



PHASE II LIMITED SAMPLING REPORT

CASA GRANDE HOUSING PROJECT

JUNE 2020

PREPARED FOR:

DRG Builders, Inc.
3496 Buskirk Ave, Suite 104
Pleasant Hill, CA 94523



PREPARED BY:

Analytical Environmental Services
1801 7th Street, Suite 100
Sacramento, CA 95811
(916) 447-3479
www.analyticalcorp.com



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1.0 SUMMARY

This Limited Phase II Sampling Report (report) has been prepared to provide testing results and recommend actions for petroleum-impacted soils within a maintenance yard located on the Casa Grande 1 property (Subject Property) in Petaluma, California. Sampling methodology is included in the Limited Phase II work plan (AES, 2020) provided to DRG Builders in May of 2020. Summarized findings include:

- During a April 22, 2019 Phase I Environmental Site Assessment (AES, 2019; “Phase I ESA”) of the two parcels that make up the Subject Property, soil staining from potential petroleum products was observed within the western portion of the maintenance yard used for vehicle storage, just south of a metal shop building where a trailered storage tank occurred. Staining below an above-ground storage tank on the central portion of the Subject Property was also observed behind an equipment maintenance barn.
- A limited Phase II soil sampling event was conducted on June 15, 2020. Soil sampling locations for this sampling event were determined based on proximity to soil staining. Soil samples were collected from three sampling locations; two sampling locations were within the maintenance yard, and one sample location was collected as a reference site.

2.0 PROJECT BACKGROUND

The Subject Property is proposed for future residential development by DRG Builders. A Phase I ESA was prepared for the Subject Property in conformance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-13 (AES, 2019), which specifies the appropriate inquiry requirement for the innocent landowner defense under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Due to the presence of stained soils on the Subject Property, it was recommended that this Phase 2 limited sampling event to be conducted to determine the limit and degree of potential environmental contamination on the site.

The Subject Property is located along Casa Grande Road in Petaluma, California (**Figures 1 and 2**). The Subject Property consists of two parcels (Assessor’s Parcel Numbers (APNs) 017-040-059-000 and 017-040-020-000) totaling 4.49 acres (**Table 1**).

TABLE 1
SUBJECT PROPERTY APNS

Parcel	County APNs	County Acreage
1	017-040-059	3.49
2	014-040-020	24.53
Total Acreage		4.49

The Subject Property contains two residential buildings, a workshop, three sheds, and two shipping containers. The shop building serves as an equipment repair shop. City Directory listings provided by EDR (EDR, 2019) indicate that 250 Casa Grande Road was utilized by Carstensen Custom Tractor Service from at least 2005-2010, and that Neal Carstensen (or the Carstensen family) has been listed on the City Directory since at least 1971. One active residential dwelling is located on the Project Site.

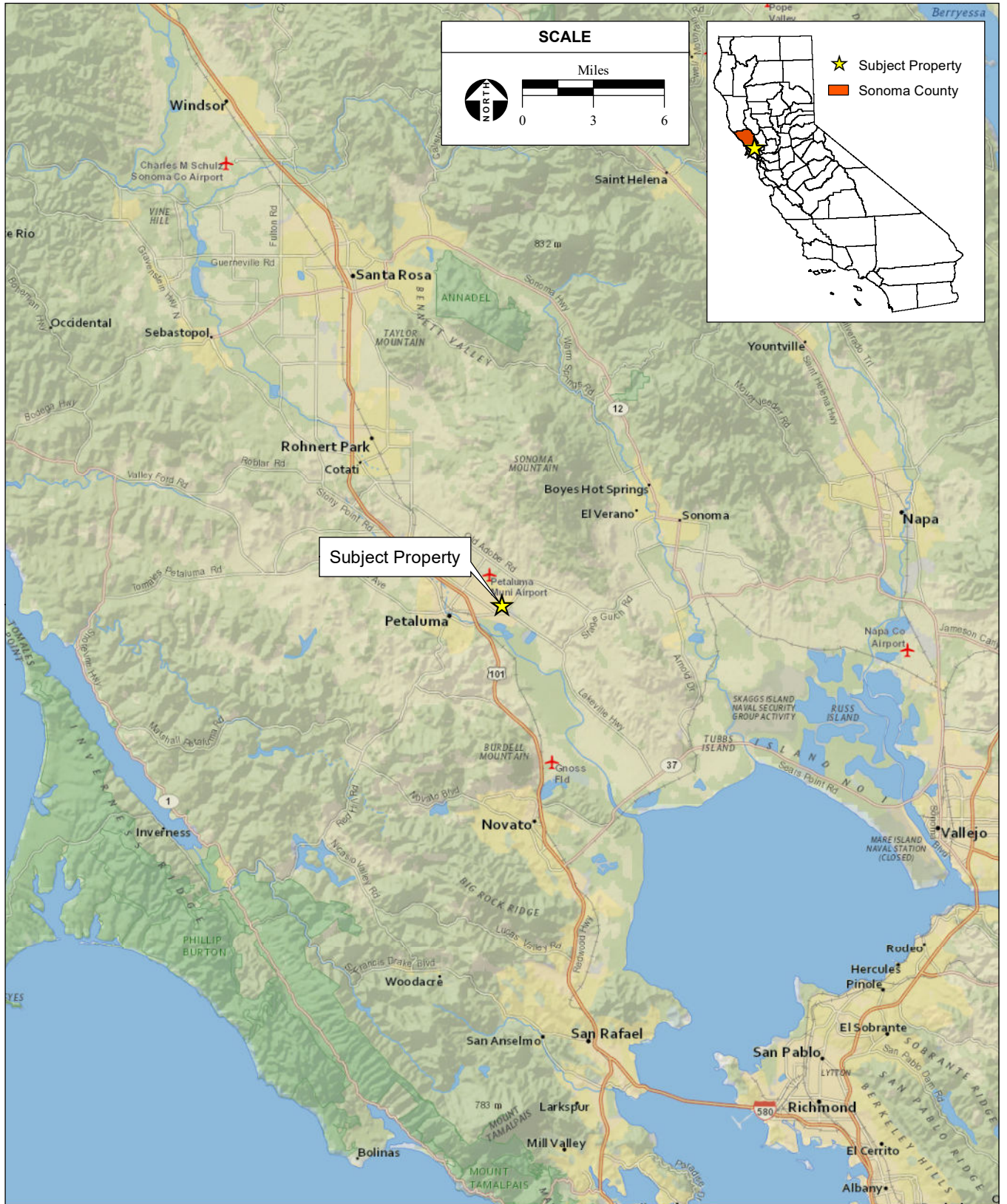
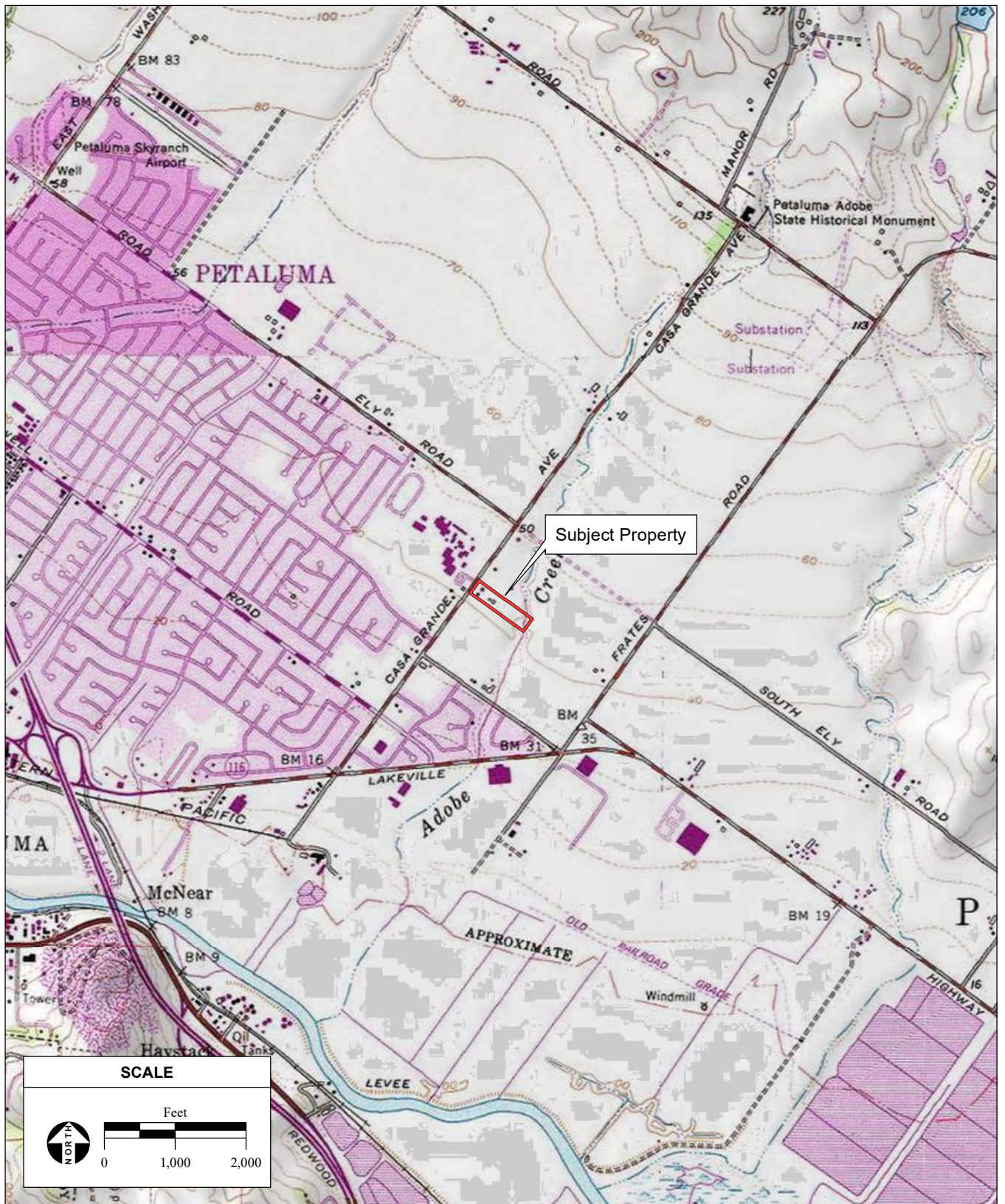


Figure 1
Regional Location



SOURCE: "Glen Ellen, CA" & "Petaluma River, CA" USGS 7.5 Minute Topographic Quadrangles, T4N R7W, Unsectioned Area of Glen Ellen & Petaluma River, Mt. Diablo Baseline & Meridian; ESRI, 2020; AES, 6/29/2020

Casa Grande Phase II Limited Sampling Report / 219506 ■

Figure 2
Site and Vicinity

3.0 PURPOSE AND LIMITATIONS

The purpose of the Limited Phase II sampling event was to identify possible contamination from petroleum products in the maintenance yard underneath farming equipment and the above ground storage tank. If contamination was visually or olfactory identified during soil sampling activities, the objective was to determine the vertical extent of potential contamination through visual observation and two-depth samplings. Signs of possible hazardous materials involvement would include stained soils and/or unusual odors originating from the Subject Property; indications of excavation or removal of soils, including patched asphalt and large debris piles; and other obvious signs of hazardous materials involvement.

This report has been prepared pursuant to an agreement between AES and DRG Builders. This report is subject to the following limitations:

1. Untested areas have not been characterized
2. Variations in chemical concentrations that can occur between sample locations.
3. Influences of off-site areas or historical uses that may have contributed or currently contribute to site contamination, particularly relating to groundwater and subsurface soil conditions, have not been determined.
4. Analytes that were not tested for or that may be below detection limits may be present.

4.0 METHODOLOGY

Surface and subsurface soil sampling was conducted at locations as shown on **Figure 3**. Sampling locations were determined with a Trimble GeoXH GPS unit. Samples were collected using disposable six-ounce polyethylene scoops and nitrile gloves.

A new scoop was utilized for each sample and sample depth. Sampling methodologies were developed to confirm presence of hazardous materials or petroleum products and, if present, provide preliminary data concerning the extent of soil contamination.

Two sampling locations with a total of 4 soil samples were collected from the maintenance yard on the Subject Property, as well as a reference sample taken in a similar landform and soil type away from any visible contamination. Both surficial samples and subsurface soil samples were collected at depths of 0 to 6 and 6 to 12 inches below ground surface (bgs) for the potentially contaminated locations, and a bulked sample at the reference point, collected between 0 and 12 inches bgs. The soil samples were collected using pre-cleaned hand tools and dedicated disposal scoops. Hand tools were thoroughly cleaned between sample locations. Observed organic debris, grass, leaves, or large rocks were removed from the samples prior to placement in laboratory glassware. Sample containers were labeled and stored in appropriate coolers, as supplied by Enthalpy Analytical. Samples were shipped to Enthalpy Analytical in Berkeley, California for analysis.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, sampling reports were prepared under the direct supervision of a registered Professional Engineer or Geologist.



Figure 3
Sampling Locations

Within the Maintenance Yard

Stained soils were collected at two location within the maintenance yard. At each location, a surface scrape was collected at depths no greater than 6 inches bgs. An additional soil sample was collected 6 inches below the first sampling point. Samples collected within the top 6 inches of soil were identified by adding an “a” to the sample number, while samples collected at depths below 6 inches bgs were identified with a “b.” A control soil sample was collected outside of the maintenance yard where no maintenance activities have been known to occur but soil composition is similar to that within the maintenance yard. The control sample was collected as a composite within the first 12 inches of soil to determine a baseline for soils within the maintenance yard. Representative photographs of sampling locations can be seen in **Appendix A**.

Soil samples were tested for total petroleum hydrocarbons as gasoline (TPH-gasoline and GRO), diesel fuel (DRO), and motor oil (ORO), and benzene, toluene, ethylbenzene, and xylenes (BTEX). Soil sampling constituents, analytical methods, and detection limits are listed in **Table 2**. Sampling results were compared to the EPA Residential Preliminary Remediation Goals (PRGs) and the San Francisco Regional Water Quality Control Board (SFRWQCB) Environmental Screening Levels (ESLs). Sample containers and analytics were provided by Enthalpy Analytical in Berkeley. A list of appropriate sample containers and sample hold times are provided in **Table 3**.

TABLE 2
SAMPLING CONSTITUENTS

Constituent	EPA Analytical Method	Laboratory Method Detection Limit (MDL)	Residential RWQCB ESLs ¹	EPA Residential PRGs ²
Petroleum Hydrocarbons				
TPH Gasoline	8015B	3.0 mg/Kg	NA	39 mg/Kg
Gasoline Range Organics	8015M	250 mg/Kg	100 mg/Kg	NA
Diesel Range Organics	8015M	250 mg/Kg	260 mg/Kg	NA
Oil Range Organics	8015M	500 mg/Kg	1600 mg/Kg	NA
BTEX				
Benzene	8260B	5.0 µg/kg	25 µg/kg	110 µg/kg
Ethylbenzene	8260B	5.0 µg/kg	430 µg/kg	5,700 µg/kg
MTBE	8260B	5.0 µg/kg	28 µg/kg	39,000 µg/kg
Toluene	8260B	5.0 µg/kg	2900 µg/kg	5000 mg/kg
o-Xylenes	8260B	5.0 µg/kg	NA	NA
m,p-Xylenes	8260B	10 µg/kg	NA	NA
Total Xylenes	8260B	5.0 µg/kg	2100 µg/kg	600 mg/kg
NOTES:				
¹ ESL are shallow soil screening levels for soil that are less than 3 meters bgs considering a commercial/industrial land use where groundwater is a current or potential drinking water source.				
² USEPA Preliminary Remediation Goal; Soil Screening Levels.				

TABLE 3
SAMPLE CONTAINERS

Constituent	Size	Type	Preservative	Hold Time
TPH ¹ Diesel / Motor oil	8-ounce jar	Glass	Cold	14 days
TPH Gasoline / BTEX ²	4 ounce jar	Glass	Cold	14 days
NOTES: ¹ Total Petroleum Hydrocarbons ² Benzene, Toluene, Ethylbenzene, Xylenes				

Samples were handled with nitrile gloves to prevent cross contamination. Samples were labeled with distinct sample identifying numbers as listed above, collection time and date, analysis, preservative, and project location. Samples were stored on ice, in a cooler until being sealed for shipment to the laboratory with a chain of custody form. The samples were overnight shipped to the laboratory and were received the following day.

Samples were handled following strict Chain of Custody (COC) protocols. The COC document identifies the sample identification number, sampling technician, date, time and location of sample collection, analyses requested, preservatives used in the samples, turn-around-times, and contact information for the laboratory reports. The COC document provides the ownership information of the samples handled during transportation from the sampling site to the laboratory. The laboratory COC is carbon-copied to provide one copy for the lab, the lab file, the original, and the for field personnel. The field personnel delivering the samples to the laboratory assumed all COC responsibility. Chain of custody forms can be found in **Appendix B**.

Regulatory Standards

The SRWQCB has set forth ESLs for chemicals within soils. **Table 4** provides ESLs for soil conditions, which are based on Residential Exposure and the probability of leaching to non-drinking groundwater (SFRWQCB, 2018). Potential contaminants identified during this investigation may present a significant risk to human health and the environment, and the ESLs in **Table 4** were utilized to evaluate risk.

TABLE 4
SFRWQCB ESLS AND ANALYTICAL RESULTS

Chemical	Direct Exposure for Residential Soils (mg/kg)	Leaching to non-drinking Groundwater (mg/kg)	Maximum Detected (mg/kg)	Exceed Direct Exposure ESLs?	Exceed Leaching ESLs?
Benzene	0.33	0.025	ND	No	No
Toluene	1100	3.2	ND	No	No
Ethylbenzene	5.9	0.43	ND	No	No
Xylene	580	2.1	ND	No	No
Gasoline	430	1100	ND	No	No
Diesel	260	1100	7800	Yes	Yes
Oil	1200	NA	6700	Yes	NA

SOURCE: SFRWQCB, 2019
 ND = Non-detect
 mg/kg = milligram per kilogram

5.0 SAMPLING RESULTS

As indicated by **Table 4** and **Table 5**, Diesel Range Organics and Oil Range Organics were detected in the soils at sample point 1 at both the surface and subsurface sampling locations at levels that exceed the SFRWQCB ESLs. No other constituents were detected in any of the samples. The highest concentration of diesel were found in the surface soil sample at sample point 1 at a concentration of 7,800 mg/Kg, and oil at the surface soil sample at sample point 1 at a concentration of 6,700 mg/Kg. Concentrations of both diesel and oil were detected in the subsurface sample at a concentration of 2,100 mg/Kg at sample point 1. No other hazards were identified in the soil samples. Full laboratory results can be found in **Appendix B**.

6.0 RECOMMENDATIONS

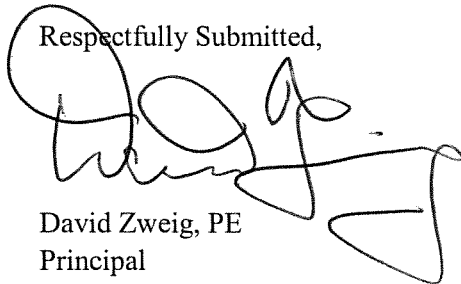
Based on the Limited Phase II Sampling event, the following additional measures are recommended:

- Due to the limited nature of contaminated soils, a limited soil remediation effort should be undertaken.
- The area immediately around sample point 1 should be excavated and disposed of in a manner consistent with local and federal regulations.
- Excavation should extend beyond the extents of observable contamination. Following excavation, an additional sampling event should occur to confirm that no further contamination exists at sample point 1. If additional contamination is found, further excavation of contaminated soils would be indicated in the follow-up sampling report.

7.0 CONCLUSION

AES is pleased to be of service to DRG Builders. If there are questions regarding this Limited Phase II Sampling Report or if additional information is required, please do not hesitate to contact AES at (916) 447-3479.

Respectfully Submitted,



David Zweig, PE
Principal



TABLE 5
ANALYTICAL RESULTS OF SAMPLING

Sample Number	Location	Depth	Constituent									
			TPH	GRO C8-C10	DRO C10-C28	ORO C28-C44	MTBE	Benzene	Toluene	Ethylbenzene	o-Xylene	m,p-Xylenes
SP1-A	Equipment Storage Yard	0-6"	ND	ND	7800 mg/Kg	6700 mg/Kg	ND	ND	ND	ND	ND	ND
SP2-B	Equipment Storage Yard	6-12"	ND	ND	2100 mg/Kg	2100 mg/Kg	ND	ND	ND	ND	ND	ND
SP2-A	Below Storage Tank	0-6"	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SP2-B	Below Storage Tank	6-12"	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
REFERENCE	Gravel Pad	0-12"	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

8.0 REFERENCES

Analytical Environmental Services, Inc. (AES). 2019. Phase I Environmental Site Assessment for the Casa Grande Residential Development.

AES. 2020. Phase II Environmental Site Assessment Work Plan for the Casa Grande Residential Development.

Department of Water Resources. 2017. Water Data Library. Available online at: <http://www.water.ca.gov/waterdatalibrary/>

San Francisco Regional Water Quality Control Board (SFRWQCB). 2019 Environmental Screening Levels.

Sonoma County. 2019. County of Sonoma Zoning and Land Use Map. Available online at <https://sonomacounty.maps.arcgis.com/apps/webappviewer/index.html?id=06ac7fe1b8554171b4682dc141293962>. Accessed June 26, 2020

APPENDIX A

SITE PHOTOS



PHOTO 1: Typical view of the equipment storage area in the northern portion of the Subject Property



PHOTO 2: Buildings and gravel pad in northern portion of the Subject Property



PHOTO 3: Overview of the southern portion of the Subject Property



PHOTO 4: Soil Sampling Point #1



PHOTO 5: Soil Sampling Point #2



PHOTO 6: Reference sample location

APPENDIX B

LABORATORY RESULTS



ENTHALPY
ANALYTICAL

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 429641
Report Level: II
Report Date: 06/26/2020

Analytical Report *prepared for:*

Nick Bonzey
Analytical Environmental Services
1801 7th Street
Suite 100
Sacramento, CA 95811

Project: 219506 - Casa Grande Housing/DRG Builders

Authorized for release by:

Will Rice, Project Manager
(510) 204-2221 Ext 13102
will.rice@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038

Sample Summary

Nick Bonzey	Lab Job #:	429641
Analytical Environmental Services	Project No:	219506
1801 7th Street	Location:	Casa Grande Housing/DRG Builders
Suite 100	Date Received:	06/16/20
Sacramento, CA 95811		

Sample ID	Lab ID	Collected	Matrix
SP1-A	429641-001	06/15/20 12:20	Soil
SP1-B	429641-002	06/15/20 12:25	Soil
SP2-A	429641-003	06/15/20 12:45	Soil
SP2-B	429641-004	06/15/20 12:50	Soil
REFERENCE	429641-005	06/15/20 13:00	Soil

SAMPLE RECEIPT CHECKLIST



Section 1: Login # 429641

Client: AES/Montros

Date Received: 6-16-20

Project: _____

Section 2: Shipping info (if applicable) F/E 7707 1260 5670

Are custody seals present? No, or Yes. If yes, where? on cooler, on samples, on package

Date: _____ How many _____ Signature, Initials, None

Were custody seals intact upon arrival? Yes No N/A

Samples received in a cooler? Yes, how many? 1 No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # B, or C

Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 6-16-20 By (print) JH (sign) JH

Section 3: Important: Notify PM if temperature exceeds 6°C or arrive frozen.

Packing in cooler: (if other, describe) _____

Bubble Wrap, Foam blocks, Bags, None, Cloth material, Cardboard, Styrofoam, Paper towels

Samples received on ice directly from the field. Cooling process had begun

Type of ice used: Wet, Blue/Gel, None Temperature blank(s) included? Yes, No

Temperature measured using Thermometer ID: _____, or IR Gun # B C

Cooler Temp (°C): #1: 3.1, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	<input checked="" type="checkbox"/>		
Were Method 5035 sampling containers present?		<input checked="" type="checkbox"/>	
If YES, what time were they transferred to freezer? _____			
Did all bottles arrive unbroken/unopened?	<input checked="" type="checkbox"/>		
Are there any missing / extra samples?		<input checked="" type="checkbox"/>	
Are samples in the appropriate containers for indicated tests?	<input checked="" type="checkbox"/>		
Are sample labels present, in good condition and complete?	<input checked="" type="checkbox"/>		
Does the container count match the COC?	<input checked="" type="checkbox"/>		
Do the sample labels agree with custody papers?	<input checked="" type="checkbox"/>		
Was sufficient amount of sample sent for tests requested?	<input checked="" type="checkbox"/>		
Did you change the hold time in LIMS for unpreserved VOAs?			<input checked="" type="checkbox"/>
Did you change the hold time in LIMS for preserved terracores?			<input checked="" type="checkbox"/>
Are bubbles > 6mm present in VOA samples?			<input checked="" type="checkbox"/>
Was the client contacted concerning this sample delivery?		<input checked="" type="checkbox"/>	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			<input checked="" type="checkbox"/>
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check? pH strip lot# _____, pH strip lot# _____, pH strip lot# _____			
Preservative added:			
<input type="checkbox"/> H2SO4 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HCL lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> HNO3 lot# _____ added to samples _____ on/at _____			
<input type="checkbox"/> NaOH lot# _____ added to samples _____ on/at _____			

Section 6:
Explanations/Comments: _____

Date Logged in 6/16/20 By (print) ZR (sign) ZR
Date Labeled 6/16/20 By (print) ZR (sign) ZR



ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: AES

Project: _____

Date Received: 8/17/12

Sampler's Name Present: Yes No

Section 2

Sample(s) received in a cooler? Yes, How many? 1 No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 4.0 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: ACS

Section 3

Was the cooler packed with: Ice Ice Packs Bubble Wrap Styrofoam
 Paper None Other _____

Cooler Temp (°C): #1: 0.8 #2: _____ #3: _____ #4: _____

Section 4

	YES	NO	N/A
Was a COC received?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are sample IDs present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are sampling dates & times present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is a relinquished signature present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the tests required clearly indicated on the COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
If custody seals are present, were they intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Did all samples arrive intact? If no, indicate in Section 4 below.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottle labels agree with COC? (ID, dates and times)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were the samples collected in the correct containers for the required tests?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the containers labeled with the correct preservatives?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is there headspace in the VOA vials greater than 5-6 mm in diameter?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Was a sufficient amount of sample submitted for the requested tests?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? Verbal PM Initials: _____ Date/Time: _____
 Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: [Signature] Date: 8/17/12

Analysis Results for 429641

Nick Bonzey
 Analytical Environmental Services
 1801 7th Street
 Suite 100
 Sacramento, CA 95811

Lab Job #: 429641
 Project No: 219506
 Location: Casa Grande Housing/DRG Builders
 Date Received: 06/16/20

Sample ID: SP1-A Lab ID: 429641-001 Collected: 06/15/20 12:20
Matrix: Soil

429641-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8015B Prep Method: EPA 5030B									
TPH Gasoline	ND		mg/Kg	3.0	1	247718	06/19/20	06/19/20	EMW
Surrogates	Limits								
Bromofluorobenzene (FID)	70%		%REC	60-140	1	247718	06/19/20	06/19/20	EMW
Method: EPA 8015M Prep Method: EPA 3580									
GRO C8-C10	ND		mg/Kg	250	25	248179	06/24/20	06/26/20	MES
DRO C10-C28	7,800		mg/Kg	250	25	248179	06/24/20	06/26/20	MES
ORO C28-C44	6,700		mg/Kg	500	25	248179	06/24/20	06/26/20	MES
Surrogates	Limits								
n-Triacontane		DO	%REC	50-150	25	248179	06/24/20	06/26/20	MES
Method: EPA 8260B Prep Method: EPA 5030B									
MTBE	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Benzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Toluene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Ethylbenzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
o-Xylene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
m,p-Xylenes	ND		ug/Kg	10	1	247821	06/17/20	06/17/20	RFL
Xylene (total)	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Surrogates	Limits								
Dibromofluoromethane	107%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
1,2-Dichloroethane-d4	114%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Toluene-d8	103%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Bromofluorobenzene	122%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL

Analysis Results for 429641

Sample ID: SP1-B
Lab ID: 429641-002
Collected: 06/15/20 12:25
Matrix: Soil

429641-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8015B									
Prep Method: EPA 5030B									
TPH Gasoline	ND		mg/Kg	3.0	1	247718	06/19/20	06/19/20	EMW
Surrogates					Limits				
Bromofluorobenzene (FID)	90%		%REC	60-140	1	247718	06/19/20	06/19/20	EMW
Method: EPA 8015M									
Prep Method: EPA 3580									
GRO C8-C10	ND		mg/Kg	200	20	248179	06/24/20	06/26/20	MES
DRO C10-C28	2,100		mg/Kg	200	20	248179	06/24/20	06/26/20	MES
ORO C28-C44	2,100		mg/Kg	400	20	248179	06/24/20	06/26/20	MES
Surrogates					Limits				
n-Triacontane		DO	%REC	50-150	20	248179	06/24/20	06/26/20	MES
Method: EPA 8260B									
Prep Method: EPA 5030B									
MTBE	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Benzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Toluene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Ethylbenzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
o-Xylene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
m,p-Xylenes	ND		ug/Kg	10	1	247821	06/17/20	06/17/20	RFL
Xylene (total)	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Surrogates					Limits				
Dibromofluoromethane	104%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
1,2-Dichloroethane-d4	107%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Toluene-d8	97%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Bromofluorobenzene	110%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL

Analysis Results for 429641

Sample ID: SP2-A	Lab ID: 429641-003	Collected: 06/15/20 12:45
Matrix: Soil		

429641-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8015B									
Prep Method: EPA 5030B									
TPH Gasoline	ND		mg/Kg	3.0	1	247718	06/19/20	06/19/20	EMW
Surrogates					Limits				
Bromofluorobenzene (FID)	100%		%REC	60-140	1	247718	06/19/20	06/19/20	EMW
Method: EPA 8015M									
Prep Method: EPA 3580									
GRO C8-C10	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
DRO C10-C28	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
ORO C28-C44	ND		mg/Kg	20	1	248179	06/24/20	06/24/20	MES
Surrogates					Limits				
n-Triacontane	115%		%REC	50-150	1	248179	06/24/20	06/24/20	MES
Method: EPA 8260B									
Prep Method: EPA 5030B									
MTBE	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Benzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Toluene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Ethylbenzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
o-Xylene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
m,p-Xylenes	ND		ug/Kg	10	1	247821	06/17/20	06/17/20	RFL
Xylene (total)	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Surrogates					Limits				
Dibromofluoromethane	102%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
1,2-Dichloroethane-d4	106%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Toluene-d8	96%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Bromofluorobenzene	100%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL

Analysis Results for 429641

Sample ID: SP2-B	Lab ID: 429641-004	Collected: 06/15/20 12:50
Matrix: Soil		

429641-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8015B									
Prep Method: EPA 5030B									
TPH Gasoline	ND		mg/Kg	3.0	1	247718	06/19/20	06/19/20	EMW
Surrogates					Limits				
Bromofluorobenzene (FID)	100%		%REC	60-140	1	247718	06/19/20	06/19/20	EMW
Method: EPA 8015M									
Prep Method: EPA 3580									
GRO C8-C10	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
DRO C10-C28	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
ORO C28-C44	ND		mg/Kg	20	1	248179	06/24/20	06/24/20	MES
Surrogates					Limits				
n-Triacontane	120%		%REC	50-150	1	248179	06/24/20	06/24/20	MES
Method: EPA 8260B									
Prep Method: EPA 5030B									
MTBE	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Benzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Toluene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Ethylbenzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
o-Xylene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
m,p-Xylenes	ND		ug/Kg	10	1	247821	06/17/20	06/17/20	RFL
Xylene (total)	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Surrogates					Limits				
Dibromofluoromethane	103%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
1,2-Dichloroethane-d4	108%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Toluene-d8	96%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Bromofluorobenzene	99%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL

Analysis Results for 429641

Sample ID: REFERENCE	Lab ID: 429641-005	Collected: 06/15/20 13:00
	Matrix: Soil	

429641-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 8015B									
Prep Method: EPA 5030B									
TPH Gasoline	ND		mg/Kg	3.0	1	247718	06/19/20	06/19/20	EMW
Surrogates					Limits				
Bromofluorobenzene (FID)	100%		%REC	60-140	1	247718	06/19/20	06/19/20	EMW
Method: EPA 8015M									
Prep Method: EPA 3580									
GRO C8-C10	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
DRO C10-C28	ND		mg/Kg	10	1	248179	06/24/20	06/24/20	MES
ORO C28-C44	ND		mg/Kg	20	1	248179	06/24/20	06/24/20	MES
Surrogates					Limits				
n-Triacontane	119%		%REC	50-150	1	248179	06/24/20	06/24/20	MES
Method: EPA 8260B									
Prep Method: EPA 5030B									
MTBE	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Benzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Toluene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Ethylbenzene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
o-Xylene	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
m,p-Xylenes	ND		ug/Kg	10	1	247821	06/17/20	06/17/20	RFL
Xylene (total)	ND		ug/Kg	5.0	1	247821	06/17/20	06/17/20	RFL
Surrogates					Limits				
Dibromofluoromethane	103%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
1,2-Dichloroethane-d4	107%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Toluene-d8	96%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL
Bromofluorobenzene	99%		%REC	70-145	1	247821	06/17/20	06/17/20	RFL

DO Diluted Out
 ND Not Detected

Batch QC

Type: Lab Control Sample	Lab ID: QC873504	Batch: 247718
Matrix: Soil	Method: EPA 8015B	Prep Method: EPA 5030B

QC873504 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
TPH Gasoline	5.973	5.000	mg/Kg	119%		70-130
Surrogates						
Bromofluorobenzene (FID)	0.2700	0.2000	mg/Kg	135%		60-140

Type: Matrix Spike	Lab ID: QC873505	Batch: 247718
Matrix (Source ID): Soil (429615-001)	Method: EPA 8015B	Prep Method: EPA 5030B

QC873505 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
TPH Gasoline	5.678	ND	5.000	mg/Kg	114%		70-130	1
Surrogates								
Bromofluorobenzene (FID)	0.2700		0.2000	mg/Kg	135%		60-140	1

Type: Matrix Spike Duplicate	Lab ID: QC873506	Batch: 247718
Matrix (Source ID): Soil (429615-001)	Method: EPA 8015B	Prep Method: EPA 5030B

QC873506 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
TPH Gasoline	5.558	ND	5.000	mg/Kg	111%		70-130	2	20	1
Surrogates										
Bromofluorobenzene (FID)	0.2600		0.2000	mg/Kg	130%		60-140			1

Type: Blank	Lab ID: QC873507	Batch: 247718
Matrix: Soil	Method: EPA 8015B	Prep Method: EPA 5030B

QC873507 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
TPH Gasoline	ND		mg/Kg	3.0	06/19/20	06/19/20
Surrogates						
Bromofluorobenzene (FID)	95%		%REC	60-140	06/19/20	06/19/20

Batch QC

Type: Blank	Lab ID: QC873193	Batch: 247821
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5030B

QC873193 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
MTBE	ND		ug/Kg	5.0	06/17/20	06/17/20
Benzene	ND		ug/Kg	5.0	06/17/20	06/17/20
Toluene	ND		ug/Kg	5.0	06/17/20	06/17/20
Ethylbenzene	ND		ug/Kg	5.0	06/17/20	06/17/20
o-Xylene	ND		ug/Kg	5.0	06/17/20	06/17/20
m,p-Xylenes	ND		ug/Kg	10	06/17/20	06/17/20
Xylene (total)	ND		ug/Kg	5.0	06/17/20	06/17/20
Surrogates				Limits		
Dibromofluoromethane	101%		%REC	70-145	06/17/20	06/17/20
1,2-Dichloroethane-d4	102%		%REC	70-145	06/17/20	06/17/20
Toluene-d8	97%		%REC	70-145	06/17/20	06/17/20
Bromofluorobenzene	102%		%REC	70-145	06/17/20	06/17/20

Type: Lab Control Sample	Lab ID: QC873194	Batch: 247821
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5030B

QC873194 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Chlorobenzene	45.68	50.00	ug/Kg	91%		80-120
1,1-Dichloroethene	49.04	50.00	ug/Kg	98%		80-131
Trichloroethene	44.85	50.00	ug/Kg	90%		79-120
MTBE	48.08	50.00	ug/Kg	96%		69-120
Benzene	47.86	50.00	ug/Kg	96%		80-120
Toluene	45.85	50.00	ug/Kg	92%		80-120
Surrogates						
Dibromofluoromethane	52.38	50.00	ug/Kg	105%		70-145
1,2-Dichloroethane-d4	51.98	50.00	ug/Kg	104%		70-145
Toluene-d8	48.25	50.00	ug/Kg	97%		70-145
Bromofluorobenzene	49.26	50.00	ug/Kg	99%		70-145

Batch QC

Type: Lab Control Sample Duplicate	Lab ID: QC873195	Batch: 247821
Matrix: Soil	Method: EPA 8260B	Prep Method: EPA 5030B

QC873195 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Chlorobenzene	46.21	50.00	ug/Kg	92%		80-120	1	20
1,1-Dichloroethene	50.99	50.00	ug/Kg	102%		80-131	4	33
Trichloroethene	46.61	50.00	ug/Kg	93%		79-120	4	20
MTBE	46.46	50.00	ug/Kg	93%		69-120	3	20
Benzene	48.17	50.00	ug/Kg	96%		80-120	1	20
Toluene	47.16	50.00	ug/Kg	94%		80-120	3	20
Surrogates								
Dibromofluoromethane	50.05	50.00	ug/Kg	100%		70-145		
1,2-Dichloroethane-d4	49.45	50.00	ug/Kg	99%		70-145		
Toluene-d8	48.71	50.00	ug/Kg	97%		70-145		
Bromofluorobenzene	48.84	50.00	ug/Kg	98%		70-145		

Type: Blank	Lab ID: QC874066	Batch: 248179
Matrix: Soil	Method: EPA 8015M	Prep Method: EPA 3580

QC874066 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
GRO C8-C10	ND		mg/Kg	9.9	06/24/20	06/24/20
DRO C10-C28	ND		mg/Kg	9.9	06/24/20	06/24/20
ORO C28-C44	ND		mg/Kg	20	06/24/20	06/24/20
Surrogates				Limits		
n-Triacontane	110%		%REC	50-150	06/24/20	06/24/20

Type: Lab Control Sample	Lab ID: QC874067	Batch: 248179
Matrix: Soil	Method: EPA 8015M	Prep Method: EPA 3580

QC874067 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Diesel C10-C28	282.0	248.8	mg/Kg	113%		70-130
Surrogates						
n-Triacontane	11.53	9.950	mg/Kg	116%		50-150

Type: Matrix Spike	Lab ID: QC874068	Batch: 248179
Matrix (Source ID): Soil (429715-002)	Method: EPA 8015M	Prep Method: EPA 3580

QC874068 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Diesel C10-C28	277.4	ND	250.0	mg/Kg	111%		70-130	1
Surrogates								
n-Triacontane	11.09		10.00	mg/Kg	111%		50-150	1

Batch QC

Type: Matrix Spike Duplicate	Lab ID: QC874069	Batch: 248179
Matrix (Source ID): Soil (429715-002)	Method: EPA 8015M	Prep Method: EPA 3580

QC874069 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Diesel C10-C28	269.6	ND	250.0	mg/Kg	108%		70-130	3	20	1
Surrogates										
n-Triacontane	11.06		10.00	mg/Kg	111%		50-150			1

ND Not Detected