

Groundwater Assessment Report

**1795 Long Beach Boulevard
Long Beach, California**

Prepared for:

AMCAL Multi-Housing, Inc.



Prepared by:

**Rincon Consultants, Inc.
March 31, 2017**



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March 31, 2017
Project 16-03146

Darin Hansen
Vice President-Forward Planning and Entitlements
AMCAL Multi-Housing, Inc.
30141 Agoura Road, Suite 100
Agoura Hills, CA 91301

**Groundwater Assessment Report
1795 Long Beach Boulevard, Long Beach, California**

Dear Mr. Hansen:

Pursuant to your request, we have prepared this report detailing the groundwater assessment completed on March 9, 2017 for the property located at 1795 Long Beach Boulevard, Long Beach, California. The purpose of the assessment was to further delineate the lateral and vertical extent of tetrachloroethylene (PCE) impacts associated with the former dry cleaner. Site screening included analysis of seven groundwater samples for volatile organic compounds (VOCs) by EPA Method 8260B.

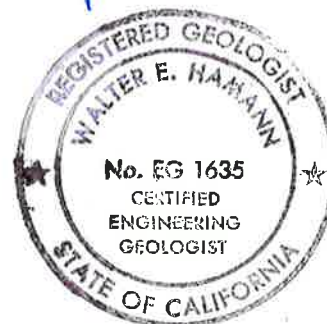
Sincerely,
RINCON CONSULTANTS, INC.



Prajwal M Kumar, MESM
Environmental Scientist



Walter Hamann, PG, CEG, QSD
Vice President, Environmental Services



***Groundwater Assessment Report
1795 Long Beach Boulevard
Long Beach, California***

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EXECUTIVE SUMMARY

This report presents the results of a groundwater assessment conducted by Rincon Consultants, Inc. (Rincon) for AMCAL Multi-Housing, Inc. for the subject property located at 1795 Long Beach Boulevard in Long Beach, California (Figure 1). Rincon previously completed a Phase I Environmental Site Assessment (ESA) September 28, 2016, Phase II ESA November 2, 2016, and an additional Phase II ESA, February 1, 2017, and a Human Health Risk Assessment February 6, 2017. Based on the results of previous assessments and human health risk assessment, Rincon recommended that an additional groundwater sampling be conducted around the suspected dry cleaner facility to further delineate the tetrachloroethene (PCE) detected in groundwater.

On March 9, 2017, Rincon collected seven groundwater samples by drilling borings using a Geoprobe direct-push rig (Figure 2). In addition, groundwater monitoring wells were installed in all of the 7 borings for the purpose of measuring the water depth and determining groundwater flow direction. Groundwater was encountered between 25 and 30 feet below grade. Soil samples were collected from one of the borings to classify the physical properties of the soil beneath the property.

PCE, Chloromethane, Bromodichloromethane, and Chloroform were detected in the groundwater samples collected from the site (Table 1). All of the detected concentrations were generally low and consistent in magnitude across the site. PCE and Chloroform have historically been utilized as dry-cleaning solvents. Bromodichloromethane is commonly generated as a by-product when chlorine is added to the potable water supply. Chloromethane is commonly encountered as a naturally occurring by-product from rotting organic material. However, historically chloromethane was also used in industrial processes as a refrigerant.

Chloromethane does not have an established State Water Quality Control Board (SWRCB) or United States Environmental Protection Agency (USEPA) maximum contaminant level (MCL). Bromodichloromethane and Chloroform do not have established SWRCB drinking water MCLs. However, Bromodichloromethane and Chloroform do have USEPA MCLs and none of the detected concentrations exceed their MCLs (60 micrograms per liter $\mu\text{g/L}$ and 70 $\mu\text{g/L}$, respectively). PCE was detected in all seven groundwater samples and was only marginally higher than the SWRCB MCL threshold of 5 $\mu\text{g/L}$ at two of the seven locations.

Based on the results of Groundwater samples collected on March 9, 2017, another human health risk assessment was conducted using the DTSC HERO Groundwater Screening Model. Soil characterization for soil samples from 5 to 10 feet depth indicated that the soil in the vicinity of well RBH-1 is classified as Clayey Sand. The highest concentration of PCE in groundwater was used in the calculations (7.5 $\mu\text{g/L}$). The PCE concentration in groundwater does not exceed one in one million cancer risk for residential scenario (5.4E-08) and commercial scenarios (6.4E-09) for vapor intrusion, indicating that under both development scenarios the calculated health risks are significantly below the Department of Toxic Substances Control (DTSC) health risk target level.

INTRODUCTION

This report presents the results of groundwater assessment conducted by Rincon for AMCAL Multi-Housing, Inc. for the subject property located at 1795 Long Beach Boulevard in Long Beach, California.

PROJECT HISTORY

Rincon completed a Phase I and Phase II ESA, and an additional Phase II ESA for the subject property in 2016. Rincon completed a Phase I ESA in September 2016, which identified two potential Recognized Environmental Conditions (RECs) at the subject property as follows:

Potential Recognized Environmental Conditions

1. Former Olympic Cleaners located on the subject property
2. Former automotive repair stations and former gasoline stations located adjacent to the subject property.

To evaluate impacts to the subject property associated with the potential RECs listed above, Rincon recommended conducting a soil vapor assessment in the vicinity of the former onsite cleaners, likely located on the southeastern portion of the subject property. Rincon also recommended reviewing Long Beach Fire Department records for the former adjacent automotive repair stations and gasoline stations.

Long Beach Fire Department records were reviewed on September 23, 2016. No relevant information regarding hazardous materials was available for the adjacent properties. A soil vapor assessment was conducted along the northern and western property boundaries to determine if the subject property has been impacted by the former adjacent land uses.

Based on the findings of the Phase I ESA and file review, on October 19, 2016, Rincon and H&P Mobile Geochemistry (H&P) advanced nine soil borings and install nine soil vapor probes onsite. Soil vapor samples were collected from five feet bgs at each vapor probe location. The soil vapor samples were analyzed onsite by H&P's certified mobile laboratory for volatile organic compounds (VOCs) and total petroleum hydrocarbons (TPH) as gasoline by Environmental Protection Agency (EPA) Method 8260SV, and methane by EPA Method 8015M. Based on the laboratory analytical results, tetrachloroethene (PCE), trichloroethene (TCE), benzene, ethylbenzene, and TPH as gasoline in soil vapor were detected at concentrations that exceeded their respective San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Level (ESL) or California Human Health Screening Level (CHHSL). PCE and TCE are commonly associated with the release of dry cleaning chemicals. In addition, chloroform, toluene, xylenes, and naphthalene were also detected in the soil vapor samples; however, none of the concentrations detected in these constituents exceeded their respective CHHSLs or ESLs. Methane was not detected in any of the soil vapor samples analyzed.

Based on the results from the October 19, 2016 assessment and to further delineate the detected PCE in soil vapor, on December 6 and 7, 2016, Rincon and H&P advanced an additional seven

soil borings and installed additional soil vapor probes onsite. Soil vapor samples were collected from five feet bgs at five soil vapor probe locations, and collected at 15 feet bgs in six soil vapor probe locations. The soil vapor samples were analyzed onsite by H&P's certified mobile laboratory for VOCs by EPA Method 8260SV. Based on the proposed use of the site for commercial use on the first floor, and residential use on the upper floors, the results were compared to commercial screening levels for the purpose of vapor intrusion concern into the first floor (commercial use). Based on the laboratory analytical results, PCE in soil vapor was detected at concentrations that exceeded the CHHSL. Concentrations of benzene were detected near the adjacent auto repair facility (west of the subject property) and suggest offsite migration of benzene from the adjacent site to the west.

No VOCs were detected in the soil matrix samples analyzed. TPH diesel range organics (TPH-DRO) and oil range organics (TPH-ORO) were detected in the soil sample collected from RSB1 on the northeastern portion of the subject property at concentrations of 56 and 130 milligrams per kilogram (mg/kg), respectively. CHHSLs have not been established for TPH-DRO and TPH-ORO in soil, however, concentrations did not exceed their residential or commercial ESLs or the soil screening level (SSL) established by the Los Angeles RWQCB. TPH-GRO was not detected in the soil matrix samples analyzed.

PCE was detected in one groundwater sample at a concentration exceeding its Maximum Contaminant Level (MCL) for drinking water, set forth by the State Water Resources Control Board (SWRCB).

TPH-DRO and TPH-ORO were detected at maximum concentrations of 0.38 milligrams per liter (mg/L) and 0.71 mg/L, respectively, in groundwater collected from SV10-GW. MCLs have not been established for TPH in drinking water. However, the detected concentrations did not exceed the SFBRWQCB ESLs for non-drinking water odor nuisance levels (non-direct exposure levels) to which they were compared.

On December 6 and 7, 2016 under the direction of Rincon, H&P utilized a truck-mounted drill rig equipped with direct push technology to advance six soil borings (SV10 through SV15) and install soil vapor probes at 5 and 15 feet bgs. All analyses were performed in an onsite mobile laboratory using a laboratory grade Hewlett Packard model 5890 Series II gas chromatograph equipped with a Flame Ionization Detector (FID) and an Electron Capture Detector. All results were collected on a computer utilizing Hewlett Packard's PC-based chromatographic data collection and handling system.

Prior to installation of the soil vapor probes, soil samples were collected from the six soil borings/soil vapor probe locations (SV10 through SV15) at 5, 10 and 15 feet bgs. Soil boring logs are in Appendix A. An additional soil boring (RSB1) was advanced using a hand auger (RSB1) with a sample collected at 5 feet bgs. A total of 19 soil samples were collected for laboratory analysis. In addition, groundwater samples were collected from SV10, SV13, SV14 and SV15 at a depth of about 30 feet below grade.

Soil gas samples were analyzed for VOCs by EPA Method 8260SV. The results were compared to commercial screening levels for the purpose of vapor intrusion concern.

Tetrachloroethylene (PCE) was detected in all of the eleven samples analyzed, ranging from 0.54 µg/L to 12 µg/L. Ten of the soil vapor samples analyzed exceeded the California Human Health Screening Level (CHHSL) for PCE in soil vapor at commercial sites of 0.60 µg/L.

Trichloroethylene (TCE) was detected in seven of the eleven samples analyzed, ranging from 0.03 µg/L to 0.30 µg/L. None of the samples exceeded the CHHSL for TCE in soil vapor at commercial sites of 1.8 µg/L.

Chloroform was detected in two of the eleven samples analyzed, ranging from 0.04 µg/L to 0.08 µg/L. CHHSLs have not been established for chloroform.

Benzene was detected in ten of the eleven samples analyzed, ranging from 0.02 µg/L to 0.10 µg/L. None of the exceeded the CHHSL for benzene in soil vapor at commercial sites of 0.12 µg/L.

Ethylbenzene was detected in five of the eleven samples analyzed ranging from 0.10 µg/L to 1.0 µg/L. None of the samples exceeded the CHHSL for ethylbenzene in soil vapor at commercial sites of 1.4 µg/L.

Xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were also detected in the soil vapor samples. However, none of the concentrations detected exceeded their respective CHHSLs, where applicable.

SCOPE OF WORK

The following tasks were performed as part of the Groundwater sampling and Soil Characterization:

- **Health and Safety Plan.** A Health and Safety Plan was developed for the sampling personnel.
- **Utility Notification.** The subject property was pre-marked and Underground Services Alert (USA) was contacted to mark areas where underground public utilities might be located in the drilling area.
- **Groundwater Sampling.** Rincon collected seven groundwater samples by drilling borings using a Geoprobe direct-push rig. In addition, monitoring wells were installed in all of the 7 borings for the purpose of measuring the water depth and determining groundwater flow direction. Soil sample was collected from one of the borings for purposes of classifying the physical properties of the soil beneath the property.
- **Laboratory Analysis- Groundwater Samples.** The groundwater samples were analyzed for VOCs by EPA Method 8260B by Asset Laboratories. The samples were analyzed on the laboratory's rush turnaround schedule.
- **Laboratory Analysis- Soil Samples.** The soil samples were analyzed for soil lithology characteristics by PTS Laboratories.
- **Reporting.** Preparation of this report documenting our findings.

METHODOLOGY

SOIL BORING AND GROUNDWATER SAMPLING

Prior to installation of the monitoring wells, seven borings were advanced to groundwater using a Geoprobe direct-push rig. Top five feet was advanced using a hand auger and a soil sample was collected from one of the borings. Groundwater samples were collected from RBH-1 to RBH-7 at a depth ranging 25-30 feet below grade. The soil and groundwater samples were couriered to the state certified analytical laboratory Asset Laboratories based in Cerritos, California using chain-of-custody protocol and were analyzed for VOCs by EPA method 8260B and soil samples by PTS Laboratories for soil characterization. Following completion of the borings monitoring wells were installed in all of the 7 borings for the purpose of measuring the water depth and determining groundwater flow direction. Wells were closed with temporary caps with the option to monitor further.

GROUNDWATER SAMPLING RESULTS

Groundwater samples were analyzed for VOCs by EPA Method 8260B. Results of the groundwater sample analysis are shown in Table 1. A copy of the laboratory analytical report is in Appendix B.

PCE, Chloromethane, Bromodichloromethane, and Chloroform were detected in the groundwater samples collected from the site (Table 1). All of the detected concentrations were generally low and consistent in magnitude across the site. PCE and Chloroform have historically been utilized as dry-cleaning solvents. Bromodichloromethane is commonly generated as a by-product when chlorine is added to the potable water supply. Chloromethane is commonly encountered as a naturally occurring by-product from rotting organic material. However, historically chloromethane was also used as a refrigerant.

Chloromethane does not have an established SWRCB or USEPA MCL. Bromodichloromethane and Chloroform do not have established SWRCB MCLs. However, Bromodichloromethane and Chloroform do have USEPA drinking water and groundwater MCLs and none of the detected concentrations exceed their MCLs (60 µg/L and 70 µg/L, respectively). PCE was detected in all seven groundwater samples and was only marginally higher than the SWRCB MCL threshold of 5 µg/L at two of the seven locations.

HEALTH RISK ASSESSMENT

Based on soil, groundwater, and soil vapor analytical results, the primary exposure pathway is inhalation resulting from vapor intrusion. VOCs and TPH-GRO were not detected in soil samples, and TPH-DRO and TPH-ORO were detected at concentrations below their respective SSLs. During previous assessments, PCE was detected in one groundwater sample at a concentration exceeding the MCL for drinking water and in soil vapor at concentrations exceeding the DTSC-SL for future commercial/industrial properties and ethylbenzene was

detected in soil vapor at concentrations exceeding the CHHSL for commercial/industrial properties.

On January 17, 2017, based on the findings of the Phase I and II ESA sampling events, a human health risk assessment was conducted using the DTSC HERO modified Johnson & Ettinger vapor intrusion model for estimating indoor air concentrations. The highest concentrations of PCE and ethylbenzene detected in soil vapor, as well as the highest concentration of PCE detected in groundwater from the previous Phase II were used in the calculations. PCE concentrations in soil vapor exceed the one in one million cancer risk (1.0×10^{-6}) for vapor intrusion concerns, however, the highest concentration of PCE detected in groundwater did not exceed the one in one million cancer risk for vapor intrusion. The highest ethylbenzene concentration detected in soil vapor was equal to the one in one million cancer risk for vapor intrusion concerns.

Based on the results of Groundwater samples collected on March 9, 2017, another human health risk assessment was conducted using the DTSC HERO Groundwater Screening Model. Soil characterization for soil samples from 5 to 10 feet depth indicated that the soil in the vicinity of well RBH-1 is classified as Clayey Sand. The highest concentration of PCE in groundwater was used in the calculations ($7.5 \mu\text{g/L}$). The PCE concentration in groundwater does not exceed one in one million cancer risk for residential scenario (5.4×10^{-8}) and commercial scenarios (6.4×10^{-9}) for vapor intrusion, indicating that under both development scenarios the calculated health risks are significantly below the Department of Toxic Substances Control (DTSC) health risk target level.

No water supply wells are present at the subject property and, according to the GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) website, no municipal production water wells are located within one mile of the subject property.

CONCLUSIONS & RECOMMENDATIONS

PCE, Chloromethane, Bromodichloromethane, and Chloroform were detected in the groundwater samples collected from the site (Table 1). All of the detected concentrations were generally low and consistent in magnitude across the site. PCE and Chloroform have historically been utilized as dry-cleaning solvents. Bromodichloromethane is commonly generated as a by-product when chlorine is added to the potable water supply. Chloromethane is commonly encountered as a naturally occurring by-product from rotting organic material. However, historically chloromethane was also used as a refrigerant.

Chloromethane does not have an established SWRCB or USEPA MCL. Bromodichloromethane and Chloroform do not have established SWRCB MCLs. However, Bromodichloromethane and Chloroform do have USEPA drinking water and groundwater MCLs and none of the detected concentrations exceed their MCLs ($60 \mu\text{g/L}$ and $70 \mu\text{g/L}$, respectively). PCE was detected in all seven groundwater samples and was only marginally higher than the SWRCB MCL threshold of $5 \mu\text{g/L}$ at two locations. Additionally, the results of the human health risk assessment, calculated using the highest concentrations of PCE detected in groundwater beneath the site, indicates that under both commercial and residential development scenarios that the health

risks for vapor intrusion related to PCE off gassing from groundwater is significantly below the DTSC health risk target level.

Based on the phase II and additional phase II, groundwater assessment, and the human health risk assessments, Rincon recommends mitigation for soil vapor prior to redevelopment of the subject property. Rincon further recommends engaging the DTSC and entering the subject property into Voluntary Cleanup Program for guidance regarding mitigation options for the subject property.

LIMITATIONS

This report has been prepared for and is intended for the exclusive use of AMCAL Multi-Housing, Inc. The contents of this report should not be relied upon by any other party without the written consent of Rincon Consultants, Inc.

Our conclusions regarding the subject property are based on the results of a limited sampling program. The results of this evaluation are qualified by the fact that only limited sampling and analysis was conducted during this assessment.

This scope was not intended to completely establish the quantities and distribution of contaminants present at the subject property or to determine the cost to remediate the subject property. The concentrations of contaminants measured at any given location may not be representative of conditions at other locations. Further, conditions may change at any particular location as a function of time in response to natural conditions, chemical reactions and other events. Conclusions regarding the condition of the subject property do not represent a warranty that all areas within the subject property are similar to those sampled.

Table 1
Groundwater Analytical Results
1795 Long Beach Boulevard
Long Beach, California
March 9, 2017
Concentrations in µg/L

Boring	Chloroform	PCE	Chloromethane	Bromodichloro- methane
RBH-1	1.7	6.7	ND	ND
Duplicate RBH-1	1.8	7.1	1.0	ND
RBH-2	ND	4.9	ND	ND
RBH-3	ND	4.2	ND	ND
RBH-4	1.7	3.4	1.1	ND
RBH-5	2.3	1.2	ND	ND
RBH-6	2.0	4.1	ND	ND
RBH-7	6.9	7.5	ND	0.94
<i>Laboratory Reporting Limit</i>	<i>0.50</i>	<i>0.50</i>	<i>0.50</i>	<i>0.5</i>
<i>MCL</i>	<i>70*</i>	<i>5.0</i>	<i>NE</i>	<i>60*</i>

Notes:

NE- Not established

VOCs - Volatile Organic Compounds by Method 8260B

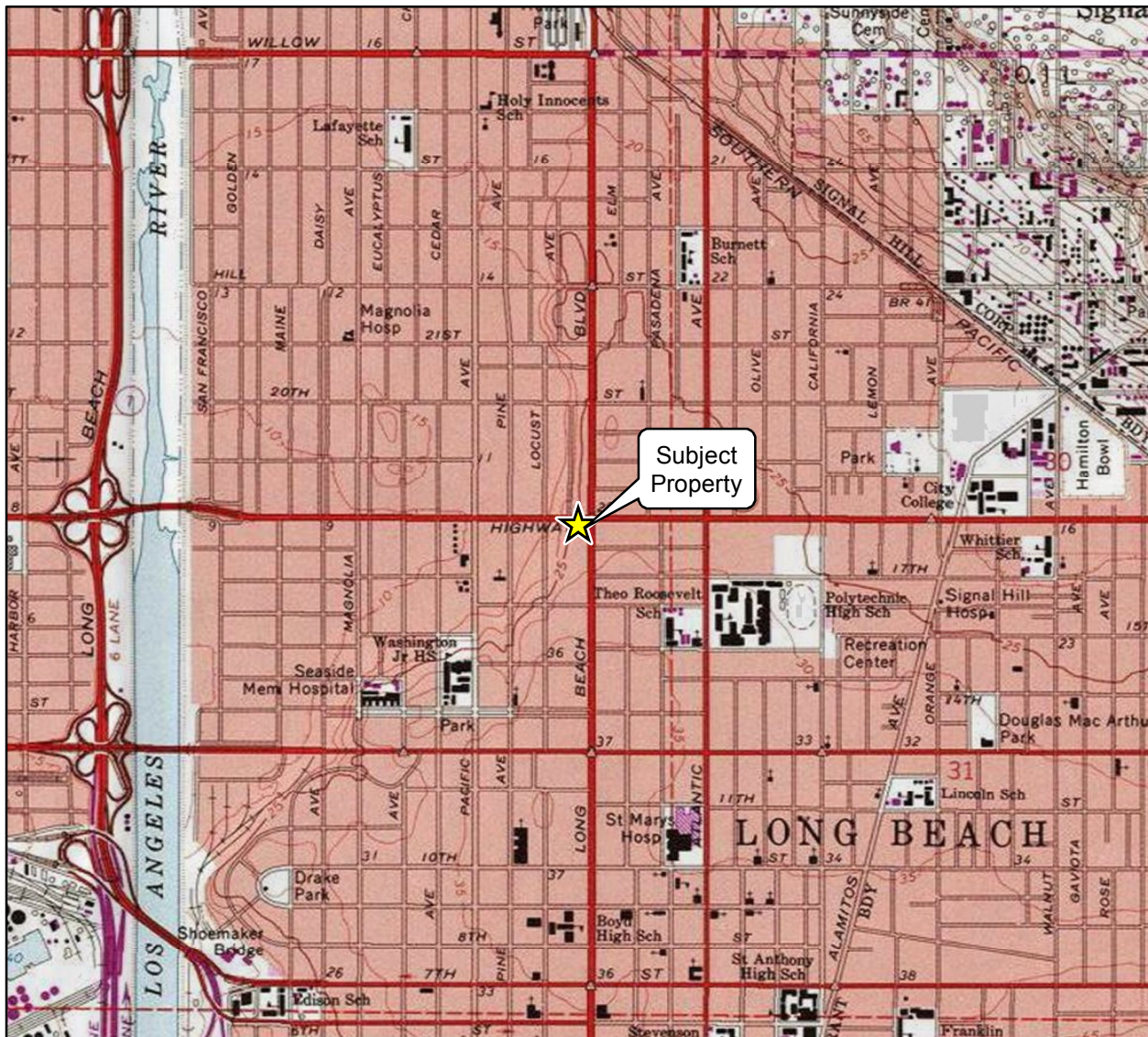
PCE = Tetrachloroethylene

µg/L = micrograms per liter

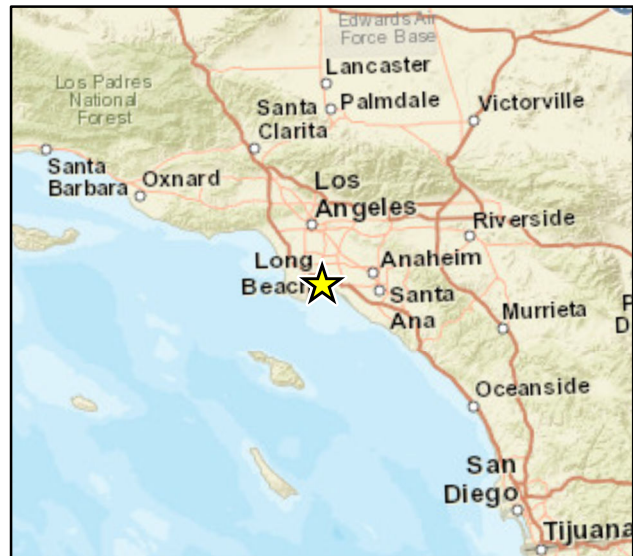
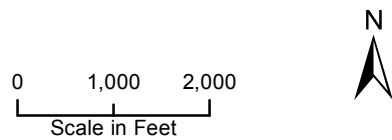
ND = not detected above the laboratory reporting limit

MCL =State of California Maximum Contaminant Levels for Drinking Water

*= No established MCL for chloroform, so the detections were compared to the USEPA Maximum Contaminant Level Goal (MCLG)

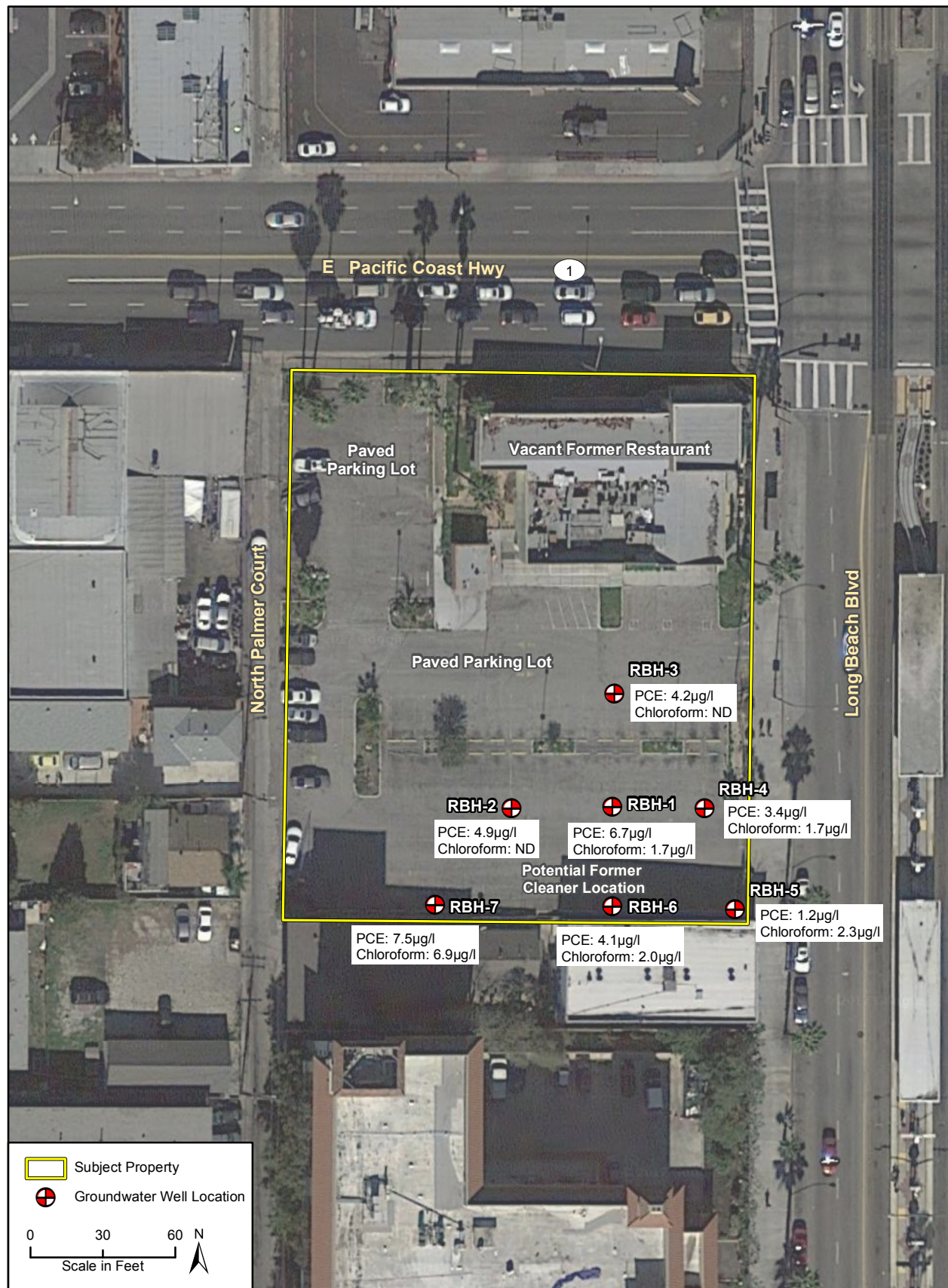


Imagery provided by National Geographic Society, ESRI and its licensors © 2016. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.



Vicinity Map

Figure 1



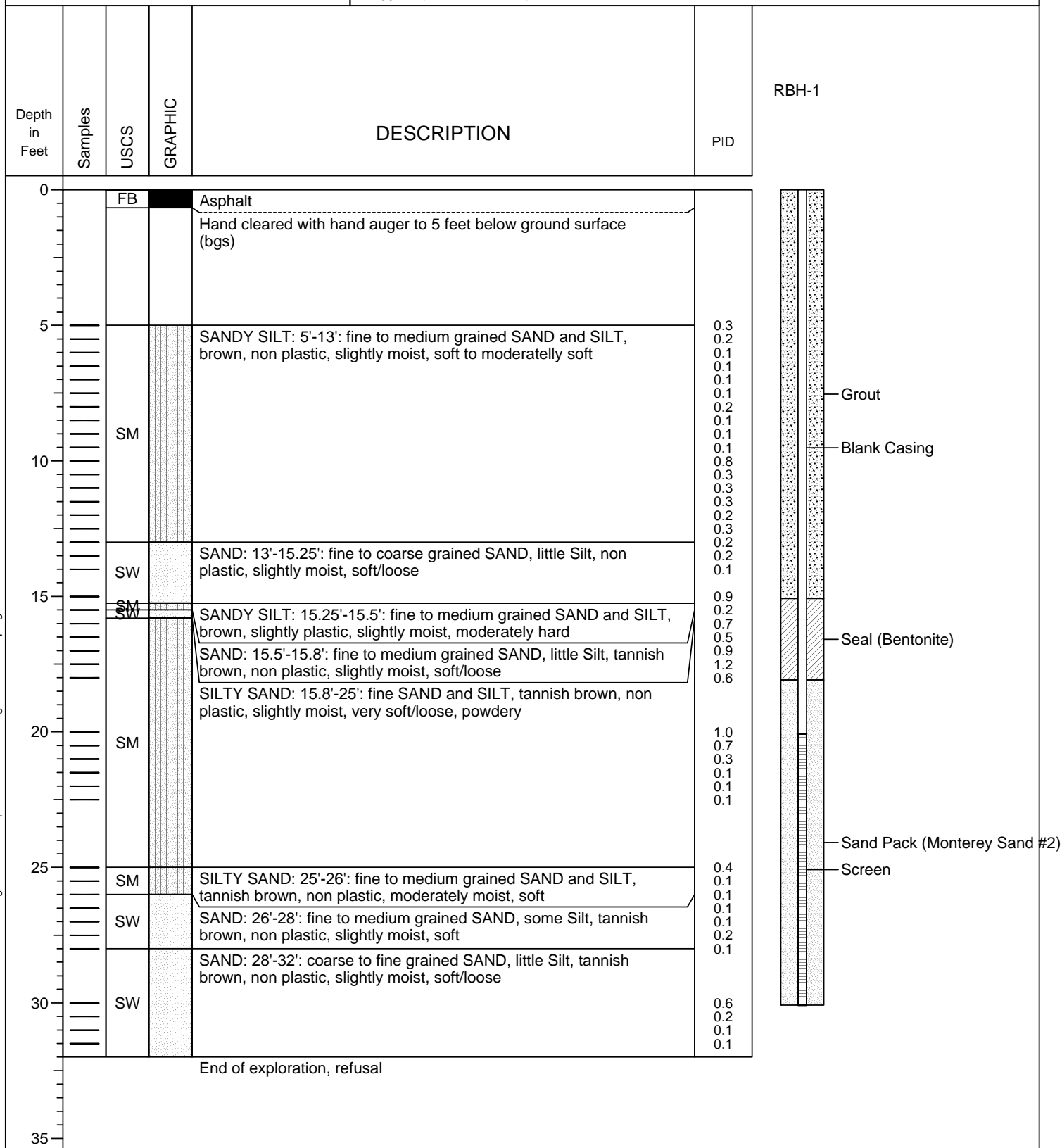
Groundwater Well Location Map

Figure 2

Appendix A

Soil Boring Logs

Date Completed	: 3/9/17
Location	: Middle of parking lot, west of RBH-4
Method	: GeoProbe 66DT Direct Push
Drilled By	: Cascade
Logged By	: Ryan Stewart



Appendix B

Groundwater Laboratory Analytical Report

March 10, 2017

Ryan J. Stewart
Rincon Consultants, Inc
180 N. Ashwood Ave.
Ventura, CA 93003
TEL: (760)918-9444
FAX:

CA-ELAPNo.: 2676
NV Cert. No.: NV-00922

Workorder No.: N023417

RE: Long Beach Blvd, 16-03146

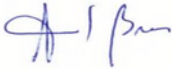
Attention: Ryan J. Stewart

Enclosed are the results for sample(s) received on March 09, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 or Molky Brar at (562)-881-3622 if we can be of further assistance to your company.

Sincerely,



Molky Brar
Project Manager



Puri Romualdo
Laboratory Director



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NEVADA | P:702.307.2659 F:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: Rincon Consultants, Inc
Project: Long Beach Blvd, 16-03146
Lab Order: N023417

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS:**

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

Analytical Comments for EPA 8260B:

Laboratory Control Sample (LCS) recovery biased high for sec-butylbenzene. Sample results were non-detect (ND) for this analyte therefore reanalysis of the samples was not necessary.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Project: Long Beach Blvd, 16-03146
Lab Order: N023417
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023417-001A	RBH-1	Groundwater	3/9/2017 2:28:00 PM	3/9/2017	3/10/2017
N023417-002A	RBH-1 DUP	Groundwater	3/9/2017 2:29:00 PM	3/9/2017	3/10/2017
N023417-003A	RBH-2	Groundwater	3/9/2017 2:50:00 PM	3/9/2017	3/10/2017
N023417-004A	RBH-3	Groundwater	3/9/2017 3:10:00 PM	3/9/2017	3/10/2017
N023417-005A	RBH-4	Groundwater	3/9/2017 3:25:00 PM	3/9/2017	3/10/2017
N023417-006A	RBH-5	Groundwater	3/9/2017 3:35:00 PM	3/9/2017	3/10/2017
N023417-007A	RBH-6	Groundwater	3/9/2017 4:15:00 PM	3/9/2017	3/10/2017
N023417-008A	RBH-7	Groundwater	3/9/2017 1:55:00 PM	3/9/2017	3/10/2017



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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-001

Client Sample ID: RBH-1
Collection Date: 3/9/2017 2:28:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	1.7	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-001

Client Sample ID: RBH-1
Collection Date: 3/9/2017 2:28:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	6.7	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	94.0	78-125	%REC
Surr: 4-Bromofluorobenzene	97.0	80-120	%REC
Surr: Dibromofluoromethane	99.9	80-122	%REC
Surr: Toluene-d8	104	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-002

Client Sample ID: RBH-1 DUP
Collection Date: 3/9/2017 2:29:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	1.8	0.50	µg/L
Chloromethane	1.0	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-002

Client Sample ID: RBH-1 DUP
Collection Date: 3/9/2017 2:29:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	7.1	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	98.8	78-125	%REC
Surr: 4-Bromofluorobenzene	99.2	80-120	%REC
Surr: Dibromofluoromethane	104	80-122	%REC
Surr: Toluene-d8	106	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-003

Client Sample ID: RBH-2
Collection Date: 3/9/2017 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	ND	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-003

Client Sample ID: RBH-2
Collection Date: 3/9/2017 2:50:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	4.9	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	101	78-125	%REC
Surr: 4-Bromofluorobenzene	97.5	80-120	%REC
Surr: Dibromofluoromethane	108	80-122	%REC
Surr: Toluene-d8	106	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-004

Client Sample ID: RBH-3
Collection Date: 3/9/2017 3:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	ND	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-004

Client Sample ID: RBH-3
Collection Date: 3/9/2017 3:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	4.2	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	98.8	78-125	%REC
Surr: 4-Bromofluorobenzene	97.4	80-120	%REC
Surr: Dibromofluoromethane	103	80-122	%REC
Surr: Toluene-d8	106	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-005

Client Sample ID: RBH-4
Collection Date: 3/9/2017 3:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	1.7	0.50	µg/L
Chloromethane	1.1	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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 ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-005

Client Sample ID: RBH-4
Collection Date: 3/9/2017 3:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	3.4	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	102	78-125	%REC
Surr: 4-Bromofluorobenzene	99.4	80-120	%REC
Surr: Dibromofluoromethane	107	80-122	%REC
Surr: Toluene-d8	107	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-006

Client Sample ID: RBH-5
Collection Date: 3/9/2017 3:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	2.3	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-006

Client Sample ID: RBH-5
Collection Date: 3/9/2017 3:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	1.2	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	98.2	78-125	%REC
Surr: 4-Bromofluorobenzene	97.1	80-120	%REC
Surr: Dibromofluoromethane	105	80-122	%REC
Surr: Toluene-d8	106	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-007

Client Sample ID: RBH-6
Collection Date: 3/9/2017 4:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	ND	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	2.0	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-007

Client Sample ID: RBH-6
Collection Date: 3/9/2017 4:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L
Dibromochloromethane	ND	0.50	µg/L
Dibromomethane	ND	0.50	µg/L
Dichlorodifluoromethane	ND	0.50	µg/L
Ethylbenzene	ND	0.50	µg/L
Freon-113	ND	0.50	µg/L
Hexachlorobutadiene	ND	0.50	µg/L
Isopropylbenzene	ND	0.50	µg/L
m,p-Xylene	ND	1.0	µg/L
Methylene chloride	ND	2.0	µg/L
MTBE	ND	0.50	µg/L
n-Butylbenzene	ND	0.50	µg/L
n-Propylbenzene	ND	0.50	µg/L
Naphthalene	ND	0.50	µg/L
o-Xylene	ND	0.50	µg/L
sec-Butylbenzene	ND	0.50	µg/L
Styrene	ND	0.50	µg/L
tert-Butylbenzene	ND	0.50	µg/L
Tetrachloroethene	4.1	0.50	µg/L
Toluene	ND	0.50	µg/L
trans-1,2-Dichloroethene	ND	0.50	µg/L
Trichloroethene	ND	0.50	µg/L
Trichlorofluoromethane	ND	0.50	µg/L
Vinyl chloride	ND	0.50	µg/L
Xylenes, Total	ND	1.5	µg/L
Surr: 1,2-Dichloroethane-d4	104	78-125	%REC
Surr: 4-Bromofluorobenzene	96.2	80-120	%REC
Surr: Dibromofluoromethane	108	80-122	%REC
Surr: Toluene-d8	109	80-120	%REC

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 S Spike/Surrogate outside of limits due to matrix interference
 DO Surrogate Diluted Out
 E Value above quantitation range
 ND Not Detected at the Reporting Limit
 Results are wet unless otherwise specified



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-008

Client Sample ID: RBH-7
Collection Date: 3/9/2017 1:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID: NV00922-MS5_170310A	QC Batch: P17VW046	PrepDate	Analyst: RB
1,1,1,2-Tetrachloroethane	ND	0.50	µg/L
1,1,1-Trichloroethane	ND	0.50	µg/L
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L
1,1,2-Trichloroethane	ND	0.50	µg/L
1,1-Dichloroethane	ND	0.50	µg/L
1,1-Dichloroethene	ND	0.50	µg/L
1,1-Dichloropropene	ND	0.50	µg/L
1,2,3-Trichlorobenzene	ND	0.50	µg/L
1,2,3-Trichloropropane	ND	0.50	µg/L
1,2,4-Trichlorobenzene	ND	0.50	µg/L
1,2,4-Trimethylbenzene	ND	0.50	µg/L
1,2-Dibromo-3-chloropropane	ND	1.0	µg/L
1,2-Dibromoethane	ND	0.50	µg/L
1,2-Dichlorobenzene	ND	0.50	µg/L
1,2-Dichloroethane	ND	0.50	µg/L
1,2-Dichloropropane	ND	0.50	µg/L
1,3,5-Trimethylbenzene	ND	0.50	µg/L
1,3-Dichlorobenzene	ND	0.50	µg/L
1,3-Dichloropropane	ND	0.50	µg/L
1,4-Dichlorobenzene	ND	0.50	µg/L
2,2-Dichloropropane	ND	0.50	µg/L
2-Butanone	ND	5.0	µg/L
2-Chlorotoluene	ND	0.50	µg/L
4-Chlorotoluene	ND	0.50	µg/L
4-Isopropyltoluene	ND	0.50	µg/L
Benzene	ND	0.50	µg/L
Bromobenzene	ND	0.50	µg/L
Bromodichloromethane	0.94	0.50	µg/L
Bromoform	ND	0.50	µg/L
Bromomethane	ND	1.0	µg/L
Carbon tetrachloride	ND	0.50	µg/L
Chlorobenzene	ND	0.50	µg/L
Chloroethane	ND	1.0	µg/L
Chloroform	6.9	0.50	µg/L
Chloromethane	ND	0.50	µg/L
cis-1,2-Dichloroethene	ND	0.50	µg/L

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 10-Mar-17

CLIENT: Rincon Consultants, Inc
Lab Order: N023417
Project: Long Beach Blvd, 16-03146
Lab ID: N023417-008

Client Sample ID: RBH-7
Collection Date: 3/9/2017 1:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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VOLATILE ORGANIC COMPOUNDS BY GC/MS
EPA 8260B

RunID:	NV00922-MS5_170310A	QC Batch:	P17VW046	PrepDate	Analyst: RB
cis-1,3-Dichloropropene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Dibromochloromethane	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Dibromomethane	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Dichlorodifluoromethane	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Ethylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Freon-113	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Hexachlorobutadiene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Isopropylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
m,p-Xylene	ND	1.0	µg/L	1	3/10/2017 01:56 PM
Methylene chloride	ND	2.0	µg/L	1	3/10/2017 01:56 PM
MTBE	ND	0.50	µg/L	1	3/10/2017 01:56 PM
n-Butylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
n-Propylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Naphthalene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
o-Xylene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
sec-Butylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Styrene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
tert-Butylbenzene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Tetrachloroethene	7.5	0.50	µg/L	1	3/10/2017 01:56 PM
Toluene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
trans-1,2-Dichloroethene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Trichloroethene	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Trichlorofluoromethane	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Vinyl chloride	ND	0.50	µg/L	1	3/10/2017 01:56 PM
Xylenes, Total	ND	1.5	µg/L	1	3/10/2017 01:56 PM
Surr: 1,2-Dichloroethane-d4	96.2	78-125	%REC	1	3/10/2017 01:56 PM
Surr: 4-Bromofluorobenzene	95.3	80-120	%REC	1	3/10/2017 01:56 PM
Surr: Dibromofluoromethane	99.4	80-122	%REC	1	3/10/2017 01:56 PM
Surr: Toluene-d8	104	80-120	%REC	1	3/10/2017 01:56 PM

Qualifiers: B Analyte detected in the associated Method Blank E Value above quantitation range
 H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit
 S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified
 DO Surrogate Diluted Out



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CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT**TestCode: 8260WATERP**

Sample ID	P170310LCS	SampType: LCS	TestCode: 8260WATER	Units: µg/L	Prep Date:	RunNo: 114037					
Client ID:	LCSW	Batch ID: P17VW046	TestNo: EPA 8260B		Analysis Date: 3/10/2017	SeqNo: 2592158					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	20.070	0.50	20.00	0	100	80	121				
1,1,1-Trichloroethane	21.740	0.50	20.00	0	109	77	122				
1,1,2,2-Tetrachloroethane	23.360	0.50	20.00	0	117	77	123				
1,1,2-Trichloroethane	18.990	0.50	20.00	0	95.0	87	120				
1,1-Dichloroethane	20.640	0.50	20.00	0	103	72	127				
1,1-Dichloroethene	20.100	0.50	20.00	0	101	71	127				
1,1-Dichloropropene	22.700	0.50	20.00	0	114	87	120				
1,2,3-Trichlorobenzene	19.840	0.50	20.00	0	99.2	77	124				
1,2,3-Trichloropropane	21.750	0.50	20.00	0	109	77	120				
1,2,4-Trichlorobenzene	18.990	0.50	20.00	0	95.0	76	122				
1,2,4-Trimethylbenzene	20.920	0.50	20.00	0	105	85	120				
1,2-Dibromo-3-chloropropane	22.060	1.0	20.00	0	110	67	125				
1,2-Dibromoethane	19.410	0.50	20.00	0	97.0	80	120				
1,2-Dichlorobenzene	21.060	0.50	20.00	0	105	80	120				
1,2-Dichloroethane	18.970	0.50	20.00	0	94.8	80	120				
1,2-Dichloropropane	20.520	0.50	20.00	0	103	80	120				
1,3,5-Trimethylbenzene	23.020	0.50	20.00	0	115	80	120				
1,3-Dichlorobenzene	21.050	0.50	20.00	0	105	80	120				
1,3-Dichloropropane	20.990	0.50	20.00	0	105	80	120				
1,4-Dichlorobenzene	20.940	0.50	20.00	0	105	80	120				
2,2-Dichloropropane	22.310	0.50	20.00	0	112	53	142				
2-Butanone	145.820	5.0	200.0	0	72.9	23	175				
2-Chlorotoluene	20.650	0.50	20.00	0	103	80	120				
4-Chlorotoluene	21.960	0.50	20.00	0	110	80	120				
4-Isopropyltoluene	21.670	0.50	20.00	0	108	80	120				
Benzene	20.520	0.50	20.00	0	103	80	120				
Bromobenzene	19.590	0.50	20.00	0	98.0	80	120				
Bromodichloromethane	19.630	0.50	20.00	0	98.2	80	120				
Bromoform	20.330	0.50	20.00	0	102	72	133				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			



ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDED WITH PROFESSIONALISM AND INTEGRITY

Serving Clients with Passion and Professionalism™

CALIFORNIA | P: 562.219.7435 F: 562.219.7436
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ORELAP/NELAP Cert 4046

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	P170310LCS	SampType:	LCS	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	LCSW	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592158
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromomethane	12.170	1.0	20.00	0	60.8	19	178				
Carbon tetrachloride	22.300	0.50	20.00	0	112	72	131				
Chlorobenzene	21.090	0.50	20.00	0	105	80	120				
Chloroethane	21.870	1.0	20.00	0	109	66	140				
Chloroform	19.890	0.50	20.00	0	99.4	77	120				
Chloromethane	14.560	0.50	20.00	0	72.8	47	154				
cis-1,2-Dichloroethene	20.760	0.50	20.00	0	104	80	120				
cis-1,3-Dichloropropene	21.170	0.50	20.00	0	106	80	120				
Dibromochloromethane	20.700	0.50	20.00	0	104	80	122				
Dibromomethane	20.050	0.50	20.00	0	100	80	120				
Dichlorodifluoromethane	13.090	0.50	20.00	0	65.4	53	166				
Ethylbenzene	21.970	0.50	20.00	0	110	80	120				
Freon-113	18.580	0.50	20.00	0	92.9	71	129				
Hexachlorobutadiene	22.820	0.50	20.00	0	114	79	123				
Isopropylbenzene	18.280	0.50	20.00	0	91.4	80	120				
m,p-Xylene	45.250	1.0	40.00	0	113	80	120				
Methylene chloride	21.530	2.0	20.00	0	108	71	124				
MTBE	19.180	0.50	20.00	0	95.9	77	120				
n-Butylbenzene	20.530	0.50	20.00	0	103	80	127				
n-Propylbenzene	23.230	0.50	20.00	0	116	80	122				
Naphthalene	21.420	0.50	20.00	0	107	63	131				
o-Xylene	22.530	0.50	20.00	0	113	80	120				
sec-Butylbenzene	24.240	0.50	20.00	0	121	80	120				S
Styrene	22.610	0.50	20.00	0	113	80	120				
tert-Butylbenzene	22.920	0.50	20.00	0	115	80	120				
Tetrachloroethene	21.290	0.50	20.00	0	106	80	120				
Toluene	20.190	0.50	20.00	0	101	80	120				
trans-1,2-Dichloroethene	21.120	0.50	20.00	0	106	78	126				
Trichloroethene	21.530	0.50	20.00	0	108	80	120				
Trichlorofluoromethane	26.190	0.50	20.00	0	131	67	149				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	P170310LCS	SampType:	LCS	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	LCSW	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592158
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	20.130	0.50	20.00	0	101	70	135				
Xylenes, Total	67.780	1.5	60.00	0	113	70	130				
Surr: 1,2-Dichloroethane-d4	25.800		25.00		103	78	125				
Surr: 4-Bromofluorobenzene	26.260		25.00		105	80	120				
Surr: Dibromofluoromethane	25.770		25.00		103	80	122				
Surr: Toluene-d8	25.260		25.00		101	80	120				

Sample ID	P170310MB3	SampType:	MBLK	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037	
Client ID:	PBW	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592159	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane		ND	0.50									
1,1,1-Trichloroethane		ND	0.50									
1,1,2,2-Tetrachloroethane		ND	0.50									
1,1,2-Trichloroethane		ND	0.50									
1,1-Dichloroethane		ND	0.50									
1,1-Dichloroethene		ND	0.50									
1,1-Dichloropropene		ND	0.50									
1,2,3-Trichlorobenzene		ND	0.50									
1,2,3-Trichloropropane		ND	0.50									
1,2,4-Trichlorobenzene		ND	0.50									
1,2,4-Trimethylbenzene		ND	0.50									
1,2-Dibromo-3-chloropropane		ND	1.0									
1,2-Dibromoethane		ND	0.50									
1,2-Dichlorobenzene		ND	0.50									
1,2-Dichloroethane		ND	0.50									
1,2-Dichloropropane		ND	0.50									
1,3,5-Trimethylbenzene		ND	0.50									
1,3-Dichlorobenzene		ND	0.50									
1,3-Dichloropropane		ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	P170310MB3	SampType:	MBLK	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	PBW	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592159
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,4-Dichlorobenzene	ND	0.50									
2,2-Dichloropropane	ND	0.50									
2-Butanone	ND	5.0									
2-Chlorotoluene	ND	0.50									
4-Chlorotoluene	ND	0.50									
4-Isopropyltoluene	ND	0.50									
Benzene	ND	0.50									
Bromobenzene	ND	0.50									
Bromodichloromethane	ND	0.50									
Bromoform	ND	0.50									
Bromomethane	ND	1.0									
Carbon tetrachloride	ND	0.50									
Chlorobenzene	ND	0.50									
Chloroethane	ND	1.0									
Chloroform	ND	0.50									
Chloromethane	ND	0.50									
cis-1,2-Dichloroethene	ND	0.50									
cis-1,3-Dichloropropene	ND	0.50									
Dibromochloromethane	ND	0.50									
Dibromomethane	ND	0.50									
Dichlorodifluoromethane	ND	0.50									
Ethylbenzene	ND	0.50									
Freon-113	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Isopropylbenzene	ND	0.50									
m,p-Xylene	ND	1.0									
Methylene chloride	ND	2.0									
MTBE	ND	0.50									
n-Butylbenzene	ND	0.50									
n-Propylbenzene	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	P170310MB3	SampType:	MBLK	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	PBW	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592159
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50									
o-Xylene	ND	0.50									
sec-Butylbenzene	ND	0.50									
Styrene	ND	0.50									
tert-Butylbenzene	ND	0.50									
Tetrachloroethene	ND	0.50									
Toluene	ND	0.50									
trans-1,2-Dichloroethene	ND	0.50									
Trichloroethene	ND	0.50									
Trichlorofluoromethane	ND	0.50									
Vinyl chloride	ND	0.50									
Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	26.260		25.00		105	78	125				
Surr: 4-Bromofluorobenzene	23.690		25.00		94.8	80	120				
Surr: Dibromofluoromethane	27.050		25.00		108	80	122				
Surr: Toluene-d8	25.810		25.00		103	80	120				

Sample ID	N023417-001AMS	SampType: MS	TestCode: 8260WATER	Units: µg/L	Prep Date:				RunNo: 114037		
Client ID:	ZZZZZZ	Batch ID: P17VW046	TestNo: EPA 8260B	Analysis Date: 3/10/2017				SeqNo: 2592168			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.870	0.50	20.00	0	99.4	76	127				
1,1,1-Trichloroethane	23.100	0.50	20.00	0	116	72	125				
1,1,2,2-Tetrachloroethane	21.320	0.50	20.00	0	107	75	126				
1,1,2-Trichloroethane	19.630	0.50	20.00	0	98.2	80	120				
1,1-Dichloroethane	21.270	0.50	20.00	0	106	69	128				
1,1-Dichloroethene	22.430	0.50	20.00	0	112	62	135				
1,1-Dichloropropene	24.800	0.50	20.00	0	124	75	123				S
1,2,3-Trichlorobenzene	17.230	0.50	20.00	0	86.2	66	129				
1,2,3-Trichloropropane	20.520	0.50	20.00	0	103	73	124				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	N023417-001AMS	SampType:	MS	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	ZZZZZZ	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592168
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	17.130	0.50	20.00	0	85.7	63	131				
1,2,4-Trimethylbenzene	20.290	0.50	20.00	0	101	62	131				
1,2-Dibromo-3-chloropropane	19.030	1.0	20.00	0	95.2	66	126				
1,2-Dibromoethane	19.050	0.50	20.00	0	95.2	80	126				
1,2-Dichlorobenzene	19.750	0.50	20.00	0	98.8	80	120				
1,2-Dichloroethane	19.010	0.50	20.00	0	95.1	80	121				
1,2-Dichloropropane	20.380	0.50	20.00	0	102	79	120				
1,3,5-Trimethylbenzene	23.080	0.50	20.00	0	115	69	128				
1,3-Dichlorobenzene	20.490	0.50	20.00	0	102	80	120				
1,3-Dichloropropane	20.390	0.50	20.00	0	102	80	120				
1,4-Dichlorobenzene	20.530	0.50	20.00	0	103	80	120				
2,2-Dichloropropane	22.560	0.50	20.00	0	113	56	144				
2-Butanone	101.070	5.0	200.0	2.210	49.4	4	163				
2-Chlorotoluene	20.520	0.50	20.00	0	103	79	120				
4-Chlorotoluene	21.620	0.50	20.00	0	108	79	120				
4-Isopropyltoluene	22.080	0.50	20.00	0	110	70	128				
Benzene	21.400	0.50	20.00	0	107	80	120				
Bromobenzene	19.070	0.50	20.00	0	95.4	80	120				
Bromodichloromethane	19.790	0.50	20.00	0	99.0	80	124				
Bromoform	18.350	0.50	20.00	0	91.8	66	139				
Bromomethane	19.800	1.0	20.00	0	99.0	18	174				
Carbon tetrachloride	23.790	0.50	20.00	0	119	59	144				
Chlorobenzene	21.000	0.50	20.00	0	105	80	120				
Chloroethane	24.220	1.0	20.00	0	121	62	145				
Chloroform	21.790	0.50	20.00	1.730	100	74	120				
Chloromethane	16.230	0.50	20.00	0	81.2	37	157				
cis-1,2-Dichloroethene	20.670	0.50	20.00	0	103	73	125				
cis-1,3-Dichloropropene	21.020	0.50	20.00	0	105	80	123				
Dibromochloromethane	19.240	0.50	20.00	0	96.2	77	130				
Dibromomethane	19.720	0.50	20.00	0	98.6	70	132				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	N023417-001AMS	SampType:	MS	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	ZZZZZZ	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592168
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane	14.020	0.50	20.00	0	70.1	47	159				
Ethylbenzene	22.380	0.50	20.00	0	112	79	120				
Freon-113	20.230	0.50	20.00	0	101	64	132				
Hexachlorobutadiene	21.350	0.50	20.00	0	107	66	128				
Isopropylbenzene	19.050	0.50	20.00	0	95.2	78	120				
m,p-Xylene	45.770	1.0	40.00	0	114	80	120				
Methylene chloride	22.280	2.0	20.00	0	111	65	122				
MTBE	18.580	0.50	20.00	0	92.9	71	125				
n-Butylbenzene	21.050	0.50	20.00	0	105	65	134				
n-Propylbenzene	24.020	0.50	20.00	0	120	78	121				
Naphthalene	17.350	0.50	20.00	0	86.8	52	137				
o-Xylene	22.830	0.50	20.00	0	114	80	120				
sec-Butylbenzene	24.880	0.50	20.00	0	124	76	122				S
Styrene	21.640	0.50	20.00	0	108	43	145				
tert-Butylbenzene	23.820	0.50	20.00	0	119	78	120				
Tetrachloroethene	30.200	0.50	20.00	6.700	118	71	123				
Toluene	20.780	0.50	20.00	0	104	80	120				
trans-1,2-Dichloroethene	22.090	0.50	20.00	0	110	64	132				
Trichloroethene	21.830	0.50	20.00	0	109	79	121				
Trichlorofluoromethane	28.500	0.50	20.00	0	142	65	144				
Vinyl chloride	21.400	0.50	20.00	0	107	64	134				
Xylenes, Total	68.600	1.5	60.00	0	114	70	130				
Surr: 1,2-Dichloroethane-d4	25.580		25.00		102	78	125				
Surr: 4-Bromofluorobenzene	26.360		25.00		105	80	120				
Surr: Dibromofluoromethane	26.170		25.00		105	80	122				
Surr: Toluene-d8	26.600		25.00		106	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	N023417-001AMSD	SampType:	MSD	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037
Client ID:	ZZZZZZ	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592169
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,1,1,2-Tetrachloroethane	19.980	0.50	20.00	0	99.9	76	127	19.87	0.552	20	
1,1,1-Trichloroethane	22.180	0.50	20.00	0	111	72	125	23.10	4.06	20	
1,1,2,2-Tetrachloroethane	20.710	0.50	20.00	0	104	75	126	21.32	2.90	20	
1,1,2-Trichloroethane	19.050	0.50	20.00	0	95.2	80	120	19.63	3.00	20	
1,1-Dichloroethane	20.780	0.50	20.00	0	104	69	128	21.27	2.33	20	
1,1-Dichloroethene	21.630	0.50	20.00	0	108	62	135	22.43	3.63	20	
1,1-Dichloropropene	24.210	0.50	20.00	0	121	75	123	24.80	2.41	20	
1,2,3-Trichlorobenzene	18.020	0.50	20.00	0	90.1	66	129	17.23	4.48	20	
1,2,3-Trichloropropane	20.100	0.50	20.00	0	101	73	124	20.52	2.07	20	
1,2,4-Trichlorobenzene	17.500	0.50	20.00	0	87.5	63	131	17.13	2.14	20	
1,2,4-Trimethylbenzene	20.230	0.50	20.00	0	101	62	131	20.29	0.296	20	
1,2-Dibromo-3-chloropropane	17.620	1.0	20.00	0	88.1	66	126	19.03	7.69	20	
1,2-Dibromoethane	19.360	0.50	20.00	0	96.8	80	126	19.05	1.61	20	
1,2-Dichlorobenzene	19.660	0.50	20.00	0	98.3	80	120	19.75	0.457	20	
1,2-Dichloroethane	18.820	0.50	20.00	0	94.1	80	121	19.01	1.00	20	
1,2-Dichloropropane	20.230	0.50	20.00	0	101	79	120	20.38	0.739	20	
1,3,5-Trimethylbenzene	22.700	0.50	20.00	0	114	69	128	23.08	1.66	20	
1,3-Dichlorobenzene	19.860	0.50	20.00	0	99.3	80	120	20.49	3.12	20	
1,3-Dichloropropane	20.850	0.50	20.00	0	104	80	120	20.39	2.23	20	
1,4-Dichlorobenzene	20.480	0.50	20.00	0	102	80	120	20.53	0.244	20	
2,2-Dichloropropane	21.850	0.50	20.00	0	109	56	144	22.56	3.20	20	
2-Butanone	97.520	5.0	200.0	2.210	47.7	4	163	101.1	3.58	20	
2-Chlorotoluene	20.480	0.50	20.00	0	102	79	120	20.52	0.195	20	
4-Chlorotoluene	21.670	0.50	20.00	0	108	79	120	21.62	0.231	20	
4-Isopropyltoluene	22.140	0.50	20.00	0	111	70	128	22.08	0.271	20	
Benzene	21.020	0.50	20.00	0	105	80	120	21.40	1.79	20	
Bromobenzene	19.030	0.50	20.00	0	95.2	80	120	19.07	0.210	20	
Bromodichloromethane	19.660	0.50	20.00	0	98.3	80	124	19.79	0.659	20	
Bromoform	18.100	0.50	20.00	0	90.5	66	139	18.35	1.37	20	
Bromomethane	19.730	1.0	20.00	0	98.6	18	174	19.80	0.354	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	N023417-001AMSD	SampType: MSD	TestCode: 8260WATER	Units: µg/L	Prep Date:				RunNo: 114037		
Client ID:	ZZZZZZ	Batch ID: P17VW046	TestNo: EPA 8260B	Analysis Date: 3/10/2017				SeqNo: 2592169			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon tetrachloride	22.780	0.50	20.00	0	114	59	144	23.79	4.34	20	
Chlorobenzene	21.010	0.50	20.00	0	105	80	120	21.00	0.0476	20	
Chloroethane	23.870	1.0	20.00	0	119	62	145	24.22	1.46	20	
Chloroform	21.390	0.50	20.00	1.730	98.3	74	120	21.79	1.85	20	
Chloromethane	16.290	0.50	20.00	0	81.4	37	157	16.23	0.369	20	
cis-1,2-Dichloroethene	20.150	0.50	20.00	0	101	73	125	20.67	2.55	20	
cis-1,3-Dichloropropene	20.820	0.50	20.00	0	104	80	123	21.02	0.956	20	
Dibromochloromethane	19.590	0.50	20.00	0	98.0	77	130	19.24	1.80	20	
Dibromomethane	19.060	0.50	20.00	0	95.3	70	132	19.72	3.40	20	
Dichlorodifluoromethane	13.560	0.50	20.00	0	67.8	47	159	14.02	3.34	20	
Ethylbenzene	22.160	0.50	20.00	0	111	79	120	22.38	0.988	20	
Freon-113	19.280	0.50	20.00	0	96.4	64	132	20.23	4.81	20	
Hexachlorobutadiene	21.750	0.50	20.00	0	109	66	128	21.35	1.86	20	
Isopropylbenzene	18.660	0.50	20.00	0	93.3	78	120	19.05	2.07	20	
m,p-Xylene	45.490	1.0	40.00	0	114	80	120	45.77	0.614	20	
Methylene chloride	21.610	2.0	20.00	0	108	65	122	22.28	3.05	20	
MTBE	18.230	0.50	20.00	0	91.2	71	125	18.58	1.90	20	
n-Butylbenzene	21.130	0.50	20.00	0	106	65	134	21.05	0.379	20	
n-Propylbenzene	23.510	0.50	20.00	0	118	78	121	24.02	2.15	20	
Naphthalene	19.090	0.50	20.00	0	95.4	52	137	17.35	9.55	20	
o-Xylene	22.660	0.50	20.00	0	113	80	120	22.83	0.747	20	
sec-Butylbenzene	24.470	0.50	20.00	0	122	76	122	24.88	1.66	20	S
Styrene	21.890	0.50	20.00	0	109	43	145	21.64	1.15	20	
tert-Butylbenzene	23.010	0.50	20.00	0	115	78	120	23.82	3.46	20	
Tetrachloroethene	28.210	0.50	20.00	6.700	108	71	123	30.20	6.81	20	
Toluene	20.200	0.50	20.00	0	101	80	120	20.78	2.83	20	
trans-1,2-Dichloroethene	20.730	0.50	20.00	0	104	64	132	22.09	6.35	20	
Trichloroethene	21.700	0.50	20.00	0	108	79	121	21.83	0.597	20	
Trichlorofluoromethane	27.020	0.50	20.00	0	135	65	144	28.50	5.33	20	
Vinyl chloride	20.940	0.50	20.00	0	105	64	134	21.40	2.17	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out	Calculations are based on raw values			

CLIENT: Rincon Consultants, Inc
Work Order: N023417
Project: Long Beach Blvd, 16-03146

ANALYTICAL QC SUMMARY REPORT

TestCode: 8260WATERP

Sample ID	N023417-001AMSD	SampType:	MSD	TestCode:	8260WATER	Units:	µg/L	Prep Date:		RunNo:	114037		
Client ID:	ZZZZZZ	Batch ID:	P17VW046	TestNo:	EPA 8260B			Analysis Date:	3/10/2017	SeqNo:	2592169		
Analyte		Result	PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Xylenes, Total		68.150	1.5	60.00	0		114	70	130	68.60	0.658	20	
Surr: 1,2-Dichloroethane-d4		24.160		25.00			96.6	78	125		0		
Surr: 4-Bromofluorobenzene		25.820		25.00			103	80	120		0		
Surr: Dibromofluoromethane		24.770		25.00			99.1	80	122		0		
Surr: Toluene-d8		25.780		25.00			103	80	120		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		



ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11110 Artesia Blvd. Ste. B • Cerritos, CA 90703
P: 562.219.7435 F: 562.219.7436
www.assetlaboratories.com

Page 1 of 1

Client: <u>Rincon Consultants, Inc.</u>		Report to: <u>Ryan J. Stewart</u>		Bill to: <u>Rincon Consultants, Inc</u>		EDD Requirement		QA/QC		Sample Receipt Condition									
Address: <u>2215 Faraday Ave, Suite 2</u>		Company: <u>Rincon Consultants, Inc</u>		Address: <u>2215 Faraday Ave, Suite 2</u>		Excel EDD <input type="checkbox"/>		RTNE <input type="checkbox"/>		Y N									
Address:		Email: <u>RStewart@rinconconsultants.com</u>				Geotracker <input type="checkbox"/>		RWQCB <input type="checkbox"/>		1. Chilled <input checked="" type="checkbox"/>									
Phone: <u>760-918-9444</u>		Fax:				LabSpec <input type="checkbox"/>		CalTrans <input type="checkbox"/>		2. Headspace <input type="checkbox"/>									
Submitted By: <u>Ryan J. Stewart</u>		Address: <u>2215 Faraday Ave, Suite 2</u>		Email to: <u>APC Rincon Consultants</u>		Others <input type="checkbox"/>		Level III <input type="checkbox"/>		3. Container Intact <input checked="" type="checkbox"/>									
Title: <u>Staff Ecologist</u>		Phone: <u>760-918-9444</u>		PO#: <u>16-03146</u>		Specify:		LEVEL IV <input type="checkbox"/>		4. Seal Present <input checked="" type="checkbox"/>									
Signature: <u>[Signature]</u>		Date: <u>3/9/17</u>		Phone: <u>760-918-9444</u>		Global ID:		Regulatory <input type="checkbox"/>		5. IR number <u>2</u>									
I hereby authorize ASSET Labs to perform the tests indicated below:		Sampler's Signature and Date: <u>[Signature] 3/9/17</u>		Matrix		Analyses Requested													
Project Name: <u>Long Beach Blvd</u>		I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Ground <input checked="" type="checkbox"/> Sediment <input type="checkbox"/>															
Project Number: <u>16-03146</u>		Sampler's Name: <u>Ryan J. Stewart</u>		Potable <input type="checkbox"/> Soil <input type="checkbox"/>															
				NPDES <input type="checkbox"/> Other Solid <input type="checkbox"/>															
				Surface <input type="checkbox"/>															
Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others					Turn Around Time	No. of container	Container Type	PRESERVATION	Courier: <u>050</u>	Tracking No. <u>4116</u>	Remarks	
1	N023417-01	RBH-1	3/9/17		3			X					A	3	V	H			
2	-02	RBH-1 Dup																	
3	-03	RBH-2																	
4	-04	RBH-3																	
5	-05	RBH-4																	
6	-06	RBH-5																	
7	-07	RBH-6																	
8	-08	RBH-7																	
9																			
10																			
Relinquished by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/9/17 1630</u>		Received by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/9/17 1630</u>		Turn Around Time (TAT): <u>A < 24 Hrs or Same Day TAT</u>			Special Instruction: <u>24 JAT</u>						
Relinquished by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/9/17 1130</u>		Received by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/10/17 8:10</u>		<input type="checkbox"/> B = Next Workday <input type="checkbox"/> C = 2 Workdays <input type="checkbox"/> D = 3 Workdays <input type="checkbox"/> E = Routine 5-7 Workdays TAT Starts at 8 AM the following day if samples received after 3:00 PM.									
Relinquished by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/9/17 1130</u>		Received by (Signature and Printed Name): <u>[Signature]</u>			Date / Time: <u>3/10/17 8:10</u>											

TERMS
1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%
3. Contain EDD formats will be an additional 3% of the total project price.

5. Trip Blanks and Equipment Blanks are billable sample.
6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 Days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.

Preservative:
1 = HCl N = HNO₃ S = H₂SO₄ C = 4°C
2 = Zn(Ac)₂ O = NaOH T = Na₂S₂O₅
Container Type:
T = Tube V = VOA P = Pint
J = Jar B = Tedlar G = Glass

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 3/9/2017 Workorder: N023417
 Rep sample Temp (Deg C): 3.1 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: Golden State Overnight
 Last 4 digits of Tracking No.: 4116 Packing Material Used: Bubble Wrap
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
16. Were there Non-Conformance issues at login?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Was Client notified?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments: Collection time was taken from sample labels.
 Samples 1 (RBH-1) and 7 (RBH-6): 1 VOA with headspace > 6 mm.
 Sample 6 (RBH-5): 1 VOA with headspace < 5 mm and 1 VOA with headspace > 6 mm.

Checklist Completed By: YR  3/10/2017

Reviewed By:  3/10/2017

ASSET Laboratories

WORK ORDER Summary

10-Mar-17

WorkOrder: N023417

Client ID: RINCO01

Project: Long Beach Blvd, 16-03146

QC Level: RTNE

Date Received: 3/9/2017

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N023417-001A	RBH-1	3/9/2017 2:28:00 PM	3/10/2017	Groundwater	EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-002A	RBH-1 DUP	3/9/2017 2:29:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-003A	RBH-2	3/9/2017 2:50:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-004A	RBH-3	3/9/2017 3:10:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-005A	RBH-4	3/9/2017 3:25:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-006A	RBH-5	3/9/2017 3:35:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-007A	RBH-6	3/9/2017 4:15:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-008A	RBH-7	3/9/2017 1:55:00 PM	3/10/2017		EPA 8260B	VOLATILE ORGANIC COMPOUNDS BY GC/MS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VW
N023417-009A	FOLDER	3/10/2017	3/10/2017		Folder	Folder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LAB



800-322-5555 www.gso.com

Ship From

ASSET LABORATORIES
MOLKY BRAR
11110 ARTESIA BLVD. SUITE B
CERRITOS, CA 90703

Tracking #: 535324116

CPS

**Ship To**

ATL INC
MARLON CARTIN
3151 W. POST RD.,
LAS VEGAS, NV 89118

LVS
LAS VEGAS

A

COD: \$0.00

Weight: 0 lb(s)

Reference:

C89102A

Delivery Instructions:

HOLD FOR PICK UP

Signature Type: REQUIRED



63889392

Print Date: 3/9/2017 5:47 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer. Securely attach this label to your package, do not cover the barcode.

3.1⁰
JR #2

Appendix C

Soil Laboratory Analytical Report



8100 Secura Way • Santa Fe Springs, CA 90670
Telephone (562) 347-2500 • Fax (562) 907-3610

March 17, 2017

Erik Feldman
Rincon Consultants, Inc.
5355 Avenida Encinas, Suite 103
Carlsbad, California 92008

Re: PTS File No: 47132
Physical Properties Data
16-03146

Dear Mr. Feldman:

Please find enclosed report for Physical Properties analyses conducted upon the sample received from your 16-03146 project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The sample is currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the sample will be disposed of at that time. You may contact me regarding storage, disposal, or return of the sample.

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please give me a call at (562) 347-2502.

Sincerely,
PTS Laboratories, Inc.

Michael Mark Brady, P.G.
Laboratory Director

Encl.

Project Name: N/A
Project Number: 16-03146

PTS File No: 47132
Client: Rincon Consultants, Inc.

TEST PROGRAM - 20170313

CORE ID	Depth ft.	Core Recovery ft.	Grain Size Analysis ASTM D422	Atterberg Limits ASTM D4318	USCS Soil Classification ASTM D2487			Comments
		Plugs:	Grab	Grab	Calc.			
Date Received: 20170313								
RBH-1 (5'-10')	5-10	N/A	X	X	X			
TOTALS:	1 Bag	N/A	1	1	1			1

Laboratory Test Program Notes

Contaminant identification:

Standard TAT for basic analysis is 10-15 business days.

USCS Soil Classification by ASTM D2487 requires Atterberg Limits and Grain Size Analysis.

PTS File No: 47132
 Client: Rincon Consultants, Inc.
 Report Date: 03/17/17

ATTERBERG LIMITS DATA - FINE FRACTION < No. 40 SIEVE

Project Name: N/A
 Project No: 16-03146

		METHODS:	ASTM D4318			ASTM D4318	ASTM D2487	USDA
SAMPLE ID.	DEPTH, ft.	ANALYSIS DATE	ATTERBERG LIMITS (1)			USCS / PLASTICITY CHART SYMBOL (Fines: <#40 Sieve)	USCS CLASSIFICATION, Group Symbol: Name	USDA SOIL TEXTURE SCHEME (2)
			LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX			
RBH-1 (5'-10')	5-10	20170315	21.2	12.1	9.1	CL	SC: Clayey sand	- -

(1) Silt assumed as fine fraction for NON-PLASTIC (NP) samples.

(2) Sand considered to be >No. 200 sieve for USDA SOIL TEXTURE SCHEME.

USCS: Unified Soil Classification System

USDA: US Department of Agriculture

SCS: Soil Conservation Service

PARTICLE SIZE SUMMARY

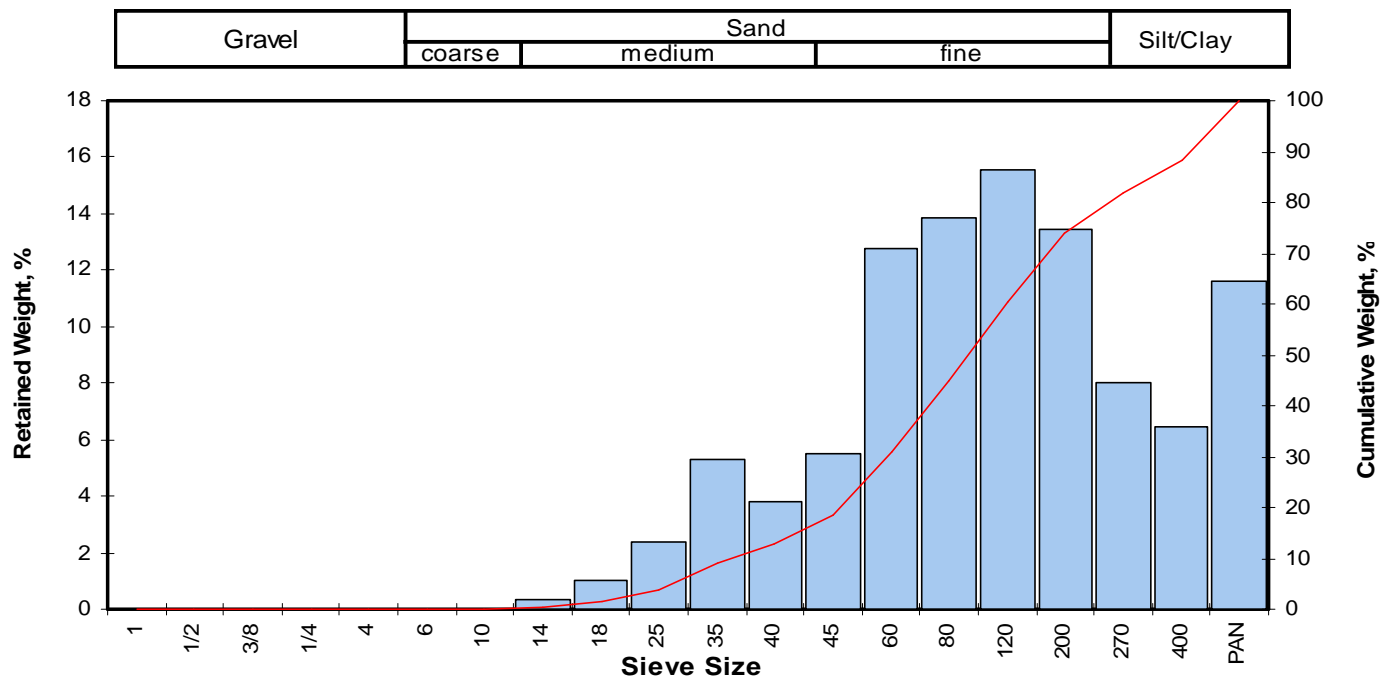
(METHODOLOGY: ASTM D422M)

PROJECT NAME: N/A
PROJECT NO: 16-03146

Sample ID	Depth, ft.	Mean Grain Size Description USCS/ASTM (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent				
				Gravel	Sand Size			Silt/Clay
					Coarse	Medium	Fine	
RBH-1 (5'-10')	5-10	Fine sand	0.158	0.00	0.00	12.84	61.08	26.08

Client: Rincon Consultants, Inc.
Project: 16-03146
Project No: N/A

PTS File No: 47132
Sample ID: RBH-1 (5'-10')
Depth, ft: 5-10



Opening		Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent	Cumulative Weight Percent greater than			
							Weight percent	Phi Value	Particle Size	
Inches	Millimeters							Inches	Millimeters	
0.9844	25.002	-4.64	1	0.00	0.00	0.00	5	0.62	0.0257	0.652
0.4922	12.501	-3.64	1/2	0.00	0.00	0.00	10	1.06	0.0189	0.479
0.3740	9.500	-3.25	3/8	0.00	0.00	0.00	16	1.39	0.0150	0.380
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00	25	1.76	0.0116	0.295
0.1873	4.757	-2.25	4	0.00	0.00	0.00	40	2.32	0.0079	0.200
0.1324	3.364	-1.75	6	0.00	0.00	0.00	50	2.66	0.0062	0.158
0.0787	2.000	-1.00	10	0.00	0.00	0.00	60	2.98	0.0050	0.126
0.0557	1.414	-0.50	14	0.35	0.34	0.34	75	3.82	0.0028	0.071
0.0394	1.000	0.00	18	1.03	1.01	1.36	84	4.41	0.0019	0.047
0.0278	0.707	0.50	25	2.45	2.41	3.76	90			
0.0197	0.500	1.00	35	5.40	5.30	9.07	95			
0.0166	0.420	1.25	40	3.84	3.77	12.84				
0.0139	0.354	1.50	45	5.57	5.47	18.31				
0.0098	0.250	2.00	60	13.03	12.80	31.11				
0.0070	0.177	2.50	80	14.09	13.84	44.95				
0.0049	0.125	3.00	120	15.83	15.55	60.50				
0.0029	0.074	3.75	200	13.67	13.43	73.92				
0.0021	0.053	4.25	270	8.15	8.01	81.93				
0.0015	0.037	4.75	400	6.55	6.43	88.36				
			PAN	11.85	11.64	100.00				



8100 Secura Way - Santa Fe Springs, CA 90670
Ph 562-347-2500 - Fax 562-907-3610
www.ptslabs.com

QUOTATION

Quote Number: 17-039
Quote Date: Feb 21, 2017
Page: 1

Quote Valid through 90 days
from above date.

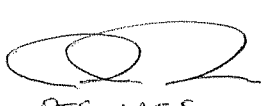
Invoice To:

RINCON CONSULTANTS, INC.
ATTN: ACCOUNTS PAYABLE
5355 AVENIDA ENCINAS, STE 103
CARLSBAD, CA 92008

Quoted To:

ERIK FELDMAN
RINCON CONSULTANTS, INC.
5355 AVENIDA ENCINAS, STE 103
CARLSBAD, CA 92008

Customer ID	Project Name / Number or Well / Field	Sales Rep
01RINCON CONSULTANTS	N/A / 16-03146	MICHAEL MARK BRADY

Quantity	Item	Description	Unit Price	Amount
1.00	ENV-20-01	Grain Size Analysis: ASTM D422; sieve method	85.00	85.00
1.00	ENV-30-04	Atterberg Limits: ASTM D4318	95.00	95.00
1.00	CON-10-01	USCS Classification: ASTM D2487	16.00	16.00
1.00	ROC-50-03	Sample Disposal; soil	2.00	2.00
Sample ID: RBH-1 (5'-10')				
Received By:  PTS LABS 3/13/17 0735 67.1 °F				
Subtotal				198.00
Sales Tax				
TOTAL (USD)				198.00

Client Signature: _____

Date: _____

Appendix D

Human Health Risk Assessment Results

Department of Toxic Substances Control Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION
(enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER

Chemical
CAS No.
(numbers only,
no dashes)

ENTER

Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

127184

7.50E+00

Tetrachloroethylene

MORE



ENTER

Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(15 or 200 cm)

ENTER

Depth
below grade
to water table,
 L_{WT}
(cm)

ENTER

SCS
soil type
directly above
water table

ENTER

Average
soil/
groundwater
temperature,
 T_S
($^{\circ}\text{C}$)

15

730

SC

22

ENTER

Average vapor
flow rate into bldg.
(Leave blank to calculate)

Q_{soil}
(L/m)

5

MORE



ENTER

Vadose zone
SCS
soil type
(used to estimate
soil vapor
permeability)

ENTER

OR

User-defined
vadose zone
soil vapor
permeability,
 k_v
(cm^2)

ENTER

Vadose zone
SCS
soil type
Lookup Soil

ENTER

Vadose zone
soil dry
bulk density,
 ρ_b^v
(g/cm^3)

ENTER

Vadose zone
soil total
porosity,
 n^v
(unitless)

ENTER

Vadose zone
soil water-filled
porosity,
 θ_w^v
(cm^3/cm^3)

SC

SC

1.63

0.385

0.197

MORE



ENTER

Target
risk for
carcinogens,
TR
(unitless)

ENTER

Target hazard
quotient for
noncarcinogens,
THQ
(unitless)

ENTER

Averaging
time for
carcinogens,
 AT_C
(yrs)

ENTER

Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)

ENTER

Exposure
duration,
ED
(yrs)

ENTER

Exposure
frequency,
EF
(days/yr)

ENTER

Exposure
Time
ET
(hrs/day)

ENTER

Air Exchange
Rate
ACH
(hour^{-1})

1.0E-06

1

70

26

26

350

24

0.5

Used to calculate risk-based
groundwater concentration.

(NEW)

(NEW)

END

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary					Risk-Based Groundwater Concentration	
Soil Gas Conc. (C_{source}) ($\mu\text{g/m}^3$)	Attenuation Factor (alpha) (unitless)	Indoor Air Conc. (C_{building}) ($\mu\text{g/m}^3$)	Cancer Risk	Noncancer Hazard	Cancer Risk $\approx 10^{-6}$ ($\mu\text{g/L}$)	Noncancer HQ = 1 ($\mu\text{g/L}$)
4.66E+03	5.5E-06	2.6E-02	5.4E-08	7.0E-04	NA	NA

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.

Department of Toxic Substances Control
Vapor Intrusion Screening Model - Groundwater

DATA ENTRY SHEET

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION
(enter "X" in "YES" box and initial groundwater conc. below)

YES

X

ENTER

ENTER

Chemical
CAS No.
(numbers only,
no dashes)Initial
groundwater
conc.,
 C_w
($\mu\text{g/L}$)

Chemical

127184

7.50E+00

Tetrachloroethylene

MORE

ENTER
Depth
below grade
to bottom
of enclosed
space floor,
 L_F
(15 or 200 cm)ENTER
Depth
below grade
to water table,
 L_{WT}
(cm)ENTER
SCS
soil type
directly above
water tableENTER
Average
soil/
groundwater
temperature,
 T_s
($^{\circ}\text{C}$)

15

730

SC

22

ENTER

Average vapor
flow rate into bldg.
(Leave blank to calculate) Q_{soil}
(L/m)

5

MORE

ENTER
Vadose zone
SCS
soil type
(used to estimate
soil vapor
permeability)

OR

ENTER
User-defined
vadose zone
soil vapor
permeability,
 k_v
(cm^2)ENTER
Vadose zone
SCS
soil type
Lookup SoilENTER
Vadose zone
soil dry
bulk density,
 ρ_b^V
(g/cm^3)ENTER
Vadose zone
soil total
porosity,
 n^V
(unitless)ENTER
Vadose zone
soil water-filled
porosity,
 θ_w^V
(cm^3/cm^3)

SC

SC

1.63

0.385

0.197

MORE



Lookup Receptor

ENTER
Target
risk for
carcinogens,
TR
(unitless)ENTER
Target hazard
quotient for
noncarcinogens,
THQ
(unitless)ENTER
Averaging
time for
carcinogens,
 AT_C
(yrs)ENTER
Averaging
time for
noncarcinogens,
 AT_{NC}
(yrs)ENTER
Exposure
duration,
ED
(yrs)ENTER
Exposure
frequency,
EF
(days/yr)ENTER
Exposure
Time
ET
(hrs/day)ENTER
Air Exchange
Rate
ACH
(hour^{-1})

NEW=> Commercial

1.0E-06

1

70

26

26

250

8

1

Used to calculate risk-based
groundwater concentration.

(NEW)

(NEW)

END

Results Summary					Risk-Based Groundwater Concentration	
Soil Gas Conc. (C_{source}) ($\mu\text{g/m}^3$)	Attenuation Factor (alpha) (unitless)	Indoor Air Conc. (C_{building}) ($\mu\text{g/m}^3$)	Cancer Risk	Noncancer Hazard	Cancer Risk $\approx 10^{-6}$ ($\mu\text{g/L}$)	Noncancer HQ ≈ 1 ($\mu\text{g/L}$)
4.66E+03	2.7E-06	1.3E-02	6.4E-09	8.3E-05	NA	NA

MESSAGE: Attenuation factor < 6E-05 is unreasonably low.