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PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

FOR THE PROPERTY REFERENCED AS:

**528 EAST MISSION ROAD
SAN MARCOS, CA 92069
(San Diego County Assessor's Parcel Number [APN] 220-210-26)**

PREPARED FOR:

**The McDonald Group
PO Box 992
Rancho Santa Fe, CA 92067-0992**

PIC Project No. ES9679

October 22, 2019

PIC ENVIRONMENTAL SERVICES
P. O. BOX 805
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1.0 INTRODUCTION

This report summarizes the findings of the **PIC ENVIRONMENTAL SERVICES** (PIC) Phase II Environmental Site Assessment (ESA) for the property referenced as 528 East Mission Road, San Marcos, CA 92069 (Figures 1-3). The purpose of Phase II ESA operations was to evaluate recognized environmental conditions (RECs) described in the Phase I ESA (PIC, October 9, 2019) as follows:

- There were two (2) storage structures in the central portion of the site. The contents of these structures included cans of spray paint, 1-gallon containers of paints and solvents, 5-gallon buckets of automotive lubricants and hydraulic fluid, and 55-gallon drums of used and new oils. These structures appeared to be used for hazardous materials storage long-term, and were viewed as RECs that warranted additional assessment.
- A 1,000-gallon diesel fuel UST may have been removed from a location in the southeastern portion of the site that is depicted as a gas pump on a site plan dated 1980 (Appendix A). There is an apparent patch in the asphalt pavement at the depicted location of the gas pump. Since there were no definitive records that indicated there was an UST removed from this location on the site, this location was viewed as a recognized environmental condition (REC) that warranted further action.
- There were several sewer and stormwater drains observed in the concrete and asphalt paving on the west side of the western building. This area was reportedly used for some limited metal plating operations by Teledyne prior to the mid 1990s. The historical use for limited plating operations by Teledyne in this portion of the site was viewed by PIC as a REC that warranted further action.
- A Waste Water Report dated 1981 provided by Tri-M personnel indicated that there may have been a former Teledyne anodizing line and waste water tank on the east side of the main building. This matter was viewed as a REC that warranted further action.

2.0 BACKGROUND

This Phase II ESA was authorized by and/or prepared on behalf of The McDonald Group. The property title record for the subject property indicated that the property owner is Jacquelyn and Richard Martin. Improvements on the subject property and the physical setting are generally described below.

2.1 Site Description and Features

The subject property is located on the northwest side of East Mission Road, between Falcon Place and Mulberry Drive, in San Marcos, San Diego County, California (Figures 1-3). It consists of an approximately 10.4-acre, irregular-shaped parcel (San Diego County APN 220-210-26). Tri-M and the Martin family are currently vacating the property of metal fabrication machines, metal machining materials, vehicles, forklifts, and miscellaneous items. Improvements include the t-shaped main building in the south-central portion of the site, the rectangular shop/warehouse building and loading dock in the western portion of the site, a barn structure in the northeastern portion of the site, asphalt-paved parking and yard storage areas throughout the southern half of the site, and a concrete-lined stormwater retention basin in the southeastern portion of the site. There are several outbuildings, sheet-metal awnings, and shipping containers, as well as various parked trucks, trailers, and recreational vehicles in the central portion of the site. The northern half of the parcel is largely unpaved and undeveloped.

2.2 Physical Setting

The elevation at the subject site ranges between approximately 600 and 650 feet above mean sea level. Grade on the site slopes generally to the south-southeast, toward San Marcos Creek (Figure 2).

The site is underlain by soils referenced as Escondido very fine sandy loam (EsC) and Huerhuero loam (HrC) according to the USDA soil map (on-line). EsC is residuum derived from weathered metamorphic and sandstone basement rocks and commonly occurs on 5% to 9% slopes. HrC is calcareous alluvium derived from sedimentary rock and commonly occurs on 2% to 9% slopes.

The surface geology at the subject property is depicted on published geologic maps as Recent-aged unconsolidated alluvial deposits throughout most of the site overlying Jurassic-Cretaceous metavolcanic and metasedimentary rocks that crop out in the unpaved northwestern portion of the site (CDMG, 1996).

The site lies in the Richland Hydrologic Subarea (904.52) of the San Marcos Hydrologic Area within the Carlsbad Hydrologic Unit. Beneficial use designations of groundwater include municipal, agricultural, and industrial service supply (California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Basin (9)*, On-Line).

The depth to groundwater is probably less than 20 feet in the southern portion of the site. The groundwater flow direction is probably to the south, based on local and regional topography.

No municipal groundwater production wells were depicted within ½-mile of the subject property on the USGS topographic quadrangle (Figure 2).

2.3 Site History and Land Use

The subject property was developed with the main building in the south-central portion of the site and the barn structure in the northeastern portion of the site sometime prior to 1939. Land use appeared to be agricultural between the 1930s or earlier and sometime between the early 1950s and mid 1960s. It appeared that use changed from agricultural to industrial in the 1950s or early 1960s. According to documents reviewed for this assessment, Teledyne Aero Cal (Teledyne) was the first documented industrial occupant according to a 1971 directory listing. Teledyne reportedly operated on the subject property until the mid 1990s when the Martin family purchased the property and commenced machining and fabrication by the family-owned business, Tri-M Co. (Tri-M). The Martin family is the current owner/seller of the subject property. Tri-M recently terminated operations and is currently vacating the property.

2.4 Adjacent Property Land Use

Land use in the site vicinity is a mixture of mostly residential, light industrial, and retail (Figure 3). The subject property is bounded to the northwest by single family residential properties and undeveloped land, to the east by light industrial and multi-tenant retail properties, to the southeast by East Mission Road and light industrial properties beyond, and to the southwest by a moving and storage business property (Pack Rat) and a restaurant/bar (The Cow Shed). A visual reconnaissance survey of adjacent and nearby properties revealed no evidence of surface hazardous substances contamination threatening the subject property or other RECs.

3.0 SITE ASSESSMENT OPERATIONS

3.1 Soil Sampling Operations

Soil samples were collected at nine (9) locations (B1 to B9) between September 16 and 25, 2019 using GeoProbe® direct-push sampling equipment (Figure 4). Soil samples were collected in plastic sleeves that were sealed, labeled, and placed in an ice-chilled cooler. All soil sampling equipment was washed in a solution of detergent and water and rinsed with tap water between sample intervals to prevent cross-contamination. The lithology of subsurface soils was described in the field according to the Unified Soil Classification System on drilling log forms (Appendix B). Upon completion of soil sampling operations, the probe holes were backfilled with hydrated bentonite and capped with concrete.

- Sampling locations B1 and B2 were advanced near the two (2) hazardous materials storage structures in the central portion of the site on September 16, 2019. Soil samples were collected at depths of 2 feet below ground surface (bgs) in B1 and 2 and 5 feet bgs in B2. The recovery of deeper samples was precluded by refusal in the hard (very dense) bedrock that consisted of metavolcanic or metasedimentary basement rock. No evidence of discoloration or odor were observed.

- Sampling locations B3 and B4 were advanced within an apparent asphalt patch near a “gas pump” location on a 1980 site plan (Appendix A). This location most likely corresponds to the location of a 1,000-gallon diesel fuel underground storage tank (UST) that was removed in 1985. Soil samples were collected at depths of 5, 10, and 13 feet bgs at both sampling locations. The recovery of deeper samples was precluded by refusal in the hard (very dense) bedrock. No evidence of discoloration or odor were observed.
- Sampling locations B5 and B6 were advanced near a sewer drainage 3-stage clarifier and a stormwater drainage pipe located west of the western building. Soil samples were collected at depths of 5 and 10 feet bgs in B5 and 5, 10, and 15 feet bgs in B6. No evidence of discoloration or odor were observed.
- Sampling locations B7 and B8 were advanced near a reported former Teledyne metal plating line west of the western building on September 20, 2019. Soil samples were collected at depths of 2, 5, and 10 feet bgs. No evidence of discoloration or odor were observed.
- Sampling location B9 was advanced near a reported former Teledyne anodizing line and waste water tank on the east side of the main building on September 25, 2019. It’s possible that the reported waste water tank corresponded to the 2,000-gallon water tank removed in 1986. Soil samples were collected at depths of 2, 5, and 10 feet bgs. The recovery of deeper samples was precluded by refusal in the hard (very dense) bedrock. No evidence of discoloration or odor were observed.

The soil samples were delivered to a California-certified analytical laboratory where they were analyzed for target contaminants of concern as summarized below (Section 4.2).

3.2 Soil Vapor Sampling Operations

On September 20, 2019, PIC and its subcontractor (H&P Mobile Geochemistry, Inc.) collected five (5) sub-slab vapor samples at four (4) locations from vapor pins that were set at locations SV1, SV2, SV3, and SV4 (SV4 duplicate sample) on September 16, 2019. The vapor samples were collected in order to screen the site for a potential vapor encroachment condition.

A shut-in test was performed for 60 seconds using Helium in a shroud as a gaseous leak check. The probe vacuum was monitored during purging of approximately 300 mL vapor and maintained at <100 inches water at a flow rate of 200 mL/minute. Vapor samples were collected at each location in 1.5 liter summa cannisters. Upon completion of vapor sampling operations, the vapor sampling pins were removed and the sample hole was patched with concrete.

A description of soil vapor sampling parameters is included with the analytical report in Appendix C. The samples were analyzed at a California-certified laboratory for VOCs and oxygenates by EPA Method TO-15.

4.0 RESULTS

4.1 Subsurface Conditions

In general, soil in the central and southern portions of the subject property consisted of clayey alluvium over metavolcanic and/or metasedimentary basement bedrock. Lithologic logs are provided in Appendix B. Groundwater was not encountered to the maximum depth of sampling, 15 feet bgs at B6. Based on our limited research of reports regarding documented leaking underground storage tank (LUST) sites in the site vicinity that are posted on the GeoTracker website, it appeared that the local depth to groundwater was less than 20 feet bgs.

4.2 Analytical Results

4.2.1 Soil

Laboratory analytical results of soil samples are depicted on Figure 4. The laboratory report and chain-of-custody records are provided in Appendix C. Analytical test results for soil samples are summarized as follows:

The soil samples collected at 2 feet bgs in B1 and B2 near the two (2) hazardous materials storage structures in the central portion of the site were analyzed for concentrations of total petroleum hydrocarbons (TPH) in the gasoline (TPHg), diesel (TPHd), and oil (TPHo) ranges by EPA Method 8015M, volatile organic compounds (VOCs) by EPA Method 8260B, and Title 22 (CAM) metals by EPA Method 6010B/7471A.

- Concentrations of TPHg (carbon range C4-C12) were non detectable (<0.2 mg/kg).
- Concentrations of TPHd (carbon range C13-C23) were non detectable (<2 mg/kg).
- Concentrations of TPHo (carbon range C24-C40) were non-detectable (<25 mg/kg).
- Concentrations of VOCs and oxygenates were non-detectable at the respective minimum detection levels.
- Concentrations of metals were either non-detectable or were detected at naturally-occurring levels that were well below regulatory threshold levels such as the California Title 22 total threshold limit concentrations (TTLCs) for hazardous classification.

The soil samples collected at 5 feet and 13 feet bgs in B3 and B4 within an apparent asphalt patch near a “gas pump” location on a 1980 site plan were analyzed for concentrations of TPH by EPA Method 8015M and benzene, toluene, ethylbenzene, and xylenes (BTEX) and oxygenates by EPA Method 8260B.

- Concentrations of TPHg (carbon range C4-C12) were non detectable (<0.2 mg/kg).
- Concentrations of TPHd (carbon range C13-C23) were non detectable (<2 mg/kg).
- Concentrations of TPHo (carbon range C24-C40) were non-detectable (<25 mg/kg).
- Concentrations of BTEX and oxygenates were non-detectable at the respective minimum detection levels.

The soil samples collected at 10 feet bgs in B5, 15 feet bgs in B6, 2 feet bgs and 10 feet bgs in B7 and B8 west of the western building were analyzed for concentrations of TPHg, TPHd, and TPHo by EPA Method 8015M, volatile organic compounds (VOCs) by EPA Method 8260B, and Title 22 (CAM) metals by EPA Method 6010B/7471A.

- Concentrations of TPHg (carbon range C4-C12) were non detectable (<0.2 mg/kg).
- TPHd was detected in soil sample B8-2' at 34.6 mg/kg. Concentrations of TPHd in the other three (3) soil samples were non detectable (<2 mg/kg).
- TPHo was detected in soil sample B8-2' at 189 mg/kg. Concentrations of TPHo in the other three (3) soil samples were non-detectable (<25 mg/kg).
- Concentrations of VOCs and oxygenates were non-detectable at the respective minimum detection levels.
- Concentrations of metals were either non-detectable or were detected at naturally-occurring levels that were well below regulatory threshold levels such as the California Title 22 total threshold limit concentrations (TTLCs) for hazardous classification.

The soil samples collected at 2 feet bgs and 10 feet bgs in B9 near a reported former Teledyne anodizing line and waste water tank on the east side of the main building were analyzed for concentrations of TPHg, TPHd, and TPHo by EPA Method 8015M, volatile organic compounds (VOCs) by EPA Method 8260B, Title 22 (CAM) metals by EPA Method 6010B/7471A, and pH.

- Concentrations of TPHg (carbon range C4-C12) were non detectable (<0.2 mg/kg).
- Concentrations of TPHd (carbon range C13-C23) were non detectable (<2 mg/kg).

- Concentrations of TPHo (carbon range C24-C40) were non-detectable (<25 mg/kg).
- Concentrations of VOCs and oxygenates were non-detectable at the respective minimum detection levels.
- Concentrations of metals were either non-detectable or were detected at naturally-occurring levels that were well below regulatory threshold levels such as the California Title 22 total threshold limit concentrations (TTLCs) for hazardous classification.
- The pH values in B9-2' and B9-10' were 6.50 and 7.21, respectively.

4.2.2 Soil Vapor

Laboratory analytical results of soil vapor samples are depicted on Figure 5. The laboratory report and chain-of-custody records are provided in Appendix C. Concentrations of VOCs and oxygenates in the five (5) soil vapor samples were non-detectable, with the exception of the following:

Summary of Soil Vapor Sample Detections					
Compound	Sample IDs & Concentrations (ug/m ³)				
	SV1	SV2	SV3	SV4	SV4-Dup
Trichlorofluoromethane	3.8	<2.3	<2.3	<2.3	<2.3
1,1-Dichloroethene	600	<1.6	<1.6	<1.6	<1.6
Methylene chloride	<1.4	<1.4	1.4	<1.4	<1.4
2-Butanone	2.8	<2.4	7.6	12	12
Chloroform	7.5	<1.0	<1.0	1.7	1.7
1,1,1-Trichloroethane	5.6	<2.2	44	<2.2	<2.2
Benzene	1.2	0.6	0.6	0.7	0.7
Toluene	<3.1	<3.1	<3.1	3.3	<3.1
Trichloroethene	33	<2.2	<2.2	<2.2	<2.2
Tetrachloroethene	460	44	17	3.2	<2.8
Ethylbenzene	<1.8	<1.8	2.1	<1.8	<1.8

Summary of Soil Vapor Sample Detections					
Compound	Sample IDs & Concentrations (ug/m ³)				
	SV1	SV2	SV3	SV4	SV4-Dup
m,p-Xylene	2.7	3.0	8.8	5.7	5.1
o-Xylene	<1.8	<1.8	3.6	2.2	2.0
1,2,4-Trimethylbenzene	2.5	2.9	3.4	3.3	2.7

5.0 DISCUSSION

The results of Phase II ESA operations that were performed to evaluate the above-referenced RECs are discussed as follows:

1. The soil samples collected at two (2) feet bgs in B1 and B2 near the two (2) hazardous materials storage structures in the central portion of the site were analyzed for concentrations of TPH, VOCs, and Title 22 metals. TPH and VOCs were non-detectable at standard minimum detection limits. The detected concentrations of metals were consistent with naturally-occurring background levels. Based on these test results, it appeared unlikely that there have been any significant spills, leaks, or other releases of regulated and/or hazardous materials to the soil or bedrock beneath or near the above-referenced hazardous materials storage structures. No further action appears warranted with respect to the two (2) hazardous materials storage structures in the central portion of the site.
2. The soil samples collected at 5 feet and 13 feet bgs in B3 and B4 within an apparent asphalt patch near a “gas pump” location on a 1980 site plan were analyzed for concentrations of TPH, BTEX, and oxygenates. TPH, BTEX, and oxygenates were non-detectable at standard minimum detection limits. This location was probably where a 1,000-gallon diesel fuel UST was removed in 1985. The tank was removed and the permit was closed with no further action required by the County of San Diego, Department of Environmental Health (DEH). There was no evidence of any spills, leaks, or other releases of diesel fuel or other petroleum fuel products at the location of B3 and B4. No further action appears warranted with respect to this apparent former UST/dispenser pump location in the southeastern portion of the site.
3. The soil samples collected at 10 feet bgs in B5, 15 feet bgs in B6, 2 feet bgs and 10 feet bgs in B7 and B8, west of the western building, were analyzed for concentrations of TPH, VOCs, and Title 22 metals. This area was reportedly used for some limited metal plating

operations by Teledyne prior to the mid 1990s. There were also several sewer and stormwater drains and a 3-stage clarifier observed in this area. There were detections of TPHd and TPHo in soil sample B8-2' at 34.6 mg/kg and 189 mg/kg, respectively. There were no other detections of TPH or VOCs. The detected concentrations of metals were consistent with naturally-occurring background levels. The TPH detections in sample B8-2' appeared negligible because there were no VOCs detected in B8-2' and there were no TPH or VOCs detected in a deeper soil sample collected at this location, B8-10'.

4. The soil samples collected at two (2) feet bgs and 10 feet bgs in B9 near a reported former Teledyne anodizing line and possible waste water UST were analyzed for concentrations of TPH, VOCs, Title 22 metals, and pH. TPH and VOCs were non-detectable at standard minimum detection limits. The detected concentrations of metals were consistent with naturally-occurring background levels. The pH levels reported in samples collected at 2 feet bgs and 10 feet bgs of 6.50 and 7.21, respectively, were neutral. Based on these test results, it appeared unlikely that there have been any significant spills, leaks, or other releases of regulated and/or hazardous materials to the soil or bedrock beneath or near the reported former Teledyne anodizing line. Furthermore, the reported waste water UST in this area may be the same reported 2,000-gallon UST that was removed in 1986. This tank was removed and the permit was closed with no further action required by DEH. No further action appears warranted with respect to this area near the east site of the main building in the central portion of the subject property.
5. Sub-slab soil vapor samples were collected at four (4) locations in order to screen the site for a vapor encroachment condition (VEC) as a result of historical metal fabrication use of the subject property by Teledyne and Tri-M Company that may have included the use of solvents. Vapor sample location SV1 was the same location as soil sample location B7 in the area of a reported former Teledyne metal plating line west of the western building. Vapor sample location SV2 was near the center of the western building. Vapor sample location SV3 was near the center of the main t-shaped building. Vapor sample SV4 was near the former Tri-M paint booths in the eastern portion of the main t-shaped building. A duplicate vapor sample was collected at location SV4.

In light of the continued commercial/industrial use of the subject property, the soil vapor detections of VOCs appeared negligible. The detected VOCs were reported at concentrations that were less than conservative commercial/industrial screening criteria, such as the recent environmental screening levels (ESLs) that were issued on-line by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), with the exception of the tetrachloroethene (PCE) concentration detected in vapor sample SV1. The reported PCE concentration in SV1 was 460 ug/m³ and exceeded the SFBRWQCB commercial/industrial cancer risk environmental screening level, 67 ug/m³. However, the location of SV1 is on the exterior of the western building in the area of a reported

Teledyne plating line; and VOCs were non-detectable in soil samples collected at 2 feet bgs and 10 feet bgs in B7, which was advanced at the same location as SV1.

Vapor samples SV2, SV3, and SV4 were collected beneath the interior spaces of the western and main t-shaped buildings on the subject property. None of the detected VOCs in these samples exceeded the applicable SFBRWQCB commercial/industrial cancer risk values.

There was no evidence of any significant releases of hazardous materials or regulated substances on the subject property based on the results of the above-referenced ESA activities. There appeared to be elevated concentrations of vapor-phase chlorinated VOCs, primarily PCE, beneath the concrete slab on the exterior west side of the western building in an area that was reportedly used by Teledyne for metal plating sometime prior to the mid-1990s. However, test results for soil samples collected throughout this area of the site were consistently non-detectable for VOCs.

6.0 CONCLUSIONS

PIC has performed Phase II environmental site assessment at the commercial/industrial property referenced as 528 East Mission Road, San Marcos, California (the property) in conformance with the scope and limitations of ASTM Practice E 1903-11. The objectives of this assessment were to evaluate the site for potential adverse impacts associated with the former use of the site by Teledyne and Tri-M for metal fabrication and machining, as well as storage of diesel in an UST that was removed in 1985. There was no evidence of any significantly adverse impacts to the subject property by releases of hazardous materials or regulated substances based on the results of the above-referenced ESA activities.

7.0 LIMITATIONS

This report is proprietary and confidential, to be delivered to, and intended for the exclusive use of, the above-referenced parties only. PIC Environmental Services assumes no responsibility nor liability for the reliance herein or use hereof by anyone other than the above-named parties. Laboratory work cited in this report was performed by Alpha Scientific Corporation and H&P Mobile Geochemistry, Inc., which are responsible for the contents and conclusions of the laboratory data.

We declare that to the best of our knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR 312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property (Appendix D).

Thank you for the opportunity to work on your behalf.

Respectfully submitted,

PIC ENVIRONMENTAL SERVICES



Danny Oliver

California Professional Geologist No. 4781

President



ES9679_The McDonald Group_528 E Mission_San Marcos_Phase II_October 2019

FIGURES

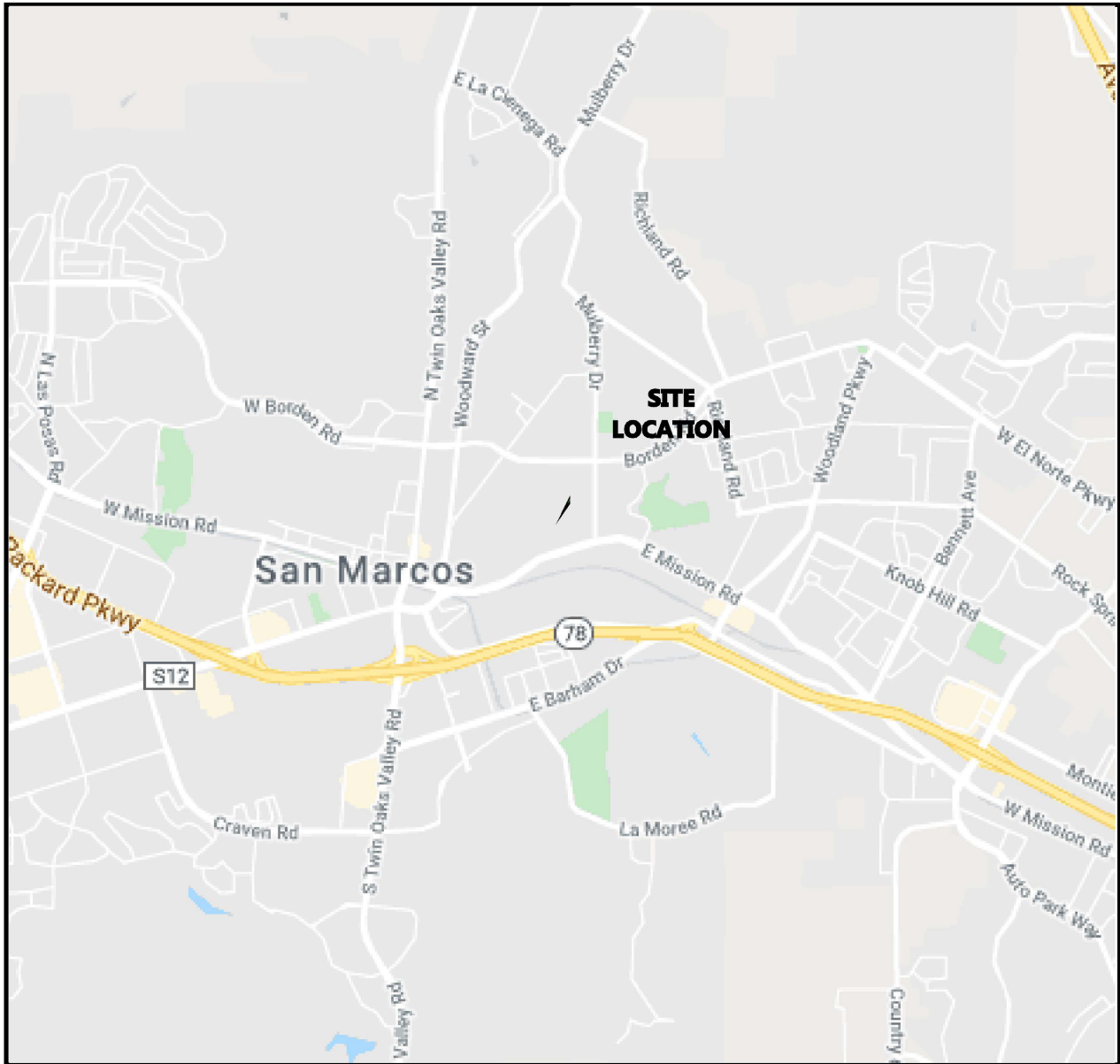


Image Courtesy of Google and Snazzy Maps



No Graphic Scale



PIC Environmental SERVICES		Site: 528 E MISSION ROAD SAN MARCOS, CALIFORNIA
SITE LOCATION MAP		
Project No.: ES9679	Date: October 2019	Figure 1



Source: USGS 7.5' series (topographic) 2012

0 0.5
Graphic Scale
1 Inch = 0.5 Miles



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Site:

**528 E MISSION ROAD
SAN MARCOS, CALIFORNIA**

TOPOGRAPHIC MAP

Project No.:

ES9679

Date:

October 2019

Figure 2



Image Courtesy of Google Earth 2019



No Graphic Scale



- **Approximate location of clarifier/sewer**
- **Approximate location of former plating line**

PIC Environmental SERVICES		Site: 528 E MISSION ROAD SAN MARCOS, CALIFORNIA	
SITE PLAN			
Project No.: ES9679		Date: October 2019	
		Figure 3	



PIC Environmental SERVICES		Site: 528 E MISSION ROAD SAN MARCOS, CALIFORNIA
SITE PLAN SHOWING BORING LOCATIONS		
Project No.: ES9679	Date: October 2019	Figure 4



SUMMARY OF SOIL VAPOR SAMPLE DETECTIONS					
Compounds Detected (all others nondetected)	Sample IDs & Concentrations (ug/m³)				
	SV1	SV2	SV3	SV4	SV4 DUP
2-Butanone (MEK)	2.8	<2.4	7.6	12	12
Chloroform	7.5	<1.0	<1.0	1.7	1.7
1,1-Dichloroethene	600	<1.6	<1.6	<1.6	<1.6
Trichlorofluoromethane	3.8	<2.3	<2.3	<2.3	<2.3
Methylene Chloride (Dichloromethane)	<1.4	<1.4	1.4	<1.4	<1.4
1,1,1-Trichloroethane	5.6	<2.2	44	<2.2	<2.2
Benzene	1.2	0.6	0.6	0.7	0.7
Trichloroethene	33	<2.2	<2.2	<2.2	<2.2
Toluene	<3.1	<3.1	<3.1	3.3	<3.1
Tetrachloroethene	460	44	17	3.2	<2.8
Ethylbenzene	<1.8	<1.8	2.1	<1.8	<1.8
m,p-Xylene	2.7	3.0	8.8	5.7	5.1
o-Xylene	<1.8	<1.8	3.6	2.2	2.0
1,2,4-Trimethylbenzene =	2.5	2.9	3.4	3.3	2.7

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Site:

528 E MISSION ROAD
SAN MARCOS, CALIFORNIA

SITE PLAN SHOWING
SOIL VAPOR TEST RESULTS

Project No.:

ES9679

Date:

October 2019

Figure 5

APPENDIX A

1980 Topographic Survey Plan

APPENDIX B

Soil Sampling Logs

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		 2" Diameter Probe Hole
	B1-2'		ND	Bedrock, light olive green metasedimentary/metavolcanic, fine grained, slightly moist, very dense, no odor		
				Boring terminated at 3' bgs due to refusal (too dense)		
5						
10						
15						
20						

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 3 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 3 ft
 Filter Pack Type/Interval: N.A.

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 P.O. BOX 805
 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B1

Project:

ES9679

Date:

October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		
	B2-2'		ND	Bedrock, light olive green metasedimentary/metavolcanic, fine grained, dry to slightly moist, very dense, no odor		
5	B2-5'			Bedrock, light olive green metasedimentary/metavolcanic, fine grained, dry to slightly moist, very dense, no odor		
				Boring terminated at 6' bgs due to refusal (too dense)		
10						
15						
20						

2" Diameter
Probe Hole

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 6 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 6 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
 P.O. BOX 805
 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B2

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		
5	B3-5'		ND	Fill, brown, moist, soft clay, no odor		
10	B3-10'			Fill, brown, moist, soft clay, no odor		
	B3-13'		ND	Bedrock, light olive green metasedimentary/metavolcanic, very fine grained, dry, very hard/dense, no odor Boring terminated at 13' bgs		
15						2" Diameter Probe Hole 
20						

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 13 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 13 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
 P.O. BOX 805
 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B3

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		
5	B3-5'		ND	Sandy clay, brown, moist, very soft, fine-to-medium grained sand, no odor		
10	B3-10'			Clay, brown, moist, no odor		
	B4-13'		ND	Bedrock, light olive green metasedimentary/metavolcanic, fine grained, slightly moist, very hard/dense, no odor		
15				Boring terminated at 13' bgs due to refusal		
20						

2" Diameter
Probe Hole

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 13 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 13 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
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 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

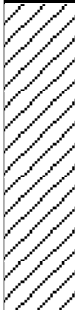
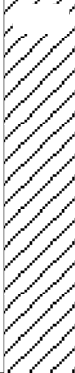
LITHOLOGIC LOG

B4

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		
5	B5-5'			Clay, light brown to brown, moist, very stiff, no odor		
10	B5-10'		ND	Clay, brown, dry, very stiff/hard, no odor		
				Boring terminated at 11' bgs due to refusal		
15						
20						

2" Diameter
Probe Hole

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 11 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 11 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
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528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B5

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Asphalt		
5	B6-5'			Clay, brown, moist, soft, no odor		
10	B6-10'			Clay, brown, moist, soft, no odor		
15	B6-15'		ND	Sandy Clay, no odor Boring terminated at 15' bgs		
20						

2" Diameter
Probe Hole

Date Drilled: 9/16/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 15 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 15 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
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 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B6

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

**2" Diameter
Probe Hole**

Well Screen Interval: N.A.
Surface Seal Type/Interval: Concrete/0 - 1 ft
Annular Seal Type/Interval: Bentonite/1 - 10 ft
Filter Pack Type/Interval: N.A.

B7

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Concrete		
88-2'			TPH-D 34.6 TPH-O 189	Clay, brown, moist, moderately stiff, no odor		
5	88-5'			Clay, brown, slightly moist, stiff, no odor		
10	88-10'		ND	Bedrock, light olive green metasedimentary/metavolcanic, fine grained, very slightly moist, very hard/dense, no odor		
				Boring terminated at 10' bgs		
15						
20						

2" Diameter
Probe Hole

Date Drilled: 9/20/2019
 Logged By: D. Oliver
 Driller: Astech
 Boring Type: Geoprobe

Boring Diameter: 2-inches
 Casing Diameter: N.A.
 Boring Depth: 10 feet
 Water Depth: Not Encountered

Well Screen Interval: N.A.
 Surface Seal Type/Interval: Concrete/0 - 1 ft
 Annular Seal Type/Interval: Bentonite/1 - 10 ft
 Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
 P.O. BOX 805
 SOLANA BEACH, CA 92075

528 E MISSION ROAD
 SAN MARCOS, CALIFORNIA

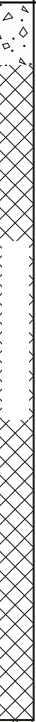
LITHOLOGIC LOG

B8

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

Depth (feet)	Interval	Sample I.D.	TPH (mg/kg)	Geologic Description Color, grain size, moisture, density, odor, etc.	USCS Symbol	Completion Details
0				Concrete		
	B9-2'	ND		Fill, clay, brown, slightly moist, stiff/dense, debris fragments, no odor		
5	B9-5'			Fill, clay, brown, slightly moist, stiff/dense, debris fragments, no odor Bedrock, light olive green/brown (mottled) metasedimentary/metavolcanic, fine grained, slightly moist, dense, no odor		
10	B9-10'	ND		Bedrock, light olive green/brown (mottled) metasedimentary/metavolcanic, fine grained, slightly moist, dense, no odor Boring terminated at 11' bgs due to refusal		
15						 2" Diameter Probe Hole
20						

Date Drilled: 9/25/2019
Logged By: D. Oliver
Driller: Astech
Boring Type: Geoprobe

Boring Diameter: 2-inches
Casing Diameter: N.A.
Boring Depth: 11 feet
Water Depth: Not Encountered

Well Screen Interval: N.A.
Surface Seal Type/Interval: Concrete/0 - 1 ft
Annular Seal Type/Interval: Bentonite/1 - 11 ft
Filter Pack Type/Interval: N.A.

**PIC ENVIRONMENTAL
SERVICES**
P.O. BOX 805
SOLANA BEACH, CA 92075

528 E MISSION ROAD
SAN MARCOS, CALIFORNIA

LITHOLOGIC LOG

B9

Project:
ES9679

Date:
October 2019

Sheet 1 of 1

APPENDIX C

Laboratory Test Reports



Alpha Scientific Corporation

Environmental Laboratories

09-20-2019

Mr. Danny Oliver
PIC Environmental Services
P.O. Box 805
Solana Beach, CA 92075

Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Sample Date: 09-16-2019
Lab Job No.: PI909040

Dear Mr. Oliver:

Enclosed please find the analytical report for the sample(s) received by Alpha Scientific Corporation on 09-18-2019 and analyzed by the following EPA methods:

EPA 8015M (Total Petroleum Hydrocarbons)
EPA 8260B (BTEX & Oxygenates by GC/MS)
EPA 8260B (VOCs & Oxygenates by GC/MS)
EPA 6010B/7471A for CAM Metals

All analyses have met the QA/QC criteria of this laboratory.

The sample(s) arrived in good conditions (i.e., chilled, intact) and with a chain of custody record attached.

Alpha Scientific Corporation is a CA ELAP certified laboratory (Certificate Number 3007). Thank you for giving us the opportunity to serve you. Please feel free to call me at (562) 809-8880 if our laboratory can be of further service to you.

Sincerely,

Roger Wang, Ph.D.
Laboratory Director

Enclosures

This cover letter is an integral part of this analytical report.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Matrix: Soil
Batch No. for TPH-g: AMI18-GS1
Batch No. for TPH-d: BI18-DS1

Lab Job No.: PI909040
Date Sampled: 09-16-2019
Date Received: 09-18-2019
Date Analyzed: 09-18-2019
Date Analyzed: 09-18-2019
Date Reported: 09-20-2019

EPA 8015M (Total Petroleum Hydrocarbons)

Reporting Unit: mg/kg (ppm)

Sample ID	Lab ID	DF for TPH-G	C4-C12 TPH-G*	Surrog Rec.% TPH-G	DF for TPH-D/O	C13-C23 TPH-D	C24-C40 TPH-O	Surrog Rec.% TPH-D/O
MDL			0.2			2	25	
PQL			0.5			5	50	
Method Blank		1	ND	90	1	ND	ND	101
B1-2'	PI909040-1	1	ND	94	1	ND	ND	103
B2-2'	PI909040-2	1	ND	91	1	ND	ND	104
B3-5'	PI909040-3	1	ND	92	1	ND	ND	102
B3-13'	PI909040-4	1	ND	92	1	ND	ND	101
B4-5'	PI909040-5	1	ND	91	1	ND	ND	102
B4-13'	PI909040-6	1	ND	91	1	ND	ND	102
B5-10'	PI909040-7	1	ND	90	1	ND	ND	102
B6-15'	PI909040-8	1	ND	90	1	ND	ND	103

* Gasoline Range TPH result is obtained from purge and trap analysis using LUFT GC/MS Method;

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (at the specified limit);

J: Trace concentration, result between MDL and PQL.

Note: Surrogate recovery acceptance limits are 70-130%.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909040
Matrix: Soil

Date Reported: 09-20-2019
Date Sampled: 09-16-2019

EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/kg (ppb)

DATE ANALYZED			09-18	09-18-19	09-18-19	09-18-19	09-18-19	
DILUTION FACTOR			1	1	1	1	1	
LAB SAMPLE I.D.			MB	PI909040-1	PI909040-2	PI909040-7	PI909040-8	
CLIENT SAMPLE I.D.				B1-2'	B2-2'	B5-10'	B6-15'	
COMPOUND	MDL	PQL						
Dichlorodifluoromethane	2	5	ND	ND	ND	ND	ND	
Chloromethane	2	5	ND	ND	ND	ND	ND	
Vinyl Chloride	2	5	ND	ND	ND	ND	ND	
Bromomethane	2	5	ND	ND	ND	ND	ND	
Chloroethane	2	5	ND	ND	ND	ND	ND	
Trichlorofluoromethane	2	5	ND	ND	ND	ND	ND	
1,1-Dichloroethene	2	5	ND	ND	ND	ND	ND	
Iodomethane	2	5	ND	ND	ND	ND	ND	
Methylene Chloride	5	10	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	
1,1-Dichloroethane	2	5	ND	ND	ND	ND	ND	
2,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	
Bromochloromethane	2	5	ND	ND	ND	ND	ND	
Chloroform	2	5	ND	ND	ND	ND	ND	
1,2-Dichloroethane (EDC)	2	5	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	2	5	ND	ND	ND	ND	ND	
Carbon tetrachloride	2	5	ND	ND	ND	ND	ND	
1,1-Dichloropropene	2	5	ND	ND	ND	ND	ND	
Benzene	1	2	ND	ND	ND	ND	ND	
Trichloroethene	2	5	ND	ND	ND	ND	ND	
1,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	
Bromodichloromethane	2	5	ND	ND	ND	ND	ND	
Dibromomethane	2	5	ND	ND	ND	ND	ND	
Trans-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	2	5	ND	ND	ND	ND	ND	
1,3-Dichloropropane	2	5	ND	ND	ND	ND	ND	
Dibromochloromethane	2	5	ND	ND	ND	ND	ND	
2-Chloroethylvinyl ether	2	10	ND	ND	ND	ND	ND	
Bromoform	2	5	ND	ND	ND	ND	ND	
Isopropylbenzene	2	5	ND	ND	ND	ND	ND	
Bromobenzene	2	5	ND	ND	ND	ND	ND	
Toluene	1	2	ND	ND	ND	ND	ND	



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909040
Matrix: Soil

Date Reported: 09-20-2019
Date Sampled: 09-16-2019

EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb

COMPOUND	MDL	PQL	MB	B1-2'	B2-2'	B5-10'	B6-15'	
Tetrachloroethene	2	5	ND	ND	ND	ND	ND	
1,2-Dibromoethane(EDB)	2	5	ND	ND	ND	ND	ND	
Chlorobenzene	2	5	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	2	5	ND	ND	ND	ND	ND	
Ethylbenzene	1	2	ND	ND	ND	ND	ND	
Total Xylenes	2	4	ND	ND	ND	ND	ND	
Styrene	2	5	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	2	5	ND	ND	ND	ND	ND	
1,2,3-Trichloropropane	2	5	ND	ND	ND	ND	ND	
n-Propylbenzene	2	5	ND	ND	ND	ND	ND	
2-Chlorotoluene	2	5	ND	ND	ND	ND	ND	
4-Chlorotoluene	2	5	ND	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	2	5	ND	ND	ND	ND	ND	
tert-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	2	5	ND	ND	ND	ND	ND	
Sec-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
p-Isopropyltoluene	2	5	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
n-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	
1,2-Dibromo-3-Chloropropane	2	5	ND	ND	ND	ND	ND	
Hexachlorobutadiene	2	5	ND	ND	ND	ND	ND	
Naphthalene	2	5	ND	ND	ND	ND	ND	
1,2,3-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	
Acetone	75	100	ND	ND	ND	ND	ND	
2-Butanone (MEK)	50	50	ND	ND	ND	ND	ND	
4-Methyl-2-pentanone	50	50	ND	ND	ND	ND	ND	
2-Hexanone	50	50	ND	ND	ND	ND	ND	
Carbon disulfide	10	15	ND	ND	ND	ND	ND	
Vinyl Acetate	10	15	ND	ND	ND	ND	ND	
MTBE	2	5	ND	ND	ND	ND	ND	
ETBE	2	5	ND	ND	ND	ND	ND	
DIPE	2	5	ND	ND	ND	ND	ND	
TAME	2	5	ND	ND	ND	ND	ND	
TBA	20	50	ND	ND	ND	ND	ND	
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC	%RC	%RC	
Dibromofluoro-methane	79-126	101	103	104	103	98		
Toluene-d8	79-121	98	101	98	98	96		
Bromofluoro-benzene	71-131	89	93	90	88	88		

MB=Method Blank; MDL=Method Detection Limit; PQL=Practical Quantitation Limit; ND=Not Detected (below DF × MDL); J=Result is between DF × MDL and DF × PQL; * Obtained from a higher dilution analysis.



Alpha Scientific Corporation

Environmental Laboratories

09-20-2019

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Matrix: Soil
Batch No.: 0918-VOAS1

Lab Job No.: PI909040
Date Sampled: 09-16-2019
Date Received: 09-18-2019
Date Analyzed: 09-18-2019

EPA 8260B (BTEX, Ethanol & Oxygenates by GC/MS)

Reporting Units: mg/kg (ppm)

Lab ID	Method	PI909040-4	PI909040-6				MDL	PQL
Sample ID	Blank	B3-13'	B4-13'					
1 DF		1	1					
Benzene	ND	ND	ND				0.001	0.002
Toluene	ND	ND	ND				0.001	0.002
Ethylbenzene	ND	ND	ND				0.001	0.002
Total Xylenes	ND	ND	ND				0.002	0.004
Ethanol	ND	ND	ND				0.50	1.00
MTBE	ND	ND	ND				0.002	0.005
ETBE	ND	ND	ND				0.002	0.005
DIPE	ND	ND	ND				0.002	0.005
TAME	ND	ND	ND				0.002	0.005
TBA	ND	ND	ND				0.020	0.050
SURROGATE	%RC	%RC	%RC				Accept Limit%	
Dibromofluoro-methane	101	105	107				79-126	
Toluene-d8	98	98	98				79-121	
Bromofluoro-benzene	89	91	90				71-131	

MDL=Method Detection Limit;

DF=Dilution Factor;

* Obtained from a higher dilution analysis;

PQL=Practical Quantitation Limit;

ND=Not Detected (below DF × MDL);

J=Result is between DF × MDL and DF × PQL .



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Matrix: Soil
Digestion Method: EPA 3050B
Batch No.: 0918-MS1

Lab Job No.: PI909040
Date Sampled: 09-16-2019
Date Received: 09-18-2019
Date Digested: 09-18-2019
Date Analyzed: 09-18-2019
Date Reported: 09-20-2019

EPA 6010B/7471A for CAM Metals (TTLIC)

Reporting Units: mg/kg (ppm)

Element	EPA	Method Blank	PI909040-1	PI909040-2	PI909040-7	PI909040-8	MDL	PQL
	Method		B1-2'	B2-2'	B5-10'	B6-15'		
Antimony (Sb)	6010B	ND	1.5J	1.0J	ND	ND	1	2
Arsenic (As)	6010B	ND	ND	ND	ND	ND	0.5	1
Barium (Ba)	6010B	ND	64.7	49.1	64.6	17.5	1	2
Beryllium (Be)	6010B	ND	ND	ND	ND	ND	1	2
Cadmium (Cd)	6010B	ND	ND	ND	ND	ND	1	2
Chromium (Cr)	6010B	ND	41.3	31.0	23.8	22.1	1	2
Cobalt (Co)	6010B	ND	10.6	9.0	8.5	5.6	1	2
Copper (Cu)	6010B	ND	17.2	45.7	31.5	15.5	1	2
Lead (Pb)	6010B	ND	5.5	4.1	2.3	1.0J	1	2
Molybdenum (Mo)	6010B	ND	ND	ND	ND	ND	1	2
Nickel (Ni)	6010B	ND	32.4	25.0	37.6	24.8	1	2
Selenium (Se)	6010B	ND	ND	ND	ND	ND	0.5	1
Silver (Ag)	6010B	ND	ND	ND	ND	ND	1	2
Thallium (Tl)	6010B	ND	ND	ND	ND	ND	1	2
Vanadium (V)	6010B	ND	131	121	65.5	64.7	1	2
Zinc (Zn)	6010B	ND	65.9	54.7	26.1	17.5	1	2
Mercury (Hg)	7471A	ND	ND	ND	ND	ND	0.1	0.2

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (below MDL);

J: Trace concentration, result between MDL and PQL.



Alpha Scientific Corporation

Environmental Laboratories

09-20-2019

TPH-Gasoline Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: AMI18-GS1

Lab Job No: PI909040
Lab Sample I.D.: PI909040-4
Date Analyzed: 09-18-2019

I. MS/MSD Report Unit: ppb

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-g	ND	1,000	934	894	93.4	89.4	4.4	30	70-130

II. LCS Result Unit: ppb

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-g	956	1,000	95.6	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-20-2019

EPA 8015M (TPH) Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: BI18-DS1

Lab Job No: PI909040
Lab Sample I.D.: PI909037-1
Date Analyzed: 09-18-2019

I. MS/MSD Report Unit: ppm

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-D	ND	200	203	202	101.5	101.0	0.5	30	70-130

II. LCS Result Unit: ppm

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-D	199	200	99.5	80-120

ND: Not Detected (at the specified limit).



09-20-2019

**EPA 8260B (VOCs)
Batch QA/QC Report**

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: 0918-VOAS1

Lab Job No: PI909040
Lab Sample I.D.: PI909040-4
Date Analyzed: 09-18-2019

**I. MS/MSD Report
Unit: ppb**

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
1,1-Dichloroethene	ND	20	21.5	18.9	107.5	94.5	12.9	30	70-130
Benzene	ND	20	22.9	21.2	114.5	106.0	7.7	30	70-130
Trichloro-ethene	ND	20	21.7	20.0	108.5	100.0	8.2	30	70-130
Toluene	ND	20	22.3	20.6	111.5	103.0	7.9	30	70-130
Chlorobenzene	ND	20	21.6	20.3	108.0	101.5	6.2	30	70-130

**II. LCS Result
Unit: ppb**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	18.4	20.0	92.0	80-120
Benzene	18.6	20.0	93.0	80-120
Trichloro-ethene	17.3	20.0	86.5	80-120
Toluene	18.1	20.0	90.5	80-120
Chlorobenzene	17.9	20.0	89.5	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-20-2019

EPA 6010B/7471A for CAM Metals Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0918-MS1

Lab Job No: PI909040
Lab Sample I.D.: A909042-1
Date Analyzed: 09-18-2019

I. MS/MSD Report Unit: ppm

Analyte	EPA Method	Sample Conc.	Spike Conc.	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
Antimony (Sb)	6010B	ND	20	98.3	98.0	0.3	30	70-130
Arsenic (As)	6010B	1.4	20	89.6	89.8	0.2	30	70-130
Barium (Ba)	6010B	69.1	20	80.3	83.8	4.2	30	70-130
Beryllium (Be)	6010B	ND	20	82.6	82.5	0.1	30	70-130
Cadmium (Cd)	6010B	ND	20	94.6	94.0	0.7	30	70-130
Chromium (Cr)	6010B	53.7	20	82.8	85.7	3.4	30	70-130
Cobalt (Co)	6010B	8.6	20	93.0	91.9	1.2	30	70-130
Copper (Cu)	6010B	26.5	20	116.2	117.6	1.2	30	70-130
Lead (Pb)	6010B	3.6	20	99.8	98.6	1.2	30	70-130
Molybdenum (Mo)	6010B	4.0	20	98.9	97.9	1.0	30	70-130
Nickel (Ni)	6010B	56.2	20	86.5	88.9	2.7	30	70-130
Selenium (Se)	6010B	ND	20	89.8	89.2	0.6	30	70-130
Silver (Ag)	6010B	ND	20	103.7	104.6	0.8	30	70-130
Thallium (Tl)	6010B	ND	20	91.9	92.2	0.3	30	70-130
Vanadium (V)	6010B	58.7	20	102.6	98.7	3.9	30	70-130
Zinc (Zn)	6010B	41.9	20	83.5	87.6	4.7	30	70-130

ND: Not Detected.



09-20-2019

EPA 6010B/7471A for CAM Metals
Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0918-MS1

Lab Job No: PI909040
Lab Sample I.D.: LCS
Date Analyzed: 09-18-2019

II. LCS Result
Unit: ppm

Analyte	EPA Method	LCS Value	True Value	Rec. %	Accept. Limit
Antimony (Sb)	6010B	20.06	20	100.3	80-120
Arsenic (As)	6010B	19.78	20	98.9	80-120
Barium (Ba)	6010B	19.55	20	97.8	80-120
Beryllium (Be)	6010B	18.04	20	90.2	80-120
Cadmium (Cd)	6010B	19.06	20	95.3	80-120
Chromium (Cr)	6010B	22.4	20	112.0	80-120
Cobalt (Co)	6010B	19.61	20	98.1	80-120
Copper (Cu)	6010B	20.62	20	103.1	80-120
Lead (Pb)	6010B	20.70	20	103.5	80-120
Molybdenum (Mo)	6010B	21.25	20	106.3	80-120
Nickel (Ni)	6010B	21.13	20	105.7	80-120
Selenium (Se)	6010B	20.18	20	100.9	80-120
Silver (Ag)	6010B	21.10	20	105.5	80-120
Thallium (Tl)	6010B	19.42	20	97.1	80-120
Vanadium (V)	6010B	20.21	20	101.1	80-120
Zinc (Zn)	6010B	18.65	20	93.3	80-120

ND: Not Detected (at the specified limit).



ALPHA SCIENTIFIC CORPORATION CHAIN OF CUSTODY RECORD

Page 1 of 1

Lab Job Number P1909040

Client: <u>PIC ENVIRONMENTAL SERVICES</u>							Analyses Requested										T.A.T. Requested ☐ Rush 8 24 hrs ☐ 2 days		
Address: <u>PO Box 805 SOLANA BEACH, CA 92075</u>							TPH-Gasoline TPH-Diesel/Oil 8260B(BTEX, Oxygenates) 8260B (VOCs) 8270C(SVOCs) CAM Metals 8082 (PCBs) Hold										☒ 3 days ☐ Normal		
Report Attention: <u>D. OLIVER</u>		Phone:		Fax:		Sampled by: <u>D. OLIVER</u>											Sample Condition ☒ Chilled ☒ Intact		
Project Name/No.: <u>ES9679</u>		Project Site: <u>528 EAST MISSION ROAD, SAN MARCOS CA</u>															☐ Sample seals		
Client Sample ID	Lab Sample ID	Sample Collect		Matrix Type	Sample Preserv	No., type* & size of container	TPH-Gasoline	TPH-Diesel/Oil	8260B(BTEX, Oxygenates)	8260B (VOCs)	8270C(SVOCs)	CAM Metals	8082 (PCBs)			Remark			
		Date	Time																
B1-2'	P1909040-1	9/16/19	1045	SOIL		1 Seave	✓	✓		✓		✓							
B2-2'	-2		1120				✓	✓		✓		✓							
B2-5'			1130											✓					
B3-5'	-3		1225				✓	✓											
B3-10'			1230											✓					
B3-13'	-4		1240				✓	✓	✓										
B4-5'	-5		1200				✓	✓											
B4-10'			1210											✓					
B4-13'	-6		1215				✓	✓	✓										
B5-5'			1340											✓					
B5-10'	-7		1350				✓	✓		✓		✓							
B6-5'			1415											✓					
B6-10'			1420											✓					
B6-15'	-8	✓	1425	✓			✓	✓		✓		✓							
Relinquished by: <u>[Signature]</u>		Company: <u>PIC</u>		Date:	Time:	Received by: <u>[Signature]</u>	Company: <u>ASL</u>		Date: <u>9-18-19</u>	Time: <u>10:38am</u>	Container types: M=Metal Tube A=Air Bag P=Plastic bottle G=Glass bottle V=VOA vial								
Relinquished by:		Company:		Date:	Time:	Received by:	Company:		Date:	Time:									

Alpha Scientific Corporation
16760 Gridley Road
Cerritos, CA 90703

Tel: (562) 809-8880
Fax: (562) 809-8801

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client's expense.
Distribution: WHITE with report, PINK to courier.

Alpha Scientific Corporation Sample Acceptance Checklist

Section 1

Client: PIC Project: ES9679 Lab Job# PI909040

Date Received: 9-18-19

Sample(s) received in cooler(s)? Yes ☒ No ☐ (skip to Section 2)

Cooler(s) packed with: Ice ☐ Ice Packs ☒ Packing Material ☐

Cooler Temperature (°C): #1: 5 #2: 5 #3: 5 #4: 5 #5: 5

(Acceptable range is 0°C to 6°C or arriving on ice for samples received on the same day as collected.)

(Ambient Temperature for vapor or air samples is acceptable).

If sample(s) received outside acceptable range, Project Manager contacted by (Personnel Initial): _____

Section 2

	YES	NO	N/A
Was a COC received?	☒		
Were client sample IDs present?	☒		
Were sample(s) collection dates present?	☒		
Was the COC signed?	☒		
Were tests clearly indicated?	☒		
Did all samples arrive intact? If no, indicate below.	☒		
Did all container labels agree with COC?	☒		
Were correct containers used for the tests required?	☒		
Was there sufficient sample amount for requested tests?	☒		
Were the samples correctly preserved?	☒		
Was there headspace in VOA vials?			☒
Were Custody seals present?		☒	
If yes-were they intact?			☒

Section 3

Explanations/Comments: _____

Section 4

Was the Project Manager notified of anomalies? Yes ☐ No ☐ N/A ☒

Via Phone: By: _____ Date/Time _____

By Email: Sent to: _____

Project Manager's response: _____

Completed by: ML Date: 9-18-19

Alpha Scientific Corporation
16760 Gridley Road
Cerritos, CA 90703

Email: asc90703@gmail.com
Tel: (562) 809-8880
Fax: (562) 809-8801



Alpha Scientific Corporation

Environmental Laboratories

09-24-2019

Mr. Danny Oliver
PIC Environmental Services
P.O. Box 805
Solana Beach, CA 92075

Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Sample Date: 09-20-2019
Lab Job No.: PI909051

Dear Mr. Oliver:

Enclosed please find the analytical report for the sample(s) received by Alpha Scientific Corporation on 09-23-2019 and analyzed by the following EPA methods:

EPA 8015M (Total Petroleum Hydrocarbons)
EPA 8260B (VOCs & Oxygenates by GC/MS)
EPA 6010B/7471A for CAM Metals

All analyses have met the QA/QC criteria of this laboratory.

The sample(s) arrived in good conditions (i.e., chilled, intact) and with a chain of custody record attached.

Alpha Scientific Corporation is a CA ELAP certified laboratory (Certificate Number 3007). Thank you for giving us the opportunity to serve you. Please feel free to call me at (562) 809-8880 if our laboratory can be of further service to you.

Sincerely,

Roger Wang, Ph.D.
Laboratory Director

Enclosures

This cover letter is an integral part of this analytical report.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Matrix: Soil
Batch No. for TPH-g: AMI23-GS1
Batch No. for TPH-d: BI23-DS1

Lab Job No.: PI909051
Date Sampled: 09-20-2019
Date Received: 09-23-2019
Date Analyzed: 09-23-2019
Date Analyzed: 09-23-2019
Date Reported: 09-24-2019

EPA 8015M (Total Petroleum Hydrocarbons)

Reporting Unit: mg/kg (ppm)

Sample ID	Lab ID	DF for TPH-G	C4-C12 TPH-G*	Surrog Rec.% TPH-G	DF for TPH-D/O	C13-C23 TPH-D	C24-C40 TPH-O	Surrog Rec.% TPH-D/O
MDL			0.2			2	25	
PQL			0.5			5	50	
Method Blank		1	ND	91	1	ND	ND	103
B7-2'	PI909051-1	1	ND	91	1	ND	ND	104
B7-10'	PI909051-2	1	ND	93	1	ND	ND	103
B8-2'	PI909051-3	1	ND	90	1	34.6	189	103
B8-10'	PI909051-4	1	ND	88	1	ND	ND	105

* Gasoline Range TPH result is obtained from purge and trap analysis using LUFT GC/MS Method;

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (at the specified limit);

J: Trace concentration, result between MDL and PQL.

Note: Surrogate recovery acceptance limits are 70-130%.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909051
Matrix: Soil

Date Reported: 09-24-2019
Date Sampled: 09-20-2019

EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/kg (ppb)

DATE ANALYZED			09-23	09-23-19	09-23-19	09-23-19	09-23-19	
DILUTION FACTOR			1	1	1	1	1	
LAB SAMPLE I.D.			MB	PI909051-1	PI909051-2	PI909051-3	PI909051-4	
CLIENT SAMPLE I.D.				B7-2'	B7-10'	B8-2'	B8-10'	
COMPOUND	MDL	PQL						
Dichlorodifluoromethane	2	5	ND	ND	ND	ND	ND	
Chloromethane	2	5	ND	ND	ND	ND	ND	
Vinyl Chloride	2	5	ND	ND	ND	ND	ND	
Bromomethane	2	5	ND	ND	ND	ND	ND	
Chloroethane	2	5	ND	ND	ND	ND	ND	
Trichlorofluoromethane	2	5	ND	ND	ND	ND	ND	
1,1-Dichloroethene	2	5	ND	ND	ND	ND	ND	
Iodomethane	2	5	ND	ND	ND	ND	ND	
Methylene Chloride	5	10	ND	ND	ND	ND	ND	
trans-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	
1,1-Dichloroethane	2	5	ND	ND	ND	ND	ND	
2,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	
cis-1,2-Dichloroethene	2	5	ND	ND	ND	ND	ND	
Bromochloromethane	2	5	ND	ND	ND	ND	ND	
Chloroform	2	5	ND	ND	ND	ND	ND	
1,2-Dichloroethane (EDC)	2	5	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	2	5	ND	ND	ND	ND	ND	
Carbon tetrachloride	2	5	ND	ND	ND	ND	ND	
1,1-Dichloropropene	2	5	ND	ND	ND	ND	ND	
Benzene	1	2	ND	ND	ND	ND	ND	
Trichloroethene	2	5	ND	ND	ND	ND	ND	
1,2-Dichloropropane	2	5	ND	ND	ND	ND	ND	
Bromodichloromethane	2	5	ND	ND	ND	ND	ND	
Dibromomethane	2	5	ND	ND	ND	ND	ND	
Trans-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	
cis-1,3-Dichloropropene	2	5	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	2	5	ND	ND	ND	ND	ND	
1,3-Dichloropropane	2	5	ND	ND	ND	ND	ND	
Dibromochloromethane	2	5	ND	ND	ND	ND	ND	
2-Chloroethylvinyl ether	2	10	ND	ND	ND	ND	ND	
Bromoform	2	5	ND	ND	ND	ND	ND	
Isopropylbenzene	2	5	ND	ND	ND	ND	ND	
Bromobenzene	2	5	ND	ND	ND	ND	ND	
Toluene	1	2	ND	ND	ND	ND	ND	



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909051
Matrix: Soil

Date Reported: 09-24-2019
Date Sampled: 09-20-2019

EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb

COMPOUND	MDL	PQL	MB	B7-2'	B7-10'	B8-2'	B8-10'	
Tetrachloroethene	2	5	ND	ND	ND	ND	ND	
1,2-Dibromoethane(EDB)	2	5	ND	ND	ND	ND	ND	
Chlorobenzene	2	5	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	2	5	ND	ND	ND	ND	ND	
Ethylbenzene	1	2	ND	ND	ND	ND	ND	
Total Xylenes	2	4	ND	ND	ND	ND	ND	
Styrene	2	5	ND	ND	ND	ND	ND	
1,1,2,2-Tetrachloroethane	2	5	ND	ND	ND	ND	ND	
1,2,3-Trichloropropane	2	5	ND	ND	ND	ND	ND	
n-Propylbenzene	2	5	ND	ND	ND	ND	ND	
2-Chlorotoluene	2	5	ND	ND	ND	ND	ND	
4-Chlorotoluene	2	5	ND	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	2	5	ND	ND	ND	ND	ND	
tert-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	2	5	ND	ND	ND	ND	ND	
Sec-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,3-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
p-Isopropyltoluene	2	5	ND	ND	ND	ND	ND	
1,4-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
1,2-Dichlorobenzene	2	5	ND	ND	ND	ND	ND	
n-Butylbenzene	2	5	ND	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	
1,2-Dibromo-3-Chloropropane	2	5	ND	ND	ND	ND	ND	
Hexachlorobutadiene	2	5	ND	ND	ND	ND	ND	
Naphthalene	2	5	ND	ND	ND	ND	ND	
1,2,3-Trichlorobenzene	2	5	ND	ND	ND	ND	ND	
Acetone	75	100	ND	ND	ND	ND	ND	
2-Butanone (MEK)	50	50	ND	ND	ND	ND	ND	
4-Methyl-2-pentanone	50	50	ND	ND	ND	ND	ND	
2-Hexanone	50	50	ND	ND	ND	ND	ND	
Carbon disulfide	10	15	ND	ND	ND	ND	ND	
Vinyl Acetate	10	15	ND	ND	ND	ND	ND	
MTBE	2	5	ND	ND	ND	ND	ND	
ETBE	2	5	ND	ND	ND	ND	ND	
DIPE	2	5	ND	ND	ND	ND	ND	
TAME	2	5	ND	ND	ND	ND	ND	
TBA	20	50	ND	ND	ND	ND	ND	
SURROGATE	Accept Limit%	%RC	%RC	%RC	%RC	%RC	%RC	
Dibromofluoro-methane	79-126	92	94	93	96	95		
Toluene-d8	79-121	99	99	100	99	100		
Bromofluoro-benzene	71-131	90	90	92	89	88		

MB=Method Blank; MDL=Method Detection Limit; PQL=Practical Quantitation Limit; ND=Not Detected (below DF × MDL); J=Result is between DF × MDL and DF × PQL; * Obtained from a higher dilution analysis.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 East Mission Road, San Marcos, CA
Matrix: Soil
Digestion Method: EPA 3050B
Batch No.: 0923-MS1

Lab Job No.: PI909051
Date Sampled: 09-20-2019
Date Received: 09-23-2019
Date Digested: 09-23-2019
Date Analyzed: 09-23-2019
Date Reported: 09-24-2019

EPA 6010B/7471A for CAM Metals (TTLIC)

Reporting Units: mg/kg (ppm)

Element	EPA	Method Blank	PI909051-1	PI909051-2	PI909051-3	PI909051-4	MDL	PQL
	Method		B7-2'	B7-10'	B8-2'	B8-10'		
Antimony (Sb)	6010B	ND	1.9J	1.3J	1.9J	1.4J	1	2
Arsenic (As)	6010B	ND	ND	ND	ND	ND	0.5	1
Barium (Ba)	6010B	ND	88.5	54.3	75.7	69.3	1	2
Beryllium (Be)	6010B	ND	ND	ND	ND	ND	1	2
Cadmium (Cd)	6010B	ND	ND	ND	ND	ND	1	2
Chromium (Cr)	6010B	ND	20.8	27.3	13.7	50.1	1	2
Cobalt (Co)	6010B	ND	11.9	9.7	10.0	11.3	1	2
Copper (Cu)	6010B	ND	23.0	17.6	26.5	24.0	1	2
Lead (Pb)	6010B	ND	32.7	8.0	7.8	6.4	1	2
Molybdenum (Mo)	6010B	ND	ND	ND	ND	ND	1	2
Nickel (Ni)	6010B	ND	51.6	44.9	46.4	59.6	1	2
Selenium (Se)	6010B	ND	ND	ND	ND	ND	0.5	1
Silver (Ag)	6010B	ND	ND	ND	ND	ND	1	2
Thallium (Tl)	6010B	ND	ND	ND	ND	ND	1	2
Vanadium (V)	6010B	ND	96.9	81.2	76.2	97.4	1	2
Zinc (Zn)	6010B	ND	56.9	33.0	48.4	40.0	1	2
Mercury (Hg)	7471A	ND	ND	ND	ND	ND	0.1	0.2

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (below MDL);

J: Trace concentration, result between MDL and PQL.



Alpha Scientific Corporation

Environmental Laboratories

09-24-2019

TPH-Gasoline Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: AMI23-GS1

Lab Job No: PI909051
Lab Sample I.D.: PI909051-1
Date Analyzed: 09-23/24-2019

I. MS/MSD Report Unit: ppb

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-g	ND	1,000	905	870	90.5	87.0	3.9	30	70-130

II. LCS Result Unit: ppb

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-g	953	1,000	95.3	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation
Environmental Laboratories

09-24-2019

**EPA 8015M (TPH)
Batch QA/QC Report**

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: BI23-DS1

Lab Job No: PI909051
Lab Sample I.D.: PI909051-2
Date Analyzed: 09-23-2019

**I. MS/MSD Report
Unit: ppm**

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-D	ND	200	214	206	107.0	103.0	3.8	30	70-130

**II. LCS Result
Unit: ppm**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-D	201	200	99.5	80-120

ND: Not Detected (at the specified limit).



09-24-2019

**EPA 8260B (VOCs)
Batch QA/QC Report**

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: 0923-VOAS1

Lab Job No: PI909051
Lab Sample I.D.: PI909051-1
Date Analyzed: 09-23-2019

**I. MS/MSD Report
Unit: ppb**

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
1,1-Dichloroethene	ND	20	23.1	20.8	108	104.0	3.8	30	70-130
Benzene	ND	20	23.8	21.3	107	106.5	0.5	30	70-130
Trichloro-ethene	ND	20	21.6	19.2	107	96.0	10.8	30	70-130
Toluene	ND	20	23.1	20.3	115.5	101.5	12.9	30	70-130
Chlorobenzene	ND	20	23.4	20.9	117.0	104.5	11.3	30	70-130

**II. LCS Result
Unit: ppb**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	21.7	20.0	108.5	80-120
Benzene	22.1	20.0	110.5	80-120
Trichloro-ethene	20.1	20.0	100.5	80-120
Toluene	21.1	20.0	105.5	80-120
Chlorobenzene	21.3	20.0	106.5	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-24-2019

EPA 6010B/7471A for CAM Metals Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0923-MS1

Lab Job No: PI909051
Lab Sample I.D.: A909053-1
Date Analyzed: 09-23-2019

I. MS/MSD Report Unit: ppm

Analyte	EPA Method	Sample Conc.	Spike Conc.	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
Antimony (Sb)	6010B	ND	20	98.5	99.2	0.7	30	70-130
Arsenic (As)	6010B	1.8	20	98.1	99.6	1.5	30	70-130
Barium (Ba)	6010B	42.9	20	93.4	95.3	2.0	30	70-130
Beryllium (Be)	6010B	ND	20	82.2	82.7	0.6	30	70-130
Cadmium (Cd)	6010B	ND	20	92.6	94.0	1.5	30	70-130
Chromium (Cr)	6010B	4.2	20	90.6	92.4	1.9	30	70-130
Cobalt (Co)	6010B	3.7	20	91.3	92.4	1.2	30	70-130
Copper (Cu)	6010B	13.0	20	108.5	107.0	1.4	30	70-130
Lead (Pb)	6010B	3.3	20	94.2	95.4	1.3	30	70-130
Molybdenum (Mo)	6010B	1.1	20	86.6	87.7	1.2	30	70-130
Nickel (Ni)	6010B	42.1	20	96.3	99.8	3.6	30	70-130
Selenium (Se)	6010B	ND	20	86.1	86.6	0.6	30	70-130
Silver (Ag)	6010B	ND	20	112.5	118.0	4.8	30	70-130
Thallium (Tl)	6010B	ND	20	113.8	114.8	0.9	30	70-130
Vanadium (V)	6010B	37.6	20	98.5	84.2	15.7	30	70-130
Zinc (Zn)	6010B	28.8	20	94.1	95.0	0.9	30	70-130

ND: Not Detected.



Alpha Scientific Corporation

Environmental Laboratories

09-24-2019

EPA 6010B/7471A for CAM Metals Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0923-MS1

Lab Job No: PI909051
Lab Sample I.D.: LCS
Date Analyzed: 09-23-2019

II. LCS Result Unit: ppm

Analyte	EPA Method	LCS Value	True Value	Rec. %	Accept. Limit
Antimony (Sb)	6010B	19.83	20	99.2	80-120
Arsenic (As)	6010B	19.88	20	99.4	80-120
Barium (Ba)	6010B	16.83	20	84.2	80-120
Beryllium (Be)	6010B	16.06	20	80.3	80-120
Cadmium (Cd)	6010B	17.95	20	89.8	80-120
Chromium (Cr)	6010B	17.83	20	89.2	80-120
Cobalt (Co)	6010B	17.07	20	85.4	80-120
Copper (Cu)	6010B	22.21	20	111.1	80-120
Lead (Pb)	6010B	18.99	20	95.0	80-120
Molybdenum (Mo)	6010B	17.44	20	87.2	80-120
Nickel (Ni)	6010B	19.54	20	97.7	80-120
Selenium (Se)	6010B	19.57	20	97.9	80-120
Silver (Ag)	6010B	23.21	20	116.1	80-120
Thallium (Tl)	6010B	21.60	20	108.0	80-120
Vanadium (V)	6010B	17.80	20	89.0	80-120
Zinc (Zn)	6010B	19.72	20	98.6	80-120

ND: Not Detected (at the specified limit).

Alpha Scientific Corporation Sample Acceptance Checklist

Section 1

Client: PIC Project: ES9679 Lab Job# P1909051

Date Received: 9-23-19

Sample(s) received in cooler(s)? Yes ☒ No ☐ (skip to Section 2)

Cooler(s) packed with: Ice ☐ Ice Packs ☒ Packing Material ☐

Cooler Temperature (°C): #1: 5°C #2: #3: #4: #5:

(Acceptable range is 0°C to 6°C or arriving on ice for samples received on the same day as collected.)

(Ambient Temperature for vapor or air samples is acceptable).

If sample(s) received outside acceptable range, Project Manager contacted by (Personnel Initial):

Section 2

	YES	NO	N/A
Was a COC received?	☒		
Were client sample IDs present?	☒		
Were sample(s) collection dates present?	☒		
Was the COC signed?	☒		
Were tests clearly indicated?	☒		
Did all samples arrive intact? If no, indicate below.	☒		
Did all container labels agree with COC?	☒		
Were correct containers used for the tests required?	☒		
Was there sufficient sample amount for requested tests?	☒		
Were the samples correctly preserved?	☒		
Was there headspace in VOA vials?			☒
Were Custody seals present?		☒	
If yes-were they intact?			☒

Section 3

Explanations/Comments:

Section 4

Was the Project Manager notified of anomalies? Yes ☐ No ☐ N/A ☒

Via Phone: By: Date/Time

By Email: Sent to:

Project Manager's response:

Completed by: ML

Date: 9-23-19

Alpha Scientific Corporation
16760 Gridley Road
Cerritos, CA 90703

Email: asc90703@gmail.com
Tel: (562) 809-8880
Fax: (562) 809-8801



Alpha Scientific Corporation
Environmental Laboratories

09-27-2019

Mr. Danny Oliver
PIC Environmental Services
P.O. Box 805
Solana Beach, CA 92075

Project: ES9679
Project Site: 528 E. Mission Road, San Marcos, CA
Sample Date: 09-25-2019
Lab Job No.: PI909067

Dear Mr. Oliver:

Enclosed please find the analytical report for the sample(s) received by Alpha Scientific Corporation on 09-26-2019 and analyzed by the following EPA methods:

EPA 8015M (Total Petroleum Hydrocarbons)
EPA 8260B (VOCs & Oxygenates by GC/MS)
EPA 6010B/7471A for CAM Metals
EPA 9045C (pH)

All analyses have met the QA/QC criteria of this laboratory.

The sample(s) arrived in good conditions (i.e., chilled, intact) and with a chain of custody record attached.

Alpha Scientific Corporation is a CA ELAP certified laboratory (Certificate Number 3007). Thank you for giving us the opportunity to serve you. Please feel free to call me at (562) 809-8880 if our laboratory can be of further service to you.

Sincerely,

Roger Wang, Ph.D.
Laboratory Director

Enclosures

This cover letter is an integral part of this analytical report.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 E. Mission Road, San Marcos, CA
Matrix: Soil
Batch No. for TPH-g: AMI26-GS1
Batch No. for TPH-d: BI26-DS1

Lab Job No.: PI909067
Date Sampled: 09-25-2019
Date Received: 09-26-2019
Date Analyzed: 09-26-2019
Date Analyzed: 09-26-2019
Date Reported: 09-27-2019

EPA 8015M (Total Petroleum Hydrocarbons)

Reporting Unit: mg/kg (ppm)

Sample ID	Lab ID	DF for TPH-G	C4-C12 TPH-G*	Surrog Rec.% TPH-G	DF for TPH-D/O	C13-C23 TPH-D	C24-C40 TPH-O	Surrog Rec.% TPH-D/O
MDL			0.2			2	25	
PQL			0.5			5	50	
Method Blank		1	ND	89	1	ND	ND	110
B9-2'	PI909067-1	1	ND	93	1	ND	ND	102
B9-10'	PI909067-2	1	ND	91	1	ND	ND	103

* Gasoline Range TPH result is obtained from purge and trap analysis using LUFT GC/MS Method;

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (at the specified limit);

J: Trace concentration, result between MDL and PQL.

Note: Surrogate recovery acceptance limits are 70-130%.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909067
Matrix: Soil

Date Reported: 09-27-2019
Date Sampled: 09-25-2019

EPA 8260B (VOCs by GC/MS, Page 1 of 2) Reporting Unit: µg/kg (ppb)

DATE ANALYZED			09-26	09-26-19	09-26-19			
DILUTION FACTOR			1	1	1			
LAB SAMPLE I.D.			MB	PI909067-1	PI909067-2			
CLIENT SAMPLE I.D.				B9-2'	B9-10'			
COMPOUND	MDL	PQL						
Dichlorodifluoromethane	2	5	ND	ND	ND			
Chloromethane	2	5	ND	ND	ND			
Vinyl Chloride	2	5	ND	ND	ND			
Bromomethane	2	5	ND	ND	ND			
Chloroethane	2	5	ND	ND	ND			
Trichlorofluoromethane	2	5	ND	ND	ND			
1,1-Dichloroethene	2	5	ND	ND	ND			
Iodomethane	2	5	ND	ND	ND			
Methylene Chloride	5	10	ND	ND	ND			
trans-1,2-Dichloroethene	2	5	ND	ND	ND			
1,1-Dichloroethane	2	5	ND	ND	ND			
2,2-Dichloropropane	2	5	ND	ND	ND			
cis-1,2-Dichloroethene	2	5	ND	ND	ND			
Bromochloromethane	2	5	ND	ND	ND			
Chloroform	2	5	ND	ND	ND			
1,2-Dichloroethane (EDC)	2	5	ND	ND	ND			
1,1,1-Trichloroethane	2	5	ND	ND	ND			
Carbon tetrachloride	2	5	ND	ND	ND			
1,1-Dichloropropene	2	5	ND	ND	ND			
Benzene	1	2	ND	ND	ND			
Trichloroethene	2	5	ND	ND	ND			
1,2-Dichloropropane	2	5	ND	ND	ND			
Bromodichloromethane	2	5	ND	ND	ND			
Dibromomethane	2	5	ND	ND	ND			
Trans-1,3-Dichloropropene	2	5	ND	ND	ND			
cis-1,3-Dichloropropene	2	5	ND	ND	ND			
1,1,2-Trichloroethane	2	5	ND	ND	ND			
1,3-Dichloropropane	2	5	ND	ND	ND			
Dibromochloromethane	2	5	ND	ND	ND			
2-Chloroethylvinyl ether	2	10	ND	ND	ND			
Bromoform	2	5	ND	ND	ND			
Isopropylbenzene	2	5	ND	ND	ND			
Bromobenzene	2	5	ND	ND	ND			
Toluene	1	2	ND	ND	ND			



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679

Lab Job No.: PI909067
Matrix: Soil

Date Reported: 09-27-2019
Date Sampled: 09-25-2019

EPA 8260B (VOCs by GC/MS, Page 2 of 2) Reporting Unit: ppb

COMPOUND	MDL	PQL	MB	B9-2'	B9-10'			
Tetrachloroethene	2	5	ND	ND	ND			
1,2-Dibromoethane(EDB)	2	5	ND	ND	ND			
Chlorobenzene	2	5	ND	ND	ND			
1,1,1,2-Tetrachloroethane	2	5	ND	ND	ND			
Ethylbenzene	1	2	ND	ND	ND			
Total Xylenes	2	4	ND	ND	ND			
Styrene	2	5	ND	ND	ND			
1,1,2,2-Tetrachloroethane	2	5	ND	ND	ND			
1,2,3-Trichloropropane	2	5	ND	ND	ND			
n-Propylbenzene	2	5	ND	ND	ND			
2-Chlorotoluene	2	5	ND	ND	ND			
4-Chlorotoluene	2	5	ND	ND	ND			
1,3,5-Trimethylbenzene	2	5	ND	ND	ND			
tert-Butylbenzene	2	5	ND	ND	ND			
1,2,4-Trimethylbenzene	2	5	ND	ND	ND			
Sec-Butylbenzene	2	5	ND	ND	ND			
1,3-Dichlorobenzene	2	5	ND	ND	ND			
p-Isopropyltoluene	2	5	ND	ND	ND			
1,4-Dichlorobenzene	2	5	ND	ND	ND			
1,2-Dichlorobenzene	2	5	ND	ND	ND			
n-Butylbenzene	2	5	ND	ND	ND			
1,2,4-Trichlorobenzene	2	5	ND	ND	ND			
1,2-Dibromo-3-Chloropropane	2	5	ND	ND	ND			
Hexachlorobutadiene	2	5	ND	ND	ND			
Naphthalene	2	5	ND	ND	ND			
1,2,3-Trichlorobenzene	2	5	ND	ND	ND			
Acetone	75	100	ND	ND	ND			
2-Butanone (MEK)	50	50	ND	ND	ND			
4-Methyl-2-pentanone	50	50	ND	ND	ND			
2-Hexanone	50	50	ND	ND	ND			
Carbon disulfide	10	15	ND	ND	ND			
Vinyl Acetate	10	15	ND	ND	ND			
MTBE	2	5	ND	ND	ND			
ETBE	2	5	ND	ND	ND			
DIPE	2	5	ND	ND	ND			
TAME	2	5	ND	ND	ND			
TBA	20	50	ND	ND	ND			
SURROGATE	Accept Limit%	%RC	%RC	%RC				
Dibromofluoro-methane	79-126	96	103	98				
Toluene-d8	79-121	100	98	101				
Bromofluoro-benzene	71-131	88	92	90				

MB=Method Blank; MDL=Method Detection Limit; PQL=Practical Quantitation Limit; ND=Not Detected (below DF × MDL); J=Result is between DF × MDL and DF × PQL; * Obtained from a higher dilution analysis.



Alpha Scientific Corporation

Environmental Laboratories

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 E. Mission Road, San Marcos, CA
Matrix: Soil
Digestion Method: EPA 3050B
Batch No.: 0926-MS1

Lab Job No.: PI909067
Date Sampled: 09-25-2019
Date Received: 09-26-2019
Date Digested: 09-26-2019
Date Analyzed: 09-26-2019
Date Reported: 09-27-2019

EPA 6010B/7471A for CAM Metals (TTLIC)

Reporting Units: mg/kg (ppm)

Element	EPA	Method Blank	PI909067-1	PI909067-2			MDL	PQL
	Method		B9-2'	B9-10'				
Antimony (Sb)	6010B	ND	7.4	7.1			1	2
Arsenic (As)	6010B	ND	ND	ND			0.5	1
Barium (Ba)	6010B	ND	98.8	229			1	2
Beryllium (Be)	6010B	ND	ND	ND			1	2
Cadmium (Cd)	6010B	ND	ND	ND			1	2
Chromium (Cr)	6010B	ND	532	7.9			1	2
Cobalt (Co)	6010B	ND	16.3	26.0			1	2
Copper (Cu)	6010B	ND	40.2	111			1	2
Lead (Pb)	6010B	ND	31.3	32.0			1	2
Molybdenum (Mo)	6010B	ND	1.9J	ND			1	2
Nickel (Ni)	6010B	ND	74.4	72.0			1	2
Selenium (Se)	6010B	ND	ND	ND			0.5	1
Silver (Ag)	6010B	ND	ND	ND			1	2
Thallium (Tl)	6010B	ND	ND	ND			1	2
Vanadium (V)	6010B	ND	123	207			1	2
Zinc (Zn)	6010B	ND	263	146			1	2
Mercury (Hg)	7471A	ND	ND	ND			0.1	0.2

MDL: Method Detection Limit;

PQL: Practical Quantitation Limit;

ND: Not Detected (below MDL);

J: Trace concentration, result between MDL and PQL.



Alpha Scientific Corporation

Environmental Laboratories

09-27-2019

Client: PIC Environmental Services
Project: ES9679
Project Site: 528 E. Mission Road, San Marcos, CA
Matrix: Soil
Batch No.: 0926-SPH1

Lab Job No.: PI909067
Date Sampled: 09-25-2019
Date Received: 09-26-2019
Date Analyzed: 09-26-2019
Date Reported: 09-27-2019

EPA 9045C (Soil pH)
Reporting Units: pH Unit

Sample I.D.	Lab ID	Soil pH	Temperature (°C)	Reporting Limit
B9-2'	PI909067-1	6.50	27.8	---
B9-10'	PI909067-2	7.21	28.0	---



Alpha Scientific Corporation

Environmental Laboratories

09-27-2019

TPH-Gasoline Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: AMI26-GS1

Lab Job No: PI909067
Lab Sample I.D.: PI909067-2
Date Analyzed: 09-26-2019

I. MS/MSD Report Unit: ppb

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-g	ND	1,000	1,110	1,060	111.0	106.0	4.6	30	70-130

II. LCS Result Unit: ppb

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-g	1,130	1,000	113.0	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-27-2019

EPA 8015M (TPH) Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: BI26-DS1

Lab Job No: PI909067
Lab Sample I.D.: PI909067-1
Date Analyzed: 09-26-2019

I. MS/MSD Report Unit: ppm

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
TPH-D	ND	200	213	215	106.5	107.5	0.9	30	70-130

II. LCS Result Unit: ppm

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
TPH-D	213	200	99.5	80-120

ND: Not Detected (at the specified limit).



09-27-2019

**EPA 8260B (VOCs)
Batch QA/QC Report**

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No: 0926-VOAS1

Lab Job No: PI909067
Lab Sample I.D.: PI909067-2
Date Analyzed: 09-26-2019

**I. MS/MSD Report
Unit: ppb**

Analyte	Sample Conc.	Spike Conc.	MS	MSD	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
1,1-Dichloroethene	ND	20	22.5	21.7	108	108.5	0.5	30	70-130
Benzene	ND	20	22.7	21.2	107	106.0	0.9	30	70-130
Trichloro-ethene	ND	20	19.9	18.6	107	93.0	14.0	30	70-130
Toluene	ND	20	21.9	20.2	109.5	101.0	8.1	30	70-130
Chlorobenzene	ND	20	20.7	20.5	103.5	102.5	1.0	30	70-130

**II. LCS Result
Unit: ppb**

Analyte	LCS Value	True Value	Rec.%	Accept. Limit
1,1-Dichloroethene	19.8	20.0	108.5	80-120
Benzene	20.1	20.0	110.5	80-120
Trichloro-ethene	17.5	20.0	100.5	80-120
Toluene	18.7	20.0	105.5	80-120
Chlorobenzene	19.6	20.0	106.5	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-27-2019

EPA 6010B/7471A for CAM Metals Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0926-MS1

Lab Job No: PI909067
Lab Sample I.D.: PI909067-2
Date Analyzed: 09-26-2019

I. MS/MSD Report Unit: ppm

Analyte	EPA Method	Sample Conc.	Spike Conc.	MS %Rec.	MSD %Rec.	% RPD	%RPD Accept. Limit	%Rec Accept. Limit
Antimony (Sb)	6010B	7.1	20	73.9	79.3	7.0	30	70-130
Arsenic (As)	6010B	ND	20	82.4	87.2	5.8	30	70-130
Barium (Ba)	6010B	229	20	119.2	120.5	1.1	30	70-130
Beryllium (Be)	6010B	ND	20	94.1	99.7	5.9	30	70-130
Cadmium (Cd)	6010B	ND	20	101.7	107.2	5.3	30	70-130
Chromium (Cr)	6010B	7.9	20	111.3	113.6	2.0	30	70-130
Cobalt (Co)	6010B	26.0	20	96.7	101.6	5.0	30	70-130
Copper (Cu)	6010B	111	20	93.0	96.6	3.9	30	70-130
Lead (Pb)	6010B	32.0	20	95.8	101.6	5.9	30	70-130
Molybdenum (Mo)	6010B	ND	20	88.3	94.4	6.7	30	70-130
Nickel (Ni)	6010B	72.0	20	104.6	104.9	0.3	30	70-130
Selenium (Se)	6010B	ND	20	98.3	108.1	9.6	30	70-130
Silver (Ag)	6010B	ND	20	89.4	91.6	2.4	30	70-130
Thallium (Tl)	6010B	ND	20	84.5	98.4	15.2	30	70-130
Vanadium (V)	6010B	207	20	90.0	92.9	3.1	30	70-130
Zinc (Zn)	6010B	146	20	111.8	113.8	1.8	30	70-130

ND: Not Detected.



09-27-2019

EPA 6010B/7471A for CAM Metals
Batch QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0926-MS1

Lab Job No: PI909067
Lab Sample I.D.: LCS
Date Analyzed: 09-26-2019

II. LCS Result
Unit: ppm

Analyte	EPA Method	LCS Value	True Value	Rec. %	Accept. Limit
Antimony (Sb)	6010B	19.39	20	97.0	80-120
Arsenic (As)	6010B	19.24	20	96.2	80-120
Barium (Ba)	6010B	20.43	20	102.2	80-120
Beryllium (Be)	6010B	21.73	20	108.7	80-120
Cadmium (Cd)	6010B	21.88	20	109.4	80-120
Chromium (Cr)	6010B	22.10	20	110.5	80-120
Cobalt (Co)	6010B	22.00	20	110.0	80-120
Copper (Cu)	6010B	19.56	20	97.8	80-120
Lead (Pb)	6010B	19.96	20	99.8	80-120
Molybdenum (Mo)	6010B	20.10	20	100.5	80-120
Nickel (Ni)	6010B	20.49	20	102.5	80-120
Selenium (Se)	6010B	20.44	20	102.2	80-120
Silver (Ag)	6010B	18.60	20	93.0	80-120
Thallium (Tl)	6010B	16.01	20	80.1	80-120
Vanadium (V)	6010B	21.29	20	106.5	80-120
Zinc (Zn)	6010B	22.22	20	111.1	80-120

ND: Not Detected (at the specified limit).



Alpha Scientific Corporation

Environmental Laboratories

09-27-2019

EPA 9045C (Soil pH) QA/QC Report

Client: PIC Environmental Services
Project: ES9679
Matrix: Soil
Batch No.: 0926-SPH1

Lab Job No: PI909067
Lab Sample I.D.: PI909067-1
Date Analyzed: 09-26-2019

Sample/Sample Dup Report Reporting Units: pH Unit

Analyte	Date Analyzed	Sample ID	Sample Conc.	Sample Duplicate	% RPD	%RPD Accept. Limit
pH	09-26-2019	PI909067-1	6.50	6.53	0.5	30

Lab Job Number **PI909067**

Relinquished by [Signature]
Relinquished by [Signature]

Alpha Scientific Corporation Sample Acceptance Checklist

Section 1

Client: PIC Project: ES9679 Lab Job# P2909067

Date Received: 9-26-19

Sample(s) received in cooler(s)? Yes ☒ No ☐ (skip to Section 2)

Cooler(s) packed with: Ice ☐ Ice Packs ☒ Packing Material ☐

Cooler Temperature (°C): #1: 5°C #2: #3: #4: #5:

(Acceptable range is 0°C to 6°C or arriving on ice for samples received on the same day as collected.)

(Ambient Temperature for vapor or air samples is acceptable).

If sample(s) received outside acceptable range, Project Manager contacted by (Personnel Initial):

Section 2

	YES	NO	N/A
Was a COC received?	☒	☐	☐
Were client sample IDs present?	☒	☐	☐
Were sample(s) collection dates present?	☒	☐	☐
Was the COC signed?	☒	☐	☐
Were tests clearly indicated?	☒	☐	☐
Did all samples arrive intact? If no, indicate below.	☒	☐	☐
Did all container labels agree with COC?	☒	☐	☐
Were correct containers used for the tests required?	☒	☐	☐
Was there sufficient sample amount for requested tests?	☒	☐	☐
Were the samples correctly preserved?	☒	☐	☐
Was there headspace in VOA vials?	☐	☐	☒
Were Custody seals present?	☐	☒	☐
If yes-were they intact?	☐	☐	☒

Section 3

Explanations/Comments:

Section 4

Was the Project Manager notified of anomalies? Yes ☐ No ☐ N/A ☒

Via Phone: By: Date/Time

By Email: Sent to:

Project Manager's response:

Completed by: m Date: 9-26-19

Alpha Scientific Corporation
16760 Gridley Road
Cerritos, CA 90703

Email: asc90703@gmail.com
Tel: (562) 809-8880
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23 September 2019

Mr. Danny Oliver
PIC Environmental
P.O. Box 805
Solana Beach, CA 92075

H&P Project: PIC091919-12
Client Project: ES9679 / McDonald

Dear Mr. Danny Oliver:

Enclosed is the analytical report for the above referenced project. The data herein applies to samples as received by H&P Mobile Geochemistry, Inc. on 19-Sep-19 which were analyzed in accordance with the attached Chain of Custody record(s).

The results for all sample analyses and required QA/QC analyses are presented in the following sections and summarized in the documents:

- Sample Summary
- Case Narrative (if applicable)
- Sample Results
- Quality Control Summary
- Notes and Definitions / Appendix
- Chain of Custody
- Sampling Logs (if applicable)

Unless otherwise noted, I certify that all analyses were performed and reviewed in compliance with our Quality Systems Manual and Standard Operating Procedures. This report shall not be reproduced, except in full, without the written approval of H&P Mobile Geochemistry, Inc.

We at H&P Mobile Geochemistry, Inc. sincerely appreciate the opportunity to provide analytical services to you on this project. If you have any questions or concerns regarding this analytical report, please contact me at your convenience at 760-804-9678.

Sincerely,



Janis La Roux
Laboratory Director

H&P Mobile Geochemistry, Inc. is certified under the California ELAP and the National Environmental Laboratory Accreditation Conference (NELAC). H&P is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs, accreditation number 69070 for EPA Method TO-15, H&P Method TO-15, EPA Method 8260B and H&P 8260SV.



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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SV4	E909075-01	Vapor	19-Sep-19	19-Sep-19
SV4-Dup	E909075-02	Vapor	19-Sep-19	19-Sep-19
SV3	E909075-03	Vapor	19-Sep-19	19-Sep-19
SV2	E909075-04	Vapor	19-Sep-19	19-Sep-19
SV1	E909075-05	Vapor	19-Sep-19	19-Sep-19

The percent recovery for Bromoform fell below the method criteria in the continuing calibration verification. Any result for this analyte may be biased low.

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DETECTIONS SUMMARY

Sample ID: SV4

Laboratory ID: E909075-01

Analyte	Result	Reporting	Units	Method	Notes
		Limit			
2-Butanone (MEK)	12	2.4	ug/m3	EPA TO-15	
Chloroform	1.7	1.0	ug/m3	EPA TO-15	
Benzene	0.7	0.6	ug/m3	EPA TO-15	
Toluene	3.3	3.1	ug/m3	EPA TO-15	
Tetrachloroethene	3.2	2.8	ug/m3	EPA TO-15	
m,p-Xylene	5.7	1.8	ug/m3	EPA TO-15	
o-Xylene	2.2	1.8	ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	3.3	2.0	ug/m3	EPA TO-15	

Sample ID: SV4-Dup

Laboratory ID: E909075-02

Analyte	Result	Reporting	Units	Method	Notes
		Limit			
2-Butanone (MEK)	12	2.4	ug/m3	EPA TO-15	
Chloroform	1.7	1.0	ug/m3	EPA TO-15	
Benzene	0.7	0.6	ug/m3	EPA TO-15	
m,p-Xylene	5.1	1.8	ug/m3	EPA TO-15	
o-Xylene	2.0	1.8	ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	2.7	2.0	ug/m3	EPA TO-15	

Sample ID: SV3

Laboratory ID: E909075-03

Analyte	Result	Reporting	Units	Method	Notes
		Limit			
Methylene chloride (Dichloromethane)	1.4	1.4	ug/m3	EPA TO-15	
2-Butanone (MEK)	7.6	2.4	ug/m3	EPA TO-15	
1,1,1-Trichloroethane	44	2.2	ug/m3	EPA TO-15	
Benzene	0.6	0.6	ug/m3	EPA TO-15	
Tetrachloroethene	17	2.8	ug/m3	EPA TO-15	
Ethylbenzene	2.1	1.8	ug/m3	EPA TO-15	
m,p-Xylene	8.8	1.8	ug/m3	EPA TO-15	
o-Xylene	3.6	1.8	ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	3.4	2.0	ug/m3	EPA TO-15	

Sample ID: SV2

Laboratory ID: E909075-04

Analyte	Result	Reporting	Units	Method	Notes
		Limit			
Helium (LCC)	0.34	0.10	%	ASTM D1945M	
Benzene	0.6	0.6	ug/m3	EPA TO-15	

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Sample ID: SV2

Laboratory ID: E909075-04

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Tetrachloroethene	44	2.8		ug/m3	EPA TO-15	
m,p-Xylene	3.0	1.8		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	2.9	2.0		ug/m3	EPA TO-15	

Sample ID: SV1

Laboratory ID: E909075-05

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Trichlorofluoromethane (F11)	3.8	2.3		ug/m3	EPA TO-15	
1,1-Dichloroethene	600	1.6		ug/m3	EPA TO-15	
2-Butanone (MEK)	2.8	2.4		ug/m3	EPA TO-15	
Chloroform	7.5	1.0		ug/m3	EPA TO-15	
1,1,1-Trichloroethane	5.6	2.2		ug/m3	EPA TO-15	
Benzene	1.2	0.6		ug/m3	EPA TO-15	
Trichloroethene	33	2.2		ug/m3	EPA TO-15	
Tetrachloroethene	460	2.8		ug/m3	EPA TO-15	
m,p-Xylene	2.7	1.8		ug/m3	EPA TO-15	
1,2,4-Trimethylbenzene	2.5	2.0		ug/m3	EPA TO-15	

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Soil Vapor/Air Analysis by ASTM D1945M

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4 (E909075-01) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Helium (LCC)	ND	0.10	%	1	EI91905	19-Sep-19	19-Sep-19	ASTM D1945M	
SV4-Dup (E909075-02) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Helium (LCC)	ND	0.10	%	1	EI91905	19-Sep-19	19-Sep-19	ASTM D1945M	
SV3 (E909075-03) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Helium (LCC)	ND	0.10	%	1	EI91905	19-Sep-19	19-Sep-19	ASTM D1945M	
SV2 (E909075-04) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Helium (LCC)	0.34	0.10	%	1	EI91905	19-Sep-19	19-Sep-19	ASTM D1945M	
SV1 (E909075-05) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Helium (LCC)	ND	0.10	%	1	EI91905	19-Sep-19	19-Sep-19	ASTM D1945M	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4 (E909075-01) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Dichlorodifluoromethane (F12)	ND	4.0	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
Chloromethane	ND	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.5	"	"	"	"	"	"	
Bromomethane	ND	1.6	"	"	"	"	"	"	
Chloroethane	ND	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	1.4	"	"	"	"	"	"	
Carbon disulfide	ND	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	12	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
Chloroform	1.7	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.6	"	"	"	"	"	"	
Benzene	0.7	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.3	"	"	"	"	"	"	
Trichloroethene	ND	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
Toluene	3.3	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	3.2	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	1.9	"	"	"	"	"	"	
Ethylbenzene	ND	1.8	"	"	"	"	"	"	
m,p-Xylene	5.7	1.8	"	"	"	"	"	"	
Styrene	ND	1.7	"	"	"	"	"	"	
o-Xylene	2.2	1.8	"	"	"	"	"	"	

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4 (E909075-01) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Bromoform	ND	4.2	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
1,1,2,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	3.3	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	11	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>									
		122 %	76-134		"	"	"	"	
<i>Surrogate: Toluene-d8</i>									
		108 %	78-125		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>									
		90.0 %	77-127		"	"	"	"	
SV4-Dup (E909075-02) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Dichlorodifluoromethane (F12)	ND	4.0	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
Chloromethane	ND	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.5	"	"	"	"	"	"	
Bromomethane	ND	1.6	"	"	"	"	"	"	
Chloroethane	ND	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	1.4	"	"	"	"	"	"	
Carbon disulfide	ND	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	12	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
Chloroform	1.7	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.6	"	"	"	"	"	"	
Benzene	0.7	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.3	"	"	"	"	"	"	
Trichloroethene	ND	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.9	"	"	"	"	"	"	

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H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV4-Dup (E909075-02) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Bromodichloromethane	ND	2.7	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
cis-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
Toluene	ND	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	ND	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	1.9	"	"	"	"	"	"	
Ethylbenzene	ND	1.8	"	"	"	"	"	"	
m,p-Xylene	5.1	1.8	"	"	"	"	"	"	
Styrene	ND	1.7	"	"	"	"	"	"	
o-Xylene	2.0	1.8	"	"	"	"	"	"	
Bromoform	ND	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.7	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	11	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4

117 % 76-134

" " " "

Surrogate: Toluene-d8

102 % 78-125

" " " "

Surrogate: 4-Bromofluorobenzene

91.7 % 77-127

" " " "

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Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV3 (E909075-03) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Dichlorodifluoromethane (F12)	ND	4.0	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
Chloromethane	ND	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.5	"	"	"	"	"	"	
Bromomethane	ND	1.6	"	"	"	"	"	"	
Chloroethane	ND	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	1.4	1.4	"	"	"	"	"	"	
Carbon disulfide	ND	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	7.6	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	44	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.6	"	"	"	"	"	"	
Benzene	0.6	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.3	"	"	"	"	"	"	
Trichloroethene	ND	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
Toluene	ND	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	17	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	1.9	"	"	"	"	"	"	
Ethylbenzene	2.1	1.8	"	"	"	"	"	"	
m,p-Xylene	8.8	1.8	"	"	"	"	"	"	
Styrene	ND	1.7	"	"	"	"	"	"	
o-Xylene	3.6	1.8	"	"	"	"	"	"	

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Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV3 (E909075-03) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Bromoform	ND	4.2	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
1,1,2,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	3.4	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	11	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		117 %	76-134		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		103 %	78-125		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		90.2 %	77-127		"	"	"	"	
SV2 (E909075-04) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Dichlorodifluoromethane (F12)	ND	4.0	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
Chloromethane	ND	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.5	"	"	"	"	"	"	
Bromomethane	ND	1.6	"	"	"	"	"	"	
Chloroethane	ND	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	ND	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	1.4	"	"	"	"	"	"	
Carbon disulfide	ND	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	ND	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
Chloroform	ND	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.6	"	"	"	"	"	"	
Benzene	0.6	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.3	"	"	"	"	"	"	
Trichloroethene	ND	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.9	"	"	"	"	"	"	

PIC Environmental
P.O. Box 805
Solana Beach, CA 92075

Project: PIC091919-12
Project Number: ES9679 / McDonald
Project Manager: Mr. Danny Oliver

Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV2 (E909075-04) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Bromodichloromethane	ND	2.7	ug/m3	1	EI92002	20-Sep-19	20-Sep-19	EPA TO-15	
cis-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
Toluene	ND	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	44	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	1.9	"	"	"	"	"	"	
Ethylbenzene	ND	1.8	"	"	"	"	"	"	
m,p-Xylene	3.0	1.8	"	"	"	"	"	"	
Styrene	ND	1.7	"	"	"	"	"	"	
o-Xylene	ND	1.8	"	"	"	"	"	"	
Bromoform	ND	4.2	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.9	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	11	"	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4

118 % 76-134

" " " "

Surrogate: Toluene-d8

102 % 78-125

" " " "

Surrogate: 4-Bromofluorobenzene

91.5 % 77-127

" " " "

PIC Environmental
P.O. Box 805
Solana Beach, CA 92075

Project: PIC091919-12
Project Number: ES9679 / McDonald
Project Manager: Mr. Danny Oliver

Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E909075-05) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Dichlorodifluoromethane (F12)	ND	4.0	ug/m3	1	E192002	20-Sep-19	20-Sep-19	EPA TO-15	
Chloromethane	ND	0.8	"	"	"	"	"	"	
Dichlorotetrafluoroethane (F114)	ND	2.8	"	"	"	"	"	"	
Vinyl chloride	ND	0.5	"	"	"	"	"	"	
Bromomethane	ND	1.6	"	"	"	"	"	"	
Chloroethane	ND	1.1	"	"	"	"	"	"	
Trichlorofluoromethane (F11)	3.8	2.3	"	"	"	"	"	"	
1,1-Dichloroethene	600	1.6	"	"	"	"	"	"	
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"	"	"	"	"	"	
Methylene chloride (Dichloromethane)	ND	1.4	"	"	"	"	"	"	
Carbon disulfide	ND	1.3	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.6	"	"	"	"	"	"	
2-Butanone (MEK)	2.8	2.4	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.6	"	"	"	"	"	"	
Chloroform	7.5	1.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	5.6	2.2	"	"	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	1.6	"	"	"	"	"	"	
Benzene	1.2	0.6	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.3	"	"	"	"	"	"	
Trichloroethene	33	2.2	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.9	"	"	"	"	"	"	
Bromodichloromethane	ND	2.7	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
4-Methyl-2-pentanone (MIBK)	ND	3.3	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.8	"	"	"	"	"	"	
Toluene	ND	3.1	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	2.2	"	"	"	"	"	"	
2-Hexanone (MBK)	ND	3.3	"	"	"	"	"	"	
Dibromochloromethane	ND	3.5	"	"	"	"	"	"	
Tetrachloroethene	460	2.8	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	3.1	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
Chlorobenzene	ND	1.9	"	"	"	"	"	"	
Ethylbenzene	ND	1.8	"	"	"	"	"	"	
m,p-Xylene	2.7	1.8	"	"	"	"	"	"	
Styrene	ND	1.7	"	"	"	"	"	"	
o-Xylene	ND	1.8	"	"	"	"	"	"	

PIC Environmental
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Project: PIC091919-12
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Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
SV1 (E909075-05) Vapor Sampled: 19-Sep-19 Received: 19-Sep-19									
Bromoform	ND	4.2	ug/m3	1	E192002	20-Sep-19	20-Sep-19	EPA TO-15	
1,1,2,2-Tetrachloroethane	ND	2.8	"	"	"	"	"	"	
4-Ethyltoluene	ND	2.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	2.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	2.5	2.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	2.4	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	7.5	"	"	"	"	"	"	
Hexachlorobutadiene	ND	11	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		117 %	76-134		"	"	"	"	
Surrogate: Toluene-d8		104 %	78-125		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.9 %	77-127		"	"	"	"	

PIC Environmental	Project: PIC091919-12	
P.O. Box 805	Project Number: ES9679 / McDonald	Reported:
Solana Beach, CA 92075	Project Manager: Mr. Danny Oliver	23-Sep-19 11:41

Soil Vapor/Air Analysis by ASTM D1945M - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EI91905 - GC

Blank (EI91905-BLK1)	Prepared & Analyzed: 19-Sep-19									
Helium (LCC)	ND	0.10	%							

PIC Environmental
P.O. Box 805
Solana Beach, CA 92075

Project: PIC091919-12
Project Number: ES9679 / McDonald
Project Manager: Mr. Danny Oliver

Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EI92002 - TO-15

Blank (EI92002-BLK1)

Prepared & Analyzed: 20-Sep-19

Dichlorodifluoromethane (F12)	ND	4.0	ug/m3
Chloromethane	ND	0.8	"
Dichlorotetrafluoroethane (F114)	ND	2.8	"
Vinyl chloride	ND	0.5	"
Bromomethane	ND	1.6	"
Chloroethane	ND	1.1	"
Trichlorofluoromethane (F11)	ND	2.3	"
1,1-Dichloroethene	ND	1.6	"
1,1,2-Trichlorotrifluoroethane (F113)	ND	3.1	"
Methylene chloride (Dichloromethane)	ND	1.4	"
Carbon disulfide	ND	1.3	"
trans-1,2-Dichloroethene	ND	1.6	"
1,1-Dichloroethane	ND	1.6	"
2-Butanone (MEK)	ND	2.4	"
cis-1,2-Dichloroethene	ND	1.6	"
Chloroform	ND	1.0	"
1,1,1-Trichloroethane	ND	2.2	"
1,2-Dichloroethane (EDC)	ND	1.6	"
Benzene	ND	0.6	"
Carbon tetrachloride	ND	1.3	"
Trichloroethene	ND	2.2	"
1,2-Dichloropropane	ND	1.9	"
Bromodichloromethane	ND	2.7	"
cis-1,3-Dichloropropene	ND	1.8	"
4-Methyl-2-pentanone (MIBK)	ND	3.3	"
trans-1,3-Dichloropropene	ND	1.8	"
Toluene	ND	3.1	"
1,1,2-Trichloroethane	ND	2.2	"
2-Hexanone (MBK)	ND	3.3	"
Dibromochloromethane	ND	3.5	"
Tetrachloroethene	ND	2.8	"
1,2-Dibromoethane (EDB)	ND	3.1	"
1,1,1,2-Tetrachloroethane	ND	2.8	"
Chlorobenzene	ND	1.9	"

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Project Number: ES9679 / McDonald
Project Manager: Mr. Danny Oliver

Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EI92002 - TO-15

Blank (EI92002-BLK1)

Prepared & Analyzed: 20-Sep-19

Ethylbenzene	ND	1.8	ug/m3
m,p-Xylene	ND	1.8	"
Styrene	ND	1.7	"
o-Xylene	ND	1.8	"
Bromoform	ND	4.2	"
1,1,2,2-Tetrachloroethane	ND	2.8	"
4-Ethyltoluene	ND	2.0	"
1,3,5-Trimethylbenzene	ND	2.0	"
1,2,4-Trimethylbenzene	ND	2.0	"
1,3-Dichlorobenzene	ND	2.4	"
1,4-Dichlorobenzene	ND	2.4	"
1,2-Dichlorobenzene	ND	2.4	"
1,2,4-Trichlorobenzene	ND	7.5	"
Hexachlorobutadiene	ND	11	"

Surrogate: 1,2-Dichloroethane-d4	51.0	"	42.7	119	76-134
Surrogate: Toluene-d8	42.1	"	41.6	101	78-125
Surrogate: 4-Bromofluorobenzene	64.3	"	72.6	88.6	77-127

LCS (EI92002-BS1)

Prepared & Analyzed: 20-Sep-19

Dichlorodifluoromethane (F12)	16	4.0	ug/m3	20.2	80.9	59-128
Vinyl chloride	10	0.5	"	10.4	97.5	64-127
Chloroethane	10	1.1	"	10.7	92.8	63-127
Trichlorofluoromethane (F11)	21	2.3	"	22.6	94.7	62-126
1,1-Dichloroethene	16	1.6	"	16.2	97.6	61-133
1,1,2-Trichlorotrifluoroethane (F113)	30	3.1	"	31.0	95.4	66-126
Methylene chloride (Dichloromethane)	13	1.4	"	14.2	93.6	62-115
trans-1,2-Dichloroethene	15	1.6	"	16.2	92.4	67-124
1,1-Dichloroethane	16	1.6	"	16.5	94.7	68-126
cis-1,2-Dichloroethene	15	1.6	"	16.0	94.0	70-121
Chloroform	20	1.0	"	19.8	102	68-123
1,1,1-Trichloroethane	23	2.2	"	22.2	103	68-125
1,2-Dichloroethane (EDC)	17	1.6	"	16.5	106	65-128
Benzene	12	0.6	"	13.0	94.9	69-119

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Reported:
23-Sep-19 11:41

Volatile Organic Compounds by EPA TO-15 - Quality Control
H&P Mobile Geochemistry, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EI92002 - TO-15

LCS (EI92002-BS1)

Prepared & Analyzed: 20-Sep-19

Carbon tetrachloride	26	1.3	ug/m3	25.6		102	68-132			
Trichloroethene	22	2.2	"	21.9		101	71-123			
Toluene	15	3.1	"	15.4		95.1	66-119			
1,1,2-Trichloroethane	21	2.2	"	22.2		95.7	73-119			
Tetrachloroethene	26	2.8	"	27.6		94.8	66-124			
1,1,1,2-Tetrachloroethane	30	2.8	"	28.0		107	67-129			
Ethylbenzene	16	1.8	"	17.7		88.5	70-124			
m,p-Xylene	16	1.8	"	17.7		89.5	61-134			
o-Xylene	16	1.8	"	17.7		90.0	67-125			
1,1,2,2-Tetrachloroethane	26	2.8	"	28.0		93.6	65-127			

Surrogate: 1,2-Dichloroethane-d4	51.6		"	42.7		121	76-134			
Surrogate: Toluene-d8	42.5		"	41.6		102	78-125			
Surrogate: 4-Bromofluorobenzene	67.7		"	72.6		93.3	77-127			

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Reported:
23-Sep-19 11:41

Notes and Definitions

LCC Leak Check Compound
ND Analyte NOT DETECTED at or above the reporting limit
MDL Method Detection Limit
%REC Percent Recovery
RPD Relative Percent Difference

All soil results are reported in wet weight.

Appendix

H&P Mobile Geochemistry, Inc. is approved as an Environmental Testing Laboratory and Mobile Laboratory in accordance with the DoD-ELAP Program and ISO/IEC 17025:2005 programs through PJLA, accreditation number 69070 for EPA Method TO-15, H&P Method TO-15, EPA Method 8260B and H&P 8260SV.

H&P is approved by the State of California as an Environmental Laboratory and Mobile Laboratory in conformance with the Environmental Laboratory Accreditation Program (ELAP) for the category of Volatile and Semi-Volatile Organic Chemistry of Hazardous Waste, certification numbers 2740, 2741, 2743 & 2745.

H&P is approved by the State of Louisiana Department of Environmental Quality under the National Environmental Laboratory Accreditation Conference (NELAC) certification number 04138

The complete list of stationary and mobile laboratory certifications along with the fields of testing (FOTs) and analyte lists are available at www.handpimg.com/about/certifications.



2470 Impala Drive, Carlsbad, CA 92010
 & Field Office - Signal Hill, CA
 W handpmg.com E info@handpmg.com
 P 760.804.9678 F 760.804.9159

DATE: 9/19/19
Page 1 of 1

Sample Receipt (Lab Use Only)		
Date Rec'd:	9/19/19	Control #: 190828.03
H&P Project #	PIC091919-12	
Lab Work Order #	E909075	
Sample Intact:	☒ Yes ☐ No ☐ See Notes Below	
Receipt Gauge ID:	30005	Temp: RT
Outside Lab:		
Receipt Notes/Tracking #:		
Lab PM Initials: <i>UB</i>		

* Preferred VOC units (please choose one):

☐ $\mu\text{g/L}$ ☒ $\mu\text{g/m}^3$ ☐ ppbv ☐ ppmv

1L RLS - KB 9/9/19

[illegible]

Approved/Relinquished by: _____ Company: _____

Approved/Relinquished by: _____ Company: _____

Approved/Relinquished by: _____ Company: _____

Date: / / Time:

Date: / / Time:

Date: _____ Time: _____

Received by:

Received by:

Received by:

Company: U.D.

Company:

Company: _____

Date: _____ Time: _____

Date: _____ Time: _____

Date: _____ Time: _____

Log Sheet: Soil Vapor Sampling with Helium Shroud

H&P Project #: PIC091919-Tech/He
Site Address: 528 E Mission Rd, San Marcos
Consultant: PIC Enviro.
Consultant Rep(s): Danny

Date: 9-19-19
Page: 1 of 1
H&P Rep(s): S. Marfield
M. Herford

Reviewed: EC
Scanned: T. Torres

Equipment Info	
Inline Gauge ID#:	<u>—</u>
Pump ID#:	<u>—</u>
He Meter ID#:	<u>016</u>
Shroud ID#:	<u>045</u>

Purge Volume	
PV Amount:	<u>300ml</u>
PV Includes:	☒ Tubing ☐ Sand 40% ☐ Dry Bent 50%

MGD 2002 Helium Detector Calibration		
	Time	Helium (%)
Calibration Standard	n/a	2.5
Opening Calibration	<u>0728</u>	<u>2.3</u>
Closing Calibration	<u>1000</u>	<u>2.4</u>
Acceptable Range	n/a	2.1 - 2.9

Shroud Procedure:	
<u>Vapor Pin & He</u> <u>shroud</u>	

Sample and Summa Information							Probe Specs							Purge & Collection Information						Shroud Info		
Point ID	Summa ID #	Sample Kit ID #	Start Time	Initial Vac ("Hg)	End / Sample Time	End Vac ("Hg)	Probe Depth (ft)	Tube Length (ft)	Tube OD (in.)	Sand Ht (in.)	Sand Dia (in.)	Dry Bent. Ht (in.)	Dry Bent. Dia (in.)	Shut In Test 60 sec (✓)	Purge Vol (mL)	Purge Flow Rate (mL/min)	Pump Time (min: sec)	Sample Flow Rate (mL/min)	ProbeVac ☐ Hg ☒ H ₂ O	He % Before	He % After	Probe ppmv
1 SV4	033	160	0749	-30	0758	Ø	SS	6"	1/4					✓	300	200	—	~200	Ø	58.0	54.2	Ø
2 SV4-DUP	105	047	0749	-30	0758	Ø	SS	6"	1/4					✓	300	200	—	~200	Ø	58.0	54.2	Ø
3 SV3	017	017	0822	-30	0833	Ø	SS	6"	1/4					✓	300	200	—	~200	20"	57.0	52.7	Ø
4 SV2	003	133	0911	-30	0924	1	SS	6"	1/4					✓	300	200	—	~200	Ø	56.7 ^{56.1}	56.3	3.4% A
5 SV1	216	156	0938	-29	0949	1	SS	6"	1/4					✓	300	200	—	~200	Ø	53.0	52.7	Ø
6																						
7																						
8																						
9																						
10																						

Site Notes such as weather, visitors, scope deviations, health & safety issues, etc. (When making sample specific notes, reference the line number above):

* Client installed vapor pins
 * A: client said concrete was 2-3" at this location & concrete was in poor condition.
 Purged out additional 500ml to clean probe. 2nd sample: 6000 ppmv.

APPENDIX D

Professional Qualifications

KEY PERSONNEL

Daniel C. Oliver, President and General Manager

California Professional Geologist No. 4781

Mr. Oliver adds over 30 years of environmental geology and consultation experience to PIC, in addition to his Bachelor's and Master's degrees in environmental studies and geology. He has managed assessments at nearly 2,500 sites in the western states region. He has managed numerous contaminated site mitigation projects in southern California, including numerous sites contaminated by leaking underground storage tanks. Prior to joining Team PIC, he worked for various regional and national environmental consulting firms with offices in southern California. He performed environmental investigations and mitigation at petroleum production and refining facilities in Los Angeles and Orange Counties in California. Mr. Oliver performed research and field investigations at waste disposal/landfill sites throughout southern California, and was assistant project manager for the characterization and selection of California's proposed low-level radioactive waste disposal facility. The controversial LLRW development project was later terminated for political reasons.