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February 15, 2007

Mr. Jerry Wickham Hazardous Materials Specialist Alameda County Environmental Health 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

1011.131771-001

Subject: Results of Soil and Groundwater Investigation ACEH Fuel Leak Case No. RO0002858, Hanson Aggregates 3000 Busch Road, Pleasanton, California

Dear Mr. Wickham:

On behalf of Hanson Aggregates West (Hanson), Brown and Caldwell is submitting this report documenting the results of a limited soil and groundwater investigation conducted at the Hanson Aggregates West Radum facility located at 3000 Bush Road, Pleasanton, California (Site), Figure 1. The scope of this investigation was provided in the *Work Plan for Soil and Groundwater Investigation* prepared by Brown and Caldwell on November 30, 2006 and submitted to the Alameda County Environmental Health Department (ACEH). The Work Plan was prepared in response to an ACEH letter dated September 21, 2006 that raised concerns regarding the previous detection of low level hydrocarbons in soil during removal of two underground storage tanks (UST) located as shown on Figure 2 (Fuel Leak Case No. RO0002858). ACEH requested that a Work Plan to further assess soil and groundwater quality in this area of the site.

BACKGROUND

As documented in the *Baseline Environmental Consulting Report on Tank Removal Activities*, dated July 2003, (Baseline) two USTs (one 12,000-gallon diesel and one 10,000-gallon gasoline) were removed from the Site under permit from the Livermore/Pleasanton Fire Department. A Site layout with the general location of these tanks is provided in Figure 2. During the removal activities, eight in-situ soil characterization samples, one composite stockpile sample and one discrete stockpile sample were collected and analyzed for:

• Total petroleum hydrocarbons as diesel (TPHd) and as gasoline (TPHg) following United States Environmental Protection Agency (EPA) Method 8015M;

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- Volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl-tertiary butyl ether (MtBE) following EPA Method 8260B; and
- Total lead following EPA Method 6010B.

The locations of the samples collected by Baseline are shown in Figure 2. TPHg, VOCs and lead were not detected in the soil samples collected at concentrations exceeding their respective laboratory reporting limit. Two samples collected during the removal activities however, detected TPHd at concentrations ranging from 10 parts per million (ppm) to 210 ppm. The Baseline report noted that minor fuel releases occurred during the UST pipeline removal activities in the areas these two soil samples represent, thus contributing to the detected TPHd concentrations. Following the UST removal activities, the stockpiled soil was apparently placed back into the excavated area.

Groundwater was not encountered in the excavation, which extended in depth to 17 feet below ground surface (bgs), and therefore, no groundwater samples were collected. Subsequently, ACEH submitted the request for further evaluation of groundwater quality as noted above.

SCOPE OF WORK

In order to determine if Site groundwater located beneath the UST area has been affected by petroleum hydrocarbons, Brown and Caldwell conducted a limited subsurface investigation in the immediate area of the former tank excavation. The investigation consisted of the following tasks:

- Brown and Caldwell subcontracted with Gregg Drilling and Testing who advanced borings with a cone penetration testing (CPT) rig immediately beyond the northeast, northwest, southeast and southwest corners of the former excavation extent. These borings were advanced to obtain detailed lithologic logs at each location and to identify the depth of first groundwater (Figure 3);
- 2) After completion of lithologic logging with the CPT rig, advance a second boring for soil and groundwater sample collection (a total of 8 borings at four locations);
- 3) Grout boreholes with neat cement after collection of soil and grab groundwater samples;

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- 4) Submit soil and groundwater samples from the most appropriate lithologic units identified by the CPT boring to a STL of San Francisco, a State-accredited laboratory following proper chain of custody protocol.
- 5) Analyze the soil and groundwater samples for: Diesel Range Organics (DRO) following EPA Method 8015M, including silica gel cleanup (soil samples only) to remove naturally-occurring hydrocarbons; Gasoline Range Organics (GRO) following EPA Method 8015M, and benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE) following EPA Method 8260; and
- 6) Present the findings of the investigation in written form and recommend further action if necessary.

METHODOLOGY

Health and Safety Plan. As required by the Occupational Safety and Health Administration 29 CFR 1910.120, Hazardous Waste operations and Emergency Responses, Brown and Caldwell prepared a Site specific Health and Safety Plan (HSP) for the proposed field work prior to commencement of field activities. The HSP contained information, precautions, and procedures for the scope of work described in the Work Plan.

Underground Utility Locating. Prior to drilling, the proposed soil borings were marked in the field by Brown and Caldwell and inspected by a private underground utility location company. The private utility location company attempted to locate underground utilities in the vicinity of the marked drilling locations using a magnetometer, a live electrical detector, and/or other appropriate geophysical tools in order to select the safest locations possible to prevent accidental damage to underground utilities on site. Underground Services Alert (USA), a public utility marking service, was also notified so that public utility easements were marked at the surface prior to the drilling operations. In addition to these preventative measures, Brown and Caldwell required the drilling subcontractor to hand auger the first 5 feet of each borehole location as a further clearance method.

Soil Sampling Methodology. Soil samples were collected from the four sampling boreholes at approximately 17 feet bgs (the previous bottom of the excavation) and 27 feet bgs (the depth of the first deeper permeable layer encountered in the CPT borings). The samples were collected with the CPT rig by driving a clean, sealed, stainless steel piston sampler into the soil to the desired sampling interval. The piston sampler was fitted with clean brass tubes prior to each retrieval. After retrieval, the brass tubes were sealed with Teflon sheeting and plastic end caps. The

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tubes were then labeled, placed into re-sealable plastic bags, stored in a cooler containing ice and delivered under chain-of-custody documentation to a California Department of Health Services certified analytical laboratory.

Groundwater Sampling Methodology. After collection of soil samples, grabgroundwater samples were collected by driving clean hollow sampling rods into the same borehole used to collect the soil samples. The hollow rods were fitted with a hydropunch type sampler that was driven into the soil in a closed, sealed position, to the bottom of the desired sampling interval. The rods were then retracted approximately 3 to 5 feet, to open the hydropunch sampler and allow formation water to enter the hollow steel rods. Grab groundwater samples were collected from the rods by lowering a clean stainless steel bailer into the water, and decanting the water into laboratory-supplied sample containers. The samples were then labeled, placed into resealable plastic bags, stored in a cooler containing ice and delivered under chain-of-custody documentation to Severn Trent Laboratories, Inc., a California Department of Health Services certified analytical laboratory located in Pleasanton, California.

FINDINGS

Site Geology. The site lithology logged in the four CPT borings show that the subsurface in the vicinity of the former USTs consists of fine-grained silty sand to sandy silt, from the surface to approximately 25 feet bgs. A thin layer of silty sand and sand was encountered in the borings from approximately 25 to 30 feet bgs. The finer grained silty sand to sandy silt layer continued from approximately 30 feet to approximately 44 feet bgs. A thicker layer of clean sand interbedded with silty sand extends from the base of the fine-grained sediments to a depth of approximately 72 to 75 feet bgs. This unit is underlain by a layer of silty sand and sandy silt to a depth of approximately 82 to 85 feet bgs. This relatively impermeable layer is then underlain by another thick layer of clean sand which was encountered to approximately 90 bgs, at which point the CPT rig encountered refusal. The lithologic profiles logged at the 4 locations were relatively consistent. The CPT logs are included in Gregg Drilling and Testing's CPT Site Investigation Report (attached).

Depth to First Groundwater. To determine the depth to first groundwater, several pore water pressure dissipation tests (PPDT) were conducted with the CPT rig at depths of 47, 58 and 85 feet bgs at CPT-1, and at 70 feet bgs at CPT-2. The PPDT locations were selected to evaluate the higher permeability layers detected in the CPT borings. The PPDTs at 47 and 58 feet bgs returned pore pressure curves that remained below the zero intercept (negative pounds per square inch, "psi") over time, indicating that the unit was dry. At 70 feet bgs, the curve approached the zero

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intercept after approximately one-half hour, and at 85 feet bgs, the curve reached a maximum of 7.52 psi after one-half hour. This value converts to approximately 17.4 feet of hydraulic head and suggests that the water table elevation was approximately 67 feet bgs, which correlates well to the data obtained in the test conducted at approximately 70 feet. Therefore, grab groundwater sample intervals were selected to gather water from approximately 65 to 70 feet bgs. The PPDT curves are also included in Gregg Drilling and Testing's CPT Site Investigation Report, dated January 8, 2007 (attached).

Analytical Results. Laboratory analysis results from this subsurface investigation are summarized in Table 1 with copies of the analytical reports (attached). The analytical information indicates that none of the targeted compounds were detected in the four grab groundwater samples. In addition, GRO, BTEX and MTBE were not detected in the soil samples collected.

Low concentrations of DRO were detected in six of the eight soil samples ranging in concentration from <0.91 ppm to 9.5 ppm. The chromatograms from these samples were reviewed by the analytical laboratory who indicated that they did not match the standard for diesel fuel however, which indicates that they may be naturally occurring organic compounds that elute within the same general carbon range as diesel fuel.

CONCLUSIONS

Based on the results of this investigation it appears that first groundwater at the Site is found approximately 70 feet bgs, in a relatively thick clean sandy unit, which is overlain by approximately twenty feet of relatively impermeable silty sand and silt. Laboratory analytical results from four grab groundwater samples collected near the top of this water bearing unit did not contain DRO, GRO, MTBE, or BTEX above the laboratory method detection limits. In addition, except for DRO, the analytical results of the four soil samples collected from the approximate depth of the former UST tank excavation and the four soil samples collected approximately ten feet deeper in the next permeable unit were also free of these compounds. The detections of DRO in the soils samples were well below Environmental Screening Levels established by the San Francisco Regional Water Quality Control Board for the protection of groundwater and did not match the chromatogram pattern for diesel fuel, indicating that these may be naturally occurring organic compounds.

These results indicate that the previous use of the UST's in this area have not adversely affected Site soil or groundwater quality and do not pose a future threat to the groundwater resource underlying the Site. Mr. Jerry Wickham February 15, 2007 Page 6 of 6

RECOMMENDATIONS

Based on the results of this subsurface investigation, and in consideration of the conclusions presented above, Brown and Caldwell does not recommend further investigation or remediation of soil or groundwater quality in the vicinity of these two former USTs. We recommend that the case be closed.

Thank you for reviewing this report of findings for the referenced Site. Please feel free to call me at (925) 210-2278 or Mr. Lee Cover of Hanson Aggregates at (925) 426-4170, should you have any questions.

Very truly yours,

BROWN AND CALDWELL

for the Andrew M. Lojo, P.G Jason Grant, P.E. Manager, Environt Project Manager Walnut Creek Gr JG:dem Attachments: Figur und Storage Tank and Sample Locations Figure EALPO Figure 3 – C g Locations Table 1 - Summary of Analytical Results (w/4 analytical reports dated 01/10/07, 01/15/07, 01/22/07, 01/22/07) Gregg Drilling and Testing's CPT Site Investigation Report, dated January 8, 2007

cc w/attach: Mr. L. Cover, Hanson Aggregates West Mr. M. Howell, Hanson Aggregates West Ms. B. Goodrich, Brown and Caldwell Mr. Wyman Hong, Zone 7 Water Agency







Table 1. Summary of Analytical Results

Hanson Aggregates 3000 Busch Road Pleasanton, CA

Boring ID	Location	Sample Type / Depth	DRO	GRO	BTEX	MTBE
	2027	Soil / 17-18 feet bgs	7.3 mg/kg	<0.25 mg/kg	<0.0050 mg/kg	<0.0050 mg/kg
CPT-1	former tank	Soil / 27-28 feet bgs	9.5 mg/kg	<0.24 mg/kg	<0.0048 mg/kg	<0.0048 mg/kg
	excavation	Groundwater / 71 feet bgs	<50 µg/L	<50 μg/L	<1.0 * µg/L	<0.50 µg/L
		Soil / 17-18 feet bgs	3.5 mg/kg	<0.25 mg/kg	<0.0050 mg/kg	<0.0050 mg/kg
CPT-2	NE corner of former tank	Soil / 26-27 feet bgs	<0.91 mg/kg	<0.25 mg/kg	<0.0049 mg/kg	<0.0049 mg/kg
	excavation	Groundwater / 66 feet bgs	<50 µg/L	<50 µg/L	<0.50 µg/L	<0.50 µg/1.
		Soil / 17-18 feet bgs	1.4 mg/kg	<0.25 mg/kg	<0.0049 mg/kg	<0.0049 mg/kg
CPT-3	SE corner of former tank	Soil / 22-23 feet bgs	1.4 mg/kg	<0.24 mg/kg	<0.0048 mg/kg	<0.0048 mg/kg
	excavation	Groundwater / 66 feet bgs	50 µg/L	50 μg/L	<1.0 * µg/L	<0.50 µg/L
		Soil / 17-18 fect bgs	1.3 mg/kg	<0.25 mg/kg	<0.0049 mg/kg	<0.0049 mg/kg
CPT-4	CPT 4 Former tank	Soil / 24-25 feet bes	<0.97 mg/kg	<0.25 mg/kg	<0.0049 mg/kg	<0.0049 mg/kg
nara di I	excavation	Groundwater / 67 feet bgs	50 µg/L	50 μg/L	<0.50 µg/L	<0.50 µg/L

<u>Notes</u>

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

BTEX = Benzene, Toluene, Ethylbenzene, Xylenes

MTBE = Methyl Tertiary Butyl Ether

mg/kg = milligrams per killigram

 $\mu g/L = micrograms$ per liter

 $\leq n =$ not detected at a concentration greater than or equal to n mg/kg or n μ g/L

* Highest detection limit listed for this suite of compounds. See attached Laboratory data sheets for individual detection limits.

SEVERN TRENT STL

ANALYTICAL REPORT

Job Number: 720-7165-1

Job Description: Hanson

For: Brown and Caldwell 201 North Civic Drive Suite 115 Walnut Creek, CA 94596-3864

Attention: Mr. Joe Laplante

SUL

Dimple Sharma Project Manager I dsharma@stl-inc.com 01/10/2007

cc: Jason Grant

Project Manager: Dimple Sharma

Severn Trent Laboratories, Inc. STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566 Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

EXECUTIVE SUMMARY - Detections

Client: Brown and Caldwell

Job Number: 720-7165-1

Lab Sample ID	Client Sample ID	Reporting				
Analyte	•	Result / Qualifier	Limit	Units	Method	

No Detections

METHOD SUMMARY

Client: Brown and Caldwell

Job Number: 720-7165-1

Description		Lab Location	Method		Preparation Method		
Matrix:	Water						
Volatile Org	ganic Compounds by GC/MS Purge-and-Trap	STL SF STL SF	SW846	8260B	SW846	5030B	
Nonhaloge	nated Organics using GC/FID -Modified (Diesel	STL SF	SW846	8015B			
Range Org	Organic Compounds in Water by Microextraction	STL SF			SW846	3511 SGC	

LAB REFERENCES:

STL SF = STL San Francisco

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Brown and Caldwell

Job Number: 720-7165-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-7165-1	CPT-1	Water	01/03/2007 1250	01/03/2007 1720
720-7165-2	CPT-2	Water	01/03/2007 1655	01/03/2007 1720

Client: Brown and Caldwell

Job Number: 720-7165-1

Client Sample ID:	CPT-1		
Lab Sample ID: Client Matrix:	720-7165-1 Water		Date Sampled: 01/03/2007 1250 Date Received: 01/03/2007 1720
	8260B	Volatile Organic Compounds by	GC/MS
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/04/2007 2045 01/04/2007 2045	Analysis Batch: 720-16996	Instrument ID: Varian 3900E Lab File ID: c:\varianws\data\200701\01 Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL
Analyte		Result (ug/L)	Qualifier RL
Benzene	an baaraan waxaan daaradaa digirii ahaa ka ka aa ahaa daaraa daaraa daaraa daa yadi ya di	ND	0.50
Ethylbenzene		ND	0.50
MTBE		ND	0.50
Toluene		ND	0.50

ivi i bota		
Toluene	ND	0.50
Xvlenes. Total	ND	1.0
Gasoline Range Organics (GRO)-C5-C12	ND	50
Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	94	77 - 121
1,2-Dichloroethane-d4 (Surr)	111	73 - 130

Job Number: 720-7165-1

Client: Brown and Caldwell

Client

Client Sample ID:	CPT-2			
Lab Sample ID:	720-7165-2		Date Sampled:	01/03/2007 1655
Client Matrix:	t Matrix: Water			01/03/2007 1720
	8260B	/olatile Organic Compounds by	GC/MS	
Method:	8260B	Analysis Batch: 720-16996	Instrument ID: Vari	ian 3900E
Preparation:	5030B		Lab File ID: c:\vi	arianws\data\200701\01
Dilution:	1.0		Initial Weight/Volume:	10 mL
Date Analyzed:	01/04/2007 2108		Final Weight/Volume:	10 mL
Date Prepared:	01/04/2007 2108			
Analyte		Result (ug/L)	Qualifier	RL

Analyte	Result (ug/L) Qua	lifier RL
Benzene	ND	0.50
Ethylbenzene	ND	0.50
MTBE	ND	0.50
Toluene	ND	0.50
Xylenes, Total	ND	1.0
Gasoline Range Organics (GRO)-C5-C12	ND	50
Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	94	77 - 121
1,2-Dichloroethane-d4 (Surr)	114	73 - 130

Client: Brown and Caldwell

Job Number: 720-7165-1

Client Sample ID	: CPT-1			
Lab Sample ID: Client Matrix:	720-7165-1 Water		Date Sampled: 01/03/2007 1250 Date Received: 01/03/2007 1720	
8(015B Nonhalogenated (Drganics using GC/FID -Modified	(Diesel Range Organics)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3511 SGC 1.0 01/04/2007 1838 01/04/2007 1251	Analysis Batch: 720-16990 Prep Batch: 720-16943	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY	
Analyte		Result (ug/L)	Qualifier RL	
Diesel Range Organics [C10-C28]		ND	50	
Surrogate		%Rec	Acceptance Limits	
		91	60 - 130	

Job Number: 720-7165-1

Client: Brown and Caldwell

Client Sample ID: CPT-2

+			
Lab Sample ID: Client Matrix:	720-7165-2 Water		Date Sampled: 01/03/2007 1655 Date Received: 01/03/2007 1720
8	015B Nonhalogenated (Drganics using GC/FID -Modified	I (Diesel Range Organics)
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3511 SGC 1.0 01/04/2007 1907 01/04/2007 1251	Analysis Batch: 720-16990 Prep Batch: 720-16943	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
Analyte		Result (ug/L)	Qualifier RL
Diesel Range Org	janics [C10-C28]		50
Surrogate		%Rec	Acceptance Limits
o-Terphenyl	anna an ann an ann an an ann an an ann an a	30	60 - 130

STL San Francisco

DATA REPORTING QUALIFIERS

Lab Section

Qualifier

Description

Quality Control Results

Client: Brown and Caldwell

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-16996	3				
LCS 720-16996/2	Lab Control Spike	Т	Water	8260B	
LCSD 720-16996/1	Lab Control Spike Duplicate	Т	Water	8260B	
MB 720-16996/3	Method Blank	Т	Water	8260B	
720-7165-1	CPT-1	Т	Water	8260B	
720-7165-2	CPT-2	Т	Water	8260B	
<u>Report Basis</u> T = Total					
GC Semi VOA					
Prep Batch: 720-16943					
LCS 720-16943/2-AA	Lab Control Spike	А	Water	3511 SGC	
LCSD 720-16943/3-AA	Lab Control Spike Duplicate	A	Water	3511 SGC	
MB 720-16943/1-AA	Method Blank	A	Water	3511 SGC	
720-7165-1	CPT-1	A	Water	3511 SGC	
720-7165-2	CPT-2	А	Water	3511 SGC	
Analysis Batch:720-16990	0				
LCS 720-16943/2-AA	Lab Control Spike	А	Water	8015B	720-16943
LCSD 720-16943/3-AA	Lab Control Spike Duplicate	А	Water	8015B	720-16943
MB 720-16943/1-AA	Method Blank	А	Water	8015B	720-16943
720-7165-1	CPT-1	А	Water	8015B	720-16943
720-7165-2	CPT-2	A	Water	8015B	720-16943

Report Basis

A = Silica Gel Cleanup

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

Client: Brown and Caldwell

Method Blank - Batch: 720-16996

Lab Sample ID:MB 720-16996/3Client Matrix:WaterDilution:1.0Date Analyzed:01/04/2007Date Prepared:01/04/2007

Analysis Batch: 720-16996 Prep Batch: N/A Units: ug/L

Quality Control Results

Job Number: 720-7165-1

Method: 8260B Preparation: 5030B

Instrument ID: Varian 3900E				
Lab File ID: c:\va	ianws\data\200701\01			
Initial Weight/Volum	e: 10 mL			
Final Weight/Volume	e: 10 mL			

Analyte	Result	Qual	RL
Benzene	ND	gyy ternese se anna an a	0.50
Ethylbenzene	ND		0.50
MTBE	ND		0.50
Toluene	ND		0.50
Xvlenes. Total	ND		1.0
Gasoline Range Organics (GRO)-C5-C12	ND		50
Surrogate	% Rec	Acceptance Limi	ts
Toluene-d8 (Surr)	93	77 - 121	
1,2-Dichloroethane-d4 (Surr)	116	73 - 130	

Quality Control Results

Client: Brown and Caldwell

Job Number: 720-7165-1

Lab Control Spike/ Lab Control Spike Duplicate Recovery Report - Batch: 720-16996

LCS Lab Sample ID: LCS 720-16996/2Client Matrix:WaterDilution:1.0Date Analyzed:01/04/2007Date Prepared:01/04/2007

Instrument ID: Varian 3900E Lab File ID: c:\varianws\data\200701\0 Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL

Method: 8260B

Preparation: 5030B

LCSD Lab Sample	e ID: LCSD 720-16996/1	Analysis Batch: 720-16996	Instrument ID: Varian 3900E
Client Matrix:	Water	Prep Batch: N/A	Lab File ID: c:\varianws\data\200701\010
Dilution:	1.0	Units: ug/L	Initial Weight/Volume: 10 mL
Date Analyzed:	01/04/2007 1735		Final Weight/Volume: 10 mL
Date Prepared:	01/04/2007 1735		

Analysis Batch: 720-16996

Prep Batch: N/A

Units: ug/L

	0	<u> 6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	96	90	69 - 129	6	25	****	a mandala la desta de la de
МТВЕ	84	82	65 - 165	2	25		
Toluene	98	95	70 - 130	3	25		
Surrogate	L	.CS % Rec	LCSD %	Rec	Accer	otance Limits	
Toluene-d8 (Surr)	. 9	5	95		7	7 - 121	
1,2-Dichloroethane-d4 (Surr)	1	02	107		7	3 - 130	

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

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

Client: Brown and Caldwell

Job Number: 720-7165-1

Method Blank	- Batch: 720-16943		Method: 8015B Preparation: 3511 SGC Silica Gel Cleanup
Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	MB 720-16943/1-AA Water 1.0 01/04/2007 1712 01/04/2007 1251	Analysis Batch: 720-16990 Prep Batch: 720-16943 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
Analyte		Result	Qual RL
Diesel Range Or	ganics [C10-C28]		50
Surrogate		% Rec	Acceptance Limits
o-Terphenyl	nnan na manan an ang ang 155 ku na na mananana ananan ng mga na ng ng ng nanana na na manana na na	91	60 - 130
Lab Control S Lab Control S	Spike/ Spike Duplicate Recovery	Report - Batch: 720-16943	Method: 8015B Preparation: 3511 SGC Silica Gel Cleanup
LCS Lab Sample Client Matrix: Dilution: Date Analyzed: Date Prepared:	e ID: LCS 720-16943/2-AA Water 1.0 01/04/2007 1740 01/04/2007 1251	Analysis Batch: 720-16990 Prep Batch: 720-16943 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
LCSD Lab Sam Client Matrix: Dilution: Date Analyzed: Date Prepared:	ple ID: LCSD 720-16943/3-AA Water 1.0 01/04/2007 1809 01/04/2007 1251	Analysis Batch: 720-16990 Prep Batch: 720-16943 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
Analyte		<u>% Rec.</u> LCS LCSD Limit	RPD RPD Limit LCS Qual LCSD Qual

Andiyte	200	2005				
Diesel Range Organics [C10-C28]	79	82	50 - 150	4	25	
Surrogate	L	.CS % Rec	LCSD %	Rec	Acceptance Limits	
o-Terphenyl	8	37	89		60 - 130	

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BR(WN AND CALD	WELL	Ċ	SW	,	4	CHAIN	OF (CUSTO	DY REC	ORD				co	Сŀ	Jö		545585898989898989989999999999999999999	·····
ij	 CJ 2701 Prospect P Rancho Cordova, CZ G-444-0123 / FAX 91 	urk Dr. 1 93670 6-633-8863	addini S	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3 966 858-51	5 Chesapcak San Diego, C 4-8822 / FA)	s Dr. / Suit A-92123 & 858-514	e 201 -8833	<i>*</i>	925.i	201 N. Civi Walnut Cree 37-9010 / P	e Dr. / Suide 1k, CA 9459 AX 925-931	113 8 1-9026		71.	04 4734	100 Exchange Irvine, CA 1 1-7600 / FAX	/ Suñe 1 92602 714-73-	00 1-0940	
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LINENO	SAMPLE - LD.	COLLE	ECTION TIME	SAMPLERS	NUMBER OF CONTAINERS	CONTAINEH SIZE MID TYPE	PRESER-	NATTIN CODE			ANALY REQUE	ses Sted			HED RIFED	00- NEQ	тат	SANPLING	DEPTH (FT.) BEGIN END	Numi Chillerin Chi
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USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY, INSTRUCTIONS ARE ON THE BACK

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Brown and Caldwell

Job Number: 720-7165-1

.

Login Number: 7165

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Insufficient ice for CPT-1
Cooler Temperature is acceptable.	False	CPT-1 out of temp, client approved to analyze
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	



ANALYTICAL REPORT

Job Number: 720-7216-1

Job Description: Hanson

For: Brown and Caldwell 201 North Civic Drive Suite 115 Walnut Creek, CA 94596-3864

Attention: Mr. Joe Laplante

ALL

Dimple Sharma Project Manager I dsharma@stl-inc.com 01/15/2007

cc: Jason Grant

Project Manager: Dimple Sharma

Severn Trent Laboratories, Inc. STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566 Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com

EXECUTIVE SUMMARY - Detections

Client: Brown and Caldwell

Job Number: 720-7216-1

Lab Sample ID	Client Sample ID		Reporting		
Analyte		Result / Qualifier	Limit	Units	Method

No Detections

.

METHOD SUMMARY

Client: Brown and Caldwell

Descripti	on	Lab Location	Method		Preparation	on Method
Matrix:	Water					
Volatile Or	ganic Compounds by GC/MS Purge-and-Trap	STL SF STL SF	SW846	8260B	SW846	5030B
Nonhaloge	nated Organics using GC/FID -Modified (Diesel	STL SF	SW846	8015B		
Range Org	ganics) Organic Compounds in Water by Microextraction	STL SF			SW846	3511 SGC

LAB REFERENCES:

STL SF = STL San Francisco

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Brown and Caldwell

Job Number: 720-7216-1

.

i ah Samnle ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-7216-1	CPT-3	Water	01/05/2007 1215	01/08/2007 1415
720-7216-2	CPT-4	Water	01/05/2007 1450	01/08/2007 1415

Client: Brown and Caldwell

Job Number: 720-7216-1

Client Sample ID:	CPT-3			
Lab Sample ID: Client Matrix:	720-7216-1 Water		Date Sampled Date Received	01/05/2007 1215 01/08/2007 1415
	8260B Vo	blatile Organic Compounds by	GC/MS	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/09/2007 1559 01/09/2007 1559	Analysis Batch: 720-17103	Instrument ID: S Lab File ID: c Initial Weight/Volun Final Weight/Volun	Saturn 2100 ::\saturnws\data\200701\01 ne: 10 mL ne: 10 mL
Analyte		Result (ug/L)	Qualifier	RL
Benzene Ethylbenzene MTBE Toluene Xylenes, Total Gasoline Range Or	rganics (GRO)-C5-C12	ND ND ND ND ND ND		0.50 0.50 0.50 0.50 1.0 50
Surrogate		%Rec	Acce	ptance Limits
Toluene-d8 (Surr) 1,2-Dichloroethane	e-d4 (Surr)	94 95	77 - 73 -	- 121 - 130

Job Number: 720-7216-1

Client: Brown and Caldwell

Client Sample ID: CPT-4

Lab Sample ID:	720-7216-2		Date Sampled: 01/05/2007 1450
Client Matrix:	Water		Date Received: 01/08/2007 1415
	8260B \	/olatile Organic Compounds by	GC/MS
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/09/2007 1625 01/09/2007 1625	Analysis Batch: 720-17103	Instrument ID: Saturn 2100 Lab File ID: c:\saturnws\data\200701\01 Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL
Analyte		Result (ug/L)	Qualifier RL
Benzene Ethylbenzene	unananan kanan	ND ND ND	0.50 0.50 0.50
Toluene		ND	0.50
Xylenes, Total		ND	1.0
Gasoline Range (Organics (GRO)-C5-C12	ND	50
Surrogate		%Rec	Acceptance Limits
Toluene-d8 (Surr	[.])	94	77 - 121
1,2-Dichloroethar	ne-d4 (Surr)	95	73 - 130

Client: Brown and Caldwell

Job Number: 720-7216-1

Client Sample ID	: CPT-3							
Lab Sample ID: Client Matrix:	720-7216-1 Water		Date Sampled: 01/05/2007 1215 Date Received: 01/08/2007 1415					
8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)								
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3511 SGC 1.0 01/11/2007 1703 01/10/2007 1312	Analysis Batch: 720-17207 Prep Batch: 720-17110	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY					
Analyte		Result (ug/L)	Qualifier RL					
Diesel Range Organics [C10-C28]		ND	50					
Surrogate		%Rec	Acceptance Limits					
		100	60 - 130					

•

Client: Brown and Caldwell

Job Number: 720-7216-1

Client Sample ID:	CPT-4						
Lab Sample ID: Client Matrix:	720-7216-2 Water		Date Sampled: 01/05/2007 1450 Date Received: 01/08/2007 1415				
8015B Nonhalogenated Organics using GC/FID -Modified (Diesel Range Organics)							
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3511 SGC 1.0 01/11/2007 1341 01/10/2007 1312	Analysis Batch: 720-17207 Prep Batch: 720-17110	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY				
Analyte		Result (ug/L)	Qualifier RL				
Diesel Range Organics [C10-C28]		ND	50				
Surrogate		%Rec	Acceptance Limits				
o-Terphenyl		90	60 - 130				

DATA REPORTING QUALIFIERS

Lab Section

Qualifier

Description

Quality Control Results

Client: Brown and Caldwell

Job Number: 720-7216-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:720-1710	3				
LCS 720-17103/2	Lab Control Spike	т	Water	8260B	
LCSD 720-17103/1	Lab Control Spike Duplicate	Т	Water	8260B	
MB 720-17103/3	Method Blank	Т	Water	8260B	
720-7216-1	CPT-3	Т	Water	8260B	
720-7216-2	CPT-4	Т	Water	8260B	
<u>Report Basis</u> T = Total					
GC Semi VOA					
Prep Batch: 720-17110					
LCS 720-17110/2-AA	Lab Control Spike	A	Water	3511 SGC	
LCSD 720-17110/3-AA	Lab Control Spike Duplicate	A	Water	3511 SGC	
MB 720-17110/1-AA	Method Blank	A	Water	3511 SGC	
720-7216-1	CPT-3	A	Water	3511 SGC	
720-7216-2	CPT-4	A	Water	3511 SGC	
Analysis Batch:720-1720	7				
LCS 720-17110/2-AA	Lab Control Spike	А	Water	8015B	720-17110
LCSD 720-17110/3-AA	Lab Control Spike Duplicate	А	Water	8015B	720-17110
MB 720-17110/1-AA	Method Blank	А	Water	8015B	720-17110
720-7216-1	CPT-3	А	Water	8015B	720-17110
720-7216-2	CPT-4	А	Water	8015B	720-17110

<u>Report Basis</u>

A = Silica Gel Cleanup

Client: Brown and Caldwell

Method Blank - Batch: 720-17103

Lab Sample ID: MB 720-17103/3 Client Matrix: Water Dilution: 1.0 Date Analyzed: 01/09/2007 1130 Date Prepared: 01/09/2007 1130

Analysis Batch: 720-17103 Prep Batch: N/A Units: ug/L

Quality Control Results

Job Number: 720-7216-1

Method: 8260B Preparation: 5030B

Instrument ID: Saturn 2100 Lab File ID: c:\saturnws\data\200701\0* Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Benzene		randara harabira dar 1930 mil saysa anararan na nanan anananan adalah analok kabir kabir kabir yakan milana ya	0.50
Ethylbenzene	ND		0.50
MTBE	ND		0.50
Toluene	ND		0.50
Xylenes, Total	ND		1.0
Surrogate	% Rec	Acceptance Limits	
Toluene-d8 (Surr)	97	77 - 121	
1,2-Dichloroethane-d4 (Surr)	82	73 - 130	

Lab Control Spike/

Lab Control Spike Duplicate Recovery Report - Batch: 720-17103

Method: 8260B Preparation: 5030B

Analysis Batch: 720-17103 Instrument ID: Saturn 2100 LCS Lab Sample ID: LCS 720-17103/2 Lab File ID: c:\saturnws\data\200701\0 Prep Batch: N/A Client Matrix: Water Initial Weight/Volume: 10 mL Units: ug/L Dilution: 1.0 Final Weight/Volume: 10 mL 01/09/2007 0945 Date Analyzed: 01/09/2007 0945 Date Prepared: Saturn 2100 Analysis Batch: 720-17103 Instrument ID: LCSD Lab Sample ID: LCSD 720-17103/1 Water Client Matrix:

1.0 Dilution: 01/09/2007 1011 Date Analyzed: Date Prepared: 01/09/2007 1011 Prep Batch: N/A Units: ug/L

Lab File ID: c:\saturnws\data\200701\01(Initial Weight/Volume: 10 mL Final Weight/Volume: 10 mL

	2	<u>6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	105	104	69 - 129	1	25	danatud on a construction of the local	alean can close can be an enclosed on the platform of the
МТВЕ	99	94	65 - 165	5	25		
Toluene	107	107	70 - 130	0	25		
Surrogate	L	.CS % Rec	LCSD %	Rec	Acceptance Limits		
Toluene-d8 (Surr)	9	4	92		7	7 - 121	
1,2-Dichloroethane-d4 (Surr)	8	3	82		7	3 - 130	

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

Client: Brown and Caldwell

Method Blank - Batch: 720-17110

Method: 8015B

Job Number: 720-7216-1

			Preparation: 3511 SGC Silica Gel Cleanup
Lab Sample ID: M Client Matrix: M Dilution: 1 Date Analyzed: 0 Date Prepared: 0	1B 720-17110/1-AA Vater .0 1/11/2007 1633 1/10/2007 1312	Analysis Batch: 720-17207 Prep Batch: 720-17110 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
Analyte		Result	Qual RL
Diesel Range Org	anics [C10-C28]		λαι κατα το δια
Surrogate		% Rec	Acceptance Limits
o-Terphenyl	ng ng 2020 ng kang ng n	95	60 - 130
Lab Control Sp Lab Control Sp	oike/ oike Duplicate Recovery	Report - Batch: 720-17110	Method: 8015B Preparation: 3511 SGC Silica Gel Cleanup
LCS Lab Sample Client Matrix: Dilution: Date Analyzed: Date Prepared:	ID: LCS 720-17110/2-AA Water 1.0 01/11/2007 1210 01/10/2007 1312	Analysis Batch: 720-17207 Prep Batch: 720-17110 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
LCSD Lab Sampl Client Matrix: Dilution: Date Analyzed: Date Prepared:	le ID: LCSD 720-17110/3-AA Water 1.0 01/11/2007 1241 01/10/2007 1312	Analysis Batch: 720-17207 Prep Batch: 720-17110 Units: ug/L	Instrument ID: Varian DRO4 Lab File ID: N/A Initial Weight/Volume: 35 mL Final Weight/Volume: 2 mL Injection Volume: Column ID: PRIMARY
Analyte		<u>% Rec.</u> LCS LCSD Limit	RPD RPD Limit LCS Qual LCSD Qual

 Diesel Range Organics [C10-C28]
 88
 88
 50 - 150
 0
 25

 Surrogate
 LCS % Rec
 LCSD % Rec
 Acceptance Limits

 o-Terphenyl
 91
 92
 60 - 130

Page 12 of 14

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)1		15/07	12:15	92	6	yorl Ush	Hrce.	wT	H-3 (2015 M) + ? H- <u>5 (1015 M) B</u>	Selica Gel TEX - PTT	9) <u>26</u>	(<u>50</u> ;):		5-2-1	B	304 688 800: 009	
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USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY, INSTRUCTIONS ARE ON THE BACK

Job Number: 720-7216-1

Login Number: 7216

	T/F/NA	Comment
Question	NA	
Radioactivity either was not measured or, if measured, is at or below background	NΔ	
The cooler's custody seal, if present, is intact.	Truo	
The cooler or samples do not appear to have been compromised or tampered with.	Tauo	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	i rue	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the	True	
COC. Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient yol, for all requested analyses, incl. any requested MS/MSDs	True	
There is sufficient vol. for an requested analy	True	
VOA sample viais do not have needed parts of the short hold time or quick TAT needs	True	
If necessary, starr have been monified of any chorestart as	True	
Multiphasic samples are not present. Samples do not require splitting or compositing.	True	

SEVERN STL

ANALYTICAL REPORT

Job Number: 720-7217-1

Job Description: Hanson

For: Brown and Caldwell 201 North Civic Drive Suite 115 Walnut Creek, CA 94596-3864

Attention: Mr. Joe Laplante

SUL

Dimple Sharma Project Manager I dsharma@stl-inc.com 01/22/2007 Revision: 1

cc: Jason Grant

Project Manager: Dimple Sharma

Severn Trent Laboratories, Inc. STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566 Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com Date: 01/22/2007

The chromatogram pattern for DRO and MRO does not match the Standards.

EXECUTIVE SUMMARY - Detections

Client: Brown and Caldwell

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method	
720-7217-2	CPT-3 (17.5-18.0')					
Diesel Range Orga	nics [C10-C28]	1.4	0.99	mg/Kg	8015B	
720-7217-4	CPT-3 (22.5-23.0')					
Diesel Range Orga	nics [C10-C28]	1.4	0.98	mg/Kg	8015B	
720-7217-9	CPT-4 (17.5-18.0')					
Diesel Range Orga	anics [C10-C28]	1.3	0.94	mg/Kg	8015B	

METHOD SUMMARY

Client: Brown and Caldwell

Description		Lab Location	Method		Preparatio	on Method
Matrix:	Solid					
Volatile Org	panic Compounds by GC/MS Purge and Trap for Solids	STL SF STL SF	SW846 8	8260B	SW846	5030B
Nonhaloger	nated Organics using GC/FID -Modified (Diesel	STL SF	SW846 8	8015B		
Range Orga	anics) Microscale Solvent Extraction (MSE)	STL SF			SW846	3570

LAB REFERENCES:

STL SF = STL San Francisco

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Brown and Caldwell

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-7217-2 720-7217-4 720-7217-9	CPT-3 (17.5-18.0') CPT-3 (22.5-23.0') CPT-4 (17.5-18.0')	Solid Solid Solid	01/05/2007 1022 01/05/2007 1035 01/05/2007 1400	01/08/2007 1415 01/08/2007 1415 01/08/2007 1415
720-7217-10	CPT-4 (24.5-25.0')	Solid	01/05/2007 1405	01/08/2007 1415

Job Number: 720-7217-1

Client: Brown and Caldwell

Client Sample ID: CPT-3 (17.5-18.0')

Lab Sample ID:	720-7217-2	Date Sampled:	01/05/2007 1022
Client Matrix:	Solid	Date Received:	01/08/2007 1415

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/09/2007 1725 01/09/2007 1725	Analysis Batch: 720-17083	Instrument ID: Lab File ID: Initial Weight/Vol Final Weight/Vol	Variar c:\satu lume: lume:	a 3900A urnws\data\200701\0 5.08 g 10 mL	1
--------------------------------------------------------------------------	-------------------------------------------------------------	---------------------------	--------------------------------------------------------------------------	-------------------------------------	---------------------------------------------------	---

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Renzene	lan da kanan manan kana kana kana kana kana k	ND		0.0049
Ethylbenzene		ND		0.0049
Toluene		ND		0.0049
MTBE		ND		0.0049
Xvlenes Total		ND		0.0098
Gasoline Range Organics (GRO)-	C5-C12	ND		0.25
Surrogate		%Rec		Acceptance Limits
Toluope-d8 (Surr)	all for large success of the second	107	1999-99 1992-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-99 1993-9	70 - 130
1,2-Dichloroethane-d4 (Surr)		117		60 - 140

Job Number: 720-7217-1

Client: Brown and Caldwell

Client Sample ID: CPT-3 (22.5-23.0')

Lab Sample ID:	720-7217-4	Date Sampled:	01/05/2007	1035
Client Matrix:	Solid	Date Received:	01/08/2007	1415

Preparation:5030BLab File ID:c:\saturnws\data\20Dilution:1.0Initial Weight/Volume:5.24 gDate Analyzed:01/09/2007 1810Final Weight/Volume:10 mLDate Prepared:01/09/2007 1810Final Weight/Volume:10 mL	200701\01
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene	an ng galan ng mang pengangkan ng m	ND		0.0048
Ethvlbenzene		ND		0.0048
Toluene		ND		0.0048
MTBE		ND		0.0048
Xvienes, Total		ND		0.0095
Gasoline Range Organics (GRO)-0	C5-C12	ND		0.24
Surrogate		%Rec		Acceptance Limits
Toluene-d8 (Surr)	naan amada aha dhahay dhahay kara ya na ana ana ana ana ana ana ana dha dhisan	105	y panalan na kana kana kana kana kana kana	70 - 130
1,2-Dichloroethane-d4 (Surr)		121		60 - 140

Job Number: 720-7217-1

Client: Brown and Caldwell

Client Sample ID: CPT-4 (17.5-18.0')

Lab Sample ID: Client Matrix:	720-7217-9 Solid			Date Sampled: Date Received:	01/05/2007 01/08/2007	1400 1415

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B Analysis Ba on: 5030B 1.0 yzed: 01/09/2007 1854		s Batch: 720-17083	Instrument ID: Lab File ID: Initial Weight/Vol Final Weight/Vol	Varian 3900A c:\saturnws\data\200701\01 lume: 5.08 g ume: 10 mL
Analyte Benzene	01109/2001	DryWt Corrected: N	Result (mg/Kg) ND	Qualifier	RL 0.0049 0.0049

Ethvibenzene	ND	0.0049
Toluene	ND	0.0049
MTBE	ND	0.0049
Xvlenes, Total	ND	0.0098
Gasoline Range Organics (GRO)-C5-C12	ND	0.25
Surrogate	%Rec	Acceptance Limits
Toluene-d8 (Surr)	107	70 - 130
1,2-Dichloroethane-d4 (Surr)	118	60 - 140

Job Number: 720-7217-1

Client: Brown and Caldwell

Client Sample ID: CPT-4 (24.5-25.0')

Lab Sample ID:	720-7217-10	Date Sampled:	01/05/2007	1405
Client Matrix:	Solid	Date Received:	01/08/2007	1415

Method:826Preparation:503Dilution:1.0Date Analyzed:01/0Date Prepared:01/0	S0B Analysis Batch: 720 30B 09/2007 1916 09/2007 1916 09/2007 1916	17083 Instrument ID: Va Lab File ID: c:\ Initial Weight/Volume Final Weight/Volume	rian 3900A saturnws\data\200701\01 s: 5.10 g : 10 mL
---------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	---------------------------------------------------------------

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL	
Benzene	adamanadang dalah dalah kalanda analan analan analan darah darah darah darah darah darah darah darah darah dara	ND		0.0049	
Fthylbenzene		ND		0.0049	
Toluene		ND		0.0049	
MTBE		ND		0.0049	
Xvienes, Total		ND		0.0098	
Gasoline Range Organics (GRO)-C5-C12	ND		0.25	
Surrogate		%Rec		Acceptance Limits	
Toluene-d8 (Surr)	******	107	Canalan englis provinsioner series and an and an and an array of the	70 - 130	varatu
1,2-Dichloroethane-d4 (Surr)		127		60 - 140	

Job Number: 720-7217-1

Client: Brown and Caldwell

Client Sample ID: CPT-3 (17.5-18.0')

Lab Sample ID: Client Matrix:	720-7217-2 Solid			Date Sar Date Rec	mpled: 01/05/2007 10 ceived: 01/08/2007 14	22 15
80)15B Nonhalogenated	Organics usi	ng GC/FID -Modifie	d (Diesel Range Organ	nics)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/09/2007 2040 01/09/2007 1201	Analysi Prep Ba	s Batch: 720-17214 atch: 720-17067	Instrument ID Lab File ID: Initial Weight/ Final Weight/ Injection Volu Column ID:	0: Varian DRO2 N/A /Volume: 5.07 g /Volume: 5 mL ume: PRIMARY	
Analyte	DryWt	Corrected: N	Result (mg/Kg)	Qualifier	RL	***
Diesel Range Org	anics [C10-C28]	an fan fan an ferster y ferster fan sterne fan ar sterne fan sers	1.4	annalan (, 1999), a santalak kanan kanan kanan kanan jara kanan jara kanan kanan kanan kanan kanan kanan kanan	0.99	
Surrogate			%Rec	ana a na n	Acceptance Limits	
Capric Acid (Surr) CEParton den Frank	ese concerne a non-an-an-an-an-an-an-an-an-an-an-an-an-an	1 98		0 - 5 50 - 130	

Client: Brown and Caldwell

Client Sample ID:	CPT-3 (22.5-23.0')					
Lab Sample ID: Client Matrix:	720-7217-4 Solid			Date Sar Date Red	npled: ceived:	01/05/2007 1035 01/08/2007 1415
80	15B Nonhalogenated	Organics usi	ng GC/FID -Modifie	d (Diesel Range Orgar	nics)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/09/2007 2112 01/09/2007 1201	Analysi Prep Ba	s Batch: 720-17214 atch: 720-17067	Instrument ID Lab File ID: Initial Weight Final Weight/ Injection Volu Column ID:): Vari N/A /Volume: /Volume: Jme: Pf	ian DRO2 5.10 g 5 mL RIMARY
Analyte	DryWt	Corrected: N	Result (mg/Kg)	Qualifier		RL
Diesel Range Orga	anics [C10-C28]		1.4			0.98
Surrogate			%Rec		Accepta	nce Limits
Capric Acid (Surr) p-Terphenyl	Charles de la contra de la contra contra de la	ana dan mana tan mana tan mana tan mana tan mana tan m	0 104	elline et der der der genomen zu genomen den der	0 - 5 50 - 13	30

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Client: Brown and Caldwell

Client Sample ID:	CPT-4 (17.5-18.0')			
Lab Sample ID: Client Matrix:	720-7217-9 Solid			Date Sampled: 01/05/2007 1400 Date Received: 01/08/2007 1415
80'	15B Nonhalogenated O	rganics usir	ng GC/FID -Modified	(Diesel Range Organics)
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/09/2007 2144 01/09/2007 1201	Analysi Prep Ba	s Batch: 720-17214 atch: 720-17067	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.33 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY
Analyte	DryWt C	orrected: N	Result (mg/Kg)	Qualifier RL
Diesel Range Orga	nics [C10-C28]	********	1.3	0.94
Surrogate			%Rec	Acceptance Limits
Capric Acid (Surr) p-Terphenyl	nanganan king bar (bi garan na manga na mang bi garagan yang pang pang pang pang pang pang pang p	agtan gan, awanan tanin tarih tarih tarih tarih tarih	0 94	0 - 5 50 - 130

Client: Brown and Caldwell

Client Sample ID:	CPT-4 (24.5-25.0')			
Lab Sample ID: Client Matrix:	720-7217-10 Solid			Date Sampled: 01/05/2007 1405 Date Received: 01/08/2007 1415
80	15B Nonhalogenated Or	ganics usi	ng GC/FID -Modified	d (Diesel Range Organics)
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/09/2007 2215 01/09/2007 1201	Analysi Prep Ba	s Batch: 720-17214 atch: 720-17067	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.14 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY
Analyte	DryWt Co	prrected: N	Result (mg/Kg)	Qualifier RL
Diesel Range Orga	anics [C10-C28]	an a family a name of Congress of South States	ND	0.97
Surrogate			%Rec	Acceptance Limits
Capric Acid (Surr) p-Terphenyl	nn Ffergelle Versen fan fan gest fan yn stron fan de fan de fan de fan de fan fan fan fan fan stron fan de fan	(1)(1-1)(1-1)()(1)()()()()	0 95	0 - 5 50 - 130

DATA REPORTING QUALIFIERS

Lab Section

Qualifier

Description

Quality Control Results

Client: Brown and Caldwell

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Job Number: 720-7217-1

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QC Association Summary

		Report	Client Metrix	Mothod	Drop Batch
Lab Sample ID		Da313		wethou	riep Datch
GC/MS VOA					
Analysis Batch:720-170)83				
LCS 720-17083/2	Lab Control Spike	Т	Solid	8260B	
LCSD 720-17083/1	Lab Control Spike Duplicate	T	Solid	8260B	
MB 720-17083/3	Method Blank	Т	Solid	8260B	
720-7217-2	CPT-3 (17.5-18.0')	Т	Solid	8260B	
720-7217-4	CPT-3 (22.5-23.0')	Т	Solid	8260B	
720-7217-9	CPT-4 (17.5-18.0')	Т	Solid	8260B	
720-7217-10	CPT-4 (24.5-25.0')	Т	Solid	8260B	
<u>Report Basis</u> T = Total					
GC Semi VOA					
Prep Batch: 720-17067					
LCS 720-17067/2-AA	Lab Control Spike	A	Solid	3570	
LCSD 720-17067/3-AA	Lab Control Spike Duplicate	A	Solid	3570	
MB 720-17067/1-AA	Method Blank	A	Solid	3570	
720-7217-2	CPT-3 (17.5-18.0')	A	Solid	3570	
720-7217-4	CPT-3 (22.5-23.0')	A	Solid	3570	
720-7217-9	CPT-4 (17.5-18.0')	A	Solid	3570	
720-7217-10	CPT-4 (24.5-25.0')	A	Solid	3570	
720-7217-10MS	Matrix Spike	A	Solid	3570	
720-7217-10MSD	Matrix Spike Duplicate	А	Solid	3570	
Analysis Batch:720-17	214				
LCS 720-17067/2-AA	Lab Control Spike	А	Solid	8015B	720-17067
LCSD 720-17067/3-AA	Lab Control Spike Duplicate	А	Solid	8015B	720-17067
MB 720-17067/1-AA	Method Blank	Α	Solid	8015B	720-17067
720-7217-2	CPT-3 (17.5-18.0')	Α	Solid	8015B	720-17067
720-7217-4	CPT-3 (22.5-23.0')	А	Solid	8015B	720-17067
720-7217-9	CPT-4 (17.5-18.0')	А	Solid	8015B	720-17067
720-7217-10	CPT-4 (24.5-25.0')	A	Solid	8015B	720-17067
720-7217-10MS	Matrix Spike	А	Solid	8015B	720-17067
720-7217-10MSD	Matrix Spike Duplicate	Α	Solid	8015B	720-17067

<u>Report Basis</u>

A = Silica Gel Cleanup

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

Client: Brown and Caldwell

Method Blank - Batch: 720-17083

Lab Sample ID: MB 720-17083/3 Client Matrix: Solid Dilution: 1.0 Date Analyzed: 01/09/2007 0940 Date Prepared: 01/09/2007 0940 Analysis Batch: 720-17083 Prep Batch: N/A Units: mg/Kg

Quality Control Results

Job Number: 720-7217-1

Method: 8260B Preparation: 5030B

Instrument ID: Varian 3900A Lab File ID: c:\saturnws\data\200701\01 Initial Weight/Volume: 5 g Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
	ND	neg to strengt for the factor near an and	0.0050
Ethvibenzene	ND		0.0050
Toluene	ND		0.0050
MTRE	ND		0.0050
Xvlenes Total	ND		0.010
Gasoline Range Organics (GRO)-C5-C12	ND		0.25
Surrogate	% Rec	Accepta	nce Limits
Toluono-de (Surr)	103	70 -	130
1,2-Dichloroethane-d4 (Surr)	113	60 -	140

Quality Control Results

Client: Brown and Caldwell

Lab Control Spike Duplicate Recovery Report - Batch: 720-17083

Lab Control Spike/

Job Number: 720-7217-1

Method: 8260B Preparation: 5030B

LCS Lab Sample	ID: LCS 720-17083/2	Analysis Batch: 720-17083	Instrument ID: Varian 3900A
Client Matrix:	Solid	Prep Batch: N/A	Lab File ID: c:\saturnws\data\200701\0
Dilution:	1.0	Units: mg/Kg	Initial Weight/Volume: 5 g
Date Analyzed:	01/09/2007 0856		Final Weight/Volume: 10 mL
Date Prepared:	01/09/2007 0856		

LCSD Lab Sample ID: LCSD 720-17083/1 Analysis Batch: 720-17083 Instrument ID: Varian 3900A Lab File ID: c:\saturnws\data\200701\01(Prep Batch: N/A Client Matrix: Solid Initial Weight/Volume: 5 g Dilution: 1.0 Units: mg/Kg Final Weight/Volume: 10 mL Date Analyzed: 01/09/2007 0918 Date Prepared: 01/09/2007 0918

	<u>9</u>	<u>6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	104	100	69 - 129	4	20	******	*****
Toluene	102	100	70 - 130	2	20		
MTBE	103	101	65 - 165	2	20		
Surrogate	L	CS % Rec	LCSD %	Rec	Accer	otance Limits	
Toluene-d8 (Surr)	1	08	100		7	0 - 130	
1,2-Dichloroethane-d4 (Surr)	1	04	104		6	0 - 140	

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

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

Client: Brown and Caldwell

Method Blank - Batch: 720-17067

Lab Sample ID: MB 720-17067/1-AA Client Matrix: Solid Dilution: 1.0 Date Analyzed: 01/09/2007 1905 Date Prepared: 01/09/2007 1201

Analysis Batch: 720-17214 Prep Batch: 720-17067 Units: mg/Kg

Quality Control Results

Job Number: 720-7217-1

Method: 8015B Preparation: 3570 Silica Gel Cleanup

Method: 8015B

Lab File ID: N/A

Injection Volume:

Column ID:

Initial Weight/Volume:

Final Weight/Volume:

Preparation: 3570 Silica Gel Cleanup

Instrument ID: Varian DRO2

5.30 g

5 mL

PRIMARY

Instrument ID:	Varian DRO2
Lab File ID:	N/A
Initial Weight/V	/olume: 5.12 g
Final Weight/V	olume: 5 mL
Injection Volun	ne:
Column ID:	PRIMARY

Analyte	Result	Qual	RL
Diesel Range Organics [C10-C28]	ND	ĸĸĸĸĸŧĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸ	0.98
Surrogate	% Rec	Accepta	nce Limits
Capric Acid (Surr)	0	0 - 5	5
Surrogate	% Rec	Accepta	nce Limits
p-Terphenyl	90	50 -	130

Analysis Batch: 720-17214

Prep Batch: 720-17067

Units: mg/Kg

Lab Control Spike/

Lab Control Spike Duplicate Recovery Report - Batch: 720-17067

LCS Lab Sample ID: LCS 720-17067/2-AA Client Matrix: Solid 1.0 Dilution: 01/09/2007 1937 Date Analyzed: 01/09/2007 1201 Date Prepared:

LCSD Lab Sample	ID: LCSD 720-17067/3-AA	Analysis Batch: 720-17214	Instrument ID: Varian DRO2
Client Matrix:	Solid	Prep Batch: 720-17067	Lab File ID: N/A
Dilution:	1.0	Units: mg/Kg	Initial Weight/Volume: 5.31 g
Date Analyzed:	01/09/2007 2009		Final Weight/Volume: 5 mL
Date Prepared:	01/09/2007 1201		Injection Volume:
,			Column ID: PRIMARY

	9	6 Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Diesel Range Organics [C10-C28]	109	114	50 - 130	4	30	*****	
Surrogate	L	CS % Rec	LCSD % Rec		Acceptance Limits		
p-Terphenyl	1	05	109		5	0 - 130	

Quality Control Results

Client: Brown and Caldwell

Job Number: 720-7217-1

Matrix Spike/ Matrix Spike Duplicate Recovery Report - Batch: 720-17067

Method: 8015B Preparation: 3570 Silica Gel Cleanup

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	720-7217-10 Solid 1.0 01/09/2007 2247 01/09/2007 1201	Analysis Batch: 720-17214 Prep Batch: 720-17067	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.40 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	720-7217-10 Solid 1.0 01/09/2007 2318 01/09/2007 1201	Analysis Batch: 720-17214 Prep Batch: 720-17067	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.21 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY

	%	Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual MSE) Qual
Diesel Range Organics [C10-C28]	111	105	50 - 130	2	30	2012/2012/01/01/2012/2012/2014/01/01/01/01/01/01/01/01/01/01/01/01/01/	.(wjando w fariti w 19254)
Surrogate		MS % Rec	MSD %	Rec	Acce	otance Limits	
p-Terphenyl		109	96		50	- 130	

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

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BROWN AND CALDWELL Sol				í X		(CHAIN	OF (SUSTODY RECORD			C	200	Vo. J	÷	J	
ij.	 2701 Prospect Park Dr. Rancho Cordova, CA 95670 916-444-0123 / FAX 916-635-\$\$805 				 9665 Chesapeake Dr. / Suite 201 San Diego, CA 92123 858-514-8822 / FAN 858-514-8833 				54 201 N. Crvie Walaan Creek 925-937-9010/ EA	 201 N. Civie Dr. / Suite 115 Walnut Creek, CA 94596 925-937-9010 / FAX 925-937-9026 				 400 Exchange / Suite 100 Irvine, CA/92602 714-730-7600 / FAX 714-734-0940 			
PRC		son l	1.	69149	an in the second second second	aanaan ah		ertenen en	LABORATORY NAME & A	DORESS:			, geoglegised and an	163	517		
PRC	NECT NUMBER	5177I		w ja	¹⁰ 2 <i>a</i>	~ 7	21	Ţ	survey and the second s			4,5,2,2,4,7,1,2,1,2,1,2,1,2,1,2,1,2,1,2,1,2,1,2,1				///////	#149A-0-07
aninin's Colondo				1	6() • • •		Ø	Please 3mg 10	A				-		<u>7 - E</u>	
LINE NO.	SAMPLE - I.D.	COLLI DATE	ECTION TIME	SAMPLER'S INITIALS	NUMBER OF CONTAINERS	CONTANUED SIZE AND TYPE	PRESER- VATIVE	MATTINX CODE	ANALYS REQUES	es Ted			REJ RUTHED	TAT	SAMPLING WETHOD	DEPTH (FT.) BEGIN END	
60	CPT-3 (170-175	1/5/67	10:22	42		5.5 {\ <u>\</u> .c.	t) t) t)	5	TPH-1 (8015 M)+5:11 TPH-1 (8015 M)+5:11 TPA+-1 (8015 M), BTE	.c.6el Sur M*	Clem IBE (4	8 (our 6		<u> </u>	br		
02	:AI-3 (145-1997)		10.202	92	1	55	p2	S	б. К.Х.					5-den	DT	19.0	
03	(220-22.57)		0:35	p-		55	<u>Na-e</u>	5	b ₁ , b ₁ ,		na 1.1198911111111111111111111111111111111			Hall	DT	12.5	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
Pag	CPT-3 (22.5-23.0-)		0.35	g.		>> :><	N.	5	l h.		ana sa kasa na mana ta sa 1939.	1. Version and a management of the second	1 1000 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S. Jeel	22	11.0	
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LOGIN SAMPLE RECEIPT CHECK LIST

Client: Brown and Caldwell

Job Number: 720-7217-1

Login Number: 7217

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

SEVERN TRENT STL

ANALYTICAL REPORT

Job Number: 720-7166-1

Job Description: Hanson

For: Brown and Caldwell 201 North Civic Drive Suite 115 Walnut Creek, CA 94596-3864

Attention: Mr. Joe Laplante

Sha

Dimple Sharma Project Manager I dsharma@stl-inc.com 01/22/2007 Revision: 1

cc: Jason Grant

Project Manager: Dimple Sharma

Severn Trent Laboratories, Inc.

STL San Francisco 1220 Quarry Lane, Pleasanton, CA 94566 Tel (925) 484-1919 Fax (925) 484-1096 www.stl-inc.com Date: 01/22/2007

The chromatogram pattern for DRO and MRO does not match the Standards.

EXECUTIVE SUMMARY - Detections

Client: Brown and Caldwell

Lab Sample ID Analyte	Client Sample ID	Result / Qualifier	Reporting Limit	Units	Method	
720-7166-1	CPT-1 (17'-18')					
Diesel Range Orga	nics [C10-C28]	7.3	0.97	mg/Kg	8015B	
720-7166-2	CPT-1 (27'-28')					
Diesel Range Orga	nics [C10-C28]	9.5	0.97	mg/Kg	8015 B	
720-7166-4	CPT-2 (17'-18')					
Diesel Range Orga	inics [C10-C28]	3.5	0.92	mg/Kg	8015B	

METHOD SUMMARY

Client: Brown and Caldwell

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS Purge and Trap for Solids	STL SF STL SF	SW846 826	50B SW846 5030B
Nonhalogenated Organics using GC/FID -Modified (Diesel	STL SF	SW846 801	15B
Range Organics) Microscale Solvent Extraction (MSE)	STL SF		SW846 3570

LAB REFERENCES:

STL SF = STL San Francisco

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

SAMPLE SUMMARY

Client: Brown and Caldwell

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
720-7166-1	CPT-1 (17'-18')	Solid	01/03/2007 1213	01/03/2007 1720
720-7166-2	CPT-1 (27'-28')	Solid	01/03/2007 1221	01/03/2007 1720
720-7166-4	CPT-2 (17'-18')	Solid	01/03/2007 1628	01/03/2007 1720
720-7166-5	CPT-2 (26.5'-27.0')	Solid	01/03/2007 1632	01/03/2007 1720

Job Number: 720-7166-1

Client: Brown and Caldwell

Client Sample ID: CPT-1 (17'-18')

	,			
Lab Sample ID: Client Matrix:	720-7166-1 Solid	Date Sampled: Date Received:	01/03/2007 01/03/2007	1213 1720

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/04/2007 01/04/2007	Analysis 1313 1313	s Batch: 720-16946	Instrument ID: Lab File ID: Initial Weight/Vol Final Weight/Vol	Varian c:\satu lume: ume:	3900A mws\data\200701\01 5.02 g 10 mL
A		Dr 14/4 Corrected: N	Popult (ma/Ka)	Qualifier		PI

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	KL	i en steanto
Benzene	na 19. la fa fa fa fa fan an a	ND		0.0050	
Ethylbenzene		ND		0.0050	
Toluene		ND		0.0050	
MTBE		ND		0.0050	
Xylenes, Total		ND		0.010	
Gasoline Range Organics (GRO)	C5-C12	ND		0.25	
Surrogate		%Rec		Acceptance Limits	
Toluene-d8 (Surr)	annan san sa	104	2 2 2 2 4 7 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	70 - 130	
1,2-Dichloroethane-d4 (Surr)		116		60 - 140	

Job Number: 720-7166-1

Client: Brown and Caldwell

Client Sample ID: CPT-1 (27'-28')

Lab Sample ID:	720-7166-2	Date Sampled:	01/03/2007 1221	
Client Matrix:	Solid	Date Received:	01/03/2007 1720	

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/04/2007 1335 01/04/2007 1335	Analysis Batch: 720-16946	Instrument ID: Lab File ID: Initial Weight/Voi Final Weight/Voi	Varian c:\satu lume: ume:	3900A rnws\data\200701\0 5.19 g 10 mL	1

Analyte	DryWt Corrected: N R	lesult (mg/Kg)	Qualifier	RL
Benzene	de 2007 de la decimiente de la del de conservante en entre en de conservante de la decimiente de la decimiente e	ND		0.0048
Ethylbenzene		ND		0.0048
Toluene		ND		0.0048
MTBE		ND		0.0048
Xylenes, Total		ND		0.0096
Gasoline Range Organics (GRO)	-C5-C12	ND		0.24
Surrogate	9	Rec		Acceptance Limits
Toluene-d8 (Surr)	ng 200 200 277 272 2720 2720 2720 27	104		70 - 130
1,2-Dichloroethane-d4 (Surr)		108		60 - 140

Client: Brown and Caldwell

Client Sample ID:	CPT-2 (17'-18')			
Lab Sample ID: Client Matrix:	720-7166-4 Solid		Date Sampled: 01/ Date Received: 01/	03/2007 1628 03/2007 1720
	8260B Vo	latile Organic Compounds by (GC/MS	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/04/2007 1357 01/04/2007 1357	Analysis Batch: 720-16946	Instrument ID: Varian 3 Lab File ID: c:\satur Initial Weight/Volume: Final Weight/Volume:	3900A nws\data\200701\01 5.05 g 10 mL
Analyte	DryWt Co	rrected: N Result (mg/Kg)	Qualifier	
Benzene Ethylbenzene Toluene MTBE Xylenes, Total Gasoline Range Ol	rganics (GRO)-C5-C12	ND ND ND ND ND ND		0.0050 0.0050 0.0050 0.0050 0.0099 0.25
Surrogate		%Rec	Acceptance	Limits
Toluene-d8 (Surr) 1,2-Dichloroethane	ə-d4 (Surr)	105 109	70 - 130 60 - 140	,

Job Number: 720-7166-1

Client: Brown and Caldwell

Client Sample ID: CPT-2 (26.5'-27.0')

Lab Sample ID:	720-7166-5	Date Sampled:	01/03/2007	1632
Client Matrix:	Solid	Date Received:	01/03/2007	1720

Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8260B 5030B 1.0 01/04/2007 1419 01/04/2007 1419	Analysis Batch: 720-16946	Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vol	Varian c:\satu lume: ume:	a 3900A urnws\data\200701\ 5.06 g 10 mL	.01
--------------------------------------------------------------------------	-------------------------------------------------------------	---------------------------	-------------------------------------------------------------------------	------------------------------------	--------------------------------------------------	-----

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Benzene	an falan falalan salah na salah na sana salah	ND		0.0049
Ethylbenzene		ND		0.0049
Toluene		ND		0.0049
MTBE		ND		0.0049
Xvienes Total		ND		0.0099
Gasoline Range Organics (GRO)-C	5-C12	ND		0.25
Surrogate		%Rec		Acceptance Limits
Toluene-d8 (Surr)	***************************************	109	01 2 20 7 10 7 10 10 10 10 10 10 10 10 10 10 10 10 10	70 - 130
1,2-Dichloroethane-d4 (Surr)		112		60 - 140

Client: Brown and Caldwell

Client Sample ID:	CPT-1 (17'-18')					
Lab Sample ID: Client Matrix:	Sample ID: 720-7166-1 t Matrix: Solid			Date Sampled: Date Received:	ampled: aceived:	01/03/2007 1213 01/03/2007 1720
80	15B Nonhalogenated (Organics usir	ng GC/FID -Modified	d (Diesel Range Orga	nics)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/08/2007 2129 01/04/2007 1316	Analysis Batch: 720-17095 Prep Batch: 720-16945		Instrument I Lab File ID: Initial Weigh Final Weigh Injection Vo Column ID:	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.14 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY	
Analyte	DryWt	Corrected: N	Result (mg/Kg)	Qualifier	an annan sanarang and shi	RL
Diesel Range Organics [C10-C28]			7.3		0.97	
Surrogate			%Rec	Acceptance Limits		
Capric Acid (Surr) p-Terphenyl		na ann an t-1112 (1797 1917 - 1919) an t-1919 ann an t-	0 88 88	0 - 5 50 - 130		

Client: Brown and Caldwell

Client Sample ID:	CPT-1 (27'-28')						
Lab Sample ID: 720-7166-2 Client Matrix: Solid				Date Sampled: 01/03/2007 1221 Date Received: 01/03/2007 1720			
80	15B Nonhalogenate	d Organics usi	ng GC/FID -Modified	(Diesel Range Organics)			
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/08/2007 2201 01/04/2007 1316	Analysi Prep Ba	s Batch: 720-17095 atch: 720-16945	Instrument ID: Var Lab File ID: N/A Initial Weight/Volume Final Weight/Volume: Injection Volume: Column ID: P	rian DRO2 A : 5.14 g : 5 mL RIMARY		
Analyte	Dry\	Vt Corrected: N	Result (mg/Kg)	Qualifier	RL		
Diesel Range Organics [C10-C28]		arran an a	9.5		0.97		
Surrogate			%Rec	Acceptance Limits			
Capric Acid (Surr) p-Terphenyl		nan galag kala ang kalang k	0 73	0 - 5 50 - 130			
Analytical Data

Client: Brown and Caldwell

Job Number: 720-7166-1

Client Sample ID:	CPT-2 (17'-18')								
Lab Sample ID: Client Matrix:	720-7166-4 Solid			Date Sampled: 01/03/2007 1628 Date Received: 01/03/2007 1720					
80	15B Nonhalogenated C	rganics usi	ng GC/FID -Modified	I (Diesel Range Organic	s)				
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/08/2007 2232 01/04/2007 1316	Analysi Prep Ba	s Batch: 720-17095 atch: 720-16945	Instrument ID: Lab File ID: Initial Weight/Vo Final Weight/Vo Injection Volume Column ID:	Varian DRO2 N/A blume: 5.44 g blume: 5 mL e: PRIMARY				
Analyte	DryWt (Corrected: N	Result (mg/Kg)	Qualifier	RL				
Diesel Range Orga	anics [C10-C28]	7103994 mparen menerakan aras ang ara 1977 mpara	3.5		0.92				
Surrogate			%Rec	Ad	cceptance Limits				
Capric Acid (Surr) p-Terphenyl	ματικό το μετά τη την την την την την την την την την	annan an tha an ta far an ta f	1 93	() - 5 50 - 130				

Analytical Data

Job Number: 720-7166-1

50 - 130

Client: Brown and Caldwell

Capric Acid (Surr)

p-Terphenyl

Client Sample ID: CPT-2 (26.5'-27.0')

Lab Sample ID: Client Matrix:	720-7166- Solid	5		Date Sampled: Date Received:	01/03/2007 1632 01/03/2007 1720
8	015B Nonhalog	jenated Organics usir	ng GC/FID -Modified	(Diesel Range Organics)	
Method: Preparation: Dilution: Date Analyzed: Date Prepared:	8015B 3570 1.0 01/09/2007 (01/04/2007 /	Analysi: Prep Ba 0816 1316	s Batch: 720-17095 atch: 720-16945	Instrument ID: V Lab File ID: N Initial Weight/Volum Final Weight/Volum Injection Volume: Column ID:	arian DRO2 /A e: 5.47 g e: 5 mL PRIMARY
Analyte		DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Diesel Range Org	janics [C10-C28	<mark>}]]</mark> ^(d) Contraction of Contracti	ND		0.91
Surrogate			%Rec	Ассер	tance Limits
Capric Acid (Surr	•	e for an	CONTRACTOR OF A DESCRIPTION OF A DESCRIP	0 - 5	

1

92

DATA REPORTING QUALIFIERS

Lab Section

Qualifier

Description

Client: Brown and Caldwell

Job Number: 720-7166-1

QC Association Summary

Lab Sample ID C	lient Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Analysis Batch: / 20-16940	Lab Control Spike	т	Solid	8260B	
1000 720 160/6/1	Lab Control Spike Dunlicate	Ť	Solid	8260B	
MP 720 16946/3	Method Blank	Ť	Solid	8260B	
720-7166-1	CPT-1 (17'-18')	Ť	Solid	8260B	
720-7166-2	CPT-1 (27'-28')	Ť	Solid	8260B	
720-7166-4	CPT-2 (17'-18')	Т	Solid	8260B	
720-7166-5	CPT-2 (26.5'-27.0')	Т	Solid	8260B	
Descent Descin					
T = Total					
GC Semi VOA				<u>-</u>	
Prep Batch: 720-16945					
LCS 720-16945/2-AA	Lab Control Spike	A	Solid	3570	
LCSD 720-16945/3-AA	Lab Control Spike Duplicate	A	Solid	3570	
MB 720-16945/1-AA	Method Blank	A	Solid	3570	
720-7166-1	CPT-1 (17'-18')	A	Solid	3570	
720-7166-1MS	Matrix Spike	A	Solid	3570	
720-7166-1MSD	Matrix Spike Duplicate	A	Solid	3570	
720-7166-2	CPT-1 (27'-28')	A	Solid	3570	
720-7166-4	CPT-2 (17'-18')	A	Solid	3570	
720-7166-5	CPT-2 (26.5'-27.0')	А	Solid	3570	
Analysis Batch:720-17095					
LCS 720-16945/2-AA	Lab Control Spike	A	Solid	8015B	720-16945
LCSD 720-16945/3-AA	Lab Control Spike Duplicate	А	Solid	8015B	720-16945
MB 720-16945/1-AA	Method Blank	А	Solid	8015B	720-16945
720-7166-1	CPT-1 (17'-18')	A	Solid	8015B	720-16945
720-7166-1MS	Matrix Spike	А	Solid	8015B	720-16945
720-7166-1MSD	Matrix Spike Duplicate	A	Solid	8015B	720-16945
720-7166-2	CPT-1 (27'-28')	А	Solid	8015B	720-16945
720-7166-4	CPT-2 (17'-18')	Α	Solid	8015B	720-16945
720-7166-5	CPT-2 (26.5'-27.0')	А	Solid	8015B	720-16945

Report Basis

A = Silica Gel Cleanup

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

Client: Brown and Caldwell

Method Blank - Batch: 720-16946

Lab Sample ID:MB 720-16946/3Client Matrix:SolidDilution:1.0Date Analyzed:01/04/2007Date Prepared:01/04/20071049

Analysis Batch: 720-16946 Prep Batch: N/A Units: mg/Kg

Quality Control Results

Job Number: 720-7166-1

Method: 8260B Preparation: 5030B

Instrument ID: Varian 3900A Lab File ID: c:\saturnws\data\200701\0' Initial Weight/Volume: 5 g Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Benzene	ND	una sanan area alah dantan bela dararan er manarea era an art manal danani dinani da bala da bala da bala da b	0.0050
Ethylbenzene	ND		0.0050
Toluene	ND		0.0050
MTBE	ND		0.0050
Xvlenes. Total	ND		0.010
Gasoline Range Organics (GRO)-C5-C12	ND		0.25
Surrogate	% Rec	Acceptance Limits	***
Toluene-d8 (Surr)	105	70 - 130	
1,2-Dichloroethane-d4 (Surr)	117	60 - 140	

Quality Control Results

Method: 8260B

Preparation: 5030B

.

Job Number: 720-7166-1

Lab Control Spike/ Lab Control Spike Duplicate Recovery Report - Batch: 720-16946

Client: Brown and Caldwell

LCS Lab Sample I	ID: LCS 720-16946/2	Analysis Batch: 720-16946	Instrument ID: Varian	3900A
Client Matrix:	Solid	Prep Batch: N/A	Lab File ID: c:\satur	nws\data\200701\0
Dilution:	1.0	Units: mg/Kg	Initial Weight/Volume:	5 g
Date Analyzed:	01/04/2007 1004		Final Weight/Volume:	10 mL
Date Prepared:	01/04/2007 1004			

LCSD Lab Sample	ID: LCSD 720-16946/1	Analysis Batch: 720-16946	Instrument ID: Varian 3900A
Client Matrix: Dilution:	Solid 1.0	Prep Batch: N/A Units: mg/Kg	Lab File ID: c:\saturnws\data\200701\01(Initial Weight/Volume: 5 g
Date Analyzed:	01/04/2007 1027		Final Weight/Volume: 10 mL
Date Prepared:	01/04/2007 1027		

	9	<u>6 Rec.</u>					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Benzene	97	99	69 - 129	2	20	1997 I.C. 2007 I.S. 2007 I	gen maar agenoor sa fij het en tiert is fint is die 1990 en tierte
Toluene	105	107	70 - 130	2	20		
MTBE	90	103	65 - 165	13	20		
Surrogate	L	.CS % Rec	LCSD %	Rec	Accer	otance Limits	\$
Toluene-d8 (Surr)	1	05	108		7	0 - 130	
1,2-Dichloroethane-d4 (Surr)	ç)4	99		6	60 - 140	

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

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

Quality Control Results

Job Number: 720-7166-1

Method Blank - I	Batch: 720-16945					Method: 8015B Preparation: 35 Silica Gel Clear	70 1up	
Lab Sample ID: ME Client Matrix: So Dilution: 1.0 Date Analyzed: 01. Date Prepared: 01.	3 720-16945/1-AA lid) /08/2007 2057 /04/2007 1316	Analys Prep E Units:	iis Batch: 720 Batch: 720-16 mg/Kg)-17095 945		Instrument ID: Val Lab File ID: N// Initial Weight/Volu Final Weight/Volu Injection Volume: Column ID:	rian DRO2 A me: 5.00 g me: 5 mL PRIMARY	
Analyte			Result		Qual		RL	
Diesel Range Orga	nics [C10-C28]		ND			versen ner nen nen nen nen nen nen sint nen heit nen sen vis die ist vis	1.0	
Surrogate			% Rec		·····	Acceptance Limi	its	
Capric Acid (Surr)			1			0 - 5		
Surrogate		****	% Rec	22244111111111111111111111111111111111	N 12 13 19 19 19 19 19 19 19 19 19 19 19 19 19	Acceptance Limits		
p-Terphenyl			86			50 - 130		
Lab Control Spi Lab Control Spi	ke/ ke Duplicate Recovery	Repor	t - Batch: 72	20-16945		Method: 8015B Preparation: 35 Silica Gel Clea	570 nup	
LCS Lab Sample II Client Matrix: Dilution: Date Analyzed: Date Prepared:	D: LCS 720-16945/2-AA Solid 1.0 01/04/2007 1944 01/04/2007 1316	Anal Prep Units	ysis Batch: 7) Batch: 720- s: mg/Kg	20-17095 16945		Instrument ID: Va Lab File ID: N/A Initial Weight/Volum Final Weight/Volum Injection Volume: Column ID:	nrian DRO2 ne: 5.17 g ne: 5 mL PRIMARY	
LCSD Lab Sample Client Matrix: Dilution: Date Analyzed: Date Prepared:	ID: LCSD 720-16945/3-AA Solid 1.0 01/04/2007 2015 01/04/2007 1316	Ana Preț Unit	lysis Batch: 7 ∋ Batch: 720- s: mg/Kg	20-17095 16945		Instrument ID: \ Lab File ID: N/A Initial Weight/Volur Final Weight/Volun Injection Volume: Column ID:	/arian DRO2 ne: 5.15 g ne: 5 mL PRIMARY	
Analyte		LCS	<u>% Rec.</u> LCSD	Limit	RPI	D RPD Limit	LCS Qual LCSD Qual	
Diesel Range Orga	anics [C10-C28]	89	81	50 - 130) 8	30	an na hadan ba'ar a da ana dalar badan ba'ar	
Surrogate			LCS % Rec	LCSE	D % Rec Acceptance Limits			
p-Terphenyl	alla si ya nganananana wa nacanana ka ki si kiti nganenene wenanananani ili nilabisi y	773073000319700000	80	72		50) - 130	

Page 18 of 21

Client: Brown and Caldwell

Quality Control Results

Client: Brown and Caldwell

Job Number: 720-7166-1

Matrix Spike/

Matrix Spike Duplicate Recovery Report - Batch: 720-16945

Method: 8015B Preparation: 3570 Silica Gel Cleanup

MS Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	720-7166-1 Solid 1.0 01/09/2007 0848 01/04/2007 1316	Analysis Batch: 720-17095 Prep Batch: 720-16945	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.23 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY
MSD Lab Sample ID: Client Matrix: Dilution: Date Analyzed: Date Prepared:	720-7166-1 Solid 1.0 01/09/2007 0919 01/04/2007 1316	Analysis Batch: 720-17095 Prep Batch: 720-16945	Instrument ID: Varian DRO2 Lab File ID: N/A Initial Weight/Volume: 5.22 g Final Weight/Volume: 5 mL Injection Volume: Column ID: PRIMARY

Analyte	<u>%</u> MS	<u>Rec.</u> MSD	Limit	RPD	RPD Limit	MS Qual MSD Qual
Diesel Range Organics [C10-C28]	83	96	50 - 130	13	30	an gana waa kana Gana Gana Gana Gana Gana Gana ya kata kata kata kata kata kata kata
Surrogate	***	MS % Rec	MSD % F	Rec	Accep	tance Limits
p-Terphenyl		96	105		50	- 130

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

BROWN AND CALDWELL	55	-	C	SHAIN I	OF (SUSTODY RECORD		COC	2 No			-10-100 (M-10-
 2701 Prospect Park Dr. Rancho Contova, CA 95670 916-444-0123 / FAX 916-635-8805) 966 858-54	San Diego, C∕ 4-8822 / FAX	Dr. / Suite v 92123 858-514-4	201 3833	201 N. Civic Dr. / Suit Walnut Creek, CA 945 925-937-9010 / FAX 925-92	e-115 96 17-0026	714	1 -700 Exclim Irvine, C7 -730-7600 / EA	ge / Salite 1 \ 92602 X 714-734	00 1-0940	1894 0304515947777%
PROJECT NAME Hanson And. PROJECT NUMBER: 131771		7	20.	71	6	STL Plusaniton, CA				346	56	
SAMPLE - I.D. COLLECTION	S LL V LL V V V V V	NUMBER OF CONTAINERS	CONTAINEH SIZE AND TYPE	PRESER	NATTICK CODE	ANALYSES REOUESTED		HUREE	C TAT	Sampling Sampling	DEPTH (FT.) BEGIN END	
01 CPT-1 (17-18) 1/2/07 12-13	93	alioneeringen L	53 1×6	har an anna an a	S	TPH-J (8015m) + SILIC O TPH-J (8015m) BTEX + 11TH	x1 cleansp SE (Orbo)			J DT	13	ø
02 CPT-1 (27-28) 1/3/07 12:21	92	2	<u>Neb</u>	Nie	5		Net tedalahan kanangan ana ana ana ana ana ana ana ana		5-7-	1 17	23	ø
03 CPT-1 (37-33) 1/1/07 12:30	92	tw	<u>\$</u> 6	P.s.	5				Holl?	73	33	ø
4 CPT-2 (17-13) 1/3/27 16:28	, m			North	5	g the second	2010/1010 1010/1010/1010/1010/1010/1010/			1 055	19	ø
8 CPT-2 (1/5/27 1/5/27 16132	-92	1		Ne	5	The second s			5-244	1 22	37	×
[№] CPT-2-(37-33) 1/1/57 (65) 57 21 117	492	<u>}</u>		N-2-e	5	2 3 3 2 3 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2	n gaga a scinesis dine integra yang na panana ana ana ana ana	mode of the second seco		. DT	358 	
G8			a dan daga yang dara kanang darang	the second s			unalisi (4) a pun estanon meneraturan a menerika (marti					
							1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.					
	DATE			a.s.n.			COMM	ENTS (s	ee note on back),		
RECEIVED IS HILLEASTED BE		oit pa ZDZ	ME RELIVO	URSHED B	×.		TIME Çeş .	-145	t 7-5	- 6-1	,	25 25 25 25 25 25 25 25 25 25 25 25 25 2
алан 19 ин серемен конструкций на сремен информационных конструкций на политика и боло сремен конструкций на 19 (19 (19 (19 с 19 инструкций на сремен и сремен и политика политика политика и политика и боло сремен и боло боло боло боло бол	#1795 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101 1 101	ana na kana sa 1999.			••••••••••••••••••••••••••••••••••••••	араранан каланан байлал уруу улуу илин калан кала бай бүүүүү түм көн «Улан калан күүүүүү бүүү бүүүүүү көн көн « Калан калан кал	C.P.T	-	× 4 , 5 ° C.	<u> </u>		na an a
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CCAPHER.	AR DECEN		UNK-DATA MAM	VGENENT	• GÒ	DENTOD-PIELC			4) N (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (199			1997.97

USE A BALLPOINT PEN, BLACK INK, AND PRESS FIRMLY. INSTRUCTIONS ARE ON THE BACK

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Brown and Caldwell

Job Number: 720-7166-1

Login Number: 7166

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Insufficient ice for CPT-1 samples
Cooler Temperature is acceptable.	True	CPT-1 samples out of temp, client approved to analyze
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

GREGG IN SITU, INC.



GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

January 8, 2007

Brown & Caldwell Attn: Jason Grant 201 N. Civic Dr., Suite 115 Walnut Creek, California 94959

Subject: CPT Site Investigation Hanson America Pleasanton, California GREGG Project Number: 07-004MA

Dear Mr. Grant:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	
2	Pore Pressure Dissipation Tests	(PPD)	\boxtimes
3	Seismic Cone Penetration Tests	(SCPTU)	
4	Resistivity Cone Penetration Tests	(RCPTU)	
5	UVIF Cone Penetration Tests	(UVIFCPTU)	
6	Groundwater Sampling	(GWS)	\boxtimes
7	Soil Sampling	(SS)	\boxtimes
8	Vapor Sampling	(VS)	
9	Vane Shear Testing	(VST)	
10	SPT Energy Calibration	(SPTE)	

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (925) 313-5800.

Sincerely, GREGG Drilling & Testing, Inc.

Mary Walden Operations Manager



GREGG IN SITU, INC.

GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (Feet)	Depth of Groundwater Samples (Feet)	Depth of Soil Samples (Feet)	Depth of Pore Pressure Dissipation Tests (Feet)
ODT 01	1/02/07	88	71	17, 27, 37	47.2, 58.2, 84.5
Cri-UI	1/03/07	00	66	17, 26, 37	70.0
	1/03/07	00	23	17 22 30 37	
CPT-03	1/05/07	90	00	17 24 27	26
<u>CPT-04</u>	1/05/07	<u>A0</u>	0 /		
adaw wa kutoko 1000000 mmana kwa kwana kwa kwana kwa kata 10000 454 kutoka kwa kwa kwa kwa kwa		Carlon (14/1011) (16/14 444-447 - 46/14/14/14/14/14/14/14/14/14/14/14/14/14/			
1					

	+				
100-100-00-00-00-00-00-00-00-00-00-00-00	1				
······································					
1					



Time (seconds)



Time (seconds)



Time (seconds)



Time (seconds)



Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Avg. Interval: 0.656 (ft)





Avg. Interval: 0.656 (ft)

SBT: Soil Behavior Type (Robertson 1990)

APPENDIX CPT



Cone Penetration Test Data & Interpretation

Soil behavior type and stratigraphic interpretation is based on relationships between cone bearing (q_c) , sleeve friction (f_s) , and pore water pressure (u_2) . The friction ratio (R_f) is a calculated parameter defined by $100f_s/q_c$ and is used to infer soil behavior type. Generally: Cohesive soils (clays)

- High friction ratio (R_f) due to small cone bearing (q_c)
- Generate large excess pore water pressures (*u*₂)

Cohesionless soils (sands)

- Low friction ratio (R_f) due to large cone bearing (q_c)
- Generate very little excess pore water pressures (u₂)

A complete set of baseline readings are taken prior to and at the completion of each sounding to determine temperature shifts and any zero load offsets. Corrections for temperature shifts and zero load offsets can be extremely important, especially when the recorded loads are relatively small. In sandy soils, however, these corrections are generally negligible.

The cone penetration test data collected from your site is presented in graphical form in Appendix CPT. The data includes CPT logs of measured soil parameters, computer calculations of interpreted soil behavior types (SBT), and additional geotechnical parameters. A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Soil interpretation for this project was conducted using recent correlations developed by Robertson et al, 1990, *Figure SBT*. Note that it is not always possible to clearly identify a soil type based solely on q_c , f_s , and u_2 . In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type.



ZONE Qt/N		SBT				
1	2	Sensitive, fine grained				
2	1	Organic materials				
3	1	Clay				
4	1.5	Silty clay to clay				
5	2	Clayey silt to silty cla				
6	2.5	Sandy silt to clayey silt				
7	3	Silty sand to sandy silt				
8	4	Sand to silty sand				
9	5	Sand				
10	6	Gravely sand to sand				
11	1	Very stiff fine grained*				
12	2	Sand to clayey sand*				
*ove	*over consolidated or cemented					

Figure SBT



Cone Penetration Testing Procedure (CPT)

Gregg Drilling & Testing, Inc. carries out all Cone Penetration Tests (CPT) using an integrated electronic cone system, *Figure CPT*. The soundings were conducted using a 20 ton capacity cone with a tip area of 15 cm² and a friction sleeve area of 225 cm². The cone is designed with an equal end area friction sleeve and a tip end area ratio of 0.85.

The cone takes measurements of cone bearing (q_c) , sleeve friction (f_s) and penetration pore water pressure (u_2) at 5cm intervals during penetration to provide a nearly continuous hydrogeologic log. CPT data reduction and interpretation is performed in real time facilitating on-site decision making. The above mentioned parameters are stored on disk for further analysis and reference. All CPT soundings are performed in accordance with revised (2002) ASTM standards (D 5778-95).

The cone also contains a porous filter element located directly behind the cone tip (u_2) , *Figure CPT*. It consists of porous plastic and is 5.0mm thick. The filter element is used to obtain penetration pore pressure as the cone is advanced as well as Pore Pressure Dissipation Tests (PPD7's) Guring DSSropriate pauses in penetration. It should be noted that prior to penetration, the element is fully saturated with silicon oil under vacuum pressure to ensure accurate and fast dissipation.



Figure CPT

When the soundings are complete, the test holes are grouted using a Gregg In Situ support rig. The grouting procedures generally consist of pushing a hollow CPT rod wiWD "knock ouWglug W We termination depth of the test hole. Grout is then pumped under pressure as the tremie pipe is pulled from the hole. Disruption or further contamination to the site is therefore minimized.

APPENDIX PPD



Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals measured hydrostatic water pressures and determined the approximate depth of the ground water table. A PPDT is conducted when the cone is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (u) with time is measured behind the tip of the cone and recorded by a computer system. Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until such time as there is no variation in pore pressure with time, *Figure PPDT*. This time is commonly referred to as t_{100} , the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992.

A summary of the pore pressure dissipation tests is summarized in Table 1. Pore pressure dissipation data is presented in graphical form in Appendix PPDT.



Figure PPDT

APPENDIX GWS



Groundwater Sampling (GWS)

Gregg In Situ, Inc. conducts groundwater sampling using a Hydropunch[®] type groundwater sampler, *Figure GWS*. The groundwater sampler has a retrievable stainless steel or disposable PVC screen with steel drop off tip. This allows for samples to be taken at multiple depth intervals within the same sounding location. In areas of slower water recharge, provisions may be made to set temporary PVC well screens during sampling to allow the drill rig to advance to the next sample location while the groundwater is allowed to infiltrate.

The groundwater sampler operates by advancing 1 ¾ inch hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen groundwater to infiltrate and allowing hydrostatically from the formation into the inlet screen. A small diameter bailer (approximately 1/2 or 3/4 inch) is lowered through the push rods into the screen section for sample collection. The number of downhole trips with the bailer and time necessary to complete the sample collection at each depth interval is a function of sampling protocols, volume requirements, and the yield characteristics and storage capacity of the formation. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event.

A summary of the groundwater samples collected, including the sampling date, depth and location identification, is presented in Table 1 and the corresponding CPT plot.



Figure GWS

For a detailed reference on direct push groundwater sampling, refer to Zemo et. al., 1992.

APPENDIX SS



Soil Sampling (SS)

Gregg In Situ, Inc. uses a piston-type sampler to obtain relatively undisturbed soil samples without generating any soil cuttings, Figure SS. Two different types of samplers (12 and 18 inch) are used depending on the soil type and density. The soil sampler is initially pushed in a "closed" position to the desired sampling interval using a hydraulic rig. Keeping the sampler closed minimizes the potential of cross contamination caused The inner tip of the by sloughing. sampler is then retracted 12 inches (or 18 inches if using the longer sampler) leaving a hollow soil sampler with two inner 1¼ inch diameter by 6 inch or four 3 inch long soil sample tubes. If using the 18 inch sampler, two $1\frac{1}{2}$ inch diameter by 6 inch long tubes will be exposed. The hollow sampler is then pushed in a locked "open" position to collect a soil sample. The filled sampler and push rods are then retrieved to the ground surface. Because the soil enters the sampler at a constant rate, the opportunity for 100% recovery is increased. For environmental analysis, the soil sample tube ends are sealed with Teflon and plastic caps. Often, a longer "split tube" can be used for geotechnical sampling.

For a detailed reference on direct push soil sampling, refer to Robertson et al, 1998.



Figure SS

A summary of the soil samples collected, including the sampling date, depth and location identification, is presented in Table 1.

GREGG IN SITU, INC.



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Copies of ASTM Standards are available through www.astm.org