RECEIVED
By Alameda County Environmental Health 9:32 am, Aug 04, 2017

July 31, 2017

Mr. Mark Detterman
Alameda County LOP (County)
1131 Harbor Bay Pkwy
Alameda, CA 94502

Re: Work Plan Addendum
(Report #RO3155_WORKPLAN_ADEND _R_2017-07-31)
Former Four Seasons Cleaners Cleanup Program # RO0003155
13778 Doolittle Ave., San Leandro, CA

Dear Mr. Detterman:

Attached for your review is a work plan addendum prepared by RRM, Inc. (RRM) for the referenced site.

I have read and acknowledge the content, recommendations and/or conclusions contained in the attached document or report submitted on my behalf to ACDEH's FTP server and the SWRCB's GeoTracker website.

If you should have any questions or comments, please do not hesitate to contact me or Julie Avanto at 831-475-8141.

Sincerely,

Mr. Ernest Lee
Marina Faire Shopping Center
3271 S. Highland Dr., Ste #704
Las Vegas, Nevada 89109

July 31, 2017
RRM Project # IA756

Mr. Mark Detterman
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: ***Work Plan Addendum***
Former Four Seasons Cleaners
13778 Doolittle Drive
San Leandro, California

Dear Mr. Detterman:

This document, prepared by RRM, Inc. on behalf of Marina Faire Shopping Center, presents an addendum to the September 19, 2016 *IRM, Vapor Mitigation, and FS Work Plan* and subsequent December 21, 2016, *Response to November 21, 2016 Correspondence* prepared for the referenced site (Figure 1). This addendum serves to expand the number of proposed investigation boring locations; the work is warranted at this time since the former dry cleaner unit is vacant and accessible, and preliminary lab results collected beneath a former floor drain trap discovered during the remedial excavation show that it served as a discharge point for tetrachloroethene (PCE).

Preliminary Soil Analytical Results

Soil samples from approximately 1 foot and 7 feet beneath the floor drain trap were analyzed on an expedited turn-around-time for halogenated volatile organic compounds (HVOCs). The sample from beneath the trap (DRAIN-1') at approximately 1 foot below ground surface (bgs) contained 7,000 milligrams per kilogram (mg/kg) PCE and 190 mg/kg trichloroethene (TCE). The sample from approximately 7 feet bgs below the sewer trap (B-3-7') contained 2,300 mg/kg PCE and 6.1 mg/kg TCE. The certified analytical results are included in Attachment A and the approximate soil sample locations are shown on Figure 2.

Additional Investigation

The proposed additional boring locations are shown on Figure 2. Given the high PCE concentrations reported in soil at approximately 7 feet bgs, a boring will be completed inside the unit near the former sewer trap to determine the vertical extent of the PCE in soil and groundwater

in the vicinity of the release in this area. Two borings will be completed in the parking area to the southwest of the dry cleaner unit where PCE was previously reported in groundwater [160 micrograms per liter (ug/L) at DP-3 and 12,000 ug/L at DP-4] and two step-out borings will be completed in the presumed down-gradient direction (southwest). One boring will also be completed to the south of the dry cleaner unit to evaluate the extent of the PCE plume in the presumed cross-gradient direction. One or more of the exterior borings will be advanced first using Cone Penetrometer Test (CPT) equipment to determine lithology and identify water-bearing zones; this information will be used with Membrane Interface Probe (MIP) equipment for the boring within the unit and at select exterior borings to identify subsurface contamination and sampling locations. MIP provides in-situ screening of the sub-surface media for volatile organic compounds (VOCs). The probe is comprised of a hydrophobic semi-permeable membrane inset in a heater block located immediately above the cone penetrometer. During the test, the heater block volatilizes VOCs near the membrane and causes the VOCs to diffuse across the membrane to chemical detectors that will identify the compounds. All MIP/CPT data is recorded and chemical detector responses are plotted in the field upon completion of each boring.

The borings are expected to extend to approximately 60 feet bgs. Drilling will follow previously submitted procedures; all soil and groundwater samples will be collected from a cased borehole using a dual tube sampling system to prevent drag down and cross-contamination.

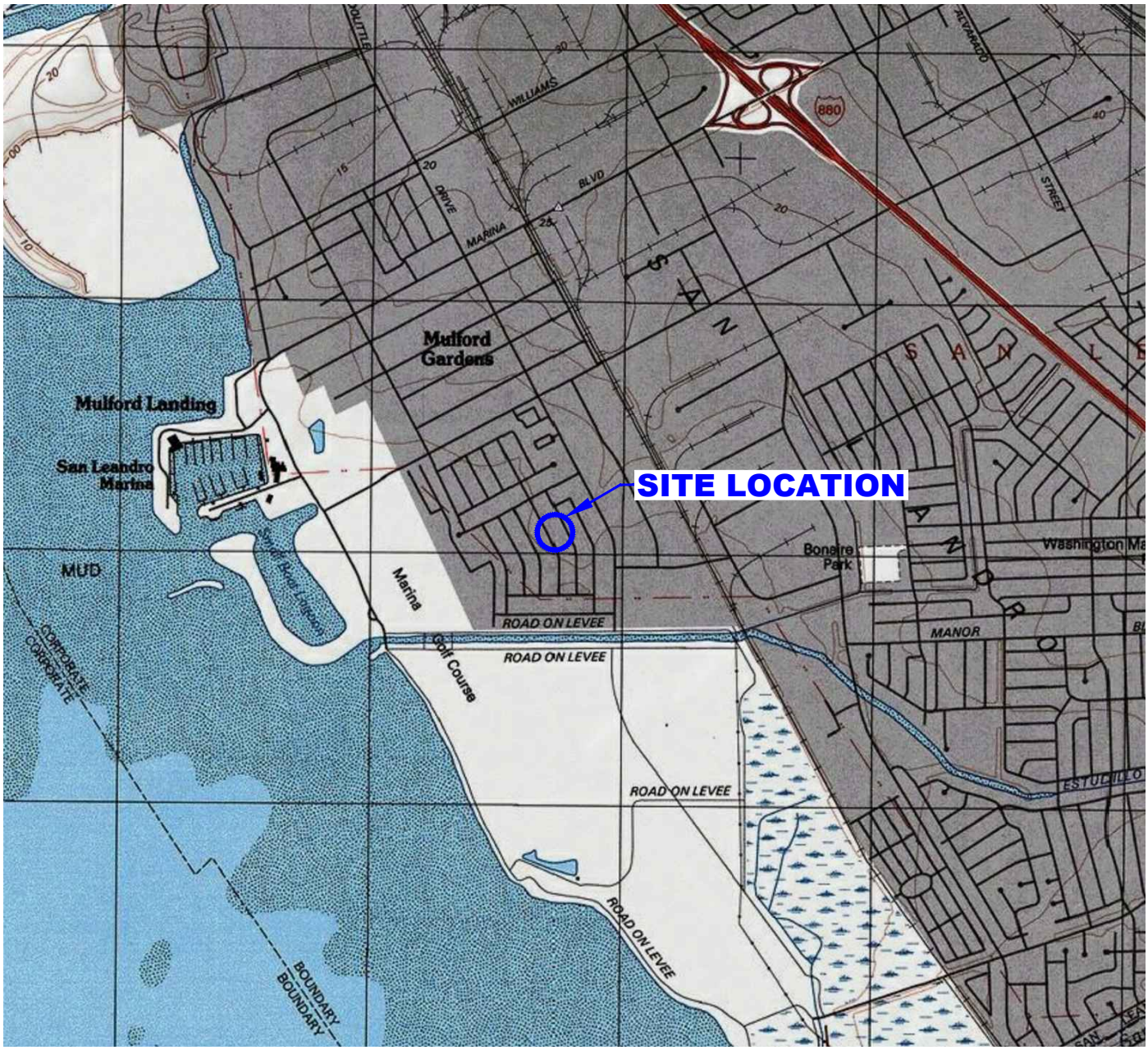
Groundwater samples will be collected from all identified water-bearing zones in each boring and soil samples will be collected at the base of the water-bearing zones and where field conditions/MIP results indicate contamination is present. All soil and groundwater samples will be submitted to a California certified analytical laboratory and analyzed for HVOCs using EPA Method 8260B.

Should you have any questions regarding the contents of this document, please call RRM at (831) 475-8141.

Sincerely,
RRM, Inc.

Julie Avanto
Project Engineer
RCE 77741

Attachments: Figure 1 – Site Location Map
Figure 2 – Site Map
Attachment A – Certified Analytical Report and Chain-of-Custody Documentation



QUADRANGLE LOCATION

N

SCALE IN FEET

0 2,000

Ref. IA756/IA756-SLM.DWG
Base Map from TOPO!! NGH

PREPARED BY

RRM ENVIRONMENTAL • ENGINEERING • GEOLOGY

SITE LOCATION MAP

FORMER FOUR SEASONS CLEANERS

13778 Doolittle Drive
San Leandro, California

FIGURE:
1
PROJECT:
IA756

N

SCALE IN FEET

0 20

30 KITCHEN

(E) STORAGE

29 (E) HOFBRAU DELI

APPROXIMATE EXCAVATION LIMITS

DRAIN-1'
B-3-7'

08 BREEZEWAY

04 (E) KITCHEN

31 TEA HOUSE

01 (E) DENTAL OFFICE

02 VACANT
1820 SQ.FT
(FORMER DRY CLEANER)

14 (E) CHINESE RESTAURANT
1262.387 SQ.FT

– VACANT
1059.416 SQ.FT

24 S.C OWNERS STORAGE
556.591SQ.FT

17 BAR/LOUNGE
1855.844 SQ.FT

21 MENS TOILET

22 WOMENS TOILET

18 KITCHEN

11 STORAGE

14 COMPUTER
1317.680 SQ.FT

23 EXIT CORRIDOR
375.217 SQ.FT

19 MENS TOILET

20 WOMEN TOILET

09 RESTAURANT
1256.080 SQ.FT

13 OFFICE

12 TOILET

11 STORAGE

10 LIQUOR STORE

PARKING AREA

EXPLANATION

- APPROXIMATE SOIL SAMPLE LOCATION
- PROPOSED CPT/MIB BORING LOCATION
- STRUCTURE TO BE REMOVED

Ref. IA756/IA756-EXTENDED.DWG
Basemap from Hayashida Architects

PREPARED BY

RRM ENVIRONMENTAL ENGINEERING & GEOLOGY

SITE MAP

FORMER FOUR SEASONS CLEANERS
13778 Doolittle Drive
San Leandro, California

FIGURE:
2
PROJECT:
IA756

A

CERTIFIED ANALYTICAL REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

Date of Report: 07/20/2017

Matt Paulus

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Client Project:	IA756 Four Seasons
BCL Project:	Misc Samples
BCL Work Order:	1719844
Invoice ID:	B273806

Enclosed are the results of analyses for samples received by the laboratory on 7/19/2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Misty Orton
Client Service Rep

Stuart Buttram
Technical Director

Table of Contents

BC Laboratories, Inc.

Chain of Custody Form

Page ____ of ____

Report To: Client: RRM, Inc.	Project #: IA756
Attn: Matt Pavlus	Project Name: Four Seasons
Street Address: 2560 Soquel Ave	
City, State, Zip: Santa Cruz CA	Sampler(s): Matt P.
Phone: 831-227-4144 Fax:	
Email Address: mpavlus@rrmsc.com	
Work Order #: IA756	17-19844

Analysis Requested

HVOCs by 8260

Please refer to the back of this page for completion instructions and method legend.

Comments:

Sample #	Description	Date Sampled	Time Sampled	Sample Matrix: Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Turnaround # of work days*
1	DRAIN - 1'	7/14/17		X						1
2	B-3-7'	7/18/17		X						1

Are there any tests with holding times less than or equal to 48 hours? ☐ Yes ☒ No

* Standard Turnaround = 10 work days

Notes

CHK BY

DISTRIBUTION

SUB-OUT ☐

Billing ☒ Same as above

Client: ____

Address: ____

City: ____ State ____ Zip ____

Attn: ____

PO#: ____

EDF Required? Geotracker ☐ Yes ☐ No

Send Copy to State of CA? (EDT) ☐ Yes ☐ No

Global ID (Needed for EDF)

System # (Needed for EDT)

	Relinquished By	Date	Time	Received By	Date	Time
1.		7/19/17	1220	Tony Bogan	7-19-17	1220
2.	Tony Bogan	7-19-17	1830		7/19/17	1813
3.		7/19/17	2240		7.19	2240

BC Laboratories, Inc. – 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

Chain of Custody and Cooler Receipt Form for 1719844 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 17.19844

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)_____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☒ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

☒ COC Received ☒ YES ☐ NO

Emissivity 0.95 Container: Vials Thermometer ID: 008 Date/Time 7/19 2240

Temperature: (A) 1.2 °C / (C) 1.5 °C Analyst Init M

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE	A	A								
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: A Date/Time: 7/20 0020

A = Actual / C = Corrected

Rev 21 05/23/2016

[S:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20]

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1719844-01	**COC Number:**	---	**Receive Date:**	07/19/2017 22:40
	Project Number:	---	**Sampling Date:**	07/14/2017 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	DRAIN-1'	**Lab Matrix:**	Solids
	Sampled By:	Matt Paulus	**Sample Type:**	Soil
1719844-02	**COC Number:**	---	**Receive Date:**	07/19/2017 22:40
	Project Number:	---	**Sampling Date:**	07/18/2017 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	B-3-7'	**Lab Matrix:**	Solids
	Sampled By:	Matt Paulus	**Sample Type:**	Soil

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1719844-01 | **Client Sample Name:** DRAIN-1', 7/14/2017 12:00:00AM, Matt Paulus

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bromodichloromethane	ND	mg/kg	0.025	0.0042	EPA-8260B	ND	A01	1
Bromoform	ND	mg/kg	0.025	0.0075	EPA-8260B	ND	A01	1
Bromomethane	ND	mg/kg	0.025	0.0080	EPA-8260B	ND	A01	1
Carbon tetrachloride	ND	mg/kg	0.025	0.0055	EPA-8260B	ND	A01	1
Chlorobenzene	ND	mg/kg	0.025	0.0065	EPA-8260B	ND	A01	1
Chloroethane	ND	mg/kg	0.025	0.0070	EPA-8260B	ND	A01	1
Chloroform	**0.011**	**mg/kg**	**0.025**	**0.0032**	**EPA-8260B**	ND	**J,A01**	1
Chloromethane	ND	mg/kg	0.025	0.0070	EPA-8260B	ND	A01	1
Dibromochloromethane	ND	mg/kg	0.025	0.0050	EPA-8260B	ND	A01	1
1,2-Dichlorobenzene	ND	mg/kg	0.025	0.0040	EPA-8260B	ND	A01	1
1,3-Dichlorobenzene	**0.011**	**mg/kg**	**0.025**	**0.0070**	**EPA-8260B**	ND	**J,A01**	1
1,4-Dichlorobenzene	ND	mg/kg	0.025	0.0075	EPA-8260B	ND	A01	1
Dichlorodifluoromethane	ND	mg/kg	0.025	0.0065	EPA-8260B	ND	A01	1
1,1-Dichloroethane	ND	mg/kg	0.025	0.0070	EPA-8260B	ND	A01	1
1,2-Dichloroethane	ND	mg/kg	0.025	0.0042	EPA-8260B	ND	A01	1
1,1-Dichloroethene	**0.025**	**mg/kg**	**0.025**	**0.0060**	**EPA-8260B**	ND	**A01**	1
cis-1,2-Dichloroethene	ND	mg/kg	10	2.6	EPA-8260B	ND	A01	2
trans-1,2-Dichloroethene	**0.27**	**mg/kg**	**0.025**	**0.0070**	**EPA-8260B**	ND	**A01**	1
1,2-Dichloropropane	ND	mg/kg	0.025	0.0040	EPA-8260B	ND	A01	1
cis-1,3-Dichloropropene	ND	mg/kg	0.025	0.0055	EPA-8260B	ND	A01	1
trans-1,3-Dichloropropene	ND	mg/kg	0.025	0.0060	EPA-8260B	ND	A01	1
Methylene chloride	ND	mg/kg	0.050	0.012	EPA-8260B	ND	A01	1
Methyl t-butyl ether	ND	mg/kg	0.025	0.0025	EPA-8260B	ND	A01	1
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.025	0.0055	EPA-8260B	ND	A01	1
Tetrachloroethene	**7000**	**mg/kg**	**250**	**65**	**EPA-8260B**	ND	**A01**	3
1,1,1-Trichloroethane	ND	mg/kg	0.025	0.0055	EPA-8260B	ND	A01	1
1,1,2-Trichloroethane	ND	mg/kg	0.025	0.0038	EPA-8260B	ND	A01	1
Trichloroethene	**190**	**mg/kg**	**10**	**2.2**	**EPA-8260B**	ND	**A01**	2
Trichlorofluoromethane	ND	mg/kg	0.025	0.0055	EPA-8260B	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	mg/kg	0.025	0.0065	EPA-8260B	ND	A01	1
Vinyl chloride	ND	mg/kg	0.025	0.0080	EPA-8260B	ND	A01	1
1,2-Dichloroethane-d4 (Surrogate)	107	%	70 - 121 (LCL - UCL)		EPA-8260B			1
1,2-Dichloroethane-d4 (Surrogate)	96.4	%	70 - 121 (LCL - UCL)		EPA-8260B			2

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1719844-01 | **Client Sample Name:** DRAIN-1', 7/14/2017 12:00:00AM, Matt Paulus

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dichloroethane-d4 (Surrogate)	103	%	70 - 121 (LCL - UCL)		EPA-8260B			3
Toluene-d8 (Surrogate)	92.6	%	81 - 117 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	95.0	%	81 - 117 (LCL - UCL)		EPA-8260B			2
Toluene-d8 (Surrogate)	102	%	81 - 117 (LCL - UCL)		EPA-8260B			3
4-Bromofluorobenzene (Surrogate)	120	%	74 - 121 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	107	%	74 - 121 (LCL - UCL)		EPA-8260B			2
4-Bromofluorobenzene (Surrogate)	104	%	74 - 121 (LCL - UCL)		EPA-8260B			3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	07/20/17	07/20/17 11:19	ADC	MS-V3	5	B[G1250
2	EPA-8260B	07/20/17	07/20/17 13:15	ADC	MS-V3	2000	B[G1250
3	EPA-8260B	07/20/17	07/20/17 15:11	ADC	MS-V3	50000	B[G1250

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1719844-02 | **Client Sample Name:** B-3-7', 7/18/2017 12:00:00AM, Matt Paulus

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bromodichloromethane	ND	mg/kg	0.50	0.084	EPA-8260B	ND	A01	1
Bromoform	ND	mg/kg	0.50	0.15	EPA-8260B	ND	A01	1
Bromomethane	ND	mg/kg	0.50	0.16	EPA-8260B	ND	A01	1
Carbon tetrachloride	ND	mg/kg	0.50	0.11	EPA-8260B	ND	A01	1
Chlorobenzene	ND	mg/kg	0.50	0.13	EPA-8260B	ND	A01	1
Chloroethane	ND	mg/kg	0.50	0.14	EPA-8260B	ND	A01	1
Chloroform	ND	mg/kg	0.50	0.063	EPA-8260B	ND	A01	1
Chloromethane	ND	mg/kg	0.50	0.14	EPA-8260B	ND	A01	1
Dibromochloromethane	ND	mg/kg	0.50	0.099	EPA-8260B	ND	A01	1
1,2-Dichlorobenzene	ND	mg/kg	0.50	0.081	EPA-8260B	ND	A01	1
1,3-Dichlorobenzene	ND	mg/kg	0.50	0.14	EPA-8260B	ND	A01	1
1,4-Dichlorobenzene	ND	mg/kg	0.50	0.15	EPA-8260B	ND	A01	1
Dichlorodifluoromethane	ND	mg/kg	0.50	0.13	EPA-8260B	ND	A01	1
1,1-Dichloroethane	ND	mg/kg	0.50	0.14	EPA-8260B	ND	A01	1
1,2-Dichloroethane	ND	mg/kg	0.50	0.085	EPA-8260B	ND	A01	1
1,1-Dichloroethene	ND	mg/kg	0.50	0.12	EPA-8260B	ND	A01	1
cis-1,2-Dichloroethene	**1.8**	**mg/kg**	**0.50**	**0.13**	**EPA-8260B**	ND	**A01**	1
trans-1,2-Dichloroethene	ND	mg/kg	0.50	0.14	EPA-8260B	ND	A01	1
1,2-Dichloropropane	ND	mg/kg	0.50	0.081	EPA-8260B	ND	A01	1
cis-1,3-Dichloropropene	ND	mg/kg	0.50	0.11	EPA-8260B	ND	A01	1
trans-1,3-Dichloropropene	ND	mg/kg	0.50	0.12	EPA-8260B	ND	A01	1
Methylene chloride	ND	mg/kg	1.0	0.24	EPA-8260B	ND	A01	1
Methyl t-butyl ether	ND	mg/kg	0.50	0.050	EPA-8260B	ND	A01	1
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.50	0.11	EPA-8260B	ND	A01	1
Tetrachloroethene	**2300**	**mg/kg**	**100**	**26**	**EPA-8260B**	ND	**A01**	2
1,1,1-Trichloroethane	ND	mg/kg	0.50	0.11	EPA-8260B	ND	A01	1
1,1,2-Trichloroethane	ND	mg/kg	0.50	0.077	EPA-8260B	ND	A01	1
Trichloroethene	**6.1**	**mg/kg**	**0.50**	**0.11**	**EPA-8260B**	ND	**A01**	1
Trichlorofluoromethane	ND	mg/kg	0.50	0.11	EPA-8260B	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	mg/kg	0.50	0.13	EPA-8260B	ND	A01	1
Vinyl chloride	ND	mg/kg	0.50	0.16	EPA-8260B	ND	A01	1
1,2-Dichloroethane-d4 (Surrogate)	103	%	70 - 121 (LCL - UCL)		EPA-8260B			1
1,2-Dichloroethane-d4 (Surrogate)	99.2	%	70 - 121 (LCL - UCL)		EPA-8260B			2

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 1719844-02 | **Client Sample Name:** B-3-7', 7/18/2017 12:00:00AM, Matt Paulus

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Toluene-d8 (Surrogate)	100	%	81 - 117 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	98.5	%	81 - 117 (LCL - UCL)		EPA-8260B			2
4-Bromofluorobenzene (Surrogate)	102	%	74 - 121 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	99.0	%	74 - 121 (LCL - UCL)		EPA-8260B			2

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-8260B	07/20/17	07/20/17 14:01	ADC	MS-V3	100	B[G1250
2	EPA-8260B	07/20/17	07/20/17 14:47	ADC	MS-V3	20000	B[G1250

RRM, Inc.
2560 Soquel Avenue, Suite 202
Santa Cruz, CA 95062

Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B[G1250						
Bromodichloromethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.00084	
Bromoform	B[G1250-BLK1	ND	mg/kg	0.0050	0.0015	
Bromomethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0016	
Carbon tetrachloride	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
Chlorobenzene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0013	
Chloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0014	
Chloroform	B[G1250-BLK1	ND	mg/kg	0.0050	0.00063	
Chloromethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0014	
Dibromochloromethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.00099	
1,2-Dichlorobenzene	B[G1250-BLK1	ND	mg/kg	0.0050	0.00081	
1,3-Dichlorobenzene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0014	
1,4-Dichlorobenzene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0015	
Dichlorodifluoromethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0013	
1,1-Dichloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0014	
1,2-Dichloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.00085	
1,1-Dichloroethene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0012	
cis-1,2-Dichloroethene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0013	
trans-1,2-Dichloroethene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0014	
1,2-Dichloropropane	B[G1250-BLK1	ND	mg/kg	0.0050	0.00081	
cis-1,3-Dichloropropene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
trans-1,3-Dichloropropene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0012	
Methylene chloride	B[G1250-BLK1	ND	mg/kg	0.010	0.0024	
Methyl t-butyl ether	B[G1250-BLK1	ND	mg/kg	0.0050	0.00050	
1,1,2,2-Tetrachloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
Tetrachloroethene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0013	
1,1,1-Trichloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
1,1,2-Trichloroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.00077	
Trichloroethene	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
Trichlorofluoromethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0011	
1,1,2-Trichloro-1,2,2-trifluoroethane	B[G1250-BLK1	ND	mg/kg	0.0050	0.0013	
Vinyl chloride	B[G1250-BLK1	ND	mg/kg	0.0050	0.0016	
1,2-Dichloroethane-d4 (Surrogate)	**B[G1250-BLK1**	**103**	%	**70 - 121 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B[G1250-BLK1**	**102**	%	**81 - 117 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B[G1250-BLK1**	**98.5**	%	**74 - 121 (LCL - UCL)**		

RRM, Inc.
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Reported: 07/20/2017 16:24
Project: Misc Samples
Project Number: IA756 Four Seasons
Project Manager: Matt Paulus

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B[G1250										
Bromodichloromethane	B[G1250-BS1	LCS	0.11725	0.12500	mg/kg	93.8		70 - 130		
Chlorobenzene	B[G1250-BS1	LCS	0.11129	0.12500	mg/kg	89.0		70 - 130		
Chloroethane	B[G1250-BS1	LCS	0.10255	0.12500	mg/kg	82.0		70 - 130		
1,4-Dichlorobenzene	B[G1250-BS1	LCS	0.11143	0.12500	mg/kg	89.1		70 - 130		
1,1-Dichloroethane	B[G1250-BS1	LCS	0.12047	0.12500	mg/kg	96.4		70 - 130		
1,1-Dichloroethene	B[G1250-BS1	LCS	0.11581	0.12500	mg/kg	92.6		70 - 130		
Trichloroethene	B[G1250-BS1	LCS	0.11321	0.12500	mg/kg	90.6		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B[G1250-BS1	LCS	0.053690	0.050000	mg/kg	107		70 - 121		
Toluene-d8 (Surrogate)	B[G1250-BS1	LCS	0.050630	0.050000	mg/kg	101		81 - 117		
4-Bromofluorobenzene (Surrogate)	B[G1250-BS1	LCS	0.051540	0.050000	mg/kg	103		74 - 121		

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Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B[G1250	Used client sample: N										
Bromodichloromethane	MS	1717894-45	ND	0.13138	0.12500	mg/kg		105		70 - 130	
	MSD	1717894-45	ND	0.11817	0.12500	mg/kg	10.6	94.5	20	70 - 130	
Chlorobenzene	MS	1717894-45	ND	0.12796	0.12500	mg/kg		102		70 - 130	
	MSD	1717894-45	ND	0.11335	0.12500	mg/kg	12.1	90.7	20	70 - 130	
Chloroethane	MS	1717894-45	ND	0.11664	0.12500	mg/kg		93.3		70 - 130	
	MSD	1717894-45	ND	0.10874	0.12500	mg/kg	7.0	87.0	20	70 - 130	
1,4-Dichlorobenzene	MS	1717894-45	ND	0.12570	0.12500	mg/kg		101		70 - 130	
	MSD	1717894-45	ND	0.11528	0.12500	mg/kg	8.6	92.2	20	70 - 130	
1,1-Dichloroethane	MS	1717894-45	ND	0.13440	0.12500	mg/kg		108		70 - 130	
	MSD	1717894-45	ND	0.12107	0.12500	mg/kg	10.4	96.9	20	70 - 130	
1,1-Dichloroethene	MS	1717894-45	ND	0.13258	0.12500	mg/kg		106		70 - 130	
	MSD	1717894-45	ND	0.11937	0.12500	mg/kg	10.5	95.5	20	70 - 130	
Trichloroethene	MS	1717894-45	ND	0.13098	0.12500	mg/kg		105		70 - 130	
	MSD	1717894-45	ND	0.11600	0.12500	mg/kg	12.1	92.8	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	1717894-45	ND	0.050890	0.050000	mg/kg		102		70 - 121	
	MSD	1717894-45	ND	0.052730	0.050000	mg/kg	3.6	105		70 - 121	
Toluene-d8 (Surrogate)	MS	1717894-45	ND	0.051760	0.050000	mg/kg		104		81 - 117	
	MSD	1717894-45	ND	0.050930	0.050000	mg/kg	1.6	102		81 - 117	
4-Bromofluorobenzene (Surrogate)	MS	1717894-45	ND	0.053150	0.050000	mg/kg		106		74 - 121	
	MSD	1717894-45	ND	0.051290	0.050000	mg/kg	3.6	103		74 - 121	

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Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A01	Detection and quantitation limits are raised due to sample dilution.