Report of Limited Phase II
Soil, Water and Soil Vapor Investigation
At:
13778 DOOLITTLE AVENUE
SAN LEANDRO, CALIFORNIA

PREPARED FOR:
MR. CALVIN WONG
200 CREEDON CIRCLE
ALAMEDA, CA 94502

PREPARED BY:
PIERS ENVIRONMENTAL SERVICES, INC.
1038 REDWOOD HIGHWAY, SUITE 100A
MILL VALLEY, CA 94941

AUGUST 2014
PIERS PROJECT NUMBER: 14133

PIERS Environmental Services, Inc.

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September 2, 2014

Mr. Calvin Wong
200 Creedon Circle
Alameda, CA 94502

RE: *REPORT OF LIMITED PHASE II*
SOIL, WATER AND SOIL VAPOR INVESTIGATION
13778 DOOLITTLE AVENUE
SAN LEANDRO, CALIFORNIA

Dear Mr. Wong:

On your behalf, PIERS has completed a Limited Phase II subsurface investigation for the dry cleaners located at 13778 Doolittle Avenue, in San Leandro, California, hereinafter referred to as the "Property". The scope of work conducted for this project included: 1) the completion of three soil-vapor sampling points, 2) collection of soil and soil-vapor samples, 3) the extension of one exploratory soil boring to an approximate depth of 10.5 feet with collection of additional soil samples and a groundwater sample, and 4) laboratory analyses of the soil, groundwater and soil-vapor samples for volatile organic compounds (VOCs) and hydrocarbon dry cleaning solvent.

The purpose of this investigation was to evaluate if the Property had been impacted by the prior use of the site for dry cleaning. Based on a Phase I Environmental Site Assessment for 13700-13996 Doolittle Avenue, completed by PIERS in June 2014, a dry cleaning business had operated at 13778 Doolittle Avenue since 1966 (Four Seasons Cleaners).

The 13778 Doolittle Avenue site consists of a one-tenant space within a strip mall that is located on the block bound by Doolittle Drive to the southwest, Fairway Drive to the northwest, and Catalina Street to the northeast, in the City of San Leandro, Alameda County, California. The total Property consists of a rectangular - shaped parcel of approximately 5.05 acres in size, which is improved with the strip mall building and separate restaurant building totaling approximately 71,026 square feet. A Property Vicinity Map and Property Site Plan are attached to this report as Figures 1 and 2, respectively.

SOIL AND SOIL VAPOR SAMPLING ACTIVITIES

SOIL VAPOR PROBE INSTALLATION AND SOIL SAMPLING

Prior to sampling, a permit for the installation of a ten-foot-deep soil boring was obtained from Alameda County Public Works (ACPW). Also, the locations were marked with white paint and Underground Service Alert (USA) was notified. A site-specific health and safety plan was prepared, reviewed, and signed in the field during a safety meeting prior to commencing work.

At each location, a coring device was used to core through the concrete slab or pavement, and a soil sample was collected from a depth of approximately 0.5 feet below grade using a hand auger. Following that, a sub slab soil-gas sampling point was constructed at three points inside the building. A special soil vapor sampling tip was then placed in the borehole, connected to small diameter tubing to the surface. Each probe location was sealed at the surface with hydrated bentonite to prevent ambient air intrusion. The probe tip was placed midway within a three-inch sand pack.

A small amount of dry granular bentonite was placed above the sand pack. Hydrated powdered bentonite was used for the surface seal. Following completion of sampling, each soil vapor probe was backfilled with neat cement grout.

Two of the points, S1 and S2, were located adjacent to the existing dry cleaning machine that uses EcoSolv, a hydrocarbon solvent. S1 was also adjacent to the storage area of fresh Ecosolv, in polyethylene drums. Based on historical data, this location was also the location of the pre-2000 dry cleaning machine using perchloroethylene (PCE). Soil Boring S3 was located near the rear of the space, beneath the waste solvent storage area.

The locations of the soil borings are shown on Figure 3. Both soil and soil vapor samples were collected at S1 through S3 and submitted to the laboratory for analyses of PCE; in addition, a groundwater sample was collected at S3 and submitted for laboratory analysis.

At each location, the subsurface soils were examined for lithology and evidence of contamination. The subsurface soils beneath the concrete slab consisted of dark brown sandy silt with gravel fill. A vapor barrier was present at a depth of approximately one inch beneath the slab. In soil boring S3, which was extended to groundwater after vapor sampling, silty clay (CL) was encountered at a depth of two feet below grade, extending to the total depth explored of 10.5 feet below grade. The subsurface conditions are depicted on a boring log attached to this report.

A slight odor of solvent was noted at S3, and possible staining was visible at the soil/water interface. Screening of the soils with a photo-ionization detector (PID) indicated no measurable contamination in soil at depths of 0.5 to one foot below grade in S1 and S2, and concentrations of up to 10 parts per million (ppm) at S3. Use of the PID connected to the soil vapor sampling point for these locations indicated 17.4 ppm in S1, 49.8 ppm in S2, and 950 ppm in S3. PID readings during the extension of S3 indicated concentrations of 20.9 ppm at two feet below grade and 14.6 ppm at five feet below grade, as shown on the boring log.

The soils selected for analyses were placed in a brass liner which was capped with Teflon tape and plastic caps, labeled, and placed in a cooler, on ice, prior to delivery to the laboratory.

At soil boring S3, after extending the exploratory soil boring to an approximate depth of 10.5 feet below grade, groundwater collected in the borehole and rose to approximately seven feet below grade. Groundwater samples were collected in three VOAs using a disposable bailer. The VOAs were capped, labeled, and placed in a cooler, on ice, prior to delivery to the laboratory.

SOIL- VAPOR SAMPLE COLLECTION

Shut-in Test: Soil vapor collection was conducted at least two hours after probe installation at each soil vapor sample location, in order to allow subsurface conditions to equilibrate. Prior to soil-vapor sampling, a shut-in test was conducted to check for leaks in the sample train. The shut-in test consisted of assembling the above-ground apparatus (valves, lines, and fittings downstream of the top of the probe), and evacuating the lines to a measured vacuum of approximately 100 inches of water, then shutting the vacuum in with closed valves on opposite ends of the sample train. The vacuum gauge was then observed for at least one minute, and if there was any observable loss of vacuum, the fittings were adjusted as needed until the vacuum in the above-ground portion of the sample train did not noticeably dissipate. The manifolds provided by the laboratory were also tested prior to use.

Leak Testing: Helium tracer testing was conducted to confirm absence of ambient air intrusion into the sample train at each soil vapor sampling location. A clear plastic container (shroud) was inverted over the probe and filled with about 20% helium by volume. Helium within the shroud was measured with a small helium detector. A second detector was placed between the shroud and the purge canister.

A purge volume of three casing volumes was used during soil vapor sampling. Field notes reflecting the vapor sampling efforts are included as **Appendix B,** including data on the purging, shut-in tests, and leak tests associated with the vapor sampling.

Collection of Soil Vapor Samples:
Following the shut-in test and helium leak test at each location, summa canisters were utilized to collect soil vapor samples. For each vapor sample, final sampling times were recorded on the Chain of Custody.

Analysis of Soil, Groundwater and Soil Vapor Samples:
The soil samples, the groundwater sample, and the summa canisters containing the soil-vapor samples were transported under a chain of custody to Curtis and Tompkins Laboratory in Berkeley, California, for volatile organic compounds by EPA Method 8010. The soil-vapor samples were analyzed by TO-15 (EPA Method 8010 constituents). The soil samples were also analyzed for Total Petroleum Hydrocarbons (TPH) as diesel with a silica gel treatment to screen for EcoSolv (carbon range C10 to C13). The analytical results are attached to this report as **Appendix A.** The soil-vapor, soil and groundwater sample results are summarized on Tables 1, 2 and 3, respectively.

"Environmental Screening Levels" (ESLs) for concentrations of contaminants in soils, soil vapors, and groundwater have been established by the Regional Water Quality Control Board (RWQCB). These levels are used to determine the relative risks to human health and the environment. Generally the presence of a chemical in soil, groundwater, or soil vapor at concentrations below the corresponding ESL can be assumed not to pose a significant threat to human health or the environment. For this investigation, Table E-2 (2013) was used to evaluate the soil-vapor sample results. The ESLs for each detected compound are shown on the attached Tables.

Tetrachloroethene (PCE) was detected in all five soil samples, at concentrations ranging between 45 micrograms per kilogram (ug/Kg) (0.45 ppm) to 20,000 ug/Kg (20 ppm). The highest concentrations were detected in S3. All of these concentrations in S3 are significantly in excess of the commercial ESL of 0.7 ppm.

PIERS analyzed for the currently used hydrocarbon solvent by the TPH as diesel EPA method. Concentrations within the diesel range, but not resembling the diesel standard, were detected in the soil samples collected from the depth of 0.5 feet below grade in all three soil borings, at concentrations ranging between 2.1 milligrams per kilogram (mg/Kg) and 3.2 mg/Kg, well below the commercial ESL of 110 ppm. The units of milligrams per kilogram (mg/Kg) are equivalent to parts per million (ppm).

PCE and the breakdown products of trichloroethene (TCE) and cis-1,2-dichloroethene (DCE) were detected in the groundwater sample at concentrations of 750, 51, and 7.6 micrograms per liter (ug/L), respectively. These concentrations are above their respective ESLs of 5.0 ug/L for PCE and TCE, and 6.0 ug/L for cis-1, 2-DCE. TPH as diesel range constituents were not detected.

PCE was detected in all three soil vapor samples at concentrations ranging between 63,000 and 4,500,000 micrograms per cubic meter (ug/m^3), significantly above the ESL of 2,100 ug/m^3. TCE was detected in all three soil vapor samples at concentrations ranging between 890 and 92,000 ug/m^3, significantly above the ESL of 3,000 ug/m^3 in S2 and S3, but below the ESL in S1.

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this investigation was to determine if the Property has been adversely impacted by releases of dry cleaning solvents. Tetrachloroethylene (PCE) was detected in all soil samples, the groundwater sample, and all soil vapor samples at concentrations significantly exceeding the ESLs. TCE was also detected above the ESL in groundwater and soil vapor. It does not appear that the Property has been significantly impacted by releases of the hydrocarbon based solvent currently in use.

Based on these findings, this report should be provided to Alameda County Environmental Health (ACEH), and to the Regional Water Quality Control Board (RWQCB).

The potential exposure pathway to this contamination at the Property is volatilization to indoor air. The contaminants detected in the sub-slab soil vapor samples were significantly above the ESL. Based on the geometry of the soil borings, concentrations of contaminants above the ESLs in soil vapor may be present in the adjoining tenant spaces on three sides. These concentrations may represent a risk to human health.

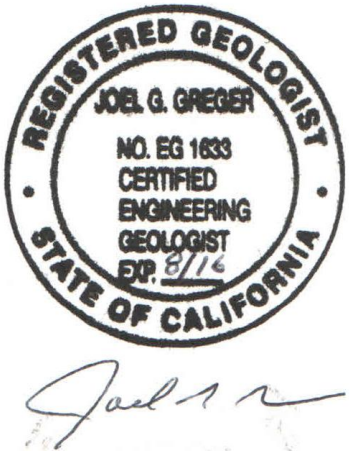
PIERS recommends that further investigation and remediation at the Property be completed. The next step would be to obtain additional groundwater samples to further define the lateral extent of the groundwater plume. Additional soil vapor samples should also be collected for lateral delineation. A cost estimate for this work can be provided at your request.

LIMITATIONS

This report has been prepared for the sole use and benefit of the Client. Neither this report, nor any of the information contained herein shall be used or relied upon for any purpose by any person or entity other than the Client. Property conditions, as well as local, state, and federal regulations can change significantly over time. Therefore, the recommendations and conclusions presented as a result of this assessment apply strictly to the environmental regulations and subsurface environmental property conditions existing at the time this work was performed. It should be recognized that some limitations are inherent in the evaluation of subsurface conditions, and that certain conditions may not be determined. The observations, conclusions and recommendations presented in this report are professional opinions based on the scope of work, terms and conditions outlined within the Cost Estimate and Services Agreement executed by the Client for this project. The opinions presented apply to site conditions existing at the time of our study and cannot apply to site conditions or changes of which we are not aware or have not had the opportunity to evaluate. This investigation was conducted solely to evaluate environmental conditions beneath the property at specific locations. Subsurface conditions may vary away from the data points available. Additional work, including subsurface investigations, can reduce the inherent uncertainties associated with this type of evaluation. It must be recognized that any conclusions drawn from these data rely on the integrity of the information available at the time of investigation and that a full and complete determination of environmental contamination and risks at the Property cannot be made. No other warranty, either expressed or implied as to the professional advice provided, is made.

If you have any questions regarding this report, please do not hesitate in contacting me.

Respectfully,
PIERS Environmental Services, Inc.



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

ATTACHMENTS

FIGURE 1	**PROPERTY VICINITY MAP**
FIGURE 2	**PROPERTY SITE PLAN**
FIGURE 3	**LOCATIONS OF SAMPLE POINTS**
TABLE 1	**SOIL-GAS ANALYTICAL RESULTS**
TABLE 2	**SOIL ANALYTICAL RESULTS**
TABLE 3	**GROUNDWATER ANALYTICAL RESULTS**
APPENDIX A	**LABORATORY ANALYTICAL DATA/ RESULTS SHEETS AND CHAIN OF CUSTODY FORMS**
APPENDIX B	**SOIL-VAPOR SAMPLING FIELD DATA SHEETS AND BORING LOG**

FIGURES

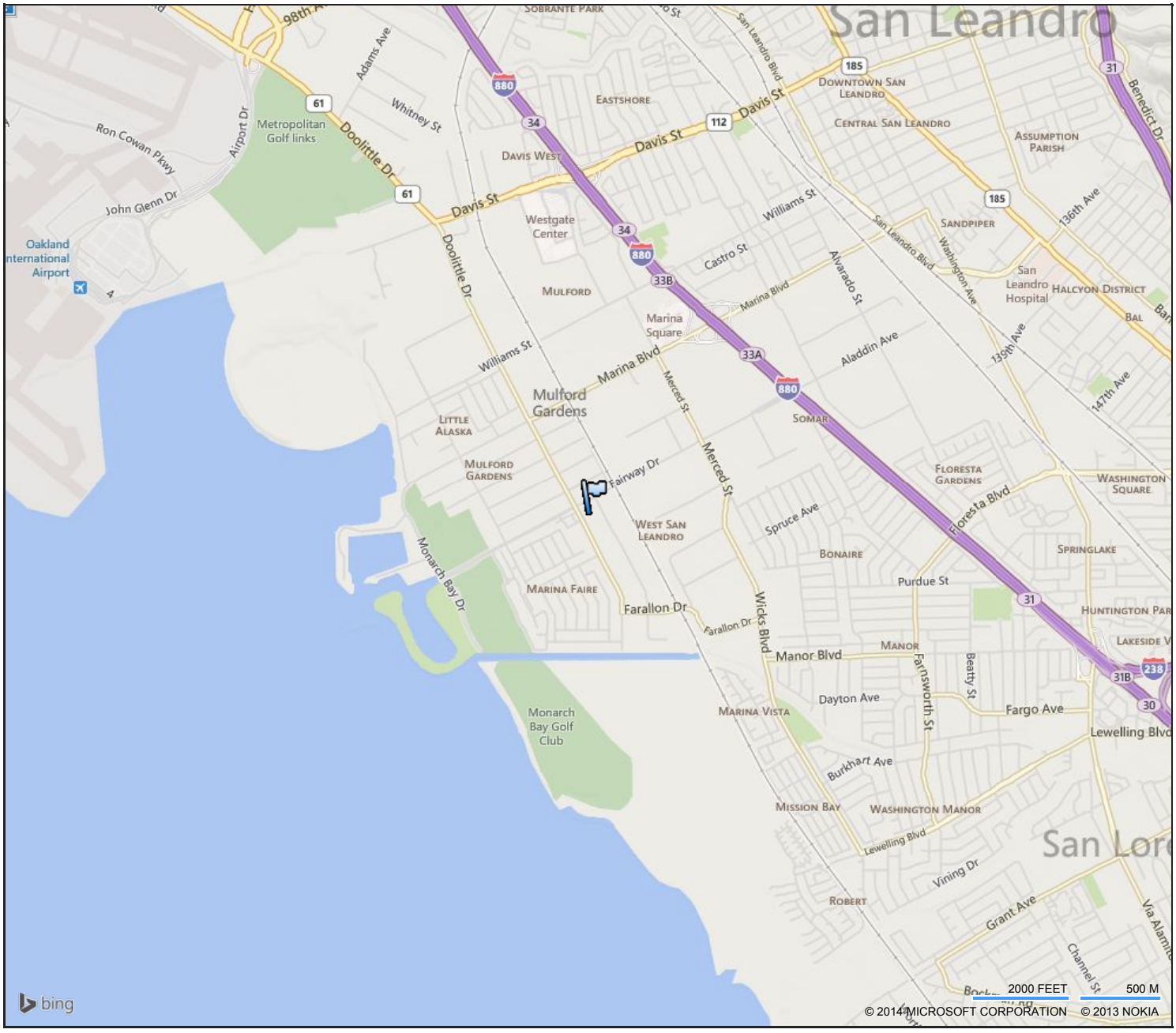


FIGURE 1
PROPERTY VICINITY MAP

13700-13996 DOOLITTLE DR
SAN LEANDRO, CA 94577 **MONDAY 16TH OF JUNE, 2014**

PIERS ENVIRONMENTAL SERVICES, INC.
1038 REDWOOD HWY., SUITE 100A, MILL VALLEY, CA 94941
PHONE: 415-388-7900 FAX: 415-388-7909 WWW.PIERSES.COM

FIGURE 2

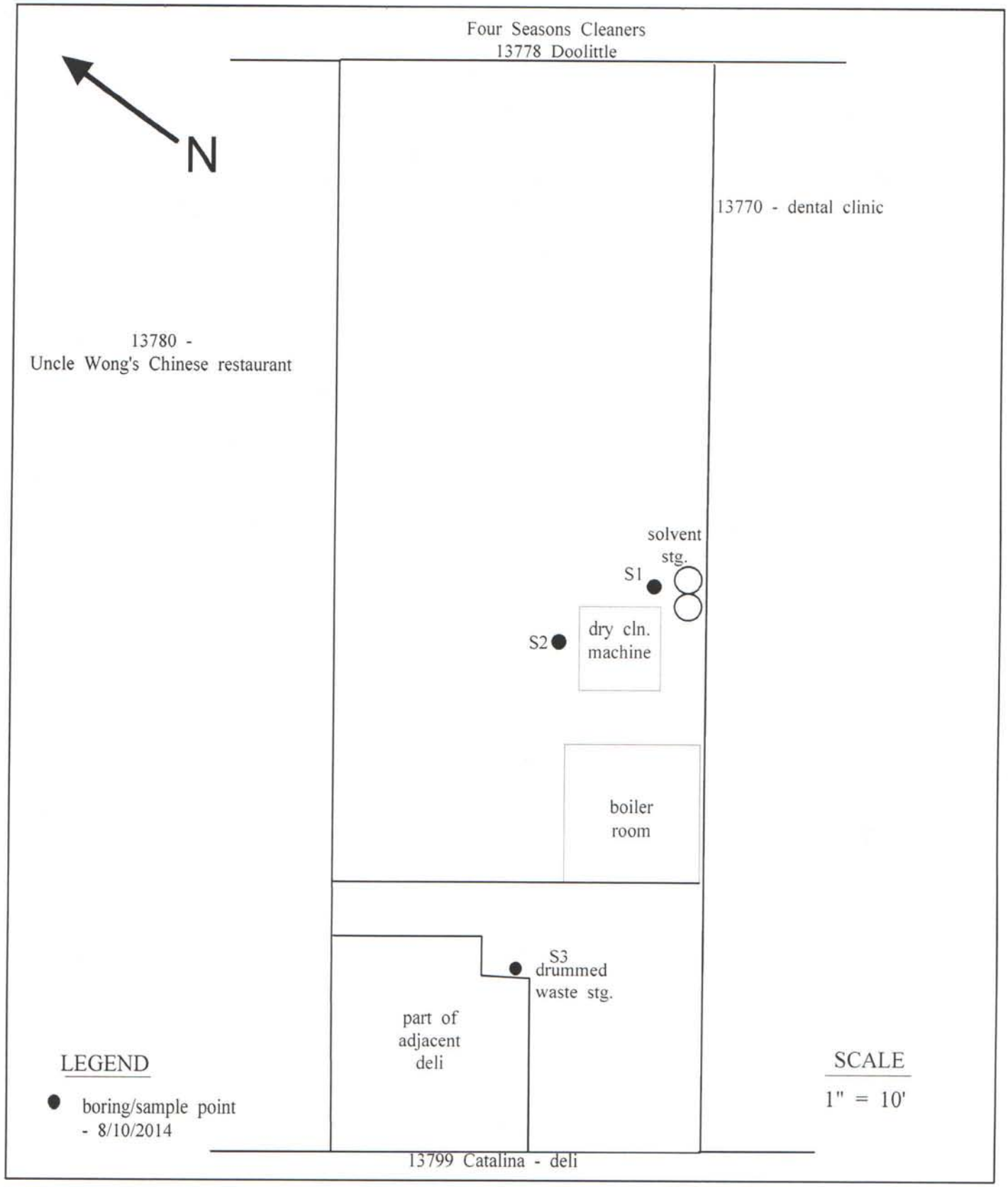
PROPERTY SITE PLAN

13704-13996 DOOLITTLE DRIVE
SAN LEANDRO, CALIFORNIA

AUGUST 2014
NOT TO SCALE

PIERS Environmental Services, Inc.

1038 Redwood Highway, Suite 100A, Mill Valley, CA 94941
Phone: 415-3387900 Fax: 415-3387909 www.pierses.com



13778 DOOLITTLE AVE.
SAN LEANDRO, CA

FIGURE 3
LOCATIONS OF BORINGS

AUGUST 2014

PIERS ENVIRONMENTAL SERVICES, INC. 1038 REDWOOD HWY, SUITE 100A, MILL VALLEY, CA
PHONE: 415-388-7900 FAX: 415-388-7909 WEB: PIERSES.COM

TABLE

TABLE 1
SOIL GAS ANALYTICAL RESULTS
13778 Doolittle Ave., San Leandro, CA

Sample	Date	PCE (ug/m3)	TCE (ug/m3)
S1 Air	8/10/2014	**63,000**	890
S2 Air	8/10/2014	**240,000**	**16,000**
S3 Air	8/10/2014	**4,500,000**	**92,000**
ESL: C/I		2,100	3,000

EXPLANATION:

ESL: Shallow Soil Gas Environmental Screening Level for Evaluation of Potential Vapor Intrusion Concerns,(Table E-2: RWQCB, 2013).
C/I: Commercial/Industrial Land Use
µg/m3 = Micrograms per cubic meters
PCE = tetrachloroethene (dry cleaning solvent), TCE = trichloroethene (breakdown product).
Concentrations in bold indicate exceedance of ESL

TABLE 2

SOIL RESULTS

13778 Doolittle Ave., San Leandro, CA

Sample No.	PCE	TPH diesel
S1 d 0.5'	56	3.2
S2 d 0.5'	45	2.6
S3 d 0.5'	**100**	2.1
S3 d 2'	**20,000**	<1.0
S3 d 5'	**2,400**	<1.0
ESL-Comm./Ind.	70	110

EXPLANATION:

PCE results are reported in micrograms per kilogram (ug/kg)

PCE = tetrachloroethene

TPH diesel results are reported in milligrams/kilogram (mg/kg)

ESL - Environmental Screening Level -(RWQCB 2013, Table A).

(Groundwater is considered a resource).

TABLE 3

GROUNDWATER RESULTS

13778 Doolittle Ave., San Leandro, CA

Sample No.	PCE	TCE	cis-1,2-DCE	TPH diesel
S3 water	**750**	**51**	**7.6**	<50
ESL	5.0	5.0	6.0	100

EXPLANATION:

Results are in micrograms per liter (ug/L).

PCE = tetrachloroethene, TCE = trichloroethene, DCE= dichloroethene

ESL - Environmental Screening Level - (RWQCB 2013, Table A).

(Groundwater is considered a resource).

APPENDIX A
LABORATORY ANALYTICAL DATA SHEETS AND CHAIN OF CUSTODY


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259725
ANALYTICAL REPORT

Piers Environmental Services, Inc.	Project : STANDARD
1038 Redwood Highway	Location : 13788 Dolittle
Mill Valley, CA 94941	Level : II

Sample ID	Lab ID
S1 AIR	259725-001
S2 AIR	259725-002
S3 AIR	259725-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Isabelle Choy Date: 08/19/2014

Isabelle Choy
Project Manager
isabelle.choy@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259725**
Client:	**Piers Environmental Services, Inc.**
Location:	**13788 Dolittle**
Request Date:	**08/11/14**
Samples Received:	**08/11/14**

This data package contains sample and QC results for three air samples, requested for the above referenced project on 08/11/14. The samples were received intact at ambient temperature.

Volatile Organics in Air by MS (EPA TO-15):

No analytical problems were encountered.

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody #

C&T LOGIN # 259725

Project No: 13788 Doolittle
Project Name: 13788 Doolittle
EDD Format: Report Level: ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH ☒ Standard

Sampler: Joel Greger
Report To: joel@pierses.com
Company: PIERS Environmental
Telephone: 510 5935382
Email: cc piers@pierses.com

Lab No.	Sample ID.	SAMPLING		MATRIX				PRESERVATIVE					ANALYTICAL REQUEST			
		Date Collected	Time Collected	Water	Solid	Air		HCl	H2SO4	HNO3	NaOH	None	8010 list	TO15 (8010 list)	TPH as diesel	
	S1 @ 0.5'	8/10/14	1		X								X		X	
	S2 @ 0.5'		1		X								X		X	
	S3 @ 0.5'		1		X								X		X	
	S3 @ 2'		1		X								X			
	S3 @ 5'		1		X								X			
	SB water		3	X				X					X		X	
1	S1 Air		1			X								X		
2	S2 Air		1			X								X		
3	S3 Air		1			X								X		

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
Joel Greger	8/11/14	9:30 AM	Pat Murphy	8/11/14	10:30 AM
	DATE:	TIME:		DATE:	TIME:
	DATE:	TIME:		DATE:	TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259725 Date Received 8/11/14 Number of coolers 0
Client PIERS Project 13788 Pollitte

Date Opened 8/12/14 By (print) AAT (sign)
Date Logged in ↓ By (print) ↓ (sign) ↓

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
   Shipping info
2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

   ☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ None
   ☐ Cloth material ☒ Cardboard ☐ Styrofoam ☐ Paper towels
7. Temperature documentation: * Notify PM if temperature exceeds 6°C

   Type of ice used: ☐ Wet ☐ Blue/Gel ☒ None Temp(°C)

   ☐ Samples Received on ice & cold without a temperature blank

   ☐ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? YES (NO)
   If YES, what time were they transferred to freezer?
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
   If YES, Who was called? By Date:

COMMENTS

Rev 9, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 259725

Results for any subcontracted analyses are not included in this summary.

Client : Piers Environmental Services, Inc.
Project : STANDARD
Location : 13788 Dolittle

Client Sample ID : S1 AIR Laboratory Sample ID : 259725-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Trichloroethene	170		82	2.4	ppbv	As Recd	163.0	EPA TO-15	METHOD
Tetrachloroethene	9,300		82	1.9	ppbv	As Recd	163.0	EPA TO-15	METHOD

Client Sample ID : S2 AIR Laboratory Sample ID : 259725-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Trichloroethene	3,100		240	7.0	ppbv	As Recd	483.0	EPA TO-15	METHOD
Tetrachloroethene	35,000		240	5.5	ppbv	As Recd	483.0	EPA TO-15	METHOD

Client Sample ID : S3 AIR Laboratory Sample ID : 259725-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Trichloroethene	17,000		5,100	150	ppbv	As Recd	10200	EPA TO-15	METHOD
Tetrachloroethene	660,000		5,100	120	ppbv	As Recd	10200	EPA TO-15	METHOD

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	S1 AIR	Diln Fac:	163.0
Lab ID:	259725-001	Batch#:	214456
Matrix:	Air	Sampled:	08/10/14
Units (V):	ppbv	Received:	08/11/14
Units (M):	ug/m3	Analyzed:	08/16/14

Analyte	Result (V)	RL	Result (M)	RL
Chloromethane	ND	82	ND	170
Vinyl Chloride	ND	82	ND	210
Bromomethane	ND	82	ND	320
Chloroethane	ND	82	ND	220
Trichlorofluoromethane	ND	82	ND	460
1,1-Dichloroethene	ND	82	ND	320
Freon 113	ND	82	ND	620
Methylene Chloride	ND	82	ND	280
trans-1,2-Dichloroethene	ND	82	ND	320
1,1-Dichloroethane	ND	82	ND	330
cis-1,2-Dichloroethene	ND	82	ND	320
Chloroform	ND	82	ND	400
1,1,1-Trichloroethane	ND	82	ND	440
Carbon Tetrachloride	ND	82	ND	510
1,2-Dichloroethane	ND	82	ND	330
Trichloroethene	170	82	890	440
1,2-Dichloropropane	ND	82	ND	380
Bromodichloromethane	ND	82	ND	550
cis-1,3-Dichloropropene	ND	82	ND	370
trans-1,3-Dichloropropene	ND	82	ND	370
1,1,2-Trichloroethane	ND	82	ND	440
Tetrachloroethene	9,300	82	63,000	550
Dibromochloromethane	ND	82	ND	690
Chlorobenzene	ND	82	ND	380
Bromoform	ND	82	ND	840
1,1,2,2-Tetrachloroethane	ND	82	ND	560
1,3-Dichlorobenzene	ND	82	ND	490
1,4-Dichlorobenzene	ND	82	ND	490
1,2-Dichlorobenzene	ND	82	ND	490

Surrogate	%REC	Limits
Bromofluorobenzene	94	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	S2 AIR	Diln Fac:	483.0
Lab ID:	259725-002	Batch#:	214456
Matrix:	Air	Sampled:	08/10/14
Units (V):	ppbv	Received:	08/11/14
Units (M):	ug/m3	Analyzed:	08/16/14

Analyte	Result (V)	RL	Result (M)	RL
Chloromethane	ND	240	ND	500
Vinyl Chloride	ND	240	ND	620
Bromomethane	ND	240	ND	940
Chloroethane	ND	240	ND	640
Trichlorofluoromethane	ND	240	ND	1,400
1,1-Dichloroethene	ND	240	ND	960
Freon 113	ND	240	ND	1,900
Methylene Chloride	ND	240	ND	840
trans-1,2-Dichloroethene	ND	240	ND	960
1,1-Dichloroethane	ND	240	ND	980
cis-1,2-Dichloroethene	ND	240	ND	960
Chloroform	ND	240	ND	1,200
1,1,1-Trichloroethane	ND	240	ND	1,300
Carbon Tetrachloride	ND	240	ND	1,500
1,2-Dichloroethane	ND	240	ND	980
Trichloroethene	3,100	240	16,000	1,300
1,2-Dichloropropane	ND	240	ND	1,100
Bromodichloromethane	ND	240	ND	1,600
cis-1,3-Dichloropropene	ND	240	ND	1,100
trans-1,3-Dichloropropene	ND	240	ND	1,100
1,1,2-Trichloroethane	ND	240	ND	1,300
Tetrachloroethene	35,000	240	240,000	1,600
Dibromochloromethane	ND	240	ND	2,100
Chlorobenzene	ND	240	ND	1,100
Bromoform	ND	240	ND	2,500
1,1,2,2-Tetrachloroethane	ND	240	ND	1,700
1,3-Dichlorobenzene	ND	240	ND	1,500
1,4-Dichlorobenzene	ND	240	ND	1,500
1,2-Dichlorobenzene	ND	240	ND	1,500

Surrogate	%REC	Limits
Bromofluorobenzene	97	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Field ID:	S3 AIR	Diln Fac:	10,200
Lab ID:	259725-003	Batch#:	214479
Matrix:	Air	Sampled:	08/10/14
Units (V):	ppbv	Received:	08/11/14
Units (M):	ug/m3	Analyzed:	08/18/14

Analyte	Result (V)	RL	Result (M)	RL
Chloromethane	ND	5,100	ND	11,000
Vinyl Chloride	ND	5,100	ND	13,000
Bromomethane	ND	5,100	ND	20,000
Chloroethane	ND	5,100	ND	13,000
Trichlorofluoromethane	ND	5,100	ND	29,000
1,1-Dichloroethene	ND	5,100	ND	20,000
Freon 113	ND	5,100	ND	39,000
Methylene Chloride	ND	5,100	ND	18,000
trans-1,2-Dichloroethene	ND	5,100	ND	20,000
1,1-Dichloroethane	ND	5,100	ND	21,000
cis-1,2-Dichloroethene	ND	5,100	ND	20,000
Chloroform	ND	5,100	ND	25,000
1,1,1-Trichloroethane	ND	5,100	ND	28,000
Carbon Tetrachloride	ND	5,100	ND	32,000
1,2-Dichloroethane	ND	5,100	ND	21,000
Trichloroethene	17,000	5,100	92,000	27,000
1,2-Dichloropropane	ND	5,100	ND	24,000
Bromodichloromethane	ND	5,100	ND	34,000
cis-1,3-Dichloropropene	ND	5,100	ND	23,000
trans-1,3-Dichloropropene	ND	5,100	ND	23,000
1,1,2-Trichloroethane	ND	5,100	ND	28,000
Tetrachloroethene	660,000	5,100	4,500,000	35,000
Dibromochloromethane	ND	5,100	ND	43,000
Chlorobenzene	ND	5,100	ND	23,000
Bromoform	ND	5,100	ND	53,000
1,1,2,2-Tetrachloroethane	ND	5,100	ND	35,000
1,3-Dichlorobenzene	ND	5,100	ND	31,000
1,4-Dichlorobenzene	ND	5,100	ND	31,000
1,2-Dichlorobenzene	ND	5,100	ND	31,000

Surrogate	%REC	Limits
Bromofluorobenzene	93	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	214456
Units (V):	ppbv	Analyzed:	08/16/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753790

Analyte	Spiked	Result (V)	%REC	Limits
Chloromethane	10.00	10.85	109	70-130
Vinyl Chloride	10.00	9.891	99	70-130
Bromomethane	10.00	11.26	113	70-130
Chloroethane	10.00	7.965	80	70-130
Trichlorofluoromethane	10.00	10.54	105	70-130
1,1-Dichloroethene	10.00	9.107	91	70-130
Freon 113	10.00	9.787	98	70-130
Methylene Chloride	10.00	8.594	86	68-130
trans-1,2-Dichloroethene	10.00	8.757	88	70-130
1,1-Dichloroethane	10.00	9.338	93	70-130
cis-1,2-Dichloroethene	10.00	8.558	86	70-130
Chloroform	10.00	9.419	94	70-130
1,1,1-Trichloroethane	10.00	10.70	107	70-130
Carbon Tetrachloride	10.00	9.357	94	70-130
1,2-Dichloroethane	10.00	9.717	97	70-130
Trichloroethene	10.00	9.407	94	70-130
1,2-Dichloropropane	10.00	9.915	99	70-130
Bromodichloromethane	10.00	9.859	99	70-130
cis-1,3-Dichloropropene	10.00	10.12	101	70-130
trans-1,3-Dichloropropene	10.00	10.30	103	70-130
1,1,2-Trichloroethane	10.00	11.00	110	70-130
Tetrachloroethene	10.00	9.889	99	70-130
Dibromochloromethane	10.00	9.032	90	70-130
Chlorobenzene	10.00	8.527	85	70-130
Bromoform	10.00	7.645	76	70-130
1,1,2,2-Tetrachloroethane	10.00	10.56	106	70-130
1,3-Dichlorobenzene	10.00	10.63	106	70-130
1,4-Dichlorobenzene	10.00	10.93	109	70-130
1,2-Dichlorobenzene	10.00	11.02	110	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	106	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	214456
Units (V):	ppbv	Analyzed:	08/16/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753791

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Chloromethane	10.00	10.30	103	70-130	5	27
Vinyl Chloride	10.00	9.522	95	70-130	4	23
Bromomethane	10.00	10.93	109	70-130	3	20
Chloroethane	10.00	8.831	88	70-130	10	20
Trichlorofluoromethane	10.00	10.18	102	70-130	3	20
1,1-Dichloroethene	10.00	8.997	90	70-130	1	20
Freon 113	10.00	9.781	98	70-130	0	23
Methylene Chloride	10.00	8.579	86	68-130	0	23
trans-1,2-Dichloroethene	10.00	8.607	86	70-130	2	20
1,1-Dichloroethane	10.00	9.141	91	70-130	2	20
cis-1,2-Dichloroethene	10.00	8.467	85	70-130	1	20
Chloroform	10.00	9.125	91	70-130	3	20
1,1,1-Trichloroethane	10.00	10.14	101	70-130	5	20
Carbon Tetrachloride	10.00	8.775	88	70-130	6	20
1,2-Dichloroethane	10.00	9.344	93	70-130	4	20
Trichloroethene	10.00	9.180	92	70-130	2	20
1,2-Dichloropropane	10.00	9.527	95	70-130	4	20
Bromodichloromethane	10.00	9.376	94	70-130	5	20
cis-1,3-Dichloropropene	10.00	9.908	99	70-130	2	20
trans-1,3-Dichloropropene	10.00	10.04	100	70-130	3	20
1,1,2-Trichloroethane	10.00	9.845	98	70-130	11	20
Tetrachloroethene	10.00	9.167	92	70-130	8	20
Dibromochloromethane	10.00	8.263	83	70-130	9	20
Chlorobenzene	10.00	8.034	80	70-130	6	21
Bromoform	10.00	6.959	70	70-130	9	20
1,1,2,2-Tetrachloroethane	10.00	9.949	99	70-130	6	24
1,3-Dichlorobenzene	10.00	9.607	96	70-130	10	22
1,4-Dichlorobenzene	10.00	9.725	97	70-130	12	22
1,2-Dichlorobenzene	10.00	9.847	98	70-130	11	22

Surrogate	%REC	Limits
Bromofluorobenzene	102	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC753792	Diln Fac:	1.000
Matrix:	Air	Batch#:	214456
Units (V):	ppbv	Analyzed:	08/16/14

Analyte	Result (V)	RL	Result (M)	RL
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
1,1-Dichloroethane	ND	0.50	ND	2.0
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Carbon Tetrachloride	ND	0.50	ND	3.1
1,2-Dichloroethane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
Dibromochloromethane	ND	0.50	ND	4.3
Chlorobenzene	ND	0.50	ND	2.3
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
1,2-Dichlorobenzene	ND	0.50	ND	3.0

Surrogate	%REC	Limits
Bromofluorobenzene	93	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	214479
Units (V):	ppbv	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753871

Analyte	Spiked	Result (V)	%REC	Limits
Chloromethane	10.00	11.23	112	70-130
Vinyl Chloride	10.00	11.06	111	70-130
Bromomethane	10.00	12.27	123	70-130
Chloroethane	10.00	9.583	96	70-130
Trichlorofluoromethane	10.00	11.60	116	70-130
1,1-Dichloroethene	10.00	10.46	105	70-130
Freon 113	10.00	11.39	114	70-130
Methylene Chloride	10.00	9.489	95	68-130
trans-1,2-Dichloroethene	10.00	9.991	100	70-130
1,1-Dichloroethane	10.00	10.57	106	70-130
cis-1,2-Dichloroethene	10.00	9.829	98	70-130
Chloroform	10.00	10.46	105	70-130
1,1,1-Trichloroethane	10.00	10.99	110	70-130
Carbon Tetrachloride	10.00	10.35	103	70-130
1,2-Dichloroethane	10.00	10.25	102	70-130
Trichloroethene	10.00	9.673	97	70-130
1,2-Dichloropropane	10.00	10.33	103	70-130
Bromodichloromethane	10.00	10.30	103	70-130
cis-1,3-Dichloropropene	10.00	10.52	105	70-130
trans-1,3-Dichloropropene	10.00	10.96	110	70-130
1,1,2-Trichloroethane	10.00	11.24	112	70-130
Tetrachloroethene	10.00	10.91	109	70-130
Dibromochloromethane	10.00	10.20	102	70-130
Chlorobenzene	10.00	8.872	89	70-130
Bromoform	10.00	9.269	93	70-130
1,1,2,2-Tetrachloroethane	10.00	10.65	107	70-130
1,3-Dichlorobenzene	10.00	10.31	103	70-130
1,4-Dichlorobenzene	10.00	10.61	106	70-130
1,2-Dichlorobenzene	10.00	10.80	108	70-130

Surrogate	%REC	Limits
Bromofluorobenzene	98	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Matrix:	Air	Batch#:	214479
Units (V):	ppbv	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC753872

Analyte	Spiked	Result (V)	%REC	Limits	RPD	Lim
Chloromethane	10.00	10.03	100	70-130	11	27
Vinyl Chloride	10.00	10.13	101	70-130	9	23
Bromomethane	10.00	11.28	113	70-130	8	20
Chloroethane	10.00	9.457	95	70-130	1	20
Trichlorofluoromethane	10.00	10.56	106	70-130	9	20
1,1-Dichloroethene	10.00	10.02	100	70-130	4	20
Freon 113	10.00	10.60	106	70-130	7	23
Methylene Chloride	10.00	8.947	89	68-130	6	23
trans-1,2-Dichloroethene	10.00	9.509	95	70-130	5	20
1,1-Dichloroethane	10.00	10.01	100	70-130	6	20
cis-1,2-Dichloroethene	10.00	9.408	94	70-130	4	20
Chloroform	10.00	10.01	100	70-130	4	20
1,1,1-Trichloroethane	10.00	10.41	104	70-130	5	20
Carbon Tetrachloride	10.00	9.769	98	70-130	6	20
1,2-Dichloroethane	10.00	9.644	96	70-130	6	20
Trichloroethene	10.00	9.156	92	70-130	5	20
1,2-Dichloropropane	10.00	9.600	96	70-130	7	20
Bromodichloromethane	10.00	9.674	97	70-130	6	20
cis-1,3-Dichloropropene	10.00	10.22	102	70-130	3	20
trans-1,3-Dichloropropene	10.00	10.43	104	70-130	5	20
1,1,2-Trichloroethane	10.00	9.860	99	70-130	13	20
Tetrachloroethene	10.00	9.647	96	70-130	12	20
Dibromochloromethane	10.00	9.096	91	70-130	11	20
Chlorobenzene	10.00	8.187	82	70-130	8	21
Bromoform	10.00	8.227	82	70-130	12	20
1,1,2,2-Tetrachloroethane	10.00	9.617	96	70-130	10	24
1,3-Dichlorobenzene	10.00	9.179	92	70-130	12	22
1,4-Dichlorobenzene	10.00	9.254	93	70-130	14	22
1,2-Dichlorobenzene	10.00	9.430	94	70-130	14	22

Surrogate	%REC	Limits
Bromofluorobenzene	95	70-130

RPD= Relative Percent Difference
Result V= Result in volume units

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics in Air

Lab #:	259725	Location:	13788 Dolittle
Client:	Piers Environmental Services, Inc.	Prep:	METHOD
Project#:	STANDARD	Analysis:	EPA TO-15
Type:	BLANK	Units (M):	ug/m3
Lab ID:	QC753873	Diln Fac:	1.000
Matrix:	Air	Batch#:	214479
Units (V):	ppbv	Analyzed:	08/18/14

Analyte	Result (V)	RL	Result (M)	RL
Chloromethane	ND	0.50	ND	1.0
Vinyl Chloride	ND	0.50	ND	1.3
Bromomethane	ND	0.50	ND	1.9
Chloroethane	ND	0.50	ND	1.3
Trichlorofluoromethane	ND	0.50	ND	2.8
1,1-Dichloroethene	ND	0.50	ND	2.0
Freon 113	ND	0.50	ND	3.8
Methylene Chloride	ND	0.50	ND	1.7
trans-1,2-Dichloroethene	ND	0.50	ND	2.0
1,1-Dichloroethane	ND	0.50	ND	2.0
cis-1,2-Dichloroethene	ND	0.50	ND	2.0
Chloroform	ND	0.50	ND	2.4
1,1,1-Trichloroethane	ND	0.50	ND	2.7
Carbon Tetrachloride	ND	0.50	ND	3.1
1,2-Dichloroethane	ND	0.50	ND	2.0
Trichloroethene	ND	0.50	ND	2.7
1,2-Dichloropropane	ND	0.50	ND	2.3
Bromodichloromethane	ND	0.50	ND	3.4
cis-1,3-Dichloropropene	ND	0.50	ND	2.3
trans-1,3-Dichloropropene	ND	0.50	ND	2.3
1,1,2-Trichloroethane	ND	0.50	ND	2.7
Tetrachloroethene	ND	0.50	ND	3.4
Dibromochloromethane	ND	0.50	ND	4.3
Chlorobenzene	ND	0.50	ND	2.3
Bromoform	ND	0.50	ND	5.2
1,1,2,2-Tetrachloroethane	ND	0.50	ND	3.4
1,3-Dichlorobenzene	ND	0.50	ND	3.0
1,4-Dichlorobenzene	ND	0.50	ND	3.0
1,2-Dichlorobenzene	ND	0.50	ND	3.0

Surrogate	%REC	Limits
Bromofluorobenzene	88	70-130

ND= Not Detected
RL= Reporting Limit
Result M= Result in mass units
Result V= Result in volume units


Curtis & Tompkins, Ltd.
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2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 259697
ANALYTICAL REPORT

Piers Environmental Services, Inc.	Project : STANDARD
1038 Redwood Highway	Location : 13788 Doolittle
Mill Valley, CA 94941	Level : II

Sample ID	Lab ID
S1 D 0.5'	259697-001
S2 D 0.5'	259697-002
S3 D 0.5'	259697-003
S3 D 2'	259697-004
S3 D 5'	259697-005
S3 WATER	259697-006

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Isabelle Choy Date: 08/22/2014

Isabelle Choy
Project Manager
isabelle.choy@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE

Laboratory number:	**259697**
Client:	**Piers Environmental Services, Inc.**
Location:	**13788 Doolittle**
Request Date:	**08/11/14**
Samples Received:	**08/11/14**

This data package contains sample and QC results for five soil samples and one water sample, requested for the above referenced project on 08/11/14. The samples were received cold and intact.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B) Water:
S3 WATER (lab # 259697-006) had pH greater than 2. No other analytical problems were encountered.

Volatile Organics by GC/MS (EPA 8260B) Soil:
Matrix spikes were not performed for this analysis in batch 214530 due to insufficient sample amount. Matrix spikes were not performed for this analysis in batch 214486 due to insufficient sample amount. High surrogate recoveries were observed for 1,2-dichloroethane-d4 in S1 D 0.5' (lab # 259697-001), S3 D 0.5' (lab # 259697-003), and the MS/MSD for batch 214385. No other analytical problems were encountered.

259697

Subject: 13788 Doolittle
From: Joel Greger <joel@pierses.com>
Date: 8/11/2014 11:43 AM
To: tracy.babjar@ctberk.com

tracy - isabelle was handling this but since she is gone they said talk to you. i dropped samples a short time ago at your lab. I now faxed the chain of custody with add ons. We added the following:

TPH as diesel for S3 d 2' and S3 d 5'

also perform silica gel on all six TPH as diesel samples prior to analyses

can you call me to confirm

Joel Greger - PIERS Environmental
510 5935382

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

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C&T LOG IN #: 159697

Page 1 of 1

Chain of Custody #

Project No: 13788 Doolittle

Project Name: 13788 Doolittle

EDD Format: Report Level: ☐ II ☐ III ☐ IV

Turnaround Time: ☐ RUSH ☐ Standard

Sampler: Joel Greger

Report To: joel@pierses.com

Company: PIERS Environmental

Telephone: 510 5935382

Email: cc piers@pierses.com

Lab No.	Sample ID.	SAMPLING: Date Collected	SAMPLING: Time Collected	MATRIX: Water	MATRIX: Solid	MATRIX: Air	PRESERVATIVE: HCl	PRESERVATIVE: H2SO4	PRESERVATIVE: HNO3	PRESERVATIVE: NaOH	PRESERVATIVE: None	ANALYTICAL REQUEST: 8010 list	ANALYTICAL REQUEST: TO15 (8010 list)	ANALYTICAL REQUEST: TPH as diesel (8015)
	S1 @ 0.5'	8/10/14	1		X							X		X
	S2 @ 0.5'		1		X							X		X
	S3 @ 0.5'		1		X							X		X
	S3 @ 2'		1		X							X		X
	S3 @ 5'		1		X							X		X
	S3 water		3	X			X					X		X
	S1 Air		1			X							X	
	S2 Air		1			X							X	
	S3 Air		1			X							X	

add on

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY: Joel Greger DATE: 8/11/14 TIME: 8:30 am

RECEIVED BY: Pat Murphy DATE: 8/11/14 TIME: 10:30 Am

DATE: TIME:

DATE: TIME:

DATE: TIME:

DATE: TIME:

CHAIN OF CUSTODY

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ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
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Chain of Custody # _____

C&T LOGIN # 259697

Project No: 13788 Doolittle
Project Name: 13788 Doolittle
EDD Format: Report Level: ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: Joel Greger
Report To: joel@pierses.com
Company: PIERS Environmental
Telephone: 510 5935382
Email: cc piers@pierses.com

Lab No.	Sample ID.	SAMPLING		MATRIX				PRESERVATIVE					ANALYTICAL REQUEST			
		Date Collected	Time Collected	Water	Solid	Air		HCl	H2SO4	HNO3	NaOH	None	8010 1.5"	TCLP (8010 list)	TPH as diesel	
1	S1 d 0.5'	8/10/14	1		X								X		X	
2	S2 d 0.5'		1		X								X		X	
3	S3 d 0.5'		1		X								X		X	
4	S3 d 2'		1		X								X			
5	S3 d 5'		1		X								X			
6	S3 water		3	X				X					X		X	unable to login no amber sample. Will collect new TB 8/11/14
●	S1 Air		1			X								X		
●	S2 Air		1			X								X		
●	S3 Air		1			X								X		

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
Joel Greger DATE: 8/11/14 TIME: 8:30 AM
DATE: TIME:
DATE: TIME:

RECEIVED BY:
Pat Murphy DATE: 8/11/14 TIME: 10:30
DATE: TIME:
DATE: TIME:

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 259697 Date Received 08/11/14 Number of coolers 6
Client PIERS Environmental Project 13788 Doolittle

Date Opened 08/11/14 By (print) MC (sign) [signature]
Date Logged in 1 By (print) 1 (sign) 1

1. Did cooler come with a shipping slip (airbill, etc) _____ YES (NO)
   Shipping info _____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
   How many _____ Name _____ Date _____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received? _____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe) _____

☐ Bubble Wrap ☐ Foam blocks ☒ Bags ☐ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.6

☒ Samples received on ice & cold without a temperature blank; temp taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? _____ YES (NO)
   If YES, what time were they transferred to freezer? _____
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ YES (NO)
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ (YES) NO N/A
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ (YES) (NO) N/A
21. Was the client contacted concerning this sample delivery? _____ (YES) (NO) mc 8/11
   If YES, Who was called? JG By TB Date: 08/11

COMMENTS

#11) -006 : only 2 VOAs submitted; cannot login TPH as diesel w/ silica gel for this sample
~~-006 : 1 of 3 VOAs w/ bubble >6 mm~~
mc 08/11

Rev 10, 10/11

Curtis & Tompkins, Ltd.

Detections Summary for 259697

Results for any subcontracted analyses are not included in this summary.

Client : Piers Environmental Services, Inc.
Project : STANDARD
Location : 13788 Doolittle

Client Sample ID : S1 D 0.5' Laboratory Sample ID : 259697-001

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	3.2	Y	1.0	0.31	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Tetrachloroethene	56		4.9	0.5	ug/Kg	As Recd	0.9766	EPA 8260B	EPA 5030B

Client Sample ID : S2 D 0.5' Laboratory Sample ID : 259697-002

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	2.6	Y	1.0	0.31	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Tetrachloroethene	45		4.6	0.5	ug/Kg	As Recd	0.9124	EPA 8260B	EPA 5030B

Client Sample ID : S3 D 0.5' Laboratory Sample ID : 259697-003

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Diesel C10-C24	2.1	Y	1.0	0.31	mg/Kg	As Recd	1.000	EPA 8015B	EPA 3550B
Tetrachloroethene	100		4.7	0.5	ug/Kg	As Recd	0.9416	EPA 8260B	EPA 5030B

Client Sample ID : S3 D 2' Laboratory Sample ID : 259697-004

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	20,000		1,000	20	ug/Kg	As Recd	200.0	EPA 8260B	EPA 5030B

Client Sample ID : S3 D 5' Laboratory Sample ID : 259697-005

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
Tetrachloroethene	2,400		250	5.0	ug/Kg	As Recd	50.00	EPA 8260B	EPA 5030B

Client Sample ID : S3 WATER Laboratory Sample ID : 259697-006

Analyte	Result	Flags	RL	MDL	Units	Basis	IDF	Method	Prep Method
cis-1,2-Dichloroethene	7.6		7.1	1.4	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B
Trichloroethene	51		7.1	1.4	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B
Tetrachloroethene	750		7.1	1.4	ug/L	As Recd	14.29	EPA 8260B	EPA 5030B

Y = Sample exhibits chromatographic pattern which does not resemble standard

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	08/10/14
Units:	mg/Kg	Received:	08/11/14
Basis:	as received	Prepared:	08/12/14
Diln Fac:	1.000	Analyzed:	08/13/14
Batch#:	214324		

Field ID: S1 D 0.5' Lab ID: 259697-001
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	3.2 Y	1.0

Surrogate	%REC	Limits
o-Terphenyl	104	64-136

Field ID: S2 D 0.5' Lab ID: 259697-002
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	2.6 Y	1.0

Surrogate	%REC	Limits
o-Terphenyl	96	64-136

Field ID: S3 D 0.5' Lab ID: 259697-003
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	2.1 Y	1.0

Surrogate	%REC	Limits
o-Terphenyl	109	64-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	08/10/14
Units:	mg/Kg	Received:	08/11/14
Basis:	as received	Prepared:	08/12/14
Diln Fac:	1.000	Analyzed:	08/13/14
Batch#:	214324		

Field ID: S3 D 2' Lab ID: 259697-004
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
o-Terphenyl	92	64-136

Field ID: S3 D 5' Lab ID: 259697-005
Type: SAMPLE Cleanup Method: EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.0

Surrogate	%REC	Limits
o-Terphenyl	77	64-136

Type: BLANK Cleanup Method: EPA 3630C
Lab ID: QC753270

Analyte	Result	RL
Diesel C10-C24	ND	0.99

Surrogate	%REC	Limits
o-Terphenyl	96	64-136

Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753271	Batch#:	214324
Matrix:	Soil	Prepared:	08/12/14
Units:	mg/Kg	Analyzed:	08/13/14

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.85	48.24	97	61-132

Surrogate	%REC	Limits
o-Terphenyl	108	64-136

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 3550B
Project#:	STANDARD	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	214324
MSS Lab ID:	259644-001	Sampled:	08/06/14
Matrix:	Soil	Received:	08/06/14
Units:	mg/Kg	Prepared:	08/12/14
Basis:	as received	Analyzed:	08/13/14
Diln Fac:	1.000		

Type: MS Lab ID: QC753272

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	7.903	49.98	53.49	91	40-146

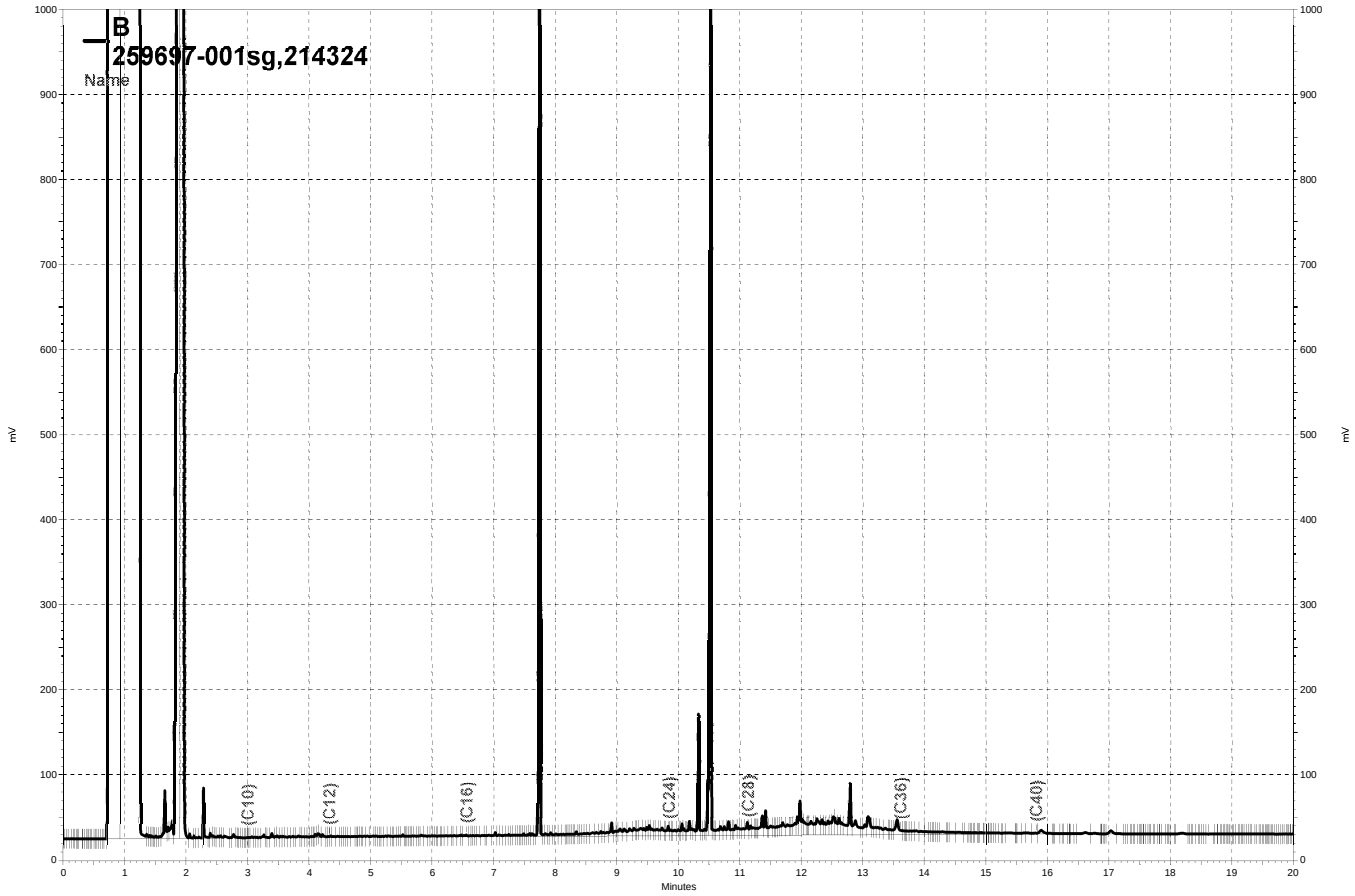
Surrogate	%REC	Limits
o-Terphenyl	103	64-136

Type: MSD Lab ID: QC753273

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.82	56.11	97	40-146	5	56

Surrogate	%REC	Limits
o-Terphenyl	102	64-136

RPD= Relative Percent Difference



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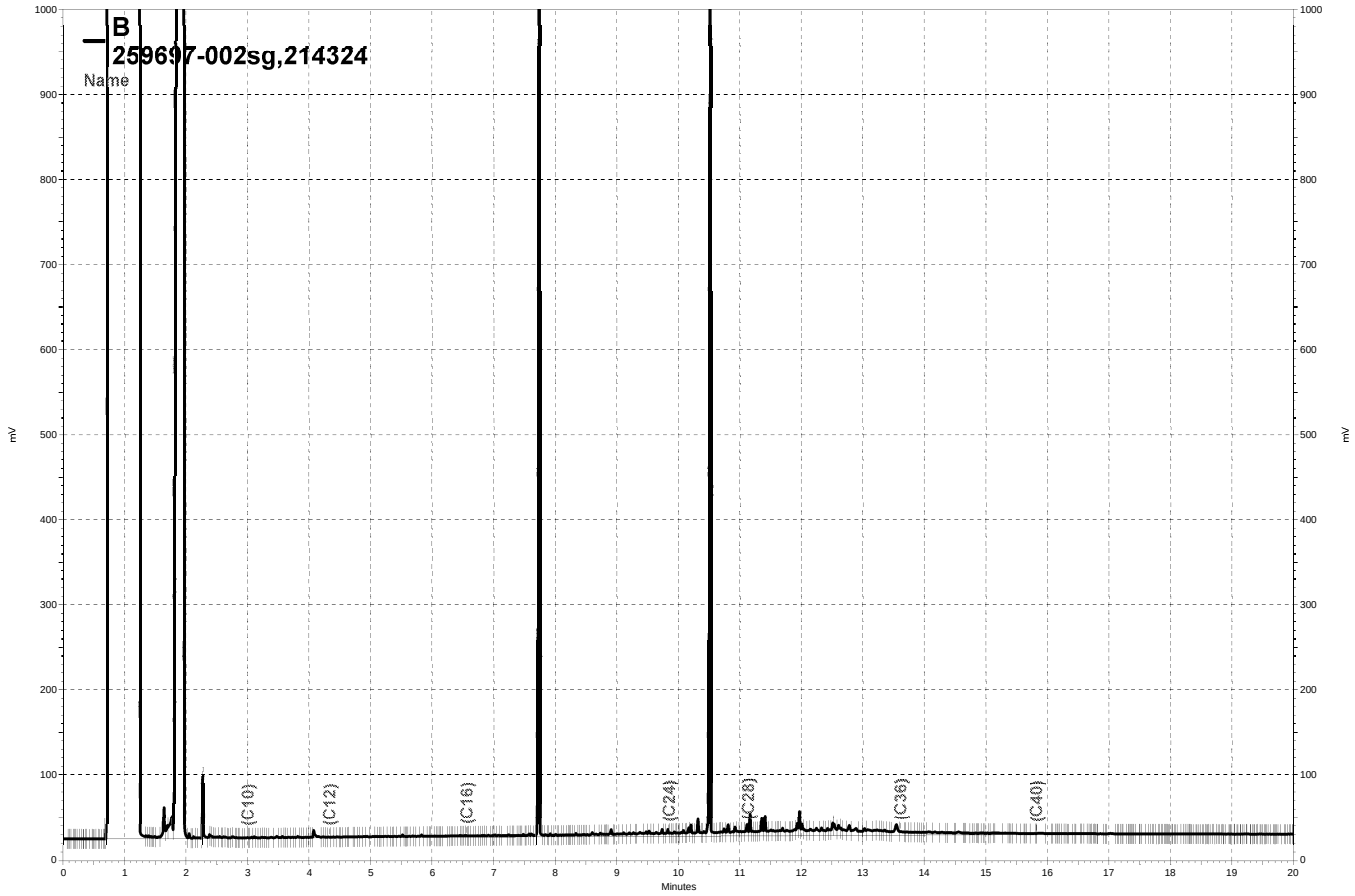

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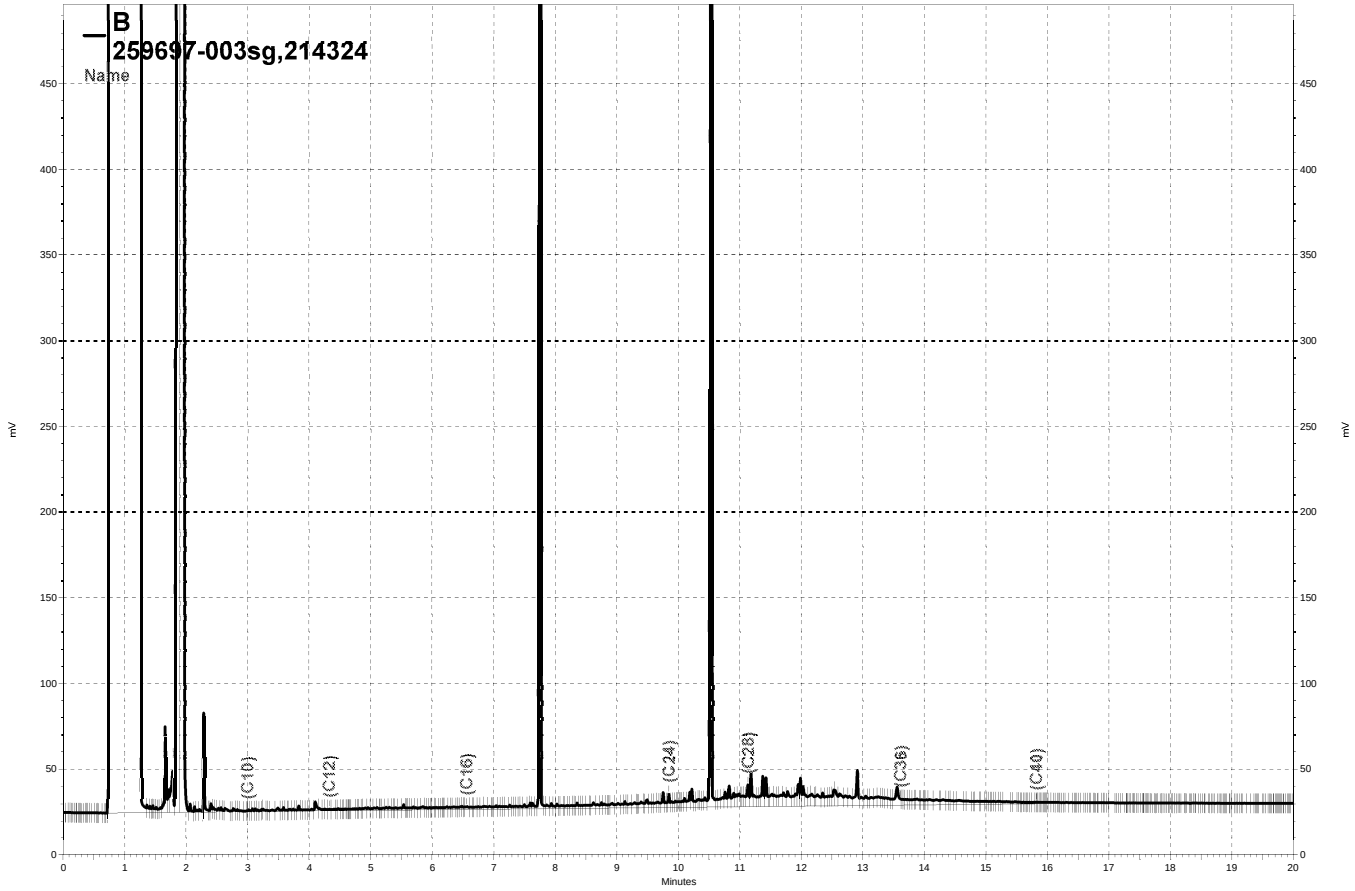

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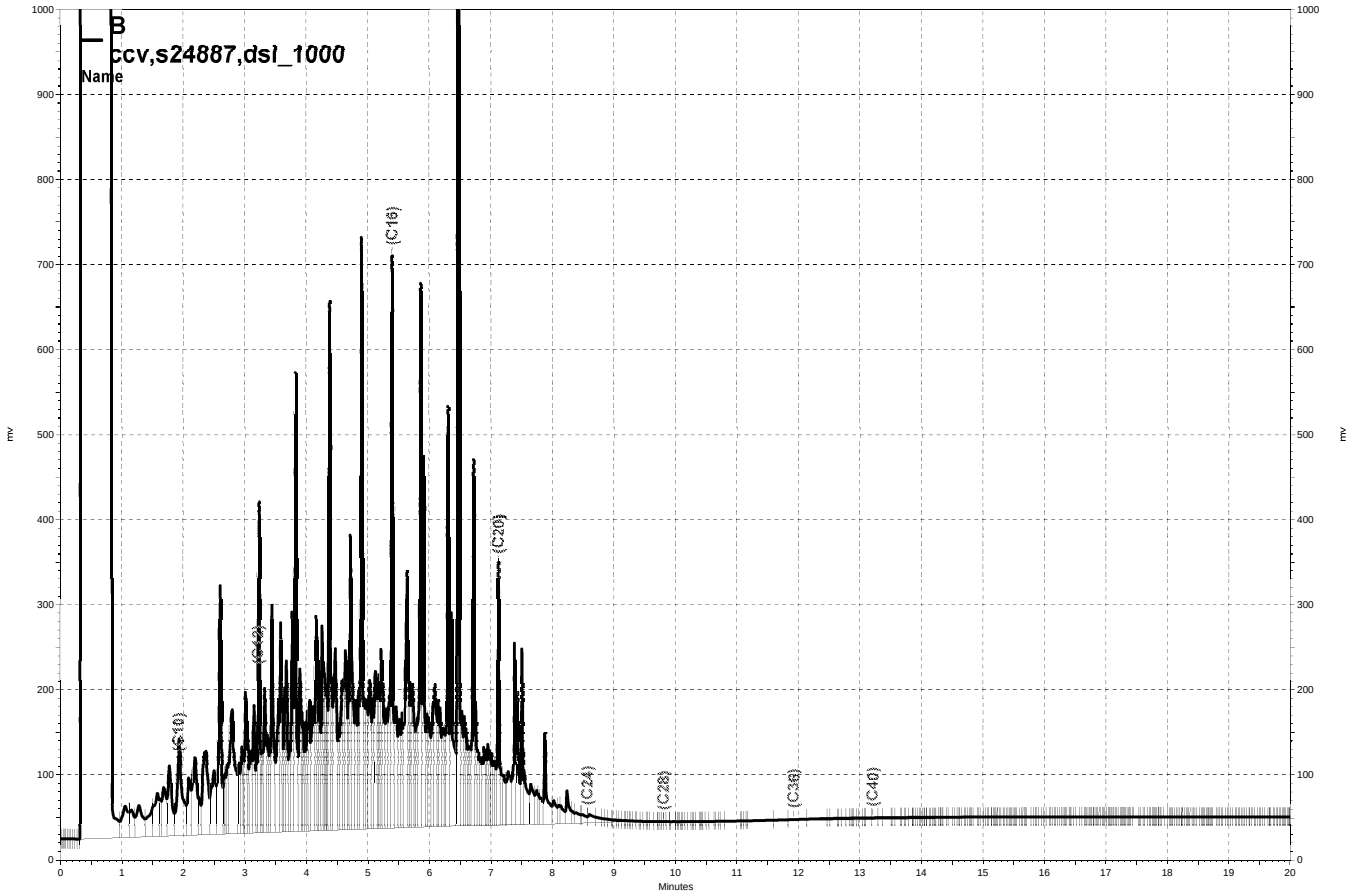

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Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S3 WATER	Batch#:	214354
Lab ID:	259697-006	Sampled:	08/10/14
Matrix:	Water	Received:	08/11/14
Units:	ug/L	Analyzed:	08/13/14
Diln Fac:	14.29		

Analyte	Result	RL
Chloromethane	ND	14
Vinyl Chloride	ND	7.1
Bromomethane	ND	14
Chloroethane	ND	14
Trichlorofluoromethane	ND	14
Freon 113	ND	29
1,1-Dichloroethene	ND	7.1
Methylene Chloride	ND	290
trans-1,2-Dichloroethene	ND	7.1
1,1-Dichloroethane	ND	7.1
cis-1,2-Dichloroethene	7.6	7.1
Chloroform	ND	7.1
1,1,1-Trichloroethane	ND	7.1
Carbon Tetrachloride	ND	7.1
1,2-Dichloroethane	ND	7.1
Trichloroethene	51	7.1
1,2-Dichloropropane	ND	7.1
Bromodichloromethane	ND	7.1
cis-1,3-Dichloropropene	ND	7.1
trans-1,3-Dichloropropene	ND	7.1
1,1,2-Trichloroethane	ND	7.1
Tetrachloroethene	750	7.1
Dibromochloromethane	ND	7.1
Chlorobenzene	ND	7.1
Bromoform	ND	7.1
1,1,2,2-Tetrachloroethane	ND	7.1
1,3-Dichlorobenzene	ND	7.1
1,4-Dichlorobenzene	ND	7.1
1,2-Dichlorobenzene	ND	7.1

Surrogate	%REC	Limits
Dibromofluoromethane	94	77-136
1,2-Dichloroethane-d4	120	75-139
Toluene-d8	105	80-120
Bromofluorobenzene	93	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Water	Batch#:	214354
Units:	ug/L	Analyzed:	08/13/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753380

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	21.33	85	65-134
Trichloroethene	25.00	24.60	98	80-120
Chlorobenzene	25.00	25.74	103	80-120

Surrogate	%REC	Limits
Dibromofluoromethane	95	77-136
1,2-Dichloroethane-d4	118	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	92	80-120

Type: BSD Lab ID: QC753381

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	23.15	93	65-134	8	20
Trichloroethene	25.00	25.51	102	80-120	4	20
Chlorobenzene	25.00	26.88	108	80-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	95	77-136
1,2-Dichloroethane-d4	119	75-139
Toluene-d8	103	80-120
Bromofluorobenzene	91	80-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753382	Batch#:	214354
Matrix:	Water	Analyzed:	08/13/14
Units:	ug/L		

Analyte	Result	RL
Chloromethane	ND	1.0
Vinyl Chloride	ND	0.5
Bromomethane	ND	1.0
Chloroethane	ND	1.0
Trichlorofluoromethane	ND	1.0
Freon 113	ND	2.0
1,1-Dichloroethene	ND	0.5
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	0.5
1,1-Dichloroethane	ND	0.5
cis-1,2-Dichloroethene	ND	0.5
Chloroform	ND	0.5
1,1,1-Trichloroethane	ND	0.5
Carbon Tetrachloride	ND	0.5
1,2-Dichloroethane	ND	0.5
Trichloroethene	ND	0.5
1,2-Dichloropropane	ND	0.5
Bromodichloromethane	ND	0.5
cis-1,3-Dichloropropene	ND	0.5
trans-1,3-Dichloropropene	ND	0.5
1,1,2-Trichloroethane	ND	0.5
Tetrachloroethene	ND	0.5
Dibromochloromethane	ND	0.5
Chlorobenzene	ND	0.5
Bromoform	ND	0.5
1,1,2,2-Tetrachloroethane	ND	0.5
1,3-Dichlorobenzene	ND	0.5
1,4-Dichlorobenzene	ND	0.5
1,2-Dichlorobenzene	ND	0.5

Surrogate	%REC	Limits
Dibromofluoromethane	97	77-136
1,2-Dichloroethane-d4	119	75-139
Toluene-d8	102	80-120
Bromofluorobenzene	97	80-120

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S1 D 0.5'	Diln Fac:	0.9766
Lab ID:	259697-001	Batch#:	214385
Matrix:	Soil	Sampled:	08/10/14
Units:	ug/Kg	Received:	08/11/14
Basis:	as received	Analyzed:	08/14/14

Analyte	Result	RL
Chloromethane	ND	9.8
Vinyl Chloride	ND	9.8
Bromomethane	ND	9.8
Chloroethane	ND	9.8
Trichlorofluoromethane	ND	4.9
Freon 113	ND	4.9
1,1-Dichloroethene	ND	4.9
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	4.9
1,1-Dichloroethane	ND	4.9
cis-1,2-Dichloroethene	ND	4.9
Chloroform	ND	4.9
1,1,1-Trichloroethane	ND	4.9
Carbon Tetrachloride	ND	4.9
1,2-Dichloroethane	ND	4.9
Trichloroethene	ND	4.9
1,2-Dichloropropane	ND	4.9
Bromodichloromethane	ND	4.9
cis-1,3-Dichloropropene	ND	4.9
trans-1,3-Dichloropropene	ND	4.9
1,1,2-Trichloroethane	ND	4.9
Tetrachloroethene	56	4.9
Dibromochloromethane	ND	4.9
Chlorobenzene	ND	4.9
Bromoform	ND	9.8
1,1,2,2-Tetrachloroethane	ND	4.9
1,3-Dichlorobenzene	ND	4.9
1,4-Dichlorobenzene	ND	4.9
1,2-Dichlorobenzene	ND	4.9

Surrogate	%REC	Limits
Dibromofluoromethane	98	76-128
1,2-Dichloroethane-d4	142 *	80-137
Toluene-d8	109	80-120
Bromofluorobenzene	115	79-128

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S2 D 0.5'	Diln Fac:	0.9124
Lab ID:	259697-002	Batch#:	214385
Matrix:	Soil	Sampled:	08/10/14
Units:	ug/Kg	Received:	08/11/14
Basis:	as received	Analyzed:	08/14/14

Analyte	Result	RL
Chloromethane	ND	9.1
Vinyl Chloride	ND	9.1
Bromomethane	ND	9.1
Chloroethane	ND	9.1
Trichlorofluoromethane	ND	4.6
Freon 113	ND	4.6
1,1-Dichloroethene	ND	4.6
Methylene Chloride	ND	18
trans-1,2-Dichloroethene	ND	4.6
1,1-Dichloroethane	ND	4.6
cis-1,2-Dichloroethene	ND	4.6
Chloroform	ND	4.6
1,1,1-Trichloroethane	ND	4.6
Carbon Tetrachloride	ND	4.6
1,2-Dichloroethane	ND	4.6
Trichloroethene	ND	4.6
1,2-Dichloropropane	ND	4.6
Bromodichloromethane	ND	4.6
cis-1,3-Dichloropropene	ND	4.6
trans-1,3-Dichloropropene	ND	4.6
1,1,2-Trichloroethane	ND	4.6
Tetrachloroethene	45	4.6
Dibromochloromethane	ND	4.6
Chlorobenzene	ND	4.6
Bromoform	ND	9.1
1,1,2,2-Tetrachloroethane	ND	4.6
1,3-Dichlorobenzene	ND	4.6
1,4-Dichlorobenzene	ND	4.6
1,2-Dichlorobenzene	ND	4.6

Surrogate	%REC	Limits
Dibromofluoromethane	94	76-128
1,2-Dichloroethane-d4	137	80-137
Toluene-d8	114	80-120
Bromofluorobenzene	111	79-128

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S3 D 0.5'	Diln Fac:	0.9416
Lab ID:	259697-003	Batch#:	214385
Matrix:	Soil	Sampled:	08/10/14
Units:	ug/Kg	Received:	08/11/14
Basis:	as received	Analyzed:	08/14/14

Analyte	Result	RL
Chloromethane	ND	9.4
Vinyl Chloride	ND	9.4
Bromomethane	ND	9.4
Chloroethane	ND	9.4
Trichlorofluoromethane	ND	4.7
Freon 113	ND	4.7
1,1-Dichloroethene	ND	4.7
Methylene Chloride	ND	19
trans-1,2-Dichloroethene	ND	4.7
1,1-Dichloroethane	ND	4.7
cis-1,2-Dichloroethene	ND	4.7
Chloroform	ND	4.7
1,1,1-Trichloroethane	ND	4.7
Carbon Tetrachloride	ND	4.7
1,2-Dichloroethane	ND	4.7
Trichloroethene	ND	4.7
1,2-Dichloropropane	ND	4.7
Bromodichloromethane	ND	4.7
cis-1,3-Dichloropropene	ND	4.7
trans-1,3-Dichloropropene	ND	4.7
1,1,2-Trichloroethane	ND	4.7
Tetrachloroethene	100	4.7
Dibromochloromethane	ND	4.7
Chlorobenzene	ND	4.7
Bromoform	ND	9.4
1,1,2,2-Tetrachloroethane	ND	4.7
1,3-Dichlorobenzene	ND	4.7
1,4-Dichlorobenzene	ND	4.7
1,2-Dichlorobenzene	ND	4.7

Surrogate	%REC	Limits
Dibromofluoromethane	97	76-128
1,2-Dichloroethane-d4	145 *	80-137
Toluene-d8	113	80-120
Bromofluorobenzene	107	79-128

*= Value outside of QC limits; see narrative
ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S3 D 2'	Basis:	as received
Lab ID:	259697-004	Sampled:	08/10/14
Matrix:	Soil	Received:	08/11/14
Units:	ug/Kg		

Analyte	Result	RL	Diln Fac	Batch#	Analyzed
Chloromethane	ND	500	50.00	214486	08/18/14
Vinyl Chloride	ND	500	50.00	214486	08/18/14
Bromomethane	ND	500	50.00	214486	08/18/14
Chloroethane	ND	500	50.00	214486	08/18/14
Trichlorofluoromethane	ND	250	50.00	214486	08/18/14
Freon 113	ND	250	50.00	214486	08/18/14
1,1-Dichloroethene	ND	250	50.00	214486	08/18/14
Methylene Chloride	ND	1,000	50.00	214486	08/18/14
trans-1,2-Dichloroethene	ND	250	50.00	214486	08/18/14
1,1-Dichloroethane	ND	250	50.00	214486	08/18/14
cis-1,2-Dichloroethene	ND	250	50.00	214486	08/18/14
Chloroform	ND	250	50.00	214486	08/18/14
1,1,1-Trichloroethane	ND	250	50.00	214486	08/18/14
Carbon Tetrachloride	ND	250	50.00	214486	08/18/14
1,2-Dichloroethane	ND	250	50.00	214486	08/18/14
Trichloroethene	ND	250	50.00	214486	08/18/14
1,2-Dichloropropane	ND	250	50.00	214486	08/18/14
Bromodichloromethane	ND	250	50.00	214486	08/18/14
cis-1,3-Dichloropropene	ND	250	50.00	214486	08/18/14
trans-1,3-Dichloropropene	ND	250	50.00	214486	08/18/14
1,1,2-Trichloroethane	ND	250	50.00	214486	08/18/14
Tetrachloroethene	20,000	1,000	200.0	214530	08/19/14
Dibromochloromethane	ND	250	50.00	214486	08/18/14
Chlorobenzene	ND	250	50.00	214486	08/18/14
Bromoform	ND	500	50.00	214486	08/18/14
1,1,2,2-Tetrachloroethane	ND	250	50.00	214486	08/18/14
1,3-Dichlorobenzene	ND	250	50.00	214486	08/18/14
1,4-Dichlorobenzene	ND	250	50.00	214486	08/18/14
1,2-Dichlorobenzene	ND	250	50.00	214486	08/18/14

Surrogate	%REC	Limits	Diln Fac	Batch#	Analyzed
Dibromofluoromethane	93	76-128	50.00	214486	08/18/14
1,2-Dichloroethane-d4	112	80-137	50.00	214486	08/18/14
Toluene-d8	114	80-120	50.00	214486	08/18/14
Bromofluorobenzene	85	79-128	50.00	214486	08/18/14
Trifluorotoluene (MeOH)	99	50-137	50.00	214486	08/18/14

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	S3 D 5'	Diln Fac:	50.00
Lab ID:	259697-005	Batch#:	214530
Matrix:	Soil	Sampled:	08/10/14
Units:	ug/Kg	Received:	08/11/14
Basis:	as received	Analyzed:	08/19/14

Analyte	Result	RL
Chloromethane	ND	500
Vinyl Chloride	ND	500
Bromomethane	ND	500
Chloroethane	ND	500
Trichlorofluoromethane	ND	250
Freon 113	ND	250
1,1-Dichloroethene	ND	250
Methylene Chloride	ND	1,000
trans-1,2-Dichloroethene	ND	250
1,1-Dichloroethane	ND	250
cis-1,2-Dichloroethene	ND	250
Chloroform	ND	250
1,1,1-Trichloroethane	ND	250
Carbon Tetrachloride	ND	250
1,2-Dichloroethane	ND	250
Trichloroethene	ND	250
1,2-Dichloropropane	ND	250
Bromodichloromethane	ND	250
cis-1,3-Dichloropropene	ND	250
trans-1,3-Dichloropropene	ND	250
1,1,2-Trichloroethane	ND	250
Tetrachloroethene	2,400	250
Dibromochloromethane	ND	250
Chlorobenzene	ND	250
Bromoform	ND	500
1,1,2,2-Tetrachloroethane	ND	250
1,3-Dichlorobenzene	ND	250
1,4-Dichlorobenzene	ND	250
1,2-Dichlorobenzene	ND	250

Surrogate	%REC	Limits
Dibromofluoromethane	106	76-128
1,2-Dichloroethane-d4	121	80-137
Toluene-d8	95	80-120
Bromofluorobenzene	95	79-128
Trifluorotoluene (MeOH)	116	50-137

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC753498	Batch#:	214385
Matrix:	Soil	Analyzed:	08/14/14
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	22.48	90	68-135
Trichloroethene	25.00	28.57	114	77-129
Chlorobenzene	25.00	24.49	98	78-120

Surrogate	%REC	Limits
Dibromofluoromethane	91	76-128
1,2-Dichloroethane-d4	132	80-137
Toluene-d8	105	80-120
Bromofluorobenzene	101	79-128

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753499	Batch#:	214385
Matrix:	Soil	Analyzed:	08/14/14
Units:	ug/Kg		

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	94	76-128
1,2-Dichloroethane-d4	128	80-137
Toluene-d8	111	80-120
Bromofluorobenzene	107	79-128

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	214385
MSS Lab ID:	259730-001	Sampled:	08/12/14
Matrix:	Soil	Received:	08/12/14
Units:	ug/Kg	Analyzed:	08/14/14
Basis:	as received		

Type: MS Diln Fac: 0.9690
Lab ID: QC753624

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,1-Dichloroethene	<0.9158	48.45	32.90	68	46-138
Trichloroethene	<0.8140	48.45	38.57	80	41-146
Chlorobenzene	<0.6687	48.45	31.16	64	39-120

Surrogate	%REC	Limits
Dibromofluoromethane	93	76-128
1,2-Dichloroethane-d4	138 *	80-137
Toluene-d8	103	80-120
Bromofluorobenzene	101	79-128

Type: MSD Diln Fac: 0.9921
Lab ID: QC753625

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	49.60	39.94	81	46-138	17	51
Trichloroethene	49.60	41.05	83	41-146	4	55
Chlorobenzene	49.60	32.74	66	39-120	3	54

Surrogate	%REC	Limits
Dibromofluoromethane	93	76-128
1,2-Dichloroethane-d4	139 *	80-137
Toluene-d8	107	80-120
Bromofluorobenzene	100	79-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	214486
Units:	ug/Kg	Analyzed:	08/18/14
Diln Fac:	1.000		

Type: BS Lab ID: QC753901

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	22.52	90	68-135
Trichloroethene	25.00	22.80	91	77-129
Chlorobenzene	25.00	24.72	99	78-120

Surrogate	%REC	Limits
Dibromofluoromethane	98	76-128
1,2-Dichloroethane-d4	112	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	94	79-128

Type: BSD Lab ID: QC753902

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	20.35	81	68-135	10	35
Trichloroethene	25.00	20.48	82	77-129	11	20
Chlorobenzene	25.00	24.60	98	78-120	0	20

Surrogate	%REC	Limits
Dibromofluoromethane	94	76-128
1,2-Dichloroethane-d4	111	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	96	79-128

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC753903	Batch#:	214486
Matrix:	Soil	Analyzed:	08/18/14
Units:	ug/Kg		

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	100	76-128
1,2-Dichloroethane-d4	107	80-137
Toluene-d8	104	80-120
Bromofluorobenzene	92	79-128

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC754064	Batch#:	214530
Matrix:	Soil	Analyzed:	08/19/14
Units:	ug/Kg		

Analyte	Result	RL
Chloromethane	ND	10
Vinyl Chloride	ND	10
Bromomethane	ND	10
Chloroethane	ND	10
Trichlorofluoromethane	ND	5.0
Freon 113	ND	5.0
1,1-Dichloroethene	ND	5.0
Methylene Chloride	ND	20
trans-1,2-Dichloroethene	ND	5.0
1,1-Dichloroethane	ND	5.0
cis-1,2-Dichloroethene	ND	5.0
Chloroform	ND	5.0
1,1,1-Trichloroethane	ND	5.0
Carbon Tetrachloride	ND	5.0
1,2-Dichloroethane	ND	5.0
Trichloroethene	ND	5.0
1,2-Dichloropropane	ND	5.0
Bromodichloromethane	ND	5.0
cis-1,3-Dichloropropene	ND	5.0
trans-1,3-Dichloropropene	ND	5.0
1,1,2-Trichloroethane	ND	5.0
Tetrachloroethene	ND	5.0
Dibromochloromethane	ND	5.0
Chlorobenzene	ND	5.0
Bromoform	ND	10
1,1,2,2-Tetrachloroethane	ND	5.0
1,3-Dichlorobenzene	ND	5.0
1,4-Dichlorobenzene	ND	5.0
1,2-Dichlorobenzene	ND	5.0

Surrogate	%REC	Limits
Dibromofluoromethane	104	76-128
1,2-Dichloroethane-d4	117	80-137
Toluene-d8	98	80-120
Bromofluorobenzene	96	79-128

ND= Not Detected
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Volatile Organics

Lab #:	259697	Location:	13788 Doolittle
Client:	Piers Environmental Services, Inc.	Prep:	EPA 5030B
Project#:	STANDARD	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	214530
Units:	ug/Kg	Analyzed:	08/19/14
Diln Fac:	1.000		

Type: BS Lab ID: QC754107

Analyte	Spiked	Result	%REC	Limits
1,1-Dichloroethene	25.00	26.97	108	68-135
Trichloroethene	25.00	28.43	114	77-129
Chlorobenzene	25.00	28.09	112	78-120

Surrogate	%REC	Limits
Dibromofluoromethane	103	76-128
1,2-Dichloroethane-d4	120	80-137
Toluene-d8	95	80-120
Bromofluorobenzene	88	79-128

Type: BSD Lab ID: QC754283

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,1-Dichloroethene	25.00	25.37	101	68-135	6	35
Trichloroethene	25.00	26.31	105	77-129	8	20
Chlorobenzene	25.00	27.03	108	78-120	4	20

Surrogate	%REC	Limits
Dibromofluoromethane	103	76-128
1,2-Dichloroethane-d4	118	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	91	79-128

RPD= Relative Percent Difference

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1408373

Report Created for: Piers Environmental
1038 Redwood Highway, Suite 100A
Mill Valley, CA 94941

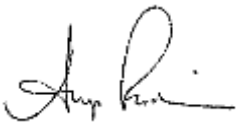
Project Contact: Joel Greger
Project P.O.:
Project Name: #13778; Doolittle

Project Received: 08/12/2014

Analytical Report reviewed & approved for release on 08/18/2014 by:

Question about your data?

Click here to email McCampbell



Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
NELAP: 4033ORELAP ♦ ELAP: 1644 ♦ ISO/IEC: 17025:2005 ♦ WSDE: C972-11 ♦ ADEC: UST-098 ♦ UCMR3

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Piers Environmental
Project: #13778; Doolittle
WorkOrder: 1408373

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ND	Not detected at or above the indicated MDL or RL
NR	Matrix interferences, or 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.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
TEQ	Toxicity Equivalence

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Analytical Report

Client:	Piers Environmental	**WorkOrder:**	1408373
Project:	#13778; Doolittle	**Extraction Method:**	SW3510C
Date Received:	8/12/14 18:05	**Analytical Method:**	SW8015B
Date Prepared:	8/12/14	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
S3 Water	**1408373-001A**	**Water**	**08/10/2014 12:54**	**GC6A**	**93928**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	08/17/2014 10:38
Surrogates	**REC (%)**	**Limits**		
C9	85	70-130		08/17/2014 10:38

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Quality Control Report

Client:	Piers Environmental	**WorkOrder:**	1408373
Date Prepared:	8/12/14	**BatchID:**	93928
Date Analyzed:	8/12/14	**Extraction Method:**	SW3510C
Instrument:	GC6A	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	#13778; Doolittle	**Sample ID:**	MB/LCS-93928

QC Summary Report for SW8015B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	1200	50	1000	-	120	70-130
Surrogate Recovery							
C9	557	532		625	89	85	70-130

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1408373 **ClientCode: PESJ**

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Joel Greger
Piers Environmental
1038 Redwood Highway, Suite 100A
Mill Valley, CA 94941
(408) 559-1248 FAX: (408) 559-1224

Email: piers@pierses.com; joelgregor2@gmail.co
cc/3rd Party:
PO:
ProjectNo: #13778; Doolittle

Bill to:
Jennifer
Piers Environmental
1038 Redwood Highway, Ste. 100A
Mill Valley, CA 94941

Requested TAT: **5 days**

Date Received: **08/12/2014**
Date Printed: **08/12/2014**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1408373-001	S3 Water	Water	8/10/2014 12:54	☐	A											

Test Legend:

1	TPH(D)_W	2		3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Catherine Burton

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: PIERS ENVIRONMENTAL
Project: #13778; Doolittle
Comments:

QC Level: LEVEL 2
Client Contact: Joel Greger
Contact's Email: piers@pierses.com; joelgregor2@gmail.com; joel@pierses.com

Work Order: 1408373
Date Received: 8/12/2014

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Number of Containers	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1408373-001A	S3 Water	Water	SW8015B (Diesel)	1	VOA w/ HCl	☐	8/10/2014 12:54	5 days	Present	☐	

*** NOTE: STLC and TCLP extractions require 48 hrs to complete; therefore, all TATs begin after the extraction is completed (i.e., 24hr TAT yields results in 72 hrs from sample submission).**

Bottle Legend:
VOA w/ HCl = 43mL VOA w/ HCl

T. Mayle for pick up at Curtis + Tompkins 2323 5th St Berkeley

McCampbell Analytical, Inc.

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1408373

CHAIN OF CUSTODY RECORD

Regular

TURN AROUND TIME: RUSH ☐ 1 DAY ☐ 2 DAY ☐ 3 DAY ☐ 5 DAY ☒

GeoTracker EDF ☐ PDF ☐ EDD ☐ Write On (DW) ☐ EQuIS ☐ 10 DAY ☐

Effluent Sample Requiring "J" flag ☐ UST Clean Up Fund Project ☐; Claim #_____

Report To: Joel Greger	**Bill To:** PIERS
Company: PIERS Environmental	
1038 Redwood Hwy Suite 100A	
Mill Valley CA	**E-Mail:** joel@piers.com
Tele: (510) 543-5382	**Fax:** (510) 781-1457
Project #:	**Project Name:** 13778 Doolittle
Project Location: 13778 Doolittle	**Purchase Order#**
Sampler Signature:	

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING Date	SAMPLING Time	# Containers	MATRIX: Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	METHOD PRESERVED: HCL	HNO_3	Other	BTEX/ MTBE & TPH as Gas (8021/ 8015)	TPH as Diesel (8015) w/ Silica Gel	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	BTEX/ MTBE & TPH as Gas (8260)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Metals (200.7 / 200.8 / 6010 / 6020)	Filter sample for DISSOLVED metals analysis				
S3 water		8/12/14	12:54PM	1	X								X				X																			

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate $250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By:	Date:	Time:	Received By:
	8/12/14	1110	
Relinquished By:	Date:	Time:	Received By:
	8/12/14	11:20	
Relinquished By:	Date:	Time:	Received By:
	8/12/14	1600	

ICE/ t 5
GOOD CONDITION_____
HEAD SPACE ABSENT_____
DECHLORINATED IN LAB_____
APPROPRIATE CONTAINERS_____
PRESERVED IN LAB_____

COMMENTS:

VOAS O&G METALS OTHER HAZARDOUS:
PRESERVATION_____ pH<2_____

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **Piers Environmental**
Date and Time Received: **8/12/2014 6:05:46 PM**

Project Name: **#13778; Doolittle**
LogIn Reviewed by: Catherine Burton

WorkOrder №: **1408373** Matrix: Water
Carrier: Rob Pringle (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature	Cooler Temp: 0.5°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	NA ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: pH<2; 522: pH<4)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

** NOTE: If the "No" box is checked, see comments below.*

Comments:

APPENDIX B
SOIL-VAPOR SAMPLING FIELD DATA SHEETS

S1 Air

APPENDIX B - FIELD FORM FOR SOIL VAPOR/SUB SLAB SAMPLING

Project Name: 3788 Doolittle
Date: 8/10/19 Project Number: _____
Site Location: _____
Weather: mild
Field Personnel: Glenn-VaporTech
Recorded by: JG

Soil Vapor Probe No: 8'
Sub Slab Probe No: S1 Air
PID Serial No: RAE 2000.35 PID Lamp: 10.6 eV
MDG 2002 Serial No: _____
Tracer Gas: helium

Surface Type: Asphalt _____ Concrete X Grass _____ Other _____
Surface Thickness (i.e., asphalt or concrete) 4"

1 Casing Volume:
Sub Slab Volume 93 mL or 0.5" Hg
Soil Vapor Probe Volume _____ L

Initial Vacuum Prior to Pumping -29.5 inches of ~~water~~ Hg
Shut-in Test -29.5 inches of ~~Water~~ Hg held for 60 seconds
Field Tubing: Blank PID Reading 0.0 ppmv
Shut in Test Completed Prior to Purging: X Yes _____ No

SI Air
13788 Doolittle

Purging

Date	Start Time	End Time	Elapsed Time (min.)	Bag Volume (L)	Purge Rate ~~(LPM)~~	Cumulative Volume (L)	Tracer Gas		Sample (ppmv, %)	VOCs by PID (ppmv)
8-10-14	1109	11:17	~2	6 L Summa	150 ml/m	279 ml	helium			~~17.4~~
							Shroud (%)			
							Min	Max		
							20.1	20.7		

Helium Concentration in Field Screen Samples is Less than 5% of Minimum Concentration in the Shroud?

X Yes _____ No

Sample Collection

Date	Time	Sample ID		Summa Canister ID	Flow Controller #	Vaccum Gage #	Initial Vacuum (in of Hg)	Final Vacuum (in Hg)
8-10-14	~~11:11 AM~~	SI Air		00114		A00160		
	11:11 AM						-29.5	-3
	1122 AM							

He gauge in shroud
20.5 prior to start

A00166

S2 Air

APPENDIX B - FIELD FORM FOR SOIL VAPOR/SUB SLAB SAMPLING

Project Name: 13788 Doolittle
Date: 8/10/14 Project Number: _____
Site Location: _____
Weather: mild
Field Personnel: Glenn - VaporTech
Recorded by: JC

Soil Vapor Probe No: _____
Sub Slab Probe No: S2 Air
PID Serial No: RAE 2000-35 PID Lamp: 10 eV
MDG 2002 Serial No: _____
Tracer Gas: helium

Surface Type: Asphalt _____ Concrete X Grass _____ Other _____
Surface Thickness (i.e., asphalt or concrete) 4"

1 Casing Volume:
Sub Slab Volume 93 mL or 0.5" Hg
Soil Vapor Probe Volume _____ L

Initial Vacuum Prior to Pumping ~~-285~~ -30 Hg inches of water
Shut-in Test ~~-285~~ -30 Hg inches of water held for 60 seconds
Field Tubing: Blank PID Reading 0 ppmv
Shut in Test Completed Prior to Purging: X Yes _____ No

S2 Air

Purging

Date	Start Time	End Time	Elapsed Time (min.)	Bag Volume ~~(L)~~	Purge Rate ~~(LPM)~~	Cumulative Volume ~~(L)~~	Tracer Gas		Sample (ppmv, %)	VOCs by PID (ppmv)
8-10-19	1136	1138	2	6L Summa	150 ml/m	279ml	helium			
							Shroud (%)			49.8
							Min	Max		
							26.9	20.1		

Helium Concentration in Field Screen Samples is Less than 5% of Minimum Concentration in the Shroud?

__Y__ **Yes** _____ **No**

Sample Collection

Date	Time	Sample ID		Summa Canister ID	Flow Controller #	Vaccum Gage #	Initial Vacuum (in of Hg)	Final Vacuum (in Hg)
8-10-19	1139	S2 Air		00396		D00038	-30	-3
	1150 Am							

53 air

APPENDIX B - FIELD FORM FOR SOIL VAPOR/SUB SLAB SAMPLING

Project Name: 13788 Doolittle
Date: 8-10-19 Project Number: _____
Site Location: 13788 Doolittle
Weather: mild
Field Personnel: Blaine - Vapor Tech
Recorded by: JC

Soil Vapor Probe No: _____
Sub Slab Probe No: 53
PID Serial No: RAE 2000.35 PID Lamp: 10 eV
MDG 2002 Serial No: _____
Tracer Gas: Helium

Surface Type: Asphalt _____ Concrete X Grass _____ Other _____
Surface Thickness (i.e., asphalt or concrete) 4"

1 Casing Volume:
Sub Slab Volume 93 mL or 0.5" Hg
Soil Vapor Probe Volume _____ L

Initial Vacuum Prior to Pumping -27.5 inches of ~~water~~ Hg
Shut-in Test -27.5 inches of ~~Water~~ Hg held for 60 seconds
Field Tubing: Blank PID Reading 0 ppmv
Shut in Test Completed Prior to Purging: X Yes _____ No

5 3 air

Purging

Date	Start Time	End Time	Elapsed Time (min.)	Bag Volume ~~(L)~~ 6L Summa	Purge Rate ~~(LPM)~~ ml/m	Cumulative Volume (L)	Tracer Gas Helium		Sample (ppmv, %)	VOCs by PID (ppmv)
8-10-14	11:59 AM	12:01 PM	2		150	2.79 L	Shroud (%)			
							Min	Max		
							20.2	28		950

Helium Concentration in Field Screen Samples is Less than 5% of Minimum Concentration in the Shroud?

✓ Yes _____ No

Sample Collection

Date	Time	Sample ID		Summa Canister ID	Flow Controller #	Vaccum Gage #	Initial Vacuum (in of Hg)	Final Vacuum (in Hg)
8-10-14	12:02 PM	SS Air		00342		A00092	-27.5	-3
	1213							

BORING LOG

Project No.	Boring diameter - 2"	Logged By: Joel Greger PIERS
Project: 13778 Doolittle	Elevation: not measured	Date drilled: 8-10-14
Boring No. B3	Drilling Method: hand auger	Drilling Company: Vapor Tech

Sample intervals	PID	Sample Depth (ft)	Stratigraphy (USCS)	Description
B 3 d 0.5'	10	0	fill	@0' - 4" of concrete and 1" fill, then vapor barrier, then dark brown sandy silty with gravel (fill), sl. odor of solvents at 1.2'.
	7.8			
B 3 d 2'	20.9		CL	@ 2' - dark grayish black silty clay (CL), homogenous, moist, stiff, slight odor of solvents.
B 3 d 5'	14.6	5		@ 4.8' - color change to olive green, otherwise as above, slight odor?
	0.3		▽	@ 7' - color change to dark olive gray, saturated, continuing to total depth.
	0.0	10		
		15		Total depth - 10.5'. Backfilled with neat cement grout. Groundwater rose to about 7'
		20		
		25		
		30		

Four Seasons Cleaners 13778 Doolittle Ave. San Leandro, CA	Figure No: B4	Date: 8-11-14 Drawn By: JG