February 28, 2020
RRM Project# IA771

Ms. Ashley Schweickart
MidPen Housing Corp.
Watsonville Development Office
275 Main Street, Suite 204
Watsonville, California 95076

Re: ***Limited Soil Vapor Investigation (Phase II)***
1412, 1438, 1500 and 1514 Capitola Road
APNs 026-741-12, 026-741-13, 026-741-14 and 026-741-15
Unincorporated Census-Designated Place of Live Oak
Santa Cruz County, California

Dear Ms. Schweickart:

This letter report, prepared by Remediation Risk Management, Inc. (RRM), presents the results of a limited soil vapor investigation (Phase II) performed at the referenced property (Figure 1). This Phase II was conducted subsequent to completion of a Phase I environmental site assessment (ESA) of the property where petroleum hydrocarbons were confirmed to exist on a nearby parcel (Former Live Oak Texaco, 1671 Capitola Road Avenue, Figure 2). Based on the documented cleanup history at the Former Live Oak Texaco, it is possible that contamination from this site may have impacted soil, soil gas, and/or groundwater beneath the property. As a due diligence condition for obtaining project funding for redevelopment of the property, MidPen requested a subsurface investigation to determine if the property has been impacted by migrating contaminants from an offsite source. Summarized below is a description of the property and its background, the scope of work performed, the field and laboratory results, and our conclusions and recommendations. Supporting documentation is attached.

PROPERTY DESCRIPTION AND BACKGROUND

The property is comprised of four parcels totaling approximately 3.7 acres, situated along Capitola Road, in the unincorporated, census-designated place of Live Oak, Santa Cruz County, California. The property parcels are assigned assessor's parcel numbers (APNs) 026-741-12 (1412 Capitola Road), 026-741-13 (1438 Capitola Road), 026-741-14 (1500 Capitola Road), and 026-741-15 (1514 Capitola Road). The property is set in a mixed commercial and residential neighborhood. Two small houses occupy the north half of the parcels at 1438 and 1500 Capitola Road; the south half of these parcels and the parcels at 1412 and 1514 Capitola Road are currently vacant and undeveloped. The west and south property boundaries are fenced with wood, chain-link, or wire fencing. Chain link or wire fencing oriented north to south has been constructed along the north half of the three common parcel boundaries separating the four parcels from each other. Wire and chain-link fencing-oriented east to west near the middle of the

parcels at 1438 and 1500 Capitola Road, separates the north half of the parcels from the south half. Bollard and chain barriers have been installed by the current owner along the north parcel boundaries at 1412 and 1514 Capitola Road, to prevent vehicle entry onto the vacant parcels. A site location map is presented as Figure 1, and a site map is presented as Figure 2.

The property was initially developed in or about 1916 as four "ranchettes", or small residential farm parcels. Available evidence suggests farming activities, likely consisting of chicken or flower farming, continued on the property from at least the early 1930's through about 1985. In or about that same year, a road construction company leased or rented the parcel at 1438 Capitola Road for the storage, servicing, and repair of their heavy equipment. The road contractor vacated the property in or about 1994, but their tenancy resulted in minor hydrocarbon impacts to surface soils. These releases were properly addressed to the satisfaction of Santa Cruz County Environmental Health Services staff that same year.

SCOPE OF WORK

Soil Vapor Sampling

Two soil vapor borings, designated VP-1-5 and VP-2-5, were advanced along the east boundary of parcel 026-741-15 (1514 Capitola Road) on December 13, 2019 (Figure 2). A 5/8” diameter rod with expendable tip was used to drive a new sample point to 5 feet below ground surface (bgs); the sample point was connected to 0.17” inner diameter Teflon® tubing for sample collection. A hydrated bentonite seal was placed from 3 feet bgs to grade. The well point was tested by applying a vacuum and observing formation pressure to ensure a viable sample could be collected. After waiting two hours for the bentonite grout to properly seal, and for subsurface conditions to equilibrate, RRM staff proceeded to obtain soil vapor samples from the vapor points. A diagram of a typical vapor probe is included in Attachment A.

The sampling procedure entailed connecting sampling manifold to the probe tubing, and stainless-steel Summa™ canisters (6-liter purge canister and 1-liter sample canister) to the manifold. Samples were collected by drawing soil vapor through the probe, tubing, and into the sample manifold attached to the probe tubing using the vacuum provided in the purge canister. The sample manifold was outfitted with push-to-connect type fittings, valves, and vacuum gauges to monitor and control the flow of soil vapor. The laboratory pre-cleaned Summa™ canisters were provided at an initial vacuum of approximately 28 inches of mercury.

Helium tracer leak testing was conducted during purging at each location to check for leaks in the above-ground sampling system. Approximately three calculated volumes of gas were purged from the manifold and probe prior to sample collection. Purge volumes were calculated by summing the internal probe and tube volume, annular space around the probe, and manifold tube volume. Purging and sampling were conducted at rates between 100 and 200 milliliters/minute. Helium tracer leak testing was accomplished by placing a plastic shroud over the sample probe location and sampling manifold, and filling the enclosed space with a mixture of helium and air; the mixture was measured in the shroud using a field meter. A diagram of a typical shroud set-up is included in Attachment A.

RESULTS

Subsurface Conditions

Groundwater was encountered when advancing boring VP-3-5 (Figure 2) at approximately 23 inches bgs, thus rendering it an unviable sample collection location.

Laboratory Analysis

Soil Vapor Laboratory Analyses: BC Laboratories, a California State-certified laboratory, provided the pre-cleaned Summa™ canisters, and performed all analyses. The soil vapor samples were analyzed for volatile organic compounds (VOCs) using U.S. EPA Modified Method TO-15 and for helium using Modified EPA Method 3C. Analytical results from soil vapor samples are summarized on Table 2, and the laboratory analytical report is included in Attachment A.

Tetrachloroethene (PCE) was detected in samples VP-1-5 and VP-2-5 at concentrations of 8,200 micrograms per cubic meter ($\mu g/m^3$) and 40,000 $\mu g/m^3$, respectively. Styrene was detected in VP-1-5 and VP-2-5 at an estimated concentration of 180 $\mu g/m^3$ and 190 $\mu g/m^3$. Toluene and xylenes were detected in VP-2-5 at 210 $\mu g/m^3$ and 240 $\mu g/m^3$, respectively. Toluene was detected in VP-1-5 at an estimated concentration of 240 $\mu g/m^3$, but xylenes were not detected above laboratory limits.

Other analytes detected in VP-1-5 and VP-2-5 included methyl ethyl ketone (estimated concentration of 120 $\mu g/m^3$) and styrene (estimated 180 $\mu g/m^3$ and 190 $\mu g/m^3$). Other than PCE, no chlorinated solvents were detected in the soil vapor samples.

Helium was detected in VP-2-5 at 620 parts per million by volume (0.062%), indicating the presence of a negligible leak; the results for sample VP-2-5 are considered valid. Helium was not detected in the sample taken from VP-1-5.

Environmental Screening Levels

The laboratory results were compared to risk characterization environmental screening levels (ESLs) published by the San Francisco Bay Regional Water Quality Control Board[1]. The ESLs selected were for residential land use, where ground water is considered a drinking resource (most conservative scenario), and soil impacts were shallow. The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate adverse effects on human health or the environment, and the presence of a chemical at concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health, water resources, or the environment. The only detected compound exceeding their respective ESL concentration was PCE. The most conservative (residential land use) ESL for PCE is 15 $\mu g/m^3$. Detected compounds and their respective ESLs are shown on Table 1.

ESLs, or environmental screening levels, refer to tables of concentrations for specific chemical compounds published in: "*Screening For Environmental Concerns At Sites With Contaminated Soil And Groundwater*", by the Regional Water Quality Control Board, San Francisco Bay region. ESLs consist of tabulated guidance criteria for comparing site-specific concentrations of common environmental contaminants in soil, groundwater, soil gas, and indoor air, to those determined to generally have no unacceptable exposure risk. They have been updated or revised several times since they were initially issued in 2001; most recently in January 2019.

CONCLUSIONS AND RECOMMENDATIONS

From the findings of this investigation, RRM concludes the following:

- PCE was detected in soil gas samples collected from borings VP-1-5 and VP-2-5 at concentrations of 8,200 μg/m^3 and 40,000 μg/ m^3, respectively.
- Methyl ethyl ketone, styrene, toluene, and xylenes were also detected in soil gas samples collected from both borings; concentrations of these compounds did not exceed their respective ESLs for the most conservative land use scenario.
- PCE has previously been detected in a sample of groundwater collected from a monitoring well formerly located on the adjacent parcel to the east of the property, approximately 200 feet from the east border of the 1514 Capitola Road parcel. The monitoring well was installed during the environmental investigation phase of the former Live Oak Service (Texaco) at 1671 Capitola Road. PCE was detected in groundwater from the most recent sample at 55 parts per billion (or micrograms per liter), in 2012.

Based on the foregoing conclusions, RRM recommends confirmation soil gas samples be collected in the same locations or near to VP-1-5 and VP-2-5. RRM also recommends collecting grab-groundwater samples in order to evaluate the condition of groundwater beneath the property. Passive soil gas samplers[2] may also be used to more cost-effectively survey the lateral extent of the subsurface PCE and other compounds, and to gain insight into their relative magnitudes in various locations.

Should you have any questions regarding the contents of this document, please do not hesitate to call RRM at (831) 475-8141.

Sincerely,
RRM, Inc.

Steven Clark
Senior Geologist
CHG 167

Cate Townsend
Project Geologist

Attachments:
Table 1 – Soil Gas Analytical Data
Figure 1 – Site Location Map
Figure 2 – Soil Vapor Sampling Locations
Attachment A – Probe and Shroud Diagrams, Field Notes, Laboratory Analytical Report

[2] Passive soil gas samplers involve placement of a sorbent device at the sample collection location, typically a shallow hand-drilled, narrow-gauge borehole, for a set period of time, typically one to two weeks. Upon recovery, the mass of individual chemical species adsorbed onto the sorbent is analytically determined and reported. The devices are useful survey tools; however, the data they yield, mass per time, is not currently accepted by most regulatory agencies for the purpose of vapor plume characterization. Nonetheless, they can be beneficial to focus the later efforts that may involve the installation of more expensive permanent monitoring features such as permanent vapor sampling probes or groundwater monitoring wells.

Table 1
Soil Vapor Analytical Data

1514 Capitola Road
Santa Cruz, California

Sample Designation	Sample Date	Methyl Ethyl Ketone ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	PCE ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)
VP-1-5	12/13/19	120J	180J	**8,200**	240J	<260
VP-2-5	12/13/19	120J	190J	**40,000**	210	240
ESL		170,000	31,000	15	10,000	3,500

Notes:

Only detected analytes were tabulated. See laboratory report for full analyte list.

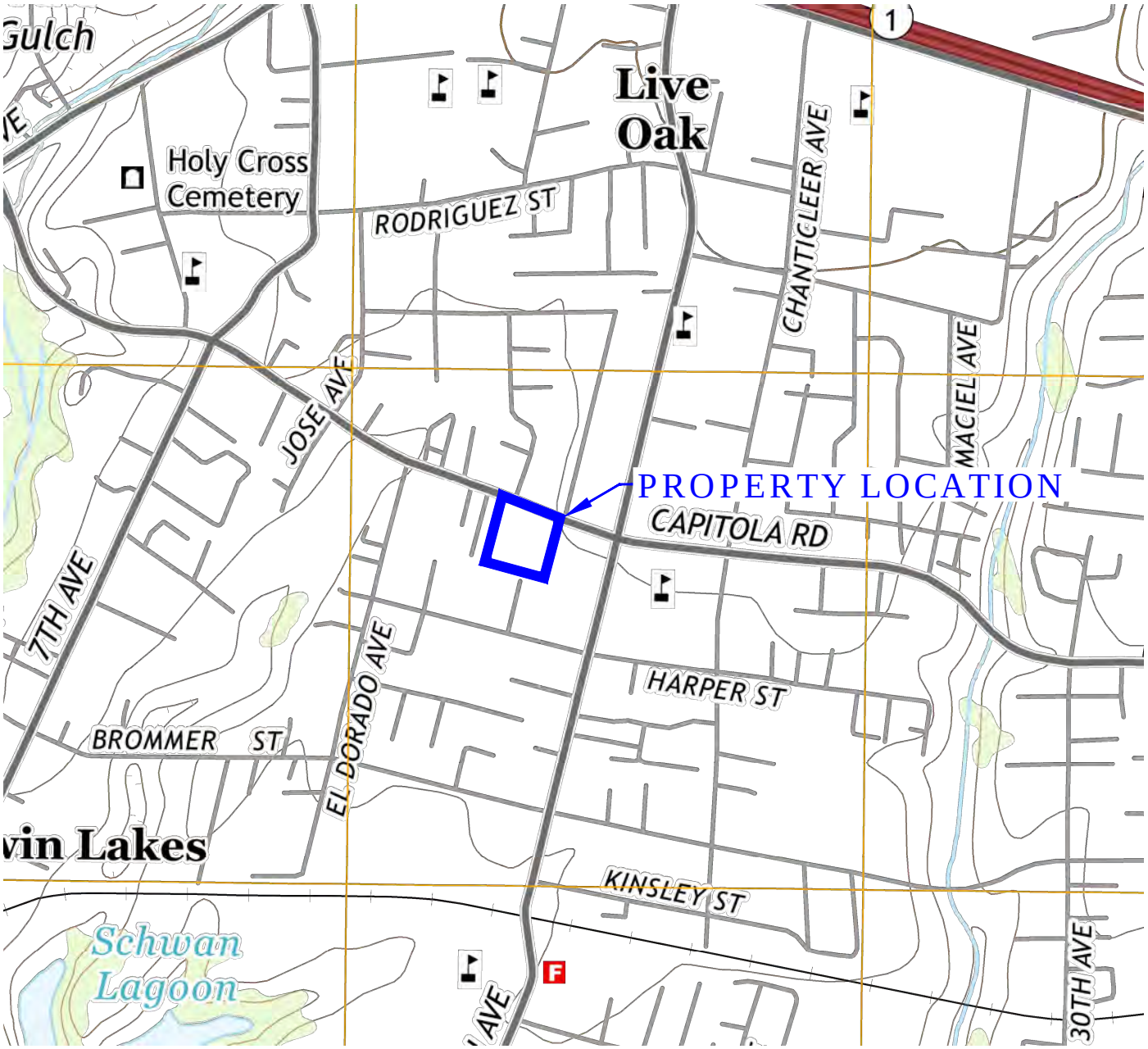
PCE = tetrachloroethene

($\mu g/m^3$) = micrograms per meter cubed

< = Less than the indicated laboratory detection limit

J = Estimated value; detected above the method detection limit, but below the reporting limit.

ESL = Environmental Screening Levels, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Water*, RWQCB, Rev. 01/19; for residential land use case.



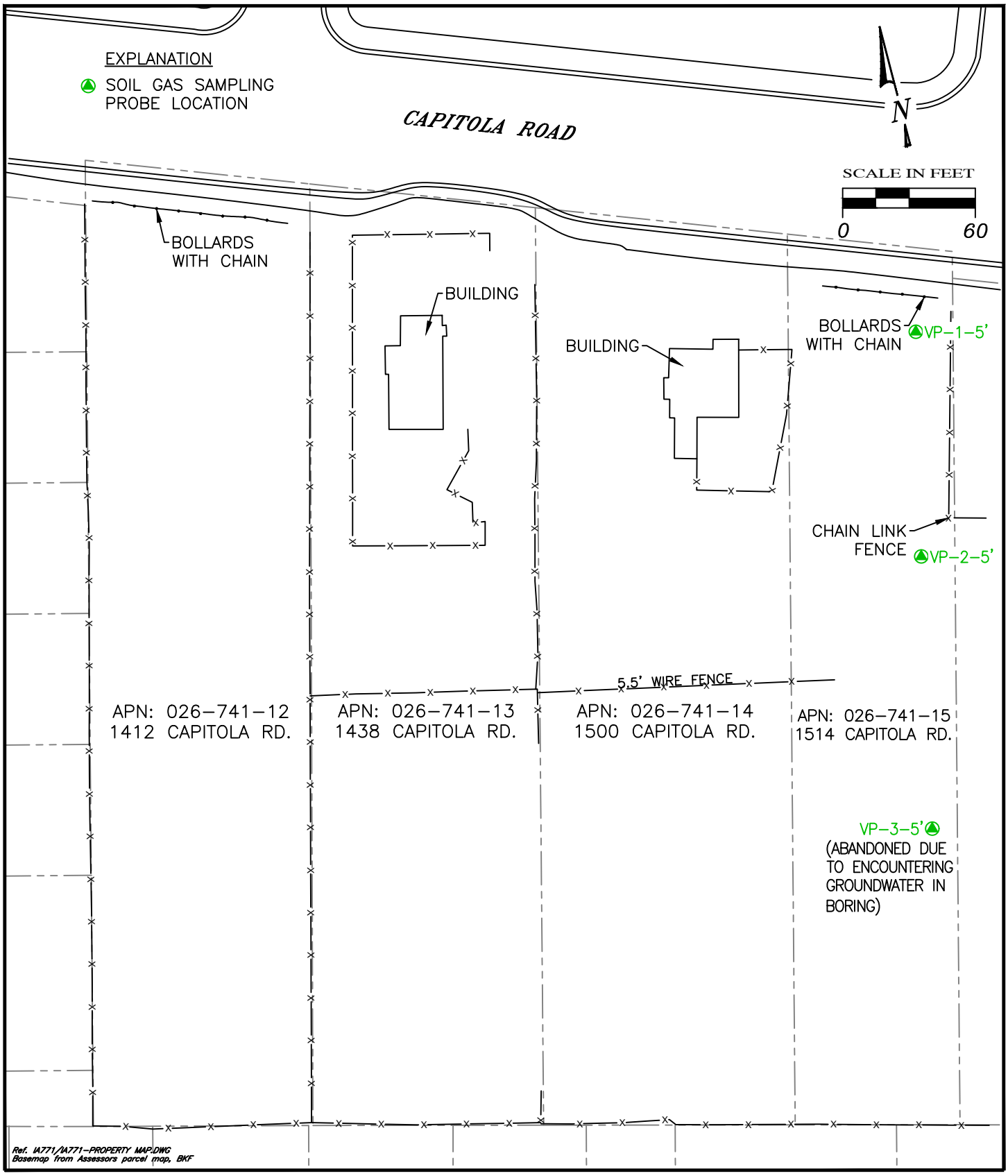
Ref. IA771–PLM.DWG
(USGS US Topo 7.5 – minute map for Soquel, CA) courtesy of the U.S. Geological Survey

PREPARED BY

PROPERTY LOCATION MAP

PROPERTY OF SANTA CRUZ COUNTY
REDEVELOPMENT SUCCESSOR AGENCY
1412, 1438, 1500 and 1514 Capitola Road
Santa Cruz, California

FIGURE:
1
PROJECT:
IA771



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RRM ENVIRONMENTAL • ENGINEERING • GEOLOGY

SOIL VAPOR SAMPLING LOCATIONS

PROPERTY OF SANTA CRUZ COUNTY REDEVELOPMENT SUCCESSOR AGENCY

1412, 1438, 1500 and 1514 Capitola Road

Santa Cruz, California

FIGURE: **2**

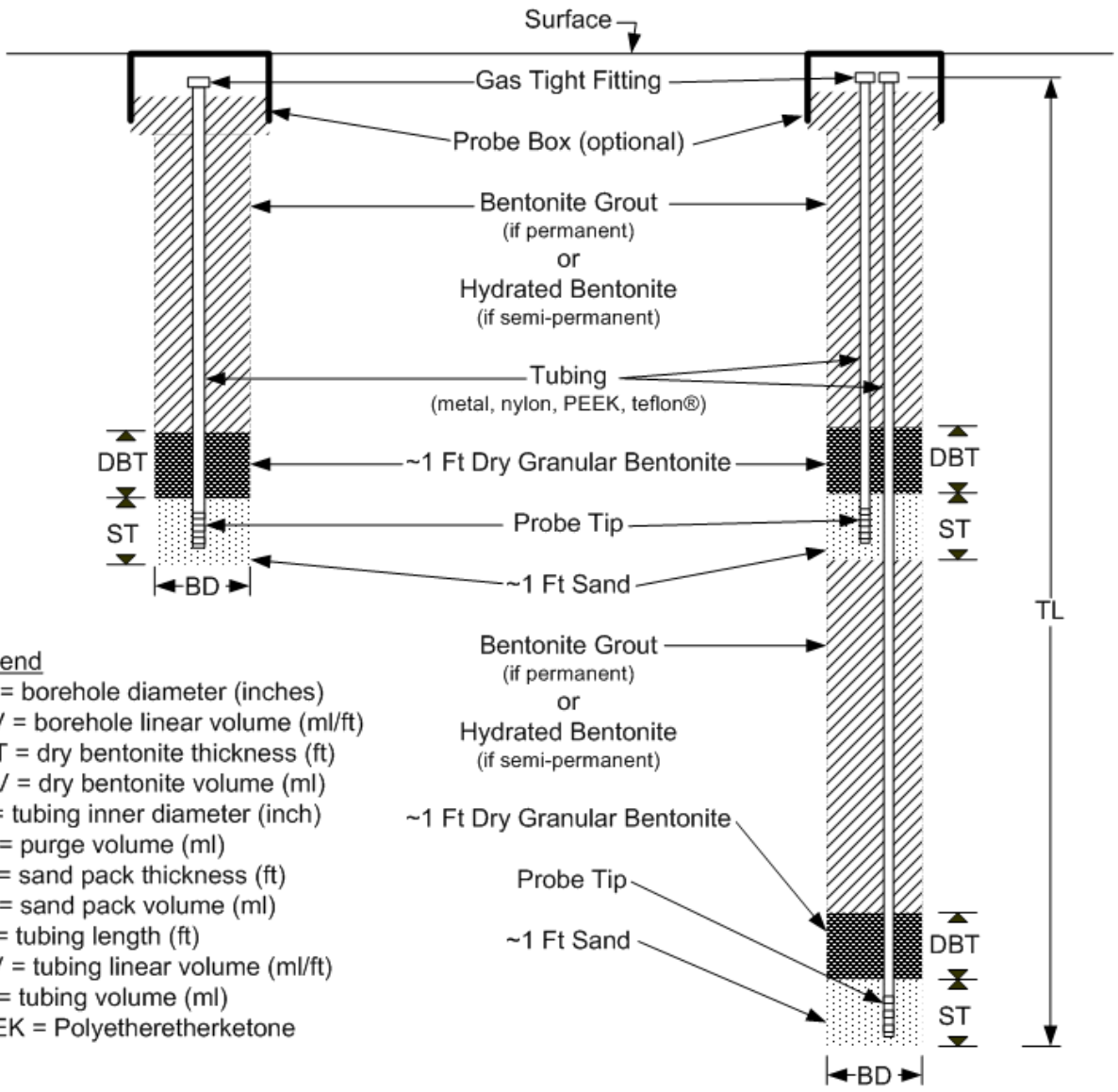
PROJECT: IA771

A

PROBE AND SHROUD DIAGRAMS, FIELD NOTES, LABORATORY ANALYTICAL REPORT

Figure 1

Typical Single and Nested Soil Gas Probe Design & Purge Volume Calculation



Legend
BD = borehole diameter (inches)
BLV = borehole linear volume (ml/ft)
DBT = dry bentonite thickness (ft)
DBV = dry bentonite volume (ml)
ID = tubing inner diameter (inch)
PV = purge volume (ml)
ST = sand pack thickness (ft)
SV = sand pack volume (ml)
TL = tubing length (ft)
TLV = tubing linear volume (ml/ft)
TV = tubing volume (ml)
PEEK = Polyetheretherketone

(1) TV = TL x TLV = (TL) _____

X 6 if tubing ID = 3/16" =
X 16 if tubing ID = 5/16" = _____ ml
X __ if tubing ID = ____" =

(2) DBV = DBT x BLV = (DBT) _____

X 350 if BD = 2 1/8" =
X 820 if BD = 3 ¼" = _____ ml
X ___ if BD = _____" =

(3) SV = ST x BLV = (ST) _____

X 280 if BD = 2 1/8" =
X 660 if BD = 3 ¼" = _____ ml
X ___ if BD = _____" =

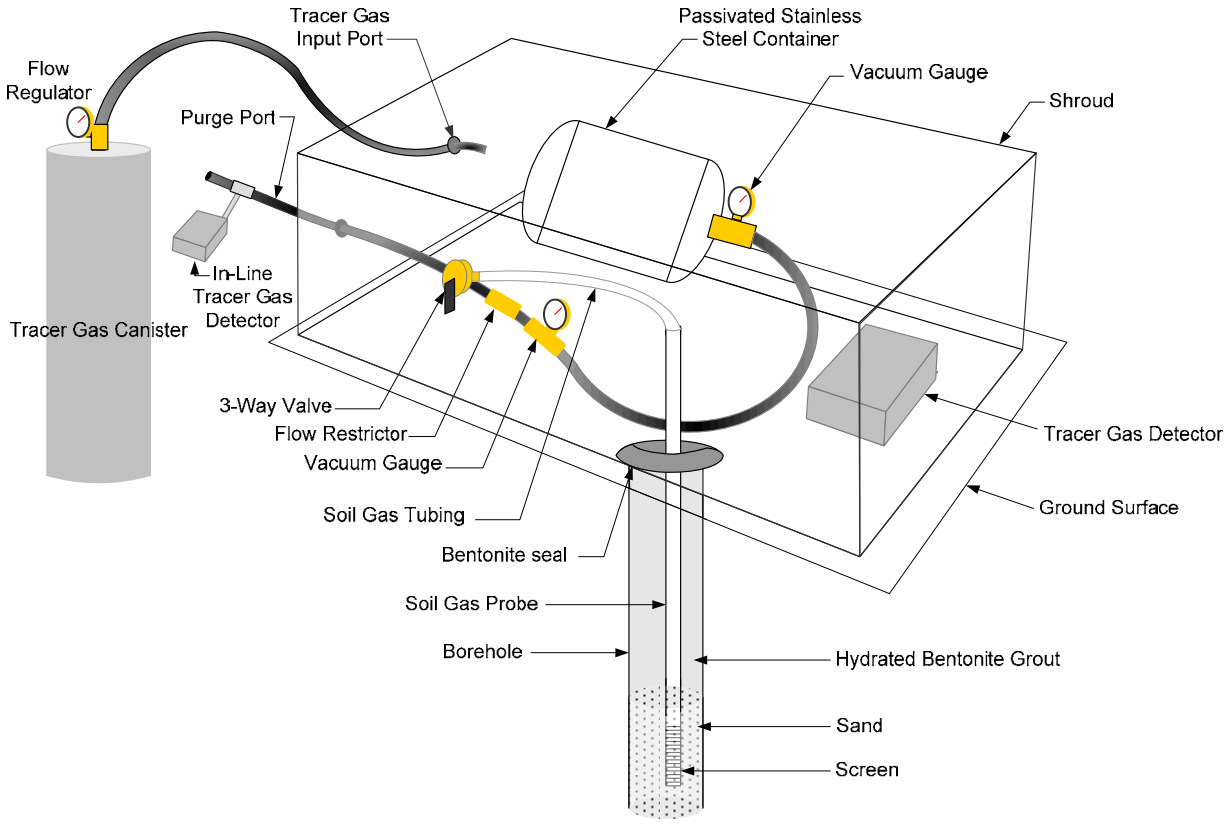
Note: porosity of 50% used for dry bentonite and 40% used for #3 sand pack to calculate BLV.

1 PV = (1)TV + (2) DBV + (3) SV = _____ ml

sample. Regardless of the cause of the leak, a data "adjustment factor" based upon the concentration of the leak check compound to compensate for the inability to collect representative samples is inappropriate.

FIGURE C-1

Shroud Components



2560 Soquel Avenue, Suite 202
Santa Cruz, California 95062
Tel: 831.475.8141
Fax: 831.475.8249

Field Data Sheet

Client: Capitola Rd Parcels	Project #: 1A771
Job Address: 1514 Capitola Rd, Live Oak	Date: 12/13/19
Weather Conditions: Cloudy, overcast	Field Tech: MT
Equipment on site: SG Sampling	Page: 1 of 1
Arrival Time: 1310	
Departure Time: 1500	

Field Notes:

- Arrived on site, Rich working on SV-3-5
  *see Rich's notes for encountering water
- Purge Calcs: VP-2-5' & VP-1-5

$V_{tubing} = \pi(0.085")^2(60") = 1.36 in^3$

$V_{hole} = \pi(0.3125")^2(18")(0.3) = 1.65 in^3$

$V_{dry\,b} = \pi(0.3125")^2(12")(0.3) = 1.10 in^3$

$4.11 in^3 \sim 67 mL$

$67mL \frac{1min}{150mL} = 27sec$ purge

- Removed tubing from ground, SC checked in
- Cleaned & Packed
- Departed

Signature: MT

Soil Gas Work Order

Project #: IA771

Site Address: 1514 Capitola Road
APN 026-741-15

Requested by: Cate Townsend

Date of Request:

Ideal Completion Date: ASAP

Please check or fill appropriate boxes, and indicate you have included the requested attachments.

[X] Sample SG Wells or Vapor Points

3 Total # of samples to be collected

Requested Attachments

Yes* A site map with sample locations (preferrably with [ ] contours, to determine order)

Yes COC sample analysis & methodology

List here: TO-15

* No data previously collected from this site. Included a contour map of adjacent site to show gw flow and direction.

____ Other COC/special instructions: Rich is going to install the soil sampling probes. These are temporary sampling points. Not to be left in ground longer than 24 hours.

[ ] Sample Indoor/Outdoor Air

[ ] 24 hour [ ] 8 hour

____ Total # of INDOOR air samples

____ Total # of OUTDOOR air samples

Requested Attachments

____ A site map with sample locations, and alternative locations if wind direction changes

____ COC analysis & methodology

List here:

____ Other COC/special instructions:

[ ] Vapor Pin Installation

____ Total number of Vapor Pins to be installed

Requested Attachments

____ A site map with proposed installation locations

Soil Gas Sampling Field Data Sheet

Project Name	Project Location	Project Number	Personnel	Date
Capitola Rd Parcels	1514 Capitola, Santa Cruz, CA	IA771	MT	12/13/19

Sample Name	Sample Canister ID	Sample Can Volume	Manifold/Train ID	Manifold Flow Rate (mL/min)	Purge Canister ID
VP-1-5	2644	1.4L	21	150	27743

Was there a minimum 48-hour wait period observed between sample point installation or sub-surface disturbance and sampling event?	Cross-Slab Differential Pressure ("H_2O)	Cross-Building Differential Pressure ("H_2O)	
YES / (NO)	N/A	N/A	

Shut-In Test (3min minimum)

Time (24:00) ~ 1min intervals	Flow Rate (mL/min)		Pressure @ Purge Canister ("Hg)	Pressure @ Well Head ("Hg)	No observable loss of vacuum for at least 1 min?
1403	150		22.5	24.0	(YES (PASS)) NO (FAIL)
1404	150		22.5	24.0	
1405	150		22.5	24.0	

Leak Test (Purge)

Time (24:00) ~ 2min intervals	Flow Rate (mL/min)	Pressure @ Purge Canister ("Hg)	Pressure @ Well Head ("Hg)		Notes
					27S
1406	150	21.5	0		~~28.2sec~~ purge @ 150mL/min
1406	150	21.0	0		70.5mL purge total
	150				
	150				
	150				
	150				
	150				
	150				
	150				
	150				

Sample Collection

Time (24:00) ~2 min intervals	Flow Rate (mL/min)	He in Shroud (%)	Pressure @ Sample Canister ("Hg)	Pressure @ Well Head ("Hg) ***keep <7.5"Hg**
1410	150	23.3	24.5	0
1412	150	29.8	18.5	0
1414	150	33.8	13.5	0
1415	150	23.6	9.5	0
1416	150	24.0	6.5	0
	150			
	150			
	150			
	150			
	150			
	150			

Sample Name	Sample End Time (24:00)	Sample Start Pressure ("Hg)	Sample Final Pressure ("Hg)
SV-1-5	1417	25.0	5.0

Notes:
*final sample pressure ideally ~ 4"Hg
*request lab include final can vac upon lab receival
*request lab report in ug/m^3
*include can#, mani#, start/end pressures
*shroud [ ] ideally 20-40ppm with IPA
*shroud [ ] ideally 25-30% He

2ND SHUT IN:

Time	P@can	P@well
1407	26.0	28.0
1408	26.0	28.0
1409	28.0 ← →	26.0

Soil Gas Sampling Field Data Sheet

Project Name	Project Location	Project Number	Personnel	Date
Capitola Rd Parcels	1514 Capitola, Santa Cruz, CA	IA771	MT	12/13/19

Sample Name	Sample Canister ID	Sample Can Volume	Manifold/Train ID	Manifold Flow Rate (mL/min)	Purge Canister ID
VP-2-5	2855	1.4L	22	150	27743

Was there a minimum 48-hour wait period observed between sample point installation or sub-surface disturbance and sampling event?	Cross-Slab Differential Pressure ("H_2O)	Cross-Building Differential Pressure ("H_2O)	
YES / (NO)	N/A	N/A	

Shut-In Test (3min minimum)

Time (24:00) ~ 1min intervals	Flow Rate (mL/min)		Pressure @ Purge Canister ("Hg)	Pressure @ Well Head ("Hg)	No observable loss of vacuum for at least 1 min?
1332	150		26	25	(YES (PASS)) NO (FAIL)
1333	150		26	25	
1334	150		26	25	

Leak Test (Purge)

Time (24:00) ~ 2min intervals	Flow Rate (mL/min)	Pressure @ Purge Canister ("Hg)	Pressure @ Well Head ("Hg)		Notes
					27s
1335	150	25.5	0		~~28.2sec~~ purge @ 150mL/min
1336	150	25.5	0		70.5mL purge total
	150				
	150				
	150				
	150				
	150				
	150				
	150				
	150				

Sample Collection

Time (24:00) ~2 min intervals	Flow Rate (mL/min)	He in Shroud (%)	Pressure @ Sample Canister ("Hg)	Pressure @ Well Head ("Hg) *keep <7.5"Hg
1345	150	28.5	28.0	0
1347	150	33.2	18.0	0
1348	150	33.8	14.5	0
1349	150	22.5	11.0	0
1350	150	23.4	9.0	0
1351	150	28.9	5.5	0
	150			
	150			
	150			
	150			
	150			

Sample Name	Sample End Time (24:00)	Sample Start Pressure ("Hg)	Sample Final Pressure ("Hg)
SV-2-5	1351	28.0	4.5

Notes:
*final sample pressure ideally ~ 4"Hg
*request lab include final can vac upon lab receival
*request lab report in ug/m^3
*include can#, mani#, start/end pressures
*shroud [ ] ideally 20-40ppm with IPA
*shroud [ ] ideally 25-30% He

2ND SHUT IN:

Time	P@ can	P@ well
1342	28.0	27.5
1343	"	"
1344	"	"

2560 Soquel Avenue, Suite 202
Santa Cruz, California 95062
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Fax: 831.475.8249

Field Data Sheet

Client:	Project #: IA771
Job Address:	Date: 12/13/19
Weather Conditions:	Field Tech: Rich
Equipment on site:	Page: 1 of 3
Arrival Time:	
Departure Time:	

Field Notes:

Install Soil Gas Vapor Points

- Find the 3 locations
- Start w/ ~~SV~~ vp-2-5'
- drive vapor point/screen/teflon tubing to 5'. 0-4' easy, last 1' foot slow - much harder
- hole stayed open to 5'
- build up → 1'6" sand / 1' dry granular bentonite / 2.5' hydrated bentonite to surface.
- test briefly train # 22 for vp-2-5' shut-in good, will vac 0, can 25-24 "Hg
- done 0930

vp-1-5' - drive to 5' easy the whole way down
- hole stayed open to 5'
- build up with 1'6" sand / 1' dry gran. bentonite / 2.5' hydrated bentonite to / surface

- test - train # 21 for vp-1-5' shut-in good, will vac 4" Hg can vac 24-23" Hg (will gauge climed slowly to 4" Hg while tapping on gauge - stopped @ 4" Hg)
- done 1025

Signature: Rich

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Field Data Sheet

Client:	Project #: IA771
Job Address:	Date: 12/13/19
Weather Conditions:	Field Tech: Rich
Equipment on site:	Page: 2 of 3
Arrival Time:	
Departure Time:	

Field Notes:

Install Soil Gas
Vapor Points

VP-3-5'

(VP-1-5')

* implant "drive end" broke on last vapor point - cannot insert screen vapor points into drive rod - needs the "drive end". Return to shop for pipe to make "drive end" Return to site.

use roto hammer to

- Attempt to install vapor point + drive w/ 5/8" 1" Medium wall electrical conduit - worked to 3'8" below ground surface - Then drive rod brake/ Sheered off @ "Extention Drive adaptor"
- Remove pipe - soil in pipe - pipe wet, dripping w/ H_2O
- Measure DTwater - 1'11" below ground surface
- unable to install vapor point - equipment failure and wet conditions.

- pack up / trvl back to Shop
- cln up wash mud off equipment.
- write up ppwrk

Signature: Rich

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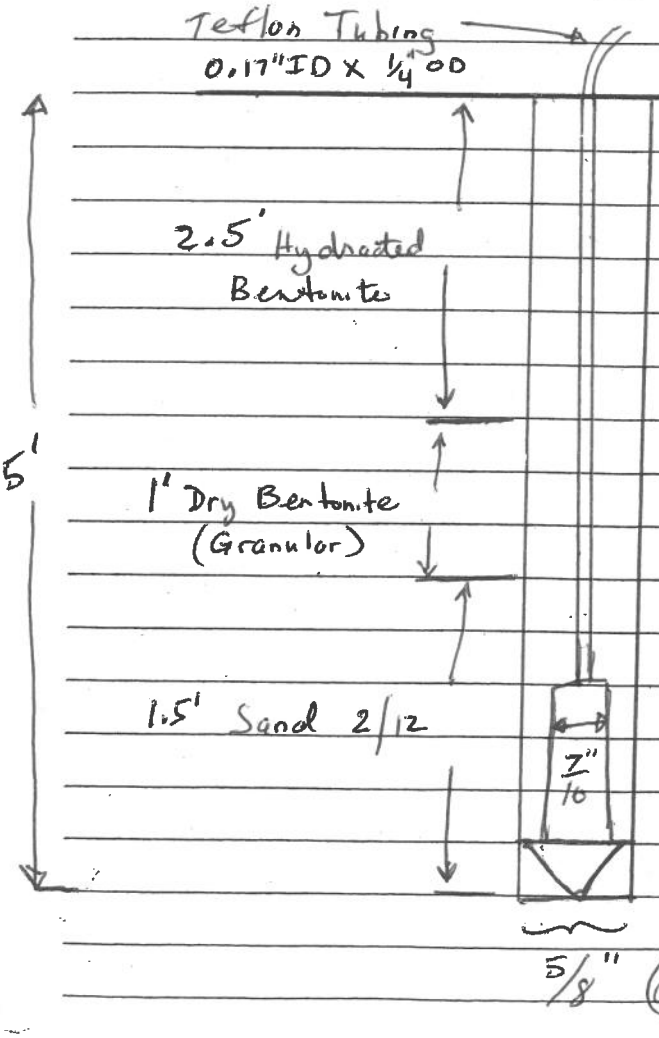
Field Data Sheet

Client:	Project #: IA771
Job Address:	Date: 12/13/19
Weather Conditions:	Field Tech: Rich
Equipment on site:	Page: 3 of 3
Arrival Time:	
Departure Time:	

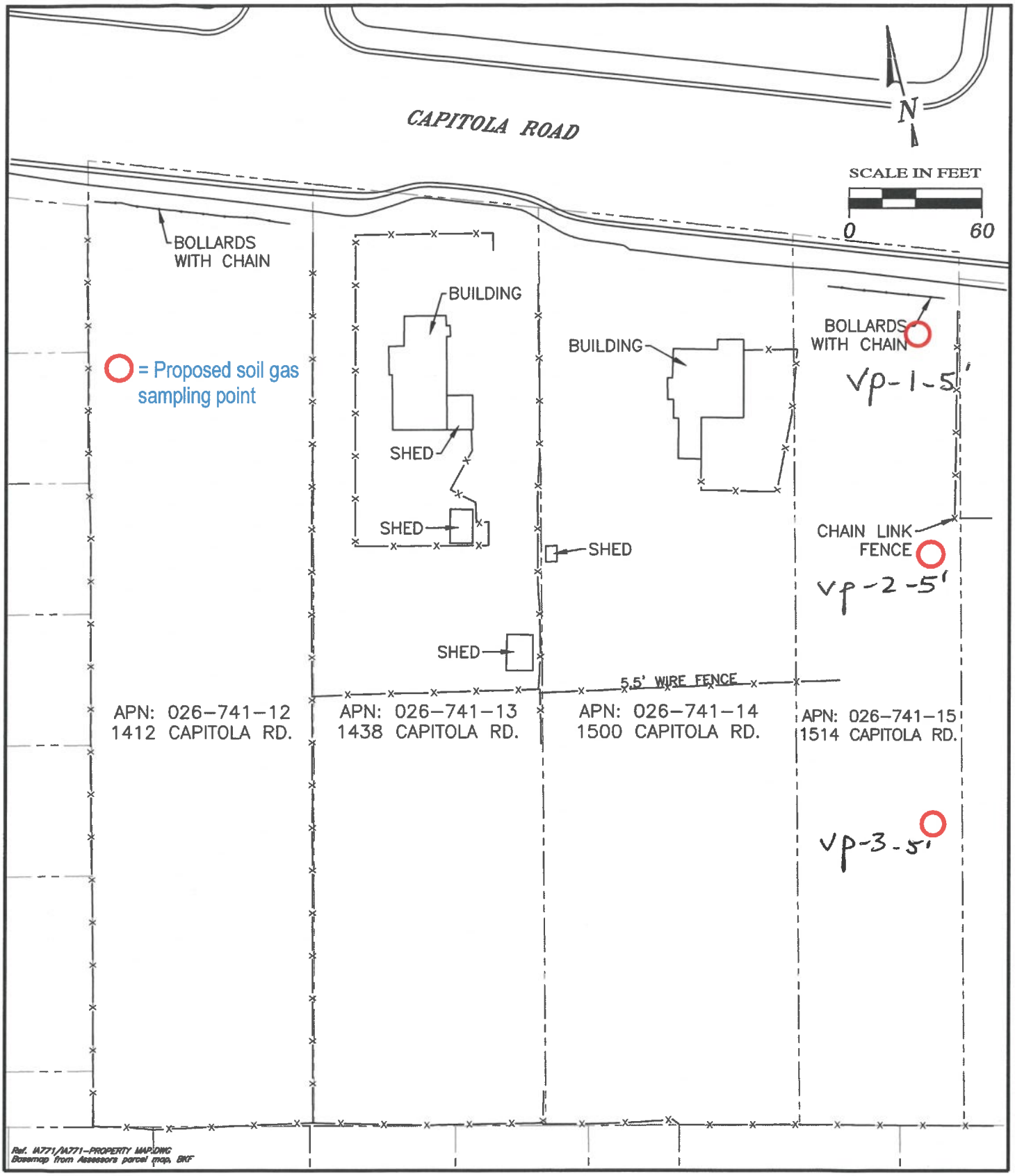
Field Notes:

Vp-1-5' and Vp-2-5' Build Specs



- Vapor Implants (points) Driven to 5' w/ Rotohammer. After drive rod removal, hole remained open. Built up well as shown. After 2+ hrs wait time, vapor points sampled. After sampling, implants/tubing pulled out and any remaining open hole filled w/ hydrated bentonite.

Signature: Rich



PREPARED BY

RRM ENVIRONMENTAL · ENGINEERING · GEOLOGY

PROPERTY MAP

PROPERTY OF SANTA CRUZ COUNTY REDEVELOPMENT SUCCESSOR AGENCY

1412, 1438, 1500 and 1514 Capitola Road

Santa Cruz, California

FIGURE: **2**

PROJECT: IA771

Date of Report: 01/30/2020

Cate Townsend

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

Client Project:	[none]
BCL Project:	IA771
BCL Work Order:	1942419
Invoice ID:	B367908

Enclosed are the results of analyses for samples received by the laboratory on 12/16/2019. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1000984588

Sincerely,

Contact Person: Christina Herndon
Client Service Rep

Stuart Buttram
Technical Director

Table of Contents

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

19-42419

Chain of Custody

* Required Fields

TEMP: ______

Client/Company Name *: RRM	Report Attention *: Cate Townsend	Phone * #: (831) 475-8141 FAX * #: E-mail: labdata ; cate @rrmsc.com
Address *: 2560 Soquel Avenue #202 City *: Santa Cruz State *: CA Zip *: 95062		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Capitola Rd Parcels 1814 Capitola Rd Santa Cruz CA	PO #: 19771 BCL Quote #:	
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: M. Tang	QC Request: ☑ STD ☐ Level II	Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water RGW = Raw Ground Water CFW = Chlorinated Finished Water FW = Finished Water CWW = Chlorinated Waste Water WW = Waste Water SW = Storm Water BW = Bottled Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED: TO-15, Helium

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code: Can #	Mani #	Final Vac	TO-15	Helium
-1		12/13/19	1417	VP (vac) [illegible] SV-1-5	Air	2644	21	5.0	✓	
-2		↓	1351	VP (vac) SV-2-5	↓	2855	22	4.5	✓	
									✓	

CHK BY [illegible] DISTRIBUTION [illegible] SUB OUT ☐

(*) please report vac upon lab receival
(*) please report in ug/m3

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
M. Tang	RRM	12/13/19	GSO	[signature] T Jackson	BCL 12-16-19 830
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

SR-FL-0012-03

Chain of Custody and Cooler Receipt Form for 1942419 Page 2 of 2

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 1

Submission #: 19-42419

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☐ Other ☒ (Specify) GSO	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: _____ Container: canister Thermometer ID: _____ Date/Time 12-16-19 830

Temperature: (A) room °C / (C) Temp °C Analyst Init TKJ

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										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER 1.	A	A								

Comments:

Sample Numbering Completed By: _____ Date/Time: 12/16/19 1130

A = Actual / C = Corrected

Rev-21--05/23/2016

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

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
1942419-01	**COC Number:**	---	**Receive Date:**	12/16/2019 08:30
	Project Number:	IA771	**Sampling Date:**	12/13/2019 14:17
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	VP-1-5	**Lab Matrix:**	Air
	Sampled By:	Megan T. of RRMS	**Sample Type:**	Vapor or Air
1942419-02	**COC Number:**	---	**Receive Date:**	12/16/2019 08:30
	Project Number:	IA771	**Sampling Date:**	12/13/2019 13:51
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	VP-2-5	**Lab Matrix:**	Air
	Sampled By:	Megan T. of RRMS	**Sample Type:**	Vapor or Air

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID: 1942419-01 | **Client Sample Name:** IA771, VP-1-5, 12/13/2019 2:17:00PM, Megan T.

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acetone	ND	ug/m3	920	72	EPA-TO-15	ND	A01	1
Acrylonitrile	ND	ug/m3	370	40	EPA-TO-15	ND	A01	1
Allyl chloride	ND	ug/m3	370	48	EPA-TO-15	ND	A01	1
Benzene	ND	ug/m3	370	29	EPA-TO-15	ND	A01	1
Benzyl chloride	ND	ug/m3	1800	120	EPA-TO-15	ND	A01	1
Bromodichloromethane	ND	ug/m3	920	74	EPA-TO-15	ND	A01	1
Bromoform	ND	ug/m3	1800	130	EPA-TO-15	ND	A01	1
Bromomethane	ND	ug/m3	370	100	EPA-TO-15	ND	A01	1
1,3-Butadiene	ND	ug/m3	370	46	EPA-TO-15	ND	A01	1
Carbon disulfide	ND	ug/m3	370	29	EPA-TO-15	ND	A01	1
Carbon tetrachloride	ND	ug/m3	920	70	EPA-TO-15	ND	A01	1
Chlorobenzene	ND	ug/m3	920	61	EPA-TO-15	ND	A01	1
Chloroethane	ND	ug/m3	370	59	EPA-TO-15	ND	A01	1
Chloroform	ND	ug/m3	920	46	EPA-TO-15	ND	A01	1
Chloromethane	ND	ug/m3	370	53	EPA-TO-15	ND	A01	1
Cyclohexane	ND	ug/m3	370	33	EPA-TO-15	ND	A01	1
Dibromochloromethane	ND	ug/m3	920	79	EPA-TO-15	ND	A01	1
1,2-Dibromoethane	ND	ug/m3	920	75	EPA-TO-15	ND	A01	1
1,2-Dichlorobenzene	ND	ug/m3	920	72	EPA-TO-15	ND	A01	1
1,3-Dichlorobenzene	ND	ug/m3	920	110	EPA-TO-15	ND	A01	1
1,4-Dichlorobenzene	ND	ug/m3	920	100	EPA-TO-15	ND	A01	1
Dichlorodifluoromethane	ND	ug/m3	920	70	EPA-TO-15	ND	A01	1
1,1-Dichloroethane	ND	ug/m3	920	52	EPA-TO-15	ND	A01	1
1,2-Dichloroethane	ND	ug/m3	920	39	EPA-TO-15	ND	A01	1
1,1-Dichloroethene	ND	ug/m3	920	37	EPA-TO-15	ND	A01	1
cis-1,2-Dichloroethene	ND	ug/m3	370	42	EPA-TO-15	ND	A01	1
trans-1,2-Dichloroethene	ND	ug/m3	370	37	EPA-TO-15	ND	A01	1
1,2-Dichloropropane	ND	ug/m3	920	55	EPA-TO-15	ND	A01	1
cis-1,3-Dichloropropene	ND	ug/m3	920	42	EPA-TO-15	ND	A01	1
trans-1,3-Dichloropropene	ND	ug/m3	920	55	EPA-TO-15	ND	A01	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ug/m3	920	140	EPA-TO-15	ND	A01	1
1,1-Difluoroethane	ND	ug/m3	920	370	EPA-TO-15	ND	A01	1
1,4-Dioxane	ND	ug/m3	370	99	EPA-TO-15	ND	A01	1

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Project: IA771
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Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID: 1942419-01 | **Client Sample Name:** IA771, VP-1-5, 12/13/2019 2:17:00PM, Megan T.

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ethanol	ND	ug/m3	370	140	EPA-TO-15	ND	A01	1
Ethyl acetate	ND	ug/m3	370	74	EPA-TO-15	ND	A01	1
Ethylbenzene	ND	ug/m3	920	66	EPA-TO-15	ND	A01	1
1-Ethyl-4-methylbenzene	ND	ug/m3	920	100	EPA-TO-15	ND	A01	1
n-Heptane	ND	ug/m3	370	55	EPA-TO-15	ND	A01	1
Hexachlorobutadiene	ND	ug/m3	1800	460	EPA-TO-15	ND	A01	1
Hexane	ND	ug/m3	920	37	EPA-TO-15	ND	A01	1
2-Hexanone	ND	ug/m3	920	63	EPA-TO-15	ND	A01	1
Isopropyl alcohol	ND	ug/m3	370	86	EPA-TO-15	ND	A01	1
Methylene chloride	ND	ug/m3	1800	44	EPA-TO-15	ND	A01	1
Methyl ethyl ketone	**120**	**ug/m3**	**370**	**77**	**EPA-TO-15**	ND	**J,A01**	1
Methyl isobutyl ketone	ND	ug/m3	920	130	EPA-TO-15	ND	A01	1
Methyl t-butyl ether	ND	ug/m3	370	66	EPA-TO-15	ND	A01	1
Propylene	ND	ug/m3	370	17	EPA-TO-15	ND	A01	1
Styrene	**180**	**ug/m3**	**920**	**70**	**EPA-TO-15**	ND	**J,A01**	1
1,1,2,2-Tetrachloroethane	ND	ug/m3	920	200	EPA-TO-15	ND	A01	1
Tetrachloroethene	**8200**	**ug/m3**	**370**	**63**	**EPA-TO-15**	ND	**A01**	1
Tetrahydrofuran	ND	ug/m3	370	77	EPA-TO-15	ND	A01	1
Toluene	**240**	**ug/m3**	**370**	**35**	**EPA-TO-15**	ND	**J,A01**	1
1,2,4-Trichlorobenzene	ND	ug/m3	1800	110	EPA-TO-15	ND	A01	1
1,1,1-Trichloroethane	ND	ug/m3	920	52	EPA-TO-15	ND	A01	1
1,1,2-Trichloroethane	ND	ug/m3	920	52	EPA-TO-15	ND	A01	1
Trichloroethene	ND	ug/m3	370	70	EPA-TO-15	ND	A01	1
Trichlorofluoromethane	ND	ug/m3	920	55	EPA-TO-15	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/m3	920	72	EPA-TO-15	ND	A01	1
1,2,4-Trimethylbenzene	ND	ug/m3	920	120	EPA-TO-15	ND	A01	1
1,3,5-Trimethylbenzene	ND	ug/m3	920	280	EPA-TO-15	ND	A01	1
Vinyl acetate	ND	ug/m3	370	57	EPA-TO-15	ND	A01	1
Vinyl chloride	ND	ug/m3	370	53	EPA-TO-15	ND	A01	1
p- & m-Xylenes	**210**	**ug/m3**	**920**	**150**	**EPA-TO-15**	ND	**J,A01**	1
o-Xylene	ND	ug/m3	920	98	EPA-TO-15	ND	A01	1
Total Xylenes	ND	ug/m3	1800	260	EPA-TO-15	ND	A01	1
4-Bromofluorobenzene (Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-TO-15			1

RRM, Inc.
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Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID:	1942419-01	**Client Sample Name:**	IA771, VP-1-5, 12/13/2019 2:17:00PM, Megan T.

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-15	12/30/19 10:41	12/31/19 03:59	BEP	MS-A2	184	B065765

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID: 1942419-02 | **Client Sample Name:** IA771, VP-2-5, 12/13/2019 1:51:00PM, Megan T.

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acetone	ND	ug/m3	790	62	EPA-TO-15	ND	A01	1
Acrylonitrile	ND	ug/m3	320	35	EPA-TO-15	ND	A01	1
Allyl chloride	ND	ug/m3	320	41	EPA-TO-15	ND	A01	1
Benzene	ND	ug/m3	320	25	EPA-TO-15	ND	A01	1
Benzyl chloride	ND	ug/m3	1600	100	EPA-TO-15	ND	A01	1
Bromodichloromethane	ND	ug/m3	790	63	EPA-TO-15	ND	A01	1
Bromoform	ND	ug/m3	1600	110	EPA-TO-15	ND	A01	1
Bromomethane	ND	ug/m3	320	87	EPA-TO-15	ND	A01	1
1,3-Butadiene	ND	ug/m3	320	40	EPA-TO-15	ND	A01	1
Carbon disulfide	ND	ug/m3	320	25	EPA-TO-15	ND	A01	1
Carbon tetrachloride	ND	ug/m3	790	60	EPA-TO-15	ND	A01	1
Chlorobenzene	ND	ug/m3	790	52	EPA-TO-15	ND	A01	1
Chloroethane	ND	ug/m3	320	51	EPA-TO-15	ND	A01	1
Chloroform	ND	ug/m3	790	40	EPA-TO-15	ND	A01	1
Chloromethane	ND	ug/m3	320	46	EPA-TO-15	ND	A01	1
Cyclohexane	ND	ug/m3	320	28	EPA-TO-15	ND	A01	1
Dibromochloromethane	ND	ug/m3	790	68	EPA-TO-15	ND	A01	1
1,2-Dibromoethane	ND	ug/m3	790	65	EPA-TO-15	ND	A01	1
1,2-Dichlorobenzene	ND	ug/m3	790	62	EPA-TO-15	ND	A01	1
1,3-Dichlorobenzene	ND	ug/m3	790	96	EPA-TO-15	ND	A01	1
1,4-Dichlorobenzene	ND	ug/m3	790	87	EPA-TO-15	ND	A01	1
Dichlorodifluoromethane	ND	ug/m3	790	60	EPA-TO-15	ND	A01	1
1,1-Dichloroethane	ND	ug/m3	790	44	EPA-TO-15	ND	A01	1
1,2-Dichloroethane	ND	ug/m3	790	33	EPA-TO-15	ND	A01	1
1,1-Dichloroethene	ND	ug/m3	790	32	EPA-TO-15	ND	A01	1
cis-1,2-Dichloroethene	ND	ug/m3	320	36	EPA-TO-15	ND	A01	1
trans-1,2-Dichloroethene	ND	ug/m3	320	32	EPA-TO-15	ND	A01	1
1,2-Dichloropropane	ND	ug/m3	790	47	EPA-TO-15	ND	A01	1
cis-1,3-Dichloropropene	ND	ug/m3	790	36	EPA-TO-15	ND	A01	1
trans-1,3-Dichloropropene	ND	ug/m3	790	47	EPA-TO-15	ND	A01	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ug/m3	790	120	EPA-TO-15	ND	A01	1
1,1-Difluoroethane	ND	ug/m3	790	320	EPA-TO-15	ND	A01	1
1,4-Dioxane	ND	ug/m3	320	85	EPA-TO-15	ND	A01	1

RRM, Inc.
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Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID: 1942419-02 | **Client Sample Name:** IA771, VP-2-5, 12/13/2019 1:51:00PM, Megan T.

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Ethanol	ND	ug/m3	320	120	EPA-TO-15	ND	A01	1
Ethyl acetate	ND	ug/m3	320	63	EPA-TO-15	ND	A01	1
Ethylbenzene	ND	ug/m3	790	57	EPA-TO-15	ND	A01	1
1-Ethyl-4-methylbenzene	ND	ug/m3	790	87	EPA-TO-15	ND	A01	1
n-Heptane	ND	ug/m3	320	47	EPA-TO-15	ND	A01	1
Hexachlorobutadiene	ND	ug/m3	1600	400	EPA-TO-15	ND	A01	1
Hexane	ND	ug/m3	790	32	EPA-TO-15	ND	A01	1
2-Hexanone	ND	ug/m3	790	54	EPA-TO-15	ND	A01	1
Isopropyl alcohol	ND	ug/m3	320	74	EPA-TO-15	ND	A01	1
Methylene chloride	ND	ug/m3	1600	38	EPA-TO-15	ND	A01	1
Methyl ethyl ketone	**120**	**ug/m3**	**320**	**66**	**EPA-TO-15**	ND	**J,A01**	1
Methyl isobutyl ketone	ND	ug/m3	790	110	EPA-TO-15	ND	A01	1
Methyl t-butyl ether	ND	ug/m3	320	57	EPA-TO-15	ND	A01	1
Propylene	ND	ug/m3	320	14	EPA-TO-15	ND	A01	1
Styrene	**190**	**ug/m3**	**790**	**60**	**EPA-TO-15**	ND	**J,A01**	1
1,1,2,2-Tetrachloroethane	ND	ug/m3	790	170	EPA-TO-15	ND	A01	1
Tetrachloroethene	**40000**	**ug/m3**	**320**	**54**	**EPA-TO-15**	ND	**A01**	1
Tetrahydrofuran	ND	ug/m3	320	66	EPA-TO-15	ND	A01	1
Toluene	**210**	**ug/m3**	**320**	**30**	**EPA-TO-15**	ND	**J,A01**	1
1,2,4-Trichlorobenzene	ND	ug/m3	1600	92	EPA-TO-15	ND	A01	1
1,1,1-Trichloroethane	ND	ug/m3	790	44	EPA-TO-15	ND	A01	1
1,1,2-Trichloroethane	ND	ug/m3	790	44	EPA-TO-15	ND	A01	1
Trichloroethene	ND	ug/m3	320	60	EPA-TO-15	ND	A01	1
Trichlorofluoromethane	ND	ug/m3	790	47	EPA-TO-15	ND	A01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/m3	790	62	EPA-TO-15	ND	A01	1
1,2,4-Trimethylbenzene	ND	ug/m3	790	100	EPA-TO-15	ND	A01	1
1,3,5-Trimethylbenzene	ND	ug/m3	790	240	EPA-TO-15	ND	A01	1
Vinyl acetate	ND	ug/m3	320	49	EPA-TO-15	ND	A01	1
Vinyl chloride	ND	ug/m3	320	46	EPA-TO-15	ND	A01	1
p- & m-Xylenes	**170**	**ug/m3**	**790**	**130**	**EPA-TO-15**	ND	**J,A01**	1
o-Xylene	ND	ug/m3	790	84	EPA-TO-15	ND	A01	1
Total Xylenes	**240**	**ug/m3**	**1600**	**220**	**EPA-TO-15**	ND	**J,A01**	1
4-Bromofluorobenzene (Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-TO-15			1

RRM, Inc.
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Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

BCL Sample ID:	1942419-02	**Client Sample Name:**	IA771, VP-2-5, 12/13/2019 1:51:00PM, Megan T.

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID
1	EPA-TO-15	12/30/19 10:41	12/31/19 04:51	BEP	MS-A2	158	B065765

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B065765						
Acetone	B065765-BLK1	ND	ug/m3	5.0	0.39	
Acrylonitrile	B065765-BLK1	ND	ug/m3	2.0	0.22	
Allyl chloride	B065765-BLK1	ND	ug/m3	2.0	0.26	
Benzene	B065765-BLK1	ND	ug/m3	2.0	0.16	
Benzyl chloride	B065765-BLK1	ND	ug/m3	10	0.63	
Bromodichloromethane	B065765-BLK1	ND	ug/m3	5.0	0.40	
Bromoform	B065765-BLK1	ND	ug/m3	10	0.71	
Bromomethane	B065765-BLK1	ND	ug/m3	2.0	0.55	
1,3-Butadiene	B065765-BLK1	ND	ug/m3	2.0	0.25	
Carbon disulfide	B065765-BLK1	ND	ug/m3	2.0	0.16	
Carbon tetrachloride	B065765-BLK1	ND	ug/m3	5.0	0.38	
Chlorobenzene	B065765-BLK1	ND	ug/m3	5.0	0.33	
Chloroethane	B065765-BLK1	ND	ug/m3	2.0	0.32	
Chloroform	B065765-BLK1	ND	ug/m3	5.0	0.25	
Chloromethane	B065765-BLK1	ND	ug/m3	2.0	0.29	
Cyclohexane	B065765-BLK1	ND	ug/m3	2.0	0.18	
Dibromochloromethane	B065765-BLK1	ND	ug/m3	5.0	0.43	
1,2-Dibromoethane	B065765-BLK1	ND	ug/m3	5.0	0.41	
1,2-Dichlorobenzene	B065765-BLK1	ND	ug/m3	5.0	0.39	
1,3-Dichlorobenzene	B065765-BLK1	ND	ug/m3	5.0	0.61	
1,4-Dichlorobenzene	B065765-BLK1	ND	ug/m3	5.0	0.55	
Dichlorodifluoromethane	B065765-BLK1	ND	ug/m3	5.0	0.38	
1,1-Dichloroethane	B065765-BLK1	ND	ug/m3	5.0	0.28	
1,2-Dichloroethane	B065765-BLK1	ND	ug/m3	5.0	0.21	
1,1-Dichloroethene	B065765-BLK1	ND	ug/m3	5.0	0.20	
cis-1,2-Dichloroethene	B065765-BLK1	ND	ug/m3	2.0	0.23	
trans-1,2-Dichloroethene	B065765-BLK1	ND	ug/m3	2.0	0.20	
1,2-Dichloropropane	B065765-BLK1	ND	ug/m3	5.0	0.30	
cis-1,3-Dichloropropene	B065765-BLK1	ND	ug/m3	5.0	0.23	
trans-1,3-Dichloropropene	B065765-BLK1	ND	ug/m3	5.0	0.30	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	B065765-BLK1	ND	ug/m3	5.0	0.77	
1,1-Difluoroethane	B065765-BLK1	ND	ug/m3	5.0	2.0	
1,4-Dioxane	B065765-BLK1	ND	ug/m3	2.0	0.54	
Ethanol	B065765-BLK1	ND	ug/m3	2.0	0.74	

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B065765						
Ethyl acetate	B065765-BLK1	ND	ug/m3	2.0	0.40	
Ethylbenzene	B065765-BLK1	ND	ug/m3	5.0	0.36	
1-Ethyl-4-methylbenzene	B065765-BLK1	ND	ug/m3	5.0	0.55	
n-Heptane	B065765-BLK1	ND	ug/m3	2.0	0.30	
Hexachlorobutadiene	B065765-BLK1	ND	ug/m3	10	2.5	
Hexane	B065765-BLK1	ND	ug/m3	5.0	0.20	
2-Hexanone	B065765-BLK1	ND	ug/m3	5.0	0.34	
Isopropyl alcohol	B065765-BLK1	ND	ug/m3	2.0	0.47	
Methylene chloride	B065765-BLK1	ND	ug/m3	10	0.24	
Methyl ethyl ketone	B065765-BLK1	ND	ug/m3	2.0	0.42	
Methyl isobutyl ketone	B065765-BLK1	ND	ug/m3	5.0	0.70	
Methyl t-butyl ether	B065765-BLK1	ND	ug/m3	2.0	0.36	
Propylene	B065765-BLK1	ND	ug/m3	2.0	0.090	
Styrene	B065765-BLK1	ND	ug/m3	5.0	0.38	
1,1,2,2-Tetrachloroethane	B065765-BLK1	ND	ug/m3	5.0	1.1	
Tetrachloroethene	B065765-BLK1	ND	ug/m3	2.0	0.34	
Tetrahydrofuran	B065765-BLK1	ND	ug/m3	2.0	0.42	
Toluene	B065765-BLK1	ND	ug/m3	2.0	0.19	
1,2,4-Trichlorobenzene	B065765-BLK1	ND	ug/m3	10	0.58	
1,1,1-Trichloroethane	B065765-BLK1	ND	ug/m3	5.0	0.28	
1,1,2-Trichloroethane	B065765-BLK1	ND	ug/m3	5.0	0.28	
Trichloroethene	B065765-BLK1	ND	ug/m3	2.0	0.38	
Trichlorofluoromethane	B065765-BLK1	ND	ug/m3	5.0	0.30	
1,1,2-Trichloro-1,2,2-trifluoroethane	B065765-BLK1	ND	ug/m3	5.0	0.39	
1,2,4-Trimethylbenzene	B065765-BLK1	ND	ug/m3	5.0	0.64	
1,3,5-Trimethylbenzene	B065765-BLK1	ND	ug/m3	5.0	1.5	
Vinyl acetate	B065765-BLK1	ND	ug/m3	2.0	0.31	
Vinyl chloride	B065765-BLK1	ND	ug/m3	2.0	0.29	
p- & m-Xylenes	B065765-BLK1	ND	ug/m3	5.0	0.83	
o-Xylene	B065765-BLK1	ND	ug/m3	5.0	0.53	
Total Xylenes	B065765-BLK1	ND	ug/m3	10	1.4	
4-Bromofluorobenzene (Surrogate)	**B065765-BLK1**	**95.8**	%	**70 - 130 (LCL - UCL)**		

RRM, Inc.
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Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

Volatile Organic Compounds by GC/MS (EPA Method TO-15 at STP)

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: B065765										
Benzene	B065765-BS1	LCS	16.804	15.974	ug/m3	105		70 - 130		
	B065765-BSD1	LCSD	17.028	15.974	ug/m3	107	1.3	70 - 130	30	
Chloroform	B065765-BS1	LCS	26.610	24.413	ug/m3	109		70 - 130		
	B065765-BSD1	LCSD	26.952	24.413	ug/m3	110	1.3	70 - 130	30	
Ethylbenzene	B065765-BS1	LCS	24.272	21.711	ug/m3	112		70 - 130		
	B065765-BSD1	LCSD	24.316	21.711	ug/m3	112	0.2	70 - 130	30	
Tetrachloroethene	B065765-BS1	LCS	39.881	33.913	ug/m3	118		70 - 130		
	B065765-BSD1	LCSD	39.881	33.913	ug/m3	118	0	70 - 130	30	
Toluene	B065765-BS1	LCS	20.726	18.842	ug/m3	110		70 - 130		
	B065765-BSD1	LCSD	20.764	18.842	ug/m3	110	0.2	70 - 130	30	
Trichloroethene	B065765-BS1	LCS	30.899	26.869	ug/m3	115		70 - 130		
	B065765-BSD1	LCSD	31.168	26.869	ug/m3	116	0.9	70 - 130	30	
Trichlorofluoromethane	B065765-BS1	LCS	31.350	28.092	ug/m3	112		70 - 130		
	B065765-BSD1	LCSD	32.081	28.092	ug/m3	114	2.3	70 - 130	30	
1,1,2-Trichloro-1,2,2-trifluoroethane	B065765-BS1	LCS	41.997	38.318	ug/m3	110		70 - 130		
	B065765-BSD1	LCSD	42.457	38.318	ug/m3	111	1.1	70 - 130	30	
p- & m-Xylenes	B065765-BS1	LCS	49.934	43.421	ug/m3	115		70 - 130		
	B065765-BSD1	LCSD	49.891	43.421	ug/m3	115	0.1	70 - 130	30	
o-Xylene	B065765-BS1	LCS	24.837	21.711	ug/m3	114		70 - 130		
	B065765-BSD1	LCSD	25.097	21.711	ug/m3	116	1.0	70 - 130	30	
Total Xylenes	B065765-BS1	LCS	74.771	65.132	ug/m3	115		70 - 130		
	B065765-BSD1	LCSD	74.989	65.132	ug/m3	115	0.3	70 - 130	30	
4-Bromofluorobenzene (Surrogate)	B065765-BS1	LCS	72.0	71.6	ug/m3	101		70 - 130		
	B065765-BSD1	LCSD	72.9	71.6	ug/m3	102	1.3	70 - 130		

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www.alsglobal.com

LABORATORY REPORT

January 8, 2020

Molly Meyers
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

RE: 1942419

Dear Molly:

Enclosed are the results of the samples submitted to our laboratory on December 5, 2019. For your reference, these analyses have been assigned our service request number P2000011.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 1:19 pm, Jan 08, 2020
Sue Anderson
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

1 of 8

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: BC Laboratories, Inc.
Project: 1942419

Service Request No: P2000011

CASE NARRATIVE

The samples were received intact under chain of custody on December 5, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Helium Analysis

The samples were analyzed for helium according to modified EPA Method 3C (single injection) using a gas chromatograph equipped with a thermal conductivity detector (TCD). This method is not included on the laboratory's NELAP or DoD-ELAP scope of accreditation.

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CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA01627201 9-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

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3 of 8

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: BC Laboratories, Inc.
Project ID: 1942419

Service Request: P2000011

Date Received: 1/2/2020
Time Received: 12:10

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	3C Modified - Helium Can
1942419-01	P2000011-001	Air	12/13/2019	14:17	X
1942419-02	P2000011-002	Air	12/13/2019	13:51	X

P2000011

R1910 DP

SUBCONTRACT ORDER
BC Laboratories
1942419

CLMBS

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Christina Herndon

RECEIVING LABORATORY:
ALS Environmental Simi Valley- Air Testing
2655 Park Center Drive, Suite A
Simi Valley, CA 93065
Michael Tuday
Phone: (805) 526-7161
FAX: (805) 526-7270

Analysis	Due	Expires	Comments
Sample ID: 1942419-01	**Air**	**Sampled: 12/13/19 14:17**	
EPA 3C (Modified) - Helium	12/23/19 17:00	12/27/19 14:17	
Containers supplied:			
Sample ID: 1942419-02	**Air**	**Sampled: 12/13/19 13:51**	
EPA 3C (Modified) - Helium	12/23/19 17:00	12/27/19 13:51	
Containers supplied:			

Released By	Date	Received By	Date
			1-2-20 ; 210
Released By	Date	Received By	Date

CLMBS

5 of 8

Page 1 of 1

ALS Environmental
Sample Acceptance Check Form

Client: BC Laboratories, Inc. Work order: P2000011
Project: 192419
Sample(s) received on: 1/2/20 Date opened: 1/2/20 by: DENISE.POSADA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were **custody seals** on outside of cooler/Box/Container?	☐	☐	☒
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2000011-001.01	Client Canister					
P2000011-002.01	Client Canister					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCl (pH<2); RSK - CO2, (pH 5-8), Sulfur (pH>4)

P2000011_BC Laboratories, Inc._.xls - Page 1 of 1 6 of 8 1/8/20 1:17 PM

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

Client: **BC Laboratories, Inc.**
Client Project ID: **1942419** ALS Project ID: P2000011

Helium

Test Code: EPA 3C Modified
Instrument ID: HP5890 II/GC8/TCD Date(s) Collected: 12/13/19
Analyst: Li Donghao Date Received: 1/2/20
Sample Type: Canister(s) Date Analyzed: 1/3/20
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Container Dilution Factor	Result ppmV	MRL ppmV	Data Qualifier
1942419-01	P2000011-001	1.00	1.00	ND	25	
1942419-02	P2000011-002	1.00	1.00	**620**	25	
Method Blank	P200103-MB	1.00	1.00	ND	25	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: **BC Laboratories, Inc.**
Client Sample ID: **Lab Control Sample**
Client Project ID: **1942419**

ALS Project ID: P2000011
ALS Sample ID: P200103-LCS

Test Code: EPA 3C Modified
Instrument ID: HP5890 II/GC8/TCD
Analyst: Li Donghao
Sample Type:
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 1/03/20
Volume(s) Analyzed: NA ml(s)

CAS #	Compound	Spike Amount ppmV	Result ppmV	% Recovery	ALS Acceptance Limits	Data Qualifier
7440-59-7	Helium	10,000	**11,100**	**111**	83-129	

P2000011_3CHEH2_2001071058_SC.xls - LCS

8 of 8

3C_HE_H2.xls - Page No.:

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

Reported: 01/30/2020 15:29
Project: IA771
Project Number: [none]
Project Manager: Cate Townsend

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.