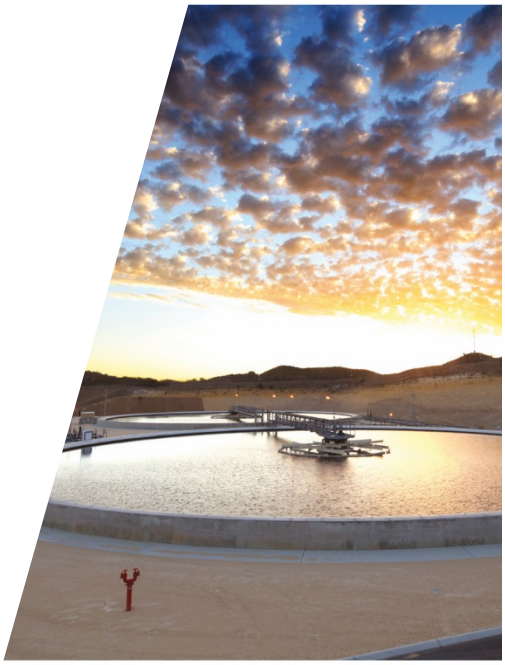
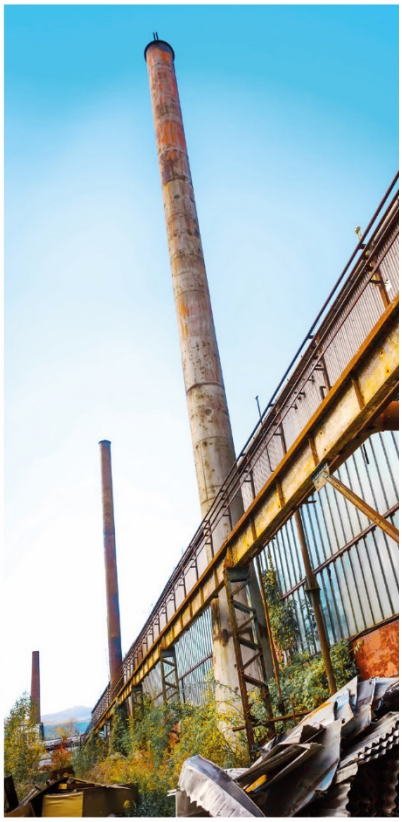


Third VRP Progress Report July 1 through December 31, 2018

1610 Southland Circle
Atlanta, Georgia

Southland Circle Property (HSI # 10077)



Third VRP Progress Report

July 1 through December 31, 2018

Southland Circle Property (HSI No. 10077)
1610 Southland Circle
Atlanta, Georgia

Professional Geologist Statement

I certify that I am a qualified groundwater scientist who has received a baccalaureate or postgraduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared in conjunction with others working under my direction.

Terefe Mazengia, PG # 1981
Printed Name (Professional Geologist)

Signature (Professional Geologist)

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Appendix Index

1. Introduction and Background

GHD, on behalf of CBS Corporation (CBS), prepared this Third Semi-Annual Voluntary Remediation Program (VRP) Progress Report for the reporting period of July 1, 2018 through December 31, 2018 for the Southland Circle property located at 1610 Southland Circle in Atlanta, Georgia. This Progress Report (Progress Report #3) is prepared to meet requirements outlined in the Georgia Voluntary Remediation Program Act (VRPA). Information and data contained in this Progress Report are provided in a streamlined format and additional information, if required, can be provided to the Georgia Environmental Protection Division (EPD) upon request.

1.1 Introduction

GHD, on behalf of CBS, submitted a Voluntary Remediation Program Application, dated November 29, 2011, to Georgia EPD for the property located at 1610 Southland Circle (fkt “Indcon”), Atlanta, Georgia, HSI No. 10077 (qualifying property). The Application was approved by Georgia EPD in a letter dated June 30, 2017 with comments and requests for additional sampling. The Site Layout is provided as Figure 1.

CBS is the corporate successor to Westinghouse Electric Corporation (Westinghouse), which occupied the qualifying property from 1965 to 1971. EPD identified Westinghouse as one of several Responsible Parties or Potentially Responsible Parties for the Site under the Georgia Hazardous Sites Response Act (HSRA) program. CBS has not owned or controlled the property or occupied the building since 1971. Several owners or tenants have conducted industrial and commercial activities at the property since the termination of Westinghouse vacated the premises 47 years ago. The property is presently owned and occupied by Guy T Gunter (GTG) & Associates and used as a showroom and warehouse for household appliance retailing. CBS investigation and remediation activities are being coordinated with the current property owner.

2. Work Performed During Reporting Period

The Sampling and Analysis Plan (SAP) was presented in the First Semi-Annual Progress Report and included an approach for collection, analysis, and evaluation of the vapor samples at the Site. The following sections describe the sub-slab installation, vapor sample collection and analyses and data reduction conducted during this reporting period.

Five sub-slab soil vapor sample points (VP-1 through VP-5) are installed inside the buildings on August 29 and 31, 2018; the points were sampled on August 31. VP-1 and VP-2 are located on the western portion of the warehouse area of the building. VP-3 is located on the northern part of the building in an empty room and VP-4 and VP-5 are located on the eastern part of the building in the showroom. Locations of the sub-slab soil vapor sample points are shown on Figure 2.

2.1 Sub-Slab Soil Vapor Installation

GHD installed five sub-slab vapor sampling points (VP-1 through VP-5) inside the warehouse and showroom area using stainless steel VAPOR PIN®. The points were installed by drilling through the

concrete surface and installing the VAPOR PIN® following the standard operating procedures (SOPs). The Subslab soil vapor points were installed by drilling approximately 1 1/2 inch diameter hole through the concrete slab using a hand drill. A second hole with a 5/8-inch diameter was drilled through the slab using a drill guide and approximately 1-inch into the underlying soil to form a void. The hole was cleaned and vacuumed to remove drill cuttings and dust before installation of the VAPOR PIN® assembly. A silicon sleeve was installed over the barb fitting of the VAPOR PIN® to form airtight seal between the concrete slab and the pin. A protective cap was placed on the VAPOR PIN® to protect vapor loss before sampling. The protective cap remained in place until sampling. The VAPOR PIN® SOP guide is provided in Appendix A.

The SOP calls for a 20 or more minutes delay before sampling to allow time for disturbances created by drilling/coring to dissipate and the soil gas conditions to re-equilibrate. In this case, a minimum of 2 hours was allowed prior to sampling the points.

2.2 Sub-Slab Soil Vapor Sampling

On August 31, 2018, GHD completed leak testing, purging and vapor sampling at the locations listed above. The helium leak testing, purging and sampling consisted of the following:

- A shroud was placed over the soil gas probe assembly as part of the leak testing.
- Helium gas was introduced within the shroud via tubing, and the helium concentration under the shroud was measured using a helium meter. Soil vapor was collected from the vapor probe and pushed into a tedlar bag.
- The helium meter was then connected to the tedlar bag to monitor for any helium leaks due to the integrity of the sample point.

Detection of helium within the sampling assembly greater than 10 percent of the helium concentration beneath the shroud was considered a substantial leak that would compromise the soil vapor sample. All sample locations passed the helium leak testing. Field documentation during the sampling is provided in Appendix B.

The soil vapor sample locations were purged at least three volumes immediately before sampling. The samples were subsequently collected into 1-Liter laboratory supplied Summa canisters at a flow rate of approximately 100 milliliters per minute (mL/min). The sampling time ranged from 6 to 9 minutes with the exception of VP-5 which took over 20 minutes.

The soil vapor samples were shipped under chain-of-custody protocols to Analytical Environmental Services, Inc. (AES) of Atlanta, Georgia. AES analyzed the soil vapor samples by USEPA Method Toxic Organics-15 (TO-15).

2.2.1 Soil Vapor Analytical Results

List of the soil vapor samples collected during this event along with a field sample key are summarized in Table 1. The soil vapor results are summarized in Table 2 and compared to the Target Sub-Slab and Exterior Soil Gas Concentrations (target sub-slab concentrations) for soil gas under a commercial exposure scenario which were calculated using the USEPA Vapor Intrusion Screening Level (VISL) calculator version 3.5, June 2017 RSLs. Target risk for carcinogens of 10^{-5}, an attenuation factor (AF) of 0.03 and a target hazard index of 1.0 for non-carcinogens were used to

calculate the target sub-slab concentrations. The target sub-slab concentrations were calculated for compounds which were detected in one or more of the soil gas samples. The VISL calculator and the calculated target sub-slab concentrations for the select compounds are provided in Appendix C. The September 2018 soil vapor analytical report provided by AES is included in Appendix D.

Results of the screening data show that soil vapor concentrations beneath the concrete slab in the vadose zone are all below the calculated screening levels for a commercial exposure scenario. PCE was the highest detection at 230 µg/m3 detected at VP-5 which was well below the screening criteria of 5,800 µg/m3.

2.3 Off-Site Access Request

In a letter dated June 28, 2018, GHD requested permission from Southland Circle Marx LP to access the property located at 1561 Southland Circle NW, Atlanta, Georgia. This property is directly down gradient in relation to the qualifying property and the installation of a groundwater monitoring point on this adjoining property was requested by GA EPD.

Following several discussions with the property owner and upon request by the property owner, a meeting was set up with the property owner on August 14, 2018. After a short discussion, the property owner stated that he does not want to give access to his property. He was not sure what the investigation will find and he did not want to be responsible for that. He also stated that he owned the property for more than 50 years and operated a trucking company business the whole time.

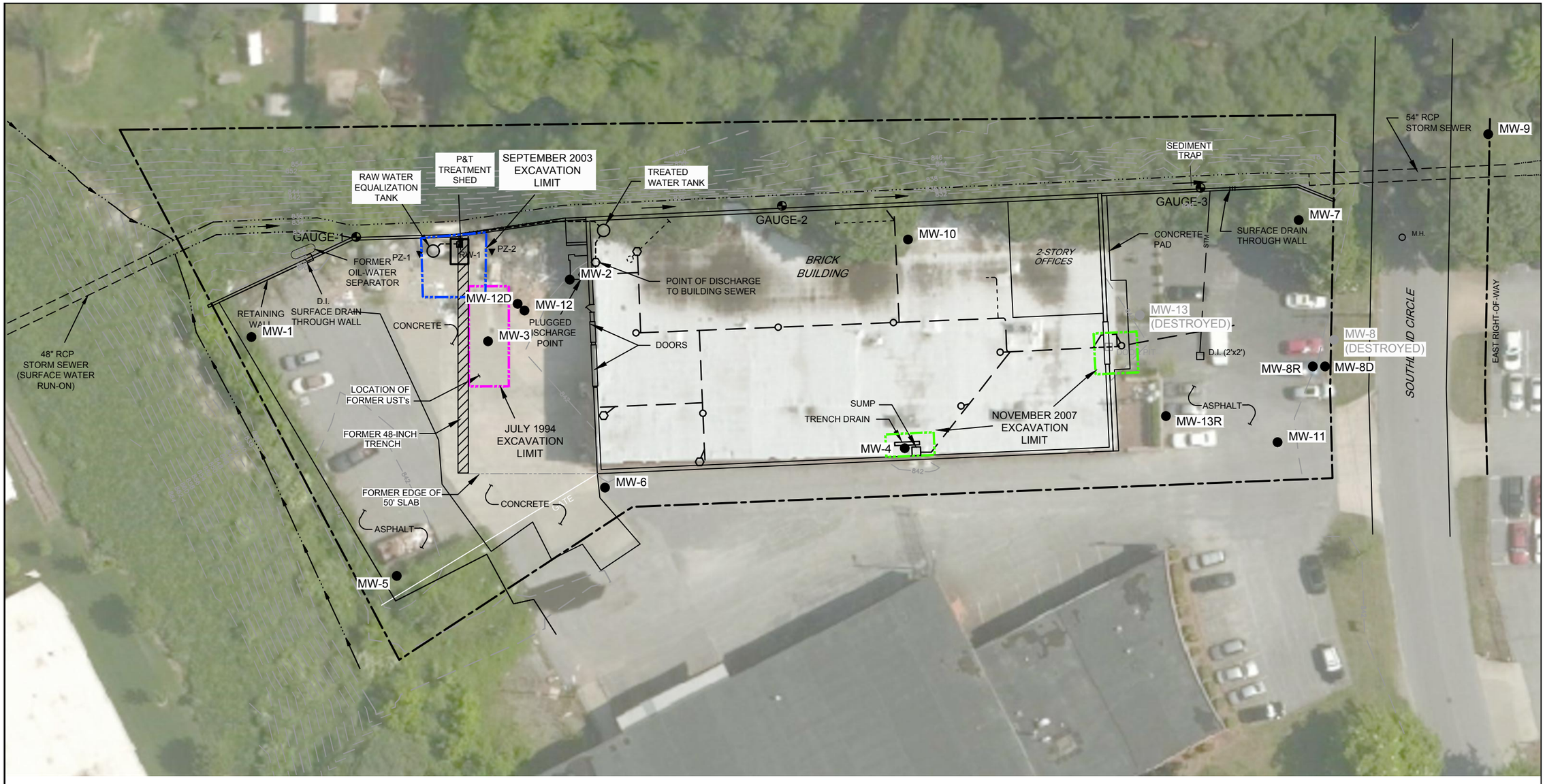
3. Next Submittal

The next submittal for this Site will be the Fourth Semi-Annual Progress Report for the reporting period of January 1 through June 03, 2019. This upcoming Report will detail all activities performed at the Site during the reporting period and provide additional information concerning upcoming investigative or remedial activities if any.

4. Professional Hours

EPD requires that a professional engineer or geologist oversee the implementation of the VIRP in accordance with the provisions, purposes, standards and policies of the Georgia Voluntary Remediation Program Act. Monthly summary of hours and services invoiced for Terefe Mazengia, PG during the period starting from July 1, 2018 through December 31, 2018 are provided in Appendix E.

Figures



LEGEND

- PROPERTY BOUNDARY
- EDGE OF DRAINAGE CHANNEL
- DRAINAGE DITCH (INTERMITTENT)
- CHAIN LINK FENCE
- D.I. DROP INLET
- SANITARY SEWER LINE
- DRAIN INLET
- CLEAN OUT PLUG
- PVC ADDITIONS TO ORIGINAL SYSTEM
- MONITORING WELL LOCATION

N

0 20 40ft

Figure 1

SITE LAYOUT
THIRD VRP PROGRESS REPORT
1610 SOUTHLAND CIRCLE PROPERTY
Atlanta, Georgia

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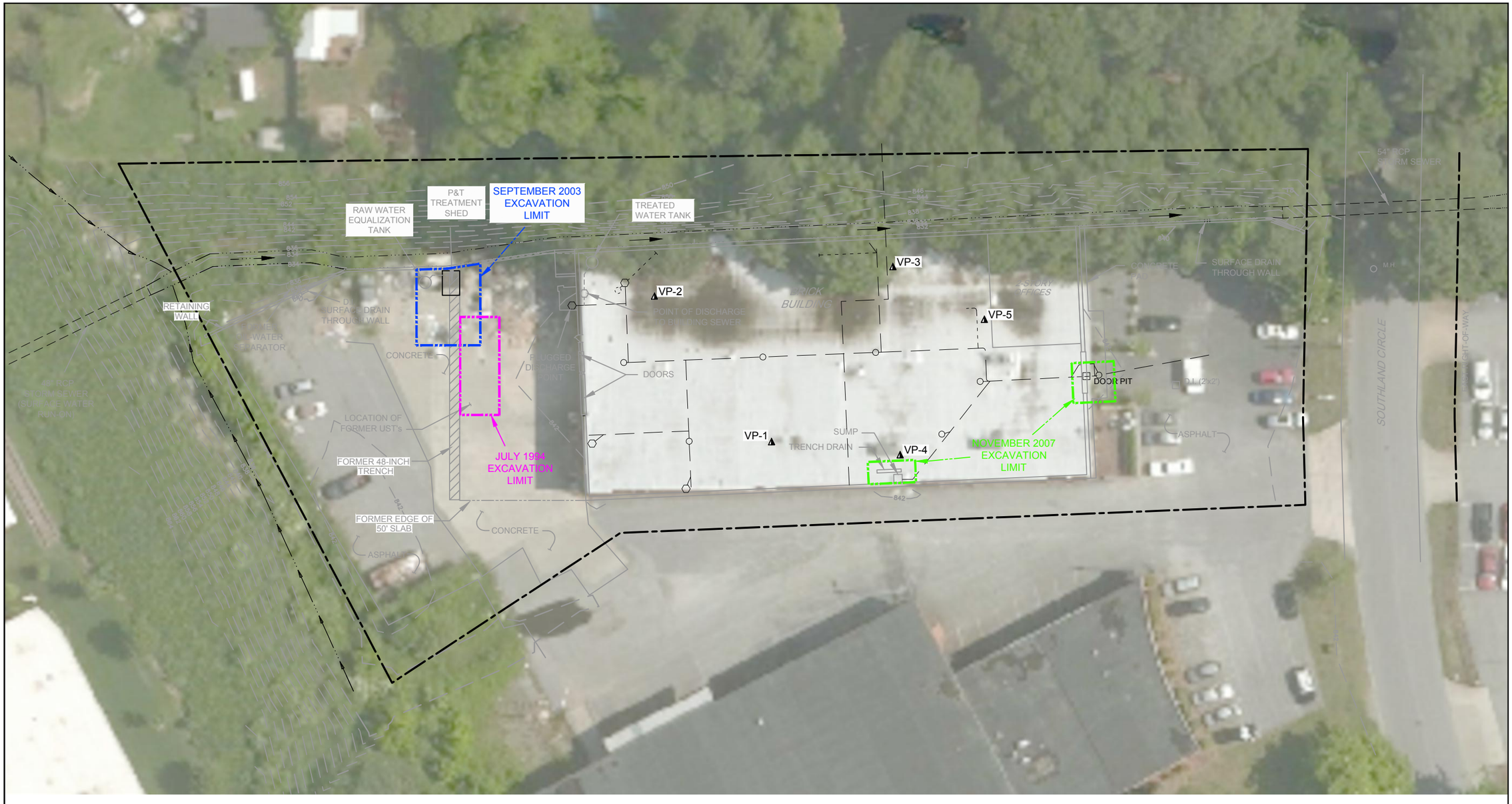

LEGEND

- PROPERTY BOUNDARY
- EDGE OF DRAINAGE CHANNEL
- DRAINAGE DITCH (INTERMITTENT)
- CHAIN LINK FENCE
- SANITARY SEWER LINE
- PVC ADDITIONS TO ORIGINAL SYSTEM
- D.I. DROP INLET
- DRAIN INLET
- CLEAN OUT PLUG
- SUB-SLAB VAPOR SAMPLE LOCATION

N

0 20 40ft

Figure 2
SUB-SLAB VAPOR SAMPLING LOCATIONS
THIRD VRP PROGRESS REPORT
1610 SOUTHLAND CIRCLE PROPERTY
Atlanta, Georgia

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Tables

Table 1

Soil Vapor Sample Key
Southland Circle Property
Atlanta, Georgia

							Analysis/Parameters	
Sample ID	***Sample Location***	***Collection Date***	***Gauge Readings (Hg)***		***Collection Time***		***TO-15***	***Comments***
			Initial (inch)	Final (inch)	Start	Stop		
VS-018876-083118-SAG-VP1	VP-1	31-Aug-18	27	1	7:51	7:58	X	warehouse area
VS-018876-083118-SAG-VP2	VP-2	31-Aug-18	28	1	8:10	8:19	X	warehouse area
VS-018876-083118-SAG-VP3	VP-3	31-Aug-18	24	1	8:40	8:46	X	Filming Set room
VS-018876-083118-SAG-VP4	VP-4	31-Aug-18	27.5	1	8:58	9:07	X	showroom
VS-018876-083118-SAG-VP5	VP-5	31-Aug-18	29	2	9:21	9:42	X	showroom

Notes:

1 VP-3 installed next to monitoring well MW-10

2 VP-4 installed in the vicinty of monitoring well MW-4

Table 2

Detected Soil Vapor Analytical Results Summary
Southland Circle Property
Atlanta, Georgia

Sample Location:			***VP-1***	***VP-2***	***VP-3***	***VP-4***	***VP-5***
Sample ID:			***VS-018876-083118-SAG-VP1***	***VS-018876-083118-SAG-VP2***	***VS-018876-083118-SAG-VP3***	***VS-018876-083118-SAG-VP4***	***VS-018876-083118-SAG-VP5***
Area/Location:			***Warehouse***	***Warehouse***	***Film Set Area***	***Showroom***	***Showroom***
Sample Date:			***8/31/2018***	***8/31/2018***	***8/31/2018***	***8/31/2018***	***8/31/2018***
Parameters	***Units***	***Target Sub-Slab and Exterior soil Gas Concentrations*** [1]					
Detected VOCs		AF= 0.03					
Acetone	ug/m3	4.50E+06	63	46	14	50	85
Carbon disulfide	ug/m3	1.00E+05	14	ND (3.1)	ND (3.1)	9.2	ND (3.1)
Methyl ethyl ketone (2-butanone)	ug/m3	7.30E+05	14	5.2	ND (2.9)	ND (2.9)	ND (2.9)
Styrene	ug/m4	1.50E+05	4.5	ND (4.3)	ND (4.3)	ND (4.3)	ND (4.3)
Tetrachloroethene	ug/m3	5.80E+03	14	16	9.5	ND (6.8)	230
Toluene	ug/m3	7.30E+05	9	4.5	ND (3.8)	5.1	5.5

Notes:

ND (4.3) - Not detected at the associated reporting limit.

[1] Calculated using Vapor Intrusion Screening Level (VISL) Calculator, June 2017 USEPA VISL, Version 3.5

(THQ = 1, AF = 0.03 and Target risk for carcinogens = 10^{-5})

Appendices

Appendix A
VAPOR PIN® Installation Standard Operating Procedures (SOPS)

Standard Operating Procedure Use of the VAPOR PIN® Drilling Guide and Secure Cover

Updated March 16, 2018

Scope:

This standard operating procedure (SOP) describes the methodology to use the VAPOR PIN® Drilling Guide and Secure Cover to install and secure a VAPOR PIN® in a flush mount configuration.

Purpose:

The purpose of this SOP is to detail the methodology for installing a VAPOR PIN® and Secure Cover in a flush mount configuration. The flush mount configuration reduces the risk of damage to the VAPOR PIN® by foot and vehicular traffic, keeps dust and debris from falling into the flush mount hole, and reduces the opportunity for tampering. This SOP is an optional process performed in conjunction with the SOP entitled "Installation and Extraction of the VAPOR PIN®". However, portions of this SOP should be performed prior to installing the VAPOR PIN®.

Equipment Needed:

- VAPOR PIN® Secure Cover (Figure 1);
- VAPOR PIN® Drilling Guide (Figure 2);
- Hammer drill;
- 1½-inch diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent);
- 5/8-inch diameter hammer bit (Hilti™ TE-YX 5/8" x 22" #00226514 or equivalent);
- assembled VAPOR PIN®;
- #14 spanner wrench;
- Wet/Dry vacuum with HEPA filter (optional); and
- personal protective equipment (PPE).

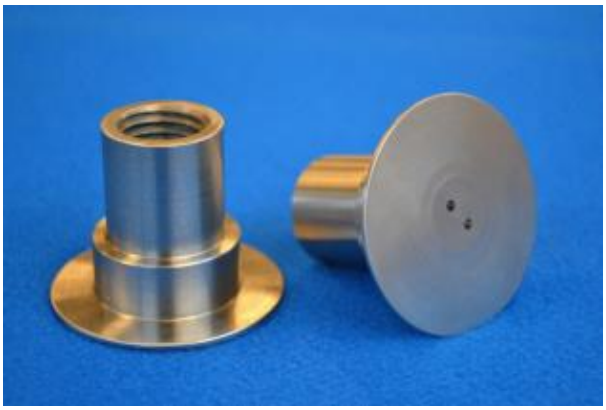


Figure 1. VAPOR PIN® Secure Cover

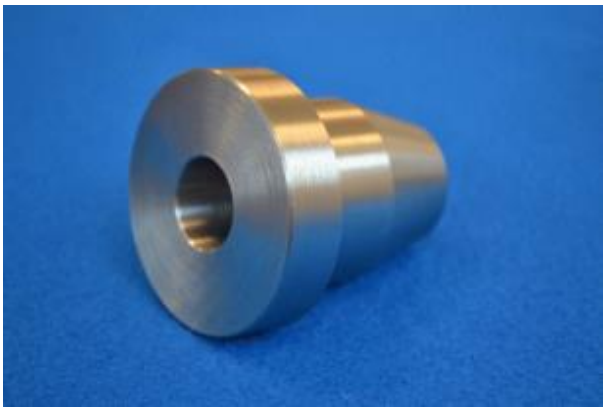


Figure 2. VAPOR PIN® Drilling Guide

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) While wearing PPE, drill a 1½-inch diameter hole into the concrete slab to a depth of approximately 1 3/4 inches. Pre-marking the desired depth on the drill

bit with tape will assist in this process.

4) Remove cuttings from the hole and place the Drilling Guide in the hole with the conical end down (Figure 3). The hole is sufficiently deep if the flange of the Drilling Guide lies flush with the surface of the slab. Deepen the hole as necessary, but avoid drilling more than 2 inches into the slab, as the threads on the Secure Cover may not engage properly with the threads on the VAPOR PIN®.

Figure 3. Testing Depth with the Drilling Guide

5) When the 1½-inch diameter hole is drilled to the proper depth, replace the drill bit with a 5/8-inch diameter bit, insert the bit through the Drilling Guide (Figure 4), and drill through the slab. The Drilling Guide will help to center the hole for the VAPOR PIN®, and keep the hole perpendicular to the slab.

6) Remove the bit and drilling guide, clean the hole, and install the VAPOR PIN® in accordance with the SOP "Installation and Extraction of the VAPOR PIN®.

Figure 4. Using the Drilling Guide

7) Screw the Secure Cover onto the VAPOR PIN® and tighten using a #14 spanner wrench by rotating it clockwise (Figure 5). Rotate the cover counter clockwise to remove it for subsequent access.

Figure 5. Tightening the Secured Cover

Limitations:

On slabs less than 3 inches thick, it may be difficult to obtain a good seal in a flush mount configuration with the VAPOR PIN.®

Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated March 16, 2018

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole **must** be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;
- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.

Figure 1. Assembled VAPOR PIN®

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.

4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.

6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.

Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).

Figure 3. Installed VAPOR PIN®

7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).

Figure 4. Secure Cover Installed

8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.

9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the

Nylaflow tubing (Figure 5). Put the Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.

Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.

Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.

2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.

Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, **STAINLESS – ½ hour, BRASS 8 minutes**

3) Replacement parts and supplies are available online.

Appendix B
Sub-slab Vapor Sampling Field Data Sheet

Sub-Slab/Soil Gas Sampling Field Data Sheet
(Modified Form SP-30)

A) **General Information**

Project Name and Number: 18876 Southland Circle

Site Address: 1610 Southland Circle Atlanta, GA

Describe the general weather conditions: 70°, Hot Sunny

Sample Location: VP-1

Summa Canister Type: 400 mL/(1 L Canister)/6 L Canister/Other (specify)

Summa Canister Serial No.: AES 010476

Flow Controller Serial No.: AES 01173

Were "Instructions to Occupants Building" followed (for sub-slab soil gas)?
☐ Yes ☐ No ☒ NA

B) **Helium Leak Test**

Helium in Shroud: 59 % (590,000 ppm) PID in Tedlar bag: 3780 ppm
0.6 % of 590,000 ppm

C) **Shut-in Test/Secondary Leak Ttest**: -22 " Hg

Pass ☒ Fail ☐

D) **Purging and Sampling Information**

Purge volume: 1000 ml

Sample Identification Number: VS-018876-083118-SAG-VP1

Sample Date: 8/31/18 Sampler: S. Grace

Sample Time: Start: 0751 Stop: 0758

Shipping Date: 8/31/18

	Initial	Final
Canister Pressure Gauge Reading:	-27	-1

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Sub-Slab/Soil Gas Sampling Field Data Sheet
(Modified Form SP-30)

A) **General Information**

Project Name and Number: 18876 Southland Circle

Site Address: 1610 Southland Circle Atlanta, GA

Describe the general weather conditions: 70°-80° Sunny

Sample Location: VP-2

Summa Canister Type: 400 mL/1 L Canister/6 L Canister/Other (specify)

Summa Canister Serial No.: AES 01073

Flow Controller Serial No.: AES 01482

Were "Instructions to Occupants Building" followed (for sub-slab soil gas)?
☐ Yes ☐ No ☒ NA

B) **Helium Leak Test**

Helium in Shroud: 65.5% (655,000 ppm) PID in Tedlar bag: 0 ppm

C) **Shut-in Test/Secondary Leak Ttest**: ~23" Hg

Pass ☒ Fail ☐

D) **Purging and Sampling Information**

Purge volume: 600 mL

Sample Identification Number: VS-018876-083118-SAG-VP2

Sample Date: 8/31/18 Sampler: S.Grove

Sample Time: Start: 0810 Stop: 0819

Shipping Date: 8/31/18

	Initial	Final
Canister Pressure Gauge Reading:	~28" Hg	-1" Hg

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Sub-Slab/Soil Gas Sampling Field Data Sheet
(Modified Form SP-30)

A) **General Information**

Project Name and Number: 018876 Southland Circle

Site Address: 1610 Southland Circle Atlanta, GA

Describe the general weather conditions: 70's-80's Sunny

Sample Location: VP-3

Summa Canister Type: 400 mL/1 L Canister/6 L Canister/Other (specify)

Summa Canister Serial No.: AES 01002

Flow Controller Serial No.: AES 01124

Were "Instructions to Occupants Building" followed (for sub-slab soil gas)?
☒ Yes ☐ No ☐ NA

B) **Helium Leak Test**

Helium in Shroud: 54.3% (543,000 ppm) PID in Tedlar bag: 0 ppm

C) **Shut-in Test/Secondary Leak Ttest**: -21 "Hg

Pass ☒ Fail ☐

D) **Purging and Sampling Information**

Purge volume: 600 mL

Sample Identification Number: VS-018876-083118-SAC-VP3

Sample Date: 8/31/18 Sampler:

Sample Time: Start: 0840 Stop: 0846

Shipping Date: 8/31/18

	Initial	Final
Canister Pressure Gauge Reading:	-24 " Hg	-1 "Hg

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Sub-Slab/Soil Gas Sampling Field Data Sheet
(Modified Form SP-30)

A) **General Information**

Project Name and Number: 018876 Southland Circle

Site Address: 1610 Southland Circle Atlanta, GA

Describe the general weather conditions: 70°-80° Sunny

Sample Location: VP-4

Summa Canister Type: 400 mL/1 L Canister/6 L Canister/Other (specify)

Summa Canister Serial No.: AES 01021

Flow Controller Serial No.: AES 01118

Were "Instructions to Occupants Building" followed (for sub-slab soil gas)?
☐ Yes ☐ No ☒ NA

B) **Helium Leak Test**

Helium in Shroud: 62.4% (624,000 ppm) PID in Tedlar bag: 0 ppm

C) **Shut-in Test/Secondary Leak Ttest**: -23 " Hg

Pass ☒ Fail ☐

D) **Purging and Sampling Information**

Purge volume: 600 mL

Sample Identification Number: US-018876-083118-SAG-VP4

Sample Date: 8/31/18 Sampler: S. Grau

Sample Time: Start: 0858 Stop: 0907

Shipping Date: 8/31/18

	Initial	Final
Canister Pressure Gauge Reading:	-27.5" Hg	-1" Hg

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Sub-Slab/Soil Gas Sampling Field Data Sheet
(Modified Form SP-30)

A) **General Information**

Project Name and Number: 018876 Southland Circle

Site Address: 1618 Southland Circle Atlanta, GA

Describe the general weather conditions: 70s. 80s Sunny

Sample Location: VP-5

Summa Canister Type: 400 mL/1 L Canister/6 L Canister/Other (specify)

Summa Canister Serial No.: AES 01015

Flow Controller Serial No.: AES 01359

Were "Instructions to Occupants Building" followed (for sub-slab soil gas)?
☐ Yes ☐ No ☒ NA

B) **Helium Leak Test**

Helium in Shroud: 62.6% (626,000 ppm) PID in Tedlar bag: 1200 ppm

C) **Shut-in Test/Secondary Leak Ttest**: -23" Hg

Pass ☒ Fail ☐

D) **Purging and Sampling Information**

Purge volume: 600 mL

Sample Identification Number: VS-018876-083118-SAG-VP5

Sample Date: 8/31/18 Sampler: S. Grace

Sample Time: Start: 09:21 Stop: 09:42

Shipping Date: 8/31/18

	Initial	Final
Canister Pressure Gauge Reading:	-29 "Hg	-2 "Hg

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?
☐ Yes ☒ No

Appendix C
Vapor Intrusion Screening Level (VISL) Calculator

Appendix C

Vapor Intrusion Screening Level (VISL) Calculator
VISL Verison 3.5
Current Toxicity Values from June 2017 RSL Update

OSWER VAPOR INTRUSION ASSESSMENT
Vapor Intrusion Screening Level (VISL) Calculator Version 3.5, June 2017 RSLs

The primary objective of risk-based screening is to identify sites or buildings unlikely to pose a health concern through the vapor intrusion pathway. Generally, at properties where subsurface concentrations of vapor-forming chemicals (e.g., groundwater or "near source" soil gas concentrations) fall below screening levels (i.e., VISLs), no further action or study is warranted, so long as the exposure assumptions match those taken into account by the calculations and the site fulfills the conditions and assumptions of the generic conceptual model underlying the screening levels. In a similar fashion, the results of risk-based screening can help the data review team identify areas, buildings, and/or chemicals that can be eliminated from further assessment. The generic conceptual model underlying these screening levels is described in OSWER Publication 9200.2-154 (OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway From Subsurface Vapor Sources to Indoor Air) (EPA 2015; Section 6.5)

Parameter	Value	Instructions
Exposure Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	1.00E-05	Enter target risk for carcinogens
Target Hazard Quotient for Non-Carcinogens	1	Enter target hazard quotient for non-carcinogens
Average Groundwater Temperature (°C)	20	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Does the chemical meet the definition for volatility? (HLC>1E-5 or VP>1) Yes/No	Does chemical have inhalation toxicity data? (IUR and/or RfC) Yes/No	Is Chemical Sufficiently Volatile and Toxic to Pose Inhalation Risk Via Vapor Intrusion from Groundwater Source? Chc > Cia,target? Yes/No	Target Indoor Air Conc. @ TCR = 10E-06 or THQ = 1 MIN(Cia,c;Cia,nc) (ug/m^3)	Toxicity Basis C/NC	Target Sub-Slab and Exterior Soil Gas Conc. @ TCR = 10E-06 or THQ = 1 Csg (ug/m^3)	Target Ground Water Conc. @ TCR = 10E-06 or THQ = 1 Cgw (ug/L)	Is Target Ground Water Conc. < MCL? Cgw<MCL? Yes/No (MCL ug/L)	Pure Phase Vapor Conc. @ 25°C Cvp (ug/m^3)	Maximum Groundwater Vapor Conc. Chc (ug/m^3)	Temperature for Max. Groundwater Vapor Conc. Tgw or 25 C	Lower Explosive Limit** LEL (% by vol)	LEL Source		Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i	Target Indoor Air Conc. for Carcinogens @ TCR = 10E-06 Cia,c (ug/m^3)	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 1 Cia,nc (ug/m^3)
67-64-1	Acetone	Yes	Yes	Yes	1.4E+05	NC	4.5E+06	1.2E+08	--	7.23E+08	1.16E+09	20	2.6	E							1.4E+05
75-15-0	Carbon Disulfide	Yes	Yes	Yes	3.1E+03	NC	1.0E+05	6.3E+03	--	1.47E+09	1.05E+09	20	1.3	N							3.1E+03
78-93-3	Methyl Ethyl Ketone (2-Butanone)	Yes	Yes	Yes	2.2E+04	NC	7.3E+05	1.2E+07	--	3.52E+08	4.08E+08	20	1.4	N							2.2E+04
100-42-5	Styrene	Yes	Yes	Yes	4.4E+03	NC	1.5E+05	5.2E+04	No (100)	3.59E+07	2.59E+07	20	1.1	E							4.4E+03
127-18-4	Tetrachloroethylene	Yes	Yes	Yes	1.8E+02	NC	5.8E+03	3.2E+02	No (5)	1.65E+08	1.14E+08	20				2.60E-07	I	4.00E-02	I		4.7E+02	1.8E+02
108-88-3	Toluene	Yes	Yes	Yes	2.2E+04	NC	7.3E+05	1.0E+05	No (1000)	1.41E+08	1.10E+08	20	1.1	N				5.00E+00	I			2.2E+04
79-01-6	Trichloroethylene	Yes	Yes	Yes	8.8E+00	NC	2.9E+02	2.8E+01	No (5)	4.88E+08	4.04E+08	20	8	N		see note	I	2.00E-03	I	TCE	3.0E+01	8.8E+00

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G10) Symbol	Selected Value
Averaging time for carcinogens	(yrs)	ATc_R	70	ATc_C	70	ATc	70
Averaging time for non-carcinogens	(yrs)	ATnc_R	26	ATnc_C	25	ATnc	25
Exposure duration	(yrs)	ED_R	26	ED_C	25	ED	25
Exposure frequency	(days/yr)	EF_R	350	EF_C	250	EF	250
Exposure time	(hr/day)	ET_R	24	ET_C	8	ET	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors		Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G10) Symbol	Selected Value
Groundwater	(-)	AFgw_R	0.001	AFgw_C	0.001	AFgw	0.001
Sub-Slab and Exterior Soil Gas	(-)	AFss_R	0.03	AFss_C	0.03	AFss	0.03

(3) **Formulas**
Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**
Trichloroethylene

	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario in cell G10) Symbol	Selected Value
mIURTCE_R	1.00E-06	mIURTCE_C	0.00E+00	mIURTCE	0.00E+00
IURTCE_R	3.10E-06	IURTCE_C	4.10E-06	IURTCE	4.10E-06

Mutagenic Chemicals

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration (years)	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

Notation:
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk in selected exposure scenario for the indicated medium
C = Carcinogenic
NC = Non-carcinogenic
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at: http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at: http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5
X = PPRTV Appendix
E = The Engineering ToolBox. Available online at http://www.engineeringtoolbox.com/explosive-concentration-limits-d 423.html
N = Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH). Pocket Guide to Chemical Hazards. Available online at: http://www.cdc.gov/niosh/npg/default.html http://www.cdc.gov/niosh/npg/default.html
M = Chemical-specific MSDS
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user.
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
**Lower explosive limit is the minimum concentration of the compound in air (% by volume) that is needed for the gas to ignite and explode.

Appendix D
Soil Vapor Laboratory Report

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

September 10, 2018

Terefe Mazengia
GHD Services, Inc.

3075 Breckinridge Blvd.
Duluth GA 30096

RE: Southland Circle

Dear Terefe Mazengia: Order No: 1808T51

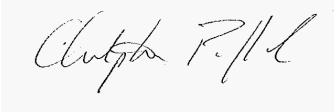
Analytical Environmental Services, Inc. received 5 samples on 8/31/2018 10:20:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES' certifications are as follows:
-NELAC/Florida Certification number E87582 for analysis of Air & Emissions for Volatile Organics effective 07/01/18-06/30/19.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,



Chris Pafford

Project Manager

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.972.4889
www.aesatlanta.com

APPENDIX

Compound	CAS #	Alternate Name	TO-14A	TO-15	SOP
Acetone	67-64-1				X
Allyl chloride	107-05-1	3-Chloropropene		X	
Benzene	71-43-2		X	X	
Benzyl chloride	100-44-7		X	X	
Bromodichloromethane	75-27-4	Dichlorobromomethane			X
Bromoform	75-25-2	Tribromomethane		X	
Bromomethane	74-83-9	Methyl bromide	X	X	
1,3-Butadiene	106-99-0			X	
Carbon disulfide	75-15-0			X	
Carbon tetrachloride	56-23-5		X	X	
Chlorobenzene	108-90-7		X	X	
Chloroethane	75-00-3	Ethyl chloride	X	X	
Chloroform	67-66-3		X	X	
Chloromethane	74-87-3	Methyl chloride	X	X	
Cyclohexane	110-82-7				X
Dibromochloromethane	124-48-1	Chlorodibromomethane			X
1,2-Dibromoethane	106-93-4	EDB/Ethylene dibromide	X	X	
1,2-Dichlorobenzene	95-50-1	*o*-Dichlorobenzene	X	X	
1,3-Dichlorobenzene	541-73-1	*m*-Dichlorobenzene	X	X	
1,4-Dichlorobenzene	106-46-7	p-Dichlorobenzene	X	X	
Dichlorodifluoromethane	75-71-8	Freon-12	X		
1,1-Dichloroethane	75-34-3		X	X	
1,2-Dichloroethane	107-06-2		X	X	
1,1-Dichloroethene	75-35-4	1,1-Dichloroethylene	X	X	
cis-1,2-Dichloroethene	156-59-2	*cis*-1,2-Dichloroethylene	X	X	
trans-1,2-Dichloroethene	156-60-5	*trans*-1,2-Dichloroethylene		X	
1,2-Dichloropropane	78-87-5		X	X	
cis-1,3-Dichloropropene	10061-01-5		X	X	
trans-1,3-Dichloropropene	10061-02-6		X	X	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	Freon-114	X		
1,4-Dioxane	123-91-1	1,4-Diethylene oxide		X	
Ethyl acetate	141-78-6	Acetic acid, ethyl ester			X
Ethylbenzene	100-41-4		X	X	
4-Ethyltoluene	622-96-8				X
n-Heptane	142-82-5	Heptane			X
Hexachlorobutadiene	87-68-3	Hexachloro-1,3-butadiene	X	X	

n-Hexane	110-54-3	Hexane		X	
Compound	**CAS #**	**Alternate Name**	**TO-14A**	**TO-15**	**SOP**
2-Hexanone	591-78-6	Methyl butyl ketone			X
Methylene chloride	75-09-2	Dichloromethane	X	X	
Methyl tert-butyl ether	1634-04-4	MTBE		X	
Methyl ethyl ketone	78-93-3	MEK/2-Butanone		X	
Methyl isobutyl ketone	108-10-1	4-Methyl-2-pentanone		X	
2-Propanol	67-63-0	Isopropanol/Isopropyl alcohol			X
Propene	115-07-1	Propylene			X
Styrene	100-42-5			X	
1,1,2,2-Tetrachloroethane	79-34-5		X	X	
Tetrachloroethene	127-18-4	Tetrachloroethylene	X	X	
Tetrahydrofuran	109-99-9				X
Toluene	108-88-3			X	
1,2,4-Trichlorobenzene	120-82-1			X	
1,1,1-Trichloroethane	74-55-6			X	
1,1,2-Trichloroethane	79-00-5			X	
Trichloroethene	79-01-6	Trichloroethylene		X	
Trichlorofluoromethane	75-69-4	Freon-11	X		
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	Freon-113	X		
1,2,4-Trimethylbenzene	95-63-6		X	X	
1,3,5-Trimethylbenzene	108-67-8		X	X	
2,2,4-Trimethylpentane	540-84-1	Isooctane		X	
Vinyl acetate	108-05-04			X	
Vinyl bromide	593-60-2	Bromoethene		X	
Vinyl chloride	75-01-4	Chloroethene	X	X	
Xylenes, Total	1330-20-7		X	X	
m/p-Xylene	179601-23-1		X	X	
o-Xylene	95-47-6		X	X	

AES ANALYTICAL ENVIRONMENTAL SERVICES, INC.

3080 Presidential Drive
Atlanta, GA 30340
Phone: (770) 457-8177 / Fax: (770) 457-8188

VAPOR/AIR CHAIN OF CUSTODY

Work Order #: 1808T01
Date: 8/31/18
Page: 1 of 1

COMPANY INFORMATION	PROJECT INFORMATION	INVOICE INFORMATION		SAMPLING INFORMATION
Company Name: GHD	Project Name: Southland Circle	Company Name: GHD	Invoice To Name(s): See SSOW	Sampled By (print): Steven Grace
Address: 3075 Breckinridge Blvd. Ste 470	Project #: 018876	Company Address:	Invoice To Email(s):	Sampler Signature:
City, State, Zip: Duluth, GA 30096	Report To Name(s): Paul McMahon, Terefe Mazengia	Company City, State, Zip:	Invoice To Phone #(s):	Date: 8/31/18
Phone #: 770-441-0027	Report To Email(s): paul.mcmahon@ghd.com, terefe.mazengia@ghd.com	AES Project Manager: Chris Profford	AES Quote # and/or PO #:	State/Project Location: GA

SPECIAL INSTRUCTIONS	REQUESTED TURNAROUND TIME		REPORTING REQUIREMENTS		SHIPPING METHOD	
Special list of analytes or other comments: See SSOW # 018876-2018-002	Standard (Five Days) ☑	Two Day Rush ☐	Standard/Level II Data Package ☐		FedEx ☐	Client Courier ☐
	Four Day Rush ☐	Next Day Rush ☐	Level III Data Package ☐		UPS ☐	US Mail ☐
	Three Day Rush ☐		Level IV Data Package ☐		Client Drop-off ☒	Other:
	Other:		EDD ☐		AES Courier ☐	

#	Sample ID	Sample Start Date	Sample Start Time (24hr)	Sample Finish Date	Sample Finish Time (24hr)	Sample Matrix (IA = Indoor Air, AA = Ambient Air, SS = Subslab, SV = Soil Vapor)	Canister Serial #	Flow Controller ID	Canister Pressure In Field ("Hg) Start	Canister Pressure In Field ("Hg) Stop	Analysis Requested TO-15	Remarks
1	VS-018876-083118-SAG-VP1	8/31/18	07:51	8/31/18	07:58	SS	01046	01133	-27	-1	X	
2	VS-018876-083118-SAG-VP2	"	08:10	8/31/18	08:19	SS	01073	01102	-28	-1	X	
3	VS-018876-083118-SAG-VP3	"	08:40	8/31/18	08:46	SS	01002	01124	-24	-1	X	
4	VS-018876-083118-SAG-VP4	"	08:58	8/31/18	09:07	SS	01021	01118	-27.5	-1	X	
5	VS-018876-083118-SAG-VP5	"	09:21	8/31/18	09:42	SS	01015	01139	-29	-1	X	
6												
7												
8												
9												
10												

SAMPLE RECEIPT

Relinquished			Received		
Relinquished By:	Date: 8/31/18	Time: 1020	Received By: Monielle Albrecht (Client)	Date: 8/31/18	Time: 10:20am
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Client assumes sole responsibility for damage or loss of samples before we accept them. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Visit our website at www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.

White Copy - Original; Green Copy - Client

TO-15 COC 62218

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP1
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 7:58:00 AM
Lab ID:	1808T51-001	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
1,1,1-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 06:29	MD
1,1,2,2-Tetrachloroethane	BRL	6.9		ug/m3	266594	2	09/06/2018 06:29	MD
1,1,2-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 06:29	MD
1,1-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 06:29	MD
1,1-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 06:29	MD
1,2,4-Trichlorobenzene	BRL	7.4		ug/m3	266594	2	09/06/2018 06:29	MD
1,2,4-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 06:29	MD
1,2-Dibromoethane	BRL	7.7		ug/m3	266594	2	09/06/2018 06:29	MD
1,2-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 06:29	MD
1,2-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 06:29	MD
1,2-Dichloropropane	BRL	4.6		ug/m3	266594	2	09/06/2018 06:29	MD
1,3,5-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 06:29	MD
1,3-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 06:29	MD
1,4-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 06:29	MD
2-Butanone	14	2.9		ug/m3	266594	2	09/06/2018 06:29	MD
2-Hexanone	BRL	4.1		ug/m3	266594	2	09/06/2018 06:29	MD
4-Methyl-2-pentanone	BRL	4.1		ug/m3	266594	2	09/06/2018 06:29	MD
Acetone	63	12		ug/m3	266594	2	09/06/2018 06:29	MD
Benzene	BRL	3.2		ug/m3	266594	2	09/06/2018 06:29	MD
Bromodichloromethane	BRL	6.7		ug/m3	266594	2	09/06/2018 06:29	MD
Bromoform	BRL	10		ug/m3	266594	2	09/06/2018 06:29	MD
Bromomethane	BRL	3.9		ug/m3	266594	2	09/06/2018 06:29	MD
Carbon disulfide	14	3.1		ug/m3	266594	2	09/06/2018 06:29	MD
Carbon tetrachloride	BRL	6.3		ug/m3	266594	2	09/06/2018 06:29	MD
Chlorobenzene	BRL	4.6		ug/m3	266594	2	09/06/2018 06:29	MD
Chloroethane	BRL	2.6		ug/m3	266594	2	09/06/2018 06:29	MD
Chloroform	BRL	4.9		ug/m3	266594	2	09/06/2018 06:29	MD
Chloromethane	BRL	2.1		ug/m3	266594	2	09/06/2018 06:29	MD
cis-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 06:29	MD
cis-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 06:29	MD
Dibromochloromethane	BRL	8.5		ug/m3	266594	2	09/06/2018 06:29	MD
Dichlorodifluoromethane	BRL	4.9		ug/m3	266594	2	09/06/2018 06:29	MD
Ethylbenzene	BRL	4.3		ug/m3	266594	2	09/06/2018 06:29	MD
Freon-113	BRL	7.7		ug/m3	266594	2	09/06/2018 06:29	MD
Freon-114	BRL	7.0		ug/m3	266594	2	09/06/2018 06:29	MD
Hexachlorobutadiene	BRL	11		ug/m3	266594	2	09/06/2018 06:29	MD
m,p-Xylene	BRL	8.7		ug/m3	266594	2	09/06/2018 06:29	MD
Methyl tert-butyl ether	BRL	3.6		ug/m3	266594	2	09/06/2018 06:29	MD
Methylene chloride	BRL	3.5		ug/m3	266594	2	09/06/2018 06:29	MD
o-Xylene	BRL	4.3		ug/m3	266594	2	09/06/2018 06:29	MD
Styrene	4.5	4.3		ug/m3	266594	2	09/06/2018 06:29	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP1
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 7:58:00 AM
Lab ID:	1808T51-001	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Tetrachloroethene	14	6.8		ug/m3	266594	2	09/06/2018 06:29	MD
Toluene	9.0	3.8		ug/m3	266594	2	09/06/2018 06:29	MD
trans-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 06:29	MD
trans-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 06:29	MD
Trichloroethene	BRL	5.4		ug/m3	266594	2	09/06/2018 06:29	MD
Trichlorofluoromethane	BRL	5.6		ug/m3	266594	2	09/06/2018 06:29	MD
Vinyl acetate	BRL	3.5		ug/m3	266594	2	09/06/2018 06:29	MD
Vinyl chloride	BRL	2.6		ug/m3	266594	2	09/06/2018 06:29	MD
Surr: 4-Bromofluorobenzene	92.2	70-130		%REC	266594	2	09/06/2018 06:29	MD

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP2
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 8:19:00 AM
Lab ID:	1808T51-002	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
1,1,1-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 07:09	MD
1,1,2,2-Tetrachloroethane	BRL	6.9		ug/m3	266594	2	09/06/2018 07:09	MD
1,1,2-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 07:09	MD
1,1-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 07:09	MD
1,1-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:09	MD
1,2,4-Trichlorobenzene	BRL	7.4		ug/m3	266594	2	09/06/2018 07:09	MD
1,2,4-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 07:09	MD
1,2-Dibromoethane	BRL	7.7		ug/m3	266594	2	09/06/2018 07:09	MD
1,2-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:09	MD
1,2-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 07:09	MD
1,2-Dichloropropane	BRL	4.6		ug/m3	266594	2	09/06/2018 07:09	MD
1,3,5-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 07:09	MD
1,3-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:09	MD
1,4-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:09	MD
2-Butanone	5.2	2.9		ug/m3	266594	2	09/06/2018 07:09	MD
2-Hexanone	BRL	4.1		ug/m3	266594	2	09/06/2018 07:09	MD
4-Methyl-2-pentanone	BRL	4.1		ug/m3	266594	2	09/06/2018 07:09	MD
Acetone	46	12		ug/m3	266594	2	09/06/2018 07:09	MD
Benzene	BRL	3.2		ug/m3	266594	2	09/06/2018 07:09	MD
Bromodichloromethane	BRL	6.7		ug/m3	266594	2	09/06/2018 07:09	MD
Bromoform	BRL	10		ug/m3	266594	2	09/06/2018 07:09	MD
Bromomethane	BRL	3.9		ug/m3	266594	2	09/06/2018 07:09	MD
Carbon disulfide	BRL	3.1		ug/m3	266594	2	09/06/2018 07:09	MD
Carbon tetrachloride	BRL	6.3		ug/m3	266594	2	09/06/2018 07:09	MD
Chlorobenzene	BRL	4.6		ug/m3	266594	2	09/06/2018 07:09	MD
Chloroethane	BRL	2.6		ug/m3	266594	2	09/06/2018 07:09	MD
Chloroform	BRL	4.9		ug/m3	266594	2	09/06/2018 07:09	MD
Chloromethane	BRL	2.1		ug/m3	266594	2	09/06/2018 07:09	MD
cis-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:09	MD
cis-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 07:09	MD
Dibromochloromethane	BRL	8.5		ug/m3	266594	2	09/06/2018 07:09	MD
Dichlorodifluoromethane	BRL	4.9		ug/m3	266594	2	09/06/2018 07:09	MD
Ethylbenzene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:09	MD
Freon-113	BRL	7.7		ug/m3	266594	2	09/06/2018 07:09	MD
Freon-114	BRL	7.0		ug/m3	266594	2	09/06/2018 07:09	MD
Hexachlorobutadiene	BRL	11		ug/m3	266594	2	09/06/2018 07:09	MD
m,p-Xylene	BRL	8.7		ug/m3	266594	2	09/06/2018 07:09	MD
Methyl tert-butyl ether	BRL	3.6		ug/m3	266594	2	09/06/2018 07:09	MD
Methylene chloride	BRL	3.5		ug/m3	266594	2	09/06/2018 07:09	MD
o-Xylene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:09	MD
Styrene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:09	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP2
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 8:19:00 AM
Lab ID:	1808T51-002	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Tetrachloroethene	16	6.8		ug/m3	266594	2	09/06/2018 07:09	MD
Toluene	4.5	3.8		ug/m3	266594	2	09/06/2018 07:09	MD
trans-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:09	MD
trans-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 07:09	MD
Trichloroethene	BRL	5.4		ug/m3	266594	2	09/06/2018 07:09	MD
Trichlorofluoromethane	BRL	5.6		ug/m3	266594	2	09/06/2018 07:09	MD
Vinyl acetate	BRL	3.5		ug/m3	266594	2	09/06/2018 07:09	MD
Vinyl chloride	BRL	2.6		ug/m3	266594	2	09/06/2018 07:09	MD
Surr: 4-Bromofluorobenzene	92.5	70-130		%REC	266594	2	09/06/2018 07:09	MD

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP3
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 8:46:00 AM
Lab ID:	1808T51-003	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
1,1,1-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 07:50	MD
1,1,2,2-Tetrachloroethane	BRL	6.9		ug/m3	266594	2	09/06/2018 07:50	MD
1,1,2-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 07:50	MD
1,1-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 07:50	MD
1,1-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:50	MD
1,2,4-Trichlorobenzene	BRL	7.4		ug/m3	266594	2	09/06/2018 07:50	MD
1,2,4-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 07:50	MD
1,2-Dibromoethane	BRL	7.7		ug/m3	266594	2	09/06/2018 07:50	MD
1,2-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:50	MD
1,2-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 07:50	MD
1,2-Dichloropropane	BRL	4.6		ug/m3	266594	2	09/06/2018 07:50	MD
1,3,5-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 07:50	MD
1,3-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:50	MD
1,4-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 07:50	MD
2-Butanone	BRL	2.9		ug/m3	266594	2	09/06/2018 07:50	MD
2-Hexanone	BRL	4.1		ug/m3	266594	2	09/06/2018 07:50	MD
4-Methyl-2-pentanone	BRL	4.1		ug/m3	266594	2	09/06/2018 07:50	MD
Acetone	14	12		ug/m3	266594	2	09/06/2018 07:50	MD
Benzene	BRL	3.2		ug/m3	266594	2	09/06/2018 07:50	MD
Bromodichloromethane	BRL	6.7		ug/m3	266594	2	09/06/2018 07:50	MD
Bromoform	BRL	10		ug/m3	266594	2	09/06/2018 07:50	MD
Bromomethane	BRL	3.9		ug/m3	266594	2	09/06/2018 07:50	MD
Carbon disulfide	BRL	3.1		ug/m3	266594	2	09/06/2018 07:50	MD
Carbon tetrachloride	BRL	6.3		ug/m3	266594	2	09/06/2018 07:50	MD
Chlorobenzene	BRL	4.6		ug/m3	266594	2	09/06/2018 07:50	MD
Chloroethane	BRL	2.6		ug/m3	266594	2	09/06/2018 07:50	MD
Chloroform	BRL	4.9		ug/m3	266594	2	09/06/2018 07:50	MD
Chloromethane	BRL	2.1		ug/m3	266594	2	09/06/2018 07:50	MD
cis-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:50	MD
cis-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 07:50	MD
Dibromochloromethane	BRL	8.5		ug/m3	266594	2	09/06/2018 07:50	MD
Dichlorodifluoromethane	BRL	4.9		ug/m3	266594	2	09/06/2018 07:50	MD
Ethylbenzene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:50	MD
Freon-113	BRL	7.7		ug/m3	266594	2	09/06/2018 07:50	MD
Freon-114	BRL	7.0		ug/m3	266594	2	09/06/2018 07:50	MD
Hexachlorobutadiene	BRL	11		ug/m3	266594	2	09/06/2018 07:50	MD
m,p-Xylene	BRL	8.7		ug/m3	266594	2	09/06/2018 07:50	MD
Methyl tert-butyl ether	BRL	3.6		ug/m3	266594	2	09/06/2018 07:50	MD
Methylene chloride	BRL	3.5		ug/m3	266594	2	09/06/2018 07:50	MD
o-Xylene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:50	MD
Styrene	BRL	4.3		ug/m3	266594	2	09/06/2018 07:50	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP3
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 8:46:00 AM
Lab ID:	1808T51-003	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Tetrachloroethene	9.5	6.8		ug/m3	266594	2	09/06/2018 07:50	MD
Toluene	BRL	3.8		ug/m3	266594	2	09/06/2018 07:50	MD
trans-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 07:50	MD
trans-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 07:50	MD
Trichloroethene	BRL	5.4		ug/m3	266594	2	09/06/2018 07:50	MD
Trichlorofluoromethane	BRL	5.6		ug/m3	266594	2	09/06/2018 07:50	MD
Vinyl acetate	BRL	3.5		ug/m3	266594	2	09/06/2018 07:50	MD
Vinyl chloride	BRL	2.6		ug/m3	266594	2	09/06/2018 07:50	MD
Surr: 4-Bromofluorobenzene	91.2	70-130		%REC	266594	2	09/06/2018 07:50	MD

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP4
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 9:07:00 AM
Lab ID:	1808T51-004	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
1,1,1-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 08:31	MD
1,1,2,2-Tetrachloroethane	BRL	6.9		ug/m3	266594	2	09/06/2018 08:31	MD
1,1,2-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 08:31	MD
1,1-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 08:31	MD
1,1-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 08:31	MD
1,2,4-Trichlorobenzene	BRL	7.4		ug/m3	266594	2	09/06/2018 08:31	MD
1,2,4-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 08:31	MD
1,2-Dibromoethane	BRL	7.7		ug/m3	266594	2	09/06/2018 08:31	MD
1,2-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 08:31	MD
1,2-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 08:31	MD
1,2-Dichloropropane	BRL	4.6		ug/m3	266594	2	09/06/2018 08:31	MD
1,3,5-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 08:31	MD
1,3-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 08:31	MD
1,4-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 08:31	MD
2-Butanone	BRL	2.9		ug/m3	266594	2	09/06/2018 08:31	MD
2-Hexanone	BRL	4.1		ug/m3	266594	2	09/06/2018 08:31	MD
4-Methyl-2-pentanone	BRL	4.1		ug/m3	266594	2	09/06/2018 08:31	MD
Acetone	50	12		ug/m3	266594	2	09/06/2018 08:31	MD
Benzene	BRL	3.2		ug/m3	266594	2	09/06/2018 08:31	MD
Bromodichloromethane	BRL	6.7		ug/m3	266594	2	09/06/2018 08:31	MD
Bromoform	BRL	10		ug/m3	266594	2	09/06/2018 08:31	MD
Bromomethane	BRL	3.9		ug/m3	266594	2	09/06/2018 08:31	MD
Carbon disulfide	9.2	3.1		ug/m3	266594	2	09/06/2018 08:31	MD
Carbon tetrachloride	BRL	6.3		ug/m3	266594	2	09/06/2018 08:31	MD
Chlorobenzene	BRL	4.6		ug/m3	266594	2	09/06/2018 08:31	MD
Chloroethane	BRL	2.6		ug/m3	266594	2	09/06/2018 08:31	MD
Chloroform	BRL	4.9		ug/m3	266594	2	09/06/2018 08:31	MD
Chloromethane	BRL	2.1		ug/m3	266594	2	09/06/2018 08:31	MD
cis-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 08:31	MD
cis-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 08:31	MD
Dibromochloromethane	BRL	8.5		ug/m3	266594	2	09/06/2018 08:31	MD
Dichlorodifluoromethane	BRL	4.9		ug/m3	266594	2	09/06/2018 08:31	MD
Ethylbenzene	BRL	4.3		ug/m3	266594	2	09/06/2018 08:31	MD
Freon-113	BRL	7.7		ug/m3	266594	2	09/06/2018 08:31	MD
Freon-114	BRL	7.0		ug/m3	266594	2	09/06/2018 08:31	MD
Hexachlorobutadiene	BRL	11		ug/m3	266594	2	09/06/2018 08:31	MD
m,p-Xylene	BRL	8.7		ug/m3	266594	2	09/06/2018 08:31	MD
Methyl tert-butyl ether	BRL	3.6		ug/m3	266594	2	09/06/2018 08:31	MD
Methylene chloride	BRL	3.5		ug/m3	266594	2	09/06/2018 08:31	MD
o-Xylene	BRL	4.3		ug/m3	266594	2	09/06/2018 08:31	MD
Styrene	BRL	4.3		ug/m3	266594	2	09/06/2018 08:31	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP4
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 9:07:00 AM
Lab ID:	1808T51-004	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Tetrachloroethene	BRL	6.8		ug/m3	266594	2	09/06/2018 08:31	MD
Toluene	5.1	3.8		ug/m3	266594	2	09/06/2018 08:31	MD
trans-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 08:31	MD
trans-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 08:31	MD
Trichloroethene	BRL	5.4		ug/m3	266594	2	09/06/2018 08:31	MD
Trichlorofluoromethane	BRL	5.6		ug/m3	266594	2	09/06/2018 08:31	MD
Vinyl acetate	BRL	3.5		ug/m3	266594	2	09/06/2018 08:31	MD
Vinyl chloride	BRL	2.6		ug/m3	266594	2	09/06/2018 08:31	MD
Surr: 4-Bromofluorobenzene	90.5	70-130		%REC	266594	2	09/06/2018 08:31	MD

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP5
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 9:42:00 AM
Lab ID:	1808T51-005	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
1,1,1-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 09:11	MD
1,1,2,2-Tetrachloroethane	BRL	6.9		ug/m3	266594	2	09/06/2018 09:11	MD
1,1,2-Trichloroethane	BRL	5.5		ug/m3	266594	2	09/06/2018 09:11	MD
1,1-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 09:11	MD
1,1-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 09:11	MD
1,2,4-Trichlorobenzene	BRL	7.4		ug/m3	266594	2	09/06/2018 09:11	MD
1,2,4-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 09:11	MD
1,2-Dibromoethane	BRL	7.7		ug/m3	266594	2	09/06/2018 09:11	MD
1,2-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 09:11	MD
1,2-Dichloroethane	BRL	4.0		ug/m3	266594	2	09/06/2018 09:11	MD
1,2-Dichloropropane	BRL	4.6		ug/m3	266594	2	09/06/2018 09:11	MD
1,3,5-Trimethylbenzene	BRL	4.9		ug/m3	266594	2	09/06/2018 09:11	MD
1,3-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 09:11	MD
1,4-Dichlorobenzene	BRL	6.0		ug/m3	266594	2	09/06/2018 09:11	MD
2-Butanone	BRL	2.9		ug/m3	266594	2	09/06/2018 09:11	MD
2-Hexanone	BRL	4.1		ug/m3	266594	2	09/06/2018 09:11	MD
4-Methyl-2-pentanone	BRL	4.1		ug/m3	266594	2	09/06/2018 09:11	MD
Acetone	85	12		ug/m3	266594	2	09/06/2018 09:11	MD
Benzene	BRL	3.2		ug/m3	266594	2	09/06/2018 09:11	MD
Bromodichloromethane	BRL	6.7		ug/m3	266594	2	09/06/2018 09:11	MD
Bromoform	BRL	10		ug/m3	266594	2	09/06/2018 09:11	MD
Bromomethane	BRL	3.9		ug/m3	266594	2	09/06/2018 09:11	MD
Carbon disulfide	BRL	3.1		ug/m3	266594	2	09/06/2018 09:11	MD
Carbon tetrachloride	BRL	6.3		ug/m3	266594	2	09/06/2018 09:11	MD
Chlorobenzene	BRL	4.6		ug/m3	266594	2	09/06/2018 09:11	MD
Chloroethane	BRL	2.6		ug/m3	266594	2	09/06/2018 09:11	MD
Chloroform	BRL	4.9		ug/m3	266594	2	09/06/2018 09:11	MD
Chloromethane	BRL	2.1		ug/m3	266594	2	09/06/2018 09:11	MD
cis-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 09:11	MD
cis-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 09:11	MD
Dibromochloromethane	BRL	8.5		ug/m3	266594	2	09/06/2018 09:11	MD
Dichlorodifluoromethane	BRL	4.9		ug/m3	266594	2	09/06/2018 09:11	MD
Ethylbenzene	BRL	4.3		ug/m3	266594	2	09/06/2018 09:11	MD
Freon-113	BRL	7.7		ug/m3	266594	2	09/06/2018 09:11	MD
Freon-114	BRL	7.0		ug/m3	266594	2	09/06/2018 09:11	MD
Hexachlorobutadiene	BRL	11		ug/m3	266594	2	09/06/2018 09:11	MD
m,p-Xylene	BRL	8.7		ug/m3	266594	2	09/06/2018 09:11	MD
Methyl tert-butyl ether	BRL	3.6		ug/m3	266594	2	09/06/2018 09:11	MD
Methylene chloride	BRL	3.5		ug/m3	266594	2	09/06/2018 09:11	MD
o-Xylene	BRL	4.3		ug/m3	266594	2	09/06/2018 09:11	MD
Styrene	BRL	4.3		ug/m3	266594	2	09/06/2018 09:11	MD

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 10-Sep-18

Client:	GHD Services, Inc.	**Client Sample ID:**	V5-018876-083118-SAG-VP5
Project Name:	Southland Circle	**Collection Date:**	8/31/2018 9:42:00 AM
Lab ID:	1808T51-005	**Matrix:**	Air

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Tetrachloroethene	230	6.8		ug/m3	266594	2	09/06/2018 09:11	MD
Toluene	5.5	3.8		ug/m3	266594	2	09/06/2018 09:11	MD
trans-1,2-Dichloroethene	BRL	4.0		ug/m3	266594	2	09/06/2018 09:11	MD
trans-1,3-Dichloropropene	BRL	4.5		ug/m3	266594	2	09/06/2018 09:11	MD
Trichloroethene	BRL	5.4		ug/m3	266594	2	09/06/2018 09:11	MD
Trichlorofluoromethane	BRL	5.6		ug/m3	266594	2	09/06/2018 09:11	MD
Vinyl acetate	BRL	3.5		ug/m3	266594	2	09/06/2018 09:11	MD
Vinyl chloride	BRL	2.6		ug/m3	266594	2	09/06/2018 09:11	MD
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	266594	2	09/06/2018 09:11	MD

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample Receipt Checklist for Air Canisters

Client GHB Work Order Number 1808T51

Checklist completed by Emily Williams 08/31/18
Signature Date

Carrier name: FedEx___ UPS___ Courier___ Client ✓ US Mail___ Other___

Shipping container in good condition?	Yes ✓ No___ Not Present___
Custody seals intact on shipping container?	Yes___ No___ Not Present ✓
Chain of custody present?	Yes ✓ No___
Chain of custody signed when relinquished and received?	Yes ✓ No___
Chain of custody agrees with sample labels?	Yes ✓ No___
Field data sheets present?	Yes___ No ✓
Sample containers intact?	Yes ✓ No___

If no, explain: _____

All samples received within holding time?	Yes ✓ No___
Was TAT marked on the COC?	Yes ✓ No___
Proceed with Standard TAT as per project history?	Yes___ No___ Not Applicable ✓
All canisters received per Bottle Order issued?	Yes ✓ No___

See Case Narrative for resolution of the Non-Conformance.

Vapor_Checklist_7.26.2016_rev1

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **MB-266594** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **MBLK** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/04/2018** Seq No: **8448961**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	1.1									
1,1,2,2-Tetrachloroethane	BRL	1.4									
1,1,2-Trichloroethane	BRL	1.1									
1,1-Dichloroethane	BRL	0.81									
1,1-Dichloroethene	BRL	0.79									
1,2,4-Trichlorobenzene	BRL	1.5									
1,2,4-Trimethylbenzene	BRL	0.98									
1,2-Dibromoethane	BRL	1.5									
1,2-Dichlorobenzene	BRL	1.2									
1,2-Dichloroethane	BRL	0.81									
1,2-Dichloropropane	BRL	0.92									
1,3,5-Trimethylbenzene	BRL	0.98									
1,3-Dichlorobenzene	BRL	1.2									
1,4-Dichlorobenzene	BRL	1.2									
2-Butanone	BRL	0.59									
2-Hexanone	BRL	0.82									
4-Methyl-2-pentanone	BRL	0.82									
Acetone	BRL	2.4									
Benzene	BRL	0.64									
Bromodichloromethane	BRL	1.3									
Bromoform	BRL	2.1									
Bromomethane	BRL	0.78									
Carbon disulfide	BRL	0.62									
Carbon tetrachloride	BRL	1.3									
Chlorobenzene	BRL	0.92									
Chloroethane	BRL	0.53									
Chloroform	BRL	0.98									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **MB-266594** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **MBLK** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/04/2018** Seq No: **8448961**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloromethane	BRL	0.41									
cis-1,2-Dichloroethene	BRL	0.79									
cis-1,3-Dichloropropene	BRL	0.91									
Dibromochloromethane	BRL	1.7									
Dichlorodifluoromethane	BRL	0.99									
Ethylbenzene	BRL	0.87									
Freon-113	BRL	1.5									
Freon-114	BRL	1.4									
Hexachlorobutadiene	BRL	2.1									
m,p-Xylene	BRL	1.7									
Methyl tert-butyl ether	BRL	0.72									
Methylene chloride	BRL	0.69									
o-Xylene	BRL	0.87									
Styrene	BRL	0.85									
Tetrachloroethene	BRL	1.4									
Toluene	BRL	0.75									
trans-1,2-Dichloroethene	BRL	0.79									
trans-1,3-Dichloropropene	BRL	0.91									
Trichloroethene	BRL	1.1									
Trichlorofluoromethane	BRL	1.1									
Vinyl acetate	BRL	0.70									
Vinyl chloride	BRL	0.51									
Surr: 4-Bromofluorobenzene	3.730	0	4.000		93.2	70	130				

Sample ID: **LCS-266594** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **LCS** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/04/2018** Seq No: **8448993**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **LCS-266594** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **LCS** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/04/2018** Seq No: **8448993**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	10.97	1.1	10.91		100	70	130				
1,1,2,2-Tetrachloroethane	14.90	1.4	13.73		108	70	130				
1,1,2-Trichloroethane	12.28	1.1	10.91		112	70	130				
1,1-Dichloroethane	8.621	0.81	8.095		106	70	130				
1,1-Dichloroethene	8.881	0.79	7.930		112	70	130				
1,2,4-Trichlorobenzene	15.00	1.5	14.85		101	70	130				
1,2,4-Trimethylbenzene	10.23	0.98	9.832		104	70	130				
1,2-Dibromoethane	16.45	1.5	15.37		107	70	130				
1,2-Dichlorobenzene	12.02	1.2	12.02		100	70	130				
1,2-Dichloroethane	8.985	0.81	8.095		111	70	130				
1,2-Dichloropropane	10.49	0.92	9.243		114	70	130				
1,3,5-Trimethylbenzene	10.52	0.98	9.832		107	70	130				
1,3-Dichlorobenzene	11.90	1.2	12.02		99.0	70	130				
1,4-Dichlorobenzene	11.66	1.2	12.02		97.0	70	130				
2-Butanone	6.341	0.59	5.899		108	70	130				
2-Hexanone	9.016	0.82	8.196		110	70	130				
4-Methyl-2-pentanone	9.262	0.82	8.196		113	70	130				
Acetone	5.772	2.4	4.751		122	70	130				
Benzene	7.252	0.64	6.389		114	70	130				
Bromodichloromethane	14.81	1.3	13.40		110	70	130				
Bromoform	19.33	2.1	20.68		93.5	70	130				
Bromomethane	7.960	0.78	7.766		102	70	130				
Carbon disulfide	6.820	0.62	6.228		110	70	130				
Carbon tetrachloride	14.09	1.3	12.58		112	70	130				
Chlorobenzene	9.947	0.92	9.211		108	70	130				
Chloroethane	5.937	0.53	5.278		112	70	130				
Chloroform	10.16	0.98	9.767		104	70	130				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **LCS-266594** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **LCS** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/04/2018** Seq No: **8448993**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloromethane	4.894	0.41	4.130		118	70	130				
cis-1,2-Dichloroethene	8.445	0.79	7.930		106	70	130				
cis-1,3-Dichloropropene	10.21	0.91	9.080		112	70	130				
Dibromochloromethane	18.06	1.7	17.04		106	70	130				
Dichlorodifluoromethane	11.32	0.99	9.890		114	70	130				
Ethylbenzene	9.339	0.87	8.687		108	70	130				
Freon-113	16.94	1.5	15.33		110	70	130				
Freon-114	14.89	1.4	13.98		106	70	130				
Hexachlorobutadiene	23.04	2.1	21.33		108	70	130				
m,p-Xylene	18.07	1.7	17.37		104	70	130				
Methyl tert-butyl ether	7.535	0.72	7.211		104	70	130				
Methylene chloride	7.573	0.69	6.948		109	70	130				
o-Xylene	9.121	0.87	8.687		105	70	130				
Styrene	8.813	0.85	8.515		104	70	130				
Tetrachloroethene	14.31	1.4	13.56		106	70	130				
Toluene	8.404	0.75	7.537		112	70	130				
trans-1,2-Dichloroethene	8.366	0.79	7.930		106	70	130				
trans-1,3-Dichloropropene	10.35	0.91	9.080		114	70	130				
Trichloroethene	11.55	1.1	10.75		108	70	130				
Trichlorofluoromethane	11.58	1.1	11.24		103	70	130				
Vinyl acetate	8.451	0.70	7.042		120	70	130				
Vinyl chloride	5.573	0.51	5.112		109	70	130				
Surr: 4-Bromofluorobenzene	3.860	0	4.000		96.5	70	130				

Sample ID: **1808S36-002ADUP** Client ID: Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
SampleType: **DUP** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **266594** Analysis Date: **09/05/2018** Seq No: **8449024**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **1808S36-002ADUP** Client ID:
SampleType: **DUP** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051**
Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
BatchID: **266594** Analysis Date: **09/05/2018** Seq No: **8449024**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	1.1						0	0	25	
1,1,2,2-Tetrachloroethane	BRL	1.4						0	0	25	
1,1,2-Trichloroethane	BRL	1.1						0	0	25	
1,1-Dichloroethane	BRL	0.81						0	0	25	
1,1-Dichloroethene	BRL	0.79						0	0	25	
1,2,4-Trichlorobenzene	BRL	1.5						0	0	25	
1,2,4-Trimethylbenzene	1.082	0.98						1.082	0	25	
1,2-Dibromoethane	BRL	1.5						0	0	25	
1,2-Dichlorobenzene	BRL	1.2						0	0	25	
1,2-Dichloroethane	BRL	0.81						0	0	25	
1,2-Dichloropropane	BRL	0.92						0	0	25	
1,3,5-Trimethylbenzene	BRL	0.98						0	0	25	
1,3-Dichlorobenzene	BRL	1.2						0	0	25	
1,4-Dichlorobenzene	BRL	1.2						0	0	25	
2-Butanone	16.22	0.59						15.69	3.33	25	
2-Hexanone	BRL	0.82						0	0	25	
4-Methyl-2-pentanone	BRL	0.82						0	0	25	
Acetone	39.15	2.4						39.17	0.061	25	
Benzene	0.7028	0.64						0.7348	4.44	25	
Bromodichloromethane	BRL	1.3						0	0	25	
Bromoform	BRL	2.1						0	0	25	
Bromomethane	BRL	0.78						0	0	25	
Carbon disulfide	BRL	0.62						0	0	25	
Carbon tetrachloride	BRL	1.3						0	0	25	
Chlorobenzene	BRL	0.92						0	0	25	
Chloroethane	BRL	0.53						0	0	25	
Chloroform	BRL	0.98						0	0	25	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: GHD Services, Inc.
Project Name: Southland Circle
Workorder: 1808T51

ANALYTICAL QC SUMMARY REPORT

BatchID: 266594

Sample ID: **1808S36-002ADUP** Client ID:
SampleType: **DUP** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051**
Units: **ug/m3** Prep Date: **09/04/2018** Run No: **379304**
BatchID: **266594** Analysis Date: **09/05/2018** Seq No: **8449024**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloromethane	BRL	0.41						0	0	25	
cis-1,2-Dichloroethene	BRL	0.79						0	0	25	
cis-1,3-Dichloropropene	BRL	0.91						0	0	25	
Dibromochloromethane	BRL	1.7						0	0	25	
Dichlorodifluoromethane	2.670	0.99						2.621	1.87	25	
Ethylbenzene	BRL	0.87						0.4344	0	25	
Freon-113	BRL	1.5						0	0	25	
Freon-114	BRL	1.4						0	0	25	
Hexachlorobutadiene	BRL	2.1						0	0	25	
m,p-Xylene	BRL	1.7						1.303	0	25	
Methyl tert-butyl ether	BRL	0.72						0	0	25	
Methylene chloride	BRL	0.69						0	0	25	
o-Xylene	BRL	0.87						0.6081	0	25	
Styrene	BRL	0.85						0	0	25	
Tetrachloroethene	BRL	1.4						0	0	25	
Toluene	2.487	0.75						2.374	4.65	25	
trans-1,2-Dichloroethene	BRL	0.79						0	0	25	
trans-1,3-Dichloropropene	BRL	0.91						0	0	25	
Trichloroethene	BRL	1.1						0	0	25	
Trichlorofluoromethane	1.293	1.1						1.124	14.0	25	
Vinyl acetate	BRL	0.70						0	0	25	
Vinyl chloride	BRL	0.51						0	0	25	
Surr: 4-Bromofluorobenzene	3.770	0	4.000		94.2	70	130	3.760	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Appendix E
Summary of Hours

Appendix E

Summary of Monthly Professional Hours
July 1 through December 31, 2018
Third VRP Progress Report
Southland Circle Property (HSI #10077)
Atlanta, Georgia

S/N	Description of Tasks	Total Hours Billed	Month (July - December 2018)					
			July	August	September	October	November	December
1	Communication/discussion with EPD and client	5	1	4				
2	Coordination and oversight of field work	10		10				
3	Analytical data reduction and review	7.5	2.5		1.5			3.5
4	Prepare and finalize VRP Progress Report	16	12.5					3.5
5	Overall Project Management	15.5	4	7	3.5		1	
	Total Hours Each Month		**20**	**21**	**5**	**0**	**1**	**7**

Total Hours in 6 Months **54**

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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