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Innovative Strategies for Environmental and
Natural Resource Management

June 23, 2015

Mr. Ralph Lambert
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

REPORT
MAY 2015 SUPPLEMENTAL
SOIL VAPOR SAMPLING
FORMER PROSPERITY CLEANERS/
MARINWOOD PLAZA SHOPPING CENTER
CASE #21S0053
187 MARINWOOD AVENUE
SAN RAFAEL, CA 94903

Dear Mr. Lambert:

1.0 INTRODUCTION

GEOLOGICA Inc. (GEOLOGICA) is pleased to submit this Report presenting the results of a limited subsurface soil vapor sampling program conducted in May 2015 at the commercial property located at the above referenced location in San Rafael, CA (the "property"). The site location is shown on **Figure 1**. The work completed included collection of soil vapor "grab" samples at six locations on the west side of the Marinwood Plaza Shopping Center. This report describes GEOLOGICA's field procedures and discusses the results of chemical analysis of the soil vapor "grab" samples collected from the exploratory borings. This work was completed essentially as described in our Work Plan dated April 20, 2015, which was approved by the Regional Water Quality Control Board (RWQCB) on April 28, 2015.

This Report was prepared in response to the Directive Letter dated March 20, 2015 from the RWQCB that requires submittal of technical reports and performance of a soil vapor investigation at the subject property. The Site is subject to the Regional Water

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Board's Site Cleanup Requirements Order number R2-2014-0007 as amended by Order R2-2014-0036, both adopted in 2014.

2.0 BACKGROUND

The March 2015 Directive Letter notes that a residential neighborhood is located upgradient (southwest) of the Site. No detectable contaminants of concern including tetrachloroethene (PCE) or its degradation by-products have ever been found in any groundwater sample collected from well MW-1 located between the front of the former drycleaner and the residences. However, PCE has been found in soil vapor samples collected on a quarterly basis from soil vapor monitoring probe SVM-1, which is located in front of the former dry cleaner. The PCE concentration of 600 $\mu g/m^3$ detected in the February 2015 sampling event is below the commercial Environmental Screening Level (ESL) of 2,100 $\mu g/m^3$ but above the residential ESL of 210 $\mu g/m^3$. Vapor probe SVM-1 is located approximately 80 feet northeast of Marinwood Avenue (see **Figure 1**). In 2008, prior to conducting remedial activities at the Site, GEOLOGICA collected one-time soil vapor grab samples near the eastern edge of Marinwood Avenue. No detectable contaminants of concern were found at locations SV-9, SV-11, SV-13, SV-14, SV-15, or SV-16. However, PCE was found in soil vapor at location SV-12 at 370 $\mu g/m^3$ (above the current residential ESL of 210 $\mu g/m^3$) that was completed on the western edge of the grocery store parking area, which was about 100 feet from the nearest residences (see **Figure 1**).

The March 2015 Regional Water Board Directive Letter requested additional soil vapor sampling to confirm that PCE concentrations in soil vapor decline to below safe levels in the area between the dry cleaner and the residential neighborhood. The Scope of Work Completed in the May 2015 field program, Field Procedures, and Findings to address these requirements are presented below.

3.0 SCOPE OF WORK COMPLETED

The Scope of Work completed in May 2015 included completing six temporary soil vapor probes at locations along the western border of the Marinwood Plaza Shopping Center as shown on **Figure 1.** After completing the temporary soil vapor probes, one soil vapor sample was collected from each vapor probe for analysis for VOCs by a California-certified analytical laboratory.

4.0 FIELD PROCEDURES

The soil vapor sampling field program was implemented as described below.

4.1 Preliminary Field Activities

Prior to conducting field activities, GEOLOGICA completed the following:

- Permitting & Mobilization Activities – In Marin County, no permits are required for drilling if groundwater will not be encountered. GEOLOGICA contracted with a licensed driller, and accredited laboratory; and scheduled field activities.

- Assess Presence of Subsurface Utilities – GEOLOGICA coordinated with appropriate site personnel to arrange site access and mark borehole and sampling locations, reviewed available as-built blueprints and contacted Underground Services Alert (USA) to help establish the approximate location of subsurface utilities within the area to be investigated. GEOLOGICA engaged a private utility locator, J.R. Associates of San Jose, CA to clear each boring location.

4.2 Drilling and Temporary Vapor Probe Installation Procedures

GEOLOGICA engaged TEG, a California-licensed driller based in Rancho Cordova, CA, to complete temporary soil vapor probes at six locations as shown on **Figure 1**. The vapor probes were completed and sampled on May 5, 2015. TEG advanced 1-1/2-inch diameter soil vapor sampling probe borings to a depth of approximately 5.5 feet below ground surface (bgs) using a truck-mounted Geoprobe drill rig. TEG constructed temporary soil vapor sampling probes in the open boreholes consisting of 0.25-inch diameter stainless steel vapor implants attached to 0.125-inch diameter Teflon tubing. Monterey #30 silica sand (filter pack) was placed in the well annulus from the bottom of each boring to approximately 4.5 feet bgs (6-inches above the top of the vapor implant). Approximately 1-foot of dry bentonite powder was placed above the filter pack followed by approximately 2.5 feet of hydrated granular bentonite placed from 3.5 feet to 1 foot bgs.

4.3 Soil Vapor Sampling Procedures

Soil vapor samples were collected at depths of approximately 5 ft bgs for comparison to RWQCB ESLs for shallow soil gas for evaluation of potential soil vapor intrusion to indoor air. Sampling procedures were conducted in general accordance with the DTSC 2012 Advisory Soil Gas guidelines. In accordance with DTSC guidance, the soil vapor samples were collected a minimum of two hours after completing the soil vapor probes. Soil vapor "grab" samples were collected by connecting a clean 1-liter stainless steel summa canister to each of the soil gas probes using clean, dedicated Teflon tubing and polyethylene fittings. A clean, dedicated 100 milliliter per minute in-line flow regulator provided by the analytical laboratory was used to regulate the soil gas collection rate. After conducting a physical leak check to verify that all tubing

connections are tight, the soil gas probes were purged to remove 7 casing volumes of soil gas prior to sampling. A plastic shroud was placed over each borehole and spiked with 1,1-diflouroethane as a leak check compound. After collecting a soil vapor sample from a temporary soil vapor probe, the probe was removed by pulling the plastic casing out of the boring. The soil vapor samples were transported under chain of custody protocol to the California-certified analytical laboratory on the day they were collected.

4.4 Laboratory Analytical Testing

The six soil vapor samples collected on May 5, 2015 were submitted to Analytical Sciences, a California-certified analytical laboratory, based in Petaluma, CA for analysis for VOCs using EPA Method TO-15.

5.0 FINDINGS

Testing results are tabulated in the attached **Table 1**. A copy of the laboratory testing report is provided in **Attachment A**. **Figure 1** illustrates sampling locations and PCE concentrations detected in each soil vapor sample. Detected PCE concentrations in soil vapor ranged from 24 to 580 micrograms per cubic meter (ug/m^3). PCE was detected in 4 of the 6 sampling locations. The related compounds, trichloroethene (TCE), cis-1,2-dichloroethene, and vinyl chloride were <u>not</u> detected in any of the samples. Sporadic low level detections of aromatic hydrocarbons including benzene, toluene, and m,p xylenes, which are not chemically related to PCE, were reported in several of the samples.

6.0 DISCUSSION

The PCE concentration reported in sample SV-26 of 580 ug/m^3 exceeds the December 2013 Residential ESL of 210 ug/m^3 but is below the Commercial / Industrial ESL of 2,100 ug/m^3. No other analytes were detected at concentrations exceeding their respective Residential or Commercial / Industrial ESLs in any of the samples. The SV-26 sample was collected in a landscaped area on the west edge of the shopping center parking area approximately 100 feet southwest of the former dry cleaner.

7.0 RECOMMENDATIONS

Because the southwestern extent of the VOC concentrations in soil vapor exceeding the Residential ESLs has not been defined, we recommend collecting additional grab soil vapor samples southwest of the SV-26 sampling location completed in May 2015 to better define the soil vapor VOC plume. Recommended additional sampling locations are shown on **Figure 1**.

We would be happy to discuss this report at your convenience. Should you have any questions, please don't hesitate to call Dan at (415) 279-2694 or Brian at (415) 722-3629.

Sincerely,

GEOLOGICA INC.

Daniel Matthews, P.G.
Associate Hydrogeologist

Brian F. Aubry, P.G., C.E.G., C.Hg.
Principal

Attachments:
Table 1 – May 2015 Temporary Soil Vapor Probe Sample Chemical Testing Summary
Figure 1 – May 2015 Soil Vapor Sampling Locations
Attachment A – Laboratory Testing Report

TABLE

Table 1
Former Prosperity Cleaners / Marinwood Plaza
187 Marinwood Avenue, San Rafael, California

May 2015 Temporary Soil Vapor Probe Sample Chemical Testing Summary

Concentrations in micrograms per cubic meter (ug/m^3)

Sample Location	**Tetrachloroethene (PCE)**	**Benzene**	**m,p-Xylene**	**Toluene**
SV-24	<17	<8	<11	**22**
SV-25	**65**	**14**	**13**	**19**
SV-26	**580**	<32	<43	<38
SV-27	<17	<8	**25**	**39**
SV-28	**24**	<8	**21**	**16**
SV-29	**180**	<8	**18**	**21**

Residential Site Cleanup Levels[(2)]	**210**	**42[(3)]**	**52,000[(3,4)]**	**160,000[(3)]**
Commercial / Industrial Site Cleanup Levels[(2)]	**2,100**	**420[(3)]**	**440,000[(3,4)]**	**1,300,000[(3)]**

Notes:

1) Analysis by EPA Method TO-15, results for analytes detected in at least one sample listed, see laboratory testing report in Attachment A for complete listing.

2) California Regional Water Quality Control Board San Francisco Bay Region, Order No. R2-2014-0007, Site Cleanup Requirements For Marinwood Plaza, LLC; Section B: Soil Vapor Cleanup Levels. February 18, 2014.

3) Cleanup Level not Established in February 2014 Order; Level based on Table E: Screening Levels for Indoor Air and Soil Gas (Vapor Intrusion Concerns); SF RWQCB, Interim Final (Revised December 2013).

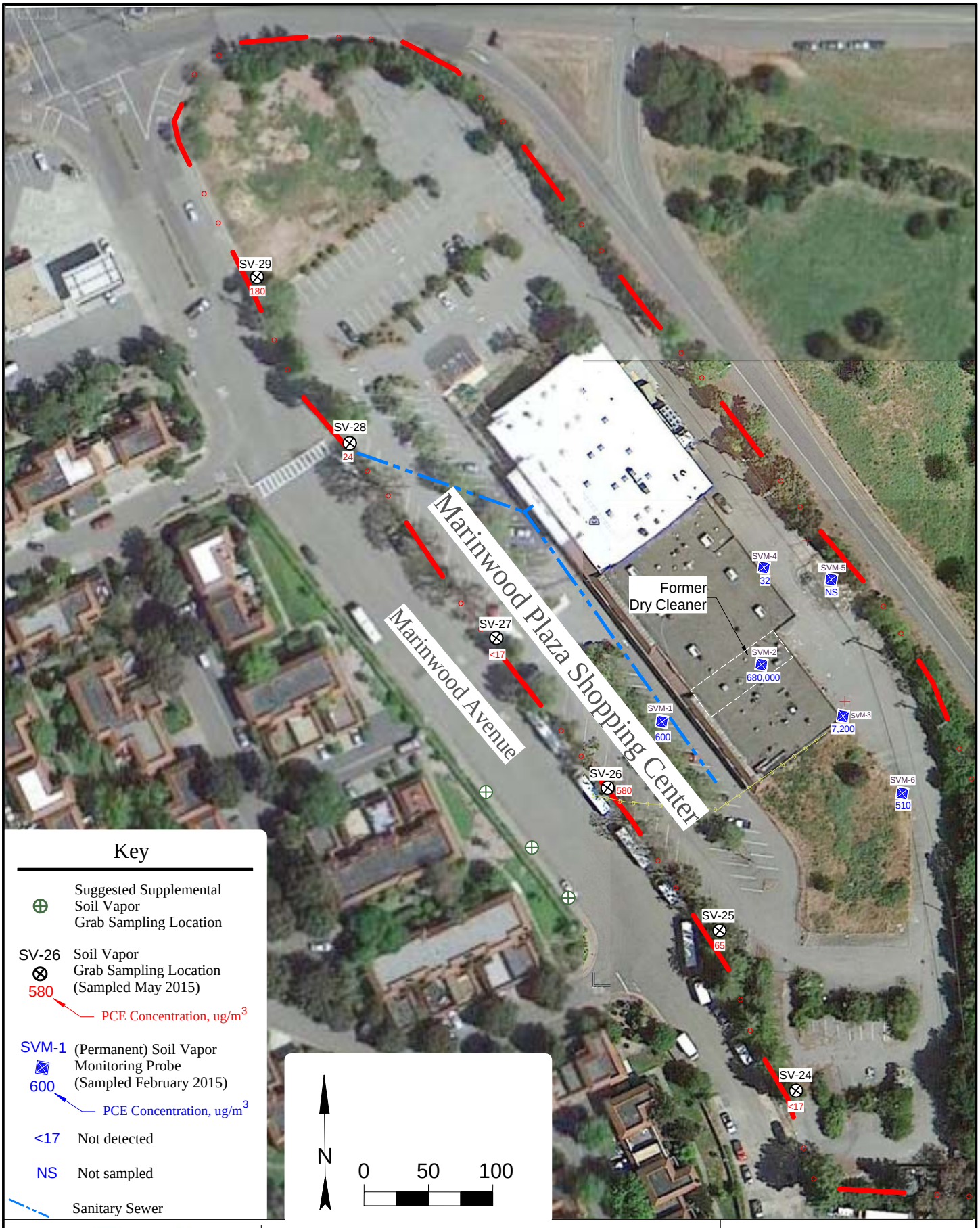
4) Value for Total Xylenes.

5) <24 = Not detected above sample reporting limit.

6) **40** = Analyte detected above sample reporting limit.

7) **31** Concentration above Cleanup Level for Residential Use.

FIGURE



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San Francisco, California

Marinwood Plaza

187 Marinwood Avenue
San Rafael, California

May 2015 Soil Vapor Sampling Locations

Figure 1

ATTACHMENT A

Laboratory Analytical Testing Report

Analytical Sciences

Report Date: June 12, 2015

Laboratory Report

Dan Matthews
Geologica, Inc.
220 4th St. Suite 201
Oakland, CA 94607

Project Name: **Marinwood Cleaners** **Hoytt.001.05**

Lab Project Number: **5050507**

This 9 page report of analytical data has been reviewed and approved for release.

Mark A. Valentini, Ph.D.

Laboratory Director

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Petaluma, CA 94975-0336
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94952

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-01	**SV-29**	Dichlorodifluoromethane (F-12)	ND	12
		Chloromethane	ND	5.2
		Vinyl chloride	ND	6.4
		Chloroethane (CE)	ND	6.6
		Trichlorofluoromethane (F-11)	ND	14
		1,1-Dichloroethene (1,1-DCE)	ND	9.9
		Trichlorotrifluoroethane (F-113)	ND	19
		Methylene chloride	ND	8.7
		trans-1,2-Dichloroethene	ND	9.9
		1,1-Dichloroethane (1,1-DCA)	ND	10
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9
		Chloroform (THM1)	ND	12
		1,1,1-Trichloroethane (TCA)	ND	14
		1,2-Dichloroethane (EDC)	ND	10
		Carbon tetrachloride	ND	9.4
		Benzene	ND	8.0
		Trichloroethene (TCE)	ND	13
		cis-1,3-Dichloropropene	ND	11
		trans-1,3-Dichloropropene	ND	11
		Toluene	21	9.4
		1,1,2-Trichloroethane	ND	14
		Dibromochloromethane (THM3)	ND	21
		Tetrachloroethene (PCE)	180	17
		Chlorobenzene	ND	12
		Ethylbenzene	ND	11
		m,p-Xylene	18	11
		o-Xylene	ND	11
		1,1,2,2-Tetrachloroethane	ND	17
		1,3-Dichlorobenzene	ND	15
		1,4-Dichlorobenzene	ND	15
		1,2-Dichlorobenzene	ND	15
		1,2,4-Trichlorobenzene	ND	19
		Methyl tert-Butyl Ether (MTBE)	ND	9.0
		Difluoroethane (LEAK CHECK)	ND	54

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	41.7	107	70-130
4-Bromofluorobenzene	45.1	116	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-02	**SV-28**	Dichlorodifluoromethane (F-12)	ND	12
		Chloromethane	ND	5.2
		Vinyl chloride	ND	6.4
		Chloroethane (CE)	ND	6.6
		Trichlorofluoromethane (F-11)	ND	14
		1,1-Dichloroethene (1,1-DCE)	ND	9.9
		Trichlorotrifluoroethane (F-113)	ND	19
		Methylene chloride	ND	8.7
		trans-1,2-Dichloroethene	ND	9.9
		1,1-Dichloroethane (1,1-DCA)	ND	10
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9
		Chloroform (THM1)	ND	12
		1,1,1-Trichloroethane (TCA)	ND	14
		1,2-Dichloroethane (EDC)	ND	10
		Carbon tetrachloride	ND	9.4
		Benzene	ND	8.0
		Trichloroethene (TCE)	ND	13
		cis-1,3-Dichloropropene	ND	11
		trans-1,3-Dichloropropene	ND	11
		Toluene	16	9.4
		1,1,2-Trichloroethane	ND	14
		Dibromochloromethane (THM3)	ND	21
		Tetrachloroethene (PCE)	24	17
		Chlorobenzene	ND	12
		Ethylbenzene	ND	11
		m,p-Xylene	21	11
		o-Xylene	ND	11
		1,1,2,2-Tetrachloroethane	ND	17
		1,3-Dichlorobenzene	ND	15
		1,4-Dichlorobenzene	ND	15
		1,2-Dichlorobenzene	ND	15
		1,2,4-Trichlorobenzene	ND	19
		Methyl tert-Butyl Ether (MTBE)	ND	9.0
		Difluoroethane (LEAK CHECK)	ND	54

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	39.2	101	70-130
4-Bromofluorobenzene	38.1	98	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-03	**SV-27**	Dichlorodifluoromethane (F-12)	ND	12
		Chloromethane	ND	5.2
		Vinyl chloride	ND	6.4
		Chloroethane (CE)	ND	6.6
		Trichlorofluoromethane (F-11)	ND	14
		1,1-Dichloroethene (1,1-DCE)	ND	9.9
		Trichlorotrifluoroethane (F-113)	ND	19
		Methylene chloride	ND	8.7
		trans-1,2-Dichloroethene	ND	9.9
		1,1-Dichloroethane (1,1-DCA)	ND	10
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9
		Chloroform (THM1)	ND	12
		1,1,1-Trichloroethane (TCA)	ND	14
		1,2-Dichloroethane (EDC)	ND	10
		Carbon tetrachloride	ND	9.4
		Benzene	ND	8.0
		Trichloroethene (TCE)	ND	13
		cis-1,3-Dichloropropene	ND	11
		trans-1,3-Dichloropropene	ND	11
		Toluene	39	9.4
		1,1,2-Trichloroethane	ND	14
		Dibromochloromethane (THM3)	ND	21
		Tetrachloroethene (PCE)	ND	17
		Chlorobenzene	ND	12
		Ethylbenzene	ND	11
		m,p-Xylene	25	11
		o-Xylene	ND	11
		1,1,2,2-Tetrachloroethane	ND	17
		1,3-Dichlorobenzene	ND	15
		1,4-Dichlorobenzene	ND	15
		1,2-Dichlorobenzene	ND	15
		1,2,4-Trichlorobenzene	ND	19
		Methyl tert-Butyl Ether (MTBE)	ND	9.0
		Difluoroethane (LEAK CHECK)	ND	54

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	38.3	98	70-130
4-Bromofluorobenzene	40.5	104	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-04	**SV-26**	Dichlorodifluoromethane (F-12)	ND	49
		Chloromethane	ND	21
		Vinyl chloride	ND	26
		Chloroethane (CE)	ND	26
		Trichlorofluoromethane (F-11)	ND	56
		1,1-Dichloroethene (1,1-DCE)	ND	40
		Trichlorotrifluoroethane (F-113)	ND	77
		Methylene chloride	ND	35
		trans-1,2-Dichloroethene	ND	40
		1,1-Dichloroethane (1,1-DCA)	ND	40
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	40
		Chloroform (THM1)	ND	49
		1,1,1-Trichloroethane (TCA)	ND	55
		1,2-Dichloroethane (EDC)	ND	40
		Carbon tetrachloride	ND	38
		Benzene	ND	32
		Trichloroethene (TCE)	ND	54
		cis-1,3-Dichloropropene	ND	45
		trans-1,3-Dichloropropene	ND	45
		Toluene	ND	38
		1,1,2-Trichloroethane	ND	55
		Dibromochloromethane (THM3)	ND	85
		Tetrachloroethene (PCE)	580	68
		Chlorobenzene	ND	46
		Ethylbenzene	ND	43
		m,p-Xylene	ND	43
		o-Xylene	ND	43
		1,1,2,2-Tetrachloroethane	ND	69
		1,3-Dichlorobenzene	ND	60
		1,4-Dichlorobenzene	ND	60
		1,2-Dichlorobenzene	ND	60
		1,2,4-Trichlorobenzene	ND	74
		Methyl tert-Butyl Ether (MTBE)	ND	36
		Difluoroethane (LEAK CHECK)	ND	220

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	156	100	70-130
4-Bromofluorobenzene	151	97	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-05	**SV-25**	Dichlorodifluoromethane (F-12)	ND	12
		Chloromethane	ND	5.2
		Vinyl chloride	ND	6.4
		Chloroethane (CE)	ND	6.6
		Trichlorofluoromethane (F-11)	ND	14
		1,1-Dichloroethene (1,1-DCE)	ND	9.9
		Trichlorotrifluoroethane (F-113)	ND	19
		Methylene chloride	ND	8.7
		trans-1,2-Dichloroethene	ND	9.9
		1,1-Dichloroethane (1,1-DCA)	ND	10
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9
		Chloroform (THM1)	ND	12
		1,1,1-Trichloroethane (TCA)	ND	14
		1,2-Dichloroethane (EDC)	ND	10
		Carbon tetrachloride	ND	9.4
		Benzene	14	8.0
		Trichloroethene (TCE)	ND	13
		cis-1,3-Dichloropropene	ND	11
		trans-1,3-Dichloropropene	ND	11
		Toluene	19	9.4
		1,1,2-Trichloroethane	ND	14
		Dibromochloromethane (THM3)	ND	21
		Tetrachloroethene (PCE)	65	17
		Chlorobenzene	ND	12
		Ethylbenzene	ND	11
		m,p-Xylene	13	11
		o-Xylene	ND	11
		1,1,2,2-Tetrachloroethane	ND	17
		1,3-Dichlorobenzene	ND	15
		1,4-Dichlorobenzene	ND	15
		1,2-Dichlorobenzene	ND	15
		1,2,4-Trichlorobenzene	ND	19
		Methyl tert-Butyl Ether (MTBE)	ND	9.0
		Difluoroethane (LEAK CHECK)	ND	54

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	42.2	108	70-130
4-Bromofluorobenzene	32.2	83	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Lab#	Sample ID	Compound Name	Result (µg/m³)	RDL (µg/m³)
5050507-06	**SV-24**	Dichlorodifluoromethane (F-12)	ND	12
		Chloromethane	ND	5.2
		Vinyl chloride	ND	6.4
		Chloroethane (CE)	ND	6.6
		Trichlorofluoromethane (F-11)	ND	14
		1,1-Dichloroethene (1,1-DCE)	ND	9.9
		Trichlorotrifluoroethane (F-113)	ND	19
		Methylene chloride	ND	8.7
		trans-1,2-Dichloroethene	ND	9.9
		1,1-Dichloroethane (1,1-DCA)	ND	10
		cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9
		Chloroform (THM1)	ND	12
		1,1,1-Trichloroethane (TCA)	ND	14
		1,2-Dichloroethane (EDC)	ND	10
		Carbon tetrachloride	ND	9.4
		Benzene	ND	8.0
		Trichloroethene (TCE)	ND	13
		cis-1,3-Dichloropropene	ND	11
		trans-1,3-Dichloropropene	ND	11
		Toluene	22	9.4
		1,1,2-Trichloroethane	ND	14
		Dibromochloromethane (THM3)	ND	21
		Tetrachloroethene (PCE)	ND	17
		Chlorobenzene	ND	12
		Ethylbenzene	ND	11
		m,p-Xylene	ND	11
		o-Xylene	ND	11
		1,1,2,2-Tetrachloroethane	ND	17
		1,3-Dichlorobenzene	ND	15
		1,4-Dichlorobenzene	ND	15
		1,2-Dichlorobenzene	ND	15
		1,2,4-Trichlorobenzene	ND	19
		Methyl tert-Butyl Ether (MTBE)	ND	9.0
		Difluoroethane (LEAK CHECK)	ND	54

Surrogates	Result (µg/m³)	% Recovery	Acceptance Range (%)
Dibromofluoromethane	42.7	110	70-130
4-Bromofluorobenzene	33.2	86	70-130

Date Sampled:	05/05/15	Date Analyzed:	05/06/15	QC Batch: B014600
Date Received:	05/05/15	Method:	EPA TO-15	

Quality Assurance Report

Volatile Hydrocarbons by GC/MS in Air (µg/m³)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B014600 - Air prep GC/MS										
Blank (B014600-BLK1)				Prepared: 05/05/15 Analyzed: 05/06/15						
Dichlorodifluoromethane (F-12)	ND	12	µg/m³							
Chloromethane	ND	5.2	µg/m³							
Vinyl chloride	ND	6.4	µg/m³							
Chloroethane (CE)	ND	6.6	µg/m³							
Trichlorofluoromethane (F-11)	ND	14	µg/m³							
1,1-Dichloroethene (1,1-DCE)	ND	9.9	µg/m³							
Trichlorotrifluoroethane (F-113)	ND	19	µg/m³							
Methylene chloride	ND	8.7	µg/m³							
trans-1,2-Dichloroethene	ND	9.9	µg/m³							
1,1-Dichloroethane (1,1-DCA)	ND	10	µg/m³							
cis-1,2-Dichloroethene (c1,2-DCE)	ND	9.9	µg/m³							
Chloroform (THM1)	ND	12	µg/m³							
1,1,1-Trichloroethane (TCA)	ND	14	µg/m³							
1,2-Dichloroethane (EDC)	ND	10	µg/m³							
Carbon tetrachloride	ND	9.4	µg/m³							
Benzene	ND	8.0	µg/m³							
Trichloroethene (TCE)	ND	13	µg/m³							
cis-1,3-Dichloropropene	ND	11	µg/m³							
trans-1,3-Dichloropropene	ND	11	µg/m³							
Toluene	ND	9.4	µg/m³							
1,1,2-Trichloroethane	ND	14	µg/m³							
Dibromochloromethane (THM3)	ND	21	µg/m³							
Tetrachloroethene (PCE)	ND	17	µg/m³							
Chlorobenzene	ND	12	µg/m³							
Ethylbenzene	ND	11	µg/m³							
m,p-Xylene	ND	11	µg/m³							
o-Xylene	ND	11	µg/m³							
1,1,2,2-Tetrachloroethane	ND	17	µg/m³							
1,3-Dichlorobenzene	ND	15	µg/m³							
1,4-Dichlorobenzene	ND	15	µg/m³							
1,2-Dichlorobenzene	ND	15	µg/m³							
1,2,4-Trichlorobenzene	ND	19	µg/m³							
Methyl tert-Butyl Ether (MTBE)	ND	9.0	µg/m³							
Difluoroethane (LEAK CHECK)	ND	54	µg/m³							
Surrogate: Dibromofluoromethane	*39.9*		*µg/m³*	*38.9*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*42.2*		*µg/m³*	*38.8*		*109*	*70-130*			

Notes and Definitions

RDL	Reporting Detection Limit
ND	Analyte NOT DETECTED at or above the reporting detection limit (RDL)
RPD	Relative Percent Difference
NR	Not Reported

Analytical Sciences
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(707) 769-3128

CHAIN OF CUSTODY

LAB PROJECT NUMBER: 5050507
CLIENT'S PROJECT NAME: Marinwood
CLIENT'S PROJECT NUMBER:

CLIENT INFORMATION	BILLING INFORMATION
COMPANY NAME: Geologica Inc	CONTACT:
ADDRESS: 220 4th St, Ste 201 Oakland CA 94607	COMPANY NAME:
CONTACT: Dan Matthews	ADDRESS:
PHONE#: 415-219-2694	PHONE#:
FAX #:	FAX #:

TURNAROUND TIME (check one)

MOBILE LAB			
SAME DAY		24 HOURS	
48 HOURS		72 HOURS	
5 DAYS		NORMAL	X

GEOTRACKER EDF: ___Y ___N
GLOBAL ID:

COOLER TEMPERATURE
_____ °C

COC

PAGE ____ OF ____

ITEM	CLIENT SAMPLE I..D.	Summa Canister Serial #	Regulator Serial #	Sample Start Time	Sample End Time	Date Sampled	Matrix	ANALYSIS: EPA TO-15					COMMENTS	LAB SAMPLE #
1	SV-29	1013	23	1120	1133	5/5/15		X					Geotracker EDF	5050507-01
2	SV-28	1002	13	1133	1146	↓		↓					↓	02
3	SV-27	320		1144	1155									03
4	SV-26	303	25	1153	1206									04
5	SV-25	1009	20	1206	1216									05
6	SV-24	140	24	1228	1243	↓		↓					↓	- 06
7														
8														
9														
10														

SIGNATURES

SAMPLED BY: Greg Romero

RELINQUISHED BY: [signature] 5/5/15 1320

RECEIVED BY LABORATORY: [signature] 5/5/15 1320

geologica

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