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SUBJECT: Dredging of Contaminated Sediments in the Southwest Slip

1.0 INTRODUCTION AND PREVIOUS DATA

Sediments in the South West Slip have been sampled and analyzed in accordance with guidelines for dredge material characterization (USEPA/USACE, 1991; 1998) and the results documented (Kinnetic Laboratories/ToxScan, 2002). Multiple contaminants at high concentrations exist in these sediments such as to preclude open water disposal based upon aquatic criteria. Dredging of less than 100,000 cu yards of these sediments will be necessary for dike foundations, and these sediments are to be placed into the West Basin landfill and buried. Additional burial in place of some of these South West Slip sediments will also occur under the new South West terminal development landfills.

Two concerns were investigated further with respect to dredging of these sediments. The first was whether surface sheens would likely to be produced during the dredging operations and might require surface booming. Secondly, since some of these sediments from further up the Slip had strong hydrocarbon odors, does the potential exist for volatile compounds to be a concern for personnel working on the clamshell dredge or bottom dump barges to be used for this dredging operation?

Locations of core samples taken are shown in Figure 1 (Kinnetic Laboratories/ToxScan, 2002). For reference, the locations that core samples have been taken and the chemistry results from testing of these South West Slip sediments are given in Tables 1 and 2 attached.

Total recoverable petroleum hydrocarbon (TRPH) concentrations in the South West Slip sediment samples ranged from 100 mg/kg (ppm) to 4600 mg/kg, with the highest concentration present in Cores B-5 and the D cores. The PAH concentrations in these samples were similarly high, ranging up to 350,000 ug/kg (ppb), with the higher concentrations again in the Core B-5, and back into the Slip with D-9 again being the highest. Subjective descriptions of the odors of these Southwest Slip sediments obtained while processing the core samples are shown in Table 3. These subjective descriptions in a very general way correlate with the TRPH and PAH concentrations.

2.0 POTENTIAL FOR SURFACE SLICKS

Significant surface sheens were generally not observed during the coring process in the South West Slip (Kinnetic Laboratories/ToxScan, 2002). However, the strong hydrocarbon odors and high Total Recoverable Petroleum Hydrocarbon (TRPH) and PAH concentrations found at some of the core locations raised the concern that surface sheens might be produced by large dredging operations. Previous experience with removal of the land (filled) area in order to widen and straighten the main channel along the Berth 100 area had encountered surface slick problems caused by free product present in the landfill that had to be contained during the construction project.

A simple laboratory test was devised to check for the potential of producing surface sheens or slicks upon mixing the given sediments with seawater. Seawater was placed in a glass beaker. Sediment was added slowly to the beaker with a spatula to see if sheen was produced. Then the sediment in the beaker was slowly broken up on the bottom of the beaker while watching for sheen formation. Finally, the sediment was stirred up into the water and then allowed to settle while watching for sheen formations.

Samples were selected from the core samples based upon whether they were described as having a "strong" petroleum odor when the cores had been processed, and with respect to the measured concentrations of TRPH and PAHs. Cores B-5 Top, and all of the D cores (D-1 through D-9) were tested for sheen formation.

Core D-9 produced a definite sheen in the beaker, and petroleum/tar-like lumps were visible in the sample. All of the other core samples tested definitely did not produce any visible sheens at any time during the above described test processes.

A brief review of preliminary, recent data of the Port of Los Angeles from borings on the landward side to the north of the South West Slip (CH2MHill, 2002 Data Sheets) indicates very high TRPH results (19,000 mg/kg), but only at the A-1 area on land and in the vicinity of the D-9 core. The TRHC concentration in Core D-9 was 4,600 mg/kg. These results indicate that high petroleum concentrations indicative of old free product may be present in this area in the vicinity of D-9 and maybe on the nearby present landfill. The other locations tested within the South West Slip, though contaminated with hydrocarbon compounds, do not seem to have concentrations or free product present at sufficient levels to cause sheens or surface slicks.

3.0 VOLATILE HYDROCARBONS

Two samples were selected for volatile hydrocarbon analysis. Sample D-9 was selected from the inner slip area as it had the highest TRPH and PAH concentrations, the worst appearance, and the strongest odor. Sample B-5 Top was selected from further out in the Slip, but still one that had a strong odor and high TRPH and PAH concentrations.

EPA Method 8260 was used for analysis of these sediment samples. This is a purge and trap method that uses a GC/MS to identify and to quantify the volatile samples present in a sediment/soil sample. In addition to the standard analyte list specified by EPA Method 8260, the laboratory also did tentative identification and an estimate of concentration for each of the ten largest additional compounds in the sample. This identification is done by computer processing of the retention time and mass spectral data of the peak corresponding to these compounds. The concentration of each compound was estimated by comparison of the GC/MS data with other compounds for which standards or surrogates were used in the method.

Results of the VOC analysis are shown in Table 4. Sediment from Core D-9 had concentrations (dry weight basis) of 100,000 ug/kg (ppm) of benzene, concentrations of 12,000 to 17,000 ug/kg of ethylbenzene and trimethylbenzenes, xylenes, and naphthalene. The other ten largest additional compounds were other substituted benzene compounds at concentrations of 3 to 7 ug/kg. Concentrations in the B-5 Top sample were markedly less, with concentrations of propyl- and trimethylbenzene of 5 to 7 ug/kg and xylenes about 10 ug/kg. Other additional compounds in the C-5 Top samples were identified only with a high degree of uncertainty in the computer matches. In addition, co-occurring in both of these sediments with the high concentrations of volatile hydrocarbon compounds are also high concentrations of other less-volatile aromatic hydrocarbon compounds, heavy metals, PCBs, and DDT compounds (Table 2).

The strong odors and high concentrations of volatile benzenes and other aromatic compounds present in these South West Slip sediments should be evaluated with respect to worker safety prior to large-scale dredging and disposal operations that may bring workers into close contact with these dredge materials.

4.0 CONCLUSIONS

Selected samples of sediments from the South West Slip area of the Port of Los Angeles were tested for sheen forming potential and for the presence of organic volatile compounds.

Though odor and high TRPH concentrations were present in many of the core locations tested, only location D-9 appeared to test positive for the potential to form surface sheens and slicks, and to appear to have free oils and tars present. Dredging of this area by clamshell dredge and disposal into the area of the West Fill might result in surface slicks being formed that would require mitigation by booming and absorption. Never-the-less, the possibility does exist that other areas might result in the formation of surface slicks upon large-scale dredging.

Strong odors and high concentrations of volatile benzenes and other aromatic compounds are present in these South West Slip sediments. In addition, co-occurring in these sediments with these high concentrations of volatile hydrocarbon compounds are also high concentrations of other less-volatile aromatic hydrocarbon compounds, heavy metals, PCBs, and DDT compounds. Worker safety should be evaluated with respect to dredging/disposal operations prior to large-scale dredging and disposal operations that may bring workers into close contact with these dredge materials.

5.0 REFERENCES CITED

CH2MHill, 2002. Preliminary Data Sheets from On-Shore Borings, South West Slip Berth 115. Prepared for the Port of Los Angeles. Personnel Communication.

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Linear Berth Alternative

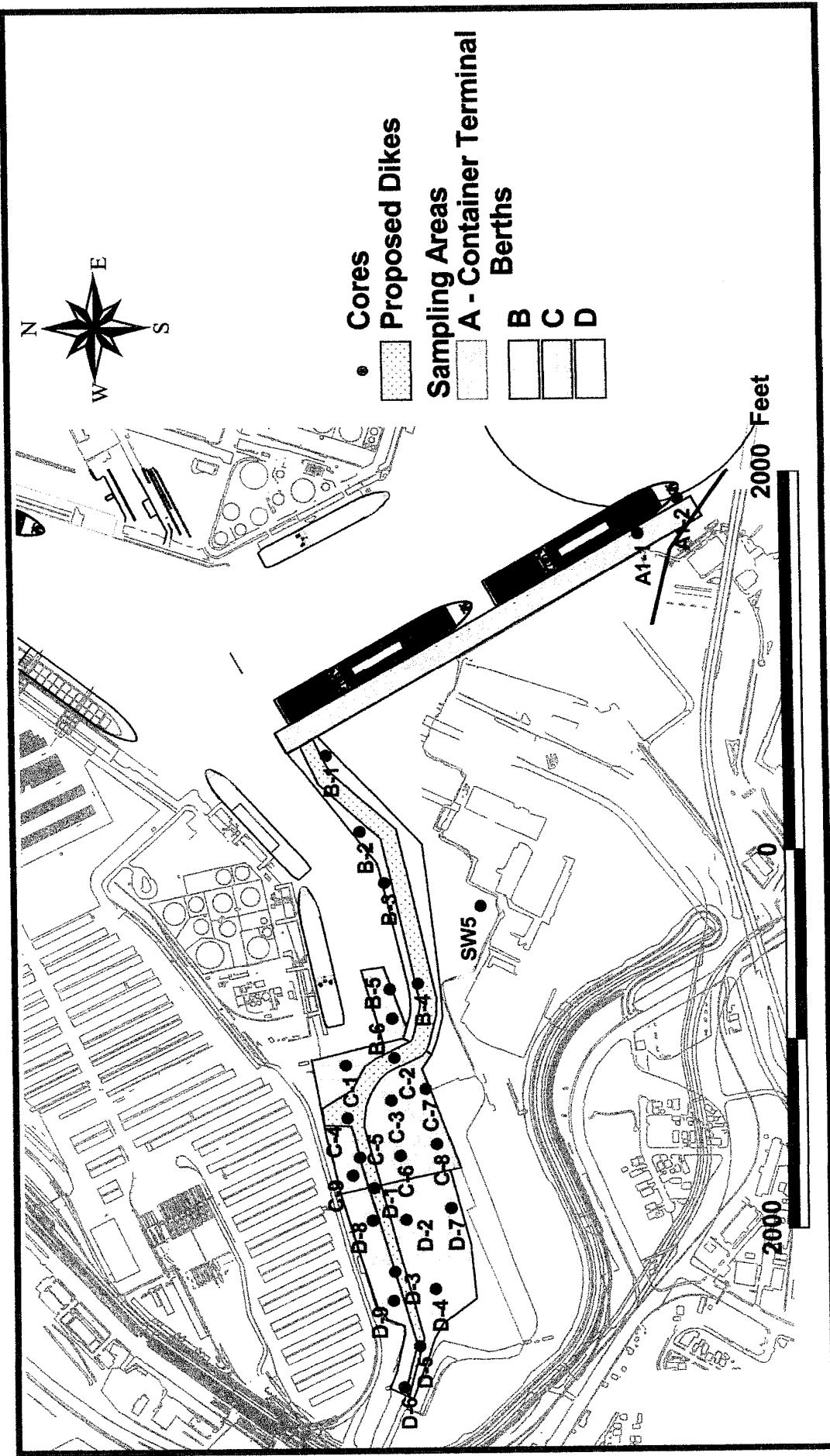


Figure 1. Composite Sampling Areas and Core Locations in the Southwest Slip.

Table 1. Core Locations: Southwest Basin (Kinnetic Laboratories/ToxScan 2002)

Core ID	Latitude (NAD 83)	Longitude (NAD 83)	Seafloor Elevation (feet MLLW)	Length Recovered (feet)	Sampling Interval (feet)	Sampling Interval (feet MLLW)
Subunit A						
A1-1	33° 45.171'	118° 16.428'	-44.8	16.5	0.0 to 5.5	-44.8 to -50.3
					5.5 to 16.5	-50.3 to -61.3
A1-2	33° 45.037'	118° 16.392'	-46.0	15.6	0.0 to 5.0	-46.0 to -51.0
					5.0 to 15.6	-51.0 to -61.6
Subunit B						
B-1	33° 45.342'	118° 16.658'	-45.6	10.5	0.0 to 5.0	-45.6 to -50.6
					5.0 to 10.5	-50.6 to -56.1
B-2	33° 45.314'	118° 16.738'	-36.8	15.5	0.0 to 5.0	-36.8 to -41.8
					5.0 to 15.5	-41.8 to -52.3
B-3	33° 45.294'	118° 16.792'	-32.3	18.8	0.0 to 5.0	-32.3 to -37.3
					5.0 to 18.8	-37.3 to -51.1
B-4	33° 45.266'	118° 16.897'	-43.0	11.0	0.0 to 5.0	-43.0 to -48.0
					5.0 to 11.0	-48.0 to -54.0
B-5	33° 45.290'	118° 16.903'	-40.0	13.0	0.0 to 5.0	-40.0 to -45.0
					5.0 to 13.0	-45.0 to -53.0
B-6	33° 45.288'	118° 16.933'	-27.3	13.0	0.0 to 6.4	-27.3 to -33.7
					6.4 to 13.0	-33.7 to -40.3
Subunit C						
C-1	33° 45.328'	118° 16.982'	-31.8	12.5	0.0 to 5.0	-31.8 to -36.8
					5.0 to 12.5	-36.8 to -44.3
C-2	33° 45.287'	118° 16.974'	-33.0	13.0	0.0 to 5.2	-33.0 to -38.2
					5.2 to 13.0	-38.2 to -46.0
C-3	33° 45.290'	118° 17.019'	-36.0	12.0	0.0 to 5.0	-36.0 to -41.0
					5.0 to 12.0	-41.0 to -48.0
C-4	33° 45.327'	118° 17.037'	-28.8	12.5	0.0 to 6.7	-28.8 to -35.5
					6.7 to 12.5	-35.5 to -41.3
C-5	33° 45.317'	118° 17.078'	-20.0	12.5	0.0 to 7.0	-20.0 to -27.0
					7.0 to 12.5	-27.0 to -32.5
C-6	33° 45.282'	118° 17.076'	-31.0	12.4	0.0 to 5.0	-31.0 to -36.0
					5.0 to 12.4	-36.0 to -43.4
C-7	33° 45.260'	118° 17.007'	-34.7	12.5	0.0 to 6.5	-34.7 to -41.2
					6.5 to 12.5	-41.2 to -47.2
C-8	33° 45.251'	118° 17.064'	-42.5	12.5	0.0 to 6.0	-42.5 to -48.5
					6.0 to 12.5	-48.5 to 55.0
C-9	33° 45.323'	118° 17.097'	-19.8	12.5	0.0 to 7.4	-19.8 to -27.2
					7.4 to 12.5	-27.2 to -32.3
Subunit D						
D-1	33° 45.305'	118° 17.110'	-21.3	7.5	0.0 to 7.5	-21.3 to -28.8
D-2	33° 45.278'	118° 17.143'	-21.2	7.4	0.0 to 7.4	-21.2 to -28.6
D-3	33° 45.288'	118° 17.198'	-18.8	7.5	0.0 to 7.5	-18.8 to -26.3
D-4	33° 45.253'	118° 17.216'	-12.5	7.5	0.0 to 7.5	-12.5 to -20.0
D-5	33° 45.267'	118° 17.275'	-1.3	7.5	0.0 to 7.5	-1.3 to -8.8
D-6	33° 45.281'	118° 17.318'	-1.3	5.9	0.0 to 5.9	-1.3 to -7.2
D-7	33° 45.239'	118° 17.131'	-48.0	7.0	0.0 to 7.0	-48.0 to -55.0
D-8	33° 45.306'	118° 17.144'	-17.0	7.6	0.0 to 7.6	-17.0 to -24.6
D-9	33° 45.289'	118° 17.228'	-15.8	7.6	0.0 to 7.6	-15.8 to -23.4
SW5	33° 45.211'	118° 16.817'	-16.0	3.0	0.0 to 3.0	-16.0 to -19.0

Table 2: Bulk Sediment Chemistry Results: Port of Los Angeles 2001 Deepening Program - Southwest Slip Project: Vibracore Samples. (Page 1 of 4)

Analytical Parameter	Comp A1 Top	Comp A1 Bot	Comp B Top	Comp B Bot	Comp C Top	Comp C Bot	A1-1 Top	A1-1 Bot	A1-2 Top	A1-2 Bot	B1 Top	B1 Bot	B2 Top	B2 Bot	B3 Top	B3 Bot	B4 Top	B4 Bot	B5 Top	B5 Bot	B6 Top	B6 Bot	C1 Top	C1 Bot	C2 Top	C2 Bot	C3 Top	C3 Bot	
GRAIN SIZE (% dry)																													
Sand/Gravel (>0.063 mm)	66.6	16.3	49.1	39.6	37.4	20.9	43.6	30.3	19.2	46.6	51.4	33.5	62.6	90.8	94.5	31.5	26.8	19.7	35.7	51.9	22.3	87.9	40.8	27.3	62.3	48.5	25.1	27.3	5.9
Silt (0.004 mm - 0.063 mm)	20.9	54.8	30.8	38.2	35.2	52.2	34.3	5.6	52.7	33.6	31.7	41.3	28.6	4.5	1.5	41.7	39.9	45.0	46.5	24.9	51.6	6.8	35.1	41.0	26.0	29.2	54.2	41.5	5.6
Clay (<0.004 mm)	12.5	29.0	20.1	22.2	27.4	26.9	22.1	4.1	28.1	19.7	16.9	25.3	8.8	4.8	4.0	26.8	33.3	35.2	17.8	23.2	26.1	5.3	24.1	31.7	11.7	22.4	20.7	31.2	3.9
SEDIMENT CONVENTIONALS																													
Ammonia (mg/Kg)	22	90	12	34	92	80	81	10U	86	33	87	17	10U	10U	14	55	47	54	320	130	13	91	24	68	69	47	55	63	
Total sulfides (mg/Kg, dry)	31	77	87	34	840	54	1100	3.6	0.87	73	0.33	80	0.12	0.18	0.1U	130	1.3	220	0.62	1100	180	260	71	210	4	1100	67	190	2
Total Volatile Solids (%)	1.5	2.1	2.3	2.1	4.2	2.7	4.1	1.7	2.2	2.0	1.6	2.9	1.1	0.6	0.4	3.2	2.6	3.1	1.7	5.2	3.6	1.3	2.9	4.1	2.7	3.2	2.2	4.5	2.7
Water soluble sulfides (mg/Kg, dry)	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.12	0.29	0.1U	0.1U	0.18	0.13	0.11	0.16	0.1U												
Oil and Grease (mg/Kg, dry)	480	160	680	100U	6000	1000	2600	190	100U	700	100	590	100U	100U	1200	100U	810	100U	14000	1800	650	2000	1700	470	1800	560	2100	200	
TRPH (mg/Kg, dry)	240	100	280	100U	2100	440	970	160	100U	290	100U	270	100U	100U	410	100U	400	100U	5500	670	300	980	810	220	820	190	720	150	
% Solids (%)	74	71	65	74	53	66	61	75	73	70	72	61	74	84	88	59	69	56	53	77	68	52	65	59	72	54	66		
TOC (%)	0.57	0.75	0.34	1.53	0.78	1.54	0.50	0.35	0.45	0.9	0.5	0.77	0.1U	0.1U	1.18	0.52	1.28	0.38	2.52	1.17	0.42	1.17	1.67	0.83	1.34	0.55	1.68	0.67	
METALS (mg/Kg, dry wt)																													
Arsenic	5.7	9.8	9.2	6.4	16	11	11	11	6.2	9.7	8.4	11	12	4.8	2.4	1.9	16	9.7	13	9.7	31	17	9.5	16	17	10	9.1	18	10
Chromium	0.1U	0.1U	0.37	0.15	2.3	0.27	2.6	0.11	0.1U	0.24	0.15	0.44	0.1U	0.29	0.25	0.8	0.21	0.56	0.12	5.7	1	0.9	1.40	3.9	0.68	2.5	0.28	2.7	0.67
Copper	8.5	14	35	10	290	59	87	16	18	28	22	46	16	5	6	73	26	86	23	520	160	140	180	160	39	290	39	210	35
Lead	18	16	65	12	180	150	50	18	13	47	17	72	13	16	2	140	18	83	13	510	140	220	350	240	34	420	90	220	28
Nickel	0.13	0.11	0.81	0.2	3.3	6.5	0.47	0.18	0.073	0.34	0.1	0.81	0.13	0.023	0.020U	1.3	0.36	0.061	12	6.2	6.9	7.2	2.1	2.3	1.2	5	2.9		
Selenium	0.13	0.22	0.26	0.17	0.42	0.23	0.16	0.19	0.16	0.16	0.32	0.1U	0.1U	0.41	0.28	0.45	0.15	0.1U	0.14	0.1U	0.13	0.27	0.18	0.73	0.23	0.1	0.1U		
Silver	0.1U	0.1U	0.14	0.1U	0.29	0.1U	0.18	0.1U	0.1U	0.1U	0.1U	0.13	0.1U	0.1U	0.19	0.1U	0.17	0.1U	0.50	0.23	0.1U	0.26	0.47	0.17	0.31	0.1U	0.24	0.15	
Zinc	21	31	70	28	270	81	300	44	47	65	52	100	42	50	18	220	66	160	59	740	190	270	330	280	87	1100	76	300	76
ORGANOINS (ppb, dry weight)																													
Dibutyltin	16	1U	32	1U	93	1U	78	1U	1.8	19	1U	38	1U	1U	42	1U	71	1U	41	1U	29	1U	42	1U	130	17	35	1U	
Monobutyltin	1U	1U	1U	1U	1U	1U	1U	1U	1.7	1U	1U	1.9U	1U	1.9U	1U	3.7U	1U	4.1U	1U	3	1U	1U	1U	1U	1U	5.4U	2.4J	1U	1U
Tributyltin	13	1U	5.8	1U	68	1U	69	1U	3.6	74	1U	23	1U	1.6	1U	13	2.1	55	1U	16	2.1	16	1U	13	1U	72	7.7	22	1U
CHLORINATED PESTICIDES (ppb, dry weight)																													
Aldrin	13U	14U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.3U	1.4U	1.9U	1.6U	1.3U	1.5U	1.9U	1.5U	1.7U	1.4U	1.8U	1.5U	
alpha-BHC	13U	14U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.3U	1.4U	1.9U	1.6U	1.3U	1.5U	1.9U	1.5U	1.7U	4	1.8U	1.5U	
beta-BHC	13U	14U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.3U	1.4U	1.9U	1.6U	1.3U	1.5U	1.9U	1.5U	1.7U	4	1.8U	1.5U	
gamma-BHC (Indane)	13U	14U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.3U	1.4U	1.9U	1.6U	1.3U	1.5U	1.9U	1.5U	1.7U	4	1.8U	1.5U	
alpha-Chlordane	13U	14U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.3U	1.4U	1.9U	1.6U	1.3U	1.5U	1.9U	1.5U	1.7U	4	1.8U	1.5U	
gamma-Chlordane	2.6	1.4U	5.3	1.5U	2300	1.3U	1.4U	5.8	1.4U	6.9	2.3	1.2U	1.1U	11	1.4U	3.6	1.4U	41	5.4	14	6.8	27	7.7	25	1.4U	31	1.5U		
4,4'-DD	16	1.4U	32	1.4U	250	6.5	2400	2.3	1.4U	38	1.4U	47	20	1.2U	1.1U	73	1.4U	15	410	25	33	53	110	130	110	9.3	110	1.4U	1.5U
4,4'-DDT	1.3U	1.4U	1.5U	1.4U	25	1.5U	110	1.3U	1.4U	1.6U	1.4U	1.2U	1.1U	1.7U	1.4U	1.6U	1.4U	1.6U	1.4U	23	1.6U	1.4U	1.6U	1.4U	1.7U	1.4U	1.5U	1.4U	1.5U
Total DDT's	18.6	1.4U	36.3	1.4U	328	6.5	4510	2.3	1.4U	43.8	1.4U	53.9	22.3	1.2U	1.1U	84	1.4U	18.6	1.4U	474	30.4	47	59.8	137.7	135	9.3	141	1.5U	

Bold values equal or exceed the ERL.

Bold and underlined values exceed the San Francisco Bay Threshold.

Comp C contains cores B5 and B6

"J" Qualifier denotes analyte not detected or exceeded the ERM.

"U" Qualifier denotes reporting limit raised due to matrix interference.

"J" Qualifier denotes analyte concentration reported as an estimate.

Table 2. Bulk Sediment Chemistry Results: Port of Los Angeles 2001 Deepening Program - Southwest Slip Project, Vibrocore Samples. (Page 2 of 4)

Analytical Parameter	Comp A1 Top	Comp A1 Bot	Comp B1 Top	Comp B1 Bot	Comp C1 Top	Comp C1 Bot	A1-1	A1-2	B1 Top	B1 Bot	B2 Top	B2 Bot	B3 Top	B3 Bot	B4 Top	B4 Bot	B5 Top	B5 Bot	B6 Top	B6 Bot	B7 Top	B7 Bot	C1 Top	C1 Bot	C2 Top	C2 Bot	C3 Top	C3 Bot				
CHLORINATED PESTICIDES (Continued)																																
Dieldrin	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.0	1.4U	1.8U	1.4U	64	1.6U	1.3U	1.5U	1.9U	1.5U	20	1.4U	14	1.5U			
Endosulfan I	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.0	1.4U	1.8U	1.4U	64	1.6U	1.3U	1.5U	1.9U	1.5U	20	1.4U	13	1.5U			
Endosulfan II	1.3U	1.4U	1.5U	1.4U	27	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	48	1.4U	1.8U	1.4U	89	1.6U	1.3U	1.5U	1.9U	1.5U	20	1.4U	31	1.5U			
Endosulfan sulfate	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.0	1.7U	1.4U	1.8U	1.4U	73	1.5	18	1.7	66	1.4U	20	1.4U	13	1.5U		
Endrin	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.0	1.7U	1.4U	1.8U	1.4U	73	1.5	18	1.7	66	1.4U	20	1.4U	13	1.5U		
Endrin Aldehyde	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	61	1.4U	1.8U	1.4U	1.9U	1.3U	1.5U	1.9U	1.5U	1.7U	1.4U	1.8U	1.5U	20	1.4U	13	1.5U
Endrin Ketone	1.3U	1.4U	1.5U	1.4U	2.3	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	1.0	1.7U	1.4U	1.8U	1.4U	81	1.5	2	1.5U	1.9U	1.5U	1.7U	1.4U	1.5U	1.7U	1.4U	1.5U
Hepachlor	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	170	1.4U	1.8U	1.4U	1.9U	1.3U	1.5U	1.9U	1.5U	1.7U	1.4U	1.8U	1.5U	20	1.4U	13	1.5U
Hepachlor epoxide	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	170	1.4U	1.8U	1.4U	1.9U	1.3U	1.5U	1.9U	1.5U	1.7U	1.4U	1.8U	1.5U	20	1.4U	13	1.5U
Toxaphane	1.3U	1.4U	1.5U	1.4U	1.9U	1.5U	1.6U	1.3U	1.4U	1.4U	1.4U	1.6U	1.4U	1.2U	1.1U	170	1.4U	1.8U	1.4U	1.9U	1.3U	1.5U	1.9U	1.5U	1.7U	1.4U	1.8U	1.5U	20	1.4U	13	1.5U
Methoxychlor	2.7U	2.8U	3.1U	2.7U	3.8U	3.0U	3.3U	2.7U	2.8U	2.8U	2.8U	3.0U	2.7U	2.4U	2.3U	3.4U	2.9U	3.6U	3.8U	3.3U	2.6U	2.9U	3.9U	3.1U	3.4U	2.8U	3.7U	3.0U				
PCBs (ppb, dry weight)																																
PCB 1242	6.7U	7U	7.7U	6.8U	9.5U	7.5U	8.2U	6.7U	6.9U	7.1U	6.9U	8.2U	6.8U	5.9U	5.7U	8.5U	7.2U	9.0U	7.1U	9.4U	8.2U	6.5U	7.4U	9.6U	7.7U	8.4U	7.0U	9.2U	7.6U			
PCB 1246	6.7U	7U	7.7U	6.8U	9.5U	7.5U	8.2U	6.7U	6.9U	7.1U	6.9U	8.2U	6.8U	5.9U	5.7U	9.5	7.1U	9.5	7.1U	9.4U	8.2U	6.5U	7.4U	9.6U	7.7U	8.4U	7.0U	9.2U	7.6U			
PCB 1254	34	7U	180	13	1100	44	310	6.7U	6.9U	6.8U	6.9U	6.9U	6.8U	5.9U	5.7U	1900	7.2U	9.0U	7.1U	9.4U	8.2U	6.5U	7.4U	9.6U	7.7U	8.4U	7.0U	9.2U	7.6U			
PCB 1260	6.7U	7U	7.7U	6.8U	9.5U	7.5U	8.2U	6.7U	6.9U	7.1U	6.9U	8.2U	6.8U	5.9U	5.7U	1900	7.2U	9.0U	7.1U	9.4U	8.2U	6.5U	7.4U	9.6U	7.7U	8.4U	7.0U	9.2U	7.6U			
Total PCBs	34	7U	180	13	1100	44	310	6.7U	6.9U	6.8U	6.9U	6.9U	6.8U	5.9U	5.7U	1900	7.2U	9.0U	7.1U	9.4U	8.2U	6.5U	7.4U	9.6U	7.7U	8.4U	7.0U	9.2U	7.6U			
SEMI-VOLATILES (ppb, dry wt)																																
Naphthalene	6.7U	7U	7.7U	6.8U	80	1100	3600	6.7U	6.9U	7.7	6.9U	8.2U	6.8U	5.9U	5.7U	8.8	7.2U	9U	7.1U	180	660	10	280	190*	7.7U	44	7U	160	7.6U			
Acenaphthylene	13	7U	37	6.8U	120	410	670	6.7U	6.9U	17	6.9U	8.2U	6.8U	5.9U	5.7U	65	7.2U	100	7.1U	190*	41U*	34	22U*	56	7.7U	37	7U	43	7.6U			
Acenaphthene	6.7U	7U	8.4	6.8U	510	240	960	6.7U	6.9U	6.8U	6.9U	8.2U	6.8U	5.9U	5.7U	9.9	7.2U	12	7.1U	470	150	11	91	21	7.7U	49	7U	96	7.6U			
Fluorene	6.7U	7U	21	6.8U	440	230	960	7.2U	6.9U	12	6.9U	18	6.8U	5.9U	5.7U	31	7.2U	52	7.1U	550	210	23	37U*	44	7.7U	59	7U	180	7.6U			
Phenanthrene	27	7U	120	6.8U	1900	860	2300	23	6.9U	48	6.9U	82	14U*	5.9U	5.7U	190	7.2U	220	7.1U	3200	630	140	540	270	17	660	26	1000	7.6U			
Anthracene	24	7U	87	6.8U	1600	330	590	24	6.9U	48	6.9U	55	6.8U	5.9U	5.7U	150	7.2U	270	7.1U	3200	460	120	320	170	13	290	19	240	7.6U			
Fluoranthene	59	7U	230	6.8U	9700	1500	1600	52	6.9U	120	6.9U	160	8.2	5.9U	5.7U	340	7.2U	290	7.1U	9800	200	290	1300	710	36	1400	79	1300	7.6U			
Pyrene	110	11	370	6.8U	8500	1300	2000	120	6.9U	260	12	160	14U*	5.9U	5.7U	390	7.2U	1400	7.1U	13000	2100	2500	1100	1000	150	1900	260	1800	38			
Benz[a]anthracene	59	7U	230	6.8U	4700	500	540	48	6.9U	120	6.9U	140	14U*	5.9U	5.7U	410	7.2U	660	7.1U	4900	990	360	680	540	31U*	780	7U	160	7.6U			
Chrysene	100	14U*	400	6.8U	6100	600	710	89	6.9U	210	14U*	240	20U*	5.9U	5.7U	710	7.2U	2000	7.1U	6000	150	890	870	850	34	1200	74	1100	15U*			
Benz[b]fluoranthene	230	14U*	1400	14U*	11000	450	730	120	6.9U	440	15	1000	50	6.1	5.7U	2000	9.7	4100	7.1U	4300	970	1800	520	2300	54	2700	120	2000	15U*			
Benz[k]fluoranthene	200	14U*	800	14U*	12000	350	610	80	6.9U	270	15	590	28	5.9U	5.7U	1700	7.9	2900	7.1U	6800	710	2100	770	2500	40	2000	96	2000	15U*			
Benz[a]pyrene	180	14U*	1200	14U*	5300	450	590	98	6.9U	330	21U*	800	31	5.9U	5.7U	2000	31	2700	840	1300	290	2100	48	2400	130	1800	43					
Indeno[1,2,3-C]diphenene	27U*	14U*	520	14U*	2100	200	330	43	6.9U	160	28U*	340	27U*	12U	11U	350	14U	44U*	680	44U*	31	1000	960	44U*	56	850	230*					
Dibenz(a,h)anthracene	27U*	14U*	280	14U*	610	601	49U*	40U*	6.9U	57U*	28U*	50	6.9U	57U*	290	100	1200	14U*	44U*	78	42U*	15U*	67U*	28U*	390	230*						
Benzoguaiaculene	27U*	14U*	240	14U*	340	93	98U*	50	6.9U	57U*	28U*	290	20U*	5.7U	270	23	410	23	44U*	99U*	44U*	67U*	15U*	220	70	130	230*					
Benz[e]pyrene	150U*	14U*	780	14U*	2700	350	450	87	6.9U	260	21U*	510	20U*	5.7U	2000	13	2000	27	4300	630	770	240	1100	42	1500	130	1100	64				
Total detectable PAHs	1200	11	6700	14U*	68000	8600	16000	840	6.9U	2300	42	4500	120	6.1	5.7U	11000	54	19000	44	63000	12000	12000	7100	13000	470	16000	1100	15000	150			
Total Phenolics	280	160	510	220	770	350	630	190	21	630	180	88	120	29	400	160	160	98	120	120	100	190	210	100	190	130	40	500	130			
Total Phenols	100	14	300	23	130	38	810	42	18	180	14U	31	14U	12	11U	44	29	68	13	120	680	23	220	170	62	22	26					

^aU = Qualifier denotes analyte not detected at method detection limit.^bU = Qualifier denotes reporting limit raised due to matrix interference.

Boxed values equal or exceed the ERL.

Bold and underlined values equal or exceed the San Francisco Bay Threshold.

Comp C contains cores 85 and 86.

Table 2. Bulk Sediment Chemistry Results: Port of Los Angeles 2001 Deepening Program - Southwest Slip Project. Vibracore Samples. (Page 3 of 4)

													ER-L 1995 (dry wt)	ER-M 1995 (dry wt)	Tiles 22 (wet wt)							
Analytical Parameter	C4 Top	C4 Bot	C5 Top	C5 Bot	C6 Top	C6 Bot	C7 Top	C7 Bot	C8 Top	C8 Bot	C9 Top	C9 Bot	D1	D2	D3	D4	D5	D6	D7	D8	D9	
GRAIN SIZE (% dry)																						
Sand/Gravel (<0.063 mm)	21.0	18.8	25.8	51.6	17.3	8.3	20.8	13.3	79.0	12.6	13.9	42.4	19.6	4.7	28.8	70.0	89.5	66.6	24.5	54.3	32.9	
Silt (0.063 - 0.094 mm)	43.2	49.8	44.1	37.7	50.8	56.3	48.3	64.1	13.4	53.3	48.4	42.6	42.3	58.5	40.0	19.0	6.6	22.2	38.5	25.3	30.9	
Clay (>0.094 mm)	35.7	31.3	30.1	10.7	31.9	35.4	30.8	22.6	7.6	34.0	37.7	15.0	38.1	36.8	31.2	10.9	3.9	11.2	36.9	20.4	36.2	
SEDIMENT CONVENTIONALS																						
Ammonia (mg/Kg)	79	78	94	34	22	68	70	68	58	86	220	57	77	160	70	58	92	10U	110	57	250	
Total sulfides (mg/Kg, dry)	5.0	1.6	930	10.0	110	5.6	660	79	1100	20	1000	1.5	200	570	260	460	290.0	81	1200	690	2900	
Total Volatile Solids (%)	5.0	1.8	3.8	0.97	4.6	3.0	4.5	2.6	3.0	2.5	4.4	1.6	2.9	4.5	3.8	3.3	4.1	1.5	4.2	2.3	12	
Water soluble sulfides (mg/Kg, dry)	0.17	0.11	0.18	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.13										
Oil and Grease (mg/Kg, dry)	1900	170	3600	310	1000	170	2000	770	2000	960	3800	760	1700	1900	1900	1200	2000	1200	1500	1700	20000	
TRPH (mg/Kg, dry)	480	100U	810	100U	430	100U	720	330	640	380	1200	560	1100	1300	540	710	540	430	790	880	4600	
% Solids (%)	48	69	49	73	56	66	53	68	66	66	46	68	58	49	57	63	60	79	48	63	40	
TOC (%)	1.89	0.58	0.51	1.27	1.42	0.6	1.53	0.48	1.03	0.85	1.79	0.51	1.05	1.53	1.55	2.34	2.00	0.41	1.9	1.09	8.75	
METALS (mg/Kg, dry wt)																						
Arsenic	19	8.7	20	5.8	9.8	8.2	15	19	12	14	19	6.3	13	21	14	4.8	7	4.7	22	16	14	8.2
Cadmium	2.3	0.19	2.2	0.25	2.4	0.53	3.7	1.1	1.3	0.87	8.4	0.69	1.1	39	4.2	4.1	2.5	1.1	22	10	23	1.2
Chromium	80	39	100	18	88	58	200	55	800	72	140	39	74	190	83	48	25	240	420	110	81	370.0
Copper	100	21	160	12	110	37	280	240	750	130	220	71	130	240	70	32	35	11	1300	560	1100	34.0
Lead	190	22	270	52	96	17	210	260	220	140	220	56	160	250	140	54	97	190	77	350	1100	47
Mercury	1.9	0.19	6.5	0.25	2.0	0.43	3.5	16	1.8	3.7	4.8	0.99	2.9	1.5	0.81	0.56	0.2	0.1	1.6	3	5.7	0.15
Nickel	23	14	25	7	30	19	61	21	370	43	15	20	31	23	26	14	3200	150	92	20.9	51.60	2000
Selenium	0.59	0.25	0.64	0.12	0.12	0.10	0.19	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.1U	0.15	0.15	100	
Silver	0.22	0.1U	0.21	0.1U	0.27	0.11	0.41	0.17	0.22	0.15	0.58	0.10	0.1U	0.58	0.19	0.15	0.1U	0.1U	41	0.36	0.46	1.00
Zinc	230	58	270	41	160	70	340	240	1500	150	310	100	140	270	160	97	120	45	490	570	4600	150.0
ORGANOTINS (ppb, dry weight)																						
DiButyltin	170	1U	130	1U	19	1U	62	1U	140	4.7	10	1U	1U	7.8	41	17	1U	2	70	150	5.8	
Monobutyltin	7.5J	1U	7.2J	1U	1U	1U	2.5	1U	1U	1U	1U	1U	1U	3.4J	1U	1U	1U	1U	1U	1U	1U	
Tetrabutyltin	2.2	1.5	1U	1U	1U	1U	1U	1U	1U	1U	1U											
Tributyltin	88	1U	57	2.2	5.8	1U	26	1U	110	1U	1U	1U	1U	1U	12	3	1U	1.3	77	92	1U	
CHLORINATED PESTICIDES (ppb, dry weight)																						
Aldrin	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	1.7U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	1.6U	2.5U	
alpha-BHC	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	1.7U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	1.6U	33	
beta-BHC	13	1.5U	20	1.4U	8.2	1.5U	1.9U	2.4	7.6U	2.3	12	2.2	2.4	9.5	11	6.8	10	1.3U	2.1U	1.6U	25U	
delta-BHC	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	1.7U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	1.6U	25U	
gamma-BHC (Indane)	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	1.7U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	1.6U	25U	
alpha-Chlordane	2.1U	1.5U	9	1.4U	13	1.5U	29	1.5U	7.6U	1.5U	12	1.5U	3.3	2.0U	9.9	14	28	11	2.1U	1.6U	25U	
gamma-Chlordane	2.1U	1.5U	2.1U	1.4U	6.6	1.5U	9.3	1.5U	7.6U	1.5U	2.2U	1.5U	1.7U	6.1	7.9	16	1.7U	6.5	54	9.4	25U	
4,4'-DDD	98	1.5U	150	1.4U	14	1.5U	30	4	36	1.5U	150	2.2	140	190	18	7.1	32	16	13	46	13000	
4,4'-DDDE	86	1.5U	620	1.4U	43	1.5U	130	66	81	4.3	330	5.4	470	400	37	17	35	7.6	69	99	33000	
4,4'-DDT	2.1U	1.5U	53	1.4U	35	1.5U	17	1.5U	17	1.8	81	1.5U	380	160	3.9	24	10	1.3U	2.1U	24	2400	
Total DDTs	184	1.5U	823	1.4U	60.5	1.5U	177	70	114	6.1	561	7.6	990	750	56.9	26.5	77	23.6	82	169	48400	158

^a Bold values equal or exceed the ERL.^b Underlined values equal or exceed the ERM.

Boxed values equal or exceed the San Francisco Bay Threshold.

Comp C contains cores B5 and B6

^c Up Qualifier denotes analyte not detected at method detection limit^d Up Qualifier denotes reporting limit raised due to matrix interference^e J = Qualifier denotes analyte concentration reported as an estimate

Table 2. Bulk Sediment Chemistry Results: Port of Los Angeles 2001 Deepening Program - Southwest Slip Project. Vibracore Samples. (Page 4 of 4)

Analytical Parameter	ERM-1995												ERM-1995 Title 22 (wet wt)															
	C4 Top	C4 Bot	C5 Top	C5 Bot	C6 Top	C6 Bot	C7 Top	C7 Bot	C8 Top	C8 Bot	C9 Top	C9 Bot	D1	D2	D3	D4	D5	D6	D7	D8	D9	(dry wt)	(dry wt)	(dry wt)				
CHLORINATED PESTICIDES (Continued)																												
Dieledrin	3.1	1.5U	5.8	1.4U	1.8U	1.5U	2.7	1.5U	7.6U	1.5U	2.2U	1.5D	6.6	10	1.8U	6.2	1.7U	2	8.6	16	25U							
Endosulfan I	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	1.5D	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Endosulfan II	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	42	1.5U	24	1.5U	2.2U	1.5D	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Endosulfan sulfate	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	2.2U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Endrin	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Endrin Aldehyde	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.2	7.6U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Endrin Ketone	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Heptachlor	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Heptachlor epoxide	2.1U	1.5U	2.1U	1.4U	1.8U	1.5U	1.9U	1.5U	7.6U	1.5U	2.2U	1.5U	1.7U	2.0U	1.8U	1.6U	1.7U	1.3U	2.1U	2.1U	1.6U	25U						
Toxaphene	21U	15U	21U	14U	18U	15U	19U	15U	76U	15U	22U	15U	17U	20U	18U	16U	17U	13U	21U	21U	16U	250U						
Methoxychlor	4.2U	2.9U	4.1U	2.7U	3.5U	3.0U	3.8U	3.0U	15U	3.0U	4.4U	2.9U	1.7U	13	3.5U	3.2U	3.3U	2.5U	4.2U	3.2U	50U							
PCBs (ppb, dry weight)																												
PCB 1242	10U	7.3U	10U	6.9U	8.9U	7.6U	9.5U	7.4U	38U	7.6U	11U	7.3U	8.6U	10U	8.8U	7.9U	8.4U	6.3U	10U	8U	130U							
PCB 1248	10U	7.3U	10U	6.9U	8.9U	7.6U	9.5U	7.4U	38U	7.6U	11U	7.3U	8.6U	10U	8.8U	7.9U	8.4U	6.3U	10U	8U	130U							
PCB 1254	310	7.3U	720	6.9U	150	7.6U	1100	47	800	73	1100	33	190	1100	120	120	67	8.4U	35	860	1900	8000						
PCB 1260	10U	7.3U	10U	6.9U	8.9U	7.6U	9.5U	7.4U	38U	7.6U	11U	7.3U	8.6U	10U	8.8U	7.9U	8.4U	6.3U	10U	8U	130U							
Total PCBs	310	7.3U	720	6.9U	150	7.6U	1100	47	800	73	1100	33	190	1100	120	120	67	270	35	860	1900	8000						
SEMIVOLATILES (ppb, dry wt)																												
Naphthalene	20	7.3U	13	6.9U	8.9U	7.6U	9.5U	7.4U	38U	7.6U	11U	7.3U	8.6U	10U	8.8U	7.9U	8.4U	6.3U	10U	8U	130U							
Acenaphthylene	90	7.3U	47	6.9U	25	7.6U	76	15U*	260	17	65U*	22U*	34U*	32	21	7.9U	8.4U	6.3U	75	52	63U*							
Acenaphthene	31U*	7.3U	20	6.9U	8.9U	7.6U	51	180	1200	520	65U*	26	34U*	28	18U*	7.9U	13	6.3U	150	150	30000							
Fluorene	59	7.3U	10U	15	18	7.6U	76	210	910	76U*	48	43U*	51	33	11	38	9.6	190	190	25000	19	19	540					
Phenanthrene	330	16	180	45	130	7.6U	550	660	2900	1200	330	140	72	220	170	130	220	23	1200	990	80000	240	1500					
Anthracene	230	7.3U	190	22	69	7.6U	270	130	3200	530	280	81U*	120	79	35	67	13U	540	410	11000	540	410	85.3	1100				
Fluoranthene	650	19	600	90	410	7.6U	970	610	13000	2300	1100	340	260	630	490	270	470	56	2300	2200	28000	600	5100					
Pyrene	1300	39	4100	130	550	7.6U	2300	830	11000	1800	3500	470	1200	1800	900	510	640	140	5100	5100	25000	665	2600					
Benz(a)anthracene	610	22U*	560	44	320	7.6U	1500	7400	690	720	130	260	450	330	140	230	29	1200	1200	4500	261	1600						
Chrysene	1000	22U*	740	63	510	7.6U	110U*	56U*	11000	870	940	160	310	490	440	250	350	52	2100	1700	4500	384	2800					
Benz(b)fluoranthene	2300	53	1300	44	890	7.6U	3600	44U*	14000	53U*	1300	150	480	1100	880	320	330	67	2500	3000	2300							
Benz(k)fluoranthene	2300	32	970	33	740	7.6U	130U*	44U*	11000	380	1000	100	400	530	560	220	230	44U*	2300	2500	1900		430	1600				
Indenol[2,3-CD]pyrene	2500	1100	29U*	530	27U*	1700	250	11000	520	1400	450	890	670	250	150U*	57U*	2500	3000	1900									
Dibenz(a,h)anthracene	540	29U*	130	15U	340	52U*	1200	130	130U*	51U*	78U*	280	70U*	48U*	100U*	100U*	51U*	420	510	880								
Benz(g,h)perylene	500	38U*	390	34U*	340	15U*	95U*	52U*	4800	180	350	80U*	110	470	150	190	130U*	44U*	980	1200	140U*							
Benz(e)perylene	1900	42	880	34U*	710	9.4	950	270	8300	440	1100	98	400	790	550	220	230	44U*	1800	2100	1300							
Total Detectable PAHs	15000	200	12000	490	6100	9.4	13000	3800	110000	12000	1800	4200	8400	5600	2700	2800	380	24000	24585	350000		4022	44752					
Total Phthalates	960	140	460	180	130	130	19U	44	930	58	240	78	330	750	1000	1300	260	380	3400	778	280							
Total Phenols	36	90	35	26	120	29	180	110	65	52	940	370	330	26	290	83	69	93	61	90	46000							

Bold values equal or exceed the ERL.

Underlined values equal or exceed the ERM.

Boxed values equal or exceed the San Francisco Bay Threshold.

Comp C contains cores B5 and B6

"U" Qualifier denotes analyte not detected at method detection limit

"U" Qualifier denotes reporting limit raised due to matrix interference

Table 3. South West Slip Odor and Hydrocarbon Concentrations (Kinnetic Laboratories/ToxScan 2002)

Sample ID	Total Volatile Solids (%)	Oil and Grease (mg/Kg, dry)	TRPH (mg/Kg, dry)	Total detectable PAHs	Hydrocarbon Odor
A1-1 Top	1.7	190	160	840	Slight
A1-1 Bot	2.2	100	100	6.9	Slight
A1-2 Top	2	700	290	2300	Slight
A1-2 Bot	1.6	100	100	42	Slight
B1 Top	2.9	590	270	4500	Slight
B1 Bot	1.1	100	100	120	None
B2 Top	0.55	100	100	6.1	None
B2 Bot	0.43	100	100	5.7	None
B3 Top	3.2	1200	410	11000	None
B3 Bot	2.6	100	100	54	None
B4 Top	3.1	810	400	19000	None
B4 Bot	1.7	100	100	44	None
B5 Top	5.2	14000	5500	63000	Strong
B5 Bot	3.6	1800	670	12000	Moderate
B6 Top	1.3	650	300	12000	Strong
B6 Bot	2.9	2000	980	7100	Moderate
C1 Top	4.1	1700	810	13000	Moderate
C1 Bot	2.7	470	220	470	Slight
C2 Top	3.2	1800	820	16000	Strong
C2 Bot	2.2	560	190	1100	None
C3 Top	4.5	2100	720	15000	Slight
C3 Bot	2.7	200	150	150	Slight
C4 Top	5	1900	480	15000	Strong
C4 Bot	1.8	170	100	200	Strong
C5 Top	3.8	3600	810	12000	Slight
C5 Bot	0.97	310	100	490	None
C6 Top	4.6	1000	430	6100	Moderate
C6 Bot	3	170	100	9.4	Strong
C7 Top	4.5	2000	720	13000	Strong
C7 Bot	2.6	770	330	3800	Moderate
C8 Top	3	2000	640	110000	Strong
C8 Bot	2.5	960	380	13000	Moderate
C9 Top	4.4	3800	1200	12000	Strong
C9 Bot	1.6	760	560	1800	Moderate
D1	2.9	1700	1100	4200	Moderate
D2	4.5	1900	1300	8400	Moderate
D3	3.8	1900	540	5600	Strong
D4	3.3	1200	710	2700	Strong
D5	4.1	2000	540	2800	Strong
D6	1.5	1200	430	380	Strong
D7	4.2	1500	790	24000	Strong
D8	2.3	1700	880	24585	Strong
D9	12	20000	4600	350000	Strong

Table 4. Volatile Organic Compounds (EPA Method 8260) in Selected South West Slip Core Samples

Analytical Parameter (ug/kg)	D9*	B5 Top**
Benzene	100000	nd
Ethylbenzene	17000	nd
Naphthalene	12000	nd
n-Propyl benzene	nd	5.4
1,2,4-Trimethylbenzene	12000	5.5
1,3,5-Trimethylbenzene	7200	7.3
Total Xylene	14000	9.9

* Other ten highest analytes included substituted benzene compounds at estimated concentrations of 3 to 7 ug/kg.

** Other ten highest analytes identified with high degree of uncertainty.



ToxScan Inc.

42 Hangar Way • Watsonville, CA 95076-2404 • (831) 724-4522 • FAX (831) 724-3188

April 16, 2002

ToxScan Number: T-20235

Kinnetic Laboratories Incorporated
307 Washington Street
Santa Cruz, CA 95060

Attn: Naomi Marks

Project Name: POLA - SW Slip
Project Number: None
Date Sampled: April 03, 2002
Date Received: April 03, 2002
Matrix: Sediment

Please find the enclosed test results for the parameters requested for analysis. The samples were analyzed within holding time using the following method:

Volatile Organic Compounds plus 10 TICs by EPA Method 8260, conducted by McCampbell Analytical.

The samples were received intact and were handled with the proper chain-of-custody procedures. Appropriate QA/QC guidelines were employed during the analyses on a minimum of a 5% basis. QC results were within limits and are reported with or following the data for each analysis.

If you have any questions or require any additional information, please feel free to call.

Sincerely,



Philip D. Carpenter, Ph.D.
President

Enclosures

This cover letter is an integral part of the report.



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Toxscan	Client Project ID: #T-20235	Date Sampled: 04/03/02
42 Hangar Way		Date Received: 04/05/02
Watsonville, CA 95076	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

04/12/02

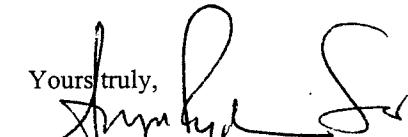
Dear Doug:

Enclosed are:

- 1). the results of 2 samples from your #T-20235 project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



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Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		W	S			W	S
Acetone ^(b)	ND<100,000	5.0	25	trans-1,3-Dichloropropene	ND<10,000	1.0	5.0
Benzene	100,000	1.0	5.0	Ethylene dibromide	ND<10,000	1.0	5.0
Bromobenzene	ND<10,000	1.0	5.0	Ethylbenzene	17,000	1.0	5.0
Bromoform	ND<10,000	1.0	5.0	Hexachlorobutadiene	ND<50,000	5.0	25
Bromochloromethane	ND<10,000	1.0	5.0	Iodomethane	ND<10,000	1.0	5.0
Bromodichloromethane	ND<10,000	1.0	5.0	Isopropylbenzene	ND<10,000	1.0	5.0
Bromomethane	ND<10,000	1.0	5.0	p-Isopropyl toluene	ND<10,000	1.0	5.0
n-Butyl benzene	ND<10,000	1.0	5.0	Methyl butyl ketone ^(d)	ND<10,000	1.0	5.0
sec-Butyl benzene	ND<10,000	1.0	5.0	Methylene Chloride ^(e)	ND<10,000	1.0	5.0
tert-Butyl benzene	ND<10,000	1.0	5.0	Methyl ethyl ketone ^(f)	ND<20,000	2.0	10
Carbon Disulfide	ND<10,000	1.0	5.0	Methyl isobutyl ketone ^(g)	ND<10,000	1.0	5.0
Carbon Tetrachloride	ND<10,000	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	ND<10,000	1.0	5.0
Chlorobenzene	ND<10,000	1.0	5.0	Naphthalene	12,000	5.0	5.0
Chloroethane	ND<10,000	1.0	5.0	n-Propyl benzene	ND<10,000	1.0	5.0
2-Chloroethyl Vinyl Ether ^(h)	ND<10,000	1.0	5.0	Styrene ^(k)	ND<10,000	1.0	5.0
Chloroform	ND<10,000	1.0	5.0	1,1,1,2-Tetrachloroethane	ND<10,000	1.0	5.0
Chloromethane	ND<10,000	1.0	5.0	1,1,2,2-Tetrachloroethane	ND<10,000	1.0	5.0
2-Chlorotoluene	ND<10,000	1.0	5.0	Tetrachloroethene	ND<10,000	1.0	5.0
4-Chlorotoluene	ND<10,000	1.0	5.0	Toluene ^(l)	ND<10,000	1.0	5.0
Dibromochloromethane	ND<10,000	1.0	5.0	1,2,3-Trichlorobenzene	ND<50,000	5.0	25
1,2-Dibromo-3-chloropropane	ND<20,000	2.0	10	1,2,4-Trichlorobenzene	ND<50,000	5.0	25
Dibromomethane	ND<10,000	1.0	5.0	1,1,1-Trichloroethane	ND<10,000	1.0	5.0
1,2-Dichlorobenzene	ND<10,000	1.0	5.0	1,1,2-Trichloroethane	ND<10,000	1.0	5.0
1,3-Dichlorobenzene	ND<10,000	1.0	5.0	Trichloroethene	ND<10,000	1.0	5.0
1,4-Dichlorobenzene	ND<10,000	1.0	5.0	Trichlorofluoromethane	ND<10,000	1.0	5.0
Dichlorodifluoromethane	ND<10,000	1.0	5.0	1,2,3-Trichloropropane	ND<10,000	1.0	5.0
1,1-Dichloroethane	ND<10,000	1.0	5.0	1,2,4-Trimethylbenzene	12,000	1.0	5.0
1,2-Dichloroethane	ND<10,000	1.0	5.0	1,3,5-Trimethylbenzene	7200	1.0	5.0
1,1-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Acetate ^(m)	ND<50,000	5.0	25
cis-1,2-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Chloride ⁽ⁿ⁾	ND<10,000	1.0	5.0
trans-1,2-Dichloroethene	ND<10,000	1.0	5.0	Xylenes, total ^(o)	14,000	1.0	5.0
1,2-Dichloropropane	ND<10,000	1.0	5.0	Comments:			
1,3-Dichloropropane	ND<10,000	1.0	5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND<10,000	1.0	5.0	Dibromofluoromethane	105		
1,1-Dichloropropene	ND<10,000	1.0	5.0	Toluene-d8	99		
cis-1,3-Dichloropropene	ND<10,000	1.0	5.0	4-Bromofluorobenzene	115		

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



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Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		W	S			W	S
		ND	5.0	trans-1,3-Dichloropropene	ND	1.0	5.0
Benzene	ND	1.0	5.0	Ethylene dibromide	ND	1.0	5.0
Bromobenzene	ND	1.0	5.0	Ethylbenzene	ND	1.0	5.0
Bromoform	ND	1.0	5.0	Hexachlorobutadiene	ND	5.0	25
Bromochloromethane	ND	1.0	5.0	Iodomethane	ND	1.0	5.0
Bromodichloromethane	ND	1.0	5.0	Isopropylbenzene	ND	1.0	5.0
Bromomethane	ND	1.0	5.0	p-Isopropyl toluene	ND	1.0	5.0
n-Butyl benzene	ND	1.0	5.0	Methyl butyl ketone ^(d)	ND	1.0	5.0
sec-Butyl benzene	ND	1.0	5.0	Methylene Chloride ^(e)	ND	1.0	5.0
tert-Butyl benzene	ND	1.0	5.0	Methyl ethyl ketone ^(f)	ND	2.0	10
Carbon Disulfide	ND	1.0	5.0	Methyl isobutyl ketone ^(g)	ND	1.0	5.0
Carbon Tetrachloride	ND	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	ND	1.0	5.0
Chlorobenzene	ND	1.0	5.0	Naphthalene	ND	5.0	5.0
Chloroethane	ND	1.0	5.0	n-Propyl benzene	5.4	1.0	5.0
2-Chloroethyl Vinyl Ether ^(c)	ND	1.0	5.0	Styrene ^(k)	ND	1.0	5.0
Chloroform	ND	1.0	5.0	1,1,1,2-Tetrachloroethane	ND	1.0	5.0
Chloromethane	ND	1.0	5.0	1,1,2,2-Tetrachloroethane	ND	1.0	5.0
2-Chlorotoluene	ND	1.0	5.0	Tetrachloroethene	ND	1.0	5.0
4-Chlorotoluene	ND	1.0	5.0	Toluene ^(l)	ND	1.0	5.0
Dibromochloromethane	ND	1.0	5.0	1,2,3-Trichlorobenzene	ND	5.0	25
1,2-Dibromo-3-chloropropane	ND	2.0	10	1,2,4-Trichlorobenzene	ND	5.0	25
Dibromomethane	ND	1.0	5.0	1,1,1-Trichloroethane	ND	1.0	5.0
1,2-Dichlorobenzene	ND	1.0	5.0	1,1,2-Trichloroethane	ND	1.0	5.0
1,3-Dichlorobenzene	ND	1.0	5.0	Trichloroethene	ND	1.0	5.0
1,4-Dichlorobenzene	ND	1.0	5.0	Trichlorofluoromethane	ND	1.0	5.0
Dichlorodifluoromethane	ND	1.0	5.0	1,2,3-Trichloropropane	ND	1.0	5.0
1,1-Dichloroethane	ND	1.0	5.0	1,2,4-Trimethylbenzene	5.5	1.0	5.0
1,2-Dichloroethane	ND	1.0	5.0	1,3,5-Trimethylbenzene	7.3	1.0	5.0
1,1-Dichloroethene	ND	1.0	5.0	Vinyl Acetate ^(m)	ND	5.0	25
cis-1,2-Dichloroethene	ND	1.0	5.0	Vinyl Chloride ⁽ⁿ⁾	ND	1.0	5.0
trans-1,2-Dichloroethene	ND	1.0	5.0	Xylenes, total ^(o)	9.9	1.0	5.0
1,2-Dichloropropane	ND	1.0	5.0	Comments:			
1,3-Dichloropropane	ND	1.0	5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND	1.0	5.0	Dibromofluoromethane		96	
1,1-Dichloropropene	ND	1.0	5.0	Toluene-d8		103	
cis-1,3-Dichloropropene	ND	1.0	5.0	4-Bromoefluorobenzene		124	

* water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

QC REPORT

VOCs (EPA 8240/8260)

Date: 04/05/02

Extraction: EPA 5030

Matrix: Sludge

Compound	Sample	Concentration: ug/kg		Amount Spiked	% Recovery		RPD
		MS	MSD		MS	MSD	
Surrogate	ND	108.0	107.0	100.00	108	107	0.9
Toluene	ND	48.0	49.0	50.00	96	98	2.1
Benzene	ND	48.5	50.0	50.00	97	100	3.0
Chlorobenzene	ND	51.0	48.5	50.00	102	97	5.0
Trichloroethene	ND	49.5	43.0	50.00	99	86	14.1
1,1-Dichloroethene	ND	50.0	55.0	50.00	100	110	9.5

$$\% \text{ Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050209.D
 Acq On : 5 Apr 2002 5:14 pm
 Sample : 0204092-001A,S;OPEN SCAN
 Misc : 8260B_S

Vial: 9
 Operator:
 Inst : GC-4
 Multiplr: 0.00

MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator)
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

(1)

17, u)

 Peak Number 1 Benzene, 1-ethyl-2-methyl- Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.63	3.68 ng	159681	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	95
2	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	95
3	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	94
4	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	94
5	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	94

 Peak Number 2 Benzene, 1-ethyl-2-methyl- Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.70	5.42 ng	235051	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	93
2	Benzene, 1,2,3-trimethyl-	120	C9H12		000526-73-8	90
3	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	90
4	Benzene, (1-methylethyl)-	120	C9H12		000098-82-8	90
5	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	90

 Peak Number 3 Benzene, 1-ethyl-4-methyl- Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.01	5.20 ng	225393	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	93
2	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	91
3	Benzene, 1,3,5-trimethyl-	120	C9H12		000108-67-8	91
4	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	91
5	Benzene, 1,3,5-trimethyl-	120	C9H12		000108-67-8	91

 Peak Number 4 Benzene, 1-ethyl-2-methyl- Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
------	---------	------	------------------	------

26.78 6.50 ng 282148 *1,4-DCB-d4 26.68

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	87
2	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
3	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
4	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
5	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	83

Peak Number 5 Indane Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.05	5.66 ng	245711	*1,4-DCB-d4	26.68		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Indane	118	C9H10		000496-11-7	95
2	Benzene, 2-propenyl-	118	C9H10		000300-57-2	81
3	Benzene, 1-propenyl-, (E)-	118	C9H10		000873-66-5	74
4	Benzene, cyclopropyl-	118	C9H10		000873-49-4	74
5	Benzene, 1-ethenyl-2-methyl-	118	C9H10		000611-15-4	72

Peak Number 6 Benzene, 1-methyl-2-(1-meth... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.19	5.98 ng	259460	*1,4-DCB-d4	26.68		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-methyl-2-(1-methyleth...	134	C10H14		000527-84-4	95
2	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94
3	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	94
4	Benzene, 1-methyl-3-(1-methyleth...	134	C10H14		000535-77-3	94
5	Benzene, 1-methyl-4-(1-methyleth...	134	C10H14		000099-87-6	94

Peak Number 7 Benzene, 4-ethyl-1,2-dimethyl- Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.60	4.30 ng	186763	*1,4-DCB-d4	26.68		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	96
2	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	95
3	Benzene, 2-ethyl-1,3-dimethyl-	134	C10H14		002870-04-4	94
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 8 2,3-Dihydro-1-methylindene Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.71	4.58 ng	198626	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	81
2	Benzene, (2-methyl-1-propenyl)-	132	C10H12		000768-49-0	80
3	Indan, 1-methyl-	132	C10H12		000767-58-8	76
4	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	74
5	Benzene, 1-methyl-2-(2-propenyl)-	132	C10H12		001587-04-8	72

Peak Number 9 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.00	3.41 ng	147871	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	95
2	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	94
3	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	94
4	Benzene, 1-ethyl-3,5-dimethyl-	134	C10H14		000934-74-7	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 10 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.04	4.39 ng	190288	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	97
2	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	97
3	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	95
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	95
5	Benzene, 1-methyl-2-(1-methyleth...)	134	C10H14		000527-84-4	95

Peak Number 11 2,3-Dihydro-1-methylindene Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.46	6.85 ng	297148	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	93
2	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	91
3	Indan, 1-methyl-	132	C10H12		000767-58-8	90
4	Indan, 1-methyl-	132	C10H12		000767-58-8	87
5	Benzene, (2-methyl-2-propenyl)-	132	C10H12		003290-53-7	83

Peak Number 12 4-Nonanone, 2,6,8-trimethyl- Concentration Rank 5

(4)

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.75	7.81 ng	338616	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1		4-Nonanone, 2,6,8-trimethyl-	184	C12H24O	000123-18-2	94
2		5-Dodecanone	184	C12H24O	019780-10-0	32
3		5-Dodecanone	184	C12H24O	019780-10-0	32
4		1-Pentanol, 2,2-dimethyl-	116	C7H16O	002370-12-9	22
5		Thiazole	85	C3H3NS	000288-47-1	14

Peak Number 13 Benzene, 1-(1,1-dimethylethyl... Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.79	4.25 ng	184341	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1		Benzene, 1-(1,1-dimethylethyl)-3...	148	C11H16	001075-38-3	53
2		Benzene, 1-ethyl-4-(1-methylethyl)-	148	C11H16	004218-48-8	52
3		Benzene, 2,4-dimethyl-1-(1-methy...	148	C11H16	004706-89-2	52
4		Benzene, 1-ethyl-3-(1-methylethyl)-	148	C11H16	004920-99-4	52
5		Benzene, 1,3-dimethyl-5-(1-methy...	148	C11H16	004706-90-5	52

04050209.D 8260G.M Thu Apr 11 14:14:37 2002 VOC4

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050237.D Vial: 37
 Acq On : 6 Apr 2002 3:14 pm Operator:
 Sample : 0204092-002A,S,RRR,OPEN SCAN Inst : GC-4
 Misc : 8260B_S Multipl: 2.00
 MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator) *10 ml*
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

 Peak Number 1 Heptane, 2,2,4,6,6-pentamet... Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.42	161.85 ng	7048910	*1,4-DCB-d4	26.69
<hr/>				
Hit# of 5	Tentative ID	MW	MolForm	CAS#
1	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6
2	Decane, 2,2,3-trimethyl-	184	C13H28	062338-09-4
3	Decane, 2,2,7-trimethyl-	184	C13H28	062237-99-4
4	Undecane, 2,2-dimethyl-	184	C13H28	017312-64-0
5	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4

 Peak Number 2 Nonane, 3-methyl-5-propyl- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.79	476.92 ng	20771300	*1,4-DCB-d4	26.69
<hr/>				
Hit# of 5	Tentative ID	MW	MolForm	CAS#
1	Nonane, 3-methyl-5-propyl-	184	C13H28	031081-18-2
2	Nonane, 2-methyl-5-propyl-	184	C13H28	031081-17-1
3	Hexadecane	226	C16H34	000544-76-3
4	Heneicosane	296	C21H44	000629-94-7
5	Hexatriacontane	507	C36H74	000630-06-8

 Peak Number 3 Hexane, 2,2,5-trimethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.08	459.78 ng	20024800	*1,4-DCB-d4	26.69
<hr/>				
Hit# of 5	Tentative ID	MW	MolForm	CAS#
1	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9
2	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9
3	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4
4	Pentane, 2,3-dimethyl-	100	C7H16	000565-59-3
5	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6

 Peak Number 4 Heptane, 2,2,3,4,6,6-hexame... Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
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27.14 203.57 ng 8866140 *1,4-DCB-d4 26.69

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,2,3,4,6,6-hexamethyl-	184	C13H28	062108-32-1	53	
2	Octane, 2,5,6-trimethyl-	156	C11H24	062016-14-2	50	
3	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	50	
4	2,2,7,7-Tetramethyloctane	170	C12H26	001071-31-4	47	
5	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	43	

Peak Number 5 Ether, hexyl pentyl Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.34	163.67 ng	7128510	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Ether, hexyl pentyl	172	C11H24O	032357-83-8	72	
2	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
3	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
4	Undecane, 3,8-dimethyl-	184	C13H28	017301-30-3	56	
5	Heptadecane, 2,6,10,15-tetramethyl-	296	C21H44	054833-48-6	50	

Peak Number 6 Naphthalene, decahydro-2-me... Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.44	126.55 ng	5511660	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2-methyl-	152	C11H20	002958-76-1	49	
2	Cyclohexene, 1,2-dimethyl-	110	C8H14	001674-10-8	49	
3	Bicyclo[3.1.0]hexan-2-one, 5-(1-...	138	C9H14O	000513-20-2	43	
4	Cyclohexene, 1-pentyl-	152	C11H20	015232-85-6	43	
5	Bicyclo[3.1.0]hexan-3-one, 4-met...	152	C10H16O	000471-15-8	41	

Peak Number 7 Hexane, 2,3,4-trimethyl- Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.59	122.22 ng	5322960	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane, 2,3,4-trimethyl-	128	C9H20	000921-47-1	43	
2	Hexane, 3,3-dimethyl-	114	C8H18	000563-16-6	43	
3	Octane, 4-methyl-	128	C9H20	002216-34-4	38	
4	Dodecane, 2,6,10-trimethyl-	212	C15H32	003891-98-3	38	
5	Undecane, 3,4-dimethyl-	184	C13H28	017312-78-6	35	

Peak Number 8 Benzeneethanamine, N-[(pent... Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.73	156.44 ng	6813690	*1,4-DCB-d4	26.69		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzeneethanamine, N-[(pentafluoromethyl)silyl]-	475	C21H26F5NO2Si2	055429-85-1	27	
2	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	25	
3	1,3-Dioxolane, 2-(1-methylethyl)-	116	C6H12O2	000822-83-3	10	
4	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	10	
5	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	9	

Peak Number 9 Naphthalene, decahydro-2,6-... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.		
28.80	137.10 ng	5971040	*1,4-DCB-d4	26.69		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2,6-dimethyl-	166	C12H22	001618-22-0	80	
2	1H-Indene, 1-ethyloctahydro-7a-methyl-	166	C12H22	056324-71-1	74	
3	cis,trans-1,10-Dimethylspiro[4.5]decane	166	C12H22	000000-00-0	62	
4	Naphthalene, decahydro-2,3-dimethyl-	166	C12H22	001008-80-6	49	
5	2(1H)-Naphthalenone, octahydro-8-oxo-	166	C11H18O	001197-95-1	45	

04050237.D 8260G.M Thu Apr 11 14:32:57 2002 VOC4

TOXSCAN 0204092 SUBCONTRACT CHAIN-OF-CUSTO
2104110

0204092 SUBCONTRACT CHAIN-OF-CUSTODY
2104110

Cation: Samples have high Petroleum Hydrocarbon content.

PAGE 1 OF 1

McCAMPBELL ANALYTICAL INC.

110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0204092

Client:
ToxScan
42 Hangar Way
Watsonville, CA 95076
PO:

05-Apr-02

Requested Tests

Sample ID	ClientSamplD	Matrix	Collection Date	Bottle	SW8260B
0204092-001	D-9	Sludge	4/3/02 3:00:00 PM	A	
0204092-002	B5-Top	Sludge	4/3/02 3:00:00 PM	A	

Comments: 72hr Rush Samples!!!!!!

Date/Time

Relinquished by:

Relinquished by:

Relinquished by:

Received by:

Received by:

Received by:

NOTICE: Solid samples are discarded after 60 days and Non-Solid samples are discarded after 30 days unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Table 4. Volatile Organic Compounds (EPA Method 8260) in Selected South West Slip Core Samples

Analytical Parameter (ug/kg)	D9*	B5 Top**
Benzene	100000	nd
Ethylbenzene	17000	nd
Naphthalene	12000	nd
n-Propyl benzene	nd	5.4
1,2,4-Triethylbenzene	12000	5.5
1,3,5-Triethylbenzene	7200	7.3
Total Xylyne	14000	9.9
* Other ten highest analytes included substituted benzene compounds at estimated concentrations of 3 to 7 ug/kg.		
** Other ten highest analytes included with high degree of uncertainty.		

Table 1. Core Locations: Southwest Basin (Kinnetic Laboratories/ToxScan 2002)

Core ID	Latitude (NAD 83)	Longitude (NAD 83)	Seafloor Elevation (feet MLLW)	Length Recovered (feet)	Sampling Interval (feet)	Sampling Interval (feet MLLW)
Subunit A						
A1-1	33° 45.171'	118° 16.428'	-44.8	16.5	0.0 to 5.5	-44.8 to -50.3
					5.5 to 16.5	-50.3 to -61.3
A1-2	33° 45.037'	118° 16.392'	-46.0	15.6	0.0 to 5.0	-46.0 to -51.0
					5.0 to 15.6	-51.0 to -61.6
Subunit B						
B-1	33° 45.342'	118° 16.658'	-45.6	10.5	0.0 to 5.0	-45.6 to -50.6
					5.0 to 10.5	-50.6 to -56.1
B-2	33° 45.314'	118° 16.738'	-36.8	15.5	0.0 to 5.0	-36.8 to -41.8
					5.0 to 15.5	-41.8 to -52.3
B-3	33° 45.294'	118° 16.792'	-32.3	18.8	0.0 to 5.0	-32.3 to -37.3
					5.0 to 18.8	-37.3 to -51.1
B-4	33° 45.266'	118° 16.897'	-43.0	11.0	0.0 to 5.0	-43.0 to -48.0
					5.0 to 11.0	-48.0 to -54.0
B-5	33° 45.290'	118° 16.903'	-40.0	13.0	0.0 to 5.0	-40.0 to -45.0
					5.0 to 13.0	-45.0 to -53.0
B-6	33° 45.288'	118° 16.933'	-27.3	13.0	0.0 to 6.4	-27.3 to -33.7
					6.4 to 13.0	-33.7 to -40.3
Subunit C						
C-1	33° 45.328'	118° 16.982'	-31.8	12.5	0.0 to 5.0	-31.8 to -36.8
					5.0 to 12.5	-36.8 to -44.3
C-2	33° 45.287'	118° 16.974'	-33.0	13.0	0.0 to 5.2	-33.0 to -38.2
					5.2 to 13.0	-38.2 to -46.0
C-3	33° 45.290'	118° 17.019'	-36.0	12.0	0.0 to 5.0	-36.0 to -41.0
					5.0 to 12.0	-41.0 to -48.0
C-4	33° 45.327'	118° 17.037'	-28.8	12.5	0.0 to 6.7	-28.8 to -35.5
					6.7 to 12.5	-35.5 to -41.3
C-5	33° 45.317'	118° 17.078'	-20.0	12.5	0.0 to 7.0	-20.0 to -27.0
					7.0 to 12.5	-27.0 to -32.5
C-6	33° 45.282'	118° 17.076'	-31.0	12.4	0.0 to 5.0	-31.0 to -36.0
					5.0 to 12.4	-36.0 to -43.4
C-7	33° 45.260'	118° 17.007'	-34.7	12.5	0.0 to 6.5	-34.7 to -41.2
					6.5 to 12.5	-41.2 to -47.2
C-8	33° 45.251'	118° 17.064'	-42.5	12.5	0.0 to 6.0	-42.5 to -48.5
					6.0 to 12.5	-48.5 to 55.0
C-9	33° 45.323'	118° 17.097'	-19.8	12.5	0.0 to 7.4	-19.8 to -27.2
					7.4 to 12.5	-27.2 to -32.3
Subunit D						
D-1	33° 45.305'	118° 17.110'	-21.3	7.5	0.0 to 7.5	-21.3 to -28.8
D-2	33° 45.278'	118° 17.143'	-21.2	7.4	0.0 to 7.4	-21.2 to -28.6
D-3	33° 45.288'	118° 17.198'	-18.8	7.5	0.0 to 7.5	-18.8 to -26.3
D-4	33° 45.253'	118° 17.216'	-12.5	7.5	0.0 to 7.5	-12.5 to -20.0
D-5	33° 45.267'	118° 17.275'	-1.3	7.5	0.0 to 7.5	-1.3 to -8.8
D-6	33° 45.281'	118° 17.318'	-1.3	5.9	0.0 to 5.9	-1.3 to -7.2
D-7	33° 45.239'	118° 17.131'	-48.0	7.0	0.0 to 7.0	-48.0 to -55.0
D-8	33° 45.306'	118° 17.144'	-17.0	7.6	0.0 to 7.6	-17.0 to -24.6
D-9	33° 45.289'	118° 17.228'	-15.8	7.6	0.0 to 7.6	-15.8 to -23.4
SW5	33° 45.211'	118° 16.817'	-16.0	3.0	0.0 to 3.0	-16.0 to -19.0

Table 3. South West Slip Odor and Hydrocarbon Concentrations (Kinnetic Laboratories/ToxScan 2002)

Sample ID	Total Volatile Solids (%)	Oil and Grease (mg/Kg, dry)	TRPH (mg/Kg, dry)	Total detectable PAHs	Hydrocarbon Odor
A1-1 Top	1.7	190	160	840	Slight
A1-1 Bot	2.2	100	100	6.9	Slight
A1-2 Top	2	700	290	2300	Slight
A1-2 Bot	1.6	100	100	42	Slight
B1 Top	2.9	590	270	4500	Slight
B1 Bot	1.1	100	100	120	None
B2 Top	0.55	100	100	6.1	None
B2 Bot	0.43	100	100	5.7	None
B3 Top	3.2	1200	410	11000	None
B3 Bot	2.6	100	100	54	None
B4 Top	3.1	810	400	19000	None
B4 Bot	1.7	100	100	44	None
B5 Top	5.2	14000	5500	63000	Strong
B5 Bot	3.6	1800	670	12000	Moderate
B6 Top	1.3	650	300	12000	Strong
B6 Bot	2.9	2000	980	7100	Moderate
C1 Top	4.1	1700	810	13000	Moderate
C1 Bot	2.7	470	220	470	Slight
C2 Top	3.2	1800	820	16000	Strong
C2 Bot	2.2	560	190	1100	None
C3 Top	4.5	2100	720	15000	Slight
C3 Bot	2.7	200	150	150	Slight
C4 Top	5	1900	480	15000	Strong
C4 Bot	1.8	170	100	200	Strong
C5 Top	3.8	3600	810	12000	Slight
C5 Bot	0.97	310	100	490	None
C6 Top	4.6	1000	430	6100	Moderate
C6 Bot	3	170	100	9.4	Strong
C7 Top	4.5	2000	720	13000	Strong
C7 Bot	2.6	770	330	3800	Moderate
C8 Top	3	2000	640	110000	Strong
C8 Bot	2.5	960	380	13000	Moderate
C9 Top	4.4	3800	1200	12000	Strong
C9 Bot	1.6	760	560	1800	Moderate
D1	2.9	1700	1100	4200	Moderate
D2	4.5	1900	1300	8400	Moderate
D3	3.8	1900	540	5600	Strong
D4	3.3	1200	710	2700	Strong
D5	4.1	2000	540	2800	Strong
D6	1.5	1200	430	380	Strong
D7	4.2	1500	790	24000	Strong
D8	2.3	1700	880	24585	Strong
D9	12	20000	4600	350000	Strong



ToxScan Inc.

42 Hangar Way • Watsonville, CA 95076-2404 • (831) 724-4522 • FAX (831) 724-3188

April 16, 2002

ToxScan Number: T-20235

Kinnetic Laboratories Incorporated
307 Washington Street
Santa Cruz, CA 95060

Attn: Naomi Marks

Project Name: POLA - SW Slip
Project Number: None
Date Sampled: April 03, 2002
Date Received: April 03, 2002
Matrix: Sediment

Please find the enclosed test results for the parameters requested for analysis. The samples were analyzed within holding time using the following method:

Volatile Organic Compounds plus 10 TICs by EPA Method 8260, conducted by McCampbell Analytical

The samples were received intact and were handled with the proper chain-of-custody procedures. Appropriate QA/QC guidelines were employed during the analyses on a minimum of a 5% basis. QC results were within limits and are reported with or following the data for each analysis.

If you have any questions or require any additional information, please feel free to call.

Sincerely,



Philip D. Carpenter, Ph.D.
President

Enclosures

This cover letter is an integral part of the report.



McCAMPBELL ANALYTICAL INC.

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Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Toxscan	Client Project ID: #T-20235	Date Sampled: 04/03/02
42 Hangar Way		Date Received: 04/05/02
Watsonville, CA 95076	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

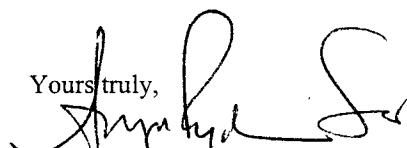
04/12/02

Dear Doug:

Enclosed are:

- 1). the results of **2** samples from your **#T-20235** project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



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Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		W	S			W	S
Acetone ^(b)	ND<100,000	5.0	25	trans-1,3-Dichloropropene	ND<10,000	1.0	5.0
Benzene	100,000	1.0	5.0	Ethylene dibromide	ND<10,000	1.0	5.0
Bromobenzene	ND<10,000	1.0	5.0	Ethylbenzene	17,000	1.0	5.0
Bromoform	ND<10,000	1.0	5.0	Hexachlorobutadiene	ND<50,000	5.0	25
Bromochloromethane	ND<10,000	1.0	5.0	Iodomethane	ND<10,000	1.0	5.0
Bromodichloromethane	ND<10,000	1.0	5.0	Isopropylbenzene	ND<10,000	1.0	5.0
Bromomethane	ND<10,000	1.0	5.0	p-Isopropyl toluene	ND<10,000	1.0	5.0
n-Butyl benzene	ND<10,000	1.0	5.0	Methyl butyl ketone ^(d)	ND<10,000	1.0	5.0
sec-Butyl benzene	ND<10,000	1.0	5.0	Methylene Chloride ^(e)	ND<10,000	1.0	5.0
tert-Butyl benzene	ND<10,000	1.0	5.0	Methyl ethyl ketone ^(f)	ND<20,000	2.0	10
Carbon Disulfide	ND<10,000	1.0	5.0	Methyl isobutyl ketone ^(g)	ND<10,000	1.0	5.0
Carbon Tetrachloride	ND<10,000	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	ND<10,000	1.0	5.0
Chlorobenzene	ND<10,000	1.0	5.0	Naphthalene	12,000	5.0	5.0
Chloroethane	ND<10,000	1.0	5.0	n-Propyl benzene	ND<10,000	1.0	5.0
2-Chloroethyl Vinyl Ether ^(e)	ND<10,000	1.0	5.0	Styrene ^(k)	ND<10,000	1.0	5.0
Chloroform	ND<10,000	1.0	5.0	1,1,1,2-Tetrachloroethane	ND<10,000	1.0	5.0
Chloromethane	ND<10,000	1.0	5.0	1,1,2,2-Tetrachloroethane	ND<10,000	1.0	5.0
2-Chlorotoluene	ND<10,000	1.0	5.0	Tetrachloroethene	ND<10,000	1.0	5.0
4-Chlorotoluene	ND<10,000	1.0	5.0	Toluene ^(l)	ND<10,000	1.0	5.0
Dibromochloromethane	ND<10,000	1.0	5.0	1,2,3-Trichlorobenzene	ND<50,000	5.0	25
1,2-Dibromo-3-chloropropane	ND<20,000	2.0	10	1,2,4-Trichlorobenzene	ND<50,000	5.0	25
Dibromomethane	ND<10,000	1.0	5.0	1,1,1-Trichloroethane	ND<10,000	1.0	5.0
1,2-Dichlorobenzene	ND<10,000	1.0	5.0	1,1,2-Trichloroethane	ND<10,000	1.0	5.0
1,3-Dichlorobenzene	ND<10,000	1.0	5.0	Trichloroethene	ND<10,000	1.0	5.0
1,4-Dichlorobenzene	ND<10,000	1.0	5.0	Trichlorofluoromethane	ND<10,000	1.0	5.0
Dichlorodifluoromethane	ND<10,000	1.0	5.0	1,2,3-Trichloropropane	ND<10,000	1.0	5.0
1,1-Dichloroethane	ND<10,000	1.0	5.0	1,2,4-Trimethylbenzene	12,000	1.0	5.0
1,2-Dichloroethane	ND<10,000	1.0	5.0	1,3,5-Trimethylbenzene	7200	1.0	5.0
1,1-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Acetate ^(m)	ND<50,000	5.0	25
cis-1,2-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Chloride ⁽ⁿ⁾	ND<10,000	1.0	5.0
trans-1,2-Dichloroethene	ND<10,000	1.0	5.0	Xylenes, total ^(o)	14,000	1.0	5.0
1,2-Dichloropropane	ND<10,000	1.0	5.0	Comments:			
1,3-Dichloropropane	ND<10,000	1.0	5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND<10,000	1.0	5.0	Dibromofluoromethane		105	
1,1-Dichloropropene	ND<10,000	1.0	5.0	Toluene-d8		99	
cis-1,3-Dichloropropene	ND<10,000	1.0	5.0	4-Bromofluorobenzene		115	

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L
 ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



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Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Lab ID	0204092-002					
Client ID	B5-Top					
Matrix	Sludge					
Compound	Concentration*	Reporting Limit	Compound	Concentration*	Reporting Limit	
		W S			W	S
Acetone ^(b)	ND	5.0 25	trans-1,3-Dichloropropene	ND	1.0	5.0
Benzene	ND	1.0 5.0	Ethylene dibromide	ND	1.0	5.0
Bromobenzene	ND	1.0 5.0	Ethylbenzene	ND	1.0	5.0
Bromoform	ND	1.0 5.0	Hexachlorobutadiene	ND	5.0	25
Bromochloromethane	ND	1.0 5.0	Iodomethane	ND	1.0	5.0
Bromodichloromethane	ND	1.0 5.0	Isopropylbenzene	ND	1.0	5.0
Bromomethane	ND	1.0 5.0	p-Isopropyl toluene	ND	1.0	5.0
n-Butyl benzene	ND	1.0 5.0	Methyl butyl ketone ^(d)	ND	1.0	5.0
sec-Butyl benzene	ND	1.0 5.0	Methylene Chloride ^(e)	ND	1.0	5.0
tert-Butyl benzene	ND	1.0 5.0	Methyl ethyl ketone ^(f)	ND	2.0	10
Carbon Disulfide	ND	1.0 5.0	Methyl isobutyl ketone ^(g)	ND	1.0	5.0
Carbon Tetrachloride	ND	1.0 5.0	Methyl tert-Butyl Ether (MTBE)	ND	1.0	5.0
Chlorobenzene	ND	1.0 5.0	Naphthalene	ND	5.0	5.0
Chloroethane	ND	1.0 5.0	n-Propyl benzene	5.4	1.0	5.0
2-Chloroethyl Vinyl Ether ^(c)	ND	1.0 5.0	Styrene ^(k)	ND	1.0	5.0
Chloroform	ND	1.0 5.0	1,1,1,2-Tetrachloroethane	ND	1.0	5.0
Chloromethane	ND	1.0 5.0	1,1,2,2-Tetrachloroethane	ND	1.0	5.0
2-Chlorotoluene	ND	1.0 5.0	Tetrachloroethene	ND	1.0	5.0
4-Chlorotoluene	ND	1.0 5.0	Toluene ^(h)	ND	1.0	5.0
Dibromochloromethane	ND	1.0 5.0	1,2,3-Trichlorobenzene	ND	5.0	25
1,2-Dibromo-3-chloropropane	ND	2.0 10	1,2,4-Trichlorobenzene	ND	5.0	25
Dibromomethane	ND	1.0 5.0	1,1,1-Trichloroethane	ND	1.0	5.0
1,2-Dichlorobenzene	ND	1.0 5.0	1,1,2-Trichloroethane	ND	1.0	5.0
1,3-Dichlorobenzene	ND	1.0 5.0	Trichloroethene	ND	1.0	5.0
1,4-Dichlorobenzene	ND	1.0 5.0	Trichlorofluoromethane	ND	1.0	5.0
Dichlorodifluoromethane	ND	1.0 5.0	1,2,3-Trichloropropane	ND	1.0	5.0
1,1-Dichloroethane	ND	1.0 5.0	1,2,4-Trimethylbenzene	5.5	1.0	5.0
1,2-Dichloroethane	ND	1.0 5.0	1,3,5-Trimethylbenzene	7.3	1.0	5.0
1,1-Dichloroethene	ND	1.0 5.0	Vinyl Acetate ^(m)	ND	5.0	25
cis-1,2-Dichloroethene	ND	1.0 5.0	Vinyl Chloride ⁽ⁿ⁾	ND	1.0	5.0
trans-1,2-Dichloroethene	ND	1.0 5.0	Xylenes, total ^(o)	9.9	1.0	5.0
1,2-Dichloropropane	ND	1.0 5.0	Comments:			
1,3-Dichloropropane	ND	1.0 5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND	1.0 5.0	Dibromofluoromethane		96	
1,1-Dichloropropene	ND	1.0 5.0	Toluene-d8		103	
cis-1,3-Dichloropropene	ND	1.0 5.0	4-Bromofluorobenzene		124	

* water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



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QC REPORT

VOCs (EPA 8240/8260)

Date: 04/05/02

Extraction: EPA 5030

Matrix: Sludge

Compound	Sample	Concentration: ug/kg		Amount Spiked	%Recovery		RPD
		MS	MSD		MS	MSD	
<u>SampleID:</u> 40502					Instrument	GC-4	
Surrogate	ND	108.0	107.0	100.00	108	107	0.9
Toluene	ND	48.0	49.0	50.00	96	98	2.1
Benzene	ND	48.5	50.0	50.00	97	100	3.0
Chlorobenzene	ND	51.0	48.5	50.00	102	97	5.0
Trichloroethene	ND	49.5	43.0	50.00	99	86	14.1
1,1-Dichloroethene	ND	50.0	55.0	50.00	100	110	9.5

$$\% \text{ Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050209.D
 Acq On : 5 Apr 2002 5:14 pm
 Sample : 0204092-001A,S;OPEN SCAN
 Misc : 8260B_S

Vial: 9
 Operator:
 Inst : GC-4
 Multiplr: 0.00

MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator)
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

(1)

/T, v;

 Peak Number 1 Benzene, 1-ethyl-2-methyl- Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.63	3.68 ng	159681	*1,4-DCB-d4	26.68

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	95
2	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	95
3	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	94
4	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	94
5	Benzene, 1-ethyl-3-methyl-	120	C9H12	000620-14-4	94

 Peak Number 2 Benzene, 1-ethyl-2-methyl- Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.70	5.42 ng	235051	*1,4-DCB-d4	26.68

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	93
2	Benzene, 1,2,3-trimethyl-	120	C9H12	000526-73-8	90
3	Benzene, 1-ethyl-4-methyl-	120	C9H12	000622-96-8	90
4	Benzene, (1-methylethyl)-	120	C9H12	000098-82-8	90
5	Benzene, 1-ethyl-2-methyl-	120	C9H12	000611-14-3	90

 Peak Number 3 Benzene, 1-ethyl-4-methyl- Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.01	5.20 ng	225393	*1,4-DCB-d4	26.68

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-4-methyl-	120	C9H12	000622-96-8	93
2	Benzene, 1-ethyl-3-methyl-	120	C9H12	000620-14-4	91
3	Benzene, 1,3,5-trimethyl-	120	C9H12	000108-67-8	91
4	Benzene, 1-ethyl-4-methyl-	120	C9H12	000622-96-8	91
5	Benzene, 1,3,5-trimethyl-	120	C9H12	000108-67-8	91

 Peak Number 4 Benzene, 1-ethyl-2-methyl- Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
------	---------	------	------------------	------

26.78 6.50 ng 282148 *1,4-DCB-d4 26.68

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	87
2	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
3	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
4	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
5	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	83

Peak Number 5 Indane Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.05	5.66 ng	245711	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Indane	118	C9H10		000496-11-7	95
2	Benzene, 2-propenyl-	118	C9H10		000300-57-2	81
3	Benzene, 1-propenyl-, (E)-	118	C9H10		000873-66-5	74
4	Benzene, cyclopropyl-	118	C9H10		000873-49-4	74
5	Benzene, 1-ethenyl-2-methyl-	118	C9H10		000611-15-4	72

Peak Number 6 Benzene, 1-methyl-2-(1-meth... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.19	5.98 ng	259460	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-methyl-2-(1-methyleth...	134	C10H14		000527-84-4	95
2	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94
3	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	94
4	Benzene, 1-methyl-3-(1-methyleth...	134	C10H14		000535-77-3	94
5	Benzene, 1-methyl-4-(1-methyleth...	134	C10H14		000099-87-6	94

Peak Number 7 Benzene, 4-ethyl-1,2-dimethyl- Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.60	4.30 ng	186763	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	96
2	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	95
3	Benzene, 2-ethyl-1,3-dimethyl-	134	C10H14		002870-04-4	94
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 8 2,3-Dihydro-1-methylindene Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.71	4.58 ng	198626	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	81
2	Benzene, (2-methyl-1-propenyl)-	132	C10H12		000768-49-0	80
3	Indan, 1-methyl-	132	C10H12		000767-58-8	76
4	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	74
5	Benzene, 1-methyl-2-(2-propenyl)-	132	C10H12		001587-04-8	72

Peak Number 9 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.00	3.41 ng	147871	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	95
2	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	94
3	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	94
4	Benzene, 1-ethyl-3,5-dimethyl-	134	C10H14		000934-74-7	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 10 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.04	4.39 ng	190288	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	97
2	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	97
3	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	95
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	95
5	Benzene, 1-methyl-2-(1-methyleth...)	134	C10H14		000527-84-4	95

Peak Number 11 2,3-Dihydro-1-methylindene Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.46	6.85 ng	297148	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	93
2	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	91
3	Indan, 1-methyl-	132	C10H12		000767-58-8	90
4	Indan, 1-methyl-	132	C10H12		000767-58-8	87
5	Benzene, (2-methyl-2-propenyl)-	132	C10H12		003290-53-7	83

Peak Number 12 4-Nonanone, 2,6,8-trimethyl- Concentration Rank 5

(4)

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.75	7.81 ng	338616	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1		4-Nonanone, 2,6,8-trimethyl-	184	C12H24O	000123-18-2	94
2		5-Dodecanone	184	C12H24O	019780-10-0	32
3		5-Dodecanone	184	C12H24O	019780-10-0	32
4		1-Pentanol, 2,2-dimethyl-	116	C7H16O	002370-12-9	22
5		Thiazole	85	C3H3NS	000288-47-1	14

Peak Number 13 Benzene, 1-(1,1-dimethylethyl... Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.79	4.25 ng	184341	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1		Benzene, 1-(1,1-dimethylethyl)-3...	148	C11H16	001075-38-3	53
2		Benzene, 1-ethyl-4-(1-methylethyl)-	148	C11H16	004218-48-8	52
3		Benzene, 2,4-dimethyl-1-(1-methy...	148	C11H16	004706-89-2	52
4		Benzene, 1-ethyl-3-(1-methylethyl)-	148	C11H16	004920-99-4	52
5		Benzene, 1,3-dimethyl-5-(1-methy...	148	C11H16	004706-90-5	52

04050209.D 8260G.M Thu Apr 11 14:14:37 2002 VOC4

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050237.D
 Acq On : 6 Apr 2002 3:14 pm
 Sample : 0204092-002A, S, RRR, OPEN SCAN
 Misc : 8260B_S

Vial: 37
 Operator:
 Inst : GC-4
 Multiplr: 2.00

MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator)
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

10 ml

 Peak Number 1 Heptane, 2,2,4,6,6-pentamet... Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.42	161.85 ng	7048910	*1,4-DCB-d4	26.69

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6	59
2	Decane, 2,2,3-trimethyl-	184	C13H28	062338-09-4	59
3	Decane, 2,2,7-trimethyl-	184	C13H28	062237-99-4	53
4	Undecane, 2,2-dimethyl-	184	C13H28	017312-64-0	53
5	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4	53

 Peak Number 2 Nonane, 3-methyl-5-propyl- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.79	476.92 ng	20771300	*1,4-DCB-d4	26.69

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Nonane, 3-methyl-5-propyl-	184	C13H28	031081-18-2	64
2	Nonane, 2-methyl-5-propyl-	184	C13H28	031081-17-1	64
3	Hexadecane	226	C16H34	000544-76-3	59
4	Heneicosane	296	C21H44	000629-94-7	59
5	Hexatriacontane	507	C36H74	000630-06-8	59

 Peak Number 3 Hexane, 2,2,5-trimethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.08	459.78 ng	20024800	*1,4-DCB-d4	26.69

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	64
2	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	64
3	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4	53
4	Pentane, 2,3-dimethyl-	100	C7H16	000565-59-3	53
5	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6	53

 Peak Number 4 Heptane, 2,2,3,4,6,6-hexam... Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
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27.14 203.57 ng 8866140 *1,4-DCB-d4 26.69

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,2,3,4,6,6-hexamethyl-	184	C13H28	062108-32-1	53	
2	Octane, 2,5,6-trimethyl-	156	C11H24	062016-14-2	50	
3	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	50	
4	2,2,7,7-Tetramethyloctane	170	C12H26	001071-31-4	47	
5	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	43	

Peak Number 5 Ether, hexyl pentyl Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.34	163.67 ng	7128510	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Ether, hexyl pentyl	172	C11H24O	032357-83-8	72	
2	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
3	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
4	Undecane, 3,8-dimethyl-	184	C13H28	017301-30-3	56	
5	Heptadecane, 2,6,10,15-tetramethyl-	296	C21H44	054833-48-6	50	

Peak Number 6 Naphthalene, decahydro-2-me... Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.44	126.55 ng	5511660	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2-methyl-	152	C11H20	002958-76-1	49	
2	Cyclohexene, 1,2-dimethyl-	110	C8H14	001674-10-8	49	
3	Bicyclo[3.1.0]hexan-2-one, 5-(1-...	138	C9H14O	000513-20-2	43	
4	Cyclohexene, 1-pentyl-	152	C11H20	015232-85-6	43	
5	Bicyclo[3.1.0]hexan-3-one, 4-met...	152	C10H16O	000471-15-8	41	

Peak Number 7 Hexane, 2,3,4-trimethyl- Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.59	122.22 ng	5322960	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane, 2,3,4-trimethyl-	128	C9H20	000921-47-1	43	
2	Hexane, 3,3-dimethyl-	114	C8H18	000563-16-6	43	
3	Octane, 4-methyl-	128	C9H20	002216-34-4	38	
4	Dodecane, 2,6,10-trimethyl-	212	C15H32	003891-98-3	38	
5	Undecane, 3,4-dimethyl-	184	C13H28	017312-78-6	35	

Peak Number 8 Benzeneethanamine, N-[(pent... Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.73	156.44 ng	6813690	*1,4-DCB-d4	26.69

(3)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzeneethanamine, N-[(pentafluoromethyl)silyl]-	475	C21H26F5NO2Si2	055429-85-1	27	
2	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	25	
3	1,3-Dioxolane, 2-(1-methylethyl)-	116	C6H12O2	000822-83-3	10	
4	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	10	
5	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	9	

Peak Number 9 Naphthalene, decahydro-2,6-... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.80	137.10 ng	5971040	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2,6-dimethyl-	166	C12H22	001618-22-0	80	
2	1H-Indene, 1-ethyloctahydro-7a-methyl-	166	C12H22	056324-71-1	74	
3	cis,trans-1,10-Dimethylspiro[4.5]decane	166	C12H22	000000-00-0	62	
4	Naphthalene, decahydro-2,3-dimethyl-	166	C12H22	001008-80-6	49	
5	2(1H)-Naphthalenone, octahydro-8-oxo-	166	C11H18O	001197-95-1	45	

04050237.D 8260G.M Thu Apr 11 14:32:57 2002 VOC4

McCampbell Analytical Inc.

110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925)798-1620

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0204092

Client:
ToxScan
42 Hangar Way
Watsonville, CA 95076

TEL:
FAX:
ProjectNo: #T-20235
PO:

05-Apr-02

Requested Tests

Sample ID	Client SampID	Matrix	Collection Date	Bottle	SW8260B
0204092-001	D-9	Sludge	4/3/02 3:00:00 PM		A
0204092-002	B5-Top	Sludge	4/3/02 3:00:00 PM		A

Comments: 72hr Rush Samples!!!!!!**Date/Time****Date/Time**

Relinquished by:

Relinquished by:

Relinquished by:

Received by:

Received by:

Received by:

NOTICE: Solid samples are discarded after 60 days and Non-Solid samples are discarded after 30 days unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-VoA S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

ToxScan Inc.

42 Hangar Way • Watsonville, CA 95076-2404 • (831) 724-4522 • FAX (831) 724-3188

April 16, 2002

ToxScan Number: T-20235

Kinnetic Laboratories Incorporated
307 Washington Street
Santa Cruz, CA 95060

Attn: Naomi Marks

Project Name: POLA - SW Slip
Project Number: None
Date Sampled: April 03, 2002
Date Received: April 03, 2002
Matrix: Sediment

Please find the enclosed test results for the parameters requested for analysis. The samples were analyzed within holding time using the following method:

Volatile Organic Compounds plus 10 TICs by EPA Method 8260, conducted by McCampbell Analytical

The samples were received intact and were handled with the proper chain-of-custody procedures. Appropriate QA/QC guidelines were employed during the analyses on a minimum of a 5% basis. QC results were within limits and are reported with or following the data for each analysis.

If you have any questions or require any additional information, please feel free to call.

Sincerely,



Philip D. Carpenter, Ph.D.
President

Enclosures

This cover letter is an integral part of the report.



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Toxscan	Client Project ID: #T-20235	Date Sampled: 04/03/02
42 Hangar Way		Date Received: 04/05/02
Watsonville, CA 95076	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

04/12/02

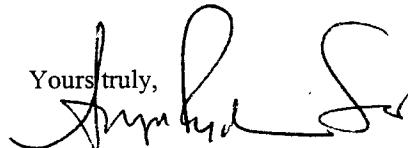
Dear Doug:

Enclosed are:

- 1). the results of 2 samples from your #T-20235 project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits.

If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		W	S			W	S
Acetone ^(b)	ND<100,000	5.0	25	trans-1,3-Dichloropropene	ND<10,000	1.0	5.0
Benzene	100,000	1.0	5.0	Ethylene dibromide	ND<10,000	1.0	5.0
Bromobenzene	ND<10,000	1.0	5.0	Ethylbenzene	17,000	1.0	5.0
Bromoform	ND<10,000	1.0	5.0	Hexachlorobutadiene	ND<50,000	5.0	25
Bromochloromethane	ND<10,000	1.0	5.0	Iodomethane	ND<10,000	1.0	5.0
Bromodichloromethane	ND<10,000	1.0	5.0	Isopropylbenzene	ND<10,000	1.0	5.0
Bromomethane	ND<10,000	1.0	5.0	p-Isopropyl toluene	ND<10,000	1.0	5.0
n-Butyl benzene	ND<10,000	1.0	5.0	Methyl butyl ketone ^(d)	ND<10,000	1.0	5.0
sec-Butyl benzene	ND<10,000	1.0	5.0	Methylene Chloride ^(e)	ND<10,000	1.0	5.0
tert-Butyl benzene	ND<10,000	1.0	5.0	Methyl ethyl ketone ^(f)	ND<20,000	2.0	10
Carbon Disulfide	ND<10,000	1.0	5.0	Methyl isobutyl ketone ^(g)	ND<10,000	1.0	5.0
Carbon Tetrachloride	ND<10,000	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	ND<10,000	1.0	5.0
Chlorobenzene	ND<10,000	1.0	5.0	Naphthalene	12,000	5.0	5.0
Chloroethane	ND<10,000	1.0	5.0	n-Propyl benzene	ND<10,000	1.0	5.0
2-Chloroethyl Vinyl Ether ^(c)	ND<10,000	1.0	5.0	Styrene ^(k)	ND<10,000	1.0	5.0
Chloroform	ND<10,000	1.0	5.0	1,1,1,2-Tetrachloroethane	ND<10,000	1.0	5.0
Chloromethane	ND<10,000	1.0	5.0	1,1,2,2-Tetrachloroethane	ND<10,000	1.0	5.0
2-Chlorotoluene	ND<10,000	1.0	5.0	Tetrachloroethene	ND<10,000	1.0	5.0
4-Chlorotoluene	ND<10,000	1.0	5.0	Toluene ^(l)	ND<10,000	1.0	5.0
Dibromochloromethane	ND<10,000	1.0	5.0	1,2,3-Trichlorobenzene	ND<50,000	5.0	25
1,2-Dibromo-3-chloropropane	ND<20,000	2.0	10	1,2,4-Trichlorobenzene	ND<50,000	5.0	25
Dibromomethane	ND<10,000	1.0	5.0	1,1,1-Trichloroethane	ND<10,000	1.0	5.0
1,2-Dichlorobenzene	ND<10,000	1.0	5.0	1,1,2-Trichloroethane	ND<10,000	1.0	5.0
1,3-Dichlorobenzene	ND<10,000	1.0	5.0	Trichloroethene	ND<10,000	1.0	5.0
1,4-Dichlorobenzene	ND<10,000	1.0	5.0	Trichlorofluoromethane	ND<10,000	1.0	5.0
Dichlorodifluoromethane	ND<10,000	1.0	5.0	1,2,3-Trichloropropane	ND<10,000	1.0	5.0
1,1-Dichloroethane	ND<10,000	1.0	5.0	1,2,4-Trimethylbenzene	12,000	1.0	5.0
1,2-Dichloroethane	ND<10,000	1.0	5.0	1,3,5-Trimethylbenzene	7200	1.0	5.0
1,1-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Acetate ^(m)	ND<50,000	5.0	25
cis-1,2-Dichloroethene	ND<10,000	1.0	5.0	Vinyl Chloride ⁽ⁿ⁾	ND<10,000	1.0	5.0
trans-1,2-Dichloroethene	ND<10,000	1.0	5.0	Xylenes, total ^(o)	14,000	1.0	5.0
1,2-Dichloropropane	ND<10,000	1.0	5.0	Comments:			
1,3-Dichloropropane	ND<10,000	1.0	5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND<10,000	1.0	5.0	Dibromofluoromethane		105	
1,1-Dichloropropene	ND<10,000	1.0	5.0	Toluene-d8		99	
cis-1,3-Dichloropropene	ND<10,000	1.0	5.0	4-Bromofluorobenzene		115	

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
 Telephone : 925-798-1620 Fax : 925-798-1622
<http://www.mccampbell.com> E-mail: main@mccampbell.com

Toxscan 42 Hangar Way Watsonville, CA 95076	Client Project ID: #T-20235	Date Sampled: 04/03/02
		Date Received: 04/05/02
	Client Contact: Doug Clark	Date Extracted: 04/05/02
	Client P.O:	Date Analyzed: 04/05/02

Volatile Organics By GC/MS

EPA method 8260

Compound	Concentration*	Reporting Limit		Compound	Concentration*	Reporting Limit	
		W	S			W	S
Acetone ^(b)	ND	5.0	25	trans-1,3-Dichloropropene	ND	1.0	5.0
Benzene	ND	1.0	5.0	Ethylene dibromide	ND	1.0	5.0
Bromobenzene	ND	1.0	5.0	Ethylbenzene	ND	1.0	5.0
Bromoform	ND	1.0	5.0	Hexachlorobutadiene	ND	5.0	25
Bromochloromethane	ND	1.0	5.0	Iodomethane	ND	1.0	5.0
Bromodichloromethane	ND	1.0	5.0	Isopropylbenzene	ND	1.0	5.0
Bromomethane	ND	1.0	5.0	p-Isopropyl toluene	ND	1.0	5.0
n-Butyl benzene	ND	1.0	5.0	Methyl butyl ketone ^(d)	ND	1.0	5.0
sec-Butyl benzene	ND	1.0	5.0	Methylene Chloride ^(e)	ND	1.0	5.0
tert-Butyl benzene	ND	1.0	5.0	Methyl ethyl ketone ^(f)	ND	2.0	10
Carbon Disulfide	ND	1.0	5.0	Methyl isobutyl ketone ^(g)	ND	1.0	5.0
Carbon Tetrachloride	ND	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	ND	1.0	5.0
Chlorobenzene	ND	1.0	5.0	Naphthalene	ND	5.0	5.0
Chloroethane	ND	1.0	5.0	n-Propyl benzene	5.4	1.0	5.0
2-Chloroethyl Vinyl Ether ^(c)	ND	1.0	5.0	Styrene ^(k)	ND	1.0	5.0
Chloroform	ND	1.0	5.0	1,1,1,2-Tetrachloroethane	ND	1.0	5.0
Chloromethane	ND	1.0	5.0	1,1,2,2-Tetrachloroethane	ND	1.0	5.0
2-Chlorotoluene	ND	1.0	5.0	Tetrachloroethene	ND	1.0	5.0
4-Chlorotoluene	ND	1.0	5.0	Toluene ^(l)	ND	1.0	5.0
Dibromochloromethane	ND	1.0	5.0	1,2,3-Trichlorobenzene	ND	5.0	25
1,2-Dibromo-3-chloropropane	ND	2.0	10	1,2,4-Trichlorobenzene	ND	5.0	25
Dibromomethane	ND	1.0	5.0	1,1,1-Trichloroethane	ND	1.0	5.0
1,2-Dichlorobenzene	ND	1.0	5.0	1,1,2-Trichloroethane	ND	1.0	5.0
1,3-Dichlorobenzene	ND	1.0	5.0	Trichloroethene	ND	1.0	5.0
1,4-Dichlorobenzene	ND	1.0	5.0	Trichlorofluoromethane	ND	1.0	5.0
Dichlorodifluoromethane	ND	1.0	5.0	1,2,3-Trichloropropane	ND	1.0	5.0
1,1-Dichloroethane	ND	1.0	5.0	1,2,4-Trimethylbenzene	5.5	1.0	5.0
1,2-Dichloroethane	ND	1.0	5.0	1,3,5-Trimethylbenzene	7.3	1.0	5.0
1,1-Dichloroethene	ND	1.0	5.0	Vinyl Acetate ^(m)	ND	5.0	25
cis-1,2-Dichloroethene	ND	1.0	5.0	Vinyl Chloride ⁽ⁿ⁾	ND	1.0	5.0
trans-1,2-Dichloroethene	ND	1.0	5.0	Xylenes, total ^(o)	9.9	1.0	5.0
1,2-Dichloropropane	ND	1.0	5.0	Comments:			
1,3-Dichloropropane	ND	1.0	5.0	Surrogate Recoveries (%)			
2,2-Dichloropropane	ND	1.0	5.0	Dibromofluoromethane		96	
1,1-Dichloropropene	ND	1.0	5.0	Toluene-d8		103	
cis-1,3-Dichloropropene	ND	1.0	5.0	4-Bromofluorobenzene		124	

* water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director



McCAMPBELL ANALYTICAL INC.

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QC REPORT

VOCs (EPA 8240/8260)

Date: 04/05/02

Extraction: EPA 5030

Matrix: Sludge

Compound	Sample	Concentration: ug/kg		% Recovery		MS	MSD	RPD
		MS	MSD	Amount Spiked	MS			
<u>SampleID: 40502</u>								Instrument GC-4
Surrogate		ND	108.0	107.0	100.00	108	107	0.9
Toluene		ND	48.0	49.0	50.00	96	98	2.1
Benzene		ND	48.5	50.0	50.00	97	100	3.0
Chlorobenzene		ND	51.0	48.5	50.00	102	97	5.0
Trichloroethene		ND	49.5	43.0	50.00	99	86	14.1
1,1-Dichloroethene		ND	50.0	55.0	50.00	100	110	9.5

$$\% \text{ Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050209.D
 Acq On : 5 Apr 2002 5:14 pm
 Sample : 0204092-001A,S,OPEN SCAN
 Misc : 8260B_S

Vial: 9
 Operator:
 Inst : GC-4
 Multiplr: 0.00

MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator)
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

(6)

17, 17;

 Peak Number 1 Benzene, 1-ethyl-2-methyl- Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.63	3.68 ng	159681	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	95
2	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	95
3	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	94
4	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	94
5	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	94

 Peak Number 2 Benzene, 1-ethyl-2-methyl- Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
25.70	5.42 ng	235051	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	93
2	Benzene, 1,2,3-trimethyl-	120	C9H12		000526-73-8	90
3	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	90
4	Benzene, (1-methylethyl)-	120	C9H12		000098-82-8	90
5	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	90

 Peak Number 3 Benzene, 1-ethyl-4-methyl- Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
26.01	5.20 ng	225393	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	93
2	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	91
3	Benzene, 1,3,5-trimethyl-	120	C9H12		000108-67-8	91
4	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	91
5	Benzene, 1,3,5-trimethyl-	120	C9H12		000108-67-8	91

 Peak Number 4 Benzene, 1-ethyl-2-methyl- Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
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26.78 6.50 ng 282148 *1,4-DCB-d4 26.68

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-ethyl-2-methyl-	120	C9H12		000611-14-3	87
2	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
3	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
4	Benzene, 1-ethyl-3-methyl-	120	C9H12		000620-14-4	87
5	Benzene, 1-ethyl-4-methyl-	120	C9H12		000622-96-8	83

Peak Number 5 Indane Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.05	5.66 ng	245711	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Indane	118	C9H10		000496-11-7	95
2	Benzene, 2-propenyl-	118	C9H10		000300-57-2	81
3	Benzene, 1-propenyl-, (E)-	118	C9H10		000873-66-5	74
4	Benzene, cyclopropyl-	118	C9H10		000873-49-4	74
5	Benzene, 1-ethenyl-2-methyl-	118	C9H10		000611-15-4	72

Peak Number 6 Benzene, 1-methyl-2-(1-meth... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.19	5.98 ng	259460	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1-methyl-2-(1-methyleth...	134	C10H14		000527-84-4	95
2	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94
3	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	94
4	Benzene, 1-methyl-3-(1-methyleth...	134	C10H14		000535-77-3	94
5	Benzene, 1-methyl-4-(1-methyleth...	134	C10H14		000099-87-6	94

Peak Number 7 Benzene, 4-ethyl-1,2-dimethyl- Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.60	4.30 ng	186763	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	96
2	Benzene, 1-ethyl-2,3-dimethyl-	134	C10H14		000933-98-2	95
3	Benzene, 2-ethyl-1,3-dimethyl-	134	C10H14		002870-04-4	94
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 8 2,3-Dihydro-1-methylindene Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.71	4.58 ng	198626	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	81
2	Benzene, (2-methyl-1-propenyl)-	132	C10H12		000768-49-0	80
3	Indan, 1-methyl-	132	C10H12		000767-58-8	76
4	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	74
5	Benzene, 1-methyl-2-(2-propenyl)-	132	C10H12		001587-04-8	72

Peak Number 9 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.00	3.41 ng	147871	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	95
2	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	94
3	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	94
4	Benzene, 1-ethyl-3,5-dimethyl-	134	C10H14		000934-74-7	94
5	Benzene, 4-ethyl-1,2-dimethyl-	134	C10H14		000934-80-5	94

Peak Number 10 Benzene, 1,2,4,5-tetramethyl- Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.04	4.39 ng	190288	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzene, 1,2,4,5-tetramethyl-	134	C10H14		000095-93-2	97
2	Benzene, 1,2,3,5-tetramethyl-	134	C10H14		000527-53-7	97
3	Benzene, 1,2,3,4-tetramethyl-	134	C10H14		000488-23-3	95
4	Benzene, 1-ethyl-2,4-dimethyl-	134	C10H14		000874-41-9	95
5	Benzene, 1-methyl-2-(1-methyleth...)	134	C10H14		000527-84-4	95

Peak Number 11 2,3-Dihydro-1-methylindene Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.46	6.85 ng	297148	*1,4-DCB-d4	26.68

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	2,3-Dihydro-1-methylindene	132	C10H12		027133-93-3	93
2	Benzene, (1-methyl-1-propenyl)-,...	132	C10H12		000768-00-3	91
3	Indan, 1-methyl-	132	C10H12		000767-58-8	90
4	Indan, 1-methyl-	132	C10H12		000767-58-8	87
5	Benzene, (2-methyl-2-propenyl)-	132	C10H12		003290-53-7	83

Peak Number 12 4-Nonanone, 2,6,8-trimethyl- Concentration Rank 5

(4)

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.75	7.81 ng	338616	*1,4-DCB-d4	26.68
Hit# of	5	Tentative ID	MW MolForm	CAS# Qual
1	4-Nonanone, 2,6,8-trimethyl-	184 C12H24O	000123-18-2	94
2	5-Dodecanone	184 C12H24O	019780-10-0	32
3	5-Dodecanone	184 C12H24O	019780-10-0	32
4	1-Pentanol, 2,2-dimethyl-	116 C7H16O	002370-12-9	22
5	Thiazole	85 C3H3NS	000288-47-1	14

Peak Number 13 Benzene, 1-(1,1-dimethylethyl... Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
28.79	4.25 ng	184341	*1,4-DCB-d4	26.68
Hit# of	5	Tentative ID	MW MolForm	CAS# Qual
1	Benzene, 1-(1,1-dimethylethyl)-3...	148 C11H16	001075-38-3	53
2	Benzene, 1-ethyl-4-(1-methylethyl)-	148 C11H16	004218-48-8	52
3	Benzene, 2,4-dimethyl-1-(1-methy...	148 C11H16	004706-89-2	52
4	Benzene, 1-ethyl-3-(1-methylethyl)-	148 C11H16	004920-99-4	52
5	Benzene, 1,3-dimethyl-5-(1-methy...	148 C11H16	004706-90-5	52

04050209.D 8260G.M Thu Apr 11 14:14:37 2002 VOC4

Library Search Compound Report

Data File : D:\MSDCHEM\1\DATA\04050237.D
 Acq On : 6 Apr 2002 3:14 pm
 Sample : 0204092-002A, S, RRR, OPEN SCAN
 Misc : 8260B_S

Vial: 37
 Operator: ①
 Inst : GC-4
 Multiplr: 2.00

MS Integration Params: Rteint.p
 Quant Method : C:\MSDCHEM\1\METHODS\8260G.M (RTE Integrator)
 Title : 8240 calibration table
 Library : C:\DATABASE\NBS75K.L

10 ml

 Peak Number 1 Heptane, 2,2,4,6,6-pentamet... Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.42	161.85 ng	7048910	*1,4-DCB-d4	26.69	
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6	59
2	Decane, 2,2,3-trimethyl-	184	C13H28	062338-09-4	59
3	Decane, 2,2,7-trimethyl-	184	C13H28	062237-99-4	53
4	Undecane, 2,2-dimethyl-	184	C13H28	017312-64-0	53
5	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4	53

 Peak Number 2 Nonane, 3-methyl-5-propyl- Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.	
26.79	476.92 ng	20771300	*1,4-DCB-d4	26.69	
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Nonane, 3-methyl-5-propyl-	184	C13H28	031081-18-2	64
2	Nonane, 2-methyl-5-propyl-	184	C13H28	031081-17-1	64
3	Hexadecane	226	C16H34	000544-76-3	59
4	Heneicosane	296	C21H44	000629-94-7	59
5	Hexatriacontane	507	C36H74	000630-06-8	59

 Peak Number 3 Hexane, 2,2,5-trimethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.	
27.08	459.78 ng	20024800	*1,4-DCB-d4	26.69	
Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	64
2	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	64
3	Hexane, 2,2,3-trimethyl-	128	C9H20	016747-25-4	53
4	Pentane, 2,3-dimethyl-	100	C7H16	000565-59-3	53
5	Heptane, 2,2,4,6,6-pentamethyl-	170	C12H26	013475-82-6	53

 Peak Number 4 Heptane, 2,2,3,4,6,6-hexame... Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
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27.14 203.57 ng 8866140 *1,4-DCB-d4 26.69

(2)

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 2,2,3,4,6,6-hexamethyl-	184	C13H28	062108-32-1	53	
2	Octane, 2,5,6-trimethyl-	156	C11H24	062016-14-2	50	
3	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	50	
4	2,2,7,7-Tetramethyloctane	170	C12H26	001071-31-4	47	
5	Hexane, 2,2,5-trimethyl-	128	C9H20	003522-94-9	43	

Peak Number 5 Ether, hexyl pentyl Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.34	163.67 ng	7128510	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Ether, hexyl pentyl	172	C11H24O	032357-83-8	72	
2	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
3	Pentane, 3,3-dimethyl-	100	C7H16	000562-49-2	59	
4	Undecane, 3,8-dimethyl-	184	C13H28	017301-30-3	56	
5	Heptadecane, 2,6,10,15-tetramethyl-	296	C21H44	054833-48-6	50	

Peak Number 6 Naphthalene, decahydro-2-me... Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.44	126.55 ng	5511660	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2-methyl-	152	C11H20	002958-76-1	49	
2	Cyclohexene, 1,2-dimethyl-	110	C8H14	001674-10-8	49	
3	Bicyclo[3.1.0]hexan-2-one, 5-(1-...	138	C9H14O	000513-20-2	43	
4	Cyclohexene, 1-pentyl-	152	C11H20	015232-85-6	43	
5	Bicyclo[3.1.0]hexan-3-one, 4-met...	152	C10H16O	000471-15-8	41	

Peak Number 7 Hexane, 2,3,4-trimethyl- Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
27.59	122.22 ng	5322960	*1,4-DCB-d4	26.69

Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Hexane, 2,3,4-trimethyl-	128	C9H20	000921-47-1	43	
2	Hexane, 3,3-dimethyl-	114	C8H18	000563-16-6	43	
3	Octane, 4-methyl-	128	C9H20	002216-34-4	38	
4	Dodecane, 2,6,10-trimethyl-	212	C15H32	003891-98-3	38	
5	Undecane, 3,4-dimethyl-	184	C13H28	017312-78-6	35	

Peak Number 8 Benzeneethanamine, N-[(pent... Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.		
27.73	156.44 ng	6813690	*1,4-DCB-d4	26.69		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Benzeneethanamine, N-[(pentafluoromethyl)silyl]-	475	C21H26F5NO2Si2	055429-85-1	27	
2	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	25	
3	1,3-Dioxolane, 2-(1-methylethyl)-	116	C6H12O2	000822-83-3	10	
4	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	10	
5	Benzoic acid, 2-[(trimethylsilyl)oxy]-	282	C13H22O3Si2	003789-85-3	9	

Peak Number 9 Naphthalene, decahydro-2,6-... Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.		
28.80	137.10 ng	5971040	*1,4-DCB-d4	26.69		
Hit# of	5	Tentative ID	MW	MolForm	CAS#	Qual
1	Naphthalene, decahydro-2,6-dimethyl-	166	C12H22	001618-22-0	80	
2	1H-Indene, 1-ethyloctahydro-7a-methyl-	166	C12H22	056324-71-1	74	
3	cis,trans-1,10-Dimethylspiro[4.5...]	166	C12H22	000000-00-0	62	
4	Naphthalene, decahydro-2,3-dimethyl-	166	C12H22	001008-80-6	49	
5	2(1H)-Naphthalenone, octahydro-8-oxo-	166	C11H18O	001197-95-1	45	

04050237.D 8260G.M Thu Apr 11 14:32:57 2002 VOC4

McCAMPBELL ANALYTICAL INC.

110 Second Avenue South, #D7
Pachco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 0204092

Client:

ToxScan
42 Hangar Way
Watsonville, CA 95076

TEL:
FAX:
ProjectNo: #T-20235
PO:

Requested Tests					
Sample ID	Client SampID	Matrix	Collection Date	Bottle	SW8260B
0204092-001	D-9	Sludge	4/3/02 3:00:00 PM	A	
0204092-002	B5-Top	Sludge	4/3/02 3:00:00 PM	A	

Comments:

72hr Rush Samples!!!!!!

Date/Time	Date/Time

Comments: 72hr Rush Samples!!!!!!**Relinquished by:****Received by:****Relinquished by:**

Received by:
Received by:
Received by:

NOTICE: Solid samples are discarded after 60 days and Non-Solid samples are discarded after 30 days unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-VoA S-Soil Jar O-Orbo T-Tediar B-Brass P-Plastic OT-Other