

## **APPENDIX H: LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT**

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Project No.  
**16109.000.000**

May 16, 2019

Mr. Joe Martin  
TH Trumark Homes, LLC  
450 Newport Center Drive, Suite 300  
Newport Beach, CA 92660

Subject: Covina Bowl  
1060 West San Bernardino Road  
Covina, California

## **LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT**

Reference: Stantec; Phase I Environmental Site Assessment for 1060 West San Bernardino Road, Covina, California; Stantec Project No. 185803933; May 26, 2017.

Dear Mr. Martin:

ENGEO is pleased to submit the findings of our environmental peer review and limited phase II environmental site assessment (ESA) services for the proposed development at 1060 West San Bernardino in Covina, California (Figure 1). The purpose of the environmental peer review and limited phase II ESA was to investigate potential impacts to Property soil, due to proximity to a historical railroad line along the southern boundary, as well as the past land use as an orchard.

## **BACKGROUND**

The subject property (Property) is located at 1060 West San Bernardino in Covina, California. The Property is approximately 4.3 acres in area and is identified as Assessor's Parcel Number (APN) 8434-018-020. The Property currently consists of one vacant commercial building, constructed in the late 1950s, and asphalt-paved parking areas.

## **SUMMARY OF REVIEWED REPORT**

Stantec; Phase I Environmental Site Assessment for 1060 West San Bernardino Road, Covina, California; Stantec Project No. 185803933; May 26, 2017.

At the time of the 2017 phase I ESA, the Property contained an approximately 44,000-square-foot single-story commercial building, which was inactive. Reportedly, the former building occupants included a bowling alley and restaurant, salon, real estate office, Radio Shack, and a church.

The environmental database report (EDR) listed the Property in two databases – HAZNET and FINDS. No information was provided for the FINDS listing, and the HAZNET listing described the removal and disposal of asbestos-containing material from the Property in 1995. The EDR also listed multiple commercial facilities near the Property, including historical dry cleaners. After reviewing the information, Stantec determined that none of the facilities are considered likely to represent a REC to the Property and recommended no further assessment regarding these facilities.

As summarized in the referenced phase I environmental site assessment, Stantec identified the following two Recognized Environmental Conditions (RECs) for the Property:

- ***“Historic Railroad Line.*** *A historic railroad line appears to have been present along the southern Property boundary until circa 1950. Historically, vegetation inhibitor chemicals (i.e., herbicides) were applied along railroad lines, and often contained elevated levels of metals such as lead and arsenic.*

*The potential presence of elevated metals along the historic railroad line represents a REC to the property. Stantec recommends conducting a shallow soil assessment in this area to determine if metals are present at levels of concern.*

- ***Historical Agricultural Use.*** *The Property was used as an orchard from at least 1928 through circa 1960. The present-day commercial structure located on the Property was first observed in the 1964 aerial photograph. Due to the presence of an orchard on the Property until circa 1960, pesticides and/or herbicides may be present in the soils at the site. Therefore, the historical presence of the orchard is considered a REC. Stantec recommends conducting a shallow soil investigation throughout the Property to determine if pesticides and/or metals associated with herbicides are present at concentrations of concern.”*

As described above, Stantec recommended a shallow soil assessment for the Property.

Stantec did not identify evidence of any Controlled Recognized Environmental Conditions (CRECs) or Historical Recognized Environmental Conditions (HRECs) associated with the subject Property. However, Stantec did identify environmental considerations that did not qualify as RECs, which included the likely presence of lead-based paint and asbestos-containing materials (including possible asbestos in the building as well in stress-absorbing fabric commonly found below asphalt surfaces).

## LIMITED PHASE II ESA

As described above, review of historical records indicates that a former railroad line was adjacent to the southern boundary of the Property until circa 1950, and an orchard was onsite between approximately 1928 and circa 1960. Due to the historical use, we conducted an agrichemical assessment of the near-surface soil to evaluate the potential for residual concentrations of organochlorine pesticides (OCPs), arsenic, and lead throughout the Property, as well as total petroleum hydrocarbons (TPH) as diesel and motor oil, semi-volatile organic compounds, and metals near the southern boundary of the Property.

The Property agricultural assessment was performed in general accordance with the Department of Toxic Substances Control (DTSC) *Interim Guidance for Sampling Agricultural Properties (Third Revision, August 7, 2008)*.

## Soil Sampling

We notified the Underground Service Alert (USA Dig Alert) prior to drilling, and we additionally retained a private utility locator to survey the boring locations. A C-57 licensed direct-push drilling contractor advanced 12 borings throughout the Property (Figure 2) to a depth of 4 feet below

ground surface (bgs) under the supervision of an engineer. We did not encounter groundwater during the drilling activities to the depth explored.

We collected soil samples on May 10, 2019, from 12 locations across the Property (Figure 2). The driller advanced the soil borings to depths of 4 feet below ground surface using a Geoprobe® direct-push rig, and retrieved continuous soil cores from each boring. Soil samples were collected at approximately 6 inches (0.5 feet) and 18 inches (1.5 feet) into native soil.

We collected a total of 24 soil samples and sealed using Teflon® sheets secured by tight-fitting plastic end caps. Upon collection of samples, we labeled each sample with a unique sample number, sample location, and collection date/timed. We placed all sampled in an ice-cooled chest and submitted under documented chain-of-custody to Enthalpy Analytical, State-certified laboratory in California. The deeper 1.5-foot soil samples were placed on hold pending the results of the shallower 0.5-foot samples.

We instructed the laboratory to combine adjacent 0.5-foot soil samples to create three composites (4 to 1), and analyze for organochlorine pesticides (OCP) (EPA Test Method 8081A), arsenic, and lead (EPA Test Method 6010B). Additionally, we instructed the laboratory to analyze the two southernmost samples on a discrete basis for TPH-diesel and TPH-motor oil with silica gel cleanup (EPA Test Method 8015), SVOCs-SIM (EPA Test Method 8270), and CAM 17 Metals (EPA Test Method 6010).

### **Analytical Results**

We compared the laboratory test results to corresponding United States Environmental Protection Agency USEPA and CAL-EPA residential screening levels (RSLs)<sup>1</sup> assuming a residential use scenario.

Based on a review of the laboratory test results, the two discrete samples collected from the southern Property boundary reported TPH-diesel and TPH-motor oil concentrations as non-detectable. Sample 01-B-11@0.5 reported nine detectable concentrations of SVOCs; each is below the corresponding screening levels. All samples reported detectable concentrations of lead and arsenic. The maximum concentration of lead (14.6 milligrams per kilograms (mg/kg)) is below the screening level of 80 mg/kg. The maximum concentration of arsenic (6.37 mg/kg) exceeds the screening level, but is within the expected background concentration for arsenic in Southern California<sup>2</sup>. The remaining metal concentrations are below the corresponding screening levels.

The three composite soil samples reported OCPs as non-detectable in the three composite samples. The laboratory report is attached in its entirety (Appendix A).

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<sup>1</sup> USEPA Regional Screening Levels For Resident Soil (RSLs); November 2018.

<sup>1</sup> HERO HHRA Note Number: 3, DTSC Modified Screening Levels For Residential Soil (DTSC-SLs), April 2019.

<sup>2</sup> Department of Toxic Substances Control (DTSC) Determination of a Southern California Background Arsenic Concentration in Soil, March 2008

## FINDINGS

Based on the analytical results, the Property has not been significantly impacted by past agricultural or railroad activities and is suitable for residential development. Based on the findings of this limited phase II assessment, we do not recommend any further studies at this time. If you have any questions regarding this report, please contact us.

## LIMITATIONS

We strived to perform our professional services in accordance with generally accepted engineering principles and practices currently employed in the area (prevailing practice); no warranty is expressed or implied. This report is based upon field and other conditions discovered at the time of report preparation. We developed our conclusions with limited subsurface exploration data and assumed the test results are representative of the actual subsurface conditions across the Property. If unexpected conditions are encountered, notify ENGEO immediately to review these conditions and provide additional and/or modified conclusions, as necessary.

Because prevailing practice and applicable regulatory standards may change over time, our conclusions are limited to the circumstances under which we performed our services. In addition, the samples recovered and tested as part of this assessment are only representative of the noted locations/depths and the analytes tested. We are unable to eliminate all risks nor provide insurance; therefore, we are unable to guarantee or warrant the results of our services.

Sincerely,

ENGEO Incorporated

Adrianna Lundberg  
al/sm/jf

Shawn Munger

Attachments: Figures 1 and 2  
Appendix A: Laboratory Test Result Report - Soil

**FIGURES**

**Figure 1 - Vicinity Map**  
**Figure 2 – Site Plan**



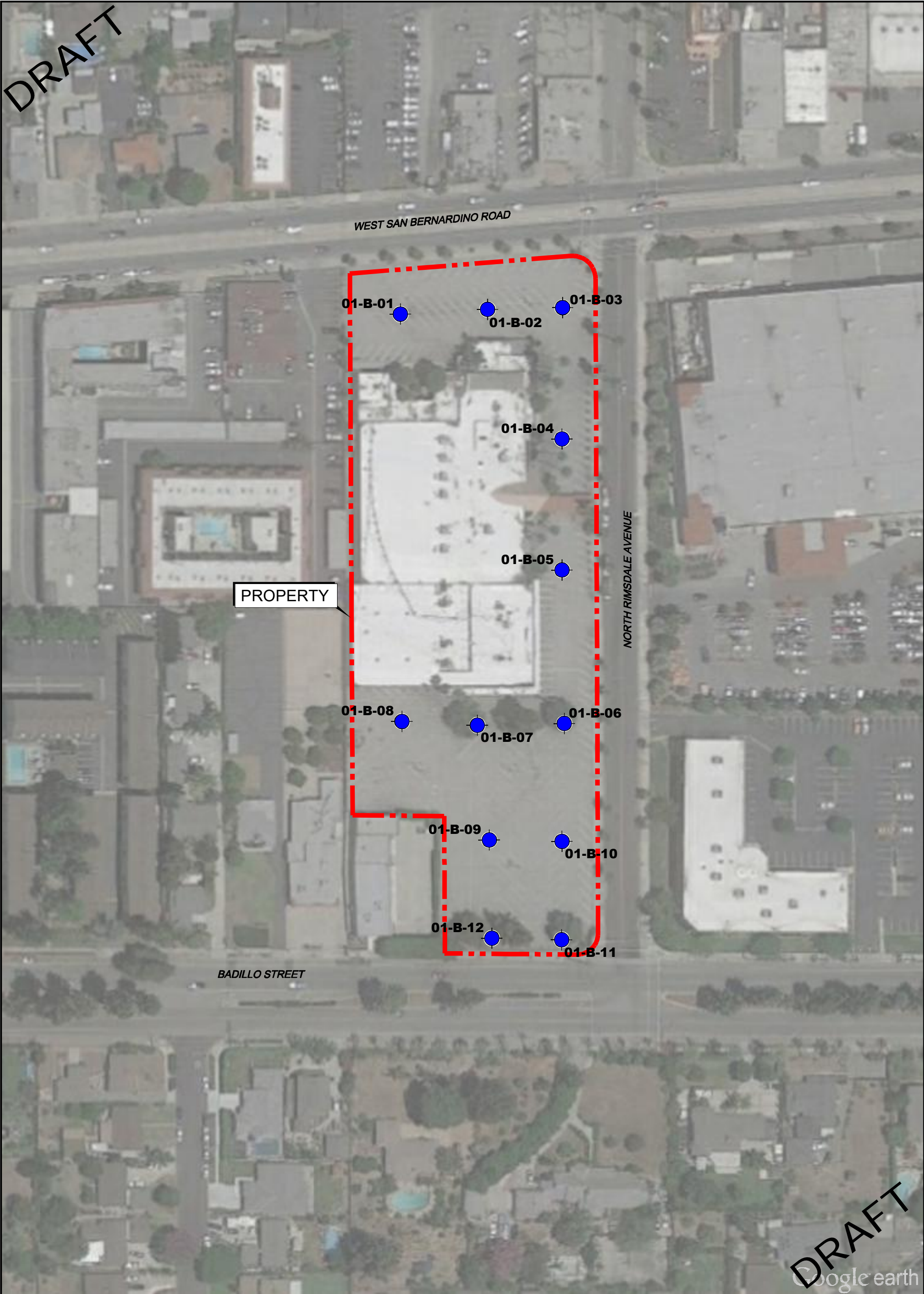


1

ORIGINAL FIGURE PRINTED IN COLOR



FILE PATH: G:\Drafting\DRAWINGS\Draw\13000 Plus\16109 DRAWING\000 ESA - 0519\1610900000-2-ESA-SitePlan-0519.dwg SWE DATE: 5/14/2019 2:45:36 PM SAVED BY: Elnorez



BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



SITE PLAN  
1060 WEST SAN BERNARDINO ROAD  
COVINA, CALIFORNIA

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

01-B-12



SOIL BORING TO 4'  
BELOW GROUND SURFACE  
(ENGEO, MAY, 2019)

PROJECT NO.: 16109.000.000

SCALE: AS SHOWN

DRAWN BY: EJ

CHECKED BY: SPM

FIGURE NO.

2

ORIGINAL FIGURE PRINTED IN COLOR

DRAFT

## **APPENDIX A**

### **Laboratory Test Result Report - Soil Enthalpy Analytical**



## Enthalpy Analytical, LLC

931 W. Barkley Ave - Orange, CA 92868  
Tel: (714)771-6900 Fax: (714)538-1209  
www.enthalpy.com  
info-sc@enthalpy.com



Client: ENGEO Inc.  
Address: 6 Morgan, Suite 162  
Irvine, CA 92618-1922

Attn: Adrianna Lundberg

Comments: Covina Bowl  
16109.000.000.T002

Lab Request: 415180  
Report Date: 05/14/2019  
Date Received: 05/10/2019  
Client ID: 15790

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods. Methods accredited by NELAC are indicated on the report. This cover letter is an integral part of the final report.

<u>Sample #</u>	<u>Client Sample ID</u>
415180-005	4-pt Composite 01-04
415180-010	4-pt Composite 05-08
415180-013	01-B-11@0.5
415180-014	01-B-12@0.5
415180-015	4-pt Composite 09-12

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

Report Review performed by: Diane Galvan, Project Manager

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 45 days from date received.

The reports of the Enthalpy Analytical, Inc. are confidential property of our clients and may not be reproduced or used for publication in part or in full without our written permission. This is for the mutual protection of the public, our clients, and ourselves.



# Detections Summary

Sample #: 415180-005

Client Sample #: 4-pt Composite 01-04

Method	Analyte	Result	DF	RDL	Units	Notes
EPA 6010B	Arsenic	4.03	1	1	mg/Kg	
EPA 6010B	Lead	14.6	1	1	mg/Kg	

Sample #: 415180-010

Client Sample #: 4-pt Composite 05-08

Method	Analyte	Result	DF	RDL	Units	Notes
EPA 6010B	Arsenic	5.58	1	1	mg/Kg	
EPA 6010B	Lead	8.46	1	1	mg/Kg	

Sample #: 415180-013

Client Sample #: 01-B-11@0.5

Method	Analyte	Result	DF	RDL	Units	Notes
EPA 6010B	Arsenic	6.32	1	1	mg/Kg	
EPA 6010B	Barium	137	1	1	mg/Kg	
EPA 6010B	Cadmium	0.72	1	0.5	mg/Kg	
EPA 6010B	Chromium	18.8	1	1	mg/Kg	
EPA 6010B	Cobalt	13.1	1	0.5	mg/Kg	
EPA 6010B	Copper	32.5	1	1	mg/Kg	
EPA 6010B	Lead	14.7	1	1	mg/Kg	
EPA 6010B	Nickel	15.8	1	1.5	mg/Kg	
EPA 6010B	Vanadium	45.8	1	0.5	mg/Kg	
EPA 6010B	Zinc	101	1	5	mg/Kg	
EPA 8270CM	Benz(a)anthracene	23	1	10	ug/Kg	
EPA 8270CM	Benzo(a)pyrene	25	1	10	ug/Kg	
EPA 8270CM	Benzo(b)fluoranthene	12	1	10	ug/Kg	
EPA 8270CM	Benzo(g,h,i)perylene	13	1	10	ug/Kg	
EPA 8270CM	Benzo(k)fluoranthene	27	1	10	ug/Kg	
EPA 8270CM	Chrysene	23	1	10	ug/Kg	
EPA 8270CM	Fluoranthene	15	1	10	ug/Kg	
EPA 8270CM	Indeno(1,2,3-cd)pyrene	15	1	10	ug/Kg	
EPA 8270CM	Pyrene	22	1	10	ug/Kg	

Sample #: 415180-014

Client Sample #: 01-B-12@0.5

Method	Analyte	Result	DF	RDL	Units	Notes
EPA 6010B	Arsenic	3.75	1	1	mg/Kg	
EPA 6010B	Barium	164	1	1	mg/Kg	
EPA 6010B	Cadmium	0.69	1	0.5	mg/Kg	
EPA 6010B	Chromium	21.4	1	1	mg/Kg	
EPA 6010B	Cobalt	15.6	1	0.5	mg/Kg	
EPA 6010B	Copper	31.2	1	1	mg/Kg	
EPA 6010B	Lead	6.58	1	1	mg/Kg	
EPA 6010B	Nickel	19.0	1	1.5	mg/Kg	
EPA 6010B	Vanadium	52.8	1	0.5	mg/Kg	
EPA 6010B	Zinc	73.1	1	5	mg/Kg	

Sample #: 415180-015

Client Sample #: 4-pt Composite 09-12

Method	Analyte	Result	DF	RDL	Units	Notes
EPA 6010B	Arsenic	6.37	1	1	mg/Kg	
EPA 6010B	Lead	12.5	1	1	mg/Kg	

Matrix: Solid		Client: ENGEO Inc.		Collector: Client			
Sampled: 05/10/2019		Site:					
Sample #: 415180-005		Client Sample #: 4-pt Composite 01-04		Sample Type:			
Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 6010B <i>NELAC</i>	Prep Method: EPA 3050B		QCBatchID: QC1201898				
Arsenic	4.03	1	1	mg/Kg	05/13/19	05/13/19	KLN
Lead	14.6	1	1	mg/Kg	05/13/19	05/13/19	KLN
Method: EPA 8081A <i>NELAC</i>	Prep Method: EPA 3545		QCBatchID: QC1201886				
4,4'-DDD	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
4,4'-DDE	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
4,4'-DDT	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
a-BHC	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Aldrin	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
b-BHC	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Chlordane (technical)	ND	5	250	ug/Kg	05/10/19	05/11/19	MTS D2
d-BHC	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Dieldrin	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan I	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan II	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan sulfate	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin aldehyde	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin Ketone	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Heptachlor	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Heptachlor epoxide	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Lindane (Gamma-BHC)	ND	5	25	ug/Kg	05/10/19	05/11/19	MTS D2
Methoxychlor	ND	5	50	ug/Kg	05/10/19	05/11/19	MTS D2
Toxaphene	ND	5	500	ug/Kg	05/10/19	05/11/19	MTS D2
<u>Surrogate</u>	<u>% Recovery</u>		<u>Limits</u>	<u>Notes</u>			
Decachlorobiphenyl DCB (SUR)	53		50-150				
Tetrachloro-m-xylene TCMX (SUR)	62		50-150				



Matrix: Solid		Client: ENGEO Inc.		Collector: Client			
Sampled: 05/10/2019		Site:					
Sample #: 415180-010		Client Sample #: 4-pt Composite 05-08		Sample Type:			

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 6010B NELAC		Prep Method: EPA 3050B			QCBatchID: QC1201898		
Arsenic	5.58	1	1	mg/Kg	05/13/19	05/13/19	KLN
Lead	8.46	1	1	mg/Kg	05/13/19	05/13/19	KLN
Method: EPA 8081A NELAC		Prep Method: EPA 3545			QCBatchID: QC1201886		
4,4'-DDD	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
4,4'-DDE	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
4,4'-DDT	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
a-BHC	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Aldrin	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
b-BHC	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Chlordane (technical)	ND	2	100	ug/Kg	05/10/19	05/11/19	MTS D2
d-BHC	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Dieldrin	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan I	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan II	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endosulfan sulfate	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin aldehyde	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Endrin Ketone	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Heptachlor	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Heptachlor epoxide	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Lindane (Gamma-BHC)	ND	2	10	ug/Kg	05/10/19	05/11/19	MTS D2
Methoxychlor	ND	2	20	ug/Kg	05/10/19	05/11/19	MTS D2
Toxaphene	ND	2	200	ug/Kg	05/10/19	05/11/19	MTS D2
Surrogate	% Recovery		Limits	Notes			
Decachlorobiphenyl DCB (SUR)	54		50-150				
Tetrachloro-m-xylene TCMX (SUR)	66		50-150				

<b>Matrix:</b> Solid	<b>Client:</b> ENGEO Inc.	<b>Collector:</b> Client
<b>Sampled:</b> 05/10/2019 09:30	<b>Site:</b>	
<b>Sample #:</b> <b>415180-013</b>	<b>Client Sample #:</b> 01-B-11@0.5	<b>Sample Type:</b>

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 6010B <i>NELAC</i>	Prep Method: EPA 3050B					QCBatchID: QC1201898	
Antimony	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
<b>Arsenic</b>	<b>6.32</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
<b>Barium</b>	<b>137</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
Beryllium	ND	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
<b>Cadmium</b>	<b>0.72</b>	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
<b>Chromium</b>	<b>18.8</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
<b>Cobalt</b>	<b>13.1</b>	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
<b>Copper</b>	<b>32.5</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
<b>Lead</b>	<b>14.7</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
Molybdenum	ND	1	1	mg/Kg	05/13/19	05/13/19	KLN
<b>Nickel</b>	<b>15.8</b>	1	1.5	mg/Kg	05/13/19	05/13/19	KLN
Selenium	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
Silver	ND	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Thallium	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
<b>Vanadium</b>	<b>45.8</b>	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
<b>Zinc</b>	<b>101</b>	1	5	mg/Kg	05/13/19	05/13/19	KLN
Method: EPA 7471A <i>NELAC</i>	Prep Method: EPA 7471A					QCBatchID: QC1201929	
Mercury	ND	1	0.14	mg/Kg	05/13/19	05/14/19	JP
Method: EPA 8015M	Prep Method: EPA 3580A					QCBatchID: QC1201919	
TPH (C13 to C28) (SGT)	ND	1	10	mg/Kg	05/13/19	05/13/19	TW
TPH (C29 to C 40) (SGT)	ND	1	20	mg/Kg	05/13/19	05/13/19	TW
<u>Surrogate</u>	<u>% Recovery</u>		<u>Limits</u>	<u>Notes</u>			
<i>Triacontane (SUR)</i>	164		50-150	S			High surr. Recovery but sample is ND
Method: EPA 8270CM	Prep Method: EPA 3545					QCBatchID: QC1201882	
1-Methylnaphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS L
2-Methylnaphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Acenaphthene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Acenaphthylene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Anthracene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Benz(a)anthracene</b>	<b>23</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Benzo(a)pyrene</b>	<b>25</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Benzo(b)fluoranthene</b>	<b>12</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Benzo(g,h,i)perylene</b>	<b>13</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Benzo(k)fluoranthene</b>	<b>27</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Chrysene</b>	<b>23</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
Dibenz(a,h)anthracene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Fluoranthene</b>	<b>15</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
Fluorene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Indeno(1,2,3-cd)pyrene</b>	<b>15</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
Naphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Phenanthrene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
<b>Pyrene</b>	<b>22</b>	1	10	ug/Kg	05/10/19	05/13/19	MTS
<u>Surrogate</u>	<u>% Recovery</u>		<u>Limits</u>	<u>Notes</u>			
<i>2-Fluorobiphenyl (SUR)</i>	63		30-120				
<i>Nitrobenzene-d5 (SUR)</i>	70		27-125				
<i>p-Terphenyl (SUR)</i>	60		33-155				

Matrix: Solid		Client: ENGEO Inc.		Collector: Client			
Sampled: 05/10/2019 09:37		Site:					
Sample #: 415180-014		Client Sample #: 01-B-12@0.5		Sample Type:			
Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 6010B NELAC		Prep Method: EPA 3050B		QCBatchID: QC1201898			
Antimony	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
Arsenic	3.75	1	1	mg/Kg	05/13/19	05/13/19	KLN
Barium	164	1	1	mg/Kg	05/13/19	05/13/19	KLN
Beryllium	ND	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Cadmium	0.69	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Chromium	21.4	1	1	mg/Kg	05/13/19	05/13/19	KLN
Cobalt	15.6	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Copper	31.2	1	1	mg/Kg	05/13/19	05/13/19	KLN
Lead	6.58	1	1	mg/Kg	05/13/19	05/13/19	KLN
Molybdenum	ND	1	1	mg/Kg	05/13/19	05/13/19	KLN
Nickel	19.0	1	1.5	mg/Kg	05/13/19	05/13/19	KLN
Selenium	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
Silver	ND	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Thallium	ND	1	3	mg/Kg	05/13/19	05/13/19	KLN
Vanadium	52.8	1	0.5	mg/Kg	05/13/19	05/13/19	KLN
Zinc	73.1	1	5	mg/Kg	05/13/19	05/13/19	KLN
Method: EPA 7471A NELAC		Prep Method: EPA 7471A		QCBatchID: QC1201929			
Mercury	ND	1	0.14	mg/Kg	05/13/19	05/14/19	JP
Method: EPA 8015M		Prep Method: EPA 3580A		QCBatchID: QC1201919			
TPH (C13 to C28) (SGT)	ND	1	10	mg/Kg	05/13/19	05/13/19	TW
TPH (C29 to C 40) (SGT)	ND	1	20	mg/Kg	05/13/19	05/13/19	TW
Surrogate	% Recovery		Limits	Notes			
Triacontane (SUR)	119		50-150				
Method: EPA 8270CM		Prep Method: EPA 3545		QCBatchID: QC1201882			
1-Methylnaphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS L
2-Methylnaphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Acenaphthene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Acenaphthylene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Anthracene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Benz(a)anthracene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Benzo(a)pyrene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Benzo(b)fluoranthene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Benzo(g,h,i)perylene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Benzo(k)fluoranthene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Chrysene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Dibenz(a,h)anthracene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Fluoranthene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Fluorene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Indeno(1,2,3-cd)pyrene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Naphthalene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Phenanthrene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Pyrene	ND	1	10	ug/Kg	05/10/19	05/13/19	MTS
Surrogate	% Recovery		Limits	Notes			
2-Fluorobiphenyl (SUR)	66		30-120				
Nitrobenzene-d5 (SUR)	78		27-125				
p-Terphenyl (SUR)	64		33-155				

<b>Matrix:</b> Solid	<b>Client:</b> ENGEO Inc.	<b>Collector:</b> Client
<b>Sampled:</b> 05/10/2019	<b>Site:</b>	
<b>Sample #:</b> <b>415180-015</b>	<b>Client Sample #:</b> 4-pt Composite 09-12	<b>Sample Type:</b>

Analyte	Result	DF	RDL	Units	Prepared	Analyzed By	Notes
Method: EPA 6010B <i>NELAC</i>	Prep Method: EPA 3050B					QCBatchID: QC1201898	
<b>Arsenic</b>	<b>6.37</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
<b>Lead</b>	<b>12.5</b>	1	1	mg/Kg	05/13/19	05/13/19	KLN
Method: EPA 8081A <i>NELAC</i>	Prep Method: EPA 3545					QCBatchID: QC1201886	
4,4'-DDD	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
4,4'-DDE	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
4,4'-DDT	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
a-BHC	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Aldrin	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
b-BHC	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Chlordane (technical)	ND	1	50	ug/Kg	05/10/19	05/11/19	MTS
d-BHC	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Dieldrin	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endosulfan I	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endosulfan II	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endosulfan sulfate	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endrin	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endrin aldehyde	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Endrin Ketone	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Heptachlor	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Heptachlor epoxide	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Lindane (Gamma-BHC)	ND	1	5	ug/Kg	05/10/19	05/11/19	MTS
Methoxychlor	ND	1	10	ug/Kg	05/10/19	05/11/19	MTS
Toxaphene	ND	1	100	ug/Kg	05/10/19	05/11/19	MTS
<u>Surrogate</u>	<u>% Recovery</u>		<u>Limits</u>	<u>Notes</u>			
Decachlorobiphenyl DCB (SUR)	58		50-150				
Tetrachloro-m-xylene TCMX (SUR)	56		50-150				

<b>QCBatchID:</b> QC1201882	<b>Analyst:</b> Abanh	<b>Method:</b> EPA 8270CM
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/10/2019	<b>Instrument:</b> SVOA-MS (group)

Blank Summary						
Analyte	Blank Result	Units		RDL	Notes	
<b>QC1201882MB1</b>						
1-Methylnaphthalene	ND	ug/Kg		10		
2-Methylnaphthalene	ND	ug/Kg		10		
Acenaphthene	ND	ug/Kg		10		
Acenaphthylene	ND	ug/Kg		10		
Anthracene	ND	ug/Kg		10		
Benz(a)anthracene	ND	ug/Kg		10		
Benzo(a)pyrene	ND	ug/Kg		10		
Benzo(b)fluoranthene	ND	ug/Kg		10		
Benzo(g,h,i)perylene	ND	ug/Kg		10		
Benzo(k)fluoranthene	ND	ug/Kg		10		
Chrysene	ND	ug/Kg		10		
Dibenz(a,h)anthracene	ND	ug/Kg		10		
Fluoranthene	ND	ug/Kg		10		
Fluorene	ND	ug/Kg		10		
Indeno(1,2,3-cd)pyrene	ND	ug/Kg		10		
Naphthalene	ND	ug/Kg		10		
Phenanthrene	ND	ug/Kg		10		
Pyrene	ND	ug/Kg		10		

Lab Control Spike/ Lab Control Spike Duplicate Summary											
Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1201882LCS1											
1-Methylnaphthalene	50		16		ug/Kg	32			38-130		L
2-Methylnaphthalene	50		36		ug/Kg	72			59-130		
Acenaphthene	50		37		ug/Kg	74			58-130		
Acenaphthylene	50		36		ug/Kg	72			52-130		
Anthracene	50		35		ug/Kg	70			55-136		
Benz(a)anthracene	50		35		ug/Kg	70			61-147		
Benzo(a)pyrene	50		25		ug/Kg	50			36-168		
Benzo(b)fluoranthene	50		35		ug/Kg	70			63-147		
Benzo(g,h,i)perylene	50		33		ug/Kg	66			54-135		
Benzo(k)fluoranthene	50		35		ug/Kg	70			64-142		
Chrysene	50		36		ug/Kg	72			66-130		
Dibenz(a,h)anthracene	50		33		ug/Kg	66			52-144		
Fluoranthene	50		38		ug/Kg	76			68-139		
Fluorene	50		38		ug/Kg	76			63-130		
Indeno(1,2,3-cd)pyrene	50		34		ug/Kg	68			58-144		
Naphthalene	50		34		ug/Kg	68			50-130		
Phenanthrene	50		38		ug/Kg	76			65-132		
Pyrene	50		37		ug/Kg	74			68-134		

Matrix Spike/Matrix Spike Duplicate Summary												
Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201882MS1, QC1201882MSD1											Source: 415178-003	
1-Methylnaphthalene	ND	50	50	15	16	ug/Kg	30	32	6.5	25-130	35	
2-Methylnaphthalene	ND	50	50	38	41	ug/Kg	76	82	7.6	32-133	35	
Acenaphthene	ND	50	50	37	39	ug/Kg	74	78	5.3	28-134	35	
Acenaphthylene	ND	50	50	37	39	ug/Kg	74	78	5.3	14-157	35	
Anthracene	2.5	50	50	36	39	ug/Kg	67	73	8.0	24-156	35	
Benz(a)anthracene	13	50	50	38	42	ug/Kg	50	58	10.0	26-174	35	



QCBatchID: **QC1201882**

Analyst: Abanh

Method: EPA 8270CM

Matrix: Solid

Analyzed: 05/10/2019

Instrument: SVOA-MS (group)

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	MS	MSD	MS	MSD	MS		MSD	%Rec		RPD		
QC1201882MS1, QC1201882MSD1											Source: 415178-003	
Benzo(a)pyrene	30	50	50	37	39	ug/Kg	14	18	5.3	18-173	35	M
Benzo(b)fluoranthene	16	50	50	37	42	ug/Kg	42	52	12.7	36-164	35	
Benzo(g,h,i)perylene	35	50	50	30	32	ug/Kg	0	0	6.5	36-130	35	M
Benzo(k)fluoranthene	19	50	50	40	43	ug/Kg	42	48	7.2	36-161	35	
Chrysene	27	50	50	37	40	ug/Kg	20	26	7.8	40-139	35	M
Dibenz(a,h)anthracene	8.9	50	50	35	28	ug/Kg	52	38	22.2	38-132	35	
Fluoranthene	9.4	50	50	42	46	ug/Kg	65	73	9.1	28-160	35	
Fluorene	ND	50	50	37	40	ug/Kg	74	80	7.8	27-140	35	
Indeno(1,2,3-cd)pyrene	18	50	50	32	31	ug/Kg	28	26	3.2	26-154	35	
Naphthalene	ND	50	50	39	40	ug/Kg	78	80	2.5	33-130	35	
Phenanthrene	20	50	50	38	41	ug/Kg	36	42	7.6	29-147	35	
Pyrene	22	50	50	38	43	ug/Kg	32	42	12.3	26-153	35	

<b>QCBatchID:</b> QC1201886	<b>Analyst:</b> bmorris	<b>Method:</b> EPA 8081A
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/10/2019	<b>Instrument:</b> SVOA-GC (group)

Blank Summary
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Analyte	Blank Result	Units		RDL	Notes	
<b>QC1201886MB1</b>						
4,4'-DDD	ND	ug/Kg		5		
4,4'-DDE	ND	ug/Kg		5		
4,4'-DDT	ND	ug/Kg		5		
a-BHC	ND	ug/Kg		5		
Aldrin	ND	ug/Kg		5		
b-BHC	ND	ug/Kg		5		
Chlordane (technical)	ND	ug/Kg		50		
d-BHC	ND	ug/Kg		5		
Dieldrin	ND	ug/Kg		5		
Endosulfan I	ND	ug/Kg		5		
Endosulfan II	ND	ug/Kg		5		
Endosulfan sulfate	ND	ug/Kg		5		
Endrin	ND	ug/Kg		5		
Endrin aldehyde	ND	ug/Kg		5		
Endrin Ketone	ND	ug/Kg		5		
Heptachlor	ND	ug/Kg		5		
Heptachlor epoxide	ND	ug/Kg		5		
Lindane (Gamma-BHC)	ND	ug/Kg		5		
Methoxychlor	ND	ug/Kg		10		
Toxaphene	ND	ug/Kg		100		

Lab Control Spike/ Lab Control Spike Duplicate Summary
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Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1201886LCS1											
4,4'-DDD	50		36		ug/Kg	72			43-172		
4,4'-DDE	50		36		ug/Kg	72			44-163		
4,4'-DDT	50		48		ug/Kg	96			40-158		
a-BHC	50		37		ug/Kg	74			45-150		
Aldrin	50		34		ug/Kg	68			46-142		
b-BHC	50		38		ug/Kg	76			42-156		
d-BHC	50		32		ug/Kg	64			37-161		
Dieldrin	50		36		ug/Kg	72			47-151		
Endosulfan I	50		35		ug/Kg	70			47-141		
Endosulfan II	50		33		ug/Kg	66			44-156		
Endosulfan sulfate	50		37		ug/Kg	74			43-157		
Endrin	50		40		ug/Kg	80			47-160		
Endrin aldehyde	50		29		ug/Kg	58			32-127		
Endrin Ketone	50		38		ug/Kg	76			48-159		
Heptachlor	50		31		ug/Kg	62			50-144		
Heptachlor epoxide	50		31		ug/Kg	62			48-145		
Lindane (Gamma-BHC)	50		35		ug/Kg	70			47-151		
Methoxychlor	50		44		ug/Kg	88			36-182		

Matrix Spike/Matrix Spike Duplicate Summary
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Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201886MS1, QC1201886MSD1											Source: 415178-001	
4,4'-DDD	ND	50	50	32	33	ug/Kg	64	66	3.1	43-172	20	
4,4'-DDE	ND	50	50	30	33	ug/Kg	60	66	9.5	44-163	20	
4,4'-DDT	ND	50	50	44	40	ug/Kg	88	80	9.5	40-158	20	
a-BHC	ND	50	50	32	34	ug/Kg	64	68	6.1	45-150	20	

QCBatchID: QC1201886

Analyst: bmorris

Method: EPA 8081A

Matrix: Solid

Analyzed: 05/10/2019

Instrument: SVOA-GC (group)

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201886MS1, QC1201886MSD1											Source: 415178-001	
Aldrin	ND	50	50	30	33	ug/Kg	60	66	9.5	46-142	20	
b-BHC	ND	50	50	36	37	ug/Kg	72	74	2.7	42-156	20	
d-BHC	ND	50	50	29	32	ug/Kg	58	64	9.8	37-161	20	
Dieldrin	ND	50	50	31	34	ug/Kg	62	68	9.2	47-151	20	
Endosulfan I	ND	50	50	30	32	ug/Kg	60	64	6.5	47-141	20	
Endosulfan II	ND	50	50	29	31	ug/Kg	58	62	6.7	44-156	20	
Endosulfan sulfate	ND	50	50	33	35	ug/Kg	66	70	5.9	43-157	20	
Endrin	ND	50	50	35	36	ug/Kg	70	72	2.8	47-160	20	
Endrin aldehyde	ND	50	50	25	28	ug/Kg	50	56	11.3	32-127	20	
Endrin Ketone	ND	50	50	32	35	ug/Kg	64	70	9.0	48-159	20	
Heptachlor	ND	50	50	27	29	ug/Kg	54	58	7.1	50-144	20	
Heptachlor epoxide	ND	50	50	26	27	ug/Kg	52	54	3.8	48-145	20	
Lindane (Gamma-BHC)	ND	50	50	30	32	ug/Kg	60	64	6.5	47-151	20	
Methoxychlor	ND	50	50	38	44	ug/Kg	76	88	14.6	36-182	20	

<b>QCBatchID:</b> <b>QC1201898</b>	<b>Analyst:</b> dswafford	<b>Method:</b> EPA 6010B
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/13/2019	<b>Instrument:</b> AAICP (group)

<b>Blank Summary</b>						
Analyte	Blank Result	Units		RDL	Notes	
<b>QC1201898MB1</b>						
Antimony	ND	mg/Kg		3		
Arsenic	ND	mg/Kg		1		
Barium	ND	mg/Kg		1		
Beryllium	ND	mg/Kg		0.5		
Cadmium	ND	mg/Kg		0.5		
Chromium	ND	mg/Kg		1		
Cobalt	ND	mg/Kg		0.5		
Copper	ND	mg/Kg		1		
Lead	ND	mg/Kg		1		
Molybdenum	ND	mg/Kg		1		
Nickel	ND	mg/Kg		1.5		
Selenium	ND	mg/Kg		3		
Silver	ND	mg/Kg		0.5		
Thallium	ND	mg/Kg		3		
Vanadium	ND	mg/Kg		0.5		
Zinc	ND	mg/Kg		5		

Lab Control Spike/ Lab Control Spike Duplicate Summary											
Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1201898LCS1											
Antimony	100		108		mg/Kg	108			80-120		
Arsenic	100		101		mg/Kg	101			80-120		
Barium	100		102		mg/Kg	102			80-120		
Beryllium	100		106		mg/Kg	106			80-120		
Cadmium	100		101		mg/Kg	101			80-120		
Chromium	100		96.1		mg/Kg	96			80-120		
Cobalt	100		103		mg/Kg	103			80-120		
Copper	100		101		mg/Kg	101			80-120		
Lead	100		107		mg/Kg	107			80-120		
Molybdenum	100		104		mg/Kg	104			80-120		
Nickel	100		108		mg/Kg	108			80-120		
Selenium	100		97.1		mg/Kg	97			80-120		
Silver	100		99.3		mg/Kg	99			80-120		
Thallium	100		95.3		mg/Kg	95			80-120		
Vanadium	100		102		mg/Kg	102			80-120		
Zinc	100		103		mg/Kg	103			80-120		

Matrix Spike/Matrix Spike Duplicate Summary												
Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201898MS1, QC1201898MSD1										Source: 415177-001		
Antimony	2.30	100	100	48.0	42.8	mg/Kg	46	41	11.5	75-125	20	M
Arsenic	2.54	100	100	97.5	95.6	mg/Kg	95	93	2.0	75-125	20	
Barium	136	100	100	221	231	mg/Kg	85	95	4.4	75-125	20	
Beryllium	ND	100	100	99.3	98.4	mg/Kg	102	101	0.9	75-125	20	
Cadmium	0.40	100	100	94.2	93.7	mg/Kg	94	93	0.5	75-125	20	
Chromium	28.8	100	100	118	121	mg/Kg	89	92	2.5	75-125	20	
Cobalt	9.80	100	100	104	103	mg/Kg	94	93	1.0	75-125	20	
Copper	48.4	100	100	145	148	mg/Kg	97	100	2.0	75-125	20	
Lead	5.20	100	100	104	102	mg/Kg	99	97	1.9	75-125	20	
Molybdenum	0.85	100	100	95.2	92.6	mg/Kg	94	92	2.8	75-125	20	

<b>QCBatchID:</b> <u>QC1201898</u>	<b>Analyst:</b> dswafford	<b>Method:</b> EPA 6010B
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/13/2019	<b>Instrument:</b> AAICP (group)

Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201898MS1, QC1201898MSD1											Source: 415177-001	
Nickel	9.46	100	100	107	105	mg/Kg	98	96	1.9	75-125	20	
Selenium	ND	100	100	93.5	86.8	mg/Kg	95	88	7.4	75-125	20	
Silver	ND	100	100	93.8	93.0	mg/Kg	95	94	0.9	75-125	20	
Thallium	5.29	100	100	89.4	88.6	mg/Kg	84	83	0.9	75-125	20	
Vanadium	59.7	100	100	153	162	mg/Kg	93	102	5.7	75-125	20	
Zinc	29.1	100	100	120	120	mg/Kg	91	91	0.0	75-125	20	



<b>QCBatchID:</b> <b>QC1201919</b>	<b>Analyst:</b> Abanh	<b>Method:</b> EPA 8015M
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/13/2019	<b>Instrument:</b> SVOA-GC (group)

<b>Blank Summary</b>						
Analyte	Blank Result	Units		RDL	Notes	
<b>QC1201919MB1</b>						
TPH (C13 to C28) (SGT)	ND	mg/Kg		10		
TPH (C29 to C 40) (SGT)	ND	mg/Kg		20		
TPH Diesel (SGT)	ND	mg/Kg		10		

Lab Control Spike/ Lab Control Spike Duplicate Summary											
Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1201919LCS1											
TPH Diesel (SGT)	250		214		mg/Kg	86			36-138		

Matrix Spike/Matrix Spike Duplicate Summary												
Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201919MS1, QC1201919MSD1											Source: 415180-013	
TPH Diesel (SGT)	ND	250	250	213	234	mg/Kg	85	94	9.4	70-130	30	

<b>QCBatchID:</b> <b>QC1201929</b>	<b>Analyst:</b> JParedes	<b>Method:</b> EPA 7471A
<b>Matrix:</b> Solid	<b>Analyzed:</b> 05/14/2019	<b>Instrument:</b> AAICP-HG1

<b>Blank Summary</b>						
Analyte	Blank Result	Units		RDL	Notes	
<b>QC1201929MB1</b>						
Mercury	ND	mg/Kg		0.14		

Lab Control Spike/ Lab Control Spike Duplicate Summary											
Analyte	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
	LCS	LCSD	LCS	LCSD		LCS	LCSD		%Rec	RPD	
QC1201929LCS1											
Mercury	0.83		0.80		mg/Kg	96			80-120		

Matrix Spike/Matrix Spike Duplicate Summary												
Analyte	Sample Amount	Spike Amount		Spike Result		Units	Recoveries		RPD	Limits		Notes
		MS	MSD	MS	MSD		MS	MSD		%Rec	RPD	
QC1201929MS1, QC1201929MSD1												Source: 415012-001
Mercury	ND	0.83	0.83	0.76	0.77	mg/Kg	92	93	1.3	75-125	20	


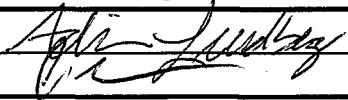
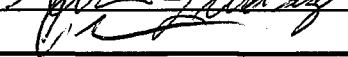
# Data Qualifiers and Definitions


## Qualifiers

<b>A</b>	See Report Comments.
<b>B</b>	Analyte was present in an associated method blank.
<b>B1</b>	Analyte was present in a sample and associated method blank greater than MDL but less than RDL.
<b>BQ1</b>	No valid test replicates. Sample Toxicity is possible. Best result was reported.
<b>BQ2</b>	No valid test replicates.
<b>BQ3</b>	No valid test replicates. Final DO is less than 1.0 mg/L. Result may be greater.
<b>BQ4</b>	Minor Dissolved Oxygen loss was observed in the blank water check, however, the LCS was within criteria, validating the batch.
<b>BQ5</b>	Minor Dissolved Oxygen loss was observed in the blank water check.
<b>C</b>	Possible laboratory contamination.
<b>D</b>	RPD was not within control limits. The sample data was reported without further clarification.
<b>D1</b>	Lesser amount of sample was used due to insufficient amount of sample supplied.
<b>D2</b>	Reporting limit is elevated due to sample matrix. Target analyte was not detected above the elevated reporting limit.
<b>D3</b>	Insufficient sample was supplied for TCLP. Client was notified. TCLP was performed per the Client's instructions.
<b>DW</b>	Sample result is calculated on a dry weigh basis.
<b>E</b>	Concentration is estimated because it exceeds the quantification limits of the method.
<b>I</b>	The sample was read outside of the method required incubation period.
<b>IR</b>	Inconclusive Result. Legionella is present, however, there is possible non-specific agglutination preventing specific identification.
<b>J</b>	Reported value is estimated
<b>L</b>	The laboratory control sample (LCS) or laboratory control sample duplicate (LCSD) was out of control limits. Associated sample data was reported with qualifier.
<b>L2</b>	LCS did not meet recovery criteria, however, the MS and/or MSD met LCS recovery criteria, validating the batch.
<b>M</b>	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
<b>M1</b>	The matrix spike (MS) or matrix spike duplicate (MSD) is not within control limits due to matrix interference.
<b>M2</b>	The matrix spike (MS) or matrix spike duplicate (MSD) was not within control limits. The associated LCS and/or LCSD was not within control limits. Sample result is estimated.
<b>N1</b>	Sample chromatography does not match the specified TPH standard pattern.
<b>NC</b>	The analyte concentration in the sample exceeded the spike level by a factor of four or greater, spike recovery and limits do not apply.
<b>P</b>	Sample was received without proper preservation according to EPA guidelines.
<b>P1</b>	Temperature of sample storage refrigerator was out of acceptance limits.
<b>P2</b>	The sample was preserved within 24 hours of collection in accordance with EPA 218.6.
<b>P3</b>	Per Client request, sample was composited for volatile analysis. Sample compositing for volatile analysis is not recommended due to potential loss of target analytes. Results may be biased low.
<b>Q1</b>	Analyte Calibration Verification exceeds criteria. The result is estimated.
<b>Q2</b>	Analyte calibration was not verified and the result was estimated.
<b>Q3</b>	Analyte initial calibration was not available or exceeds criteria. The result was estimated.
<b>S</b>	The surrogate recovery was out of control limits due to matrix interference. The associated method blank surrogate recovery was within control limits and the sample data was reported without further clarification.
<b>S1</b>	The associated surrogate recovery was out of control limits; result is estimated.
<b>S2</b>	The surrogate was diluted out due to the presence of high concentrations of target and/or non-target compounds. Surrogate recoveries in the associated batch QC met recovery criteria.
<b>S3</b>	Internal Standard did not meet recovery limits. Analyte concentration is estimated.
<b>T</b>	Sample was extracted/analyzed past the holding time.
<b>T1</b>	Reanalysis was reported past hold time due to failing replicates in the original analysis (BOD only).
<b>T2</b>	Sample was analyzed ASAP but received and analyzed past the 15 minute holding time.
<b>T3</b>	Sample received and analyzed out of hold time per client's request.
<b>T4</b>	Sample was analyzed out of hold time per client's request.
<b>T5</b>	Reanalysis was reported past hold time. The original analysis was within hold time, but not reportable.
<b>T6</b>	Hold time is indeterminable due to unspecified sampling time.
<b>T7</b>	Sample was analyzed past hold time due to insufficient time remaining at time of receipt.


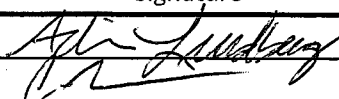

## Definitions


<b>DF</b>	Dilution Factor
<b>MDL</b>	Method Detection Limit. Result is reported ND when it is less than or equal to MDL.
<b>ND</b>	Analyte was not detected or was less than the detection limit.
<b>NR</b>	Not Reported. See Report Comments.
<b>RDL</b>	Reporting Detection Limit
<b>TIC</b>	Tentatively Identified Compounds

<b>ENTHALPY ANALYTICAL</b>				<b>Chain of Custody Record</b>				<b>Turn Around Time (Rush by advanced notice only)</b>									
931 W. Barkley Ave., Orange, CA 92868 Phone: (714) 771-6900 Fax: (714) 538-1209				Lab No: <u>415780</u>		Page: <u>1</u> of <u>4</u>		Standard:		4 Day:		3 Day:					
Billing: Enthalpy Analytical 1 Park Plaza, Suite 1000 Irvine, CA 92614		Matrix: A = Air DW = Drinking Water FL = Food Liquid FS = Food Solid L = Liquid PP = Pure Product S = Solid SeaW = Sea Water SW = Swab W = Water WP = Wipe O = Other				Preservatives: 1 = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 2 = HCl 3 = HNO <sub>3</sub> 4 = H <sub>2</sub> SO <sub>4</sub> 5 = NaOH 6 = Other											
<b>CUSTOMER INFORMATION</b>				<b>PROJECT INFORMATION</b>				<b>Analysis Request</b>								<b>Test Instructions / Comments</b>	
Company: ENGEO		Name: Covina Bowl		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8081 - OCP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010 - Lead and Arsenic</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8015 M - TPH (DRO, MORO)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8270 - SVOCs - PAH</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010 - CAM 17</div> </div>		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">silica gel cleanup TPH DRO and MORO</div> </div>											
Report To: Adrianna Lundberg		Number:															
Email: alundberg@engeo.com		P.O. #: 16109.000.000 <del>PH002</del> T002															
Address: 6 Morgan Suite 162		Address: 1060 West San Bernardino Rd															
Irvine, CA		Covina, CA															
Phone: 949.491.6366		Global ID:															
Fax:		Sampled By: Adrianna Lundberg															
Sample ID		Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.											
1	01-B-01@0.5	5/10/2019	7:23	soil	1/ 2x6	-											
2	01-B-02@0.5	5/10/2019	7:36	soil	1/ 2x6	-											
3	01-B-03@0.5	5/10/2019	7:50	soil	1/ 2x6	-									4-pt composite 01-04		
4	01-B-04@0.5	5/10/2019	8:05	soil	1/ 2x6	-									analyze for OCP, arsenic, and lead		
5	01-B-05@0.5	5/10/2019	8:22	soil	1/ 2x6	-											
6	01-B-06@0.5	5/10/2019	8:36	soil	1/ 2x6	-											
7	01-B-07@0.5	5/10/2019	8:46	soil	1/ 2x6	-									4-pt composite 05-08		
8	01-B-08@0.5	5/10/2019	8:59	soil	1/ 2x6	-									analyze for OCP, arsenic, and lead		
9						--											
10						-											
		Signature		Print Name		Company / Title		Date / Time									
1 Relinquished By:				Adrianna Lundberg		ENGEO / Staff Engineer		5/10/2019 1408									
1 Received By:				C. Hernandez		E.K.		Shehn 1408									
2 Relinquished By:																	
2 Received By:																	
3 Relinquished By:																	
3 Received By:																	

<b>ENTHALPY ANALYTICAL</b>				<b>Chain of Custody Record</b>				<b>Turn Around Time (Rush by advanced notice only)</b>							
931 W. Barkley Ave., Orange, CA 92868				Lab No:				Standard:		4 Day:		3 Day:			
Phone: (714) 771-6900 Fax: (714) 538-1209				Page: 2 of 4				2 Day:		1 Day: <input checked="" type="checkbox"/>		Same Day:			
Billing: Enthalpy Analytical 1 Park Plaza, Suite 1000 Irvine, CA 92614		<b>Matrix:</b> A = Air DW = Drinking Water FL = Food Liquid FS = Food Solid L = Liquid PP = Pure Product S = Solid SeaW = Sea Water SW = Swab W = Water WP = Wipe O = Other				<b>Preservatives:</b> 1 = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 2 = HCl 3 = HNO <sub>3</sub> 4 = H <sub>2</sub> SO <sub>4</sub> 5 = NaOH 6 = Other									
<b>CUSTOMER INFORMATION</b>			<b>PROJECT INFORMATION</b>				<b>Analysis Request</b>						<b>Test Instructions / Comments</b>		
Company: ENGEO		Name: Covina Bowl		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8081 - OCP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8010 - Lead and Arsenic</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8015 M - TPH (DRO, MORO)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8270 - SVOCs - PAH</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010 - CAM 17</div> </div>		<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">silica gel cleanup TPH DRO and MORO</div> </div>									
Report To: Adrianna Lundberg		Number:													
Email: alundberg@engeo.com		P.O. #: 16109.000.000 <del>BH002</del> T002													
Address: 6 Morgan Suite 162		Address: 1060 West San Bernardino Rd													
Irvine, CA		Covina, CA													
Phone: 949.491.6366		Global ID:													
Fax:		Sampled By: Adrianna Lundberg													
Sample ID		Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.									
1	01-B-09@0.5	5/10/2019	9:08	soil	1/ 2x6	-									
2	01-B-10@0.5	5/10/2019	9:18	soil	1/ 2x6	-									
3	01-B-11@0.5	5/10/2019	9:30	soil	1/ 2x6	-							4-pt composite 09-12		
4	01-B-12@0.5	5/10/2019	9:37	soil	1/ 2x6	-							analyze for OCP, arsenic, and lead		
5						-									
6						-									
7						-									
8						-									
9						-									
10						-									
Signature		Print Name		Company / Title				Date / Time							
1 Relinquished By: <i>Adrianna Lundberg</i>		Adrianna Lundberg		ENGEO / Staff Engineer				5/10/2019 1408							
1 Received By: <i>C. Hernandez</i>		C. Hernandez		EH				5/10/2019 1408							
2 Relinquished By:															
2 Received By:															
3 Relinquished By:															
3 Received By:															



<b>ENTHALPY ANALYTICAL</b>				<b>Chain of Custody Record</b>				<b>Turn Around Time (Rush by advanced notice only)</b>								
931 W. Barkley Ave., Orange, CA 92868				Lab No:				Standard:		4 Day:		3 Day:				
Phone: (714) 771-6900 Fax: (714) 538-1209				Page: 3 of 4				2 Day:		1 Day:		Same Day:				
Billing: Enthalpy Analytical 1 Park Plaza, Suite 1000 Irvine, CA 92614		<b>Matrix:</b> A = Air DW = Drinking Water FL = Food Liquid FS = Food Solid L = Liquid PP = Pure Product S = Solid SeaW = Sea Water SW = Swab W = Water WP = Wipe O = Other				<b>Preservatives:</b> 1 = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 2 = HCl 3 = HNO <sub>3</sub> 4 = H <sub>2</sub> SO <sub>4</sub> 5 = NaOH 6 = Other										
<b>CUSTOMER INFORMATION</b>			<b>PROJECT INFORMATION</b>				<b>Analysis Request</b>								<b>Test Instructions / Comments</b>	
Company: ENGEO		Name: Covina Bowl		8081 - OCP 6010 - Lead and Arsenic 8015 M - TPH (DRO, MORO) 8270 - SVOCs - PAH 6010 - CAM 17										silica gel cleanup TPH DRO and MORO		
Report To: Adrianna Lundberg		Number:														
Email: alundberg@engeo.com		P.O. #: 16109.000.000 <del>R4002</del> T002														
Address: 6 Morgan Suite 162		Address: 1060 West San Bernardino Rd														
Irvine, CA		Covina, CA														
Phone: 949.491.6366		Global ID:														
Fax:		Sampled By: Adrianna Lundberg														
Sample ID		Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.										
1	01-B-01@1.5	5/10/2019	7:24	soil	1/ 2x6	-									hold sample	
2	01-B-02@1.5	5/10/2019	7:38	soil	1/ 2x6	-										
3	01-B-03@1.5	5/10/2019	7:51	soil	1/ 2x6	-										
4	01-B-04@1.5	5/10/2019	8:06	soil	1/ 2x6	-										
5						-										
6	01-B-05@1.5	5/10/2019	8:23	soil	1/ 2x6	-										
7	01-B-06@1.5	5/10/2019	8:37	soil	1/ 2x6	-										
8	01-B-07@1.5	5/10/2019	8:47	soil	1/ 2x6	-										
9	01-B-08@1.5	5/10/2019	8:58	soil	1/ 2x6	--										
10						-										
		Signature		Print Name		Company / Title		Date / Time								
1 Relinquished By:				Adrianna Lundberg		ENGEO / Staff Engineer		5/10/2019 1408								
1 Received By:				E. D.		F.D.		5/10/19 1408								
2 Relinquished By:																
2 Received By:																
3 Relinquished By:																
3 Received By:																

<b>ENTHALPY ANALYTICAL</b>				<b>Chain of Custody Record</b>				<b>Turn Around Time (Rush by advanced notice only)</b>							
931 W. Barkley Ave., Orange, CA 92868				Lab No:				Standard:		4 Day:		3 Day:			
Phone: (714) 771-6900 Fax: (714) 538-1209				Page: 4 of 4				2 Day:		1 Day:		Same Day:			
Billing: Enthalpy Analytical 1 Park Plaza, Suite 1000 Irvine, CA 92614		<b>Matrix:</b> A = Air DW = Drinking Water FL = Food Liquid FS = Food Solid L = Liquid PP = Pure Product S = Solid SeaW = Sea Water SW = Swab W = Water WP = Wipe O = Other				<b>Preservatives:</b> 1 = Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 2 = HCl 3 = HNO <sub>3</sub> 4 = H <sub>2</sub> SO <sub>4</sub> 5 = NaOH 6 = Other									

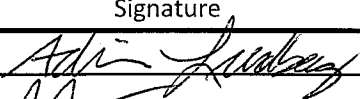
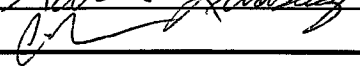
  

CUSTOMER INFORMATION				PROJECT INFORMATION				Analysis Request										Test Instructions / Comments	
Company:		ENGEO		Name:		Covina Bowl		<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8081 - OCP</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010 - Lead and Arsenic</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8015 M - TPH (DRO, MORO)</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">8270 - SVOCs - PAH</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">6010 - CAM 17</div> </div>										silica gel cleanup TPH DRO and MORO	
Report To:		Adrianna Lundberg		Number:															
Email:		alundberg@engeo.com		P.O. #:		16109.000.000 PH02 T002													
Address:		6 Morgan Suite 162		Address:		1060 West San Bernardino Rd													
		Irvine, CA				Covina, CA													
Phone:		949.491.6366		Global ID:															
Fax:				Sampled By:		Adrianna Lundberg													

Sample ID	Sampling Date	Sampling Time	Matrix	Container No. / Size	Pres.	8081 - OCP	6010 - Lead and Arsenic	8015 M - TPH (DRO, MORO)	8270 - SVOCs - PAH	6010 - CAM 17								
1	01-B-09@1.5	5/10/2019	9:09	soil	1/ 2x6	-												hold sample
2	01-B-10@1.5	5/10/2019	9:19	soil	1/ 2x6	-												
3	01-B-11@1.5	5/10/2019	9:31	soil	1/ 2x6	-												
4	01-B-12@1.5	5/10/2019	9:38	soil	1/ 2x6	-												X
5						-												
6						-												
7						-												
8						-												
9						-												
10						-												

	Signature	Print Name	Company / Title	Date / Time
<sup>1</sup> Relinquished By:		Adrianna Lundberg	ENGEO / Staff Engineer	5/10/2019 1408
<sup>1</sup> Received By:		EA	EA	5/10/19 1408
<sup>2</sup> Relinquished By:				
<sup>2</sup> Received By:				
<sup>3</sup> Relinquished By:				
<sup>3</sup> Received By:				



# ENTHALPY ANALYTICAL

## SAMPLE ACCEPTANCE CHECKLIST

### Section 1

Client: ENGEO

Project: \_\_\_\_\_

Date Received: 05/10/19Sampler'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: 14.3 #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: \_\_\_\_\_

### Section 3

Was the cooler packed with: ☐ Ice ☒ Ice Packs ☐ Bubble Wrap ☐ Styrofoam  
☐ Paper ☐ None ☐ Other \_\_\_\_\_Cooler Temp (°C): #1: 0.5 #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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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: \_\_\_\_\_

Date: 5/10/19