

PIERS



**Environmental
Services, Inc.**

1330 S. Bascom Ave., Suite F
San Jose, CA 95128

February 27, 2007

Tel (408) 559-1248 Fax (408) 559-1224

Mr. Jesse Kupers
Oakland Fire Department
250 Frank Ogawa Plaza, 3rd Floor
Oakland, CA 94612

**RE: Report of Subsurface Investigation
557 Merrimac Street
Oakland, CA**

Dear Mr. Kupers:

At your request, PIERS Environmental, Inc. (PIERS) has prepared this "Report of Subsurface Investigation" for the above-referenced site. The work presented herein was performed in general accordance with PIERS' "Work Plan for Subsurface Investigation" dated January 2007. The work was requested by the Oakland Fire Department (OFD), with respect to the redevelopment of the Property with a below-grade parking structure, and is being performed to evaluate subsurface environmental conditions.

It is PIERS' understanding that a 40-unit condominium development with an underground parking garage is proposed for the Property. There is a potential exposure pathway of volatilization of potential hydrocarbons concentrations to indoor air into the proposed underground parking garage. Therefore, as requested by the Oakland Fire Department, an exploratory soil boring was installed adjacent to MW3, and soil and groundwater samples were obtained for laboratory analyses. In addition, attempts were made to collect a soil vapor sample for analysis.

BACKGROUND

The Property is located on the western end of the 500 block of Merrimac Street, in the City of Oakland, Alameda County, California. Refer to Figure 1. The Property consists of a rectangular-shaped parcel of approximately 14,162 square feet in size, which is improved with a former gasoline service station building.

The Property is a closed Leaking Underground Storage Tank (LUST) case. In January 1995, four underground storage tanks (USTs) were removed from the site. The tanks included one 6,000-gallon, one 8,000-gallon and one 10,000-gallon gasoline UST, and one 500-gallon waste oil UST. The UST removals were witnessed by the Alameda County Health Care Services Agency (ACHCSA). Holes were encountered in one of the fuel USTs and in the waste oil UST.

Also on the day of the tank removals, and as requested and witnessed by the ACHCSA, 17 soil samples were taken from the tank pit excavations and stockpiles, and three soil samples were collected from beneath the dispenser islands. A groundwater sample was taken from the fuel tank pit.

The six soil samples taken from the fuel tank pit yielded non-detectable results for Total Petroleum Hydrocarbons (TPH) as gasoline; and benzene, toluene, ethylbenzene and xylenes (BTEX). The three soil samples taken from beneath the dispenser islands yielded largely non-detectable results. The water sample collected from the excavation contained 910 parts per billion (ppb) of TPH as gasoline, and BTEX constituents ranging from 6.9 to 19 ppb.

The soil sample collected from beneath the waste oil tank contained 8.1 parts per million (ppm) of TPH as gasoline, 74 ppm of TPH as diesel, and BTEX constituents ranging up to 92 ppm (xylenes). Oil and grease concentrations were detected at 2,500 ppm. The LUFT 5 metals (cadmium, chromium, lead, nickel, and zinc) concentrations were detected at what appeared to be background concentrations, and chlorinated hydrocarbons concentrations were non-detectable.

Following this work, the waste oil tank area was over-excavated in February 1995, under the supervision of the ACHCSA. The excavation was enlarged to dimensions of approximately 25 by 25 feet wide, and 9 feet deep, and approximately 250 cubic yards of soil were transported off-site and disposed. The four soil samples taken from the excavation sidewalls yielded completely non-detectable concentrations of hydrocarbons. A soil sample collected from the bottom of the excavation contained elevated concentrations of hydrocarbons. This soil sample was collected from a depth of just above the water table. Based on these findings, a groundwater investigation was requested by the ACHCSA.

Approximately 100 cubic yards of soil were re-used as backfill. The 100 cubic yards of soil were analyzed and results were non-detectable for TPH as gasoline and BTEX, but contained 71 ppm of diesel and 35 ppm of Total Oil and Grease (below regulatory limits).

Three groundwater monitoring wells were installed at the site, at the locations shown on Figure 2. In four sampling events between July 1995 and June 1996, the analytical results of the groundwater samples collected from the monitoring wells have been entirely non-detectable for hydrocarbons, with one significant exception. In March 1996, the groundwater sample collected from groundwater monitoring well MW3, down-gradient of the former tank pit, contained concentrations of TPH as gasoline and TPH as diesel of 2,300 and 1,100 ppb, respectively. Benzene, ethylbenzene, and xylenes were detected at concentrations of 30 ppb, 140 ppb, and 22 ppb, respectively. This date corresponded to a shift in the direction of groundwater flow to the south-southeast, where MW-3 was in a more down-gradient position of the former tank pit. In the next sampling event (June 1996), all of the wells again yielded non-detectable results.

In a letter dated January 29, 1997, "no further action" status was granted by the ACHCSA. In the Case Closure Summary that accompanied this letter, the remaining residual hydrocarbons in soil are stated as 120 ppm of TPH as gasoline, 420 ppm of TPH as diesel, 6,800 ppm of Total Oil and Grease, and BTEX constituents ranging between 0.032 and 0.140 ppm. The residual concentrations of dissolved hydrocarbons in groundwater are stated as 150 ppb of TPH as gasoline, 58 ppb of diesel, 0.73 ppb of ethylbenzene, and low (below regulatory limits) concentrations of chromium, nickel, and zinc.

In the Case Closure Summary, the reasons for case closure include: 1) that the source of contamination has been removed and the site adequately characterized, 2) there are no sensitive environmental receptors, and 3) that there is no significant risk to human health using a commercial receptor scenario. **The Case Closure Summary also stated that agency notification is required if there is a proposal for a change in land use or site activity, or if basements to buildings are to be constructed.**

RECENT FIELD ACTIVITIES

On February 9, 2007, two additional exploratory soil borings, designated as B1 and B1A, were completed at the Property, within 1.5 feet of former monitoring well MW3. Mr. Jesse Kupers of OFD witnessed the collection of the soil samples. The locations of the soil borings are shown on Figure 2.

Prior to drilling, a health and safety plan was prepared, and the site was marked and Underground Service Alert was notified. Also, a drilling permit was obtained from Alameda County Public Works (No. W2007-0100).

The exploratory soil borings were completed using a Geoprobe direct push drill rig provided by Vironex, Inc. of Pacheco, California, a state-licensed driller. The first soil boring, designated as B1, was extended to approximately 12 feet below grade with continuous coring. A soil sample was retained from approximately 11.5 feet below grade, which would correspond to directly beneath the slab of the proposed parking garage floor. No evidence of contamination (odors or staining) was observed in this interval. However, a hydrocarbon-stained interval that corresponded with the first permeable soils was encountered between 9.25 and 10.8 feet below grade. A soil sample from approximately 10.3 feet below grade was also retained from this material. The ends of the liner containing the soil samples were covered with Teflon tape and caps and then the soil samples were labeled, placed in an ice chest, on ice, and entered on a chain of custody form prior to same day delivery to the laboratory.

The subsurface soils consisted of clayey to sandy silt and lesser amounts of silty sand (ML), except for a more permeable interval of gravelly silty sand that was encountered between approximately 9.3 and 10.8 feet below grade. This interval appeared to be stained light gray and had a moderate odor of weathered gasoline.

After retrieving the rods, the hole collapsed below 8 feet, and no groundwater collected in the boring. An attempt to collect a water sample was then made with a hydropunch. The drilling rods were extended to approximately 11 feet below grade and the rods retracted approximately 1.5 feet. No water had collected after about 20 minutes, apparently because the screen had become smeared with wet soil. After pulling the rods and sampling tool, one-inch-diameter slotted PVC casing was installed in the boring, and groundwater was measured at 7.8 feet below grade using a sounder.

A groundwater sample was then retrieved by using small diameter vinyl tubing fitted with a chuck ball tip to surge the water to the surface. The groundwater sample was decanted into VOAs and an amber liter, labeled, placed in an ice chest, on ice, and entered on a chain of custody form prior to same day delivery to the laboratory. The water had significant amounts of sediment. No odors or sheen were observed in the water samples.

After completion of water sampling, an attempt was made to collect a vapor sample. A separate soil boring was completed approximately one foot distant from B1, and extended to approximately 7 feet below grade, just above the level of groundwater (7.8 feet). A soil vapor sampling apparatus fitted with small diameter vinyl tubing and an expendable tip was placed on the end of the drilling rods. After extending the rods to 7 feet, they were then retracted 0.5 feet. The top of the soil boring and the top of the rods where the vinyl tubing exited were closed off with bentonite to make a seal. An air compressor was used to purge the tubing of the equivalent of three casing volumes of air (3.5 minutes of purging at 200 milliliters per minute). Following this, the tubing was fitted to a special vacuum box containing a Tedlar bag and the compressor was used to create a vacuum within the box. Then the airflow from the soil boring to the soil vapor sample container was opened. Following this, no air appeared to collect in the bag. The rods were then retracted to 5 feet below grade, leaving a two-foot void. After reestablishing the bentonite seal, an identical attempt was made to collect the sample. After several minutes, only a very small amount of air appeared to enter the bag, but not in sufficient quantity to allow analysis.

Soil cuttings from the boring were stored on site in a 5-gallon pail for proper disposal. The borings were backfilled with neat cement grout. The one-inch casing that had been used to facilitate water sampling was used to backfill the deeper boring.

ANALYTICAL RESULTS

The soil and groundwater samples were transported on the same day in an ice chest under chain of custody procedures to McCampbell Analytical Laboratory in Pittsburg, California. The soil and water samples were analyzed for TPH as gasoline, TPH as diesel, BTEX, and Methyl-tertiary-butyl-ether (MTBE) by EPA Methods 8015 and 8020.

The soil sample collected from 10.3 feet below grade, which had a moderate odor, contained 20 parts per million (ppm) of TPH as gasoline, 0.065 ppm of toluene, and 0.0081 ppm of xylenes. Of the sample collected from 11.5 feet below grade, the analytical results were non-detectable for all of the analytes. All of the analytes were also non-detectable in the grab groundwater sample, except for TPH as diesel and motor oil, which were detected at concentrations of 2,300 parts per billion (ppb) and 11,000 ppb, respectively. Copies of the laboratory analytical data sheets are attached to this report.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

According to page 4 of the Case Closure Summary dated July 18, 1996, groundwater was encountered at approximately 10 feet below grade and rose up to approximately 8 feet below grade. Benzene occurred on one occasion only in groundwater at the Property, when it was detected at a concentration of 30 ppb in MW3 in March 1996. The following quarter it was non-detectable. The 30 ppb was less than the Risk Based Screening Level (now the Environmental Screening Levels) for the "groundwater to outdoor air" pathway - commercial scenario (5,340 ppb), and the "groundwater to indoor air" pathway - commercial scenario (210 ppb). However, the 30 ppb exceeded the RBSL for "groundwater to indoor air" pathway of seven ppb. **Based on that, the Case Closure Summary recommended that if a residential unit was proposed for this site, the threat to human health should be reevaluated.**

Vapor sampling was unsuccessful at 5 to 7 feet below grade. It was assumed that these soils were of too low permeability and possibly were also saturated. Approximately 1.75 inches of rain had been reported in Oakland as of the previous evening, and additional rain occurred overnight and sporadically during the day prior to the sample attempt. Department of Toxic Substances Control (DTSC) protocol for soil vapor sampling recommends not sampling following periods of "significant rainfall". **Regardless of this, groundwater was encountered at 7.8 feet, more than 2 feet above the proposed depth of the garage floor. Therefore, no vapor phase would be present beneath the proposed slab, but groundwater would be expected to be in contact with the proposed parking structure foundation.**

Also, the underground garage that is currently proposed would represent a scenario vastly different than the residential occupancy scenario. While a resident could conceivably be present 24 hours per day within a residential structure or basement, underground parking garages are well ventilated and typically partially open with grated gates, and users typically spend only a few minutes per day exiting and entering. For modeling purposes, this scenario would be closer to the "groundwater to outdoor air" pathway. **Based on this rationale, and considering that no residual concentrations of benzene were encountered, volatilization to indoor air does not appear to be an exposure pathway of environmental concern at the Property.**

RECOMMENDATIONS

The only contaminants encountered in soil or groundwater above the ESLs consisted of 2,300 ppb of TPH as diesel and 11,000 ppb of TPH as motor oil in the water sample. These concentrations exceed the 59 ppb of diesel noted as residual in groundwater in the closure summary. However, up to 6,800 ppb of Total Oil and Grease in soil was noted as a residual concentration, and may be the source of the groundwater contamination. Also, as MW3 is located on the perimeter of the Property, and as, the data showed that the direction of flow varied from south-southeast (two occasions) to west-southwest (one occasion) over four quarterly monitoring events, it is possible that these impacts could be from an off-site source. PIERS recommends that additional soil borings and "grab" groundwater sampling be performed prior to construction to further evaluate and determine the source of the heavy hydrocarbons in groundwater.

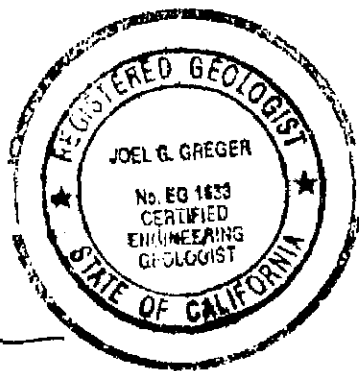
The planned excavation for the proposed underground parking structure should be a benefit by eliminating all or the vast majority of any residual concentrations of hydrocarbons in soil that are continuing to provide a source of residual groundwater contamination. The following bullet items are recommendations for excavation activities.

- As with any over-excavation of a hydrocarbon-impacted site, it would be necessary to conduct stockpile sampling and profile the soils into the appropriate disposal facility.
- Also, it is likely that groundwater would be encountered during excavation, and interim remedial measures could be conducted to further remediate groundwater, such as purging the groundwater from the excavation activities to a Baker Tank, and then disposing of the water at an appropriate facility, after laboratory sampling and analysis.
- The parking garage structure should utilize engineering controls to insure that groundwater does not enter the structure. These controls would eliminate that potential exposure pathway.
- If groundwater is pumped and then rerouted to the sanitary sewer or storm drain, it must be insured that the concentrations of residual contaminants are within regulatory limits (under NPDES permit). It would be reasonable to assume that following the excavation and some dewatering, the residual concentrations of dissolved hydrocarbons would be greatly reduced, unless they are from an off-site source.

A work plan for these measures can be provided at your request.

Should you have any questions regarding this report, please do not hesitate to call me at (510) 593-5382.

Sincerely,
PIERS Environmental Services, Inc.



Joel G. Greger
Senior Project Manager
CEG # EG1633, REA # 07079



Kay Pannell
Chief Operations Officer
REP #5800, REA-II #20236

Attachments: Figures 1 and 2
Tables 1 and 2
Laboratory Analytical Data Sheets

cc: Mr. Noel Yi

ATTACHMENTS



FIGURE 1
PROPERTY VICINITY MAP

557 Merimac St
Oakland, CA 94612

29-Jan-07

PIERS ENVIRONMENTAL SERVICES, INC. 1330 S. BASCOM AVE. SUITE F, SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WWW.PIERSES.COM

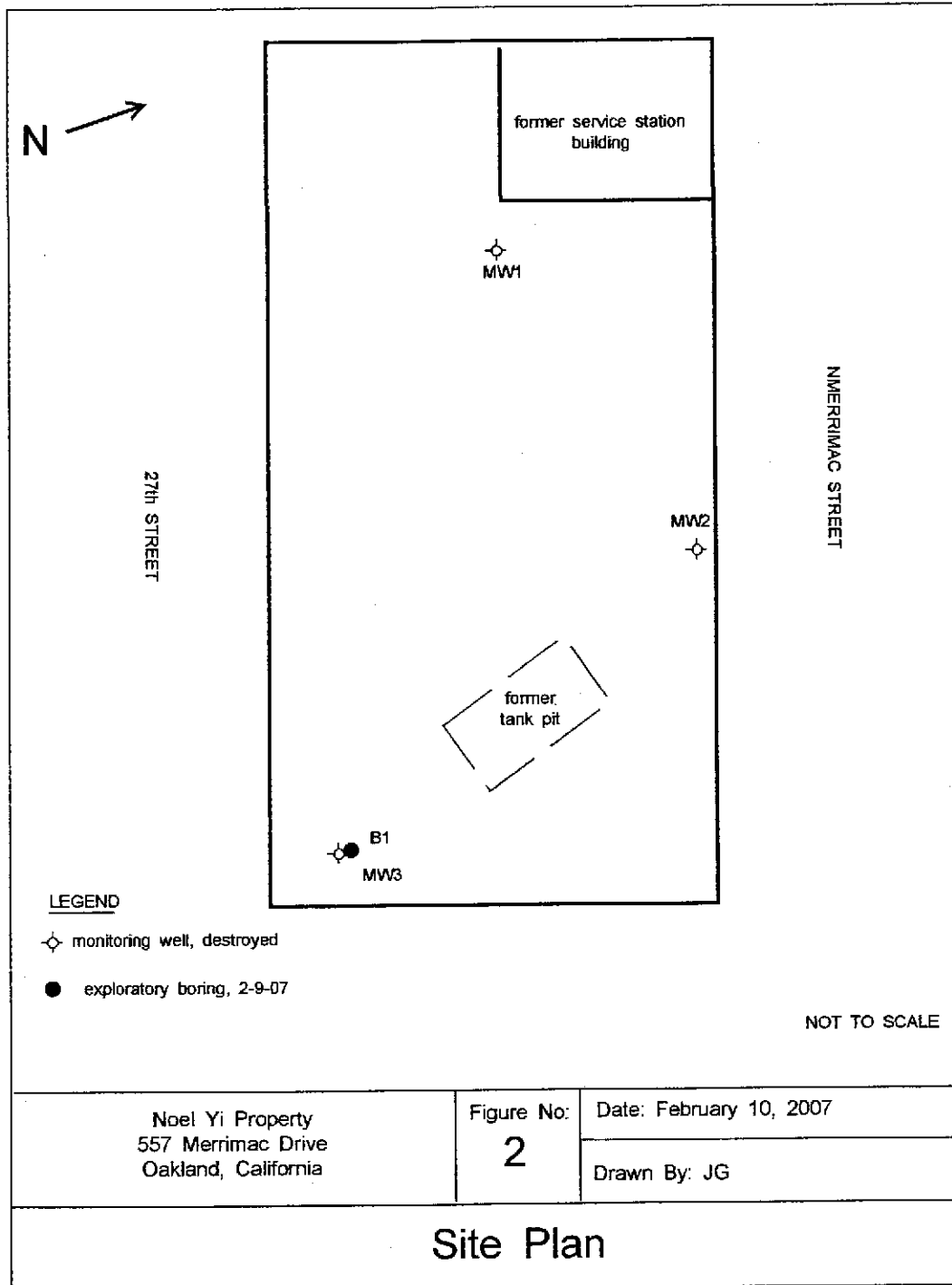


FIGURE 2
PROPERTY SITE PLAN

557 MERRIMAC STREET
OAKLAND, CALIFORNIA

JANUARY 2007
NOT TO SCALE

PIERS ENVIRONMENTAL SERVICES, INC. 1330 S. BASCOM AVE., SUITE F, SAN JOSE, CA 95128
PHONE: 408-559-1248 FAX: 408-559-1224 WWW.PIERSES.COM

TABLE 1
SOIL ANALYTICAL RESULTS - HYDROCARBONS
557 Merrimac Street, Oakland, CA

Sample No.	Depth (feet)	TPH-g (ppm)	TPH-d/mo (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	MTBE (ppm)
B1	d10.3	20	<1.0/<5.0	<0.005	0.065	<0.005	0.0081	<0.05
B1	d11.5	<1.0	<1.0/<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
	ESL - >3m	100/400	1000	0.044/0.18	2.9/9.3	3.3/4/7	1.5	0.023/2.0

EXPLANATION:

ppm = parts per million

TPHg/d = Total Petroleum Hydrocarbons as gasoline/diesel.

ESL - Environmental Screening Level - residential, Tables C/D (> 3 meters, groundwater is/is not a resource).

TABLE 2
GROUNDWATER ANALYTICAL RESULTS - HYDROCARBONS
557 Merrimac Street, Oakland, CA

Sample No	TPH-g (ppb)	TPH-d (ppb)	TPH-mo (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	MTBE (ppb)
B1	<50	2300	11,000	<0.5	<0.5	<0.5	<0.5	<5.0
	100/400	100/500	100/640	1.0/46	40/130	30/290	13	5.0/1800

EXPLANATION:

ppb = parts per billion

TPHg/d/motor oil = Total Petroleum Hydrocarbons as gasoline/diesel/motor oil.

ESL - Environmental Screening Level - groundwater is/is not considered a resource.

LABORATORY ANALYTICAL DATA SHEETS

**McC Campbell Analytical, Inc.**

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mcccampbell.com E-mail: main@mcccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Piers Environmental 1330 S. Bascom Avenue, Ste. F San Jose, CA 95128	Client Project ID: #557 Merrimac	Date Sampled: 02/09/07
		Date Received: 02/09/07
	Client Contact: Joel Greger	Date Reported: 02/15/07
	Client P.O.:	Date Completed: 02/15/07

WorkOrder: 0702231

February 15, 2007

Dear Joel:

Enclosed are:

- 1). the results of 3 analyzed samples from your #557 Merrimac project,
- 2). a QC report for the above samples
- 3). a copy of the chain of custody, and
- 4). a bill for analytical services.


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

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

Best regards,

Angela Rydelius, Lab Manager

McC Campbell Analytical, Inc.

 1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0702231

ClientID: PESJ

EDF Fax Email HardCopy ThirdParty

Report to:

Joel Greger
Piers Environmental
1330 S. Bascom Avenue, Ste. F
San Jose, CA 95128

Email: piers@pierses.com
TEL: (408) 559-124 FAX: (408) 559-122
ProjectNo: #557 Merrimac
PO:

Bill to

Accounts Payable
Piers Environmental
1330 S. Bascom Avenue, Ste. F
San Jose, CA 95128

Requested TAT: 5 days

Date Received: 02/09/2007

Date Printed: 02/26/2007

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
0702231-001	B1 d 10.3	Soil	02/09/07 11:10:00	<input type="checkbox"/>	A		A	A									
0702231-002	B1 water	Water	02/09/07 11:40:00	<input type="checkbox"/>		A			B								
0702231-003	B1 d 11.5	Soil	02/09/07 11:14:00	<input type="checkbox"/>	A			A									

Test Legend:

1	G-MBTX_S	2	G-MBTX_W	3	PREF REPORT	4	TPH(D)_S	5	TPH(D)_W
6		7		8		9		10	
11		12							

Prepared by: Sheli Cryderman

Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.



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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder: 0702231

EPA Method: SW8021B/8015Cm		Extraction: SW5030B			BatchID: 26183			Spiked Sample ID: 0702214-004A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) ^E	15	0.60	NR	NR	NR	99.7	115	14.1	70 - 130	30	70 - 130	30
MTBE	ND<0.25	0.10	117	101	14.5	104	103	1.51	70 - 130	30	70 - 130	30
Benzene	0.20	0.10	NR	NR	NR	100	100	0	70 - 130	30	70 - 130	30
Toluene	0.57	0.10	NR	NR	NR	90.2	89	1.38	70 - 130	30	70 - 130	30
Ethylbenzene	0.57	0.10	NR	NR	NR	98.9	99.5	0.599	70 - 130	30	70 - 130	30
Xylenes	1.4	0.30	NR	NR	NR	96.7	100	3.39	70 - 130	30	70 - 130	30
%SS:	82	0.10	106	91	15.2	95	96	1.05	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 26183 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0702231-001A	2/09/07 11:10 AM	2/09/07	2/13/07 6:30 PM	0702231-003A	2/09/07 11:14 AM	2/09/07	2/10/07 5:33 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

^E TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.



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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0702231

EPA Method: SW8021B/8015Cm		Extraction: SW5030B			BatchID: 26196			Spiked Sample ID: 0702248-011A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(btex) [£]	ND	60	99.4	83.5	17.3	105	109	4.12	70 - 130	30	70 - 130	30
MTBE	ND	10	103	102	1.27	114	107	6.06	70 - 130	30	70 - 130	30
Benzene	ND	10	113	92.1	20.6	118	111	6.18	70 - 130	30	70 - 130	30
Toluene	ND	10	110	88.7	21.4	116	111	4.70	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	109	102	6.28	112	108	4.07	70 - 130	30	70 - 130	30
Xylenes	ND	30	100	90.7	9.79	107	100	6.45	70 - 130	30	70 - 130	30
%SS:	110	10	114	110	3.20	121	114	6.58	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 26196 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0702231-002A	2/09/07 11:40 AM	2/12/07	2/12/07 11:35 AM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.



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QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Soil

QC Matrix: Soil

WorkOrder: 0702231

EPA Method: SW8015C		Extraction: SW3550C			BatchID: 26176			Spiked Sample ID: 0702183-012A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	ND	20	101	101	0	100	101	0.667	70 - 130	30	70 - 130	30
%SS:	106	50	101	103	1.85	100	101	0.478	70 - 130	30	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 26176 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0702231-001A	2/09/07 11:10 AM	2/09/07	2/10/07 2:18 AM	0702231-003A	2/09/07 11:14 AM	2/09/07	2/10/07 3:27 AM

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = $100 * (MS - Sample) / (Amount Spiked)$; RPD = $100 * (MS - MSD) / ((MS + MSD) / 2)$.

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS ELAP Certification N° 1644

 QA/QC Officer



McC Campbell Analytical, Inc.

"When Quality Counts"

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Telephone: 877-252-9262 Fax: 925-252-9269

QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water

QC Matrix: Water

WorkOrder: 0702231

EPA Method: SW8015C		Extraction: SW3510C			BatchID: 26191			Spiked Sample ID: N/A				
Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)			
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	92.8	95.1	2.46	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	98	100	2.14	N/A	N/A	70 - 130	30

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:
NONE

BATCH 26191 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0702231-002B	2/09/07 11:40 AM	2/09/07	2/13/07 7:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = $100 * (MS - Sample) / (Amount Spiked)$; RPD = $100 * (MS - MSD) / ((MS + MSD) / 2)$.

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.