB194. 9.3
112. PCB195. 9.3
113. PCB201. 9.3
114. PCB203. 9.3
115. PCB206. 9.3
116. PCB209. 9.3
117. ARO1248. 9.3
118. ARO1254. 9.3
119. ARO1260. 9.3
120. ARO5460. 9.3
121. PCBBATCH. The batch number that the sample was extracted in, numeric character width 6 and 2 decimal place.
122. ACY. Acenaphthylene. 8.2
123. ACE. Acenaphthene. 8.2
124. ANT. Anthracene. 8.2
125. BAA. Benz[a]anthracene. 8.2
126. BAP. Benzo[a]pyrene. 8.2
127. BBF. Benzo[b]fluoranthrene. 8.2
128. BKF. Benzo[k]fluoranthrene. 8.2
129. BGP. Benzo[ghi]perylene. 8.2
130. BEP. Benzo[e]pyrene. 8.2
131. BPH. Biphenyl. 8.2
132. CHR. Chrysene. 8.2
133. DBA. Dibenz[a,h]anthracene. 8.2
134. DMN. 2,6-Dimethylnaphthalene. 8.2
135. FLA. Fluoranthrene. 8.2
136. FLU. Fluorene. 8.2
137. IND. Indo[1,2,3-cd]pyrene. 8.2
138. MNP1. 1-Methylnaphthalene. 8.2
139. MNP2. 2-Methylnaphthalene. 8.2
140. MPH1. 1-Methylphenanthrene. 8.2
141. NPH. Naphthalene. 8.2
142. PHN. Phenanthrene. 8.2

143. PER. Perylene. 8.2
144. PYR. Pyrene. 8.2
145. TMN. 2,3,4-Trimethylnaphthalene. 8.2
146. PAHBATCH. The batch number that the sample was extracted in, numeric character width 6 and 2 decimal places.
147. SODATAQA. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 3. Data qualifier codes are as follows:

A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
C. When QA samples have major exceedences of control criteria requirements and the data are not usable for most assessments and reporting purposes, the value is reported as "-6".
D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

SEDIMENT PARTICULATE SIZE ANALYSES DATA. Field 148, with a field name of "FINES", represents the sediment particulate size ("grain size") analyses data for each station. The grain size results are reported as percent fines.

148. FINES. Sediment grain size (percent fines) for each station. Numeric field, width 5 and 2 decimal places.

A. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed.
B. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected.

149. FINEBATCH. The batch number that the sample was analyzed in, numeric field character width 4.
150. FINEDATAQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 3. Data qualifier codes are as follows:

A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, QA evaluations should be consulted before using the data.
C. When QA samples have major exceedences of control criteria requirements and the data are not usable for most

assessments and reporting purposes, the value is reported as "-6".

D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

SEDIMENT TOTAL ORGANIC CARBON (TOC) ANALYSES DATA. Field 151 presents the levels of total organic carbon detected in the sediment samples at each station. All TOC results are reported as percent of dry weight.

151. TOC. Total Organic Carbon (TOC) levels (percent of dry weight) in sediment, for each station. Numeric field, width 6 and 2 decimal places.

A. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed.

B. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected.

152. TOCBATCH. The batch number that the sample was analyzed in, numeric field character width 4.

153. TOCDATAQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 3. Data qualifier codes are as follows:

A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".

B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.

C. When QA samples have major exceedences of control criteria requirements and the data are not usable for most assessments and reporting purposes, the value is reported as "-6".

D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

The TOX31_37.DBF file is the toxicity data file which contains the following fields (the number at the start of each field is the field number:

1. STANUM. This numeric field is 7 characters wide with 1 decimal place and contains the CDFG station numbers that are used statewide. The format is YXXXX.Z where Y is the Regional Water Quality Control Board Region number and XXXX is the number that corresponds to a

given location or site and Z is the number of the station within that site. An example is San Pablo Bay- Island #1 in San Francisco Bay where the STANUM is 20007.0. The 2 indicates Region 2. The 0007 indicates that it is Site 7 and the .0 is the replicate (if any) at the station within Site 7.

2. STATION. This character field is 30 characters wide and contains the exact name of the station.
3. IDORG. This numeric field is 8 characters wide with 0 decimal places and contains the unique i.d. organizational number for the sample. For each station collected on a unique date, an idorg sample number is assigned. This should be the field that links the collection, toxicity, chemical, and other data bases.
4. DATE. This date field is 8 characters long and is the date that each sample was collected in the field. It is listed as MM/DD/YY.
5. LEG. This numeric field is 6 characters wide and is the leg number of the project in which the sample was collected.
6. LATITUDE. This character field is 12 characters wide and contains the latitude of the center of the station sampled. The format is a character field as follows: XX,YY,ZZ, where XX is in degrees, YY is in minutes, and ZZ is in seconds or hundreds.
7. LONGITUDE. This character field is 14 characters wide and contains the longitude of the center of the station sampled. The format is a character field as follows: XX,YY,ZZ, where XXX is in degrees, YY is in minutes, and ZZ is in seconds or hundreds.
8. HUND_SECS. This character field is 1 character wide and contains the designation "h" if the latitude and longitude are given in degrees, minutes and hundreths of a minute. The designation "s" is given when latitude and longitude are given in degrees, minutes and seconds.
9. GISLAT. This numeric field is 12 characters wide with 8 decimal places and contains the latitude of the station sampled in Geographical Information System format. The format is a numeric field as follows: XX.YYYYYYYY, where XX is in degrees and YYYYYYYY is a decimal fraction of the preceding degree.
10. GISLONG. This character field is 14 characters wide with 8 decimal places and contains the longitude of the station sampled. The format is a character field as follows: XXXX.YYYYYYYY where XXXX is in degrees and YYYYYYYY is a decimal fraction of the preceding degree.
11. TYPE. This character field is 7 characters wide and describes whether the sample was a field sample, replicate or control.
12. METADATA. This is an index directing the user to tables or files of ancillary data pertinent to associated test. Character field, width 12.

AMPHIPOD SURVIVAL TOXICITY TEST DATA. The following are descriptions of the field headings for the amphipod (Ampelisca abdita (AA) toxicity test using homogenized sediment samples; presented in fields 13 through 23.

13. AA_MN. Station mean percent survival. Numeric field, width 6 and 0 decimal places.
14. AA_SD. Station standard deviation of percent survival. Numeric field, width 6 and 0 decimal places.
15. AA_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates no statistics were run. Character field, width 5.
16. AA_BATCH. The batch number that the sample were run in, character width 10.
17. AAQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
    C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
    D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.
18. AA_OTNH3. Total ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
19. AA_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

20. AA_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.
21. AA_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
22. AA_IUNH3. Unionized ammonia concentration (ppm in water) interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
23. AA_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

AMPHIPOD SURVIVAL TOXICITY TEST DATA. The following are descriptions of the field headings for the amphipod (Eohaustorius estuarius (EE) toxicity test using homogenized sediment samples; presented in fields 24 through 34.

24. EE_MN. Station mean percent survival. Numeric field, width 6 and 0 decimal places.
25. EE_SD. Station standard deviation of percent survival. Numeric field, width 6 and 0 decimal places.
26. EE_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates no statistics were run. Character field, width 5.
27. EE_BATCH. The batch number that the sample were run in, character width 10.
28. EEQC. Data qualifier codes are notations used by data

reviewers to briefly describe, or qualify data and the systems producing data, numeric width 4. Data qualifier codes are as follows:

A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".

B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.

C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".

D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

29. EE_OTNH3. Total ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

30. EE_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

31. EE_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

32. EE_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

33. EE_IUNH3. Unionized ammonia concentration (ppm in water) interstitial water (water within bedded sediment) for each station analyzed using amphipod

toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

34. EE_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

AMPHIPOD SURVIVAL TOXICITY TEST DATA. The following are descriptions of the field headings for the amphipod (Eohaustorius estuarius (EEP) toxicity test using sediment pore (interstitial) water samples; presented in fields 35 through 42.

35. EEP_MN. Station mean percent survival. Numeric field, width 6 and 0 decimal places.
36. EEP_SD. Station standard deviation of percent survival. Numeric field, width 6 and 0 decimal places.
37. EEP_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that statistics were not run. Character field, width 5.
38. EEP_BATCH. The batch number that the sample were run in, character width 10.
39. EEPQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producingdata, numeric character width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
    C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
    D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

40. EEP_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
41. EEP_IUNH3. Unionized ammonia concentration (ppm in water) interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
42. EEP_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

AMPHIPOD SURVIVAL TOXICITY TEST DATA. The following are descriptions of the field headings for the amphipod (Eohaustorius estuarius (EEI) toxicity test using intact sediment core samples; presented in fields 43 through 53.

43. EEI_MN. Station mean percent survival. Numeric field, width 6 and 0 decimal places.
44. EEI_SD. Station standard deviation of percent survival. Numeric field, width 6 and 0 decimal places.
45. EEI_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
46. EEI_BATCH. The batch number that the samples were run in, character width 10.
47. EEIQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5".

For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.

C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".

D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

48. EEI_OTNH3. Total ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

49. EEI_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

50. EEI_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

51. EEI_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

52. EEI_IUNH3. Unionized ammonia concentration (ppm in water) interstitial water (water within bedded sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

53. EEI_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded

sediment) for each station analyzed using amphipod toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

The following are descriptions of the field headings for the sea urchin (Strongylocentrotus purpuratus) development toxicity tests (SPPD) using sediment pore (interstitial) water samples; presented in fields 54 through 61. Results are given for undiluted interstitial water (100% pore water).

54. SPPD100_MN. Station mean percent normal development in 100% pore water. Numeric field, width 6 and 0 decimal places.
55. SPPD100_SD. Station standard deviation of percent normal development in 100% pore water. Numeric field, width 6 and 0 decimal places.
56. SPPD100_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
57. SPPD_BATCH. The batch number that the samples were analyzed in, character width 10.
58. SPPDQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
    C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
    D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.
59. SPPD_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not

analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

60. SPPD_IUNH3. Unionized ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
61. SPPD_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0"= not detected. Numeric field, width 7 and 4 decimal places.

The following are descriptions of the field headings for the sea urchin (Strongylocentrotus purpuratus) development toxicity tests (SPDI), using the sediment/water interface exposure to intact sediment cores; presented in fields 62 through 72.

62. SPDI_MN. Station mean percent normal development in the sediment/water interface exposure. Numeric field, width 6 and 0 decimal places.
63. SPDI_SD. Station standard deviation of percent normal development in the sediment/water interface exposure. Numeric field, width 6 and 0 decimal places.
64. SPDI_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
65. SPDI_BATCH. The batch number that the samples were analyzed in, numeric character width 10.
66. SPDIQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive to

critical, the QA evaluations should be consulted before using the data.

C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".

D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

67. SPDI_OTNH3. Total ammonia concentration (ppm in water) in overlying water samples (water above bedded sediment used for urchin toxicity tests). When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

68. SPDI_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water samples (water above bedded sediment) for each station analyzed using urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

69. SPDI_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

70. SPDI_ITNH3. Total ammonia concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

71. SPDI_IUNH3. Unionized ammonia concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for urchin toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

72. SPDI_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for urchin toxicity tests. When the value is missing or not analyzed, the value is

reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0"= not detected. Numeric field, width 7 and 4 decimal places.

The following are descriptions of the field headings for the mussel larval (Mytilus edulis) shell development toxicity tests, (MEP) using pore (interstitial) water samples; presented in fields 73 through 80. Results are given for undiluted interstitial water (100% pore water).

73. MEP100_MN. Station mean percent normal development in 100% pore water. Numeric field, width 6 and 0 decimal places.
74. MEP100_SD. Station standard deviation of percent normal development in 100% pore water. Numeric field, width 6 and 0 decimal places.
75. MEP100_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
76. MEPBATCH. The batch number that the samples were analyzed in, numeric character width 10.
77. MEPQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
    C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
    D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.
78. MEP_ITNH3. Total ammonia concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for mussel toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 6 and 3 decimal places.

79. MEP_IUNH3. Unionized ammonia concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for mussel toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 6 and 3 decimal places.
80. MEP_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water samples (water within bedded sediment) used for mussel toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0"= not detected. Numeric field, width 7 and 4 decimal places.

The following are descriptions of the field headings for the leptostracan (Nebalia pugettensis)(NP) toxicity test using homogenized sediment samples; presented in fields 81 through 91.

81. NP_MN. Station mean survival. Numeric field, width 6 and 0 decimal places.
82. NP_SD. Station standard deviation of mean survival. Numeric field, width 6 and 0 decimal places.
83. NP_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
84. NP_BATCH. The batch number that the samples were analyzed in, character width 10.
85. NPQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric width 4. Data qualifier codes are as follows:
    A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
    B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
    C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
    D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.

86. NP_OTNH3. Total ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
87. NP_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
88. NP_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.
89. NP_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
90. NP_IUNH3. Unionized ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.
91. NP_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using leptostracan toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

POLYCHAETE SURVIVAL TOXICITY TEST DATA. The following are descriptions of the field headings for the polychaete worm (Neanthes arenaceodentata) (NASURV) survival toxicity test using

homogenized sediment samples; presented in fields 92 through 94.

92. NASURV_MN. Station mean percent survival. Numeric field, width 6 and 0 decimal places.
93. NASURV_SD. Station standard deviation of % survival. Numeric field, width 6 and 0 decimal places.
94. NASURV_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.

POLYCHAETE GROWTH TOXICITY TEST DATA. The following are descriptions of the field headings for the polychaete worm (Neanthes arenaceodentata) (NAWT) weight change toxicity test using homogenized sediment samples; presented in fields 95 through 105.

95. NAWT_MN. Station mean weight (gm) per worm. Numeric field, width 6 and 1 decimal places.
96. NAWT_SD. Station standard deviation of mean weight (gm) per. Numeric field, width 6 and 1 decimal places.
97. NAWT_SG. Station statistical significance, representing the significance of the statistical test between the home sediment and the sample. A single * represents significance at the .05 level, and double ** represents significance at the .01 level. ns = not statistically significant. A "-9" indicates that no statistics were run. Character field, width 5.
98. NA_BATCH. The batch number that the samples were analyzed in, numeric character width 10.
99. NAQC. Data qualifier codes are notations used by data reviewers to briefly describe, or qualify data and the systems producing data, numeric character width 4. Data qualifier codes are as follows:
   A. When the sample meets or exceeds the control criteria requirements, the value is reported as "-4".
   B. When the sample has minor exceedences of control criteria but is generally usable for most assessments and reporting purposes, the value is reported as "-5". For samples coded "-5" it is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.
   C. When the QA sample has major exceedences of control criteria requirements and the data is not usable for most assessments and reporting purposes, the value is reported as "-6".
   D. When the sample has minor exceedences of control criteria and is unlikely to affect assessments, the value is reported as -3.
100. NA_OTNH3. Total ammonia concentration (ppm

in water) in overlying water (water above bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

101. NA_OUNH3. Unionized ammonia concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

102. NA_OH2S. Hydrogen sulfide concentration (ppm in water) in overlying water (water above bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

103. NA_ITNH3. Total ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

104. NA_IUNH3. Unionized ammonia concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 3 decimal places.

105. NA_IH2S. Hydrogen sulfide concentration (ppm in water) in interstitial water (water within bedded sediment) for each station analyzed using polychaete toxicity tests. When the value is missing or not analyzed, the value is reported as "-9.0" = not analyzed. When the value is less than the detection limit of the analytical test, the value is reported as "-8.0" = not detected. Numeric field, width 7 and 4 decimal places.

Appendix D

Toxicity Test Data Quality Assurance Report

Quality Assurance Report
for
Toxicity Testing Portion
of the
San Francisco Reference Site Study

Prepared for:
Bay Protection and Toxic Cleanup Program
State Water Resources Control Board
Sacramento, CA 95814

University of California, Santa Cruz
Marine Pollution Studies Laboratory at Granite Canyon
Monterey CA 95064

October 15, 1995

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1.0 Introduction

1.1 Contract authorization

This Quality Assurance report accompanies the data for toxicity tests authorized for the San Francisco Reference Site Study as part of the Bay Protection Toxicity and Cleanup Program (BPTCP). The samples for this study were collected during three separate sampling periods legs 31, 35, and 37. Toxicity testing was conducted at the California Department of Fish and Game's Marine Pollution Studies Laboratory (MPSL), located at Granite Canyon, near Monterey, CA. Laboratory personnel and their responsibilities are shown in Table 1.

Toxicity tests for this study were performed between April 1994 and May 1995. Testing on both solid phase sediment samples and pore water samples were authorized under BPTCP Contract #FG1405, Task order # 2-5. Nine different test protocols (five solid phase tests and four pore water tests) were used to test up to 46 samples over the three sampling periods.

1.2 Completeness

Toxicity testing was successfully completed on all samples, except for those in three tests that failed to meet Quality Control criteria. Test failures affected the following samples for which no data is reported: Leg 31 *Nebalia* test (Idorgs. 1219, 1222, 1225, 1228, and 1231); Leg 37 *Nebalia* test (Idorgs. 1464 and 1467); and the Leg 35 Mussel test (Idorgs. 1398 - 1411). This report documents all departures from Quality Control criteria established in the toxicity testing portion of the BPTCP Quality Assurance Project Plan (QAPP:1994), itemizes all departures from QAPP criteria, and provides a detailed evaluation of all potential problems. Most departures were considered to be of minor concern, and pose no serious compromise to data quality and acceptability. For problems of greater concern, details are provided to allow for individual evaluation of the data. Evaluations for all departures from QAPP guidelines are discussed in detail in Section 3.4.

Table 1. Marine Pollution Studies Laboratory: List of Staff Responsibilities

Name	Position	Responsibilities
Ron Tjeerdema	Principal Investigator UCSC	- Primary responsibility for contract completion
Max Puckett	Laboratory Director CDFG	-Directs laboratory operations -Writes contracts -Verifies sample lists -Coordinates interaction among labs -Manages data flow to central data base
John Hunt	Project Coordinator UCSC	-Supervises laboratory personnel -Oversees analysis and completion of projects -Develops and reviews QA Project Plans -Reviews project data -Reviews QA/QC documentation -Generates and/or reviews final reports
Brian Anderson	Project Coordinator UCSC	-Supervises laboratory personnel -Oversees analysis and completion of projects -Develops and reviews QA Project Plans -Reviews project data -Reviews QA/QC documentation -Generates and/or reviews final reports
Marilyn Herman	Administrative Assistant UCSC	-Processes invoices and maintains budget records
Shirley Tudor	Database manager UCSC	-Conducts and supervises data entry -Manages laboratory data base -Performs statistical analyses -Reviews data for QA acceptability -Generates data reports -Generates QA reports
Witold Piekarski	Laboratory Safety Officer UCSC	-Manages laboratory safety program -Conducts toxicity tests -Enters test data into data base -Cultures test organisms -Assists with facility maintenance

Table 1 (cont).

Name	Position	Responsibilities
Bryn Phillips	Laboratory QA Officer UCSC	-Maintains QA logs and records -Manages sample receipt and storage -Schedules laboratory activities -Oversees adherence to QA Project Plan -Conducts toxicity tests -Enters test data into data base -Cultures test organisms -Assists with facility maintenance
Matt Englund	Laboratory technician UCSC	-Conducts toxicity tests -Enters test data into data base -Cultures test organisms -Assists with facility maintenance -Orders laboratory supplies -Supervises transportation of personnel
Michelle Hester	Laboratory technician UCSC	-Conducts toxicity tests -Enters test data into data base -Cultures test organisms -Assists with development of new techniques
Steve Osborn	Laboratory technician UCSC	-Conducts toxicity tests -Enters test data into data base -Cultures test organisms
Kelita Smith	Laboratory technician UCSC	-Conducts toxicity tests -Cultures test organisms

2.0 Summary of Toxicity Testing Methods

All toxicity tests were conducted at the California Department of Fish and Game's Marine Pollution Studies Laboratory (MPSL) at Granite Canyon, near Monterey, California. Toxicity tests were conducted by personnel from the Institute of Marine Sciences, University of California, Santa Cruz (Table 1).

2.1 Sample handling

Details of sampling methods and locations are given in the main body of the data report. Fresh pore water and bedded sediment samples were transported to MPSL in ice chests (4°C) from the sample processing laboratory at Moss Landing. Transport time was one hour. Chain-of-custody procedures (described in the Quality Assurance Project Plan, 1994) were followed for each set of samples. Sample tracking logs were maintained at MPSL to document sample storage times and conditions, times of removal and return to storage, and final disposition.

All sediment samples were handled according to procedures described in ASTM (1992). Bedded sediment samples were held at 4°C until the day before a test, when they were removed from refrigeration and loaded into test containers. All tests were initiated within 14 days of sample collection. Water quality was measured at the beginning and end of all tests, and before water renewals in the *Eohaustorius* pore water test and *Neanthes* test. At these times pH, temperature, salinity, and dissolved oxygen were measured in both overlying water and interstitial water from all samples to verify that water quality criteria were within the limits defined for the test protocol. Dissolved oxygen concentrations and pH were measured using an Orion EA940 expandable ion analyzer. Temperature of each sample was measured with a mercury thermometer. Salinity was measured with a refractometer. Total ammonia and sulfide concentrations were also measured at these times. Ammonia concentrations were measured using an ammonium ion specific electrode (Orion model 95-12). Samples for sulfide measurement were preserved with zinc acetate and stored in the dark until time of measurement. Sulfide concentrations were measured on a spectrophotometer using the colorimetric methylene blue method. Pore water for interstitial measurements was extracted by centrifugation.

Once at MPSL, pore water samples were held at 4°C until removed for testing. Pore water samples with salinities outside the specified range for each protocol were adjusted to test salinity. Salinities were increased by the addition of hypersaline brine (60-80‰), drawn from partially frozen seawater. Dilution water consisted of Granite Canyon seawater (32-34‰). Water quality parameters for each pore water sample were measured at the beginning and end of each test as described above.

2.2 *Ampelisca* Test

The *Ampelisca* test followed ASTM (1992) procedures for *Ampelisca abdita*. All *Ampelisca* were obtained from East Coast Amphipod in Kingston, Rhode Island. Animals were shipped in one gallon polyethylene jars containing collection site sediment via overnight courier. Upon arrival at Granite Canyon, the amphipods were acclimated to test salinity and temperature for 48 hours prior to inoculation into the test containers.

Test containers were one liter glass jars containing 2 cm of sediment and filled to the 700 ml line with 28 ‰ sea water. Sea water was adjusted to the appropriate salinity using spring water or distilled well water. Test sediment and overlying water were allowed to equilibrate for 24 h, then 20 amphipods were placed in each beaker along with 28 ‰ sea water to fill test containers to the one-liter line. Test chambers were gently aerated and continuously illuminated.

Five replicates of each sample were tested for 10 days. In addition, a negative sediment control consisting of 5 replicates of amphipod collection site sediment was included with each set of samples tested. Amphipod emergence and visible survival was recorded daily. After 10 days, samples were sieved through a 0.405 mm Nitex screen to recover test animals, and the number of survivors was recorded for each replicate.

Positive control reference tests were conducted concurrently with each sediment test using cadmium chloride as a reference toxicant. In these tests, amphipod mortality was recorded in three replicates of four cadmium concentrations after a 96 h water-only exposure. A dilution water control consisting of one micron-filtered Granite Canyon sea water was included in each test.

2.3 *Eohaustorius* Tests.

The *Eohaustorius* tests followed ASTM (1992) procedures for *Eohaustorius estuarius*. All *Eohaustorius* were obtained from Northwestern Aquatic Sciences in Yaquina Bay, Oregon. Animals were separated into groups of approximately 100 and placed in polyethylene boxes containing Yaquina Bay collection site sediment, then shipped on ice via overnight courier. Upon arrival at Granite Canyon, the amphipods were slowly acclimated 2 ‰ per day to 28 ‰ (T = 15°C). Once acclimated, the animals were held for an additional 48 h prior to inoculation into the test containers.

Solid-phase tests

Two solid phase tests were conducted using *Eohaustorius* amphipods, one with homogenized sediment samples, and the other with intact field-collected sediment cores.

For the homogenized sediment test, test containers were one liter glass jars containing 2 cm of sediment and filled to the 700 ml line with 28‰ sea water. Sea water was adjusted to the appropriate salinity using spring water or distilled well water. Test sediment and overlying water were allowed to

equilibrate for 24 h, then 20 amphipods were placed in each beaker along with 28‰ sea water to fill test containers to the one-liter line. Test chambers were gently aerated and continuously illuminated.

Five replicates of each sample were tested for 10 days. In addition, a negative sediment control consisting of 5 replicates of Yaquina Bay home sediment was included with each set of samples tested. Amphipod emergence was recorded daily. After 10 days, samples were sieved through a 0.5 mm Nitex screen to recover the test animals, and the number of survivors was recorded for each replicate.

For the intact sediment test containers consisted of cores collected from grab samples by inserting a 7.5 cm diameter polycarbonate core tube to a depth of 10 cm. Core tubes were capped on both ends and transported to MPSL in coolers at 4°C. One day before test initiation, the space overlying the sediment was filled with 28‰ water. Test sediment and overlying water were allowed to equilibrate for 24 h, then 20 amphipods were placed in each core tube. The test procedure continued as described above.

Pore water test

Eohaustorius amphipods were also used in a 10-day pore water test. Five amphipods were placed in each of 5 replicates consisting of 250 ml glass crystallizing dishes containing 50 ml pore water. Fifty percent of the pore water was renewed every 96 hours. Survival was recorded at renewals and at the end of 10 days. Test containers were held in darkness and were not aerated.

Positive control reference tests were conducted concurrently with each test using cadmium chloride as a reference toxicant. In these tests amphipod mortality was recorded in three replicates of four cadmium concentrations after a 96 h water-only exposure. A dilution water control consisting of one micron-filtered Granite Canyon sea water was included in each test.

2.4 *Neanthes* Tests

The *Neanthes* test followed procedures described in Puget Sound Protocols (1992). Emergent juvenile *Neanthes arenaceodentata* (2-3 week-old) were obtained from Dr. Don Reish of California State University at Long Beach, California. Worms were shipped in seawater in plastic bags at ambient temperature via overnight courier. Upon arrival at MPSL, worms were allowed to acclimate gradually to 28 ‰ with ≤ 2 ‰ daily incremental salinity adjustments at a temperature of 20°C. Once acclimated, the worms were maintained at least 48 h, and no longer than 10 days, before the start of a test.

Test containers consisted of one liter glass beakers, each containing 2 cm of sediment and filled to the 700 ml line with 28‰ sea water. Sea water was adjusted to the appropriate salinity using spring water or distilled well water. After test sediment and overlying water were allowed to equilibrate for 24 h, five worms were placed in each of five replicate beakers, and 28‰ sea water was added up to the one-liter line. A negative sediment control consisting of five replicates of Yaquina Bay sediment was included with each set of samples tested. Test chambers were aerated and illuminated continuously during the 20-day test period. Worms were fed TetraMin® every 2 days, and overlying water was renewed every 3 days.

After 20 days, samples were sieved through a 0.5 mm Nitex screen, and the number of surviving worms recorded. Surviving worms from each replicate were wrapped in a piece of pre-weighed aluminum foil, and placed in a drying oven until reaching a constant weight. Each foil packet was then weighed to the nearest 0.1mg. Worm survival and mean weight/worm for each replicate was calculated as follows:

$$\text{Percent worm survival} = \frac{\text{Number of surviving worms}}{5} \times 100$$

$$\text{Mean weight/worm} = \frac{\text{Total weight - foil weight}}{\text{\# surviving worms}} \times 100$$

Positive control reference tests were conducted concurrently with each sediment test using cadmium chloride as a reference toxicant. In these tests, worm mortality was recorded in three replicates of four cadmium concentrations after a 96 h water-only exposure. A dilution water control consisting of one micron-filtered Granite Canyon sea water was included in each test.

2.5 *Nebalia* Tests

Tests using *Nebalia pugettensis* followed ASTM (1992) procedures for amphipods. Test organisms were collected from Elkhorn Slough near Moss Landing, California. Animals were held at ambient water temperature and salinity in a 20-gallon aquarium filled to several cm with Moss Landing beach sand until the day of the test. Sediment sample preparation and test protocol was identical to that described for *Ampelisca*. The home sediment control consisted of Moss Landing beach sand. Positive control reference tests were conducted concurrently with each sediment test using cadmium chloride as a reference toxicant. In these tests, *Nebalia* mortality was recorded in three replicates of four cadmium concentrations after a 96 h water-only exposure. A dilution water control consisting of one micron-filtered Granite Canyon sea water was included in each test.

2.6 Mussel Larval Development Tests

The bay mussel (*Mytilus edulis*) larval development test was conducted on all pore water samples. Details of the test protocol are given in ASTM (1992). A brief description of the method follows.

Mussels were shipped via overnight courier and held at MPSL at ambient temperature (11-13 °C) and salinity (32-34‰) until testing. On the day of a test, adult mussels were transferred to 25 °C water to induce spawning through heat stress. Sperm and eggs were mixed in 28‰ water to give a final sperm-to-egg ratio of 15 to 1. After approximately 20 minutes, fertilized eggs were rinsed on a 25 µm screen to

remove excess sperm. Embryos were distributed to the test containers after approximately 90% of the embryos exhibited first cell cleavage (approximately 1 hour).

Test containers were polyethylene-capped, sea water-leached, 20 ml glass scintillation vials containing 10 mls of test solution. Each test container was inoculated with approximately 250 embryos (25/ml). Porewater samples were tested at 28 ± 2 ‰. Low salinity samples were adjusted to 28‰ using frozen seawater brine. Controls consisted of one micron-filtered Granite Canyon sea water adjusted to 28‰, and a separate brine control consisting of sea water brine adjusted to 28‰ with distilled water. A positive control reference test was conducted concurrently with each test using a dilution series of cadmium chloride as a reference toxicant.

After a 48 hour exposure period, larvae were fixed in 5% buffered formalin. All larvae in each container were examined under an inverted light microscope at 100x to determine the proportion of normally developed larvae as described in ASTM (1992). The percentage normally developed larvae was calculated as:

$$\frac{\text{Observed number of live normal larvae}}{\text{Mean number of live embryos inoculated at start of test}} \times 100$$

2.7 Sea Urchin Larval Development Tests

The purple sea urchin (*Strongylocentrotus purpuratus*) larval development test was conducted on all porewater samples. Details of the test protocol are given in Dinnel (1992). A brief description of the method follows.

Sea urchins were collected from the Monterey County coast near Granite Canyon and held at MPSL at ambient seawater temperature and salinity until testing. Adult sea urchins were held in complete darkness to preserve gonadal condition. On the day of a test, urchins were induced to spawn in air by injection with 0.5 ml of 0.5M KCl. Eggs and sperm collected from the urchins were mixed in seawater at a 500 to 1 sperm to egg ratio, and embryos were distributed to the test containers within one hour of fertilization. Test containers were polyethylene-capped, seawater-leached, 20 ml glass scintillation vials containing 5 mls of porewater. Each test container was inoculated with approximately 150 embryos (30/ml). Laboratory controls were included with each set of samples tested. Controls included a dilution control consisting of MPSL seawater and a brine control with all samples that required brine adjustment. Tests were conducted at ambient seawater salinity ± 2‰. A positive control reference test was conducted concurrently with each porewater test using a dilution series of copper chloride as a reference toxicant.

After an exposure period of 72 hours, larvae were fixed in 5% buffered formalin. Approximately one hundred larvae in each container were examined under an inverted light microscope at 100x to

determine the proportion of normally developed larvae as described by Dinnel (1992).

Percent normal development was calculated as:

$$\frac{\text{Number of normally developed larvae}}{\text{Total number of larvae counted}} \times 100$$

The sea urchin larval development test was also conducted at the sediment- water interface of intact sediment core samples . Test containers consisted of a 37 µm screen tube placed within 1cm of the surface of an intact sediment core. Seawater at ambient salinity was poured into the screen tube at the surface of each core and allowed to equilibrate for 24 hours before the start of a test. Sea urchin embryos were prepared as described above and approximately 250 embryos were introduced into each screen tube. Laboratory controls consisted of Yaquina Bay amphipod home sediment from Northwestern Aquatic Sciences. After an exposure period of 72 hours, screen tubes were removed from the sediment cores and flushed with seawater. Larvae were rinsed into 20 ml scintillation vials and fixed in 5% buffered formalin. One hundred larvae in each container were examined under an inverted light microscope at 100x to determine the proportion of normally developed larvae as described by Dinnel (1992). Percent normal development was calculated as:

$$\frac{\text{Number of normally developed larvae}}{\text{Total number of larvae}} \times 100$$

3.0 Quality Assurance and Evaluation

This section assesses adherence to QA/QC guidelines established for the toxicity tests used in the BPTCP project, and summarized in the BPTCP Quality Assurance Project Plan (QAPP; 1993). Section 3.1 lists the test acceptability criteria from published protocols for all tests. Section 3.2 shows a Quality Assurance checklist that notes compliance for all tests with each of these criteria. Each Leg number in Table 2 corresponds to a single test. Criteria that have been met are noted with a "✓" in the checklist, and departures from the criteria are noted with a number instead of a "✓". Section 3.3 gives a description of QC departure by sample , and assigns an evaluation code for each category of QC problem. Section 3.4 evaluates each QC problem individually, and assesses overall data acceptability.

3.1 Test Acceptability Criteria

This section lists QA/QC test acceptability criteria for each toxicity test performed on samples collected for the San Francisco Reference Site Study. Quality control criteria are taken from published protocols with modifications outlined in the BPTCP Quality Assurance Project Plan (1993).

Amphipod sediment test using *Ampelisca* (Protocol: ASTM, 1992)

Ref #	Quality control criterion
1	The mean control survival should be at ≥ 90%.
2	Survival in each control replicate should be ≥ 80%.
3	Home sediment sample should be included in each test.
4	A reference toxicant test must be run concurrently with each test.
5	Sediment can be held no longer than 14 days between the time of collection and test start date.
6	Amphipods can be held in the lab no longer than 14 days between time of collection and test start date.
7	Amphipods must be acclimated to test conditions for at least 48 hours before start of test.
8	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (6-100% saturation at 15°C).
9	Salinity of each sample should be 28±3 ‰ during the test.
10	Temperature of each sample should be 15±2°C during the test.
11	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
12	pH precision and accuracy must be less than or equal to 10%.
13	Salinity precision and accuracy must be less than or equal to 10%.
14	Ammonia precision and accuracy must be less than or equal to 30%.
15	Sulfide precision and accuracy must be less than or equal to 30%.

Amphipod sediment test using *Eohaustorius* (Protocol: ASTM, 1992)

Ref #	Quality control criterion
16	The mean control survival should be ≥ 90%.
17	Survival in each control replicate should be ≥ 80%.
18	Home sediment sample should be included in each test.
19	A reference toxicant test must be run concurrently with each test.
20	Sediment can be held no longer than 14 days between the time of collection and test start date.
21	Amphipods can be held in the lab no longer than 14 days between time of collection and test start date.
22	Amphipods must be acclimated to test conditions for at least 48 hours before start of test.
23	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (60-100% saturation at 15°C).
24	Salinity of each sample should be 28±3 ‰ during the test.
25	Temperature of each sample should be 15±2°C during the test.
26	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
27	pH precision and accuracy must be less than or equal to 10%.
28	Salinity precision and accuracy must be less than or equal to 10%.
29	Ammonia precision and accuracy must be less than or equal to 30%.
30	Sulfide precision and accuracy must be less than or equal to 30%.

Amphipod porewater test using *Eohaustorius*

Ref #	Quality control criterion
31	Amphipods can be held in the lab no longer than 14 days between time of collection and test start date.
32	Amphipods must be acclimated to test conditions for at least 48 hours before start of test.
33	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (60-100% saturation at 15°C).
34	Salinity of each sample should be 28±3 ‰ during the test.
35	Temperature of each sample should be 15±2°C during the test.
36	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
37	pH precision and accuracy must be less than or equal to 10%.
38	Salinity precision and accuracy must be less than or equal to 10%.
39	Ammonia precision and accuracy must be less than or equal to 30%.
40	Sulfide precision and accuracy must be less than or equal to 30%.

Amphipod intact sediment core test using *Eohaustorius* (Protocol: ASTM, 1992)

Ref #	Quality control criterion
41	The mean control survival should be ≥ 90%.
42	Survival in each control replicate should be ≥ 80%.
43	Home sediment sample should be included in each test.
44	A reference toxicant test must be run concurrently with each test.
45	Sediment can be held no longer than 14 days between the time of collection and test start date.
46	Amphipods can be held in the lab no longer than 14 days between time of collection and test start date.
47	Amphipods must be acclimated to test conditions for at least 48 hours before start of test.
48	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (60-100% saturation at 15°C).
49	Salinity of each sample should be 28±3 ‰ during the test.
50	Temperature of each sample should be 15±2°C during the test.
51	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
52	pH precision and accuracy must be less than or equal to 10%.
53	Salinity precision and accuracy must be less than or equal to 10%.
54	Ammonia precision and accuracy must be less than or equal to 30%.
55	Sulfide precision and accuracy must be less than or equal to 30%.

Mussel porewater test using *Mytilus* (Protocol: ASTM, 1992)

Ref #	Quality control criterion
56	70% of the embryos inoculated into control test containers must develop normally.
57	Reference toxicant test control must be greater than or equal to 70% normal.
58	Brine control must be greater than or equal to 70% normal.
59	A reference toxicant test must be run concurrently with each test.
60	All test organisms must be obtained from the same location.
61	Test must be inoculated with embryos within four hours of fertilization.
62	Dissolved oxygen must be measured at the start and end of the test.
63	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (60-100% saturation at 15°C).
64	Salinity of each sample should be 28±2 ‰ during the test.
65	Temperature of each sample should be 15±2°C during the test.
66	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
67	pH precision and accuracy must be less than or equal to 10%.
68	Salinity precision and accuracy must be less than or equal to 10%.
69	Ammonia precision and accuracy must be less than or equal to 30%.
70	Sulfide precision and accuracy must be less than or equal to 30%.

Neanthes **tests (Protocol: Puget Sound Protocols 1991)**

Ref #	Quality control criterion
71	The mean control survival should be ≥ 90%.
72	Survival in each control replicate should be ≥ 80%.
73	A reference toxicant test must be run concurrently with each test.
74	Sediment can be held no longer than 14 days between the time of collection and test start date.
75	Worms can be held in the lab no longer than 14 days between time of collection and test start date.
76	Worms must be acclimated to test conditions for at least 48 hours before start of test.
77	Dissolved oxygen levels in each sample should range between 4.62 and 7.71 mg/L (60-100% saturation at 20°C).
78	Salinity of each sample should be 28±2 ‰ during the test.
79	Temperature of each sample should be 20±2°C during the test.
80	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
81	pH precision and accuracy must be less than or equal to 10%.
82	Salinity precision and accuracy must be less than or equal to 10%.
83	Ammonia precision and accuracy must be less than or equal to 30%.
84	Sulfide precision and accuracy must be less than or equal to 30%.

Leptostracan sediment test using *Nebalia* (Protocol: adapted from ASTM (1992), for Amphipods)

Ref #	Quality control criterion
85	The mean control survival should be ≥ 90%.
86	Survival in each control replicate should be ≥ 80%.
87	Home sediment sample should be included in each test.
88	A reference toxicant test must be run concurrently with each test.
89	Sediment can be held no longer than 14 days between the time of collection and test start date.
90	Leptostracans can be held in the lab no longer than 14 days between time of collection and test start date.
91	Leptostracans must be acclimated to test conditions for at least 48 hours before start of test.
92	Dissolved oxygen levels in each sample should range between 5.09 and 8.49 mg/L (60-100% saturation at 15°C).
93	Salinity of each sample should be 28±3 ‰ during the test.
94	Temperature of each sample should be 15±2°C during the test.
95	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
96	pH precision and accuracy must be less than or equal to 10%.
97	Salinity precision and accuracy must be less than or equal to 10%.
98	Ammonia precision and accuracy must be less than or equal to 30%.
99	Sulfide precision and accuracy must be less than or equal to 30%.

***Strongylocentrotus purpuratus* pore water test (Protocol: Dinnel, 1992)**

Ref #	Quality control criterion
100	The mean reference control survival should be ≥ 70%.
101	The mean brine control survival should be ≥ 70%.
102	A reference toxicant test must be run concurrently with each test.
103	Dissolved oxygen levels in each sample should range between 4.91 and 8.19 mg/L (60-100% saturation at 15°C).
104	Salinity of each sample should be ambient ± 2 ‰ during the test.
105	Temperature of each sample should be 15±2°C during the test.
106	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
107	pH precision and accuracy must be less than or equal to 10%.
108	Salinity precision and accuracy must be less than or equal to 10%.
109	Ammonia precision and accuracy must be less than or equal to 30%.
110	Sulfide precision and accuracy must be less than or equal to 30%.

Sediment-water interface test using *Strongylocentrotus purpuratus* (Protocol: adapted from Dinnel, 1992)

Ref #	Quality control criterion
111	The mean reference control survival should be ≥ 70%.
112	The mean brine control survival should be ≥ 70%.
113	A reference toxicant test must be run concurrently with each test.
114	Dissolved oxygen levels in each sample should range between 4.91 and 8.19 mg/L (60-100% saturation at 15°C).
115	Salinity of each sample should be ambient ± 2 ‰ during the test.
116	Temperature of each sample should be 15±2°C during the test.
117	Dissolved oxygen precision and accuracy must be less than or equal to 10%.
118	pH precision and accuracy must be less than or equal to 10%.
119	Salinity precision and accuracy must be less than or equal to 10%.
120	Ammonia precision and accuracy must be less than or equal to 30%.
121	Sulfide precision and accuracy must be less than or equal to 30%.

3.2. Summary of QC test acceptability

Table 2. Checklist indicating adherence to QC test acceptability criteria outlined in Section 3.1. Each Leg corresponds to a single toxicity test. Reference numbers for criteria match with those in Section 3.1. "✓" indicates adherence to QC criterion. Numbers indicate a departure from the given criterion; each of these items is explained in detail for each sample in Table 3.

	***Ampelisca abdita* sediment test**	31	35	37a	37b
1	Control mean ≥ 90%	1	1	✓	✓
2	All control replicates ≥ 80%	✓	2	✓	✓
3	Reference sediment sample included	✓	✓	✓	✓
4	Reference toxicant test run	✓	✓	✓	✓
5	≤ 2 weeks sediment holding period	✓	✓	✓	✓
6	≤ 2 weeks amphipod holding period	✓	✓	✓	✓
7	≥ 48 hr amphipod acclimation period	7	✓	7	✓
8	5.09≤ DO≤ 8.49 mg/l	8	8	✓	✓
9	Salinity 28±3 ‰	✓	✓	9	✓
10	Temperature 15±2°C	✓	✓	✓	✓
11	DO Precision /Accuracy≤ 10%	✓	✓	✓	✓
12	pH Precision/Accuracy≤ 10%	✓	✓	✓	✓
13	Salinity Precision/Accuracy≤ 10%	✓	✓	✓	✓
14	Ammonia Precision/Accuracy≤ 30%	✓	✓	✓	14
15	Sulfide Precision/Accuracy≤ 30%	✓	✓	✓	✓

	***Eohaustorius* sediment test**	31	35	37a	37b
16	Control mean ≥ 90%	✓	✓	✓	✓
17	All control replicates ≥ 80%	✓	✓	✓	✓
18	Reference sediment sample included	✓	✓	✓	✓
19	Reference toxicant test run	✓	✓	✓	✓
20	≤ 2 weeks sediment holding period	✓	✓	✓	✓
21	≤ 2 weeks amphipod holding period	✓	✓	✓	✓
22	≥ 48 hr amphipod acclimation period	✓	✓	✓	✓
23	5.09≤ DO≤ 8.49 mg/l	✓	23	23	23
24	Salinity 28±3 ‰	✓	24	✓	✓
25	Temperature 15±2°C	✓	✓	✓	✓
26	DO Precision /Accuracy≤ 10%	✓	✓	✓	✓
27	pH Precision/Accuracy≤ 10%	✓	✓	✓	✓
28	Salinity Precision/Accuracy≤ 10%	✓	✓	✓	✓
29	Ammonia Precision/Accuracy≤ 30%	✓	✓	29	✓
30	Sulfide Precision/Accuracy≤ 30%	✓	✓	✓	✓

	***Eohaustorius* porewater test**	31	35	37a	37b
32	≥ 48 hr amphipod acclimation period	✓	✓	✓	✓
33	5.09≤ DO≤ 8.49 mg/l	✓	33	33	33
34	Salinity 28±3 ‰	✓	34	✓	✓
35	Temperature 15±2°C	✓	✓	✓	✓
36	DO Precision /Accuracy≤ 10%	✓	✓	✓	✓
37	pH Precision/Accuracy≤ 10%	✓	✓	✓	✓
38	Salinity Precision/Accuracy≤ 10%	✓	✓	✓	✓
39	Ammonia Precision/Accuracy≤ 30%	✓	✓	✓	✓
40	Sulfide Precision/Accuracy≤ 30%	✓	✓	✓	✓

	***Eohaustorius* intact core test**	31	35	37a	37b
41	Control mean ≥ 90%	✓	✓	NA	NA
42	All control replicates ≥ 80%	✓	✓	NA	NA
43	Reference sediment sample included	✓	✓	NA	NA
44	Reference toxicant test run	✓	✓	NA	NA
45	≤ 2 weeks sediment holding period	✓	✓	NA	NA
46	≤ 2 weeks amphipod holding period	✓	✓	NA	NA
47	≥ 48 hr amphipod acclimation period	✓	✓	NA	NA
48	5.09≤ DO≤ 8.49 mg/l	✓	✓	NA	NA
49	Salinity 28±3 ‰	✓	✓	NA	NA
50	Temperature 15±2°C	✓	✓	NA	NA
51	DO Precision /Accuracy≤ 10%	✓	✓	NA	NA
52	pH Precision/Accuracy≤ 10%	✓	✓	NA	NA
53	Salinity Precision/Accuracy≤ 10%	✓	✓	NA	NA
54	Ammonia Precision/Accuracy≤ 30%	✓	✓	NA	NA
55	Sulfide Precision/Accuracy≤ 30%	✓	✓	NA	NA

	***Mytilus edulis* development test**	31	35	37a	37b
56	70% of introduced embryos result in normal	✓	NA	✓	✓
57	Reference control normal ≥ 70%	✓	NA	✓	✓
58	Brine control normal ≥ 70%	✓	NA	✓	✓
59	Reference toxicant test run	✓	NA	✓	✓
60	All animals obtained from same location	✓	NA	✓	✓
61	Test inoculated within 4 hours	✓	NA	✓	✓
62	Initial and final DO and pH measured	✓	NA	✓	✓
63	5.09 ≤ DO ≤8.49 mg/l	✓	NA	63	6
64	Salinity 28±2 ‰	✓	NA	✓	✓
65	Temperature 15±2 °C	✓	NA	✓	✓
66	DO Precision /Accuracy ≤ 10%	✓	NA	✓	✓
67	pH Precision/Accuracy ≤ 10%	✓	NA	✓	✓
68	Salinity Precision/Accuracy ≤ 10%	✓	NA	✓	✓
69	Ammonia Precision/Accuracy ≤ 30%	✓	NA	✓	✓
70	Sulfide Precision/Accuracy ≤ 30%	✓	NA	✓	✓

	***Neanthes* sediment test**	31	35	37a	37b
71	Home sediment mean ≥ 90%	NA	✓	71	✓
72	Each home sediment replicate ≥ 80%	NA	✓	✓	✓
73	Reference toxicant test run	NA	✓	✓	✓
74	≤ 2 weeks sediment holding period	NA	✓	✓	✓
75	≤ 2 weeks *Neanthes* holding period	NA	✓	✓	✓
76	≥ 48 hr *Neanthes* acclimation period	NA	✓	✓	✓
77	4.62 ≤ DO ≤ 7.71 mg/l	NA	77	77	✓
78	Salinity 28±2 ‰	NA	✓	78	78
79	Temperature 20±2 °C	NA	✓	✓	✓
80	DO Precision /Accuracy ≤ 10%	NA	80	✓	✓
81	pH Precision/Accuracy ≤ 10%	NA	✓	✓	✓
82	Salinity Precision/Accuracy ≤ 10%	NA	✓	✓	✓
83	Ammonia Precision/Accuracy ≤ 30%	NA	✓	✓	✓
84	Sulfide Precision/Accuracy ≤ 30%	NA	✓	✓	✓

	***Nebalia pugettensis* sediment test**	31	35	37a	37b
85	Control mean ≥ 90%	NA	✓	85	NA
86	All control replicates ≥ 80%	NA	✓	✓	NA
87	Reference sediment sample included	NA	✓	✓	NA
88	Reference toxicant test run	NA	✓	✓	NA
89	≤ 2 weeks sediment holding period	NA	✓	✓	NA
90	≤ 2 weeks amphipod holding period	NA	✓	✓	NA
91	≥ 48 hr amphipod acclimation period	NA	✓	✓	NA
92	5.09 ≤ DO ≤ 8.49 mg/l	NA	✓	✓	NA
93	Salinity 28±3 ‰	NA	✓	✓	NA
94	Temperature 15±2°C	NA	✓	✓	NA
95	DO Precision /Accuracy ≤ 10%	NA	✓	✓	NA
96	pH Precision/Accuracy ≤ 10%	NA	✓	✓	NA
97	Salinity Precision/Accuracy ≤ 10%	NA	✓	✓	NA
98	Ammonia Precision/Accuracy ≤ 30%	NA	✓	✓	NA
99	Sulfide Precision/Accuracy ≤ 30%	NA	✓	✓	NA

	***Strongylocentrotus purpuratus* Development test**	31	35	37a	37b
100	Reference control normal ≥ 70%	✓	✓	✓	✓
101	Brine control normal ≥ 70%	✓	✓	✓	✓
102	Reference toxicant test run	✓	✓	✓	✓
103	4.91 ≤ DO ≤ 8.19 mg/l	103	103	✓	103
104	Salinity ambient ± 2 ‰	✓	✓	✓	✓
105	Temperature 15±2 °C	✓	✓	✓	✓
106	DO Precision /Accuracy ≤ 10%	✓	✓	✓	106
107	pH Precision/Accuracy ≤ 10%	✓	✓	✓	✓
108	Salinity Precision/Accuracy ≤ 10%	✓	✓	✓	✓
109	Ammonia Precision/Accuracy ≤ 30%	✓	✓	✓	✓
110	Sulfide Precision/Accuracy ≤ 30%	✓	✓	✓	✓

	***Strongylocentrotus* sediment-water interface test**	31	35	37a	37b
111	Reference control normal ≥ 70%	✓	✓	✓	✓
112	Brine control normal ≥ 70%	✓	✓	✓	✓
113	Reference toxicant test run	✓	✓	✓	✓
114	4.91 ≤ DO ≤ 8.19 mg/l	✓	✓	✓	114
115	Salinity 34±2‰	✓	✓	115	✓
116	Temperature 15±2 °C	✓	✓	✓	✓
117	DO Precision /Accuracy ≤ 10%	✓	✓	✓	117
118	pH Precision/Accuracy ≤ 10%	✓	✓	✓	✓
119	Salinity Precision/Accuracy ≤ 10%	✓	✓	✓	✓
120	Ammonia Precision/Accuracy ≤ 30%	✓	✓	✓	✓
121	Sulfide Precision/Accuracy ≤ 30%	✓	✓	✓	✓

3.3 Departures from Quality Control Criteria

Table 2. Details of quality control departures by sample number. QC departures are listed for each sample and for each test protocol. "Code" denotes test acceptability based on severity of QC departures: -3 indicates minor problems that are likely to have little to no impact on data assessment; -5 indicates problems of minor concern that should be evaluated on an individual basis. "Test" codes are as follows: Aa = *Ampelisca abdita*; EeH = *Eohaustorius estuarius* test in homogenized sediment; EeP = *Eohaustorius* pore water test; Me = *Mytilus edulis* development test; Na = *Neanthes arenaceodentata* ; Np = *Nebalia pugettensis*; SpD = *Strongylocentrotus purpuratus* development test; SpI = *Strongylocentrotus* test at sediment-water interface of intact cores. Units are: mg/L for dissolved oxygen (DO); and ‰ for salinity measurements.

Station No.	IDOrg.	Leg	Test	QC Departures	Code
20005	1219	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20005	1220	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20005	1221	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20006	1222	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20006	1223	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20006	1224	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20007	1225	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20007	1226	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20007	1227	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5

20008	1228	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20008	1229	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20008	1230	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20009	1231	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20009	1232	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours; DO = 8.51	-5
20009	1233	31	Aa	Control mean = 85%; amphipod acclimation time was 6 hours.	-5
20005	1398	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20005	1398	35	Ee H	Final salinity = 32	-3
20005	1398	35	Na	DO precision = 11.2%	-3
20005	1398	35	Sp D	Initial DO = 8.35; final DO = 8.71	-3
20005	1399	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 8.71	-5
20005	1399	35	Ee H	Final salinity = 32	-3
20005	1399	35	Na	DO precision = 11.2%	-3
20005	1399	35	Sp D	Initial DO = 8.71; final DO = 9.04	-3
20005	1400	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 8.77	-5
20005	1400	35	Na	DO precision = 11.2%	-3
20005	1400	35	Sp D	Initial DO = 8.6; final DO = 9.6	-3
20005	1401	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 8.98	-5
20005	1401	35	Na	DO precision = 11.2%	-3
20005	1401	35	Sp D	Initial DO = 8.62; final DO = 9.18	-3

20005	1402	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 8.55	-5
20005	1402	35	Ee H	Initial DO = 8.56; final salinity = 32	-3
20005	1402	35	Na	DO precision = 11.2%	-3
20005	1402	35	Sp D	Initial DO = 8.74; final DO = 8.74	-3
20006	1403	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20006	1403	35	Na	DO precision = 11.2%	-3
20006	1403	35	Sp D	Initial DO = 8.52; final DO = 8.58	-3
20007	1404	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20007	1404	35	Na	DO precision = 11.2%	-3
20007	1404	35	Sp D	Initial DO = 8.32; final DO = 9.02	-3
20007	1405	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20007	1405	35	Na	DO precision = 11.2%	-3
20007	1405	35	Sp D	Initial DO = 8.38; final DO = 9.41	-3
20007	1406	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20007	1406	35	Na	DO precision = 11.2%	-3
20007	1406	35	Sp D	Initial DO = 8.44; final DO = 9.44	-3
20009	1407	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20009	1407	35	Ee P	New renewal salinity = 34	-3

20009	1407	35	Na	DO precision = 11.2%	-3
20009	1407	35	Sp D	Initial DO = 8.52, final DO = 8.55	-3
20009	1408	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 9.10	-5
20009	1408	35	Ee H	Final salinity = 32	-3
20009	1408	35	Ee P	Initial DO = 8.78; new renewal salinity = 34	-3
20009	1408	35	Na	DO precision = 11.2%; initial DO = 7.94	-3
20009	1408	35	Sp D	Initial DO = 8.47	-3
20009	1409	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 9.28, final DO = 9.51	-5
20009	1409	35	Ee P	Initial DO = 8.61; new renewal salinity = 34	-3
20009	1409	35	Na	DO precision = 11.2%; initial DO = 8.43	-3
20009	1409	35	Sp D	Initial DO = 8.76; final DO = 8.24	-3
20010	1410	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival; initial DO = 9.09	-5
20010	1410	35	Ee P	Initial DO = 8.57	-3
20010	1410	35	Na	DO precision = 11.2%; initial DO = 8.32	-3
20010	1410	35	Sp D	Initial DO = 8.74; final DO = 8.39	-3
20011	1411	35	Aa	Control mean = 81%; two control reps had 70% and 75% survival.	-5
20011	1411	35	Ee P	Old renewal salinity = 32	-3
20011	1411	35	Na	DO precision = 11.2%	-3
20011	1411	35	Sp D	Initial DO = 8.82	-3
20005	1461	37a	Aa	Amphipod acclimation < 48 hours	-5
20005	1461	37a	Ee H	Ammonia accuracy = 33%; initial DO = 8.56	-3
20005	1461	37a	Ee P	New renewal DO = 8.67; old renewal DO = 8.66	-3
20005	1461	37a	Na	Control mean = 88%	-5

20005	1461	37a	Np	Control mean = 85%	-5
20005	1461	37b	Aa	Ammonia precision = 33.6%	-3
20005	1461	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20005	1461	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20005	1462	37a	Aa	Amphipod acclimation < 48 hours	-5
20005	1462	37a	Ee H	Ammonia accuracy = 33%	-3
20005	1462	37a	Na	Control mean = 88%	-5
20005	1462	37a	Np	Control mean = 85%	-5
20005	1462	37b	Aa	Ammonia precision = 33.6%	-3
20005	1462	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20005	1462	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20005	1463	37a	Aa	Amphipod acclimation < 48 hours	-5
20005	1463	37a	Ee H	Ammonia accuracy = 33%	-3
20005	1463	37a	Na	Control mean = 88%	-5
20005	1463	37a	Np	Control mean = 85%	-5
20005	1463	37b	Aa	Ammonia precision = 33.6%	-3
20005	1463	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20005	1463	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20007	1464	37a	Aa	Amphipod acclimation < 48 hours	-5
20007	1464	37a	Ee H	Ammonia accuracy = 33%	-3

20007	1464	37a	Na	Control = 88%	-5
20007	1464	37a	Np	Control =85%	-5
20007	1464	37b	Aa	Ammonia precision = 33.6%	-3
20007	1464	37b	Ee H	Initial DO = 9.1	-3
20007	1464	37b	Ee P	Final DO = 8.87	-3
20007	1464	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; initial DO = 8.64; final DO = 9.29	-3
20007	1464	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; final DO = 8.86	-3
20007	1465	37a	Aa	Amphipod acclimation < 48 hours	-5
20007	1465	37a	Ee H	Ammonia accuracy = 33%	-3
20007	1465	37a	Na	Control mean = 88%	-5
20007	1465	37a	Np	Control mean = 85%	-5
20007	1465	37b	Aa	Ammonia precision = 33.6%	-3
20007	1465	37b	Ee H	Initial DO = 9.14	-3
20007	1465	37b	Ee P	Old renewal DO = 8.97; final DO = 9.01	-3
20007	1465	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; initial DO = 8.23; final DO = 9.32	-3
20007	1465	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20007	1466	37a	Aa	Amphipod acclimation < 48 hours	-5
20007	1466	37a	Ee H	Ammonia accuracy = 33%	-3
20007	1466	37a	Na	Control mean = 88%	-5
20007	1466	37a	Np	Control mean = 85%	-5
20007	1466	37b	Aa	Ammonia precision = 33.6%	-3

20007	1466	37b	Ee P	Old renewal DO = 8.92; final DO = 9.03	-3
20007	1466	37b	Me	Initial DO = 8.7	-3
20007	1466	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; final DO = 9.28	-3
20007	1466	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20006	1467	37a	Aa	Amphipod acclimation < 48 hours	-5
	1467	37a	Ee H	Ammonia accuracy = 33%	-3
	1467	37a	Na	Control mean = 88%	-5
	1467	37a	Np	Control mean = 85%	-5
	1467	37b	Aa	Ammonia precision = 33.6%	-3
	1467	37b	Ee H	Initial DO = 8.96	-3
	1467	37b	Ee P	Final DO = 8.89	-3
	1467	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; initial DO = 8.34; final DO = 9.29	-3
JFM	1467	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; final DO = 8.62	-3
20006	1468	37a	Aa	Amphipod acclimation < 48 hours	-5
20006	1468	37a	Ee H	Ammonia accuracy = 33%	-3
20006	1468	37a	Na	Control mean = 88%	-5
20006	1468	37a	Np	Control mean = 85%	-5
20006	1468	37b	Aa	Ammonia precision = 33.6%	-3
20006	1468	37b	Ee H	Initial DO = 9.28	-3
20006	1468	37b	Ee P	Old renewal DO = 8.75; final DO = 9.03	-3

20006	1468	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; initial DO = 8.34, final DO = 9.27	-3
20006	1468	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20006	1469	37a	Aa	Amphipod acclimation < 48 hours	-5
20006	1469	37a	Ee H	Ammonia accuracy = 33%	-3
20006	1469	37a	Na	Control mean = 88%	-5
20006	1469	37a	Np	Control mean = 85%	-5
20006	1469	37b	Aa	Ammonia precision = 33.6%	-3
20006	1469	37b	Ee H	Initial DO = 9.17	-3
20006	1469	37b	Ee P	Old renewal DO =8.74; final DO = 8.99	-3
20006	1469	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%; initial DO = 8.39, final DO = 9.25	-3
20006	1469	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20009	1470	37a	Aa	Amphipod acclimation < 48 hours	-5
20009	1470		Ee H	Ammonia accuracy = 33%	-3
20009	1470		Na	Control mean = 88%; old renewal DO = 8.06; old renewal salinity = 31	-5
20009	1470		Np	Control mean = 85%	-5
20009	1470	37b	Aa	Ammonia precision = 33.6%	-3
20009	1470	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3

20009	1470	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20012	1471	37a	Aa	Amphipod acclimation < 48 hours	-5
20012	1471	37a	Ee H	Ammonia accuracy = 33%; initial DO = 8.68	-3
20012	1471	37a	Na	Control mean = 88%; old renewal salinity = 31; final salinity = 31; old renewal DO = 8.08	-5
20012	1471	37a	Np	Control mean = 85%	-5
20012	1471	37b	Aa	Ammonia precision = 33.6%	-3
20012	1471	37b	Sp D	Initial DO precision = 10.31%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20012	1471	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1472	37a	Aa	Amphipod acclimation < 48 hours; final salinity = 32	-5
20013	1472	37a	Ee H	Ammonia accuracy = 33%	-3
20013	1472	37a	Na	Control mean = 88%; initial DO = 7.78; old renewal DO = 7.96; final salinity = 32	-5
20013	1472	37a	Np	Control mean = 85%	-5
20013	1472	37a	Sp I	Initial salinity = 28	-3
20013	1472	37b	Aa	Ammonia precision = 33.6%	-3
20013	1472	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1472	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1473	37a	Aa	Amphipod acclimation < 48 hours, final salinity = 32	-5
20013	1473	37a	Ee H	Ammonia accuracy = 33%; initial DO = 8.7	-3

20013	1473	37a	Ee P	New renewal DO = 8.74	-3
20013	1473	37a	Na	Control mean = 88%	-5
20013	1473	37a	Np	Control mean = 85%	-5
20013	1473	37b	Aa	Ammonia precision = 33.6%	-3
20013	1473	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1473	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1474	37a	Aa	Amphipod acclimation < 48 hours	-5
20013	1474	37a	Ee H	Ammonia accuracy = 33%	-3
20013	1474	37a	Na	Control mean = 88%	-5
20013	1474	37a	Np	Control = 85%	-5
20013	1474	37b	Aa	Ammonia precision = 33.6%	-3
20013	1474	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20013	1474	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20014	1475	37a	Aa	Amphipod acclimation < 48 hours	-5
20014	1475	37a	Ee H	Ammonia accuracy = 33%	-3
20014	1475	37a	Na	Control mean = 88%; initial DO = 7.84; final salinity = 32	-5
20014	1475	37a	Np	Control mean = 85%	-5
20014	1475	37a	Sp I	Initial salinity = 29	-3
20014	1475	37b	Aa	Ammonia precision = 33.6%	-3
20014	1475	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3

20014	1475	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20014	1476	37a	Aa	Amphipod acclimation < 48 hours, final salinity = 32	-5
20014	1476	37a	Ee H	Ammonia accuracy = 33%; initial DO = 8.58	-3
20014	1476	37a	Na	Control mean = 88%	-5
20014	1476	37a	Np	Control mean = 85%	-5
20014	1476	37b	Aa	Ammonia precision = 33.6%	-3
20014	1476	37b	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20014	1476	37b	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3
20014	1477	37a	Aa	Amphipod acclimation < 48 hours	-5
20014	1477	37a	Ee H	Ammonia accuracy = 33%; initial DO = 8.69	-3
20014	1477	37a	Ee P	New renewal DO = 8.56	-3
20014	1477	37a	Na	Control mean = 88%	-5
20014	1477	37a	Np	Control mean = 85%	-5
20014	1477	37a	Aa	Ammonia precision = 33.6%	-3
20014	1477	37a	Sp D	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%.	-3
20014	1477	37a	Sp I	Initial DO precision = 10.3%; initial DO accuracy = 17.3%; final DO precision = 15.9%; final DO accuracy = 17.8%	-3

3.4 Quality Assurance Discussion and Evaluation.

Evaluation codes listed in Table 2 can be summarized as follows: -4 = sample meets or exceeds QC criteria; -3 = sample has minor exceedance of QA criteria and is unlikely to affect assessments; -5 = sample has minor exceedances, but is generally usable for most assessments and reporting purposes. It is recommended that if assessments are made that are especially sensitive or critical, the QA evaluations should be consulted before using the data.

The most notable concern was the results of the two first *Ampelisca* tests (sampling legs 31 and 35) in which control survival was below the 90% criterion. Subsequent tests using leg 37 samples were successful with control means of 91 and 96%. All tests were conducted in an identical manner, adhering closely to QC procedures. The only difference between the successful tests and those that failed was in the amphipod source. For first two tests, *Ampelisca* were obtained from San Francisco Bay on the assumption that optimal test performance could be achieved by using animals native to the region being sampled. In the two successful tests, amphipods were obtained from an East Coast supplier. It appears that the East Coast *Ampelisca* were more robust. In two *Ampelisca* tests the animals arrived at the laboratory less than 2 days before the test, and had a 24-hour acclimation period to test temperature and salinity. While the protocol guidelines recommend at least a 48-hr period for acclimation, we had more success isolating and testing *Ampelisca* that had less than a 48 hour period to build tubes before the test. In at least one of these tests, control survival was >90% indicating no adverse effects to a short acclimation period.

Other QC problems concerned exceedances of water quality criteria. Dissolved oxygen (DO) measurements were listed if they were outside the range established as the concentration equivalent to 60-100% saturation at the test temperature. In all cases of departures from the criteria, DO measurements exceeded the range. None were below 60% saturation. While low DO concentrations can have a significant impact on mortality in toxicity tests, concentrations slightly higher than 100% saturation are not considered biologically important to the species and life stages used in these experiments. Consequently, DO concentrations exceeding the given ranges are unlikely to have had biological effects on test organisms.

Departures from the acceptable salinity ranges are generally associated with evaporation that takes place in sediment tests that are aerated for ten days or more. Most were associated with the salinity measurements at the end of a sediment test or before renewals. The combined effect of aeration of the containers and the cold air circulation in the test room causes some water evaporation during the 10-day test period for amphipods. High salinity samples in the *Eohaustorius* porewater tests resulted from evaporation of the 50 ml test volume during the 96-

hour periods between renewals. Measurements in most cases were no greater than 2 ‰ above the prescribed range.

Precision of water quality parameters is derived from repetitive measurements of standard solutions at the beginning, middle and end of a series of water quality measurements for a given toxicity test. Accuracy measurements are taken from a standard at the middle of the water quality series. Several departures from the precision and accuracy criteria occurred, mostly for dissolved oxygen. Allowable precision and accuracy is 10%, and the highest exceedances were 16 % and 18% respectively. One exceedance each of the ammonia precision and accuracy was noted at 34% and 33% respectively. The exceedances were small enough to warrant minimal concern.