

CITY OF EUREKA

and

**HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION
DISTRICT**

**COOPERATIVE EUREKA WATERFRONT FACILITIES
MAINTENANCE DREDGING PROJECT**

EUREKA CHANNEL, HUMBOLDT BAY, CALIFORNIA



SAMPLING RESULTS REPORT

for

DIOXIN/FURANS, PCP AND PCB TESTING

PREPARED BY:



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INTRODUCTION

On behalf of the Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD) and the City of Eureka, Pacific Affiliates and MFG/Tetra Tech collected 55 sediment core samples from the 11 Eureka Waterfront moorage facilities and Woodley Island Marina slated for maintenance dredging between November 4th and November 14th, 2005. Composite samples from all 12 sites slated for dredging were tested for polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofuran (PCDF) also known as dioxins/furans and pentachlorophenol (PCP). Three of the sites, Coast Seafoods Dock, Fisherman's Terminal and 'F' Street Dock, were also tested for polychlorinated biphenyls (PCBs). The beach disposal site was tested for dioxins/furans, PCBs, PCP, and grain size distribution.

California Coastal Commission (CCC) and the U.S. Environmental Protection Agency (EPA) Sediment and Dredging Management Team staffs have requested that the sites be tested for dioxins/furans and PCPs in response to the Humboldt Baykeepers and the Surfriders Foundation concerns that were raised at the California Coastal Commission hearing, held in Eureka, California on September 14th, 2005.

Composite samples from all 13 sites, including the beach disposal site, were tested in February 2005 (see Sediment Sampling Analysis, April 1, 2005) and Coast Seafoods Dock was sampled for the second time on September 25th, 2005 for PCBs. Three sites where PCBs were detected (regardless of the levels) were tested again for PCBs in this sediment sampling event.

The Sediment Sampling and Analysis Plan (SAP) for this investigation was approved on November 3rd, 2005 by the EPA and the U.S. Army Corps of Engineers (ARCOE). The SAP was reviewed by Dr. Jack Gregg of the CCC Water Quality Unit, Clyde Davis of the ARCOE and Brian Ross of the EPA Sediment and Dredging Management Team. Changes made to the SAP are provided in Appendix A.

It has been proposed to pump the dredge spoils directly to a site on the Samoa Peninsula for dispersion in the surf zone of the Pacific Ocean. This method was previously employed for maintenance dredging of Humboldt Bay sites in 1988 and 1996. The results from this testing will be used to verify that the material slated for dredging is adequate for ocean disposal.

SAMPLING METHODOLOGY

Core samples were collected to a depth of 6" below the project depth. The core lengths collected are specified in the Sediment Testing Site Descriptions section. Any deviations from the approved core lengths specified in the SAP are also listed in the Sediment Testing Site Descriptions section. Core lengths were calculated from the 2004 hydrographic surveys shown in Appendix D.

Samples were collected from a barge, designed by Pacific Affiliates, equipped with all necessary sampling and compositing equipment. The equipment on the barge included a working bench, decontamination equipment, a winch, a 2" diameter core sampler kit, safety equipment and ice filled coolers to store the samples.

The sampling kit designed by AMS includes a 1' long steel sampling tubes of 2" diameter, 4' long extensions of 5/8" diameter, and two types of core catchers including an auger bucket with open blades and a butterfly valve core tip. In most cases the butterfly catcher was used. While the core was collected and pushed into the sampler, the butterfly core catcher was used to slice along the longitudinal axis before the sample was retrieved from within the sampler and prevented the sediment from falling out of the sampler.

A 3" PVC pipe was used to collect deeper core samples (longer than 4'). The pipe was pushed to the required core depth and remained in place until the entire core length was retrieved. The 2" sampler was then inserted into the PVC pipe and was penetrated through the sediment numerous times until the entire core length was retrieved.

MFG/TetraTech personnel composited the core samples on the sampling barge. Samples that were not taken with the butterfly core tip were sliced along the longitudinal axis. The core samples were pushed out of the sampler with a plunger into the trough located on the working bench. Representative sediment of the entire core length, excluding the bottom 6" below the project depth, was put in a decontaminated 1-gallon bucket for compositing with other core samples. When compositing was complete the sample was labeled and put in a lab supplied 4-ounce jar and placed in an iced filled cooler. Representative sediment of the other half of the core sample and sediment from 6" below the project depth were each archived separately in lab supplied 4-ounce jars for future analysis. After each core sample was collected, the sampling equipment and the working area were decontaminated.

Sampling locations were recorded with a GPS to the nearest 2'. All sampling point locations are referenced to the NAD 83 datum.

LABORATORY ANALYSIS

Severn Trent Laboratories (STL) in Sacramento conducted the testing of the composite sediment samples for dioxins/furans, PCBs and PCP. LACO Associates in Eureka tested the beach samples for grain size analysis.

Dioxins/Furans Test Methods

The purpose of the testing was to quantify for dioxins/furan concentrations in the sediment. The procedure selected for the analysis was EPA Method 8290. This method provides procedures for detection and quantitative measurements of polychlorinated dibenzo-p-dioxins (tetra through octachlorinated isomers; PCDDs), and polychlorinated dibenzofurans (tetra-through octachlorinated isomers); PCDF at part-per-trillion (ppt) to part-per-quadrillion (ppq) concentrations (EPA, Method 8290). STL reduced the final extract volume from 20 microliters (μL) to 10 μL to achieve the requested quantitation limit of 2.5 ppt for the penta-hepta chlorination levels. This reduction in final extract volume resulted in quantitation limits of 0.5 ppt for tetra chlorinated levels and 5.0 ppt for OCDD/OCDF.

The Toxic Equivalents (TEQs) were calculated and reported two ways based on the chemistry results. Using the first method, a "detection" TEQ was calculated based on the quantified concentrations. The second method involved calculations of "overall" TEQs, which are based on including one-half (1/2) of the detection limit for all non-detected isomers, before applying the World Health Organization (WHO) Toxicity Equivalency Factors (TEFs) (see Appendix B for TEF values and SAP for Method 8290 Procedure).

PCB Test Methods

The purpose of this test is to determine the concentrations of polychlorinated biphenyls (PCBs) as Aroclors in extracts from a solid matrix. The procedure selected for the analysis is EPA Method 8082 by Gas Chromatography and EPA method 3550 for sample preparation (see SAP for Methods 8082 and 3550 procedures). This method allows for detection of PCBs at parts-per-billion (ppb) with a detection limit of 33 ppb (wet weight).

PCP Test

The purpose of this test is to determine concentrations of the compound pentachlorophenol (PCP) in extracts from a solid matrix. The procedure selected for analysis is EPA Method 8151A, chlorinated herbicides by gas chromatography (GC), using methylation or pentafluorobenzoylation derivatization. This method allows for detection of PCP at ppb with a detection limit of 20 ppb.

Grain Size Distribution Test

Both Beach samples were analyzed for grain size distribution. The purpose of the test is to determine the grain size distribution of the material at the beach disposal site. For sediments with both fine and coarse-grained materials a combined analysis is performed using both the sieve and hydrometer procedures (ASTM D422). In the hydrometer analysis, the sediment smaller than No. 200 sieve is placed in suspension and by use of Stokes' equation the percent of grain size distribution is calculated. ASTM C136 is used to determine the grain size distribution of the sample portion greater than No. 200 sieve (sand).

Testing Results Acronyms

In the laboratory supplied testing results submitted by STL to Pacific Affiliates several acronyms are placed to the right of the result number (see Appendix B). The laboratory flags used are as follows:

a - Spiked analyte recovery is outside stated control limits.

CON – Confirmation Analysis

G – Elevated reporting limits. The reporting limit is elevated due to matrix interference.

J – Estimated result, result is less than the reporting limit.

JA – The analyte was positively identified, but the quantitation is an estimate.

ND – Non detect

QUALITY CONTROL DATA VALIDATION

Three Laboratory reports were submitted by STL to Pacific Affiliates (see Appendix B) and were validated by MFG/Tetra Tech and Pacific Affiliates staff. A copy of the Laboratory Report Evaluation Checklist can be found in the SAP. All laboratory QC batches were checked to ensure that the correct number of samples were analyzed, the holding times were not exceeded, surrogates recoveries were within stated control limits, and that Laboratory Method Blank, Matrix Spikes (MS), Matrix Spike Duplicates (MSD), Laboratory Control Samples (LCS) and Laboratory Control Sample Duplicates (LCSD) were all tested and within the acceptable limits.

Several comments were provided in the narrative section of the laboratory report including failure of the MS/MSD for the 1,2,3,7,8,9-HxCDF isomer, flagging of several isomers as "JA", OCDD recoveries in MS/MSD and Matrix interference for dioxins testing per method 8290. MS/MSD associated with two extraction batches that included 13 samples tested for dioxins/furans have recoveries outside of the established control limits for 1,2,3,7,8,9-HxCDF. Acceptable LCS data demonstrate that the analytical system is within QC limits. This anomaly is most likely matrix-related to the non-homogenous nature of the sediment

(Appendix B, STL Project Numbers G5K100136 and G5K110245). The recoveries for OCDD were not calculated in the MS/MSD associated with seven samples as the level of this compound in the parent sample is inappropriate relative to the spike concentration and non-homogeneity of the matrix. Acceptable LCS data demonstrate that the analytical system within QC limits (Appendix B, STL Project Number G5K150224). In addition, the isomers 2,3,7,8-TCDD or 2,3,7,8-TCDF have been designated with the "JA" qualifier due to the ion abundance ratios being outside of criteria (Appendix B, STL Project Number G5K100136). The isomer 1,2,3,4,6,7,8-HpCDF has also been designated with the "JA" qualifier in a separate batch (Appendix B, STL Project Number G5K110245). The isomers have been qualified as "positively identified, but at an estimated quantity" because the quantitation is based on the theoretical ratios for these samples. Several isomers have also been designated with the "JA" qualifier in three samples from the last batch (see Appendix B, STL Project Number G5K150224 - Samples 3, 4 and 5). In addition, due to matrix interference the detection limits for 2,3,7,8-TCDD in one sample from this batch were elevated.

In the PCP analysis per method 8151A, the recovery of the surrogate 2,4-dichlorophenylacetic acid is above the established control limits for the composite sample from Commercial Street Dock (see Appendix B, STL Project Number G5K110245-). As the sample is non-detect for the target analyte, PCP, there is no adverse impact upon the data. In addition, insufficient volume was available for MS/MSD in seven samples (one batch). A laboratory LCS/LCSD was prepared instead (see Appendix B, STL Project Number G5K150224). All seven samples in this batch were initially analyzed on November 29th, 2005. However, when the data was processed through technical review, matrix interference was observed in the chromatograms, which necessitated dilution of these extracts. The extracts of these samples required 10-50 times dilution. All reporting limits have been adjusted accordingly. As a result, most surrogates have recoveries outside of the established control limits.

Review of the data by MFG/Tetra Tech and Pacific Affiliates staff indicate that all of the samples were prepared and analyzed within the specified holding times in the SAP and were received in good condition by the laboratory. There were no other anomalies associated with this project.

SEDIMENT TESTING SITE DESCRIPTIONS

All sediment testing site descriptions provided in this section are accompanied by the hydrographic surveys that include the dredging limit, project limit and the sampling locations provided in Appendix D.

SITE # 1 – DOCK ‘B’

Four locations were sampled at Dock ‘B’. The date/time of core retrieval, core depth, and sampling locations are shown in Table 1.

Core sample A-1 was collected 10' from the dock's face instead of 27' from the dock's face, as specified in the approved SAP, due to strong tides and currents in Humboldt Bay. Core sample A-3 was taken 15' from the dock's face instead of 20' from the dock's face as approved in the SAP because the sampling team was unable to penetrate the sediment to the required core depth, 6.4' (including six inches below project depth) at the approved location. The required core depth was achieved at the reported location. Core samples A-2 and A-4 were collected at the approved locations.

The sample 1-A-1 was composited 4:1 in the field. The composite sample 1-A-1 from Dock ‘B’ was received by STL on November 15th, 2005 and was prepared for dioxin/furans analysis (Method 8290) on November 23rd, 2005 and for PCP analysis (Method 8151A) on November 22nd, 2005.

Table 1: Core samples collected at Dock ‘B’.

Composite I.D.	Core Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
1-A-1	A-1	11-10-05	23:00	4.5	40° 48' 04.29797" N	124° 10' 58.75307" W
	A-2	11-10-05	23:30	5.4	40° 48' 04.91620" N	124° 10' 58.25612" W
	A-3	11-11-05	00:20	5.9	40° 48' 05.48921" N	124° 10' 57.65750" W
	A-4	11-11-05	00:45	6.5	40° 48' 06.08582" N	124° 10' 57.10060" W

SITE # 2 – SMALL BOAT BASIN

Eight locations were sampled at the Small Boat Basin. The date/time of core retrieval, core depth, and sampling locations are shown in Table 2.

Core sample A-4 was collected approximately 100' northwest of the approved sampling location. Two attempts were made to collect the core sample from the approved location; however, rocks and/or concrete piling were encountered at that location. The core length obtained was 5.5'. The current depth at the actual sampling location is -5.6' Mean Lower Low Water (MLLW), which is one foot deeper than at the approved sampling location. The core sample collected penetrated into a sand layer and a deeper sample could not be obtained. All other sampling points were taken from the approved sampling locations as designated in the SAP.

Two composite samples 2-A-1 and 2-A-2 were composited 4:1 in the field and were analyzed for dioxin/furans and PCBs. Composite sample 2-A-1 and 2-B-1 were received by STL on November 23rd and November 11th, 2005 respectively, and were prepared for dioxin/furans analysis (Method 8290) and for PCP analysis (Method 8151A) on November 22nd and November 21st, 2005 respectively.

Table 2: Core samples collected at the Small Boat Basin.

Composite I.D.	Core Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
2-A-1	A-1	11-11-05	12:22	3.8	40° 48' 11.46478" N	124° 10' 44.96572" W
	A-2	11-11-05	12:44	3.1	40° 48' 9.08049" N	124° 10' 43.03373" W
	A-3	11-11-05	15:05	4.3	40° 48' 11.31827" N	124° 10' 40.24658" W
	A-4	11-11-05	14:38	5.5	40° 48' 13.59708" N	124° 10' 39.90963" W
2-B-1	B-1	11-10-05	01:30	4.0	40° 48' 14.0555" N	124° 10' 38.30124" W
	B-2	11-10-05	01:50	4.4	40° 48' 12.50898" N	124° 10' 37.44479" W
	B-3	11-9-05	13:19	5.9	40° 48' 14.04502" N	124° 10' 35.90682" W
	B-4	11-9-05	12:49	5.0	40° 48' 15.22452" N	124° 10' 34.36032" W

SITE # 3 – COMMERCIAL STREET DOCK

Three locations were sampled at Commercial Street Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 3. All core samples were collected at the specified locations as stated in the approved SAP.

The sample 3-A-1 was composited 3:1 in the field. The composite sample 3-A-1 from Commercial Street Dock was received by STL laboratory on November 11th, 2005. The sample was prepared for dioxin/furans analysis (Method 8290) and for PCP analysis (Method 8151A) on November 21st, 2005.

Table 3: Core samples collected at Commercial Street Dock.

Composite I.D.	Core Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
3-A-1	A-1	11-10-05	00:50	7.0	40° 48' 17.52595" N	124° 10' 27.56415" W
	A-2	11-10-05	00:10	9.0	40° 48' 18.03403" N	124° 10' 25.36151" W
	A-3	11-10-05	00:30	7.0	40° 48' 17.76994" N	124° 10' 26.50639" W

SITE # 4 – COAST SEAFOODS DOCK

Three locations were sampled at Coast Seafoods Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 4. All core samples were collected at the specified locations as stated in the approved SAP.

Two composite samples were sent for analysis. Composite Sample 4-A-1 consisted of a single sample from core A-1 and was analyzed for dioxins/furans and PCP. Composite Sample 4-B-1 was composited 2:1 in the field from core samples A-2 and A-3 and was analyzed for dioxin/furans, PCBs and PCP. Composite samples 4-A-1 and 4-B-1 from Coast Seafoods Dock were received by STL laboratory on November 15th, 2005 and were prepared for dioxin/furans analysis (Method 8290) on November 23rd, 2005, for PCP analysis (Method 8151A) on November 22nd, 2005. Sample 4-B-1 was prepared for PCB analysis (Method 8082) on November 21st, 2005.

Table 4: Core samples collected at Coast Seafoods Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
4-A-1	A-1	11-10-05	13:20	5.0	40° 48' 18.75642" N	124° 10' 22.51553" W
4-B-1	A-2	11-10-05	12:30	9.4	40° 48' 18.94154" N	124° 10' 21.59590" W
	A-3	11-10-05	12:00	9.5	40° 48' 18.84771" N	124° 10' 22.06202" W

SITE # 5 – FISHERMAN’S TERMINAL

Four locations were sampled at the Fisherman’s Terminal. The date/time of core retrieval, core depth, and sampling locations are shown in Table 5. All core samples were collected at the specified locations as stated in the approved SAP.

The sample 5-A-1 was composited 4:1 in the field. The composite sample 4-A-1 from Fisherman’s Terminal was received by STL laboratory on November 15th, 2005 and was prepared for dioxin/furans analysis (Method 8290) on November 23rd, 2005, for PCP analysis (Method 8151A) on November 22nd, 2005. Sample 5-A-1 was prepared for PCB analysis (Method 8082) on November 21st, 2005.

Table 5: Core samples collected at Fisherman’s Terminal Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
5-A-1	A-1	11-10-05	02:15	5.6	40° 48' 19.87294" N	124° 10' 16.60154" W
	A-2	11-11-05	01:15	9.6	40° 48' 20.11417" N	124° 10' 15.47495" W
	A-3	11-11-05	02:00	9.0	40° 48' 20.36881" N	124° 10' 14.28577" W
	A-4	11-11-05	02:25	8.4	40° 48' 20.77085" N	124° 10' 12.40813" W

SITE # 6 – ‘F’ STREET FLOATING DOCK

Two locations were sampled at the ‘F’ Street Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 6. All core samples were collected at the specified locations as stated in the approved SAP.

The sample 6-A-1 was composited 2:1 in the field. The composite sample 6-A-1 from ‘F’ Street Floating Dock was received by STL laboratory on November 9th, 2005. Composite sample 6-A-1 was analyzed for dioxins/furans, PCBs and PCP. The sample was prepared for dioxin/furans analysis (Method 8290) and PCB analysis (Method 8082) on November 21st, 2005 and for PCP analysis (Method 8151A) on November 15th, 2005.

Table 6: Core samples collected at ‘F’ Street Floating Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
6-A-1	A-1	11-08-05	10:30	3.7	40° 48' 21.89385" N	124° 10' 02.87573" W
	A-2	11-08-05	09:50	1.2	40° 48' 21.96376" N	124° 10' 02.03142" W

SITE # 7 – I STREET DOCK

Four locations were sampled at the I Street Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 7.

Core samples A-1 and A-2 were collected at locations 25' from the dock's face instead of 45' from dock's face as specified in the approved SAP due to strong tides and currents in Humboldt Bay. The current depth at the new sampling locations A-1 is -3.4' MLLW. The depth at the new sampling point A-1 is 4.0' shallower than the approved sampling location. Core sample A-2 was taken from a depth of -6.5' MLLW which is approximately one-foot shallower than the approved sampling depth. Sample A-3 was collected 50' from the dock's face instead of 90' from the dock's face as approved in the SAP where the current elevations differ by one-foot. Sample A-4 was collected at the location and depth specified in the SAP.

Composite sample 7-A-1 was composited 4:1 in the field. The composite sample 7-A-1 from I Street Dock was received by STL laboratory on November 11th, 2005. The sample was prepared for dioxin/furans analysis (Method 8290) and for PCP analysis (Method 8151A) on November 21st, 2005.

Table 7: Core samples collected at 'I' Street Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
7-A-1	A-1	11-08-05	20:30	9.0	40° 48' 21.94586" N	124° 09' 48.40795" W
	A-2	11-08-05	21:40	9.2	40° 48' 22.93474" N	124° 09' 48.00033" W
	A-3	11-09-05	12:00	4.3	40° 48' 22.18594" N	124° 09' 46.76234" W
	A-4	11-09-05	10:10	7.9	40° 48' 22.19992" N	124° 09' 46.47244" W

SITE # 8 – J STREET DOCK

Two locations were sampled at the J Street Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 8. All core samples were collected at the specified locations as stated in the approved SAP.

The sample 8-A-1 was composited 2:1 in the field. The composite sample 8-A-1 from the J Street Dock was received by STL laboratory on November 9th, 2005. The sample was prepared for dioxin/furans analysis (Method 8290) on November 21st, 2005 and for PCP analysis (Method 8151A) on November 15th, 2005.

Table 8: Core samples collected at J Street Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
8-A-1	A-1	11-04-05	19:45	5.2	40° 48' 22.77394" N	124° 09' 45.61189" W
	A-2	11-04-05	20:20	5.4	40° 48' 22.72642" N	124° 09' 44.28592" W

SITE # 9 – ADORNI CENTER

Two locations were sampled at the Adorni Center. The date/time of core retrieval, core depth, and sampling locations are shown in Table 9. All core samples were collected at the specified locations as stated in the approved SAP.

The composite sample 9-A-1 was composited 2:1 in the field. The composite sample 9-A-1 from Adorni Center was received by STL laboratory on November 11th, 2005. The sample was prepared for dioxin/furans analysis (Method 8290) on November 21st, 2005 and for PCP analysis (Method 8151A) on November 15th, 2005.

Table 9: Core samples collected at Adorni Center.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
9-A-1	A-1	11-04-05	18:30	2.8	40° 48' 22.76331" N	124° 09' 40.56340" W
	A-2	11-04-05	19:00	3.9	40° 48' 22.71214" N	124° 09' 39.83742" W

SITE # 10 – BONNIE GOOL GUEST DOCK

Four locations were sampled at the Bonnie Gool Guest Dock. The date/time of core retrieval, core depth, and sampling locations are shown in Table 10. Core samples A-1 and A-2 were collected on the channel side of the dock (north side). Core samples A-3 and A-4 were collected behind the dock around the gangway system. All samples were taken at the locations designated in the approved SAP.

Composite sample 10-A-1 and 10-B-1 were composited 2:1 in the field. The composite samples 10-A-1 and 10-B-1 from Bonnie Gool Guest Dock were received by STL laboratory on November 9th, 2005. The samples were prepared for dioxin/furans analysis (Method 8290) on November 21st, 2005 and for PCP analysis (Method 8151A) on November 15th, 2005.

Table 10: Core samples collected at Bonnie Gool Guest Dock.

Composite Sample I.D.	Sample I.D.	Collection		Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
10-A-1	A-1	11-06-05	21:06	1.6	40° 48' 24.29428" N	124° 09' 34.17931" W
	A-2	11-06-05	20:21	3.7	40° 48' 24.66295" N	124° 09' 32.46017" W
10-B-1	A-3	11-06-05	19:30	1.0	40° 48' 23.95425" N	124° 09' 33.58165" W
	A-4	11-06-05	19:54	1.0	40° 48' 24.11623" N	124° 09' 32.84399" W

SITE # 11 – SAMOA BRIDGE LAUNCH RAMP

One core sample A-1 was collected at the Samoa Bridge Launch Ramp on November 6th, 2005. Composite sample 11-A-1 consisted of a single core. Composite sample 11-A-1 was received by STL Laboratory on November 9th, 2005. To reach project depth of -5.0' MLLW, the required core length was 1.6'. The sample was collected at the location designated in the approved SAP. The coordinates of the sample location are 40° 48' 30.09973" N and 124° 09' 15" W.

The composite sample 11-A-1 was received by STL Laboratories on November 9th, 2005 and was prepared for dioxin/furans analysis (Method 8290) on November 21st, 2005 and for PCP analysis (Method 8151A) on November 15th, 2005.

SITE # 12 – WOODLEY ISLAND MARINA

Sixteen locations were sampled at the Woodley Island Marina. The date/time of core retrieval, core depth, and sampling locations are shown in Table 11.

Core sample B-2 was collected 10' west of the approved sampling location (see Appendix D, Hydrographic Surveys). Two attempts were made to collect the core sample from the approved location; however, rocks and concrete pilings were encountered at that location. The core length obtained was 2.5' and a representative split from the entire core length was included in the composite sample and sent for analysis.

Core sample C-1 and C-3 were collected 10' west and 15' east of the approved location, respectively. Two attempts were made to collect each sample from the approved location; however, rocks and concrete pilings were encountered at those locations. The current depth at the new sampling locations is approximately the same as at the approved sampling locations. Core lengths C-1 and C-3 retrieved were 5.6' and 5.5' as indicated in the SAP (Table 11).

Core sample D-1 was collected 20' west and 10' north of the approved location. Two attempts were made to collect the sample from the approved location; however, rocks and concrete pilings were encountered at that location. The core length obtained was 3.5' long which is 0.8' shorter than the required core length. The current depth at the new sampling locations is approximately the same as at the approved sampling locations. A representative split from the entire core length was included in the composite sample and sent for analysis.

The remaining core samples were collected at the approved locations as indicated in Table 11 below. Four samples were composited 4:1 in the field and were analyzed for dioxin/furans and PCBs. Composite samples 12-A-1 and 12-B-1 were received by STL Laboratories on November 15th, 2005. The samples were prepared for dioxin/furans analysis (Method 8290) and for PCP analysis (Method 8151A) on November 21st, 2005. Composite samples 12-C-1 and 12-D-1 were received by STL on November 9th, 2005. The samples were prepared for dioxin/furans analysis (Method 8290) on November 21st, 2005 and for PCP analysis Method 8151A) on November 15th 2005.

Table 11: Core samples collected at Woodley Island Marina

Composite I.D.	Core Sample I.D.	Collection		Obtained Core Length (feet)	Location	
		Date	Time		Latitude	Longitude
12-A-1	A-1	11-08-05	23:45	2.2	40° 48' 25.27570" N	124° 09' 59.82348" W
	A-2	11-08-05	23:30	3.9	40° 48' 27.46837" N	124° 09' 59.91542" W
	A-3	11-09-05	00:10	3.8	40° 48' 25.41356" N	124° 09' 53.36709" W
	A-4	11-09-05	01:00	4.3	40° 48' 27.89311" N	124° 09' 53.54260" W
12-B-1	B-1	11-07-05	23:30	5.2	40° 48' 25.56858" N	124° 09' 50.51911" W
	B-2	11-07-05	00:00	4.4	40° 48' 27.77290" N	124° 09' 50.65381" W
	B-3	11-08-05	22:45	4.3	40° 48' 28.24361" N	124° 09' 47.86910" W
	B-4	11-07-05	23:00	6.0	40° 48' 25.64236" N	124° 09' 47.72540" W
12-C-1	C-1	11-07-05	20:50	5.6	40° 48' 28.30847" N	124° 09' 45.13980" W
	C-2	11-07-05	21:15	6.4	40° 48' 25.69076" N	124° 09' 45.06631" W
	C-3	11-07-05	20:20	5.5	40° 48' 28.40286" N	124° 09' 41.22928" W
	C-4	11-07-05	21:40	4.2	40° 48' 25.79749" N	124° 09' 41.00350" W
12-D-1	D-1	11-07-05	19:40	3.5	40° 48' 29.01502" N	124° 09' 37.94514" W
	D-2	11-07-05	22:10	4.0	40° 48' 26.34060" N	124° 09' 36.98820" W
	D-3	11-06-05	22:05	1.6	40° 48' 29.63900" N	124° 09' 35.06930" W
	D-4	11-06-05	22:50	4.0	40° 48' 26.96225" N	124° 09' 34.17566" W

SITE # 13 – BEACH DISPOSAL SITE

Two grab samples were collected in the vicinity of the near shore beach disposal site. The first core sample, A-1, was collected in the intertidal zone and the second core sample A-2 was collected in the subtidal zone. The date/time of core retrieval, core depth, and sampling locations are shown in Table 12.

The composite sample 13-A-1 and 13-B-1 were received by STL laboratory on November 15th, 2005. The samples were prepared for dioxin/furans analysis (Method 8290) on and for PCP analysis Method 8151A) on November 23rd, 2005.

Table 12: Core samples collected at Samoa beach disposal site.

Composite I.D.	Core Sample I.D.	Collection		Location	
		Date	Time	Latitude	Longitude
13-A-1	A-1	11-15-05	15:20	40° 49' 37.45000" N	124° 11' 16.66841" W
13-B-1	A-2	11-15-05	15:15	40° 49' 39.76588" N	124° 11' 15.35662" W

RESULTS

Dioxins/Furans Results

Dioxin/furan concentrations based on the quantitated concentrations are shown in Table 13. The quantitated results range between 0.78 ppt (pg/g) at Woodley Island Marina and a high of 6.03 ppt at the Coast Seafoods Dock. Dioxin/furan concentrations at all sites excluding Coast Seafoods Dock were below 3.5 ppt. All TEQ calculations and data received from STL Laboratory are presented in Appendix B.

Table 13: Dioxin/Furans test results (pg/g, ppt) for 11 Eureka Waterfront Sites, Woodley Island Marina and Beach disposal site.

Sample I.D.	Site	2,3,7,8-TCDD TEQ	"Overall"^A 2,3,7,8-TCDD TEQ
1-A-1	Dock 'B'	0.80	2.81
2-A-1	Small Boat Basin	2.04	3.74
2-B-1		1.39	2.57
3-A-1	Commercial Street Dock	2.00	3.13
4-A-1	Coast Seafoods Dock	4.94	7.70
4-B-1		6.03	6.99
5-A-1	Fisherman's Terminal	1.66	3.44
6-A-1	'F' Street Dock	1.76	2.87
7-A-1	I street Dock	2.91	3.86
8-A-1	J Street Dock	1.62	2.46
9-A-1	Adorni Dock	0.80	1.95
10-A-1	Bonnie Gool Guest Dock	1.31	2.28
10-B-1		3.49	4.57
11-A-1	Samoa Bridge Launch Ramp	2.52	4.18
12-A-1	Woodley Island Marina	1.13	2.03
12-B-1		0.78	1.78
12-C-1		0.83	1.89
12-D-1		0.96	2.16
13-A-1	Beach Disposal Site	ND	1.30
13-B-1		ND	1.54

^A "Overall" TEQ is calculated by including one-half of the reporting limits when an isomer is non-detect and multiplying half the reporting limit by the TEF.

PCB Results

In February 2005, the 12 sediment locations described in this report were sampled and analyzed for PCB Aroclors. The results of that sampling event showed that PCBs were not detected at 9 of the 12 sediment sampling locations. In November 2005, those locations that had detectable PCBs in the February 2005 samples were resampled and analyzed for PCBs. The sample locations are listed in Table 14, with the results from both February and November 2005. The Beach Disposal Site was sampled again for PCBs to confirm that they are not detected in this location.

The November 2005 PCB testing results indicate that Aroclor 1254 was detected at the Coast Seafoods dock at 89 ppb. PCBs were not detected in sediment samples from the Fisherman's Terminal and the 'F' street dock that were sampled in November 2005. The minimum reporting limit for PCBs is 33 ppb.

Table 14: PCB concentrations (µg/kg, ppb) at three sites with detectable PCBs in the February 2005 testing episode.

PCBs (ppb)	Coast Seafoods Dock		Fisherman's Terminal		F Street Floating Dock		Beach Disposal Site	
	Feb, 2005	Nov, 2005	Feb, 2005	Nov, 2005	Feb, 2005	Nov, 2005	Feb, 2005	Nov, 2005
Aroclor 1016	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1221	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1232	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	140	89	16.6	ND	ND	ND	ND	ND
Aroclor 1260	55.2	ND	17	ND	46.8	ND	ND	ND
Total PCBs	195.2	89	33.6	ND	46.8	ND	ND	ND

PCP Results

Table 15 summarizes the PCP analytical results. PCP was not detected in 14 composite samples from 12 Eureka waterfront dredging sites and the Woodley Island Marina. In sediment samples from the remaining City of Eureka waterfront sites PCP concentrations were detected below the reporting limits (and therefore have a “J” flag, which indicates the concentration is estimated). These concentrations range between 8.3J at I Street Dock and 2.8J at Woodley Island Marina. PCP was detected at concentrations below the reporting limits, 1.8J and 1.9J ppb at the beach disposal site. It should be noted that some of the samples that were “non-detects” for PCP had elevated detection limits because of a matrix interference to the analytical method. Given that the TCDD TEQ results among the sample locations are within a factor of around 4 (range of overall TCDD TEQs from dock sediment locations of 1.78 to 7.7 ppt), one would expect that PCP concentrations (presuming that the dioxins were historically associated with PCP) would not vary by orders of magnitude. Therefore, it is reasonable to assume that the elevated detection limits do not mask concentrations of PCP that are significantly higher than the detected values. This is addressed further in the Discussion section.

Table 15: PCP concentrations (µg/kg, ppb) detected at the City of Eureka waterfront sites, Woodley Island Marina and the beach disposal site.

Sample I.D.	Site	PCP (ppb)	Reporting Limit (ppb)
1-A-1	Dock 'B'	ND	160
2-A-1	Small Boat Basin	ND	170
2-B-1		3.7 J ^A	17
3-A-1	Commercial Street Dock	ND	16
4-A-1	Coast Seafoods Dock	ND	850
4-B-1		ND	300
5-A-1	Fisherman's Terminal	ND	320
6-A-1	F' Street Dock	ND	16
7-A-1	I street Dock	8.3 J	16
8-A-1	J Street Dock	ND	16
9-A-1	Adorni Dock	ND	18
10-A-1	Bonnie Gool Guest Dock	ND	17
10-B-1		ND	17
11-A-1	Samoa Bridge Launch Ramp	ND	21
12-A-1	Woodley Island Marina	3.3 J	17
12-B-1		2.8 J	17
12-C-1		ND	18
12-D-1		ND	20
13-A-1	Beach Disposal Site	1.9 J	11
13-B-1		1.8 J	12

^A J Flag – Estimated result, result is lower than the reporting limit

Grain Size Distribution

The beach disposal samples were analyzed for grain size distribution. The complete results are shown in Appendix C. Between 99.38 and 100 percent of subtidal beach sediment samples and the intertidal, respectively, have grain sizes less than 4.75 mm in diameter.

CHEMICAL CONCENTRATION LIMITS FOR DISPOSAL OF DREDGED SPOILS

2,3,7,8-TCDD

The residential Soil Preliminary Remediation Goal (PRG) from USEPA Region 9 for 2,3,7,8-TCDD TEQ of 3.9 pg/g (3.9 ppt). This value could be considered as a very conservative human health screening value when considering the risk of potential human contact with dredge spoils (short duration exposure before dispersal by tide). All samples except Coast Seafoods Dock were detected with 2,3,7,8-TCDD TEQ concentrations of less than 3.9 ppt.

PCBs

According to the 1998 Dredging Material Management Program conducted by the ARCOE the Total PCBs screening levels for open ocean disposal of dredged material is 130 ppb. The upper limit for PCB in dredge spoils is 3,100 ppb (ARCOE, 1998). In the November 2005 sampling event, PCBs were not detected in any samples except those collected near the Coast Seafoods Dock (89 ppb total PCBs).

PCP

According to the ARCOE Dredging Material Management Program the screening levels for pentachlorophenol is 420 ppb. The upper limit for PCP in dredge spoils is 690 ppb (ARCOE, 1998). Four composited samples had detectable PCP levels ranging from 2.8J to 8.3J ppb and were below the reporting limit. Both samples from the beach disposal site were also detected with levels of PCP below 2.0 ppb.

DISCUSSION

The sampling program described herein was conducted to chemically characterize the dredge materials so that a risk evaluation could be conducted of potential exposure to these constituents of interest (PCDD/F congeners, PCBs, and PCP) in the dredge materials. The proposed ocean disposal plan for Humboldt Bay dredge maintenance involves pumping the dredge material to the Samoa peninsula (i.e., the beach disposal site) for tidal dispersal to the Pacific Ocean. The dredge materials are expected to be dispersed to the ocean within a relatively short time (approximately 2-3 tidal periods according to anecdotal observations). Therefore, there is little time for ecological receptors to colonize

or contact these materials before they will be transported to the open ocean. Likewise, the exposure duration for human receptors to potentially contact dredge materials is very short. To evaluate the potential risk associated with contacting the dredge material, a preliminary screening risk evaluation was conducted. The analytical sediment core data first are compared with dredging-specific screening criteria. To evaluate the potential human health risk for direct contact of constituents of interest in dredge material, there are no standard risk-based screening criteria for sediment. However, risk-based residential soil criteria are based on long-term (30 years), frequent (350 days/year) exposure, and are therefore conservative screening criteria for the very short duration that dredge materials are available to be contacted in tidal dispersal area.

The dredge materials from the various dredge areas will be mixed in the tidal dispersal area, and maximum concentrations of constituents of interest from individual dredge areas will be combined with materials with lower concentrations, yielding lower average concentrations. Therefore, it is reasonable to calculate average concentrations of constituents of interest from all the proposed dredge material to estimate concentrations in combined dredge materials. USEPA and CalEPA agencies recommend the use of USEPA's ProUCL program for calculating summary statistics for risk assessment. This program tests the distribution of a dataset, and recommends a 95% UCLs based on use of appropriate statistical methods for the specific distribution. The latest version (ProUCL Version 3.0; USEPA, 2004a) was used to calculate mean and 95% upper confidence limit (UCL) of the mean concentrations of the sediment core data.

Preliminary Screening Risk Evaluation of Dredge Materials Disposal

This section provides a screening risk evaluation of the dredge material that would be generated from the proposed maintenance dredging.

PCDD/Fs

PCDD/Fs were detected in all of the samples except for the beach disposal site. As presented previously, TCDD TEQs were calculated for each composited sample (20 in all) using the WHO TEFs (1998). Table 16 shows a summary of the TCDD TEQ data from all locations including all non-detected congeners at ½ their respective detection limits. The range of detections of TEQs is ND (the beach disposal site) to 7.7 ppt. The mean concentration is 3.16 ppt, and the 95% UCL of the mean is 3.84 ppt. Appendix E provides the ProUCL output sheets for the summary statistics and datasets.

It should be noted that state of the art dioxin analysis can measure very low concentrations (ppt, and even parts per quadrillion (ppq)). At such low detection limits, dioxins are detected ubiquitously in environmental media. The levels of TCDD TEQs measured in the samples from proposed dredge areas are within

typical background dioxin levels from across the United States and Europe. USEPA's draft dioxin reassessment (USEPA, 2003) indicates that 5.3 ppt is a typical background level of TCDD TEQs in sediments of the United States.

A number of dredge material-specific screening values have been developed for PCCD/Fs based on TCDD TEQs. These include values of 4 ppt from the Washington Department of Ecology (per Wenning et al., 2004), and less than 4.5 ppt from the New York State Department of Conservation (NYSDEC, 2004). The 4.5 ppt value from NYSDEC is defined as a level representing "No appreciable contamination (no toxicity to aquatic life)." Another dredge material-specific set of values is from the Seattle ARCOE's Puget Sound Dredged Disposal Analysis, User Guide (2000). If dredge materials have <15 ppt TCDD TEQ and <5 ppt 2,3,7,8-TCDD, then no bioaccumulation testing is needed prior to disposal. Table 17 shows the mean and 95% UCL concentrations of TCDD TEQs compared with these dredge material-specific screening values. The maximum detected concentration of 2,3,7,8-TCDD is 0.68 ppt, which is nearly an order of magnitude lower than the ARCOE value. Since the sediment core data have lower TCDD TEQs and 2,3,7,8-TCDD concentrations than the screening criteria, dredge materials from these areas are not anticipated to be of adverse risk for ocean disposal.

To evaluate the potential risk of human receptors during the short time that dredge materials are available in the tidal dispersal area, the 95% UCL of TCDD TEQs was compared with the USEPA Region 9 Preliminary Remediation Goal (PRG) for residential soil (USEPA, 2004b). The residential soil PRG is based on assumed 30 year exposure duration for nearly every day of the year (350 days/year). This degree of exposure is much higher than is possible for the short time that dredge materials are present in the beach disposal area prior to tidal dispersion. Table 17 shows the residential soil PRG as 3.9 ppt (it is listed as the equivalent 3.9E-06 mg/kg in the PRG table). The 95% UCL is just lower than the long-term risk-based screening PRG. Therefore, risks associated with actual potential exposure to the dredge materials are likely to be associated with acceptable risk.

PCBs

PCBs were only detected sporadically in bay sediment cores from proposed dredge areas. These were detected in only 3 of the 12 sampling locations in February 2005, and in only one of these areas in the November 2005 sampling round. The only detected concentration of total PCBs in November 2005 was 89 ug/kg (ppb). Summary statistics were not conducted for these limited PCB data.

According to the 1998 Dredging Material Management Program conducted by the ARCOE, the Total PCBs screening levels for open ocean disposal of dredged material is 130 ppb. The upper limit for PCB in dredge spoils is 3,100 ppb (ARCOE, 1998, 2005). The detected concentration of 89 ppb is lower than

these ARCOE dredge-specific values. Since dredge material from the areas with detected PCBs in February and November will be only a proportion of the total dredge materials, resulting PCB concentrations in combined dredge material in the tidal dispersal area are anticipated to be much lower. Given the diluting of PCB concentrations in final dredge materials and very short duration of time for potential contact, it is likely that risks associated with human health or ecological receptors contacting dredge materials will be acceptable.

PCP

PCP was detected in sediment samples from a few locations, including the beach disposal area. There are some samples with elevated detection limits (160 – 850 ppb compared with normal detection limit range of 11-21 ppb), and these appear to be a result of matrix interference. There is nothing to suggest that the elevated detection limits are masking the presence of higher concentrations of PCP. Since the dioxins in Humboldt Bay sediments are likely to have been historically associated with PCP, it is reasonable to consider the range of TCDD TEQs across the samples as an indicator of the likely relative range of PCP concentrations. The range of TCDD TEQs in the 20 composite samples is 1.3 ppt (which is from the samples with no PCDD/F congener detected) to 7.7 ppt. If the lowest TCDD TEQ from a sample with any detected congeners is considered, the range is 1.7 to 7.7 ppt. Thus, all the TCDD TEQ results are within a factor of approximately 4-6 times. If the elevated detection limits are included as suggesting detected values of $\frac{1}{2}$ the DL, the range of PCP results are 1.8J to 425 ppb. This is a factor of over 200 times. Therefore, including the elevated PCP detection limits in calculating the 95% UCL likely significantly overestimates the actual PCP levels.

To address this uncertainty, the summary statistics of PCP analytical results from proposed dredge areas were calculated two ways. In the first analysis, the standard approach of including $\frac{1}{2}$ the detection limit for non-detected results was used. This is shown on Table 16 with the range of data up to 425 ppb (representing half of a elevated detection limit), and mean and 95% UCL of 50.1 and 274 ppb, respectively. The second way that the 95% UCL was calculated was by using $\frac{1}{2}$ of the highest normal range of detection limits as a surrogate value for each of the highly elevated detection limits. This is consistent with the approach presented in USEPA Risk Assessment Guidance for Superfund (RAGS) Part A (USEPA, 1989). Thus, the elevated detection limits of 160 – 850 ppb were replaced with $\frac{1}{2}$ of 21 ppb, which is the highest of the normal detection limits. The resulting mean and 95% UCL are 7.69 and 10.7 ppb, respectively. Appendix E provides the ProUCL output sheets for the summary statistics and datasets.

According to the ARCOE Dredging Material Management Program the screening level for pentachlorophenol is 420 ppb. The upper limit for PCP in dredge spoils is 690 ppb (ARCOE, 1998, 2005). Table 17 shows the means and 95% UCLs for PCP, whether elevated detection limits are included or not, are lower than the ARCOE dredge material-specific values. Therefore, ocean disposal of dredge materials is likely to be associated with acceptable ecological risk.

The potential risk for human receptors directly contacting the dredge material while it is in the beach disposal area is evaluated by comparison of 95% UCLs to the USEPA Region 9 PRG for residential soil. Table 17 shows this comparison. The residential soil PRG is 3 mg/kg (i.e., 3,000 ug/kg or ppb). The 95% UCLs of 10.7 and 274 ppb are lower than the long-term exposure PRG. Therefore, it is likely that human health risks for direct contact with dredge materials will be acceptable.

Table 16: Statistical Summary and Recommended 95%UCLs

Medium	Constituent of Interest	Dataset Description	Number of Samples	Units	Min.	Max.	Mean	ProUCL ¹ results		
								ProUCL distribution	ProUCL Recommended statistical method	ProUCL Recommended 95% UCL
Sediment	TCDD TEQs ^{2,3}	All Locations	20	ppt	1.3	7.7	3.16	gamma	approximate gamma	3.84
Sediment	PCP	All Locations	20	ppb	1.8J	425 ⁴	50.1	nonparametric	99% Chebychev UCL	274
Sediment	PCP	All locations	20	ppb	1.8J	10.5 ⁵	7.69	nonparametric	95% Chebychev UCL	10.7

Notes:

- 1 USEPA (2004). Statistical program for calculating summary statistics.
- 2 Congeners that were not detected were incorporated into the TEQ calculation as 1/2 the detection limit and multiplied by the respective TCDD TEF. This is consistent with WHO approach.
- 3 2,3,7,8-TCDD was not detected in most samples. Maximum detected concentration 0.68J ppt, which was also from location of sample with highest TCDD TEQ.
- 4 Maximum detected value is 8.3J ug/kg, but the maximum value in the statistical dataset is 425 ug/kg, which is 1/2 of an elevated detection limit.
- 5 Maximum value is 1/2 maximum detection limit without interference (still greater than maximum estimated detected value of 8.3J).

**Table 17: Preliminary Risk Screening Evaluation of PCDD/Fs and PCP.
Risk Screening Evaluation with Dredge Material-Specific Criteria**

Chemical	Units	Maximum Detected Concentration	Mean	95% UCL	Dredge Material-Specific Criteria			ARCOE ⁴ Screening Level	ARCOE ⁴ Maximum Level
					Washington Dept. of Ecology ¹	ARCOE Bioaccumulation Potential	NYSDEC ³		
2,3,7,8-TCDD (TEQ)	ppt	7.7	3.16	3.84	4	15 ²	<4.5	NA	NA
PCP	ppb	425	50.1	274.00	NA	504 ⁴	NA	400	690
PCP ⁵	ppb	10.5	7.69	10.7	NA	504 ⁴	NA	400	690

Human Health Risk Screening - Direct Contact with Proposed Dredge Materials

Chemical	Units	Maximum Detected Concentration	Mean	95% UCL	PRG ⁶ Residential Soil
2,3,7,8-TCDD (TEQ)	ppt	7.7	3.16	3.84	3.9
PCP	ppb	425	50.1	274.00	3000
PCP ⁶	ppb	10.5	7.69	10.7	3000

Notes:

1 Value presented in: Dioxin 2004, Organohalogen Compounds, Risk Management and Regulatory Aspects.

2 Puget Sound Dredged Disposal Analysis (PSDDA, 2000)- no bioaccumulation testing is necessary these dredge materials. Value for 2,3,7,8-TCDD is 5 ppt.

3 NYSDEC (2004). In-Water and Riparian Management of Sediment and Dredged Material. Value represents "No appreciable contamination (no toxicity to aquatic life)."

4 Dredge Disposal Management Program (DMMP, 2005)

5 Alternate statistics with 1/2 highest normal detection limit as surrogate value for elevated detection limits.

6 USEPA Region 9 (2004).

Conclusions

The Screening Risk Evaluation indicates that ocean disposal of the proposed dredge material is likely to be associated with acceptable risk for the low levels of PCDD/Fs, PCP, and sporadically detected PCBs measured in representative sediment core samples.

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<http://www.nws.usace.army.mil/publicmenu/Attachments/98slbtml.pdf>

US Environmental Protection Agency (EPA) Region IX. Preliminary Remediation
Goals (PRGs). October 2004.
<http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf>

US Food and Drug Administration. Dioxin Analysis Results/Exposure Estimates.
<http://www.cfsan.fda.gov/~lrd/dioxdata.html>

Wenning, Richard J., Linda Martello, Timothy Ianuzzi. 2004. "Review of
Approaches used to Establish Sediment Benchmarks for PCDD/Fs."
Organohalogen Compounds 66: 3479-3503. Proceedings – Dioxin 2004 –
24th International Symposium on Halogenated Environmental Organic
Pollutants and POPs, Berlin, September 6-10, 2004.

Appendix A

Changes Made to the Approved SAP

The following changes were made to the SAP between November 3rd and November 5th, 2005. These changes were submitted to the EPA, ARCOE, CCC and the RWQCB on November 8th, 2005.

- 1) Page 16, section B.2.2: STL uses 3550 (sonication) for method 8082, not the listed 3540.
- 2) Page 16, section B.2.2: STL's 8082 reporting limit for 8082 is 33 ppb (wet weight).
- 3) STL's 8082 analysis is only for PCB Aroclors, as quoted. They do not quantitate or analyze for the PCB congeners listed on page titled EPA Method 8082 which is after Appendix A. This list of congeners has been omitted.
- 4) Page 24, section D: the laboratory supervisor responsibilities listed for Kevin Sanchez are inaccurate. The details listed here are assigned to the STL Laboratory Director, Karla Buechler, who is responsible for the overall functioning of the entire facility/process. Kevin Sanchez is the department manager for STL's extraction labs, as noted on page 23.
- 5) Page 30, Section C.7.2: Method 8290 Matrix Spikes are not required due to the use of 13C labeled analogues of the target analytes. Standard QC for method 8290 consists of method blank and laboratory Control samples.
- 6) Page 31, section C.8.2: PCBs paragraph "dioxin/furans" were removed and replaced with "PCBs".
- 7) Page 31, Laboratory Quality Control Samples paragraph: MS and duplicate samples are matrix QC samples were replaced with laboratory QC samples.
- 8) Page 34, section C.14.2: internal audits are handled by STL's Quality Assurance Manager, not a laboratory supervisor. Pamela Schemmer is STL's QA Manager and this information was added to Page 25, Section C.3.2 STL Laboratory personnel.
- 9) STL laboratory uses 4-oz jars for PCB and Dioxin Analysis.
- 10) Page 34, Section 13.2: items 1 and 3 in that section should be the responsibility of the field crew and these items were moved to Section C.13.1 Field Procedures.

11) Table 2, page 15: an additional column was added to designate the names of the composite samples. Additional explanation was added on Page 28 in Section C.7.1.1 Documentation to explain the composite and core ID naming system. In addition, all 4-oz sample jars will be placed in the same labeled cooler with the site names when taken in the field and shipped to the laboratory.

12) Page 16: on November 11th, 2005 Section B.2.3 PCP Test was added on. This section lists the EPA Method used for PCP testing (8151A) and the reporting limit of this test (10 ppb).

12) Page 17, Section B.2.4: On November 14th, 2005 added that grab samples from the beach will be analyzed by LACO Associates in Eureka for grain size. A description of the test was added.

13) On Page 21, Section B.4.4 Storage of Samples: a holding time for PCP samples of 12 days was added.

Appendix B

EPA Method 8290

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurnas (PCDFs) by High-Resolution Gas Chromatography/High Resolution Mass Spectrometry

The following testing parameters and the WHO 1997 TEF values are listed below:

		TEF
PCDDs		
2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin	1.0
1,2,3,7,8-PeCDD	1,2,3,7,8-pentachlorodibenzo-p-dioxin	1.0
1,2,3,4,7,8-HxCDD	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.10
1,2,3,6,7,8-HxCDD	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.10
1,2,3,7,8,9-HxCDD	1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	0.10
1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	0.01
OCDD	octachlorodibenzo-p-dioxin	0.0001
PCDFs		
2,3,7,8-TCDF	2,3,7,8-tetrachlorodibenzofuran	0.1
1,2,3,7,8-PeCDF	1,2,3,7,8-tetrachlorodibenzofuran	0.05
2,3,4,7,8-PeCDF	2,3,4,7,8-pentachlorodibenzofuran	0.5
1,2,3,4,7,8-HxCDF	1,2,3,4,7,8-hexachlorodibenzofuran	0.1
1,2,3,6,7,8-HxCDF	1,2,3,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,7,8,9-HxCDF	1,2,3,7,8,9-hexachlorodibenzofuran	0.1
2,3,4,6,7,8-HxCDF	2,3,4,6,7,8-hexachlorodibenzofuran	0.1
1,2,3,4,6,7,8-hpCDF	1,2,3,4,7,8,9-heptachlorodibenzofuran	0.01
1,2,3,4,7,8,9-HpCDF	1,2,3,4,7,8,9-heptachlorodibenzofuran	0.01
OCDF	octachlorodibenzofuran	0.0001

US Food and Drug Administration. Dioxin Analysis Results/Exposure Estimates.
<http://www.cfsan.fda.gov/~lrd/dioxdata.html>

Appendix B

City of Eureka and Humboldt Bay Harbor, Recreation and Conservation District Cooperative Maintenance Dredging Project
Dioxin/Furans Concentration (pg/g, ppt)

Site	Sample I.D.	2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF	2,3,7,8-TCDD TEQ	"Overall" ^A 2,3,7,8-TCDD TEQ
Dock 'B'	1-A-1	ND ^B	ND	ND	3.0 J ^C	ND	35	180	0.95 CON ^D	ND	ND	ND	ND	ND	ND	3.5 J	ND	11.0	0.80	2.81
Small Boat Basin	2-A-1	ND	ND	ND	6.8	ND	99	660	2.0 CON	ND	ND	ND	ND	ND	ND	10.0	ND	14.0	2.04	3.74
	2-B-1	ND	ND	ND	3.1 J	ND	88	440	0.72 J, CON	ND	ND	ND	ND	ND	ND	8.6	ND	21.0	1.39	2.57
Commercial Street Dock	3-A-1	ND	ND	ND	4.4	3.8 J	88	540	1.5 CON	ND	ND	ND	ND	ND	ND	9.1	ND	24.0	2.00	3.13
Coast Seafoods Dock	4-A-1	ND G ^F	ND	ND	4.3 JA ^D	ND	370	2800	0.46 J,CON	ND	ND	2.3 J	ND	ND	ND	21	3.5 J, JA	110	4.94	7.70
	4-B-1	0.68 J	ND	ND	5.9	3.3 J	110	830	3.4 CON	1.9 J, JA	3.4 J	6.1	2.9 J	ND	ND	21.0	ND	60.0	6.03	6.99
Fisherman's Terminal	5-A-1	ND	ND	ND	5.3	2.4 J, JA	71	400	0.57 J, CON	ND	ND	ND	ND	ND	ND	7.8 JA	ND	22.0	1.66	3.44
F' Street Dock	6-A-1	0.57 J	ND	ND	3.8 J	ND	54	410	1.3 CON	ND	ND	ND	ND	ND	ND	10.0	ND	21.0	1.76	2.87
I street Dock	7-A-1	0.53 J	ND	ND	4.6	3.1 J	87	810	2.0 CON	ND	ND	2.6 J	ND	ND	ND	19.0	ND	56.0	2.91	3.86
J Street Dock	8-A-1	ND	ND	ND	3.1 J	2.3 J	62	520	0.59 J, JA, CON	ND	ND	2.4 J	ND	ND	ND	11.0	ND	16.0	1.62	2.46
Adorni Dock	9-A-1	ND	ND	ND	2.5 J	ND	42	210	0.54 J, CON	ND	ND	ND	ND	ND	ND	5.6	ND	9.6	0.80	1.95
Bonnie Gool Guest Dock	10-A-1	ND	ND	ND	2.7 J	ND	83	640	0.56 J, JA, CON	ND	ND	ND	ND	ND	ND	8.9	ND	42.0	1.31	2.28
	10-B-1	0.49 J, JA	ND	ND	6.1	3.5 J	140	690	1.0 CON	ND	ND	3.0 J	ND	ND	ND	17.0	ND	34.0	3.49	4.57
Samoa Bridge Launch Ramp	11-A-1	ND	ND	ND	4.5 J	3.4 J	140	1400	0.70 J, JA, CON	ND	ND	ND	ND	ND	ND	12.0	ND	39.0	2.52	4.18
Woodley Island Marina	12-A-1	ND	ND	ND	3.0 J	2.3 J	45	230	0.71 J, CON	ND	ND	ND	ND	ND	ND	5.4 JA	ND	11.0	1.13	2.03
	12-B-1	ND	ND	ND	2.9 J	ND	30	180	1.3 CON	ND	ND	ND	ND	ND	ND	4.3 J	ND	7.2 J	0.78	1.78
	12-C-1	ND	ND	ND	2.7 J	ND	38	190	1.1 CON	ND	ND	ND	ND	ND	ND	5.5	ND	8.4 J	0.83	1.89
	12-D-1	ND	ND	ND	3.0 J	ND	52	220	0.68 J, CON	ND	ND	ND	ND	ND	ND	5.0	ND	8.0 J	0.96	2.16
Beach Disposal Site	13-A-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.30
	13-B-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.54

^A"Overall" TEQ - based on including one-half (1/2) of the detection limit for all non-detected isomers, before applying the W.H.O TEFs.

^BND – Non detect

^CJ – Estimated result, result is less than the reporting limit

^DCON – Confirmation Analysis

^EJA – The analyte was positively identified, but the quantitation is an estimate

^FG - Elevated reporting limit. The reporting limit is elevated due to matrix interference.

STL Sacramento
880 Riverside Parkway
West Sacramento, CA 95605

Tel: 916 373 5600 Fax: 916 372 1059
www.stl-inc.com

November 30, 2005

STL SACRAMENTO PROJECT NUMBER: G5K100136
PO/CONTRACT:

Yoash Tilles
Pacific Affiliates, Inc.
990 W Waterfront Drive
Eureka, CA 95501

Dear Mr. Tilles,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on November 9, 2005. These samples are associated with your City of Eureka and Harbor District Sediment Sampling project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4433.

Sincerely,



Robert Hrabak
Project Manager

TABLE OF CONTENTS

STL SACRAMENTO PROJECT NUMBER G5K100136

Case Narrative

STL Sacramento Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

SOLID, 8082, PCBs

Sample: 1

Sample Data Sheet

Method Blank Report

Laboratory QC Reports

SOLID, 8290, Dioxins/Furans

Samples: 1 through 8

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

SOLID, 8151A, PCP only

Performed at STL North Canton

Samples: 1 through 8

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G5K100136

General Comments

An aliquot of each sample was sent to STL North Canton on November 11, 2005 for PCP determination via Method 8151A, per the direction of Yoash Tilles at Pacific Affiliates, Inc.

Preliminary results were provided via electronic mail on November 22, 2005.

SOLID, 8290, Dioxins/Furans

Samples: 1 through 8

The matrix spike/matrix spike duplicate (MS/MSD) associated with this extraction batch has recoveries outside of the established control limits for 1,2,3,7,8,9-HxCDF. Acceptable laboratory control sample (LCS) data demonstrate that the analytical system is in control. This anomaly is most likely matrix related.

Samples: 2, 4, 5, and 6

The isomers 2,3,7,8-TCDD or 2,3,7,8-TCDF have been designated with the "JA" qualifier due to the ion abundance ratios being outside of criteria. The isomers have been qualified as "positively identified, but at an estimated quantity" because the quantitation is based on the theoretical ratios for these samples as per Section 7.9.5.2.1 of Method 8290.

There were no other anomalies associated with this project.

STL Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	Oregon*	CA 200005
Arizona	AZ0616	Pennsylvania	68-1272
Arkansas	04-067-0	South Carolina	87014002
California*	01119CA	Texas	TX 270-2004A
Colorado	NA	Utah*	QUAN1
Connecticut	PH-0691	Virginia	00178
Florida*	E87570	Washington	C087
Georgia	960	West Virginia	9930C, 334
Hawaii	NA	Wisconsin	998204680
Louisiana*	01944	NFESC	NA
Michigan	9947	USACE	NA
Nevada	CA44	USDA Foreign Plant	37-82605
New Jersey*	CA005	USDA Foreign Soil	S-46613
New York*	11666		

*NELAP accredited. A more detailed parameter list is available upon request. Update 1/27/05

QC Parameter Definitions

QC Batch: The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

Method Blank: An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD):

An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also be used to evaluate the precision of the process.

Duplicate Sample (DU): Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

Surrogates: Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

Matrix Spike and Matrix Spike Duplicate (MS/MSD): An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

Isotope Dilution: For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

Control Limits: The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

Sample Summary

G5K100136

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
HPTJ0	1	6-A-1	11/8/2005 10:30 AM	11/9/2005 09:15 AM
HPTJ7	2	8-A-1	11/4/2005 08:20 PM	11/9/2005 09:15 AM
HPTKA	3	9-A-1	11/4/2005 07:00 PM	11/9/2005 09:15 AM
HPTKD	4	10-A-1	11/6/2005 05:06 PM	11/9/2005 09:15 AM
HPTKF	5	10-B-1	11/6/2005 07:54 PM	11/9/2005 09:15 AM
HPTKH	6	11-A-1	11/6/2005 05:38 PM	11/9/2005 09:15 AM
HPTKL	7	12-D-1	11/7/2005 10:10 PM	11/9/2005 09:15 AM
HPTKN	8	12-C-1	11/7/2005 09:40 PM	11/9/2005 09:15 AM

Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

MFG, INC.

☐ CA - Arcata
375 Crescent Way
Arcata, CA 95521-6741
Phone: (707) 826-8430
Fax: (707) 826-8437

☐ CA - Fresno
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☐ WA - Seattle
19203 36th Avenue W
Suite 101
Lynnwood, WA 98036-5772
Phone: (425) 921-4000
Fax: (425) 921-4040

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 47027

PROJECT NO: P.A. #9301940D (240063) PROJECT NAME: City of Eureka and Harbor District Sediment Sampling PAGE: 1 OF: 2
 SAMPLER (Signature): John Mills PROJECT MANAGER: Yasch Tilles DATE: 11/8/05
 METHOD OF SHIPMENT: Fed Ex overnight CARRIERWAYBILL NO: 790706103474 DESTINATION: STL Sacramento

SAMPLES				ANALYSIS REQUEST			
Field Sample Identification	DATE	TIME	Matrix*	Preservation			Remarks
				HCl	HNO ₃	H ₂ SO ₄	
6-A-1	11/8/05	1030	OT				please send results to Pacific Affiliates RECEIVED IN COOL BOX X UNDER 300 8020 / 3550 X NOV 0 6 2005 IN X X (use box) please record Cooler Temp: 4°C
8-A-1	11/8/05	2020	OT				
9-A-1	11/9/05	1900	OT				
10-A-1	11/6/05	1706	OT				
10-B-1	11/6/05	1957	OT				
11-A-1	11/6/05	1738	OT				
12-D-1	11/7/05	2210	OT				
TOTAL NUMBER OF CONTAINERS <u>7</u>				LABORATORY COMMENTS/CONDITION OF SAMPLES			

RELINQUISHED BY:				RECEIVED BY:			
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<u>John Mills</u>	<u>John Mills</u>	<u>MTG</u>	<u>11/8/05</u>	<u>1330</u>	<u>Cheng Yue</u>	<u>Cheng Yue</u>	<u>STL</u>
							<u>11/9/05 1055</u>
							LABORATORY

*KEY Matrix: A - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - teflon B - brass OT - other Filtration: F - filtered U - unfiltered
 DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 47022

☐ WA - Seattle
19203 36th Ave
Suite 101
Lynnwood WA
Phone: (425) 925-1111
Fax: (425) 925-1112

DESTINATION: STL- Sacramento

RELINQUISHED BY:				RECEIVED BY:			
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
<i>[Signature]</i>	Jude Mills	MTG	11/8/05	1330	<i>[Signature]</i>	Chenghui	STC
							11/9/05 1055
							LABORATORY

*KEY	Matrix: A - aqueous	NA - nonaqueous	SO - soil	SL - sludge	P - petroleum	A - air	OT - other	Containers: P - plastic	G - glass	T - teflon	B - brass	OT - other	Filtration: F - filtered	U - unfiltered
					DISTRIBUTION: PINK: Field Copy			YELLOW: Laboratory Copy	WHITE: Return to Originator					

KEY Matrix: A – aqueous NA – nonaqueous SO – soil SL – sludge P – petroleum A – air OT – other
Containers: P – plastic G – glass T – teflon B – brass OT – other
YELLOW: Laboratory Copy PINK: Field Copy
DISTRIBUTION: WHITE: Return to Originator
Filtration: F – filtered U – unfiltered

OT-sediment

SEVERN
TRENT

STL

LOT RECEIPT CHECKLIST
STL Sacramento

CLIENT MFG, INC. PM RH LOG # 35615

LOT# (QUANTIMS ID) GSK090CW11005 QUOTE# 67565 LOCATION W18C
GSK100136

DATE RECEIVED 11/9/05 TIME RECEIVED 0915

Initials OV Date 11/9/05

DELIVERED BY ☒ FEDEX ☐ CA OVERNIGHT ☐ CLIENT
☐ AIRBORNE ☐ GOLDENSTATE ☐ DHL
☐ UPS ☐ BAX GLOBAL ☐ GO-GETTERS
☐ STL COURIER ☐ COURIERS ON DEMAND
☐ OTHER

CUSTODY SEAL STATUS ☒ INTACT ☐ BROKEN ☐ N/A

CUSTODY SEAL #(S) Seal

SHIPPING CONTAINER(S) ☐ STL ☒ CLIENT ☐ N/A

TEMPERATURE RECORD (IN °C) IR 1 ☒ 3 ☐ OTHER ☐

COC #(S) 47027, 47022

TEMPERATURE BLANK Observed: 3 Corrected: 3

SAMPLE TEMPERATURE

Observed: 3 5 5 Average: 4 Corrected Average: 4

COLLECTOR'S NAME: ☒ Verified from COC ☒ Not on COC OV 11/9/05

pH MEASURED ☐ YES ☐ ANOMALY ☒ N/A

LABELED BY.....

LABELS CHECKED BY.....

PEER REVIEW ☒ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING

WETCHEM ☒ N/A

VOA-ENCORES ☒ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☒ N/A

☒ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☐ N/A

☐ Clouseau ☐ TEMPERATURE EXCEEDED (2 °C – 6 °C)* ☒ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☐ NO COOLING AGENTS USED ☐ PM NOTIFIED

Notes: _____

Severn Trent Laboratories, Inc
SAMPLE ANALYSIS REQUISITION

LABORATORY: STL N Canton
4101 Shuffel Drive NW
North Canton

NEED ANALYTICAL REPORT BY
11/21/05

OH 44720

ATTN:

LAB PURCHASE ORDER: SR074858

CLIENT CODE: 1371717 PROJECT MANAGER: Robert Hrabak

NUMBER OF SAMPLES IN LOT: 0008

<u>SAMPLE I.D.</u>	<u>SAMPLING DATE</u>	<u>ANALYSIS REQUIRED</u>
G5K100136-001 HPTJ0-1-AE	11/08/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-002 HPTJ7-1-AD	11/04/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-003 HPTKA-1-AD	11/04/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-004 HPTKD-1-AD	11/06/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-005 HPTKF-1-AD	11/06/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-006 HPTKH-1-AD	11/06/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-007 HPTKL-1-AD	11/07/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K100136-008 HPTKN-1-AD	11/07/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A

NEED DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT

SHIPPING METHOD: FEDEX

DATE: 11/11/05

SEND REPORT TO: ROBERT HRABAK

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS

THANK YOU.

STL Sacramento

INT: _____ 11/11/05 14:13:00

STL N Canton
4101 Shuffel Drive NW
North Canton

OH 44720,

RELINQUISHED BY: 

DATE/TIME: 11/11/05 16:00

RELINQUISHED BY: _____

DATE/TIME: _____

RECEIVED FOR LAB BY: _____

DATE/TIME: _____

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

SOLID, 8082, PCBs

Pacific Affiliates, Inc.

Client Sample ID: 6-A-1

GC Semivolatiles

Lot-Sample #....: G5K100136-001 Work Order #....: HPTJ01AD Matrix.....: SOLID
Date Sampled....: 11/08/05 Date Received...: 11/09/05
Prep Date.....: 11/21/05 Analysis Date...: 11/21/05
Prep Batch #....: 5325493
Dilution Factor: 1 Initial Wgt/Vol: 30.05 g Final Wgt/Vol...: 10 mL
% Moisture.....: 39 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Aroclor 1016	ND	54	ug/kg
Aroclor 1221	ND	54	ug/kg
Aroclor 1232	ND	54	ug/kg
Aroclor 1242	ND	54	ug/kg
Aroclor 1248	ND	54	ug/kg
Aroclor 1254	ND	54	ug/kg
Aroclor 1260	ND	54	ug/kg

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	108	(33 - 146)
Tetrachloro-m-xylene	88	(55 - 124)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

QC DATA ASSOCIATION SUMMARY

G5K100136

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8082		5325493	5325343
	SOLID	SW846 8151A		5319018	5319011
002	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
003	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
004	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
005	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
006	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
007	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011
008	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G5K100136
MB Lot-Sample #: G5K210000-493

Work Order #...: HQN321AA

Matrix.....: SOLID

Analysis Date...: 11/21/05
Dilution Factor: 1

Prep Date.....: 11/21/05

Final Wgt/Vol...: 10 mL

Prep Batch #...: 5325493

Initial Wgt/Vol: 30 g

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	102	(33 - 146)
Tetrachloro-m-xylene	82	(55 - 124)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K100136 Work Order #...: HQN321AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-493
 Prep Date.....: 11/21/05 Analysis Date...: 11/21/05
 Prep Batch #...: 5325493
 Dilution Factor: 1 Final Wgt/Vol...: 10 mL
 Initial Wgt/Vol: 30 g

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
Aroclor 1016	86	(67 - 123)	SW846 8082
Aroclor 1260	94	(68 - 130)	SW846 8082

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Decachlorobiphenyl	103	(33 - 146)
Tetrachloro-m-xylene	90	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G5K100136 Work Order #....: HQN321AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-493
 Prep Date.....: 11/21/05 Analysis Date...: 11/21/05
 Prep Batch #....: 5325493
 Dilution Factor: 1 Final Wgt/Vol...: 10 mL
 Initial Wgt/Vol: 30 g

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Aroclor 1016	66.7	57.2	ug/kg	86	SW846 8082
Aroclor 1260	66.7	62.4	ug/kg	94	SW846 8082

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Decachlorobiphenyl	103	(33 - 146)
Tetrachloro-m-xylene	90	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K100136 Work Order #...: HPTJ01AH-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K100136-001 HPTJ01AJ-MSD
 Date Sampled...: 11/08/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/21/05
 Prep Batch #...: 5325493
 Dilution Factor: 1 Initial Wgt/Vol: 30.56 g Final Wgt/Vol...: 10 mL
 % Moisture.....: 39

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	81	(67 - 123)			SW846 8082
	84	(67 - 123)	4.4	(0-26)	SW846 8082
Aroclor 1260	96	(68 - 130)			SW846 8082
	97	(68 - 130)	2.4	(0-27)	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	101	(33 - 146)
	99	(33 - 146)
Tetrachloro-m-xylene	80	(55 - 124)
	80	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G5K100136 Work Order #...: HPTJ01AH-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K100136-001 HPTJ01AJ-MSD
 Date Sampled...: 11/08/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/21/05
 Prep Batch #...: 5325493
 Dilution Factor: 1 Initial Wgt/Vol: 30.56 g Final Wgt/Vol...: 10 mL
 % Moisture.....: 39

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD
Aroclor 1016	ND	107	86.9	ug/kg	81		SW846 8082
	ND	109	90.8	ug/kg	84	4.4	SW846 8082
Aroclor 1260	ND	107	103	ug/kg	96		SW846 8082
	ND	109	105	ug/kg	97	2.4	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	101	(33 - 146)
	99	(33 - 146)
Tetrachloro-m-xylene	80	(55 - 124)
	80	(55 - 124)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

SOLID, 8290, Dioxins/Furans

Pacific Affiliates, Inc.

Client Sample ID: 6-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-001 Work Order #....: HPTJ02AC Matrix.....: SOLID
 Date Sampled....: 11/08/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 7.6 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 39

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	0.57 J		pg/g	SW846 8290
Total TCDD	1.8		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.2	pg/g	SW846 8290
Total PeCDD	ND	1.7	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.92	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.8 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.9	pg/g	SW846 8290
Total HxCDD	36		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	54		pg/g	SW846 8290
Total HpCDD	160		pg/g	SW846 8290
OCDD	410		pg/g	SW846 8290
2,3,7,8-TCDF	1.3 CON		pg/g	SW846 8290
Total TCDF	4.6		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.56	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.64	pg/g	SW846 8290
Total PeCDF	2.6		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.3	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.66	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.82	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.0	pg/g	SW846 8290
Total HxCDF	14		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	10		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.95	pg/g	SW846 8290
Total HpCDF	35		pg/g	SW846 8290
OCDF	21		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	92	(40 - 135)
13C-1,2,3,7,8-PeCDD	89	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	79	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	110	(40 - 135)
13C-OCDD	119	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	91	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	61	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	102	(40 - 135)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 8-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-002 Work Order #....: HPTJ72AC Matrix.....: SOLID
 Date Sampled....: 11/04/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 36

PARAMETER	RESULT	DETECTION		
		LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.31	pg/g	SW846 8290
Total TCDD	4.3		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.76	pg/g	SW846 8290
Total PeCDD	6.7		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.80	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.1 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	2.3 J		pg/g	SW846 8290
Total HxCDD	41		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	62		pg/g	SW846 8290
Total HpCDD	170		pg/g	SW846 8290
OCDD	520		pg/g	SW846 8290
2,3,7,8-TCDF	0.59 J, JA, CON		pg/g	SW846 8290
Total TCDF	6.0		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.50	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.53	pg/g	SW846 8290
Total PeCDF	2.8		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	2.4 J		pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.89	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.83	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.58	pg/g	SW846 8290
Total HxCDF	24		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	11		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.59	pg/g	SW846 8290
Total HpCDF	36		pg/g	SW846 8290
OCDF	16		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT	
	RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	93	(40 - 135)
13C-1,2,3,7,8-PeCDD	91	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	80	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
13C-OCDD	111	(40 - 135)
13C-2,3,7,8-TCDF	98	(40 - 135)
13C-1,2,3,7,8-PeCDF	91	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	63	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	102	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 8-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-002 Work Order #....: HPTJ72AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

JA The analyte was positively identified, but the quantitation is an estimate.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 9-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-003 Work Order #....: HPTKA2AC Matrix.....: SOLID
 Date Sampled....: 11/04/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 46

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.44	pg/g	SW846 8290
Total TCDD	3.9		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.0	pg/g	SW846 8290
Total PeCDD	ND	1.6	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.81	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	2.5 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	2.2	pg/g	SW846 8290
Total HxCDD	38		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	42		pg/g	SW846 8290
Total HpCDD	140		pg/g	SW846 8290
OCDD	210		pg/g	SW846 8290
2,3,7,8-TCDF	0.54 J, CON		pg/g	SW846 8290
Total TCDF	1.9		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.50	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.50	pg/g	SW846 8290
Total PeCDF	ND	1.6	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.48	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.52	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.63	pg/g	SW846 8290
Total HxCDF	8.9		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	5.6		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.52	pg/g	SW846 8290
Total HpCDF	17		pg/g	SW846 8290
OCDF	9.6		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	90	(40 - 135)
13C-1,2,3,7,8-PeCDD	93	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	116	(40 - 135)
13C-OCDD	115	(40 - 135)
13C-2,3,7,8-TCDF	98	(40 - 135)
13C-1,2,3,7,8-PeCDF	93	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	65	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	106	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 10-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-004 Work Order #....: HPTKD2AC Matrix.....: SOLID
 Date Sampled....: 11/06/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	RESULT	DETECTION		
		LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.34	pg/g	SW846 8290
Total TCDD	1.6		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.77	pg/g	SW846 8290
Total PeCDD	ND	1.3	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.71	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	2.7 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	2.1	pg/g	SW846 8290
Total HxCDD	30		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	83		pg/g	SW846 8290
Total HpCDD	200		pg/g	SW846 8290
OCDD	640		pg/g	SW846 8290
2,3,7,8-TCDF	0.56 J, JA, CON		pg/g	SW846 8290
Total TCDF	2.5		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.41	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.48	pg/g	SW846 8290
Total PeCDF	ND	1.5	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.43	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.53	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.65	pg/g	SW846 8290
Total HxCDF	12		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	8.9		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.58	pg/g	SW846 8290
Total HpCDF	44		pg/g	SW846 8290
OCDF	42		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT	RECOVERY
	RECOVERY	LIMITS
13C-2,3,7,8-TCDD	92	(40 - 135)
13C-1,2,3,7,8-PeCDD	95	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
13C-OCDD	115	(40 - 135)
13C-2,3,7,8-TCDF	100	(40 - 135)
13C-1,2,3,7,8-PeCDF	95	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	105	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 10-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-004 Work Order #....: HPTKD2AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

JA The analyte was positively identified, but the quantitation is an estimate.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 10-B-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-005 Work Order #....: HPTKF2AC Matrix.....: SOLID
 Date Sampled....: 11/06/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	0.49 J, JA		pg/g	SW846 8290
Total TCDD	13		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.0	pg/g	SW846 8290
Total PeCDD	19		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	6.1		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	3.5 J		pg/g	SW846 8290
Total HxCDD	260		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	140		pg/g	SW846 8290
Total HpCDD	620		pg/g	SW846 8290
OCDD	690		pg/g	SW846 8290
2,3,7,8-TCDF	1.0 CON		pg/g	SW846 8290
Total TCDF	14		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.74	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.3	pg/g	SW846 8290
Total PeCDF	5.3		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	3.0 J		pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.3	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.71	pg/g	SW846 8290
Total HxCDF	37		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	17		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	1.4	pg/g	SW846 8290
Total HpCDF	66		pg/g	SW846 8290
OCDF	34		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	90	(40 - 135)
13C-1,2,3,7,8-PeCDD	86	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	110	(40 - 135)
13C-OCDD	107	(40 - 135)
13C-2,3,7,8-TCDF	98	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	63	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	99	(40 - 135)

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Pacific Affiliates, Inc.

Client Sample ID: 10-B-1

Trace Level Organic Compounds

Lot-Sample #...: G5K100136-005 Work Order #...: HPTKF2AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

JA The analyte was positively identified, but the quantitation is an estimate.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 11-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-006 Work Order #....: HPTKH2AC Matrix.....: SOLID
 Date Sampled....: 11/06/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 52

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.52	pg/g	SW846 8290
Total TCDD	5.6		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.8	pg/g	SW846 8290
Total PeCDD	2.7		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	4.5 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	3.4 J		pg/g	SW846 8290
Total HxCDD	59		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	140		pg/g	SW846 8290
Total HpCDD	460		pg/g	SW846 8290
OCDD	1400		pg/g	SW846 8290
2,3,7,8-TCDF	0.70 J, JA, CON		pg/g	SW846 8290
Total TCDF	5.6		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.60	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.62	pg/g	SW846 8290
Total PeCDF	3.1		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	2.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.4	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.83	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.70	pg/g	SW846 8290
Total HxCDF	24		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	12		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.99	pg/g	SW846 8290
Total HpCDF	48		pg/g	SW846 8290
OCDF	39		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	91	(40 - 135)
13C-1,2,3,7,8-PeCDD	92	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	79	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	112	(40 - 135)
13C-OCDD	110	(40 - 135)
13C-2,3,7,8-TCDF	94	(40 - 135)
13C-1,2,3,7,8-PeCDF	92	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	61	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	104	(40 - 135)

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Pacific Affiliates, Inc.

Client Sample ID: 11-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K100136-006 Work Order #...: HPTKH2AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

JA The analyte was positively identified, but the quantitation is an estimate.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 12-D-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-007 Work Order #....: HPTKL2AC Matrix.....: SOLID
 Date Sampled....: 11/07/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 50

PARAMETER	RESULT	DETECTION		
		LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.50	pg/g	SW846 8290
Total TCDD	3.1		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.0	pg/g	SW846 8290
Total PeCDD	ND	1.3	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.91	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.0 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	2.0	pg/g	SW846 8290
Total HxCDD	29		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	52		pg/g	SW846 8290
Total HpCDD	140		pg/g	SW846 8290
OCDD	220		pg/g	SW846 8290
2,3,7,8-TCDF	0.68 J, CON		pg/g	SW846 8290
Total TCDF	2.0		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.52	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.52	pg/g	SW846 8290
Total PeCDF	ND	1.3	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.56	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.72	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.85	pg/g	SW846 8290
Total HxCDF	8.4		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	5.0		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.72	pg/g	SW846 8290
Total HpCDF	16		pg/g	SW846 8290
OCDF	8.0 J		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT	
	RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	90	(40 - 135)
13C-1,2,3,7,8-PeCDD	89	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	109	(40 - 135)
13C-OCDD	104	(40 - 135)
13C-2,3,7,8-TCDF	95	(40 - 135)
13C-1,2,3,7,8-PeCDF	91	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	62	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	99	(40 - 135)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 12-C-1

Trace Level Organic Compounds

Lot-Sample #....: G5K100136-008 Work Order #....: HPTKN2AC Matrix.....: SOLID
 Date Sampled....: 11/07/05 Date Received...: 11/09/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 44

PARAMETER	RESULT	DETECTION		
		LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.39	pg/g	SW846 8290
Total TCDD	4.8		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.86	pg/g	SW846 8290
Total PeCDD	ND	1.8	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.77	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	2.7 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.9	pg/g	SW846 8290
Total HxCDD	32		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	38		pg/g	SW846 8290
Total HpCDD	120		pg/g	SW846 8290
OCDD	190		pg/g	SW846 8290
2,3,7,8-TCDF	1.1 CON		pg/g	SW846 8290
Total TCDF	4.9		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.50	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.52	pg/g	SW846 8290
Total PeCDF	ND	2.2	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.36	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.63	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.56	pg/g	SW846 8290
Total HxCDF	9.2		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	5.5		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.54	pg/g	SW846 8290
Total HpCDF	17		pg/g	SW846 8290
OCDF	8.4 J		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT	
	RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	92	(40 - 135)
13C-1,2,3,7,8-PeCDD	92	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	119	(40 - 135)
13C-OCDD	118	(40 - 135)
13C-2,3,7,8-TCDF	98	(40 - 135)
13C-1,2,3,7,8-PeCDF	93	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	66	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	106	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

QC DATA ASSOCIATION SUMMARY

G5K100136

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8082		5325493	5325343
	SOLID	SW846 8151A		5319018	5319011
002	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
003	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
004	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
005	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
006	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
007	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011
008	SOLID	SW846 8290		5320672	5320387
	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011

METHOD BLANK REPORT

Trace Level Organic Compounds

Client Lot #....: G5K100136 Work Order #....: HQPF71AA Matrix.....: SOLID
 MB Lot-Sample #: G5K210000-658 Prep Date.....: 11/21/05 Final Wgt/Vol...: 10 uL
 Analysis Date...: 11/23/05 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.19	pg/g	SW846 8290
Total TCDD	ND	0.19	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.35	pg/g	SW846 8290
Total PeCDD	ND	0.35	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.32	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.25	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.28	pg/g	SW846 8290
Total HxCDD	ND	0.32	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.33	pg/g	SW846 8290
Total HpCDD	ND	0.33	pg/g	SW846 8290
OCDD	ND	1.2	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.14	pg/g	SW846 8290
Total TCDF	ND	0.14	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.20	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.20	pg/g	SW846 8290
Total PeCDF	ND	0.20	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.21	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.19	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.24	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.29	pg/g	SW846 8290
Total HxCDF	ND	0.29	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.15	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.19	pg/g	SW846 8290
Total HpCDF	ND	0.19	pg/g	SW846 8290
OCDF	ND	0.35	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	94	(40 - 135)
13C-1,2,3,7,8-PeCDD	98	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	82	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	122	(40 - 135)
13C-OCDD	123	(40 - 135)
13C-2,3,7,8-TCDF	100	(40 - 135)
13C-1,2,3,7,8-PeCDF	100	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	72	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	112	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #....: G5K100136 Work Order #....: HQPF71AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-658
 Prep Date.....: 11/21/05 Analysis Date...: 11/29/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,3,7,8-TCDD	94	(71 - 128)	SW846 8290
1,2,3,7,8-PeCDD	114	(73 - 134)	SW846 8290
1,2,3,4,7,8-HxCDD	108	(66 - 137)	SW846 8290
1,2,3,6,7,8-HxCDD	104	(75 - 131)	SW846 8290
1,2,3,7,8,9-HxCDD	104	(74 - 135)	SW846 8290
1,2,3,4,6,7,8-HpCDD	103	(76 - 130)	SW846 8290
OCDD	116	(74 - 133)	SW846 8290
2,3,7,8-TCDF	105	(71 - 134)	SW846 8290
1,2,3,7,8-PeCDF	102	(74 - 130)	SW846 8290
2,3,4,7,8-PeCDF	101	(71 - 133)	SW846 8290
1,2,3,4,7,8-HxCDF	115	(73 - 132)	SW846 8290
1,2,3,6,7,8-HxCDF	120	(69 - 139)	SW846 8290
2,3,4,6,7,8-HxCDF	114	(75 - 147)	SW846 8290
1,2,3,7,8,9-HxCDF	106	(71 - 140)	SW846 8290
1,2,3,4,6,7,8-HpCDF	104	(75 - 131)	SW846 8290
1,2,3,4,7,8,9-HpCDF	111	(68 - 138)	SW846 8290
OCDF	136	(68 - 142)	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	95	(40 - 135)
13C-1,2,3,7,8-PeCDD	70	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	107	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	112	(40 - 135)
13C-OCDD	110	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	88	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	114	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	114	(40 - 135)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K100136 Work Order #...: HQPF71AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-658
 Prep Date.....: 11/21/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5325658
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,3,7,8-TCDD	20.0	18.8	pg/g	94	SW846 8290
1,2,3,7,8-PeCDD	100	114	pg/g	114	SW846 8290
1,2,3,4,7,8-HxCDD	100	108	pg/g	108	SW846 8290
1,2,3,6,7,8-HxCDD	100	104	pg/g	104	SW846 8290
1,2,3,7,8,9-HxCDD	100	104	pg/g	104	SW846 8290
1,2,3,4,6,7,8-HpCDD	100	103	pg/g	103	SW846 8290
OCDD	200	232	pg/g	116	SW846 8290
2,3,7,8-TCDF	20.0	21.0	pg/g	105	SW846 8290
1,2,3,7,8-PeCDF	100	102	pg/g	102	SW846 8290
2,3,4,7,8-PeCDF	100	101	pg/g	101	SW846 8290
1,2,3,4,7,8-HxCDF	100	115	pg/g	115	SW846 8290
1,2,3,6,7,8-HxCDF	100	120	pg/g	120	SW846 8290
2,3,4,6,7,8-HxCDF	100	114	pg/g	114	SW846 8290
1,2,3,7,8,9-HxCDF	100	106	pg/g	106	SW846 8290
1,2,3,4,6,7,8-HpCDF	100	104	pg/g	104	SW846 8290
1,2,3,4,7,8,9-HpCDF	100	111	pg/g	111	SW846 8290
OCDF	200	272	pg/g	136	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	95	(40 - 135)
13C-1,2,3,7,8-PeCDD	70	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	107	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	112	(40 - 135)
13C-OCDD	110	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	88	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	114	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	114	(40 - 135)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G5K100136 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD
 Date Sampled...: 11/08/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/24/05
 Prep Batch #...: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,3,7,8-TCDD	111	(71 - 128)			SW846 8290
	110	(71 - 128)	1.1	(0-25)	SW846 8290
1,2,3,7,8-PeCDD	114	(73 - 134)			SW846 8290
	112	(73 - 134)	2.4	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDD	118	(66 - 137)			SW846 8290
	119	(66 - 137)	0.81	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDD	114	(75 - 131)			SW846 8290
	110	(75 - 131)	3.3	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDD	127	(74 - 135)			SW846 8290
	126	(74 - 135)	1.1	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDD	119	(76 - 130)			SW846 8290
	114	(76 - 130)	3.7	(0-25)	SW846 8290
OCDD	108	(74 - 133)			SW846 8290
	99	(74 - 133)	5.7	(0-25)	SW846 8290
2,3,7,8-TCDF	121 CON	(71 - 134)			SW846 8290
	115 CON	(71 - 134)	4.4	(0-25)	SW846 8290
1,2,3,7,8-PeCDF	114	(74 - 130)			SW846 8290
	109	(74 - 130)	3.7	(0-25)	SW846 8290
2,3,4,7,8-PeCDF	117	(71 - 133)			SW846 8290
	112	(71 - 133)	4.6	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDF	123	(73 - 132)			SW846 8290
	124	(73 - 132)	1.3	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDF	125	(69 - 139)			SW846 8290
	123	(69 - 139)	1.0	(0-25)	SW846 8290
2,3,4,6,7,8-HxCDF	140	(75 - 147)			SW846 8290
	139	(75 - 147)	0.16	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDF	151 a	(71 - 140)			SW846 8290
	149 a	(71 - 140)	1.0	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDF	111	(75 - 131)			SW846 8290
	105	(75 - 131)	5.4	(0-25)	SW846 8290
1,2,3,4,7,8,9-HpCDF	111	(68 - 138)			SW846 8290
	106	(68 - 138)	4.3	(0-25)	SW846 8290
OCDF	98	(68 - 142)			SW846 8290
	96	(68 - 142)	2.2	(0-25)	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G5K100136 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD

<u>INTERNAL STANDARDS</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C-2,3,7,8-TCDD	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,7,8-PeCDD	88	(40 - 135)
	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
	106	(40 - 135)
13C-OCDD	114	(40 - 135)
	103	(40 - 135)
13C-2,3,7,8-TCDF	95	(40 - 135)
	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	65	(40 - 135)
	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	103	(40 - 135)
	100	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

CON Confirmation analysis.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K100136 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD
 Date Sampled...: 11/08/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/24/05
 Prep Batch #...: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2,3,7,8-TCDD	ND	34.8	38.5	pg/g	111		SW846 8290
	ND	34.8	38.1	pg/g	110	1.1	SW846 8290
1,2,3,7,8-PeCDD	ND	174	199	pg/g	114		SW846 8290
	ND	174	194	pg/g	112	2.4	SW846 8290
1,2,3,4,7,8-HxCDD	ND	174	205	pg/g	118		SW846 8290
	ND	174	206	pg/g	119	0.81	SW846 8290
1,2,3,6,7,8-HxCDD	2.9	174	202	pg/g	114		SW846 8290
	2.9	174	195	pg/g	110	3.3	SW846 8290
1,2,3,7,8,9-HxCDD	ND	174	221	pg/g	127		SW846 8290
	ND	174	219	pg/g	126	1.1	SW846 8290
1,2,3,4,6,7,8-HpCDD	30	174	238	pg/g	119		SW846 8290
	30	174	229	pg/g	114	3.7	SW846 8290
OCDD	180	348	558	pg/g	108		SW846 8290
	180	348	527	pg/g	99	5.7	SW846 8290
2,3,7,8-TCDF	1.3	34.8	43.3	pg/g	121		SW846 8290
	Qualifiers: CON						
	1.3	34.8	41.4	pg/g	115	4.4	SW846 8290
	Qualifiers: CON						
1,2,3,7,8-PeCDF	ND	174	198	pg/g	114		SW846 8290
	ND	174	191	pg/g	109	3.7	SW846 8290
2,3,4,7,8-PeCDF	ND	174	204	pg/g	117		SW846 8290
	ND	174	195	pg/g	112	4.6	SW846 8290
1,2,3,4,7,8-HxCDF	ND	174	214	pg/g	123		SW846 8290
	ND	174	216	pg/g	124	1.3	SW846 8290
1,2,3,6,7,8-HxCDF	ND	174	217	pg/g	125		SW846 8290
	ND	174	215	pg/g	123	1.0	SW846 8290
2,3,4,6,7,8-HxCDF	ND	174	243	pg/g	140		SW846 8290
	ND	174	243	pg/g	139	0.16	SW846 8290
1,2,3,7,8,9-HxCDF	ND	174	262	pg/g	151 a		SW846 8290
	ND	174	259	pg/g	149 a	1.0	SW846 8290
1,2,3,4,6,7,8-HpCDF	4.3	174	198	pg/g	111		SW846 8290
	4.3	174	187	pg/g	105	5.4	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	174	193	pg/g	111		SW846 8290
	ND	174	185	pg/g	106	4.3	SW846 8290
OCDF	7.2	348	348	pg/g	98		SW846 8290
	7.2	348	341	pg/g	96	2.2	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K100136 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD

<u>INTERNAL STANDARDS</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C-2,3,7,8-TCDD	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,7,8-PeCDD	88	(40 - 135)
	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
	106	(40 - 135)
13C-OCDD	114	(40 - 135)
	103	(40 - 135)
13C-2,3,7,8-TCDF	95	(40 - 135)
	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	65	(40 - 135)
	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	103	(40 - 135)
	100	(40 - 135)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

CON Confirmation analysis.

a Spiked analyte recovery is outside stated control limits.

SOLID, 8151A, PCP only

Pacific Affiliates, Inc.

Client Sample ID: 6-A-1

GC Semivolatiles

Lot-Sample #....: G5K100136-001 Work Order #....: HPTJ01AE Matrix.....: SOLID
Date Sampled....: 11/08/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.05 g Final Wgt/Vol...: 100 mL
% Moisture.....: 39 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	16	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	83	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 8-A-1

GC Semivolatiles

Lot-Sample #...: G5K100136-002 Work Order #...: HPTJ71AD Matrix.....: SOLID
Date Sampled...: 11/04/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #...: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.14 g Final Wgt/Vol...: 100 mL
% Moisture.....: 36 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	16	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	79	(47 - 111)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 9-A-1

GC Semivolatiles

Lot-Sample #....: G5K100136-003 Work Order #....: HPTKA1AD Matrix.....: SOLID
Date Sampled...: 11/04/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.16 g Final Wgt/Vol...: 100 mL
% Moisture.....: 46 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	18	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	105	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 10-A-1

GC Semivolatiles

Lot-Sample #....: G5K100136-004 Work Order #....: HPTKD1AD Matrix.....: SOLID
Date Sampled...: 11/06/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.06 g Final Wgt/Vol...: 100 mL
% Moisture.....: 41 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	17		ug/kg
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>	<u>LIMITS</u>	
2,4-Dichlorophenylacetic acid	84		(47 - 111)	

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 10-B-1

GC Semivolatiles

Lot-Sample #....: G5K100136-005 Work Order #....: HPTKF1AD Matrix.....: SOLID
Date Sampled....: 11/06/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50 g Final Wgt/Vol...: 100 mL
% Moisture.....: 41 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	17	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	91	(47 - 111)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 11-A-1

GC Semivolatiles

Lot-Sample #...: G5K100136-006 Work Order #...: HPTKH1AD Matrix.....: SOLID
Date Sampled...: 11/06/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #...: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.13 g Final Wgt/Vol...: 100 mL
% Moisture.....: 52 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	21	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	100	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 12-D-1

GC Semivolatiles

Lot-Sample #....: G5K100136-007 Work Order #....: HPTKL1AD Matrix.....: SOLID
Date Sampled...: 11/07/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.11 g Final Wgt/Vol...: 100 mL
% Moisture.....: 50 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	20	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	84	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 12-C-1

GC Semivolatiles

Lot-Sample #....: G5K100136-008 Work Order #....: HPTKN1AD Matrix.....: SOLID
Date Sampled...: 11/07/05 Date Received...: 11/09/05
Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
Prep Batch #....: 5319018
Dilution Factor: 1 Initial Wgt/Vol: 50.04 g Final Wgt/Vol...: 100 mL
% Moisture.....: 44 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	18	ug/kg

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	102	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

QC DATA ASSOCIATION SUMMARY

G5K100136

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8082		5325493	5325343
	SOLID	SW846 8151A		5319018	5319011
002	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
003	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
004	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
005	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
006	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315532	5315347
	SOLID	SW846 8151A		5319018	5319011
007	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011
008	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5319018	5319011

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G5K100136
MB Lot-Sample #: A5K150000-018

Work Order #...: HP6K71AA

Matrix.....: SOLID

Analysis Date...: 11/17/05
Dilution Factor: 1

Prep Date.....: 11/15/05

Final Wgt/Vol...: 100 mL

Prep Batch #...: 5319018

Initial Wgt/Vol: 50 g

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Pentachlorophenol	ND	10	ug/kg	SW846 8151A
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>		
2,4-Dichlorophenylacetic acid	79	(47 - 111)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: G5K100136 Work Order #....: HP6K71AC Matrix.....: SOLID
 LCS Lot-Sample#: A5K150000-018
 Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
 Prep Batch #....: 5319018
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
2,4-D	70	(10 - 110)	SW846 8151A
2,4,5-T	77	(10 - 116)	SW846 8151A
Silvex	68	(10 - 118)	SW846 8151A

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	85	(47 - 111)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G5K100136 Work Order #....: HP6K71AC Matrix.....: SOLID
 LCS Lot-Sample#: A5K150000-018
 Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
 Prep Batch #....: 5319018
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,4-D	400	282	ug/kg	70	SW846 8151A
2,4,5-T	100	77.1	ug/kg	77	SW846 8151A
Silvex	100	68.5	ug/kg	68	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	85	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: G5K100136 Work Order #....: HPCV91D1-MS Matrix.....: SOLID
 MS Lot-Sample #: A5K030428-003 HPCV91D2-MSD
 Date Sampled....: 11/02/05 Date Received...: 11/03/05
 Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
 Prep Batch #....: 5319018
 Dilution Factor: 1 Initial Wgt/Vol: 50.15 g Final Wgt/Vol...: 100 mL
 % Moisture.....: 27

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	60	(10 - 113)			SW846 8151A
	65	(10 - 113)	7.0	(0-62)	SW846 8151A
2,4,5-T	64	(10 - 122)			SW846 8151A
	71	(10 - 122)	11	(0-66)	SW846 8151A
Silvex	59	(10 - 123)			SW846 8151A
	61	(10 - 123)	4.0	(0-99)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	76	(47 - 111)
	84	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G5K100136 Work Order #....: HPCV91D1-MS Matrix.....: SOLID
 MS Lot-Sample #: A5K030428-003 HPCV91D2-MSD
 Date Sampled....: 11/02/05 Date Received...: 11/03/05
 Prep Date.....: 11/15/05 Analysis Date...: 11/17/05
 Prep Batch #....: 5319018
 Dilution Factor: 1 Initial Wgt/Vol: 50.15 g Final Wgt/Vol...: 100 mL
 % Moisture.....: 27

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2,4-D	ND	546	330	ug/kg	60		SW846 8151A
	ND	546	354	ug/kg	65	7.0	SW846 8151A
2,4,5-T	ND	137	87.2	ug/kg	64		SW846 8151A
	ND	137	97.4	ug/kg	71	11	SW846 8151A
Silvex	ND	137	80.3	ug/kg	59		SW846 8151A
	ND	137	83.6	ug/kg	61	4.0	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	76	(47 - 111)
	84	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

STL Sacramento
880 Riverside Parkway
West Sacramento, CA 95605

Tel: 916 373 5600 Fax: 916 372 1059
www.stl-inc.com

November 30, 2005

STL SACRAMENTO PROJECT NUMBER: G5K110245
PO/CONTRACT: 930/9400 (240063)

Yoash Tilles
Pacific Affiliates, Inc.
990 W Waterfront Drive
Eureka, CA 95501

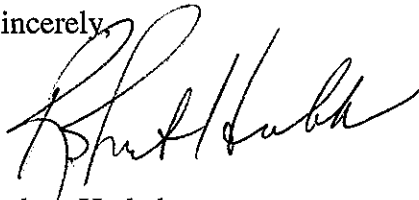
Dear Mr. Tilles,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on November 11, 2005. These samples are associated with your City of Eureka + Harbor Dist. project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4433.

Sincerely,



Robert Hrabak
Project Manager

TABLE OF CONTENTS

STL SACRAMENTO PROJECT NUMBER G5K110245

Case Narrative

STL Sacramento Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

SOLID, 8290, Dioxins/Furans

Samples: 1 through 5

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

SOLID, 8151A, PCP only

Performed at STL North Canton

Samples: 1 through 5

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G5K110245

General Comments

An aliquot of each sample was sent to STL North Canton on November 11, 2005 for PCP determination via Method 8151A, per the direction of Yoash Tilles at Pacific Affiliates, Inc.

Preliminary results were provided via electronic mail on November 22, 2005.

SOLID, 8290, Dioxins/Furans

Sample(s): 1 through 5

The matrix spike/matrix spike duplicate (MS/MSD) associated with this extraction batch has recoveries outside of the established control limits for 1,2,3,7,8,9-HxCDF. Acceptable laboratory control sample (LCS) data demonstrate that the analytical system is in control. This anomaly is most likely matrix related.

Samples: 4

The isomer 1,2,3,4,6,7,8-HpCDF has been designated with the "JA" qualifier due to the ion abundance ratio being outside of criteria. The isomer has been qualified as "positively identified, but at an estimated quantity" because the quantitation is based on the theoretical ratio for this sample as per Section 7.9.5.2.1 of Method 8290.

SOLID, 8151A, PCP only

Performed at STL North Canton

Samples: 2

The recovery for the surrogate 2,4-dichlorophenylacetic acid is above the established control limits. As the sample is non-detect for the target analyte there is no adverse impact upon the data.

There were no other anomalies associated with this project.

STL Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	Oregon*	CA 200005
Arizona	AZ0616	Pennsylvania	68-1272
Arkansas	04-067-0	South Carolina	87014002
California*	01119CA	Texas	TX 270-2004A
Colorado	NA	Utah*	QUAN1
Connecticut	PH-0691	Virginia	00178
Florida*	E87570	Washington	C087
Georgia	960	West Virginia	9930C, 334
Hawaii	NA	Wisconsin	998204680
Louisiana*	01944	NFESC	NA
Michigan	9947	USACE	NA
Nevada	CA44	USDA Foreign Plant	37-82605
New Jersey*	CA005	USDA Foreign Soil	S-46613
New York*	11666		

*NELAP accredited. A more detailed parameter list is available upon request. Update 1/27/05

QC Parameter Definitions

QC Batch: The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

Method Blank: An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD):

An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also be used to evaluate the precision of the process.

Duplicate Sample (DU): Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

Surrogates: Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

Matrix Spike and Matrix Spike Duplicate (MS/MSD): An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

Isotope Dilution: For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

Control Limits: The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

Sample Summary

G5K110245

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
HP1AT	1	2-B-1	11/10/2005 01:50 AM	11/11/2005 08:55 AM
HP1A5	2	3-A-1	11/10/2005 12:50 AM	11/11/2005 08:55 AM
HP1CD	3	7-A-1	11/9/2005 12:00 PM	11/11/2005 08:55 AM
HP1CL	4	12-A-1	11/9/2005 01:00 AM	11/11/2005 08:55 AM
HP1CT	5	12-B-1	11/8/2005 10:45 PM	11/11/2005 08:55 AM

Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

MFG, INC.

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

COC No. 47028

☐ CA - Arcata 875 Crescent Way Arcata, CA 95521-6741 Phone: (707) 826-8430 Fax: (707) 826-8437
☐ CA - Fresno 1592 11th Street, Suite B Reedley, CA 93654-2340 Phone: (559) 638-3287 Fax: (559) 638-3218
☐ CA - Irvine 17770 Carwright Rd., Ste. 500 Irvine CA 92614-5850 Phone: (949) 253-2951 Direct: (949) 608-0000 Fax: (949) 253-2954
☐ CA - San Francisco 180 Howard Street, Ste. 200 San Francisco CA 94105-1617 Phone: (415) 495-7110 Direct: (415) 977-1365 Fax: (415) 495-7107
☐ CO - Boulder 4900 Pearl E. Circle, Ste. 300 W Boulder CO 80301-6118 Phone: (303) 447-1823 Direct: (303) 447-0913 Fax: (303) 447-1836
☐ CO - Fort Collins 3801 Adomation Way, Ste. 100 Fort Collins CO 80525-3434 Phone: (970) 223-9600 Direct: (970) 206-4 + ext. Fax: (970) 223-7171
☐ FL - Orlando 13833 Waterhouse Way Orlando FL 32826-8202 Phone: (407) 737-9472 Fax: (407) 737-9465
☐ ID - Coeur d'Alene 1044 Northwest Blvd., Ste. A PO Box 3449 Coeur d'Alene ID 83814-3449 Phone: (208) 667-2848 Fax: (208) 667-1739
☐ ME - Portland 10 Justin's Way Freeport, ME 04032-1229 Phone: (207) 865-1970 Fax: (207) 865-1975
☐ NE - Omaha 9910 N 48th Street, Suite 200 Omaha NE 68152-1548 Phone: (402) 933-1345 Fax: (402) 933-1346
☐ PA - Pittsburgh 800 Vinal Street Building A Pittsburgh PA 15212-1528 Phone: (412) 321-2278 Fax: (412) 321-2283
☐ TX - Austin 4807 Spicewood Springs Road Bldg IV 1st Floor Austin TX 78759-8444 Phone: (512) 338-1687 Direct: (512) 418-8897 Fax: (512) 338-1331
☐ TX - Houston 12337 Jones Road, Suite 230 Houston TX 77070-4844 Phone: (281) 890-5068 Fax: (281) 890-5044
☐ WA - Seattle 19203 36th Avenue W Suite 101 Lynnwood WA 98036-5772 Phone: (425) 921-4000 Fax: (425) 921-4040

PROJECT NO: P.A. # 930/9400 (2400.3) PROJECT NAME: City of Eureka + Harbor District Sediment Sampling PAGE: 1 OF: 1
 SAMPLER (Signature): John Mills PROJECT MANAGER: Yoush Tilks DATE: 11/10/05
 METHOD OF SHIPMENT: Fed Ex - overnight CARRIERWAYBILL NO: 790217878372 DESTINATION: STL - Sacramento

SAMPLES				ANALYSIS REQUEST			
Field Sample Identification	DATE	TIME	Matrix	Preservation			Remarks
				HCl	HNO ₃	H ₂ SO ₄	
DATE	TIME	FILTRATION*	VOLUME (ml)	CONTAINERS	CONSTITUENTS/METHOD	HANDLING	REMARKS
2-B-1	11/10	0150	OT				
3-A-1	11/10	0050	OT				
7-A-1	11/9	1200	OT				
12-A-1	11/9	0100	OT				
12-B-1	11/8	2245	OT				
Temperature Blank							
TOTAL NUMBER OF CONTAINERS				LABORATORY COMMENTS/CONDITION OF SAMPLES			
5				Cooler Temp:			

RELINQUISHED BY: RECEIVED BY:
 SIGNATURE: John Mills PRINTED NAME: John Mills SIGNATURE: Cheng Yue PRINTED NAME: Cheng Yue COMPANY: STL COMPANY: STL
 DATE: 11/10/05 TIME: 1400 DATE: 11/10/05 TIME: 1400
 DISTRIBUTION: A - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other CONTAINERS: P - plastic G - glass T - teflon B - brass OT - other FILTRATION: F - filtered U - unfiltered
 *KEY Matrix: A - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other CONTAINERS: P - plastic G - glass T - teflon B - brass OT - other FILTRATION: F - filtered U - unfiltered

OT = Sediment

Severn Trent Laboratories, Inc
SAMPLE ANALYSIS REQUISITION

LABORATORY: STL N Canton
4101 Shuffel Drive NW
North Canton

NEED ANALYTICAL REPORT BY
11/27/05

OH 44720,

ATTN:

LAB PURCHASE ORDER: SR074859

CLIENT CODE: 1371717 PROJECT MANAGER: Robert Hrabak

NUMBER OF SAMPLES IN LOT: 0005

<u>SAMPLE I.D.</u>	<u>SAMPLING DATE</u>	<u>ANALYSIS REQUIRED</u>
G5K110245-001 HP1AT-1-AD	11/10/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K110245-002 HP1A5-1-AD	11/10/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K110245-003 HP1CD-1-AD	11/09/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K110245-004 HP1CL-1-AD	11/09/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K110245-005 HP1CT-1-AD	11/08/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A

NEED DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: FEDEX

DATE: 11/11/05

SEND REPORT TO: ROBERT HRABAK

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS

THANK YOU.

STL Sacramento

INT: _____

11/11/05 14:15:04

STL N Canton

4101 Shuffel Drive NW

North Canton

OH 44720

RELINQUISHED BY: *R. Shuffel*

DATE/TIME: 11/11/05 16:00

RELINQUISHED BY: _____

DATE/TIME: _____

RECEIVED FOR LAB BY: _____

DATE/TIME: _____

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

CLIENT MFG, inc. PM PH LOG # 35664
LOT# (QUANTIMS ID) G5K110245 QUOTE# 67565 LOCATION W19A

DATE RECEIVED 11/11/05 TIME RECEIVED 0855

Initials CV Date 11/11/05

DELIVERED BY ☒ FEDEX ☐ CA OVERNIGHT ☐ CLIENT
☐ AIRBORNE ☐ GOLDENSTATE ☐ DHL
☐ UPS ☐ BAX GLOBAL ☐ GO-GETTERS
☐ STL COURIER ☐ COURIERS ON DEMAND
☐ OTHER

CUSTODY SEAL STATUS ☐ INTACT ☐ BROKEN ☒ N/A

CUSTODY SEAL #(S) _____

SHIPPING CONTAINER(S) ☐ STL ☒ CLIENT ☐ N/A

TEMPERATURE RECORD (IN °C) IR ☒ 1 ☐ 3 ☐ OTHER _____

COC #(S) 47028

TEMPERATURE BLANK Observed: 2 Corrected: 2

SAMPLE TEMPERATURE

Observed: 2 1 2 Average: 2 Corrected Average: 2

COLLECTOR'S NAME: ☒ Verified from COC ☐ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☒ N/A

LABELED BY.....

LABELS CHECKED BY.....

PEER REVIEW ☒ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING

WETCHEM ☒ N/A

VOA-ENCORES ☒ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☒ N/A

☒ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☐ N/A

☐ Clouseau ☐ TEMPERATURE EXCEEDED (2 °C – 6 °C)*1 ☒ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☐ NO COOLING AGENTS USED ☐ PM NOTIFIED

Notes: _____

SOLID, 8290, Dioxins/Furans

Pacific Affiliates, Inc.

Client Sample ID: 2-B-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-001 Work Order #....: HP1AT2AC Matrix.....: SOLID
 Date Sampled....: 11/10/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.40	pg/g	SW846 8290
Total TCDD	1.9		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.92	pg/g	SW846 8290
Total PeCDD	2.4		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.85	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.1 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.9	pg/g	SW846 8290
Total HxCDD	38		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	88		pg/g	SW846 8290
Total HpCDD	220		pg/g	SW846 8290
OCDD	440		pg/g	SW846 8290
2,3,7,8-TCDF	0.72 J, CON		pg/g	SW846 8290
Total TCDF	9.1		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.47	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.61	pg/g	SW846 8290
Total PeCDF	2.5		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.9	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.75	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.78	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.77	pg/g	SW846 8290
Total HxCDF	12		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	8.6		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.58	pg/g	SW846 8290
Total HpCDF	33		pg/g	SW846 8290
OCDF	21		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	91	(40 - 135)
13C-1,2,3,7,8-PeCDD	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	76	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	108	(40 - 135)
13C-OCDD	106	(40 - 135)
13C-2,3,7,8-TCDF	94	(40 - 135)
13C-1,2,3,7,8-PeCDF	86	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	66	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	100	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 3-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-002 Work Order #....: HP1A52AC Matrix.....: SOLID
 Date Sampled....: 11/10/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 39

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.35	pg/g	SW846 8290
Total TCDD	4.2		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.1	pg/g	SW846 8290
Total PeCDD	ND	1.5	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.68	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	4.4		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	3.8 J		pg/g	SW846 8290
Total HxCDD	67		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	88		pg/g	SW846 8290
Total HpCDD	350		pg/g	SW846 8290
OCDD	540		pg/g	SW846 8290
2,3,7,8-TCDF	1.5 CON		pg/g	SW846 8290
Total TCDF	3.7		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.40	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.74	pg/g	SW846 8290
Total PeCDF	2.4		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.5	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.76	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.66	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.66	pg/g	SW846 8290
Total HxCDF	13		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	9.1		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.66	pg/g	SW846 8290
Total HpCDF	31		pg/g	SW846 8290
OCDF	24		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	93	(40 - 135)
13C-1,2,3,7,8-PeCDD	92	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	79	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	103	(40 - 135)
13C-OCDD	100	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	91	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	61	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	96	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 7-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-003 Work Order #....: HP1CD2AC Matrix.....: SOLID
 Date Sampled....: 11/09/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 39

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	0.53 J		pg/g	SW846 8290
Total TCDD	8.1		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.90	pg/g	SW846 8290
Total PeCDD	13		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.2	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	4.6		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	3.1 J		pg/g	SW846 8290
Total HxCDD	61		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	87		pg/g	SW846 8290
Total HpCDD	240		pg/g	SW846 8290
OCDD	810		pg/g	SW846 8290
2,3,7,8-TCDF	2.0 CON		pg/g	SW846 8290
Total TCDF	18		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.75	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
Total PeCDF	11		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	2.6 J		pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.2	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.95	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.75	pg/g	SW846 8290
Total HxCDF	33		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	19		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	1.1	pg/g	SW846 8290
Total HpCDF	79		pg/g	SW846 8290
OCDF	56		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	86	(40 - 135)
13C-1,2,3,7,8-PeCDD	87	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	109	(40 - 135)
13C-OCDD	111	(40 - 135)
13C-2,3,7,8-TCDF	92	(40 - 135)
13C-1,2,3,7,8-PeCDF	88	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	63	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	97	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 12-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-004 Work Order #....: HP1CL2AC Matrix.....: SOLID
 Date Sampled....: 11/09/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.37	pg/g	SW846 8290
Total TCDD	3.7		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.81	pg/g	SW846 8290
Total PeCDD	ND	2.0	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.83	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.0 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	2.3 J		pg/g	SW846 8290
Total HxCDD	37		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	45		pg/g	SW846 8290
Total HpCDD	140		pg/g	SW846 8290
OCDD	230		pg/g	SW846 8290
2,3,7,8-TCDF	0.71 J, CON		pg/g	SW846 8290
Total TCDF	5.0		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.45	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.45	pg/g	SW846 8290
Total PeCDF	2.2		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.2	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.56	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.45	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.56	pg/g	SW846 8290
Total HxCDF	10		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	5.4 JA		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.47	pg/g	SW846 8290
Total HpCDF	19		pg/g	SW846 8290
OCDF	11		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	93	(40 - 135)
13C-1,2,3,7,8-PeCDD	86	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	79	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	109	(40 - 135)
13C-OCDD	106	(40 - 135)
13C-2,3,7,8-TCDF	100	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	63	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	99	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 12-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-004 Work Order #....: HP1CL2AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

JA The analyte was positively identified, but the quantitation is an estimate.

Pacific Affiliates, Inc.

Client Sample ID: 12-B-1

Trace Level Organic Compounds

Lot-Sample #....: G5K110245-005 Work Order #....: HP1CT2AC Matrix.....: SOLID
 Date Sampled....: 11/08/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/24/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.40	pg/g	SW846 8290
Total TCDD	2.9		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.82	pg/g	SW846 8290
Total PeCDD	ND	1.8	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.80	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	2.9 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.9	pg/g	SW846 8290
Total HxCDD	26		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	30		pg/g	SW846 8290
Total HpCDD	91		pg/g	SW846 8290
OCDD	180		pg/g	SW846 8290
2,3,7,8-TCDF	1.3 CON		pg/g	SW846 8290
Total TCDF	5.4		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.42	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.44	pg/g	SW846 8290
Total PeCDF	ND	2.0	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.92	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.50	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.50	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.61	pg/g	SW846 8290
Total HxCDF	7.9		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	4.3 J		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.44	pg/g	SW846 8290
Total HpCDF	15		pg/g	SW846 8290
OCDF	7.2 J		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	89	(40 - 135)
13C-1,2,3,7,8-PeCDD	88	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	75	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
13C-OCDD	113	(40 - 135)
13C-2,3,7,8-TCDF	94	(40 - 135)
13C-1,2,3,7,8-PeCDF	91	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	101	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

QC DATA ASSOCIATION SUMMARY

G5K110245

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
002	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
003	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
004	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
005	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006

METHOD BLANK REPORT

Trace Level Organic Compounds

Client Lot #...: G5K110245 Work Order #...: HQPF71AA Matrix.....: SOLID
 MB Lot-Sample #: G5K210000-658
 Prep Date.....: 11/21/05 Final Wgt/Vol...: 10 uL
 Analysis Date...: 11/23/05 Prep Batch #...: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.19	pg/g	SW846 8290
Total TCDD	ND	0.19	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.35	pg/g	SW846 8290
Total PeCDD	ND	0.35	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.32	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.25	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.28	pg/g	SW846 8290
Total HxCDD	ND	0.32	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.33	pg/g	SW846 8290
Total HpCDD	ND	0.33	pg/g	SW846 8290
OCDD	ND	1.2	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.14	pg/g	SW846 8290
Total TCDF	ND	0.14	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.20	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.20	pg/g	SW846 8290
Total PeCDF	ND	0.20	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.21	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.19	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.24	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.29	pg/g	SW846 8290
Total HxCDF	ND	0.29	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.15	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.19	pg/g	SW846 8290
Total HpCDF	ND	0.19	pg/g	SW846 8290
OCDF	ND	0.35	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	94	(40 - 135)
13C-1,2,3,7,8-PeCDD	98	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	82	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	122	(40 - 135)
13C-OCDD	123	(40 - 135)
13C-2,3,7,8-TCDF	100	(40 - 135)
13C-1,2,3,7,8-PeCDF	100	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	72	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	112	(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #....: G5K110245 Work Order #....: HQPF71AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-658
 Prep Date.....: 11/21/05 Analysis Date...: 11/29/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,3,7,8-TCDD	94	(71 - 128)	SW846 8290
1,2,3,7,8-PeCDD	114	(73 - 134)	SW846 8290
1,2,3,4,7,8-HxCDD	108	(66 - 137)	SW846 8290
1,2,3,6,7,8-HxCDD	104	(75 - 131)	SW846 8290
1,2,3,7,8,9-HxCDD	104	(74 - 135)	SW846 8290
1,2,3,4,6,7,8-HpCDD	103	(76 - 130)	SW846 8290
OCDD	116	(74 - 133)	SW846 8290
2,3,7,8-TCDF	105	(71 - 134)	SW846 8290
1,2,3,7,8-PeCDF	102	(74 - 130)	SW846 8290
2,3,4,7,8-PeCDF	101	(71 - 133)	SW846 8290
1,2,3,4,7,8-HxCDF	115	(73 - 132)	SW846 8290
1,2,3,6,7,8-HxCDF	120	(69 - 139)	SW846 8290
2,3,4,6,7,8-HxCDF	114	(75 - 147)	SW846 8290
1,2,3,7,8,9-HxCDF	106	(71 - 140)	SW846 8290
1,2,3,4,6,7,8-HpCDF	104	(75 - 131)	SW846 8290
1,2,3,4,7,8,9-HpCDF	111	(68 - 138)	SW846 8290
OCDF	136	(68 - 142)	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	95	(40 - 135)
13C-1,2,3,7,8-PeCDD	70	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	107	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	112	(40 - 135)
13C-OCDD	110	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	88	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	114	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	114	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #....: G5K110245 Work Order #....: HQPF71AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-658
 Prep Date.....: 11/21/05 Analysis Date...: 11/29/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,3,7,8-TCDD	20.0	18.8	pg/g	94	SW846 8290
1,2,3,7,8-PeCDD	100	114	pg/g	114	SW846 8290
1,2,3,4,7,8-HxCDD	100	108	pg/g	108	SW846 8290
1,2,3,6,7,8-HxCDD	100	104	pg/g	104	SW846 8290
1,2,3,7,8,9-HxCDD	100	104	pg/g	104	SW846 8290
1,2,3,4,6,7,8-HpCDD	100	103	pg/g	103	SW846 8290
OCDD	200	232	pg/g	116	SW846 8290
2,3,7,8-TCDF	20.0	21.0	pg/g	105	SW846 8290
1,2,3,7,8-PeCDF	100	102	pg/g	102	SW846 8290
2,3,4,7,8-PeCDF	100	101	pg/g	101	SW846 8290
1,2,3,4,7,8-HxCDF	100	115	pg/g	115	SW846 8290
1,2,3,6,7,8-HxCDF	100	120	pg/g	120	SW846 8290
2,3,4,6,7,8-HxCDF	100	114	pg/g	114	SW846 8290
1,2,3,7,8,9-HxCDF	100	106	pg/g	106	SW846 8290
1,2,3,4,6,7,8-HpCDF	100	104	pg/g	104	SW846 8290
1,2,3,4,7,8,9-HpCDF	100	111	pg/g	111	SW846 8290
OCDF	200	272	pg/g	136	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	95	(40 - 135)
13C-1,2,3,7,8-PeCDD	70	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	107	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	112	(40 - 135)
13C-OCDD	110	(40 - 135)
13C-2,3,7,8-TCDF	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	88	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	114	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	114	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #....: G5K110245 Work Order #....: HP1CT1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD
 Date Sampled....: 11/08/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/24/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,3,7,8-TCDD	111	(71 - 128)			SW846 8290
	110	(71 - 128)	1.1	(0-25)	SW846 8290
1,2,3,7,8-PeCDD	114	(73 - 134)			SW846 8290
	112	(73 - 134)	2.4	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDD	118	(66 - 137)			SW846 8290
	119	(66 - 137)	0.81	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDD	114	(75 - 131)			SW846 8290
	110	(75 - 131)	3.3	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDD	127	(74 - 135)			SW846 8290
	126	(74 - 135)	1.1	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDD	119	(76 - 130)			SW846 8290
	114	(76 - 130)	3.7	(0-25)	SW846 8290
OCDD	108	(74 - 133)			SW846 8290
	99	(74 - 133)	5.7	(0-25)	SW846 8290
2,3,7,8-TCDF	121 CON	(71 - 134)			SW846 8290
	115 CON	(71 - 134)	4.4	(0-25)	SW846 8290
1,2,3,7,8-PeCDF	114	(74 - 130)			SW846 8290
	109	(74 - 130)	3.7	(0-25)	SW846 8290
2,3,4,7,8-PeCDF	117	(71 - 133)			SW846 8290
	112	(71 - 133)	4.6	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDF	123	(73 - 132)			SW846 8290
	124	(73 - 132)	1.3	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDF	125	(69 - 139)			SW846 8290
	123	(69 - 139)	1.0	(0-25)	SW846 8290
2,3,4,6,7,8-HxCDF	140	(75 - 147)			SW846 8290
	139	(75 - 147)	0.16	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDF	151 a	(71 - 140)			SW846 8290
	149 a	(71 - 140)	1.0	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDF	111	(75 - 131)			SW846 8290
	105	(75 - 131)	5.4	(0-25)	SW846 8290
1,2,3,4,7,8,9-HpCDF	111	(68 - 138)			SW846 8290
	106	(68 - 138)	4.3	(0-25)	SW846 8290
OCDF	98	(68 - 142)			SW846 8290
	96	(68 - 142)	2.2	(0-25)	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G5K110245 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,7,8-PeCDD	88	(40 - 135)
	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
	106	(40 - 135)
13C-OCDD	114	(40 - 135)
	103	(40 - 135)
13C-2,3,7,8-TCDF	95	(40 - 135)
	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	65	(40 - 135)
	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	103	(40 - 135)
	100	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

CON Confirmation analysis.

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #....: G5K110245 Work Order #....: HP1CT1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD
 Date Sampled....: 11/08/05 Date Received...: 11/11/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/24/05
 Prep Batch #....: 5325658
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 43

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2,3,7,8-TCDD	ND	34.8	38.5	pg/g	111		SW846 8290
	ND	34.8	38.1	pg/g	110	1.1	SW846 8290
1,2,3,7,8-PeCDD	ND	174	199	pg/g	114		SW846 8290
	ND	174	194	pg/g	112	2.4	SW846 8290
1,2,3,4,7,8-HxCDD	ND	174	205	pg/g	118		SW846 8290
	ND	174	206	pg/g	119	0.81	SW846 8290
1,2,3,6,7,8-HxCDD	2.9	174	202	pg/g	114		SW846 8290
	2.9	174	195	pg/g	110	3.3	SW846 8290
1,2,3,7,8,9-HxCDD	ND	174	221	pg/g	127		SW846 8290
	ND	174	219	pg/g	126	1.1	SW846 8290
1,2,3,4,6,7,8-HpCDD	30	174	238	pg/g	119		SW846 8290
	30	174	229	pg/g	114	3.7	SW846 8290
OCDD	180	348	558	pg/g	108		SW846 8290
	180	348	527	pg/g	99	5.7	SW846 8290
2,3,7,8-TCDF	1.3	34.8	43.3	pg/g	121		SW846 8290
	Qualifiers: CON						
	1.3	34.8	41.4	pg/g	115	4.4	SW846 8290
	Qualifiers: CON						
1,2,3,7,8-PeCDF	ND	174	198	pg/g	114		SW846 8290
	ND	174	191	pg/g	109	3.7	SW846 8290
2,3,4,7,8-PeCDF	ND	174	204	pg/g	117		SW846 8290
	ND	174	195	pg/g	112	4.6	SW846 8290
1,2,3,4,7,8-HxCDF	ND	174	214	pg/g	123		SW846 8290
	ND	174	216	pg/g	124	1.3	SW846 8290
1,2,3,6,7,8-HxCDF	ND	174	217	pg/g	125		SW846 8290
	ND	174	215	pg/g	123	1.0	SW846 8290
2,3,4,6,7,8-HxCDF	ND	174	243	pg/g	140		SW846 8290
	ND	174	243	pg/g	139	0.16	SW846 8290
1,2,3,7,8,9-HxCDF	ND	174	262	pg/g	151 a		SW846 8290
	ND	174	259	pg/g	149 a	1.0	SW846 8290
1,2,3,4,6,7,8-HpCDF	4.3	174	198	pg/g	111		SW846 8290
	4.3	174	187	pg/g	105	5.4	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	174	193	pg/g	111		SW846 8290
	ND	174	185	pg/g	106	4.3	SW846 8290
OCDF	7.2	348	348	pg/g	98		SW846 8290
	7.2	348	341	pg/g	96	2.2	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K110245 Work Order #...: HP1CT1AE-MS Matrix.....: SOLID
MS Lot-Sample #: G5K110245-005 HP1CT1AF-MSD

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,7,8-PeCDD	88	(40 - 135)
	84	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	78	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	113	(40 - 135)
	106	(40 - 135)
13C-OCDD	114	(40 - 135)
	103	(40 - 135)
13C-2,3,7,8-TCDF	95	(40 - 135)
	96	(40 - 135)
13C-1,2,3,7,8-PeCDF	90	(40 - 135)
	89	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	65	(40 - 135)
	64	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	103	(40 - 135)
	100	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

CON Confirmation analysis.

a Spiked analyte recovery is outside stated control limits.

SOLID, 8151A, PCP only

Pacific Affiliates, Inc.

Client Sample ID: 2-B-1

GC Semivolatiles

Lot-Sample #....: G5K110245-001 Work Order #....: HP1AT1AD Matrix.....: SOLID
Date Sampled....: 11/10/05 Date Received...: 11/11/05
Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
Prep Batch #....: 5325014
Dilution Factor: 1 Initial Wgt/Vol: 50.13 g Final Wgt/Vol...: 100 mL
% Moisture.....: 43 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	3.7 J	17	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	88	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Pacific Affiliates, Inc.

Client Sample ID: 3-A-1

GC Semivolatiles

Lot-Sample #....: G5K110245-002 Work Order #....: HP1A51AD Matrix.....: SOLID
Date Sampled...: 11/10/05 Date Received...: 11/11/05
Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
Prep Batch #....: 5325014
Dilution Factor: 1 Initial Wgt/Vol: 50.19 g Final Wgt/Vol...: 100 mL
% Moisture.....: 39 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	16	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	113 *	(47 - 111)

NOTE(S) :

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 7-A-1

GC Semivolatiles

Lot-Sample #...: G5K110245-003 Work Order #...: HP1CD1AD Matrix.....: SOLID
Date Sampled...: 11/09/05 Date Received...: 11/11/05
Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
Prep Batch #...: 5325014
Dilution Factor: 1 Initial Wgt/Vol: 50.11 g Final Wgt/Vol...: 100 mL
% Moisture.....: 39 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	8.3 J	16	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	90	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Pacific Affiliates, Inc.

Client Sample ID: 12-A-1

GC Semivolatiles

Lot-Sample #...: G5K110245-004 Work Order #...: HP1CL1AD Matrix.....: SOLID
Date Sampled...: 11/09/05 Date Received...: 11/11/05
Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
Prep Batch #...: 5325014
Dilution Factor: 1 Initial Wgt/Vol: 50.08 g Final Wgt/Vol...: 100 mL
% Moisture.....: 41 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	3.3 J	17	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	81	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Pacific Affiliates, Inc.

Client Sample ID: 12-B-1

GC Semivolatiles

Lot-Sample #....: G5K110245-005 Work Order #....: HP1CT1AD Matrix.....: SOLID
Date Sampled....: 11/08/05 Date Received...: 11/11/05
Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
Prep Batch #....: 5325014
Dilution Factor: 1 Initial Wgt/Vol: 50.13 g Final Wgt/Vol...: 100 mL
% Moisture.....: 43 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	2.8 J	17	ug/kg

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	105	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

G5K110245

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
002	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
003	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
004	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006
005	SOLID	SW846 8290		5325658	5325372
	SOLID	ASTM D 2216-90		5315533	5315348
	SOLID	SW846 8151A		5325014	5325006

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G5K110245
MB Lot-Sample #: A5K210000-014

Work Order #...: HQMVG1AA

Matrix.....: SOLID

Analysis Date...: 11/25/05
Dilution Factor: 1

Prep Date.....: 11/21/05

Prep Batch #...: 5325014

Final Wgt/Vol...: 100 mL

Initial Wgt/Vol: 50 g

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Pentachlorophenol	ND	10	ug/kg	SW846 8151A
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>		
2,4-Dichlorophenylacetic acid	62	(47 - 111)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K110245 Work Order #...: HQMVG1AC Matrix.....: SOLID
 LCS Lot-Sample#: A5K210000-014
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #...: 5325014
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
2,4-D	63	(10 - 110)	SW846 8151A
2,4,5-T	68	(10 - 116)	SW846 8151A
Silvex	62	(10 - 118)	SW846 8151A

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	86	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G5K110245 Work Order #....: HQMVG1AC Matrix.....: SOLID
 LCS Lot-Sample#: A5K210000-014
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325014
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,4-D	400	252	ug/kg	63	SW846 8151A
2,4,5-T	100	67.7	ug/kg	68	SW846 8151A
Silvex	100	61.8	ug/kg	62	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	86	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #....: G5K110245 Work Order #....: HPCWP1CH-MS Matrix.....: SOLID
 MS Lot-Sample #: A5K030428-004 HPCWP1CJ-MSD
 Date Sampled....: 11/02/05 Date Received...: 11/03/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325014
 Dilution Factor: 1 Initial Wgt/Vol: 50.13 g Final Wgt/Vol...: 100 mL
 % Moisture.....: 39

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	64	(10 - 113)			SW846 8151A
	67	(10 - 113)	5.2	(0-62)	SW846 8151A
2,4,5-T	68	(10 - 122)			SW846 8151A
	71	(10 - 122)	4.5	(0-66)	SW846 8151A
Silvex	65	(10 - 123)			SW846 8151A
	68	(10 - 123)	5.4	(0-99)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	87	(47 - 111)
	91	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #....: G5K110245 Work Order #....: HPCWP1CH-MS Matrix.....: SOLID
 MS Lot-Sample #: A5K030428-004 HPCWP1CJ-MSD
 Date Sampled...: 11/02/05 Date Received...: 11/03/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/23/05
 Prep Batch #....: 5325014
 Dilution Factor: 1 Initial Wgt/Vol: 50.13 g Final Wgt/Vol...: 100 mL
 % Moisture.....: 39

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2,4-D	ND	660	419	ug/kg	64		SW846 8151A
	ND	660	442	ug/kg	67	5.2	SW846 8151A
2,4,5-T	ND	165	113	ug/kg	68		SW846 8151A
	ND	165	118	ug/kg	71	4.5	SW846 8151A
Silvex	ND	165	107	ug/kg	65		SW846 8151A
	ND	165	113	ug/kg	68	5.4	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	87	(47 - 111)
	91	(47 - 111)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.



STL[®]

STL Sacramento
880 Riverside Parkway
West Sacramento, CA 95605

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December 8, 2005

STL SACRAMENTO PROJECT NUMBER: G5K150224
PO/CONTRACT:

Yoash Tilles
Pacific Affiliates, Inc.
990 W Waterfront Drive
Eureka, CA 95501

Dear Mr. Tilles,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on November 15, 2005. These samples are associated with your 930/940D(240063) project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4433.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hrabak", written over a white background.

Robert Hrabak
Project Manager

TABLE OF CONTENTS

STL SACRAMENTO PROJECT NUMBER G5K150224

Case Narrative

STL Sacramento Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

SOLID, 8290, Dioxins/Furans

Samples: 1, 2, 3, 4, 5, 6, and 7

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

SOLID, 8082, PCBs

Samples: 4, 5, 6, and 7

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

SOLID, 8151A, PCP only

Performed at STL North Canton

Samples: 1, 2, 3, 4, 5, 6, and 7

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G5K150224

General Comments

Final 8290 and 8082 results were provided via electronic mail on December 2, 2005. Preliminary 8151 results were provided at that time. The preliminary dilution/re-analysis results for 8151 were provided via electronic mail on December 5, 2005 (see below).

SOLID, 8290, Dioxins/Furans

Sample(s): 1, 2, 3, 4, 5, 6, and 7

The recoveries for OCDD are not calculated in the matrix spike/matrix spike duplicate (MS/MSD) associated with this extraction batch as the level of this compound in the parent sample is inappropriate relative to the spiked concentration and non-homogeneity of the matrix. Acceptable laboratory control sample (LCS) data demonstrate that the analytical system is in control.

Sample(s): 3, 4, and 5

The some isomers in these samples have been designated with the "JA" qualifier due to the ion abundance ratios being outside of criteria. The isomers have been qualified as "positively identified, but at an estimated quantity" because the quantitation is based on the theoretical ratios for these samples as per Section 7.9.5.2.1 of Method 8290. There is no adverse impact on data quality, and no corrective action is necessary.

Sample(s): 3

Due to matrix interference the detection limit has been elevated for 2,3,7,8-TCDD.

SOLID, 8151A, PCP only

Performed at STL North Canton

Samples: 1, 2, 3, 4, 5, 6, and 7

Insufficient volume was available for matrix spike/matrix spike duplicate (MS/MSD). A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) was prepared instead.

Samples: 1, 2, 3, 4, and 5

All samples for this analysis were initially analyzed on November 29, 2005. However, when the data was processed through technical review matrix interference was observed in the chromatograms, which necessitated dilution for these extracts. The extracts of these samples required 10-50X dilutions. All reporting limits have been adjusted accordingly. As a result, most surrogates have recoveries outside of the established control limits.

There were no other anomalies associated with this project.

STL Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	Oregon*	CA 200005
Arizona	AZ0616	Pennsylvania	68-1272
Arkansas	04-067-0	South Carolina	87014002
California*	01119CA	Texas	TX 270-2004A
Colorado	NA	Utah*	QUAN1
Connecticut	PH-0691	Virginia	00178
Florida*	E87570	Washington	C087
Georgia	960	West Virginia	9930C, 334
Hawaii	NA	Wisconsin	998204680
Louisiana*	01944	NFESC	NA
Michigan	9947	USACE	NA
Nevada	CA44	USDA Foreign Plant	37-82605
New Jersey*	CA005	USDA Foreign Soil	S-46613
New York*	11666		

*NELAP accredited. A more detailed parameter list is available upon request. Update 1/27/05

QC Parameter Definitions

QC Batch: The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

Method Blank: An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD):

An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also be used to evaluate the precision of the process.

Duplicate Sample (DU): Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

Surrogates: Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

Matrix Spike and Matrix Spike Duplicate (MS/MSD): An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

Isotope Dilution: For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

Control Limits: The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

Sample Summary

G5K150224

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
HP7XA	1	2-A-1	11/11/2005 03:05 PM	11/15/2005 09:00 AM
HP7XF	2	1-A-1	11/11/2005 12:45 AM	11/15/2005 09:00 AM
HP7XG	3	4-A-1	11/10/2005 01:20 PM	11/15/2005 09:00 AM
HP7XN	4	4-B-1	11/10/2005 12:30 PM	11/15/2005 09:00 AM
HP7X0	5	5-A-1	11/11/2005 02:25 AM	11/15/2005 09:00 AM
HP7X8	6	13-A-1	11/14/2005 03:20 PM	11/15/2005 09:00 AM
HP70A	7	13-B-1	11/14/2005 03:15 PM	11/15/2005 09:00 AM

Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

MFG, INC.

☒ CA - Arcata 1592 11th Street, Suite B Arcata, CA 95521-6741 Phone: (707) 826-8430 Fax: (707) 826-8437
☐ CA - Fresno 1592 11th Street, Suite B Reedley, CA 93654-2940 Phone: (559) 638-3287 Fax: (559) 638-3218
☐ CA - Irvine 17770 Carwright Rd., Ste. 500 Irvine, CA 92614-5850 Phone: (949) 253-2951 Direct: (949) 608-847 Fax: (949) 253-2954
☐ CA - San Francisco 180 Howard Street, Ste. 200 San Francisco, CA 94105-1617 Phone: (415) 495-7110 Direct: (415) 977-1355 Fax: (415) 495-7107
☐ CO - Boulder 4900 Pearl E. Circle, Ste. 300 W Boulder, CO 80501-6118 Phone: (303) 447-1823 Direct: (303) 447-0913 Fax: (303) 447-1836
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☐ WA - Seattle 19203 36th Avenue W Suite 301 Lynnwood, WA 98036-5772 Phone: (425) 921-4000 Fax: (425) 921-4000

PROJECT NO: PA # 930/940D (240063) PROJECT NAME: City of Eureka and Hobbs District sed sampling PAGE: 1 OF: 1
 SAMPLER (Signature): John Mills PROJECT MANAGER: Yosh Tilles DATE: 11/14/05
 METHOD OF SHIPMENT: Fed Ex overnight CARRIERWAYBILL NO: 772580692184 DESTINATION: STL Sacramento

SAMPLES				ANALYSIS REQUEST												
Field Sample Identification	Sample		Preservation				Containers		Constituents/Method	Handling			Remarks			
	DATE	TIME	Matrix*	HCl	HNO ₃	H ₂ SO ₄	COLD	FILTRATION*		VOLUME (ml/oz)	TYPE#	NO.				
2-A-1	11/11	1505	OT				✓	-	402	G	1	✓	✓	✓	STANDARD	Send Results to Pacific Affiliates
1-A-1	11/11	0845	OT				✓	-	402	G	1	✓	✓	✓	RUSH	
4-A-1	11/10	1320	OT				✓	-	402	G	1	✓	✓	✓		
4-B-1	11/10	1230	OT				✓	-	402	G	1	✓	✓	✓		
5-A-1	11/11	0225	OT				✓	-	402	G	1	✓	✓	✓		
13-A-1	11/14	1520	OT				✓	-	402	G	1	✓	✓	✓	✓	
13-B-2	11/14	1515	OT				✓	-	402	G	1	✓	✓	✓	✓	
TOTAL NUMBER OF CONTAINERS													LABORATORY COMMENTS/CONDITION OF SAMPLES			Cooler Temp:
7																

SIGNATURE: John Mills PRINTED NAME: John Mills COMPANY: MFG DATE: 11/14/05 TIME: 1600
 SIGNATURE: C. Hefner PRINTED NAME: C. Hefner COMPANY: STL DATE: 11/14/05 TIME: 1145
 SIGNATURE: _____ PRINTED NAME: _____ COMPANY: _____ DATE: _____ TIME: _____
 SIGNATURE: _____ PRINTED NAME: _____ COMPANY: _____ DATE: _____ TIME: _____

*KEY Matrix: A - aqueous NA - nonaqueous SO - soil SL - sludge P - petroleum A - air OT - other Containers: P - plastic G - glass T - tellon B - brass OT - other Filtration: F - filtered U - unfiltered
 DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator
 OT - sediment



STL

LOT RECEIPT CHECKLIST STL Sacramento

CLIENT MEG PM PH LOG # 35711
LOT# (QUANTIMS ID) G5K150224 QUOTE# 67565 LOCATION W2A

DATE RECEIVED 11-15-05 TIME RECEIVED 900

Initials at Date 11-15-05

DELIVERED BY ☒ FEDEX ☐ CA OVERNIGHT ☐ CLIENT
☐ AIRBORNE ☐ GOLDENSTATE ☐ DHL
☐ UPS ☐ BAX GLOBAL ☐ GO-GETTERS
☐ STL COURIER ☐ COURIERS ON DEMAND
☐ OTHER

CUSTODY SEAL STATUS ☐ INTACT ☐ BROKEN ☐ N/A

CUSTODY SEAL #(S) _____

SHIPPING CONTAINER(S) ☐ STL ☐ CLIENT ☐ N/A

TEMPERATURE RECORD (IN °C) IR 1 ☐ 3 ☐ OTHER _____

COC #(S) 47098

TEMPERATURE BLANK Observed: 2 Corrected: 2

SAMPLE TEMPERATURE

Observed: 1 2 2 Average: 2 Corrected Average: 2

COLLECTOR'S NAME: ☒ Verified from COC ☐ Not on COC

pH MEASURED ☐ YES ☐ ANOMALY ☒ N/A

LABELED BY _____

LABELS CHECKED BY _____

PEER REVIEW ☒ NA

SHORT HOLD TEST NOTIFICATION

SAMPLE RECEIVING

WETCHEM ☒ N/A

VOA-ENCORES ☒ N/A

☐ METALS NOTIFIED OF FILTER/PRESERVE VIA VERBAL & EMAIL ☒ N/A

☒ COMPLETE SHIPMENT RECEIVED IN GOOD CONDITION WITH APPROPRIATE TEMPERATURES, CONTAINERS, PRESERVATIVES ☐ N/A

☐ Clouseau ☐ TEMPERATURE EXCEEDED (2 °C - 6 °C)* ☒ N/A

☐ WET ICE ☐ BLUE ICE ☐ GEL PACK ☐ NO COOLING AGENTS USED ☐ PM NOTIFIED

Notes: _____



G
consulting
scientists and
engineers

MFG, Inc.
a Tetra Tech Company

875 Crescent Way
Arcata, CA 95521-5817
707/826-8430
Fax: 707/826-8437

FACSIMILE TRANSMITTAL

To: Robert Hrabak / Yoash Tilles	Fax: 916-372-1059 / 707-445-3003
Company: STL / Pacific Affiliates	Date: 11/14/05
From: Julie Mills / Orrin Plocher	Project Number: 240063
MFG - Arcata	
CC:	Total Pages: 3
Re:	

☐ URGENT
☐ For Your Information
☐ Please Review and Comment
☐ Please Handle
☐ As Requested

Hard copy to follow: ☐ No

☐ Yes - via
Mail
☐ E-Mail
☐ Courier
☐ Overnight

If difficulties are encountered with this transmission, please call: 707/826-8430

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COMMENTS:

Please perform PCB analysis on 4-B-1 and 5-A-1.

Note that 13-B-2 should be 13-B-1.

Original + revised copy attached.

Samples shipped 11/14 for delivery on 11/15/05.

Julie Mills

California • Colorado • Idaho • Montana • New Jersey • Oregon • Pennsylvania • Texas • Washington

Severn Trent Laboratories, Inc
SAMPLE ANALYSIS REQUISITION

LABORATORY:

STL N Canton
4101 Shuffel Drive NW
North Canton

OH 44720.

NEED ANALYTICAL REPORT BY
11/27/05

ATTN:

LAB PURCHASE ORDER: SR074970

CLIENT CODE: 1371717 PROJECT MANAGER: Robert Hrabak

NUMBER OF SAMPLES IN LOT: 0007

<u>SAMPLE I.D.</u>	<u>SAMPLING DATE</u>	<u>ANALYSIS REQUIRED</u>
G5K150224-001 HP7XA-1-AE	11/11/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-002 HP7XF-1-AE	11/11/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-003 HP7XG-1-AE	11/10/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-004 HP7XN-1-AE	11/10/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-005 HP7XO-1-AE	11/11/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-006 HP7X8-1-AD	11/14/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A
G5K150224-007 HP7OA-1-AD	11/14/05	Herbicides (8151A) (GC8151_S) METHOD: 8151A

NEED DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: FEDEX

DATE: 11/15/05

SEND REPORT TO: ROBERT HRABAK

SAMPLE RECEIVED BY: _____

DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS.

THANK YOU.

STL Sacramento

INT: _____

11/15/05 13:09:27

STL N Canton
4101 Shuffel Drive NW
North Canton

OH 44720,

RELINQUISHED BY: _____

DATE/TIME: 11/15/05 16:00

RELINQUISHED BY: _____

DATE/TIME: _____

RECEIVED FOR LAB BY: _____

DATE/TIME: _____

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

SOLID, 8290, Dioxins/Furans

Pacific Affiliates, Inc.

Client Sample ID: 2-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-001 Work Order #...: HP7XA1AC Matrix.....: SOLID
 Date Sampled...: 11/11/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.66	pg/g	SW846 8290
Total TCDD	1.8		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.3	pg/g	SW846 8290
Total PeCDD	2.7		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	6.8		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	2.0	pg/g	SW846 8290
Total HxCDD	63		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	99		pg/g	SW846 8290
Total HpCDD	270		pg/g	SW846 8290
OCDD	660		pg/g	SW846 8290
2,3,7,8-TCDF	2.0 CON		pg/g	SW846 8290
Total TCDF	6.2		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.82	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.78	pg/g	SW846 8290
Total PeCDF	2.9		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.7	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.5	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.7	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.8	pg/g	SW846 8290
Total HxCDF	21		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	10		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.77	pg/g	SW846 8290
Total HpCDF	29		pg/g	SW846 8290
OCDF	14		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	73	(40 - 135)
13C-1,2,3,7,8-PeCDD	56	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	76	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	82	(40 - 135)
13C-OCDD	90	(40 - 135)
13C-2,3,7,8-TCDF	72	(40 - 135)
13C-1,2,3,7,8-PeCDF	66	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	75	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	84	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.
 CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 1-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-002 Work Order #...: HP7XF1AC Matrix.....: SOLID
 Date Sampled...: 11/11/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 38

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.45	pg/g	SW846 8290
Total TCDD	ND	0.87	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.8	pg/g	SW846 8290
Total PeCDD	ND	1.9	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.8	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.0 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.8	pg/g	SW846 8290
Total HxCDD	46		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	35		pg/g	SW846 8290
Total HpCDD	160		pg/g	SW846 8290
OCDD	180		pg/g	SW846 8290
2,3,7,8-TCDF	0.95 CON		pg/g	SW846 8290
Total TCDF	2.3		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
Total PeCDF	ND	1.6	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	2.0	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.8	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	2.0	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	2.1	pg/g	SW846 8290
Total HxCDF	7.7		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	3.5 J		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	1.1	pg/g	SW846 8290
Total HpCDF	17		pg/g	SW846 8290
OCDF	11		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	68	(40 - 135)
13C-1,2,3,7,8-PeCDD	54	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	69	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	77	(40 - 135)
13C-OCDD	85	(40 - 135)
13C-2,3,7,8-TCDF	68	(40 - 135)
13C-1,2,3,7,8-PeCDF	64	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	76	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	78	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 4-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-003 Work Order #...: HP7XG1AC Matrix.....: SOLID
 Date Sampled...: 11/10/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND G	0.86	pg/g	SW846 8290
Total TCDD	0.98		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	2.2	pg/g	SW846 8290
Total PeCDD	ND	2.0	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	3.7	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	4.3 JA		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	2.9	pg/g	SW846 8290
Total HxCDD	64		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	370		pg/g	SW846 8290
Total HpCDD	950		pg/g	SW846 8290
OCDD	2800		pg/g	SW846 8290
2,3,7,8-TCDF	0.46 J, CON		pg/g	SW846 8290
Total TCDF	ND	0.71	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	1.4	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.4	pg/g	SW846 8290
Total PeCDF	2.8		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	2.3 J		pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	3.1	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	3.5	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	3.7	pg/g	SW846 8290
Total HxCDF	40		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	21		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	3.5 J, JA		pg/g	SW846 8290
Total HpCDF	120		pg/g	SW846 8290
OCDF	110		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	79	(40 - 135)
13C-1,2,3,7,8-PeCDD	61	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	84	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	95	(40 - 135)
13C-OCDD	99	(40 - 135)
13C-2,3,7,8-TCDF	82	(40 - 135)
13C-1,2,3,7,8-PeCDF	74	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	98	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	100	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 4-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-003 Work Order #...: HP7XG1AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

JA The analyte was positively identified, but the quantitation is an estimate.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 4-B-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-004 Work Order #...: HP7XN1AC Matrix.....: SOLID
 Date Sampled...: 11/10/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/30/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 34

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	0.68 J		pg/g	SW846 8290
Total TCDD	18		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.4	pg/g	SW846 8290
Total PeCDD	20		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	5.9		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	3.3 J		pg/g	SW846 8290
Total HxCDD	170		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	110		pg/g	SW846 8290
Total HpCDD	350		pg/g	SW846 8290
OCDD	830		pg/g	SW846 8290
2,3,7,8-TCDF	3.4 CON		pg/g	SW846 8290
Total TCDF	52		pg/g	SW846 8290
1,2,3,7,8-PeCDF	1.9 J, JA		pg/g	SW846 8290
2,3,4,7,8-PeCDF	3.4 J		pg/g	SW846 8290
Total PeCDF	28		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	6.1		pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	2.9 J		pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.7	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.8	pg/g	SW846 8290
Total HxCDF	51		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	21		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	1.8	pg/g	SW846 8290
Total HpCDF	80		pg/g	SW846 8290
OCDF	60		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	81	(40 - 135)
13C-1,2,3,7,8-PeCDD	64	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	86	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	96	(40 - 135)
13C-OCDD	102	(40 - 135)
13C-2,3,7,8-TCDF	82	(40 - 135)
13C-1,2,3,7,8-PeCDF	76	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	89	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	95	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 4-B-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-004 Work Order #...: HP7XN1AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

JA The analyte was positively identified, but the quantitation is an estimate.

Pacific Affiliates, Inc.

Client Sample ID: 5-A-1

Trace Level Organic Compounds

Lot-Sample #....: G5K150224-005 Work Order #....: HP7X01AC Matrix.....: SOLID
 Date Sampled....: 11/11/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/30/05
 Prep Batch #....: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 38

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.50	pg/g	SW846 8290
Total TCDD	6.8		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.6	pg/g	SW846 8290
Total PeCDD	5.8		pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.7	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	5.3		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	2.4 J,JA		pg/g	SW846 8290
Total HxCDD	70		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	71		pg/g	SW846 8290
Total HpCDD	220		pg/g	SW846 8290
OCDD	400		pg/g	SW846 8290
2,3,7,8-TCDF	0.57 J,CON		pg/g	SW846 8290
Total TCDF	0.57		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
Total PeCDF	ND	2.0	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.7	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.6	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.7	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.9	pg/g	SW846 8290
Total HxCDF	16		pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	7.8 JA		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.79	pg/g	SW846 8290
Total HpCDF	34		pg/g	SW846 8290
OCDF	22		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	56	(40 - 135)
13C-1,2,3,7,8-PeCDD	47	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	66	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	81	(40 - 135)
13C-OCDD	89	(40 - 135)
13C-2,3,7,8-TCDF	57	(40 - 135)
13C-1,2,3,7,8-PeCDF	55	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	71	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	81	(40 - 135)

(Continued on next page)

Pacific Affiliates, Inc.

Client Sample ID: 5-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-005 Work Order #...: HP7X01AC Matrix.....: SOLID

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than the reporting limit.

JA The analyte was positively identified, but the quantitation is an estimate.

CON Confirmation analysis.

Pacific Affiliates, Inc.

Client Sample ID: 13-A-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-006 Work Order #...: HP7X81AC Matrix.....: SOLID
 Date Sampled...: 11/14/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/30/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 12

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.55	pg/g	SW846 8290
Total TCDD	ND	0.55	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.97	pg/g	SW846 8290
Total PeCDD	ND	0.97	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.93	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.99	pg/g	SW846 8290
Total HxCDD	ND	1.1	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.58	pg/g	SW846 8290
Total HpCDD	ND	0.58	pg/g	SW846 8290
OCDD	ND	1.3	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.27	pg/g	SW846 8290
Total TCDF	ND	0.27	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.57	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.55	pg/g	SW846 8290
Total PeCDF	ND	0.97	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.99	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.2	pg/g	SW846 8290
Total HxCDF	ND	1.2	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.41	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.51	pg/g	SW846 8290
Total HpCDF	ND	0.51	pg/g	SW846 8290
OCDF	ND	1.1	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	80	(40 - 135)
13C-1,2,3,7,8-PeCDD	62	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	84	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	97	(40 - 135)
13C-OCDD	104	(40 - 135)
13C-2,3,7,8-TCDF	80	(40 - 135)
13C-1,2,3,7,8-PeCDF	74	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	88	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	98	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 13-B-1

Trace Level Organic Compounds

Lot-Sample #...: G5K150224-007 Work Order #...: HP70A1AC Matrix.....: SOLID
 Date Sampled...: 11/14/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/30/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 19

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.30	pg/g	SW846 8290
Total TCDD	0.58		pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.2	pg/g	SW846 8290
Total PeCDD	ND	1.2	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	1.7	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.4	pg/g	SW846 8290
Total HxCDD	ND	1.7	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.77	pg/g	SW846 8290
Total HpCDD	ND	0.77	pg/g	SW846 8290
OCDD	ND	2.4	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.24	pg/g	SW846 8290
Total TCDF	ND	0.24	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.72	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.69	pg/g	SW846 8290
Total PeCDF	ND	1.2	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.8	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	1.6	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	1.8	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	1.9	pg/g	SW846 8290
Total HxCDF	ND	1.9	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.52	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.67	pg/g	SW846 8290
Total HpCDF	ND	0.67	pg/g	SW846 8290
OCDF	ND	1.7	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	73	(40 - 135)
13C-1,2,3,7,8-PeCDD	56	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	90	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	97	(40 - 135)
13C-OCDD	105	(40 - 135)
13C-2,3,7,8-TCDF	74	(40 - 135)
13C-1,2,3,7,8-PeCDF	72	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	96	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	100	(40 - 135)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

QC DATA ASSOCIATION SUMMARY

G5K150224

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
002	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
003	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
004	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
005	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
006	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
007	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	

METHOD BLANK REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224
MB Lot-Sample #: G5K230000-544

Work Order #...: HQWJ21AA

Matrix.....: SOLID

Analysis Date...: 11/29/05
Dilution Factor: 1

Prep Date.....: 11/23/05

Final Wgt/Vol...: 10 uL

Prep Batch #...: 5327544

Initial Wgt/Vol: 10 g

PARAMETER	RESULT	DETECTION		
		LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.25	pg/g	SW846 8290
Total TCDD	ND	0.25	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.48	pg/g	SW846 8290
Total PeCDD	ND	0.48	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.46	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.37	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.39	pg/g	SW846 8290
Total HxCDD	ND	0.46	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.29	pg/g	SW846 8290
Total HpCDD	ND	0.29	pg/g	SW846 8290
OCDD	ND	0.56	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.38	pg/g	SW846 8290
Total TCDF	ND	0.38	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.22	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.21	pg/g	SW846 8290
Total PeCDF	ND	0.40	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.54	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.49	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.54	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.58	pg/g	SW846 8290
Total HxCDF	ND	0.58	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.17	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.22	pg/g	SW846 8290
Total HpCDF	ND	0.22	pg/g	SW846 8290
OCDF	ND	0.47	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT	RECOVERY
	RECOVERY	LIMITS
13C-2,3,7,8-TCDD	80	(40 - 135)
13C-1,2,3,7,8-PeCDD	61	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	84	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	91	(40 - 135)
13C-OCDD	99	(40 - 135)
13C-2,3,7,8-TCDF	80	(40 - 135)
13C-1,2,3,7,8-PeCDF	74	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	85	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	89	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224 Work Order #...: HQWJ21AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K230000-544
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2,3,7,8-TCDD	93	(71 - 128)	SW846 8290
1,2,3,7,8-PeCDD	117	(73 - 134)	SW846 8290
1,2,3,4,7,8-HxCDD	110	(66 - 137)	SW846 8290
1,2,3,6,7,8-HxCDD	121	(75 - 131)	SW846 8290
1,2,3,7,8,9-HxCDD	119	(74 - 135)	SW846 8290
1,2,3,4,6,7,8-HpCDD	108	(76 - 130)	SW846 8290
OCDD	110	(74 - 133)	SW846 8290
2,3,7,8-TCDF	107	(71 - 134)	SW846 8290
1,2,3,7,8-PeCDF	107	(74 - 130)	SW846 8290
2,3,4,7,8-PeCDF	109	(71 - 133)	SW846 8290
1,2,3,4,7,8-HxCDF	119	(73 - 132)	SW846 8290
1,2,3,6,7,8-HxCDF	124	(69 - 139)	SW846 8290
2,3,4,6,7,8-HxCDF	116	(75 - 147)	SW846 8290
1,2,3,7,8,9-HxCDF	107	(71 - 140)	SW846 8290
1,2,3,4,6,7,8-HpCDF	105	(75 - 131)	SW846 8290
1,2,3,4,7,8,9-HpCDF	105	(68 - 138)	SW846 8290
OCDF	130	(68 - 142)	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	74	(40 - 135)
13C-1,2,3,7,8-PeCDD	55	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	84	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	88	(40 - 135)
13C-OCDD	94	(40 - 135)
13C-2,3,7,8-TCDF	76	(40 - 135)
13C-1,2,3,7,8-PeCDF	67	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	94	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	93	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224 Work Order #...: HQWJ21AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K230000-544
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Final Wgt/Vol...: 10 uL
 Initial Wgt/Vol: 10 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
2,3,7,8-TCDD	20.0	18.7	pg/g	93	SW846 8290
1,2,3,7,8-PeCDD	100	117	pg/g	117	SW846 8290
1,2,3,4,7,8-HxCDD	100	110	pg/g	110	SW846 8290
1,2,3,6,7,8-HxCDD	100	121	pg/g	121	SW846 8290
1,2,3,7,8,9-HxCDD	100	119	pg/g	119	SW846 8290
1,2,3,4,6,7,8-HpCDD	100	108	pg/g	108	SW846 8290
OCDD	200	221	pg/g	110	SW846 8290
2,3,7,8-TCDF	20.0	21.5	pg/g	107	SW846 8290
1,2,3,7,8-PeCDF	100	107	pg/g	107	SW846 8290
2,3,4,7,8-PeCDF	100	109	pg/g	109	SW846 8290
1,2,3,4,7,8-HxCDF	100	119	pg/g	119	SW846 8290
1,2,3,6,7,8-HxCDF	100	124	pg/g	124	SW846 8290
2,3,4,6,7,8-HxCDF	100	116	pg/g	116	SW846 8290
1,2,3,7,8,9-HxCDF	100	107	pg/g	107	SW846 8290
1,2,3,4,6,7,8-HpCDF	100	105	pg/g	105	SW846 8290
1,2,3,4,7,8,9-HpCDF	100	105	pg/g	105	SW846 8290
OCDF	200	259	pg/g	130	SW846 8290

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	74	(40 - 135)
13C-1,2,3,7,8-PeCDD	55	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	84	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	88	(40 - 135)
13C-OCDD	94	(40 - 135)
13C-2,3,7,8-TCDF	76	(40 - 135)
13C-1,2,3,7,8-PeCDF	67	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	94	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	93	(40 - 135)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #....: G5K150224 Work Order #....: HP7XA1AG-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K150224-001 HP7XA1AH-MSD
 Date Sampled....: 11/11/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #....: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,3,7,8-TCDD	102	(71 - 128)			SW846 8290
	97	(71 - 128)	4.9	(0-25)	SW846 8290
1,2,3,7,8-PeCDD	118	(73 - 134)			SW846 8290
	119	(73 - 134)	0.74	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDD	119	(66 - 137)			SW846 8290
	119	(66 - 137)	0.31	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDD	114	(75 - 131)			SW846 8290
	119	(75 - 131)	3.5	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDD	124	(74 - 135)			SW846 8290
	133	(74 - 135)	6.6	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDD	80	(76 - 130)			SW846 8290
	82	(76 - 130)	1.6	(0-25)	SW846 8290
OCDD	0.0 a	(74 - 133)			SW846 8290
	0.0 a	(74 - 133)	0.0	(0-25)	SW846 8290
2,3,7,8-TCDF	112 CON	(71 - 134)			SW846 8290
	120 CON	(71 - 134)	6.4	(0-25)	SW846 8290
1,2,3,7,8-PeCDF	107	(74 - 130)			SW846 8290
	107	(74 - 130)	0.45	(0-25)	SW846 8290
2,3,4,7,8-PeCDF	109	(71 - 133)			SW846 8290
	105	(71 - 133)	3.4	(0-25)	SW846 8290
1,2,3,4,7,8-HxCDF	122	(73 - 132)			SW846 8290
	121	(73 - 132)	0.50	(0-25)	SW846 8290
1,2,3,6,7,8-HxCDF	119	(69 - 139)			SW846 8290
	126	(69 - 139)	5.9	(0-25)	SW846 8290
2,3,4,6,7,8-HxCDF	118	(75 - 147)			SW846 8290
	122	(75 - 147)	3.5	(0-25)	SW846 8290
1,2,3,7,8,9-HxCDF	112	(71 - 140)			SW846 8290
	121	(71 - 140)	7.2	(0-25)	SW846 8290
1,2,3,4,6,7,8-HpCDF	102	(75 - 131)			SW846 8290
	108	(75 - 131)	5.8	(0-25)	SW846 8290
1,2,3,4,7,8,9-HpCDF	115	(68 - 138)			SW846 8290
	120	(68 - 138)	4.8	(0-25)	SW846 8290
OCDF	126	(68 - 142)			SW846 8290
	132	(68 - 142)	4.6	(0-25)	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224 Work Order #...: HP7XA1AG-MS Matrix.....: SOLID
MS Lot-Sample #: G5K150224-001 HP7XA1AH-MSD

<u>INTERNAL STANDARDS</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C-2,3,7,8-TCDD	83	(40 - 135)
	80	(40 - 135)
13C-1,2,3,7,8-PeCDD	64	(40 - 135)
	62	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	83	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	91	(40 - 135)
	89	(40 - 135)
13C-OCDD	99	(40 - 135)
	95	(40 - 135)
13C-2,3,7,8-TCDF	84	(40 - 135)
	80	(40 - 135)
13C-1,2,3,7,8-PeCDF	76	(40 - 135)
	75	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	90	(40 - 135)
	83	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	93	(40 - 135)
	88	(40 - 135)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

CON Confirmation analysis.

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224 Work Order #...: HP7XA1AG-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K150224-001 HP7XA1AH-MSD
 Date Sampled...: 11/11/05 Date Received...: 11/15/05
 Prep Date.....: 11/23/05 Analysis Date...: 11/29/05
 Prep Batch #...: 5327544
 Dilution Factor: 1 Initial Wgt/Vol: 10 g Final Wgt/Vol...: 10 uL
 % Moisture.....: 41

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
2,3,7,8-TCDD	ND	34.1	34.8	pg/g	102		SW846 8290
	ND	34.1	33.1	pg/g	97	4.9	SW846 8290
1,2,3,7,8-PeCDD	ND	170	201	pg/g	118		SW846 8290
	ND	170	203	pg/g	119	0.74	SW846 8290
1,2,3,4,7,8-HxCDD	ND	170	202	pg/g	119		SW846 8290
	ND	170	203	pg/g	119	0.31	SW846 8290
1,2,3,6,7,8-HxCDD	6.8	170	202	pg/g	114		SW846 8290
	6.8	170	209	pg/g	119	3.5	SW846 8290
1,2,3,7,8,9-HxCDD	ND	170	211	pg/g	124		SW846 8290
	ND	170	226	pg/g	133	6.6	SW846 8290
1,2,3,4,6,7,8-HpCDD	99	170	236	pg/g	80		SW846 8290
	99	170	239	pg/g	82	1.6	SW846 8290
OCDD	660	341	616	pg/g	0.0 a		SW846 8290
	660	341	628	pg/g	0.0 a	0.0	SW846 8290
2,3,7,8-TCDF	2.0	34.1	40.1	pg/g	112		SW846 8290
	Qualifiers: CON						
	2.0	34.1	42.7	pg/g	120	6.4	SW846 8290
	Qualifiers: CON						
1,2,3,7,8-PeCDF	ND	170	183	pg/g	107		SW846 8290
	ND	170	182	pg/g	107	0.45	SW846 8290
2,3,4,7,8-PeCDF	ND	170	185	pg/g	109		SW846 8290
	ND	170	179	pg/g	105	3.4	SW846 8290
1,2,3,4,7,8-HxCDF	ND	170	207	pg/g	122		SW846 8290
	ND	170	206	pg/g	121	0.50	SW846 8290
1,2,3,6,7,8-HxCDF	ND	170	202	pg/g	119		SW846 8290
	ND	170	215	pg/g	126	5.9	SW846 8290
2,3,4,6,7,8-HxCDF	ND	170	201	pg/g	118		SW846 8290
	ND	170	208	pg/g	122	3.5	SW846 8290
1,2,3,7,8,9-HxCDF	ND	170	192	pg/g	112		SW846 8290
	ND	170	206	pg/g	121	7.2	SW846 8290
1,2,3,4,6,7,8-HpCDF	10	170	183	pg/g	102		SW846 8290
	10	170	194	pg/g	108	5.8	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	170	196	pg/g	115		SW846 8290
	ND	170	205	pg/g	120	4.8	SW846 8290
OCDF	14	341	444	pg/g	126		SW846 8290
	14	341	464	pg/g	132	4.6	SW846 8290

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G5K150224 Work Order #...: HP7XA1AG-MS Matrix.....: SOLID
MS Lot-Sample #: G5K150224-001 HP7XA1AH-MSD

<u>INTERNAL STANDARDS</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
13C-2,3,7,8-TCDD	83	(40 - 135)
	80	(40 - 135)
13C-1,2,3,7,8-PeCDD	64	(40 - 135)
	62	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	83	(40 - 135)
	77	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	91	(40 - 135)
	89	(40 - 135)
13C-OCDD	99	(40 - 135)
	95	(40 - 135)
13C-2,3,7,8-TCDF	84	(40 - 135)
	80	(40 - 135)
13C-1,2,3,7,8-PeCDF	76	(40 - 135)
	75	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	90	(40 - 135)
	83	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	93	(40 - 135)
	88	(40 - 135)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

CON Confirmation analysis.

SOLID, 8082, PCBs

Pacific Affiliates, Inc.

Client Sample ID: 4-B-1

GC Semivolatiles

Lot-Sample #....: G5K150224-004 Work Order #....: HP7XN1AF Matrix.....: SOLID
Date Sampled....: 11/10/05 Date Received...: 11/15/05
Prep Date.....: 11/21/05 Analysis Date...: 11/28/05
Prep Batch #....: 5325461
Dilution Factor: 1 Initial Wgt/Vol: 30.05 g Final Wgt/Vol...: 10 mL
% Moisture.....: 34 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Aroclor 1016	ND	50	ug/kg
Aroclor 1221	ND	50	ug/kg
Aroclor 1232	ND	50	ug/kg
Aroclor 1242	ND	50	ug/kg
Aroclor 1248	ND	50	ug/kg
Aroclor 1254	89	50	ug/kg
Aroclor 1260	ND	50	ug/kg

SURROGATE	PERCENT		RECOVERY	
	RECOVERY		LIMITS	
Decachlorobiphenyl	91		(33 - 146)	
Tetrachloro-m-xylene	83		(55 - 124)	

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 5-A-1

GC Semivolatiles

Lot-Sample #...: G5K150224-005 Work Order #...: HP7X01AD Matrix.....: SOLID
Date Sampled...: 11/11/05 Date Received...: 11/15/05
Prep Date.....: 11/21/05 Analysis Date...: 11/27/05
Prep Batch #...: 5325461
Dilution Factor: 1 Initial Wgt/Vol: 30.09 g Final Wgt/Vol...: 10 mL
% Moisture.....: 38 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Aroclor 1016	ND	53	ug/kg
Aroclor 1221	ND	53	ug/kg
Aroclor 1232	ND	53	ug/kg
Aroclor 1242	ND	53	ug/kg
Aroclor 1248	ND	53	ug/kg
Aroclor 1254	ND	53	ug/kg
Aroclor 1260	ND	53	ug/kg

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	97	(33 - 146)
Tetrachloro-m-xylene	92	(55 - 124)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 13-A-1

GC Semivolatiles

Lot-Sample #....: G5K150224-006 Work Order #....: HP7X81AE Matrix.....: SOLID
Date Sampled....: 11/14/05 Date Received...: 11/15/05
Prep Date.....: 11/21/05 Analysis Date...: 11/27/05
Prep Batch #....: 5325461
Dilution Factor: 1 Initial Wgt/Vol: 30.2 g Final Wgt/Vol...: 10 mL
% Moisture.....: 12 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Aroclor 1016	ND	37	ug/kg
Aroclor 1221	ND	37	ug/kg
Aroclor 1232	ND	37	ug/kg
Aroclor 1242	ND	37	ug/kg
Aroclor 1248	ND	37	ug/kg
Aroclor 1254	ND	37	ug/kg
Aroclor 1260	ND	37	ug/kg

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	100	(33 - 146)
Tetrachloro-m-xylene	96	(55 - 124)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

Pacific Affiliates, Inc.

Client Sample ID: 13-B-1

GC Semivolatiles

Lot-Sample #...: G5K150224-007 Work Order #...: HP70A1AE Matrix.....: SOLID
Date Sampled...: 11/14/05 Date Received...: 11/15/05
Prep Date.....: 11/21/05 Analysis Date...: 11/27/05
Prep Batch #...: 5325461
Dilution Factor: 1 Initial Wgt/Vol: 30.5 g Final Wgt/Vol...: 10 mL
% Moisture.....: 19 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING	
		LIMIT	UNITS
Aroclor 1016	ND	41	ug/kg
Aroclor 1221	ND	41	ug/kg
Aroclor 1232	ND	41	ug/kg
Aroclor 1242	ND	41	ug/kg
Aroclor 1248	ND	41	ug/kg
Aroclor 1254	ND	41	ug/kg
Aroclor 1260	ND	41	ug/kg

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	89	(33 - 146)
Tetrachloro-m-xylene	89	(55 - 124)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

QC DATA ASSOCIATION SUMMARY

G5K150224

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
002	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
003	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
004	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
005	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
006	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
007	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G5K150224
MB Lot-Sample #: G5K210000-461

Work Order #...: HQN101AA

Matrix.....: SOLID

Analysis Date...: 11/26/05
Dilution Factor: 1

Prep Date.....: 11/21/05

Final Wgt/Vol...: 10 mL

Prep Batch #...: 5325461

Initial Wgt/Vol: 30 g

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	99	(33 - 146)
Tetrachloro-m-xylene	90	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HQN101AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-461
 Prep Date.....: 11/21/05 Analysis Date...: 11/26/05
 Prep Batch #...: 5325461
 Dilution Factor: 1 Final Wgt/Vol...: 10 mL
 Initial Wgt/Vol: 30 g

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>
Aroclor 1016	90	(67 - 123)	SW846 8082
Aroclor 1260	95	(68 - 130)	SW846 8082

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Decachlorobiphenyl	104	(33 - 146)
Tetrachloro-m-xylene	94	(55 - 124)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HQN101AC Matrix.....: SOLID
 LCS Lot-Sample#: G5K210000-461
 Prep Date.....: 11/21/05 Analysis Date...: 11/26/05
 Prep Batch #...: 5325461
 Dilution Factor: 1 Final Wgt/Vol...: 10 mL
 Initial Wgt/Vol: 30 g

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
Aroclor 1016	66.7	59.9	ug/kg	90	SW846 8082
Aroclor 1260	66.7	63.0	ug/kg	95	SW846 8082

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
Decachlorobiphenyl	104	(33 - 146)
Tetrachloro-m-xylene	94	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HPWXE1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K100385-006 HPWXE1AF-MSD
 Date Sampled...: 11/09/05 Date Received...: 11/10/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/28/05
 Prep Batch #...: 5325461
 Dilution Factor: 1 Initial Wgt/Vol: 30.48 g Final Wgt/Vol...: 10 mL
 % Moisture.....: 19

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	92	(67 - 123)			SW846 8082
	90	(67 - 123)	0.11	(0-26)	SW846 8082
Aroclor 1260	88	(68 - 130)			SW846 8082
	79	(68 - 130)	6.7	(0-27)	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90	(33 - 146)
	89	(33 - 146)
Tetrachloro-m-xylene	96	(55 - 124)
	91	(55 - 124)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HPWXE1AE-MS Matrix.....: SOLID
 MS Lot-Sample #: G5K100385-006 HPWXE1AF-MSD
 Date Sampled...: 11/09/05 Date Received...: 11/10/05
 Prep Date.....: 11/21/05 Analysis Date...: 11/28/05
 Prep Batch #...: 5325461
 Dilution Factor: 1 Initial Wgt/Vol: 30.48 g Final Wgt/Vol...: 10 mL
 % Moisture.....: 19

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Aroclor 1016	ND	81.5	74.8	ug/kg	92		SW846 8082
	ND	82.6	74.7	ug/kg	90	0.11	SW846 8082
Aroclor 1260	22	81.5	93.7	ug/kg	88		SW846 8082
	22	82.6	87.6	ug/kg	79	6.7	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90	(33 - 146)
	89	(33 - 146)
Tetrachloro-m-xylene	96	(55 - 124)
	91	(55 - 124)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

SOLID, 8151A, PCP only

Pacific Affiliates, Inc.

Client Sample ID: 2-A-1

GC Semivolatiles

Lot-Sample #...: G5K150224-001 Work Order #...: HP7XA1AE Matrix.....: SOLID
Date Sampled...: 11/11/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 12/02/05
Prep Batch #...: 5326043
Dilution Factor: 10 Initial Wgt/Vol: 50.03 g Final Wgt/Vol...: 100 mL
% Moisture.....: 41 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	170	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	153 DIL, *	(47 - 111)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

Pacific Affiliates, Inc.

Client Sample ID: 1-A-1

GC Semivolatiles

Lot-Sample #...: G5K150224-002 Work Order #...: HP7XF1AE Matrix.....: SOLID
Date Sampled...: 11/11/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 12/02/05
Prep Batch #...: 5326043
Dilution Factor: 10 Initial Wgt/Vol: 50.18 g Final Wgt/Vol...: 100 mL
% Moisture.....: 38 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	160	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	154 DIL, *	(47 - 111)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

Pacific Affiliates, Inc.

Client Sample ID: 4-A-1

GC Semivolatiles

Lot-Sample #...: G5K150224-003 Work Order #...: HP7XG1AE Matrix.....: SOLID
Date Sampled...: 11/10/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 12/02/05
Prep Batch #...: 5326043
Dilution Factor: 50 Initial Wgt/Vol: 50.12 g Final Wgt/Vol...: 100 mL
% Moisture.....: 41 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	850	ug/kg

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	180 DIL, *	(47 - 111)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

Pacific Affiliates, Inc.

Client Sample ID: 4-B-1

GC Semivolatiles

Lot-Sample #...: G5K150224-004 Work Order #...: HP7XN1AE Matrix.....: SOLID
Date Sampled...: 11/10/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 12/02/05
Prep Batch #...: 5326043
Dilution Factor: 20 Initial Wgt/Vol: 50.11 g Final Wgt/Vol...: 100 mL
% Moisture.....: 34 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	ND	300	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	99 DIL	(47 - 111)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

Pacific Affiliates, Inc.

Client Sample ID: 5-A-1

GC Semivolatiles

Lot-Sample #....: G5K150224-005 Work Order #....: HP7X01AE Matrix.....: SOLID
Date Sampled....: 11/11/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 12/02/05
Prep Batch #....: 5326043
Dilution Factor: 20 Initial Wgt/Vol: 50.14 g Final Wgt/Vol...: 100 mL
% Moisture.....: 38 Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Pentachlorophenol	ND	320	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	149 DIL, *	(47 - 111)

NOTE(S) :

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

Pacific Affiliates, Inc.

Client Sample ID: 13-A-1

GC Semivolatiles

Lot-Sample #...: G5K150224-006 Work Order #...: HP7X81AD Matrix.....: SOLID
Date Sampled...: 11/14/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 11/29/05
Prep Batch #...: 5326043
Dilution Factor: 1 Initial Wgt/Vol: 50.09 g Final Wgt/Vol...: 100 mL
% Moisture.....: 12 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	1.9 J	11	ug/kg

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
2,4-Dichlorophenylacetic acid	97	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Pacific Affiliates, Inc.

Client Sample ID: 13-B-1

GC Semivolatiles

Lot-Sample #...: G5K150224-007 Work Order #...: HP70A1AD Matrix.....: SOLID
Date Sampled...: 11/14/05 Date Received...: 11/15/05
Prep Date.....: 11/22/05 Analysis Date...: 11/29/05
Prep Batch #...: 5326043
Dilution Factor: 1 Initial Wgt/Vol: 50.1 g Final Wgt/Vol...: 100 mL
% Moisture.....: 19 Method.....: SW846 8151A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>
Pentachlorophenol	1.8 J	12	ug/kg

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	104	(47 - 111)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

QC DATA ASSOCIATION SUMMARY

G5K150224

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
002	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
003	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8151A		5326043	
004	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
005	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
006	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	
007	SOLID	SW846 8290		5327544	5327303
	SOLID	ASTM D 2216-90		5319482	5319351
	SOLID	SW846 8082		5325461	5325265
	SOLID	SW846 8151A		5326043	

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: G5K150224	Work Order #...: HQPJ01AD	Matrix.....: SOLID
MB Lot-Sample #: A5K220000-043	Prep Date.....: 11/22/05	Final Wgt/Vol...: 100 mL
Analysis Date...: 11/27/05	Prep Batch #...: 5326043	
Dilution Factor: 1	Initial Wgt/Vol: 50 g	

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Pentachlorophenol	ND	10	ug/kg	SW846 8151A

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
2,4-Dichlorophenylacetic acid	67	(47 - 111)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HQPJ01AE-LCS Matrix.....: SOLID
 LCS Lot-Sample#: A5K220000-043 HQPJ01AF-LCSD
 Prep Date.....: 11/22/05 Analysis Date...: 11/27/05
 Prep Batch #...: 5326043
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	72	(10 - 110)			SW846 8151A
	78	(10 - 110)	7.8	(0-30)	SW846 8151A
2,4,5-T	70	(10 - 116)			SW846 8151A
	77	(10 - 116)	9.8	(0-30)	SW846 8151A
Silvex	63	(10 - 118)			SW846 8151A
	70	(10 - 118)	10	(0-30)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4-Dichlorophenylacetic acid	79	(47 - 111)
	75	(47 - 111)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: G5K150224 Work Order #...: HQPJ01AE-LCS Matrix.....: SOLID
 LCS Lot-Sample#: A5K220000-043 HQPJ01AF-LCSD
 Prep Date.....: 11/22/05 Analysis Date...: 11/27/05
 Prep Batch #...: 5326043
 Dilution Factor: 1 Final Wgt/Vol...: 100 mL
 Initial Wgt/Vol: 50 g

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2,4-D	400	288	ug/kg	72		SW846 8151A
	400	312	ug/kg	78	7.8	SW846 8151A
2,4,5-T	100	69.8	ug/kg	70		SW846 8151A
	100	77.0	ug/kg	77	9.8	SW846 8151A
Silvex	100	63.0	ug/kg	63		SW846 8151A
	100	69.6	ug/kg	70	10	SW846 8151A
			PERCENT RECOVERY	RECOVERY LIMITS		
2,4-Dichlorophenylacetic acid			79	(47 - 111)		
			75	(47 - 111)		

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Appendix C

Beach Samples - Grain Size Distribution Results

Particle Size Analysis - ASTM D422

Sieve Analysis - ASTM C136



November 18, 2005

5652.00

Pacific Affiliates
990 West Waterfront
Eureka, California 95501

Subject: Material Testing Results.

Dear Yoash Tilles:

Enclosed are the test results you requested. Samples were collected by (☐ LACO,
☒ Client) and delivered on November 15, 2005.

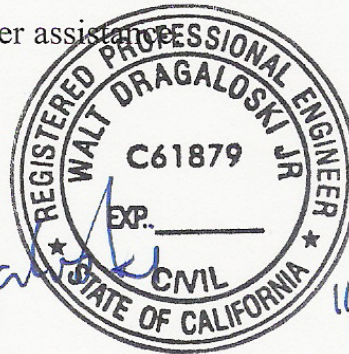
Tests conducted were:

1. Particle Size Analysis, ASTM D422. (13-A-1 & 13-B-1, Laco Id 05-253)
2. Sieve Analysis, ASTM C136. (13-A-1 & 13-B-1, Laco Id 05-253)

Please let us know if we can be of further assistance.

Very truly yours,
LACO ASSOCIATES

Walt F. Dragaloski, PE
RCE 61879, Exp. 9/30/0507



dlr

PARTICLE SIZE ANALYSIS WORKSHEET (ASTM D422)

Page

1

Project No.

5652.01

Project

CITY OF EUREKA / HARBOR
DISTRICT

Tested By

DLR

Date

11/18/05

Sample ID

05-253-A

Client

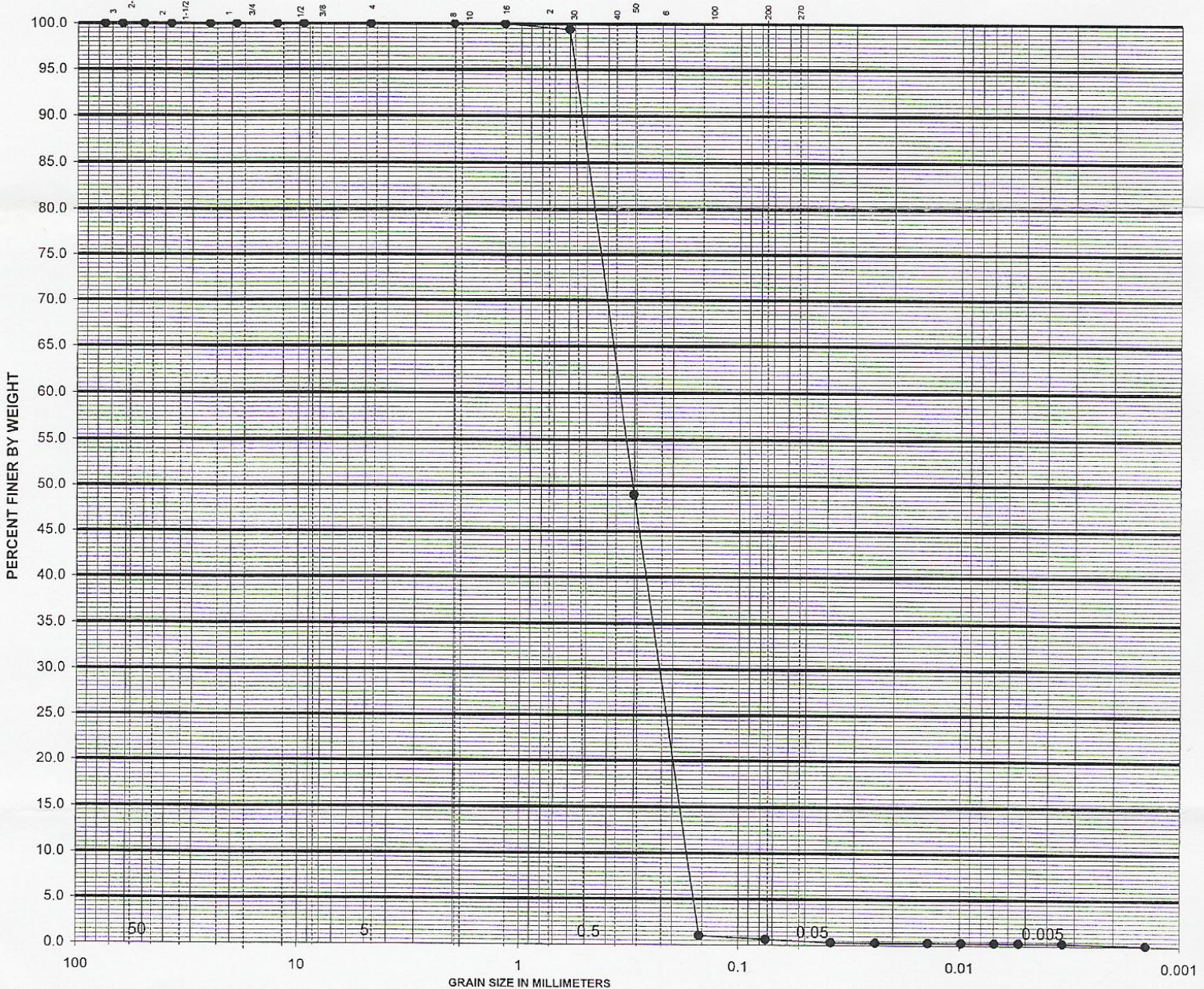
PACIFIC AFFILIATES

Checked By

[Signature]

Date

11/21/05



**PARTICLE SIZE ANALYSIS
WORKSHEET (ASTM D422)**

Page

2

Project No.

5652.01

Project

CITY OF EUREKA / HARBOR
DISTRICT

Tested By

DLR

Date

11/17/2005

Sample ID:

Location

05-253-A

13-A-1

Client

PACIFIC AFFILIATES

Checked By



Date

11/22/05

Total Sample Wt. 169.6 grams0.0% > #10 SieveHydrometer Sample (W) 100.0 grams100.0% < #10 Sieve

Start Time

7:56:00

Reading Time	Elapsed Time (Minutes) (T)	Temp.	Actual Reading	Corrected Reading (R)	% in Suspension (P) *	Table 3 (K)	Table 2 (L)	Particle Diameter (mm) (D)
7:58:00	2	67	7	0.3	0.3	0.01375	15.2	0.0379
8:01:00	5	67	7	0.3	0.3	0.01375	15.2	0.0240
8:11:00	15	67	7	0.3	0.3	0.01375	15.2	0.0138
8:26:00	30	67	7	0.3	0.3	0.01375	15.2	0.0098
8:56:00	60	67	7	0.3	0.3	0.01375	15.2	0.0069
9:36:00	100	67	7	0.3	0.3	0.01375	15.2	0.0054
12:16:00	250	67	7	0.3	0.3	0.01375	15.2	0.0034
7:56:00	1440	66	7	0.1	0.1	0.01384	15.2	0.0014

Assumptions:

- 1) Specific Gravity of 2.65
- 2) Hygroscopic Moisture Factor of 1

Percent in Suspension (P) = (R/W) x 100

Particle Diameter (mm) = K times square root of (L/T)

* Values for % in suspension adjusted to reflect % of total sample



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21 W. 4th St. • PO Box 1023 • Eureka, CA 95502 • 707.443.5054


GRADING ANALYSIS WORKSHEET (ASTM C136)

Project No.	5652.01	Material Desc.	POORLY GRADED SAND (SP)	Tested By:	DLR	Date:	11/18/2005
Client:	PACIFIC AFFILIATES	Manufacturer	NATIVE	Checked By:		Date:	11/21/05
Sample ID:	05-253-A	Sample Location	13-A-1	Total Sample Weight	169.6	grams	
Partial Weight (g)	(37.5mm) Ret. 1 1/2	(37.5mm x 19mm) 1 1/2 x 3/4	(19mm x 2.00mm) 3/4 x #10	Pass (2.00mm) #10.	100		
% Used			58.96%				
Size of Sample (g)			169.6				
	Wt. Ret. % Ret. % Pass % Use	Wt. Ret. % Ret. % Pass % Use	Wt. Ret. % Ret. % Pass % Use	Wt. Ret. % Ret. % Pass % Use	Combined Grading	Specs.	
(75mm) 3			0.0 0.0 100.0				100.0
(62.5mm) 2 1/2			0.0 0.0 100.0				100.0
(50mm) 2			0.0 0.0 100.0				100.0
(37.5mm) 1 1/2			0.0 0.0 100.0				100.0
(25mm) 1			0.0 0.0 100.0				100.0
(19mm) 3/4			0.0 0.0 100.0				100.0
(12.5mm) 1/2			0.0 0.0 100.0				100.0
(9.5mm) 3/8			0.0 0.0 100.0				100.0
(4.75mm) 4			0.0 0.0 100.0				100.0
(2.00mm) 10			0.0 0.0 100.0				100.0
(1.18mm) 16			0.0 0.0 100.0				100.0
(600µm) 30			1.0 0.6 99.4				99.4
(300µm) 50			85.5 51.0 49.0				49.0
(150µm) 100			86.5 51.0 49.0				49.0
(75µm) 200			81.4 99.0 1.0				1.0
Wash Wt.			167.9 99.0 1.0				1.0
			0.7 99.4 0.6				0.6
			168.6 99.4 0.6				0.6
			1.0 100.0 0				0.0
			169.6 100.0 0				0.0



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SAMPLE PREPARATION		Page	4	Project No.	5652.01
Project CITY OF EUREKA / HARBOR DISTRICT		Tested By DLR	Date 11/16/2005		
Location 13-A-1		Checked By 	Date 11/21/05		
Client PACIFIC AFFILIATES		Sample ID: 05-253-A			

Total Sample

--- grams

Tare

--- grams

Net Sample

169.6 grams

Retained on #10

0 grams

0.00%

Passing #10

169.6 grams

100.00%

Rock Correction (y/n)

N/A

PARTICLE SIZE ANALYSIS WORKSHEET (ASTM D422)

Page

1

Project No.

5652.01

Project

CITY OF EUREKA / HARBOR
DISTRICT

Tested By

DLR

Date

11/18/05

Sample ID

05-253-B

Client

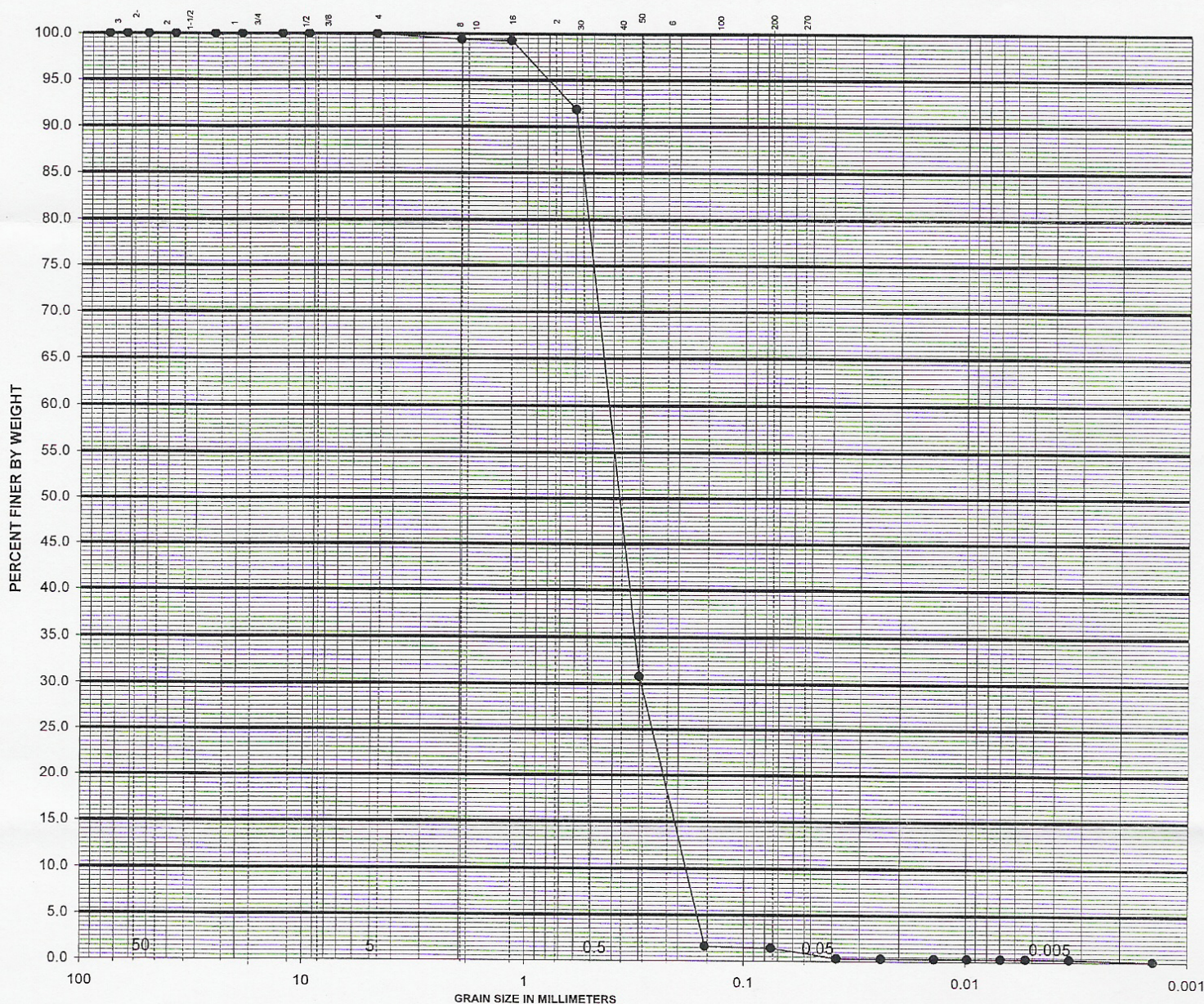
PACIFIC AFFILIATES

Checked By

[Signature]

Date


11/21/05



**PARTICLE SIZE ANALYSIS
WORKSHEET (ASTM D422)**Page
2Project No.
5652.01Project
CITY OF EUREKA / HARBOR
DISTRICTTested By
DLRDate
11/17/2005

Sample ID: Location

05-253-B 13-B-1

Client
PACIFIC AFFILIATESChecked By
 Date
11/22/05

Total Sample Wt. 192.8 grams 0.6% > #10 Sieve

Hydrometer Sample (W) 100.0 grams 99.4% < #10 Sieve

Start Time 7:56:00

Reading Time	Elapsed Time (Minutes) (T)	Temp.	Actual Reading	Corrected Reading (R)	% in Suspension (P) *	Table 3 (K)	Table 2 (L)	Particle Diameter (mm) (D)
8:05:00	2	67	7	0.3	0.3	0.01375	15.2	0.0379
8:08:00	5	67	7	0.3	0.3	0.01375	15.2	0.0240
8:18:00	15	67	7	0.3	0.3	0.01375	15.2	0.0138
8:33:00	30	67	7	0.3	0.3	0.01375	15.2	0.0098
9:03:00	60	67	7	0.3	0.3	0.01375	15.2	0.0069
9:43:00	100	67	7	0.3	0.3	0.01375	15.2	0.0054
12:23:00	250	67	7	0.3	0.3	0.01375	15.2	0.0034
8:03:00	1440	66	7	0.1	0.1	0.01384	15.2	0.0014

Assumptions:

- 1) Specific Gravity of 2.65
- 2) Hygroscopic Moisture Factor of 1

Percent in Suspension (P) = (R/W) x 100


Particle Diameter (mm) = K times square root of (L/T)

* Values for % in suspension adjusted to reflect % of total sample



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GRADING ANALYSIS WORKSHEET (ASTM C136)

Project No.	5652.01	Material Desc.	POORLY GRADED SAND (SP)	Tested By:	DJR	Date:	11/18/2005
Client:	PACIFIC AFFILIATES	Manufacturer	NATIVE	Checked By:		Date:	11/21/05
Sample ID:	05-253-B	Sample Location	13-B-1	Total Sample Weight	192.8	grams	

Partial Weight (g)	(37.5mm) Ret. 1 1/2					(37.5mm x 19mm) 1 1/2 x 3/4					(19mm x 2.00mm) 3/4 x #10					Pass (2.00mm) #10.					
% Used																100					
Size of Sample (g)											192.8					52.19%					
																191.6					
	Wt. Ret.	% Ret.	% Pass	% Use		Wt. Ret.	% Ret.	% Pass	% Use		Wt. Ret.	% Ret.	% Pass	% Use		Wt. Ret.	% Ret.	% Pass	% Use	Combined Grading	Specs.
(75mm) 3											0	0.0	0.0	100.0						100.0	
(62.5mm) 2 1/2											0.0	0.0	0.0	100.0						100.0	
(50mm) 2											0.0	0.0	0.0	100.0						100.0	
(37.5mm) 1 1/2											0.0	0.0	0.0	100.0						100.0	
(25mm) 1											0.0	0.0	0.0	100.0						100.0	
(19mm) 3/4											0.0	0.0	0.0	100.0						100.0	
(12.5mm) 1/2											0.0	0.0	0.0	100.0						100.0	
(9.5mm) 3/8											0.0	0.0	0.0	100.0						100.0	
(4.75mm) 4											0.0	0.0	0.0	100.0						100.0	
(2.00mm) 10											1.2	0.6	99.4							99.4	
(1.18mm) 16											0.2	0.7	99.3			0.1	0.1	99.9		99.3	
(600µm) 30											14.4	8.2	91.8			7.5	7.6	92.4		91.8	
(300µm) 50											15.8	69.2	30.8			61.4	69.0	31.0		30.8	
(150µm) 100											117.6	98.4	1.6			29.4	98.4	1.6		1.6	
(75µm) 200											56.3	98.6	1.4			189.7	98.6	1.4		1.4	
Wash Wt.											0.4	100.0	0			0.2	100.0	0		0.0	
											190.1	100.0	0			1.4	100.0	0			
											2.7	100.0	0			1.4	100.0	0			
											192.8	100.0	0			100.0	100.0	0		0.0	



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SAMPLE PREPARATION

Page

4

Project No.

5652.01

Project

CITY OF EUREKA / HARBOR
DISTRICT

Tested By

DLR

Date

11/16/2005

Location

13-B-1

Checked By

[Signature]

Date

11/21/05

Client

PACIFIC AFFILIATES

Sample ID:

05-253-B

Total Sample

--- grams

Tare

--- grams

Net Sample

192.8 grams

Retained on #10

1.2 grams

0.62%

Passing #10

191.6 grams

99.38%

Rock Correction (y/n)

N/A

Appendix D

Hydrographic Surveys and Sample Locations

**CITY OF EUREKA
and**

HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION DISTRICT

**COOPERATIVE EUREKA WATERFRONT FACILITIES
MAINTENANCE DREDGING PROJECT**

EUREKA CHANNEL, HUMBOLDT BAY, CALIFORNIA



PREPARED BY:



**PACIFIC AFFILIATES, INC.
A CONSULTING ENGINEERING GROUP**

990 W. Waterfront Drive
Eureka, CA 95501

◆
(707) 445-3001

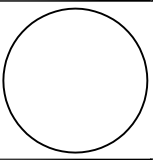
Hydrographic Surveys Conducted on February, 2004

REVISIONS	BY
10-3-05	Y.T.
10-21-05	Y.T.
11-28-05	Y.T.

**PACIFIC AFFILIATES**
A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER

DAVID L. SCHNEIDER



990 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

**CONDITIONAL
BATHYMETRIC SURVEY
&
SAMPLING POINTS**

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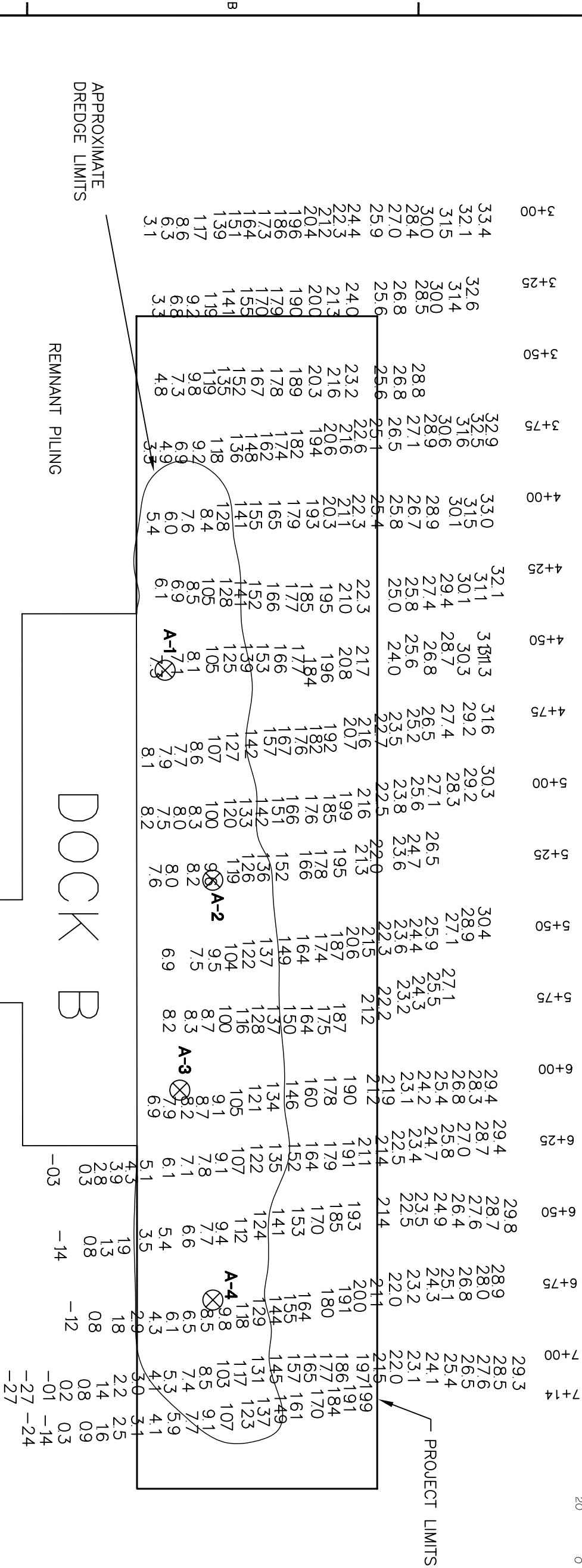
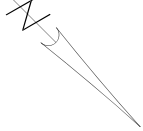
CITY OF EUREKA

DOCK 'B'

Date: Feb. 25, 2004
Scale: 1"=40' U.O.N.
Drawn by: TS

SHEET NUMBER

C-11



SURVEY NOTES




SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.

SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER USING PACIFIC AFFILIATES TIDAL POINT, TIED BY SURVEY TO USGS BRASS DISK "1940" LOCATED IN THE CONCRETE SEA WALL, USCG STATION HUMBOLDT BAY, ELEVATION 14.28' MLLW.

HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE 1.

HYDROGRAPHIC SOUNDINGS FOR STATIONS 3+00 - 7+14 SURVEYED APRIL 29, 2004 (HIGH TIDE).

LEGEND

-  SAMPLE LOCATION
-  PROJECT LIMITS
-  DREDGE LIMITS

NOTE: NEGATIVE SOUNDING DENOTES ELEVATION ABOVE MLLW DATUM



SCALE: 1"=100'
0 50

- LEGEND
- SAMPLE LOCATION
 - PROJECT LIMITS
 - DREDGE LIMITS

WASHINGTON STREET
SLOUGH

NOTE: NEGATIVE SOUNDING DENOTES ELEVATION ABOVE MLLW DATUM

SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY
HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM,
LAMBERT CONFORMAL PROJECTION, ZONE 1.
HYDROGRAPHIC SOUNDINGS SURVEYED APRIL 28, 2004 (HIGH TIDE).

REVISIONS	BY
10-3-05	Y.T.
10-25-05	Y.T.
12-04-05	Y.T.



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ENGINEER

DAVID L. SCHNEIDER

990 WEST WATERFRONT DRIVE
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(707) 445-3001

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BATHYMETRIC SURVEY
&
SAMPLING POINTS

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CITY OF EUREKA
SMALL BOAT BASIN

Date:
April 29, 2004
Scale:
1"=100' U.O.N.
Drawn by:
TS

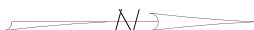
SHEET NUMBER
C-11

4

3

2

1



SCALE: 1"=60'

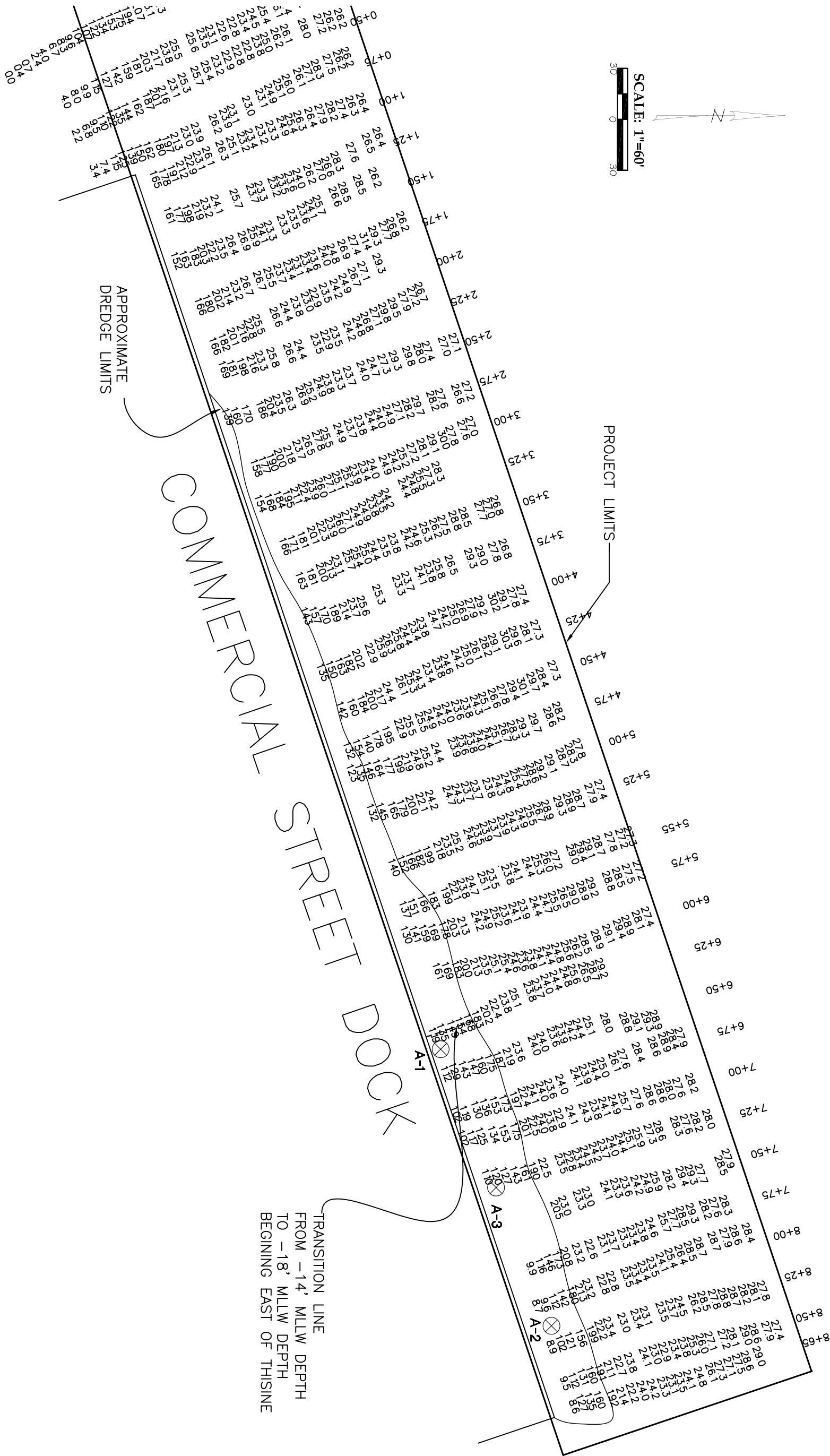
30 0 30

PROJECT LIMITS

APPROXIMATE
DREDGE LIMITS

COMMERCIAL STREET DOCK

TRANSITION LINE
FROM -14' MLW DEPTH
TO -18' MLW DEPTH
BEGINNING EAST OF THIS LINE



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.

SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER USING PACIFIC AFFILIATES TIDAL POINT, TIED BY SURVEY TO USGS BRASS DISK "1940" LOCATED IN THE CONCRETE SEA WALL, USCG STATION HUMBOLDT BAY, ELEVATION 14.28' MLW.

HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE 1.

HYDROGRAPHIC SOUNDINGS FOR STATIONS 3+00 - 7+14 SURVEYED APRIL 29, 2004 (HIGH TIDE).

LEGEND

- SAMPLE LOCATION
- PROJECT LIMITS
- DREDGE LIMITS
- TRANSITION LINE

REVISIONS	BY
10-3-05	Y.T.
10-21-05	Y.T.

PACIFIC AFFILIATES
A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER
DAVID L. SCHNEIDER
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

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BATHYMETRIC SURVEY
&
SAMPLING POINTS**

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CITY OF EUREKA
COMMERCIAL STRET DOCK

Date:
April 7, 20, 29, 2004
Scale:
1"=60' U.O.N.
Drawn by:
TS

SHEET NUMBER
C-11

4

3

2

1

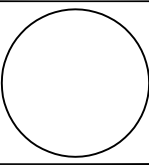
REVISIONS	BY
10-3-05	Y.T.
10-24-05	Y.T.



PACIFIC AFFILIATES
A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER

DAVID L. SCHNEIDER



990 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

**CONDITIONAL
BATHYMETRIC SURVEY
&
SAMPLING POINTS**

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CITY OF EUREKA

COAST SEAFOODS DOCK

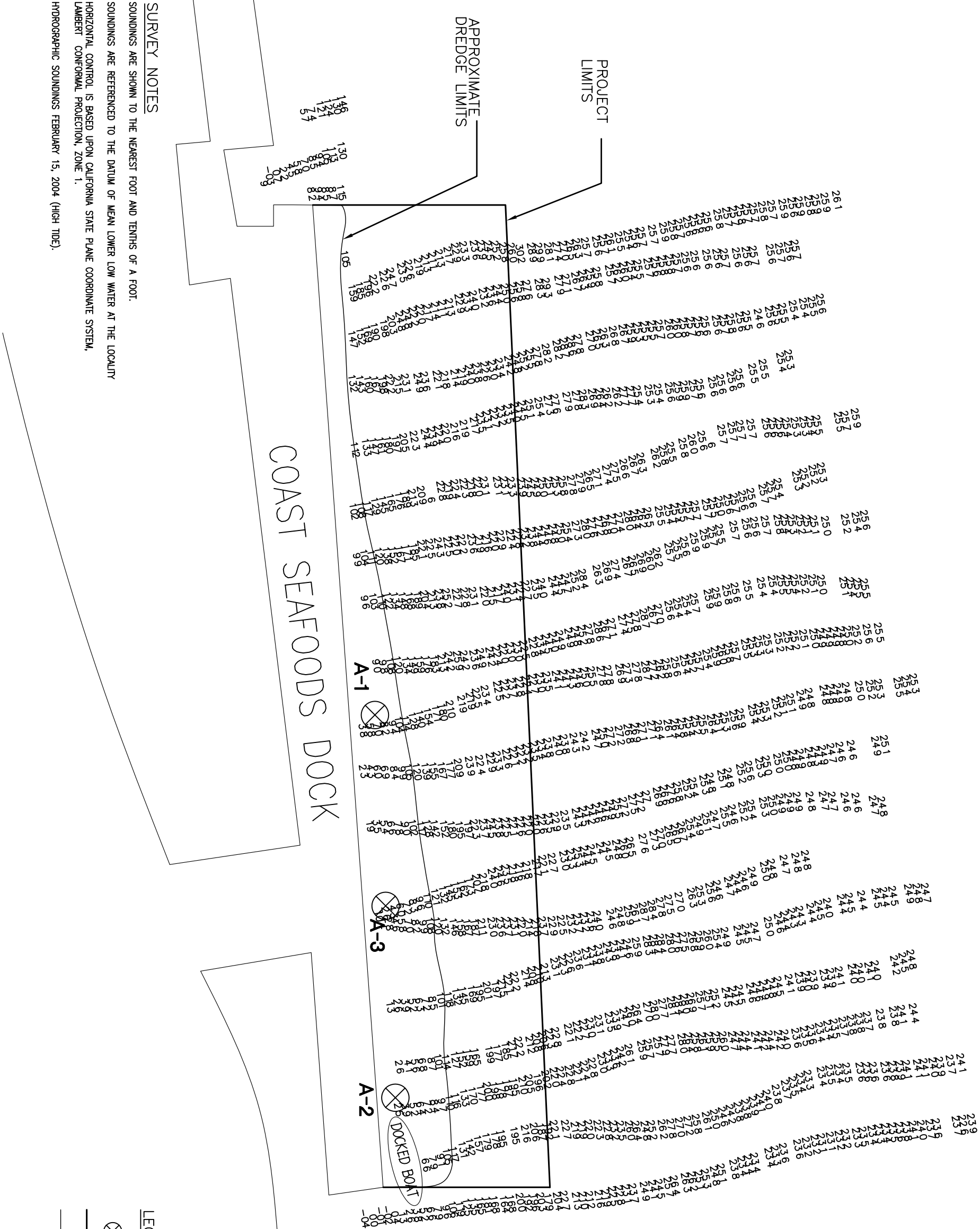
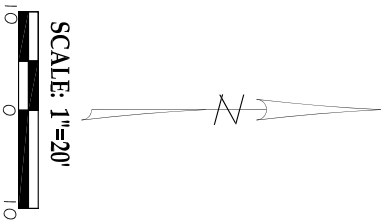
Date: Feb. 15, 2005

Scale: 1"=20' U.O.N.

Drawn by: TS

SHEET NUMBER




C-11



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY
HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM,
LAMBERT CONFORMAL PROJECTION, ZONE 1.
HYDROGRAPHIC SOUNDINGS FEBRUARY 15, 2004 (HIGH TIDE).

LEGEND

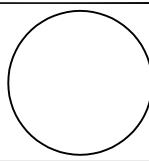
-  SAMPLE LOCATION
-  PROJECT LIMITS
-  DREDGE LIMITS

REVISIONS		BY
10-3-05	Y.T.	
10-24-05	Y.T.	

**PACIFIC AFFILIATES**
A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER

DAVID L. SCHNEIDER



990 WEST WATERFRONT DRIVE
EUREKA, CA 95501
(707) 445-3001

CONDITIONAL
BATHYMETRIC SURVEY
&
SAMPLING POINTS

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CITY OF EUREKA

FISHERMAN'S TERMINAL

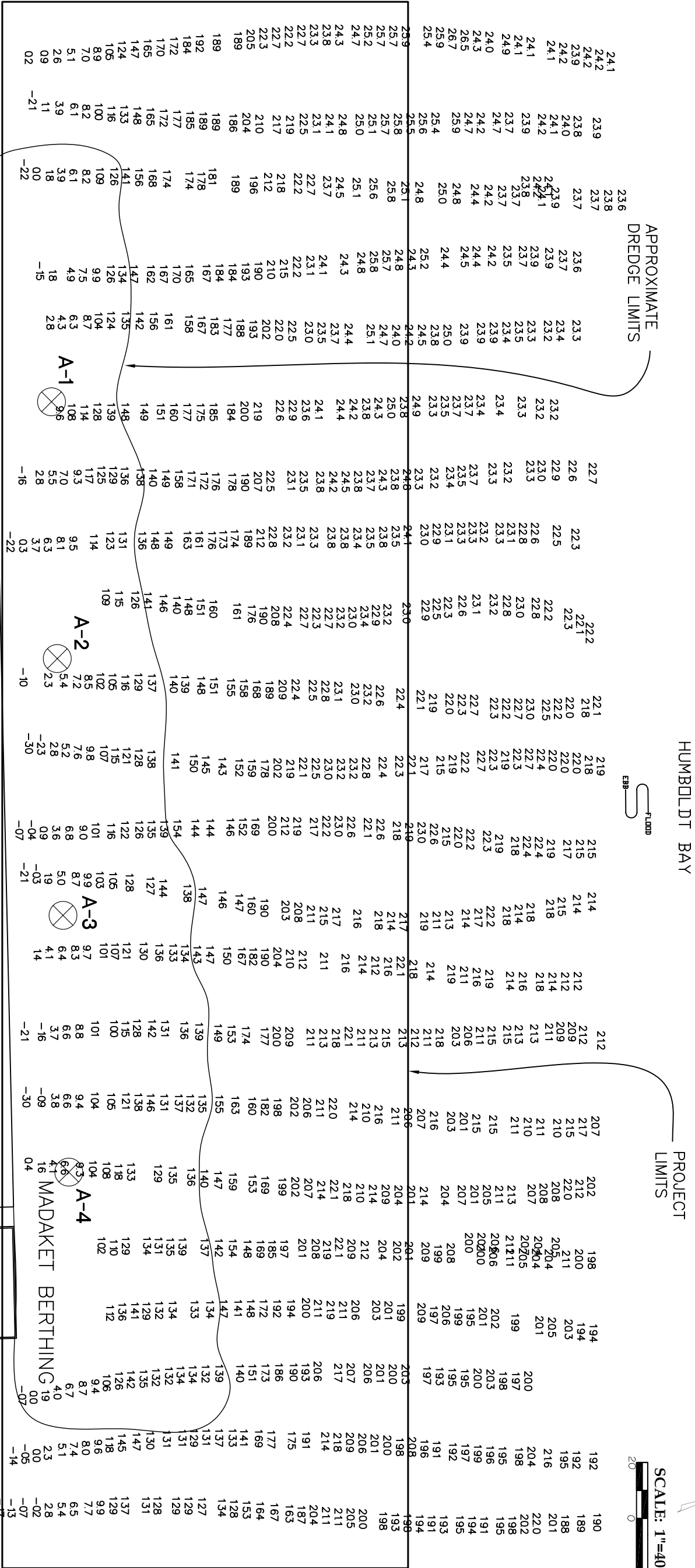
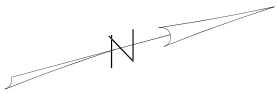
Date: June 22, 2004

Scale: 1"=40' U.O.N.

Drawn by: TS

SHEET NUMBER

C-11



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.




SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER USING PACIFIC AFFILIATES TIDAL POINT, TIED BY SURVEY TO USGS BRASS DISK "1940" LOCATED IN THE CONCRETE SEA WALL, USCG STATION HUMBOLDT BAY, ELEVATION 14.28' MLW.

HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE 1.

HYDROGRAPH SOUNDINGS SURVEYED JUNE 22, 2004 (HIGH TIDE)

EXACT PIER ALIGNMENT UNKNOWN, ALIGNMENT DETERMINED FROM MAPPING PROVIDED BY THE CITY OF EUREKA JULY 8, 2004

LEGEND

-  SAMPLE LOCATION
-  PROJECT LIMITS
-  DREDGE LIMITS

NOTE: NEGATIVE SOUNDING DENOTES ELEVATION ABOVE MLW DATUM

HUMBOLDT BAY



- ⊗

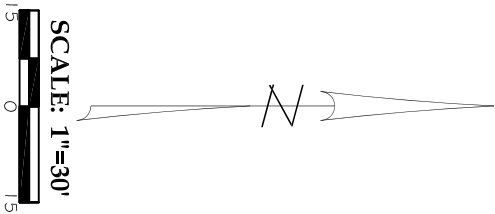
SAMPLE LOCATION
- PROJECT LIMITS
- DREDEGE LIMITS

LEGEND



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER
USING PACIFIC AFFILIATES TIDAL POINT, TIED BY SURVEY TO USGS BRASS DISK "1940"
LOCATED IN THE CONCRETE SEA WALL, USCG STATION HUMBOLDT BAY, ELEVATION 14.28' MLLW.
HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM,
LAMBERT CONFORMAL PROJECTION, ZONE 1.
HYDROGRAPHIC SOUNDINGS SURVEYED JUNE 22, 2004 (HIGH TIDE).



REVISIONS	BY
10-3-05	Y.T.
10-24-05	Y.T.

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A CONSULTING ENGINEERING GROUP
990 WEST WATERFRONT DRIVE
EUREKA, CA 95501

ENGINEER
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CONDITIONAL
BATHYMETRIC SURVEY
&
SAMPLING POINTS

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CITY OF EUREKA
'F' STREET DOCK

Date: Feb. 22, 2004
Scale: 1"=30' U.O.N.
Drawn by: TS

SHEET NUMBER
C-111

HUMBOLDT BAY



NS44133, 89
E1401954, 05

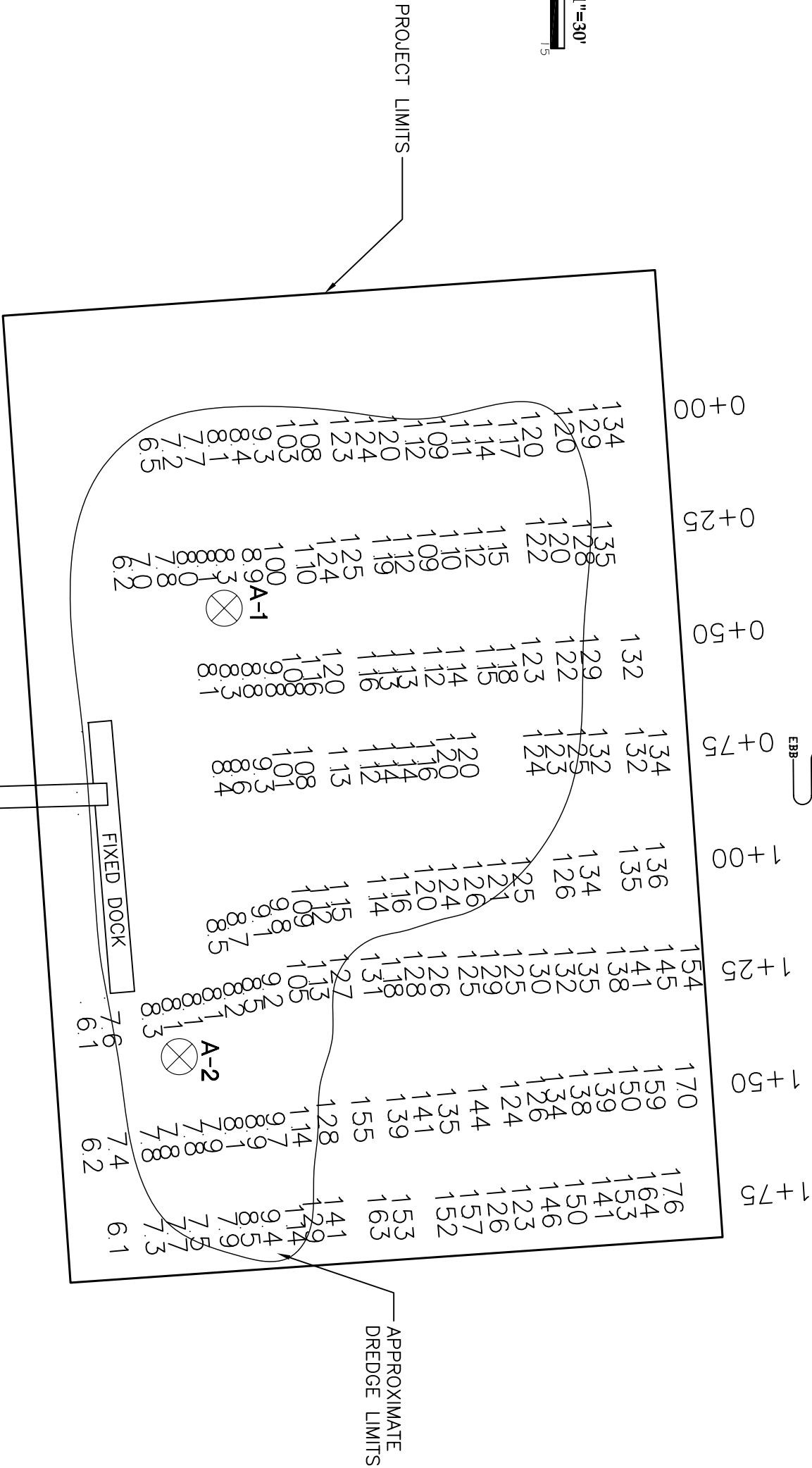


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NS43989, 74
E1401359, 40



NS43989, 74
E1401359, 40



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY
HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM,
LAMBERT CONFORMAL PROJECTION, ZONE 1.
HYDROGRAPHIC SOUNDINGS FOR STATIONS 0+00 - 1+75 SURVEYED APRIL 7, 2004 (HIGH TIDE).

LEGEND

- SAMPLE LOCATION
- PROJECT LIMITS
- DREDGE LIMITS

REVISIONS	BY
10-3-05	Y.T.
10-24-05	Y.T.

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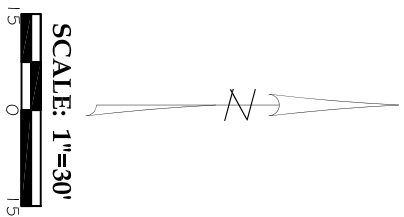
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&
SAMPLING POINTS**

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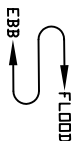
**CITY OF EUREKA
J STREET DOCK**

SHEET NUMBER
C-11

Date: April 7, 2004
Scale: 1"=30' U.O.N.
Drawn by: TS



HUMBOLDT BAY



1+25 1+00 0+75 0+50 0+25



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.

SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER USING PACIFIC AFFILIATES TIDAL POINT, TIED BY SURVEY TO USGS BRASS DISK "1940" LOCATED IN THE CONCRETE SEA WALL, USCG STATION HUMBOLDT BAY, ELEVATION 14.28' MLW.

HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE 1.

HYDROGRAPHIC SOUNDINGS FOR STATIONS 0+25 - 1+25 SURVEYED APRIL 7, 2004 (HIGH TIDE).

ADORNI CENTER

LEGEND

- SAMPLE LOCATION
- PROJECT LIMITS
- DREDGE LIMITS

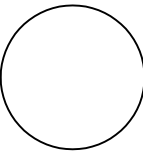
REVISIONS		BY
10-3-05	Y.T.	
10-24-05	Y.T.	



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CONDITIONAL
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&
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CITY OF EUREKA

ADORNI DOCK

Date: April 7, 2004
Scale: 1"=30' U.O.N.
Drawn by: TS

SHEET NUMBER
C-11

4

3

2

1



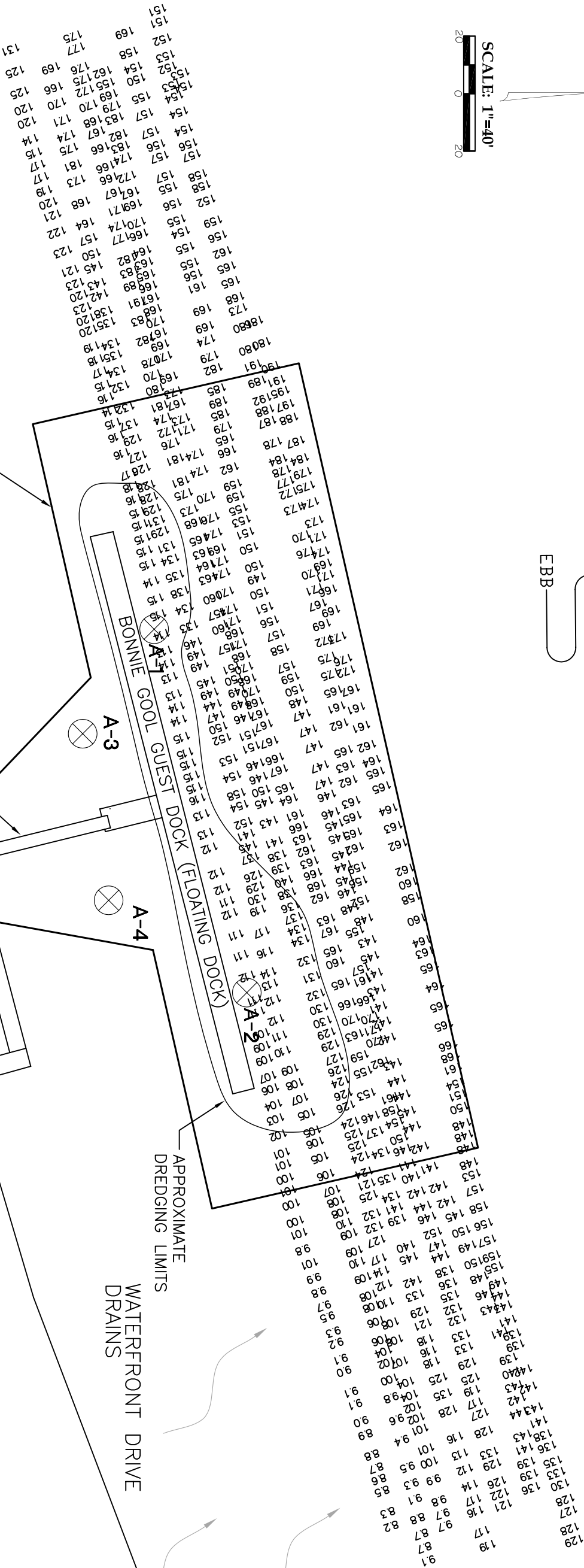
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HUMBOLDT BAY

FLOOD

EBB



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.

SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY

HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM, LAMBERT CONFORMAL PROJECTION, ZONE 1.

HYDROGRAPHIC SOUNDINGS FOR STATIONS 0+00 - 0+60 SURVEYED APRIL 28, 2004 (HIGH TIDE).

LEGEND



SAMPLE LOCATION



PROJECT LIMITS



DREDGE LIMITS

REVISIONS	BY
10-3-05	Y.T.
10-24-05	Y.T.

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&
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CITY OF EUREKA

BONNIE GOOL GUEST DOCK

Date:

April 28, 2004

Scale:

1"=40' U.O.N.

Drawn by:

TS

SHEET NUMBER

C-11

4

3

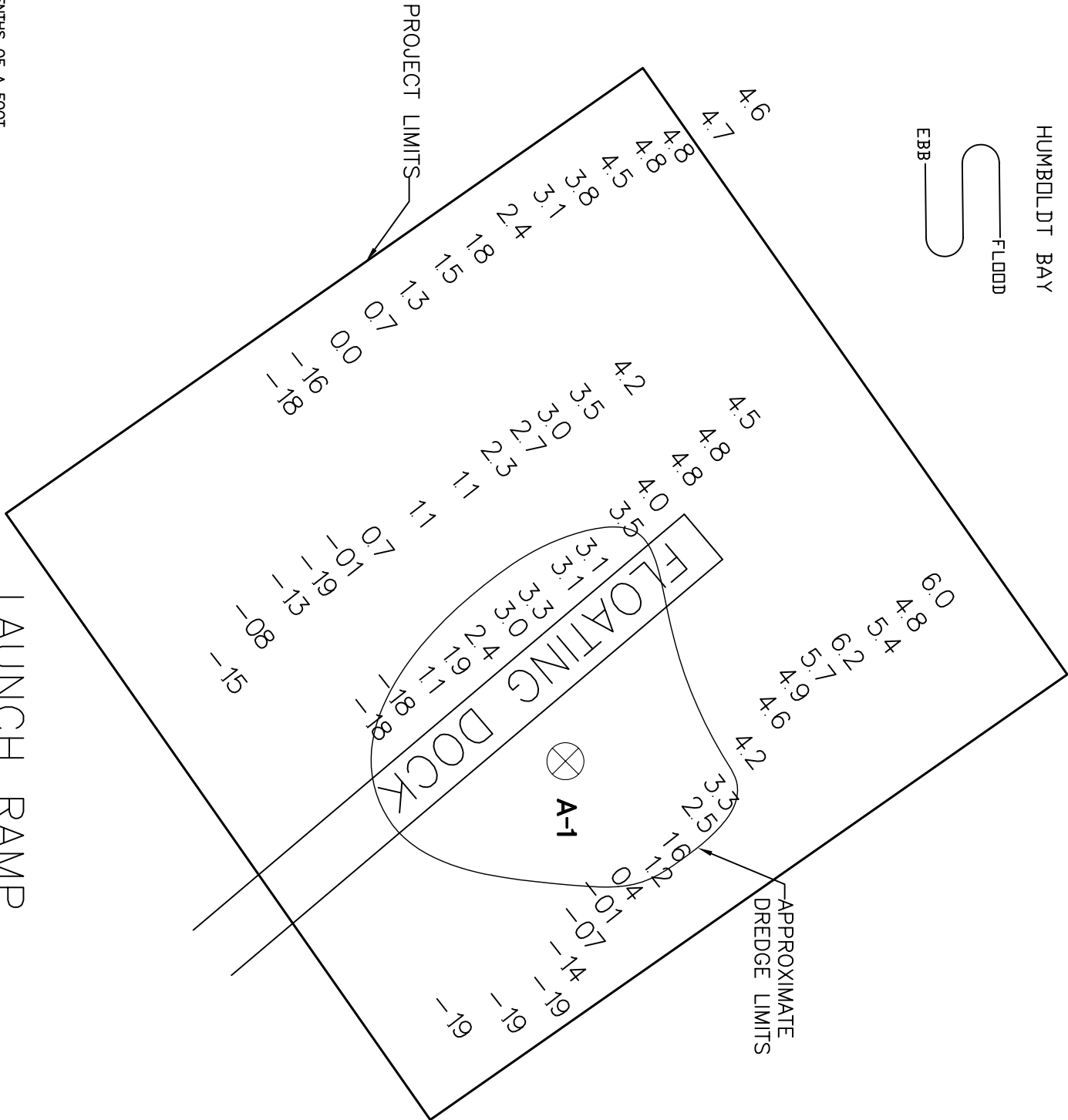
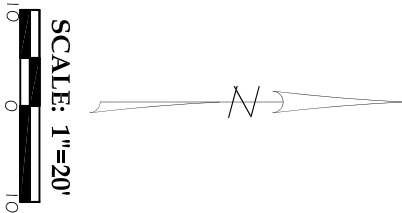
2

1

HUMBOLDT BAY

EBB

FLOOD



SURVEY NOTES

SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
SOUNDINGS ARE REFERENCED TO THE DATUM OF MEAN LOWER LOW WATER AT THE LOCALITY
HORIZONTAL CONTROL IS BASED UPON CALIFORNIA STATE PLANE COORDINATE SYSTEM,
LAMBERT CONFORMAL PROJECTION, ZONE 1.
HYDROGRAPHIC SOUNDINGS SURVEYED JUNE 24, 2004 (HIGH TIDE).

LAUNCH RAMP

LEGEND

- SAMPLE LOCATION
- PROJECT LIMITS
- DREDGE LIMITS

NOTE: NEGATIVE SOUNDING DENOTES ELEVATION ABOVE MLLW DATUM

REVISIONS	BY
10-3-05	Y.T.
10-24-05	Y.T.

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CITY OF EUREKA
SAMOA BRIDGE
LAUNCH RAMP

Date:
Feb. 25, 2004
Scale:
1"=20' U.O.N.
Drawn by:
TS

SHEET NUMBER
C-1.1

REVISIONS	BY
10-3-05	Y.T.
10-25-05	Y.T.
11-23-05	Y.T.

**PACIFIC AFFILIATES**
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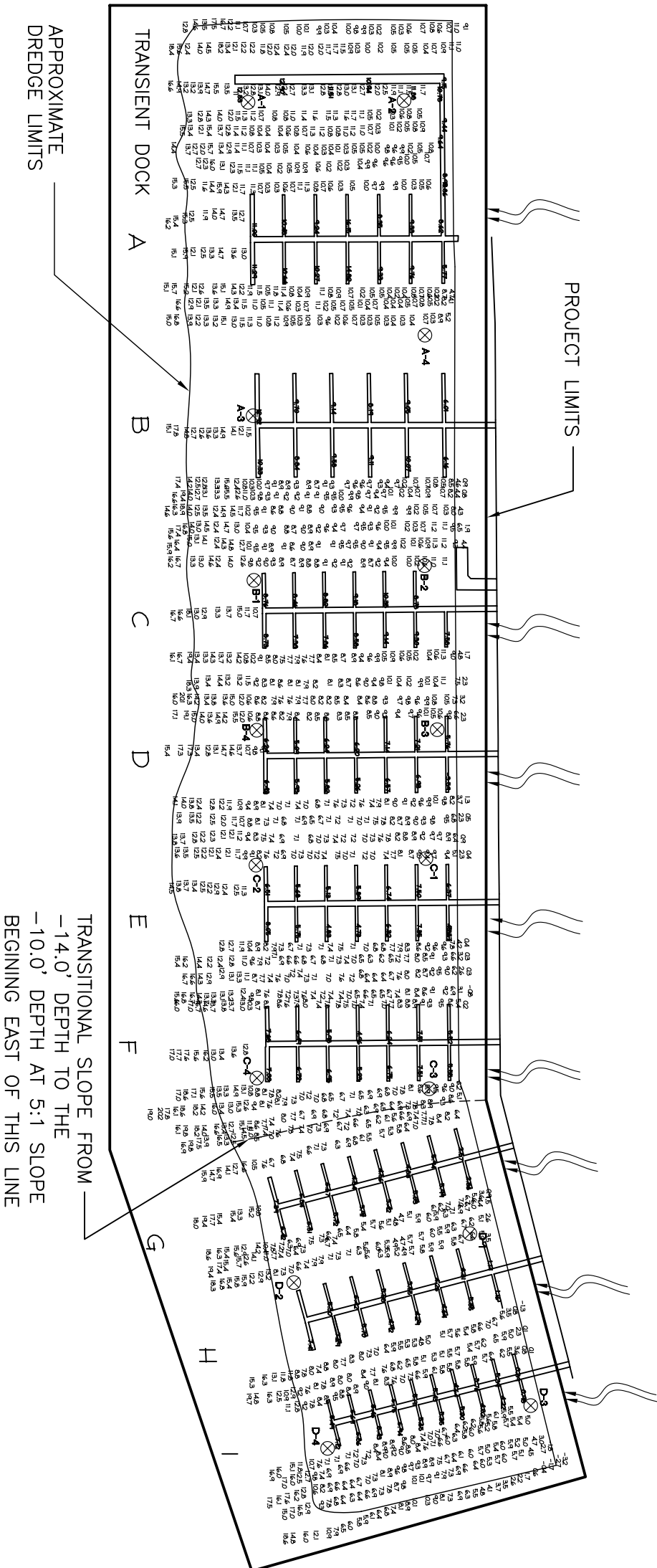
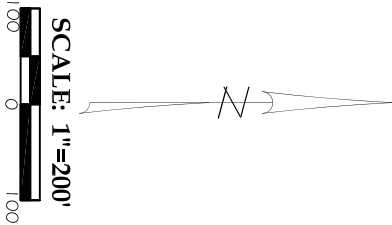
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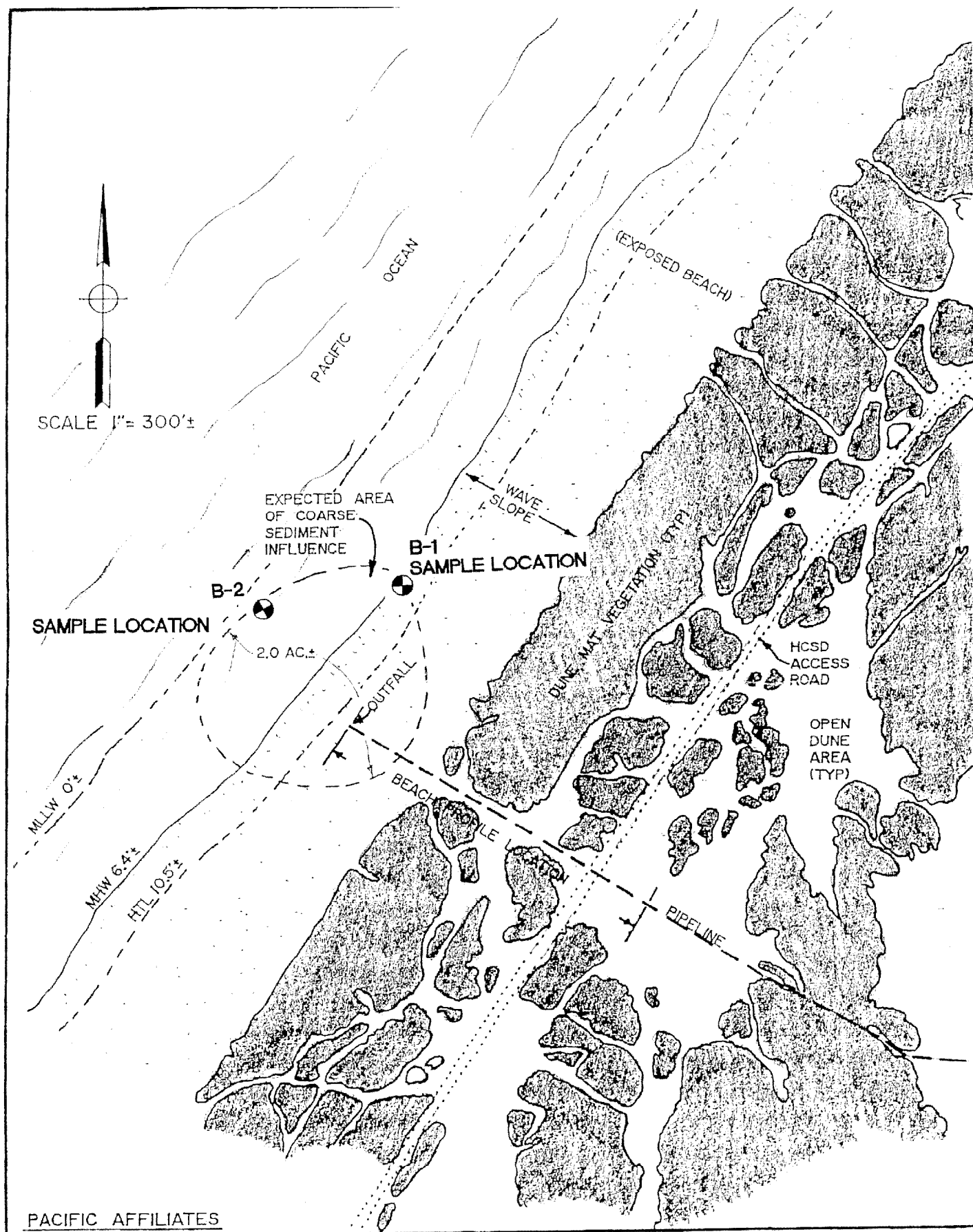
WOODLEY ISLAND MARINA

Date: Feb. 25, 2004
Scale: 1"=200' U.O.N.
Drawn by: TS

SHEET NUMBER
C-11



SURVEY NOTES
SURVEYED BY PACIFIC AFFILIATES CONSULTING ENGINEERS
ON FEBRUARY 4,23,26, 2004. TIDE STATION FOR SURVEY PACIFIC AFFILIATES
BENCHMARK AT WOODLEY ISLAND MARINA FISHERMAN'S LANDING DOCK IN
EUREKA, CA, ELEV. 15.54' MLLW.
SOUNDINGS ARE SHOWN TO THE NEAREST FOOT AND TENTHS OF A FOOT.
VERTICAL DATUM UTILIZED - MEAN LOWER LOW WATER (MLLW).
HORIZONTAL CONTROL REFERENCED TO NAD 27. CALIFORNIA ZONE 1,
LAMBERT CONFORMAL PROJECTION. SURVEY REPRESENTS THE CONDITIONS
ON THE DATE SURVEYED (FEBRUARY 4,23,26, 2004).
DRAWINGS NOT TO BE USED FOR NAVIGATION. ONLY CHANNEL CONDITION
AT DATE OF SURVEY.



PACIFIC AFFILIATES

SAMOA BEACH SPOILS LINE OUTFALL SITE CITY OF EUREKA & HUMBOLDT BAY HARBOR DISTRICT COOPERATIVE MAINTENANCE DREDGING PROJECT

Appendix E- Statistical Analysis

Data File					Variable:	TCDD TEQ (ND 1/2 DL) (ppt)		
Raw Statistics			Normal Distribution Test				TCDD TEQ DATA (ND 1/2 DL) (ppt)	
Number of Valid Samples	20	Shapiro-Wilk Test Statistic		0.833903	2.8071			
Number of Unique Samples	20	Shapiro-Wilk 5% Critical Value		0.905	3.1337			
Minimum	1.30337	Data not normal at 5% significance level			3.74175			
Maximum	7.702				2.56875			
Mean	3.16254	95% UCL (Assuming Normal Distribution)			7.702			
Median	2.687925	Student's-t UCL		3.816727	6.988			
Standard Deviation	1.691955				3.44365			
Variance	2.862712	Gamma Distribution Test			2.87185			
Coefficient of Variation	0.534999	A-D Test Statistic		0.449834	3.86085			
Skewness	1.604833	A-D 5% Critical Value		0.745341	2.46055			
		K-S Test Statistic		0.118901	1.94906			
Gamma Statistics		K-S 5% Critical Value		0.194533	2.27735			
k hat	4.630748	Data follow gamma distribution			4.5684			
k star (bias corrected)	3.969469	at 5% significance level			4.18035			
Theta hat	0.682944				2.0252			
Theta star	0.796716	95% UCLs (Assuming Gamma Distribution)			1.77592			
nu hat	185.2299	Approx		3.843668	1.88604			
nu star	158.7788	Adjusted Gamma UCL		3.90389	2.1644			
Approx.Chi Square Value (.05)	130.6419				1.30337			
Adjusted Level of Significance	0.038	Lognormal Distribution Test			1.542505			
Adjusted Chi Square Value	128.6266	Shapiro-Wilk Test Statistic		0.966799				
		Shapiro-Wilk 5% Critical Value		0.905				
Log-transformed Statistics		Data are lognormal at 5% significance level						
Minimum of log data	0.264953							
Maximum of log data	2.04148	95% UCLs (Assuming Lognormal Distribution)						
Mean of log data	1.039533	95% H-UCL		3.902665				
Standard Deviation of log data	0.468758	95% Chebyshev (MVUE) UCL		4.617483				
Variance of log data	0.219734	97.5% Chebyshev (MVUE) UCL		5.257916				
		99% Chebyshev (MVUE) UCL		6.515923				
		95% Non-parametric UCLs						
		CLT UCL		3.784842				
		Adj-CLT UCL (Adjusted for skewness)		3.929909				
		Mod-t UCL (Adjusted for skewness)		3.839355				
		Jackknife UCL		3.816727				
		Standard Bootstrap UCL		3.767942				
		Bootstrap-t UCL		4.074264				
RECOMMENDATION		Hall's Bootstrap UCL		4.541164				
Data follow gamma distribution (0.05)		Percentile Bootstrap UCL		3.841786				
		BCA Bootstrap UCL		3.909375				
Use Approximate Gamma UCL		95% Chebyshev (Mean, Sd) UCL		4.811654				
		97.5% Chebyshev (Mean, Sd) UCL		5.525226				
		99% Chebyshev (Mean, Sd) UCL		6.926902				

PCP stats all new DLs

Data File				Variable:	PCP ug/kg				
									ProUCL
Raw Statistics			Normal Distribution Test				PCP ug/kg	PCP Data ug/kg	
Number of Valid Samples		20	Shapiro-Wilk Test Statistic			0.528485	160	U	80
Number of Unique Samples		16	Shapiro-Wilk 5% Critical Value			0.905	170	U	85
Minimum		1.8	Data not normal at 5% significance level				3.7	J	3.7
Maximum		425					16	U	8
Mean		50.065	95% UCL (Assuming Normal Distribution)				850	U	425
Median		8.5	Student's-t UCL			89.03735	300	U	150
Standard Deviation		100.796					320	U	160
Variance		10159.83	Gamma Distribution Test				16	U	8
Coefficient of Variation		2.013303	A-D Test Statistic			2.26041	8.3	J	8.3
Skewness		3.076068	A-D 5% Critical Value			0.80748	16	U	8
			K-S Test Statistic			0.38504	18	U	9
Gamma Statistics			K-S 5% Critical Value			0.205523	17	U	8.5
k hat		0.47653	Data do not follow gamma distribution				17	U	8.5
k star (bias corrected)		0.438384	at 5% significance level				21	U	10.5
Theta hat		105.0617					3.3	J	3.3
Theta star		114.2037	95% UCLs (Assuming Gamma Distribution)				2.8	J	2.8
nu hat		19.06119	Approximate Gamma UCL			96.9573	18	U	9
nu star		17.53534	Adjusted Gamma UCL			102.383	20	U	10
Approx.Chi Square Value (.05)		9.054573					1.9	J	1.9
Adjusted Level of Significance		0.038	Lognormal Distribution Test				1.8	J	1.8
Adjusted Chi Square Value		8.574733	Shapiro-Wilk Test Statistic			0.855737			
			Shapiro-Wilk 5% Critical Value			0.905			
Log-transformed Statistics			Data not lognormal at 5% significance level						
Minimum of log data		0.587787							
Maximum of log data		6.052089	95% UCLs (Assuming Lognormal Distribution)						
Mean of log data		2.570361	95% H-UCL			153.0516			
Standard Deviation of log data		1.561842	95% Chebyshev (MVUE) UCL			111.3906			
Variance of log data		2.439349	97.5% Chebyshev (MVUE) UCL			142.5636			
			99% Chebyshev (MVUE) UCL			203.7969			
			95% Non-parametric UCLs						
			CLT UCL			87.13781			
			Adj-CLT UCL (Adjusted for skewness)			103.7027			
			Mod-t UCL (Adjusted for skewness)			91.62114			
			Jackknife UCL			89.03735			
			Standard Bootstrap UCL			86.21679			
			Bootstrap-t UCL			135.191			
RECOMMENDATION			Hall's Bootstrap UCL			203.4383			
Data are Non-parametric (0.05)			Percentile Bootstrap UCL			90.88			
			BCA Bootstrap UCL			107.375			
99% Chebyshev (Mean, Sd) UCL			95% Chebyshev (Mean, Sd) UCL			148.3088			
			97.5% Chebyshev (Mean, Sd) UCL			190.8189			
			99% Chebyshev (Mean, Sd) UCL			274.3219			

PCP stats sub highDLs

Data File		Variable:	PCP ug/kg -replace elev. DLs with max 1/2DL reg DLs		
Raw Statistics		Normal Distribution Test		PCP Data ug/kg -	
Number of Valid Samples	20	Shapiro-Wilk Test Statistic	0.794701		
Number of Unique Samples	11	Shapiro-Wilk 5% Critical Value	0.905	10.5	
Minimum	1.8	Data not normal at 5% significance level		10.5	
Maximum	10.5			3.7	
Mean	7.69	95% UCL (Assuming Normal Distribution)		8	
Median	8.5	Student's-t UCL	8.897914	10.5	
Standard Deviation	3.124083			10.5	
Variance	9.759895	Gamma Distribution Test		10.5	
Coefficient of Variation	0.406253	A-D Test Statistic	2.230611	8	
Skewness	-0.98231	A-D 5% Critical Value	0.745527	8.3	
		K-S Test Statistic	0.347339	8	
Gamma Statistics		K-S 5% Critical Value	0.194638	9	
k hat	4.009829	Data do not follow gamma distribution at 5% significance level		8.5	
k star (bias corrected)	3.441688			8.5	
Theta hat	1.917788			10.5	
Theta star	2.234369	95% UCLs (Assuming Gamma Distribution)		3.3	
nu hat	160.3931	Approximate Gamma UCL	9.490284	2.8	
nu star	137.6675	Adjusted Gamma UCL	9.650896	9	
Approx.Chi Square Value (.05)	111.5523			10	
Adjusted Level of Significance	0.038	Lognormal Distribution Test		1.9	
Adjusted Chi Square Value	109.6958	Shapiro-Wilk Test Statistic	0.726308	1.8	
		Shapiro-Wilk 5% Critical Value	0.905		
Log-transformed Statistics		Data not lognormal at 5% significance level			
Minimum of log data	0.587787				
Maximum of log data	2.351375	95% UCLs (Assuming Lognormal Distribution)			
Mean of log data	1.910076	95% H-UCL	10.73266		
Standard Deviation of log data	0.595103	95% Chebyshev (MVUE) UCL	12.84243		
Variance of log data	0.354148	97.5% Chebyshev (MVUE) UCL	14.94628		
		99% Chebyshev (MVUE) UCL	19.0789		
		95% Non-parametric UCLs			
		CLT UCL	8.839039		
		Adj-CLT UCL (Adjusted for skewness)	8.675086		
		Mod-t UCL (Adjusted for skewness)	8.87234		
		Jackknife UCL	8.897914		
		Standard Bootstrap UCL	8.798369		
		Bootstrap-t UCL	8.748309		
		Hall's Bootstrap UCL	8.685491		
RECOMMENDATION		Percentile Bootstrap UCL	8.795		
Data are Non-parametric (0.05)		BCA Bootstrap UCL	8.75		
Use 95% Chebyshev (Mean, Sd) UCL		95% Chebyshev (Mean, Sd) UCL	10.73498		
		97.5% Chebyshev (Mean, Sd) UCL	12.05254		
		99% Chebyshev (Mean, Sd) UCL	14.64065		
Recommended UCL exceeds the maximum observation					