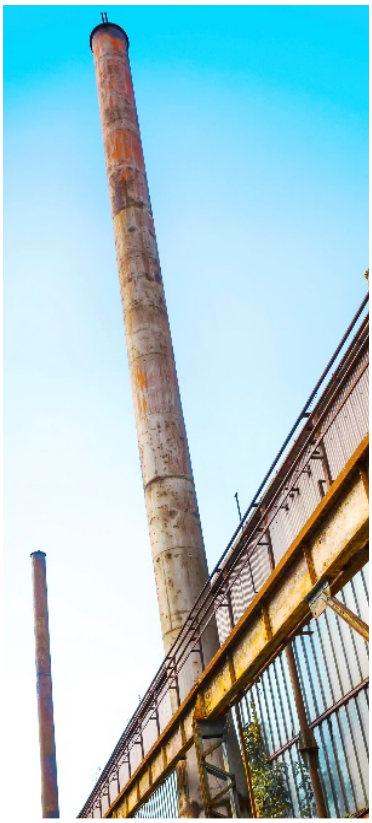
Exhibit 10
GM-OU-4
Public Hearing
April 9, 2020

OU-4 Feasibility Study

Former GM Assembly Plant
801 Boxwood Road
Wilmington, Delaware

Revitalizing Auto Communities Environmental Response Trust (RACER Trust)



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1. Introduction

GHD has prepared this Feasibility Study (FS) on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to address contamination in Operable Unit 4 (OU-4) of the former General Motors (GM) Corporation Wilmington Assembly Plant (Site or Facility). The Site location is provided on Figure 1.1. The Site layout, including the location of OU-4, is shown on Figure 1.2.

1.1 Background

Initial investigations at OU-4 were completed in accordance with the Delaware Department of Natural Resources and Environmental Control (DNREC) Site Investigation and Restoration Section (SIRS)-approved September 2012 Dodson Avenue Vapor Intrusion Investigation Work Plan prepared by Conestoga-Rovers and Associates (CRA). CRA, now GHD, performed on-site soil gas sampling and monitoring well installation and sampling in the AOC 16 and 17 areas in 2012 that identified a potential vapor intrusion concern. Subsequent investigations were completed to further define contamination at the Site; BrightFields collaborated with RACER Trust and DNREC-SIRS, now DNREC–Remediation Section (RS), to develop the scope of these investigations. These studies included installation and collection of additional groundwater, vertical aquifer, soil gas, sub-slab soil gas, and indoor air samples. The studies conducted at the Site indicated that contaminated groundwater and soil were present and were impacting soil vapor quality. Volatile organic compounds (VOCs) in soil gas were migrating eastward from the source area and/or from the dissolved VOC groundwater plume. Soil gas concentrations declined as they migrate eastward offsite; however, they appeared to be encroaching on townhouse parcels directly adjacent to the property along Dodson Avenue.

In July 2014, BrightFields completed a Focused Feasibility Study (FFS) for the Site to address potential vapor intrusion issues into nearby residential structures along Dodson Avenue. The FFS evaluated remedial alternatives and selected installation of a soil vapor extraction (SVE) system as the interim vapor phase remediation alternative. Installation of the SVE system was completed in February 2015.

In July 2015, GHD completed a Remedial Investigation (RI) Report of the Former GM Wilmington Assembly Plant. GHD utilized the RI data to perform a human health risk assessment (HHRAs), summarized in Section 2.1. Soil in OU-4 did not pose an unacceptable risk to human health. Groundwater in OU-4 posed a potential vapor intrusion risk to Indoor Workers and Residents.

After RACER Trust implemented an interim remedial measure (IRM) in the form of a SVE system at the downgradient property boundary to eliminate the off-site migration of on-site concentrations of petroleum hydrocarbons in groundwater, post IRM groundwater and soil gas data were collected. In June 2019, GHD completed the OU-4 Supplemental VI [Vapor Intrusion] Risk Evaluation (Appendix A) to assess the potential for significant VI into on-site and off-site structures from the petroleum hydrocarbons from the former on-site underground storage tanks (USTs) in OU-4 after the implementation of the IRM. The evaluation presented a multiple-lines of evidence evaluation relative to current VI guidance [i.e., Interstate Technology Regulatory Counsel (ITRC 2014) and the United States Environmental Protection Agency (USEPA 2015)]. This evaluation concluded that the on-site

and off-site VI risks are acceptable for current and reasonably anticipated future scenarios. Since there was no longer an on-site potential vapor intrusion risk for Indoor Workers and Residents, no additional remedial activities are necessary. DNREC-RS approved this evaluation on August 2, 2019.

In August 2019 BrightFields completed an evaluation of the performance of the IRM in the Soil Vapor Extraction System Evaluation Report (Appendix B) and recommended that the SVE system remain turned off. DNREC-RS approved this evaluation and recommendation on August 8, 2019.

This FS documents the activities related to OU-4, including additional off-site VI-related results requested by DNREC-RS on August 2, 2019, to confirm that shutting down the SVE system did not cause a change in soil gas that would pose an unacceptable off-site risk from vapor intrusion.

1.2 Purpose and Organization of Report

This FS summarizes the evaluation of the IRM proposed in 2015 and potential risk to nearby receptors following implementation of the IRM. It also includes a summary of remedial alternatives that were screened previously by BrightFields.

This FS is organized to follow the suggested FS report format outlined in Appendix C of the Delaware Hazardous Substance Cleanup Act (HSCA) Guidance Manual (1994), where appropriate.

1.3 Background Information

1.3.1 Site Description and History

The Site consists of approximately 142 acres of land and previously contained a 3.2 million square foot Main Assembly Building, Waste Water Treatment Plant (WWTP), Pump Houses and a Powerhouse. The surrounding use of the Site is industrial/commercial and residential. The Facility was developed in 1945 by GM Corporation for the purpose of automobile assembly operation until July 2009 when the plant was idled. Due to GM Corporation's 2009 bankruptcy, certain operating assets of GM Corporation were sold on July 10, 2009, to General Motors LLC. Existing non-continuing assets, including the Site, remained the property of GM Corporation, which was known as Motors Liquidation Company (MLC), in its capacity as debtor-in-possession in the bankruptcy case. The Site was sold by MLC to Fisker Automotive, Inc. (Fisker) in July 2010. However, MLC retained liability for the environmental remediation of the Site. In October of 2010 the United States Government announced that MLC had agreed to resolve its liabilities at 89 sites relating to liabilities under the Comprehensive Environmental Response, Compensation and Liability (CERCLA), Resource Conservation and Recovery Act (RCRA), and the Clean Air Act through an environmental response trust fund. On March 31, 2011, the RACER Trust became effective and has been conducting, managing, and funding cleanup at the former Wilmington Assembly Plant.

Between July 2009 and April 2014 the plant remained idle with limited activities present at the Site while Fisker evaluated opportunities to revive the assembly plant. Fisker filed for bankruptcy in November 2013 and the Site was purchased by Wanxiang Delaware Real Estate Holdings (Wanxiang) in April 2014 as part of a purchase by Wanxiang of Fisker's assets out of the bankruptcy. In October 2017 Boxwood Industrial Park, LLC (Boxwood) purchased the Site from

Wanxiang. In November 2019, Dermody Properties (Dermody) purchased OU-1, OU-2 and OU-3. Dermody is currently preparing OU-1, OU-2, OU-3, and OU-5 for development.

1.3.2 OU-4 Description

The former Anchor Motor Freight Building at the Former Wilmington Assembly Plant is located in the southeast section of the plant along Dodson Avenue (see Figure 1.2). The impacted area of the Site was covered predominantly by asphalt and concrete. The property to the east of the plant is a public road with residential development to the east and industrial/commercial property to the northeast. The neighboring residential development includes duplex houses with basements located partially below grade. The area surrounding the residential houses includes soil with established vegetation (grass) and asphalt driveways.

An April 9, 1990, letter from DNREC to GM Corporation stated that 12 USTs were removed from the property. Ten of those tanks were adjacent to the former Anchor Motor Freight Building. Additionally, one gasoline UST (GMGT-1) was removed from near the southeastern corner of the assembly plant and one waste oil tank (WW-1) was removed from the stormwater area. The USTs at the former Anchor Motor Freight building contained diesel (four tanks), gasoline (two tanks), heating oil (two tanks), waste oil (one tank), and engine oil (one tank).

1.3.3 Interim Remedial Measures

As an interim remedial action to reduce potential migration of petroleum hydrocarbons in soil gas from impacting the Dodson Avenue townhouses, BrightFields installed an SVE system in February 2015. The SVE system consists of a Falco 300 Catalytic Oxidizer with a 15-horsepower regenerative blower connected to six extraction wells. During routine operation from March 30, 2015, through June 15, 2018, the SVE system recovered an estimated 8,065 lbs of hydrocarbons and BrightFields removed an additional 13.8 lbs (approximately 2 gallons) as separate phase product by hand bailing and absorbent sock.

Over time the hydrocarbon recovery rate decreased and the cumulative recovery was asymptotic, as shown in Appendix B. Based on the asymptotic recovery observed, BrightFields did not expect that continuing to operate the SVE system would result in significant mass recovery. Therefore, BrightFields evaluated the performance of the IRM and recommended that the SVE system remain turned off after a period of rest followed by a pulsing event. DNREC-RS approved this evaluation and recommendation on August 8, 2019. Detailed information on the results of the IRM and the system performance evaluation can be found in Appendix B.

1.3.4 OU-4 Characterization

From 2011 through 2019 data have been collected in OU-4 to characterize the nature and extent of potential releases to the environment. These evaluations have included collection of environmental samples of soil, groundwater, non-aqueous phase liquid (NAPL), soil gas, sub-slab soil gas, indoor air, and outdoor air for chemical analysis. In addition, slug tests, IRM vacuum pilot and radius of influence (ROI) tests, NAPL fingerprinting, and baildown tests were performed. The data and evaluation of these data are included in Appendix A (OU-4 Risk Evaluation), Appendix B (SVE Evaluation), Appendix C (field documentation),Appendix D (contaminant volume calculations), and Appendix E (Approval from DNREC for Final SVE Extraction System Evaluation Report).

1.3.5 2019 Supplemental Off-Site Sampling

On August 2, 2019, DNREC-RS requested additional off-site sub-slab, indoor air, outdoor air, and soil gas sampling to quantify existing off-site soil gas concentrations following shutdown of the SVE system. The approach and results from this sampling are discussed in Section 2 below.

2. Supplemental Off-Site Vapor Sampling

2.1 Field Activities

From September 5-6, 2019, and September 9-10, 2019, BrightFields collected a total of eight sub-slab samples, eight indoor air samples, 16 soil gas samples, and four outdoor air samples. In addition, three duplicate samples (one sub-slab, one indoor air, and one soil gas sample) were collected. Building inspections, sample logs, and purge logs are presented in Appendix C.2-C.6.

2.1.1 Sub-slab and Indoor Air Sampling

Prior to sampling, BrightFields inspected the previously installed sub-slab points on August 29, 2019, to ensure that they were intact and accessible. All sub-slab points were intact and functioning. During the inspection, BrightFields also documented current conditions of the basements in each of the eight townhouse units where sub-slab samples would be collected by conducting indoor air building surveys and recording VOC readings with a photoionization detector (PID). From September 5-6, 2019, BrightFields collected paired sub-slab and indoor samples in a total of eight townhouse units (unit numbers 30, 32, 36, 38, 40, 42, 44, and 46). Samples were collected over a 24-hour sample period. One duplicate sub-slab sample and one duplicate indoor air sample were collected. Sub-slab and indoor air sample locations are shown on Figure 2.1.

2.1.2 Outdoor Air Sampling

During the sub-slab and indoor air sampling, Summa canisters were placed outdoors in the vicinity of the townhouse units to collect two outdoor air samples over a 24-hour sample period. This coincided with the sample period for the paired sub-slab and indoor air sampling. During the soil gas sampling, one outdoor air sample was collected per day over a 30-minute sample period in the vicinity of the sample locations. Sample locations are shown on Figure 2.1

2.1.3 Soil Gas Sampling

From September 9-11, 2019, BrightFields collected off-site soil gas samples from 15 existing locations. Off-site soil gas samples were collected over a 30-minute sample period from the following previously installed vapor points: SG-7 through SG-11, SG-13S, SG-13D, SG-14S, SG-15 through SG-20, and SG-22. A duplicate sample was collected at SG-14S.

One location, SG-14D, was saturated with water. Multiple attempts were made to fully purge the water from the sample port but ultimately the sample port remained saturated. BrightFields was unable to locate SG-6 and SG-21. As such, samples were not collected from SG-6, SG-14D, and SG-21. Soil gas sample locations are shown on Figure 2.1.

2.2 Supplemental Off-Site Vapor Sampling Results

A risk assessment was not performed on the most recent round of VI sampling based on the conclusions from the OU-4 Supplemental VI Risk Evaluation (Appendix A) (e.g., that there is not a significant risk posed based on multiple lines of evidence). One of the lines of evidence presented in the Risk Evaluation included the vertical separation distance that excludes all current off-site buildings, which has not changed. The second line of evidence presented in the Risk Evaluation was that the risks for off-site residential exposures to off-site groundwater, soil gas and sub-slab via assumed VI meet DNREC's and USEPA's cancer risk and Hazard Index (HI) limits for Reasonable Maximum Exposure (RME) risks. The third line of evidence, which is supported by the 2019 indoor air samples, was that while background outdoor air and indoor air cancer risk estimates are slightly higher than DNREC's cancer risk limit of $1x10^{-5}$, evaluating the multiple lines of evidence shows that the indoor concentrations are not from VI and those risk estimates are from sources other than VI.

The results of the 2019 supplemental and the 2014 indoor air and sub-slab air sampling are presented in Tables 2.1, 2.2, 2.3 and 2.4 with laboratory data of the most recent round of sampling presented in Appendix F. The concentrations have generally remained the same or are lower than the previous round of soil gas and sub-slab sampling, displayed in Tables B.3-B.5 in Appendix A. Since the previous concentrations for soil gas and sub-slab were below DNREC's acceptable risk levels, the current sampling would be acceptable as well. As with the last evaluation that was approved by DNREC-RS, indoor air does not appear to have a VI source. This is based on multiple lines of evidence including ratios of indoor air concentration to sub-slab, soil gas and outdoor air. An example of the sub-slab and soil gas not being a primary source for indoor air concentrations is that higher concentration are measured in indoor air than were measured in the paired sub-slab or soil gas samples (i.e., mass was gained between the sub-slab sample and indoor air). In addition, the similar concentrations measured in indoor air and outdoor air indicate that the indoor air is not from VI.

Additionally, the original on-site source of mass has been reduced by over 8,000 lbs by the former SVE system. The removal of 8,000 lbs of source mass contributes to the future reduction of soil vapor concentrations because less mass is available to volatilize into soil vapor.

As was concluded in the OU-4 Supplemental VI Risk Evaluation, using multiple lines of evidence, there is not a significant potential of risk for off-Site receptors from VI. Based on the supplemental 2019 sampling, shutting down the SVE system did not change the previous conclusion that VI does not pose an unacceptable risk to off-site residences.

2.3 Tentatively Identified Compounds

A qualitative assessment of Tentatively Identified Compounds (TICs) was completed by comparing the detected concentrations from 2012-2018 (prior to and during SVE operation) to the detected concentrations from 2019 (post-SVE operation). The maximum detected concentrations of total TICs from 2012-2018 and 2019 were summed to a total mass by medium. TICs that were identified by the analytical laboratory as "unknown" were not included in the totals since it is not possible to sum the unknown concentrations, which are reported in units of parts per billion by volume (ppb_V) and not in units of mass per volume (ug/m^3).As shown in Table 2.5, the total mass of the TICs decreased between the two time periods evaluated. The decreasing mass indicate that any potential risk posed

by the TICs is decreasing. The results from the analytical laboratory are shown in Appendix G Tables 1, 2, 3, and 4.

3. Risk Assessment

Multiple HHRAs have been performed using the results from OU-4 by GHD including the 2015 RI and the OU-4 Supplemental VI Risk Evaluation. These assessments concluded that groundwater, soil-gas, and sub-slab soil gas did not pose an unacceptable risk to human health via VI. The risk assessment from the OU-4 Supplemental VI Risk Evaluation is included in Appendix A. The lines of evidence presented in the OU-4 Supplemental VI Risk Evaluation and the SVE System Evaluation Report (Appendix B) demonstrate that there is no longer a potential risk that needs to be remediated and; therefore, no additional remedial activities are necessary in OU-4.

4. Development of Remedial Action Alternatives

4.1 Introduction

This section presents and summarizes remedial action alternatives evaluation performed in 2016, after the initial year of IRM implementation. Because remedial action activities are not necessary and there is approval from the DNREC following the SVE system evaluation and Risk Evaluation, only a brief summary of the evaluated technologies and applicable requirements is provided in the Sections below.

4.2 Applicable Local, State, and Federal Requirements

Applicable regulatory requirements were used as a guide in the development of remedial action objectives, to evaluate remedial alternatives, and to govern the implementation and operation of a selected remedial alternative. These requirements include New Castle Country, the State of Delaware, and Federal regulations.

The New Castle County regulations require a temporary wastewater discharge permit for disposing of treated groundwater.

The State of Delaware regulations include the Delaware Regulations Governing Hazardous Substance Cleanup provide specific requirements for the characterization, tracking, and disposal of wastes and the Delaware Sediment and Stormwater regulations that state no activities that disturb land can be performed (unless exempted by these regulations) without an approved sediment and stormwater management plan that is consistent with these regulations, the Delaware Erosion and Sedimentation Control Standards, and any adopted county or municipal ordinances.

Federal regulations include the Occupational Safety and Health Act (OSHA) that provides specific requirements for working on hazardous waste and emergency response sites. The National Emission Standards for Hazardous Air Pollutants (NESHAPS) that set specific standards for emissions specifically requires any soil vapor extraction system at the Site be evaluated and, if required, permitted and operated according to set regulations. Delaware's Air Control Program has specific permitting requirements for soil vapor extraction systems and limits emissions from a

remediation system to less than 2.4 lbs of VOCs per day. Under the Clean Air Act (CAA), EPA established Primary and Secondary National Ambient Air Quality Standards (40 CFR 50). These Primary Standards define contaminant concentration limits in external, publicly-accessible air that ensure, with an adequate margin of safety, the protection of public health. Secondary standards are air quality standards that will protect public welfare from unknown and anticipated adverse effects of a particular pollutant.

4.3 Remedial Action Objectives

Remedial action objectives were developed to protect human health and the environment. The remedial action objectives were developed prior to the IRM to address petroleum hydrocarbons in soil, groundwater, and soil gas at the Site and are presented below.

Remedial Action Objectives:

- Reduce hydrocarbon mass in soil, groundwater, and soil gas.
- Prevent the migration of contaminated soil vapors towards residential structures.

4.4 Identification and Screening of Technology Types

Technologies were screened based on technical practicability and are shown below. Generally, factors that influence practicability are the contaminant types, contaminant concentrations, and on-site characteristics. Retained remedial technologies from 2016 are shaded in the table below.

Remedial Response Action	Remedial Technology	Screening Status	Reason for Screening
Institutional Controls	Fencing and Deed Restrictions	Rejected	Not effective as sole remedy for soil gas and preventing vapor intrusion in existing homes; However, deed restrictions may be part of the final remedy
Containment	Capping	Rejected	Not effective for groundwater or soil gas; Costly for large area
	Encapsulation (textile, clay, or sheet	Rejected	Not effective for mitigating vapor intrusion; Does not offer a permanent solution; Less feasible for deeper contamination
	piling)	Rejected	Effective for demobilizing LNAPL; Does not address other contaminated media
	In-Situ Solidification	Rejected	Not cost effective for petroleum hydrocarbons
Removal/Disposal	Excavation and Disposal	Retained	Contaminant mass reduction in soil; Reduced source area concentration would quickly reduce future groundwater and vapor intrusion issues
Treatment	SVE System	Retained	Feasible; Applicable for soil and soil gas; Enhancements may increase contaminant mass recovery
	Pump and Treat	Retained	Applicable for groundwater treatment; Would enhance existing SVE system (soil and soil gas treatment) by lowering groundwater and exposing soil for treatment
	Biological Treatment	Rejected	Not effective for free phase petroleum products; Long treatment time

Remedial Response Action	Remedial Technology	Screening Status	Reason for Screening
	Chemical Treatment	Retained	Feasible; Effective for all media
	Thermal Treatment	Retained	Effective for soil and groundwater
	Passive Treatment Wall	Retained	Effective for groundwater; No immediate soil gas concentration reduction; Applicable if combined with other alternatives
	Active Vapor Intrusion Treatment	Rejected	Effective for groundwater; No immediate soil gas concentration reduction; Applicable if combined with other alternatives

Note that the installation of a sub-slab vapor mitigation system was evaluated by BrightFields during the 2014 FFS but was not selected as the interim remedy because it did not meet all of the remedial action objectives.

4.5 Identification and Screening of Process Options

Screening of process options was based on likely effectiveness, operational ease, reliability, and cost. Process options for each remedial technology retained from Section 4.4 are shown below.

Note that groundwater pump and treat was combined with SVE as a system enhancement.

Remedial Technology	Process Option	Effectiveness	Ease of Implementation	Cost	Screening Status
Excavation/ Disposal	Excavation of Source Area and Disposal (with continued operation of SVE system)	Effective and reliable for removing contaminated soil mass; Effective in the long term for groundwater and soil gas	Moderately Easy	High	Retained
SVE System	SVE Expansion	Effective and moderately reliable for soil and soil gas	Moderate; Requires O&M	Low to Moderate	Retained
	Air Sparge Enhanced SVE (with source removal)	Effective for all media; May take a long time for cleanup; Generally air sparge becomes ineffective after a short time	Moderate; Requires O&M	Moderate	Retained
	Pump and Treat Enhanced SVE (with source removal)	Effective for all media; Generally takes a long time	Moderate; Requires O&M	Moderate	Retained
Chemical Treatment	Chemical Oxidation (with continued operation of SVE system)	Effective and reliable	Moderate	High	Retained
Thermal Treatment	Electrical Resistance Heating	Effective for groundwater	Moderately Difficult	High	Retained

Remedial Technology	Process Option	Effectiveness	Ease of Implementation	Cost	Screening Status
Passive Treatment Wall	Permeable Reactive Trench or Funnel and Gate	Effective for groundwater; Could be used in conjunction with interim SVE	Moderate; Requires O&M to replenish reactive material	High	Retained

4.6 Preferred Remedial Action Alternative

The following summarizes the preferred remedial action alternative from the technologies listed in the previous section prior to implementation and eventual termination of the IRM.

The preferred alternative that was chosen as the IRM was the SVE.

The air sparge enhanced SVE alternative includes source removal efforts. This alternative would be effective at removing impacted soils and provide for continued recovery of contaminant mass. While this alternative provides for some additional assurance of contaminant mass removal, there are additional costs and uncertainties with the design of this alternative that prevent this alternative from being selected. There is significant uncertainty in the design as no site specific pilot tests have been performed to determine injection rates or the radius of influence for injections; the air sparge radius of influence and the completion time is estimated. Additional sparge wells and equipment may be required to effectively remediate the area. The completion time can vary greatly which may increase the cost.

The pump and treat enhanced SVE alternative includes source removal efforts. This alternative would be effective at removing impacted soils and provide for continued recovery of contaminant mass. This alternative provides the greatest opportunity for source removal and control. This alternative is similar to the air sparge enhanced SVE alternative in that there are additional costs and uncertainties with the design of this alternative. While slug tests were performed at the Site, the groundwater pumping radius of influence is estimated. Assumptions impacting the calculated radius of influence could require that additional pumping wells be installed. There may be some difficulties obtaining a discharge permit for this alternative. Based on the uncertainties associated with this alternative, and the increased cost when compared to the SVE with excavation alternative, this is not the preferred alternative.

The ISCO alternative includes source removal efforts and would be effective at reducing contaminant mass. This alternative is significantly more expensive than the SVE with excavation/disposal alternative. Uncertainties in the assumptions used for the estimate could be tested by conducting a bench-scale test on-site soils and groundwater. Variations in the assumptions could increase chemical requirements, the remedial timeframe, and remedial costs. There may be some reluctance by the community to support the injection of chemicals into the subsurface around the townhouses. Given the increased costs and uncertainties, this alternative is not the preferred alternative.

In the previous FS, dated April 2016 soil removal plus property use restrictions were chosen as the preferred remedy. However, since there is no potential risk, except for residential property use and groundwater ingestion, soil removal is no longer the preferred remedy. Since the SVE has been shut

down after attaining remedial goals, the preferred remedy is land use restrictions limiting future site use of OU-4 to industrial/commercial and limitations on groundwater use."

5. References

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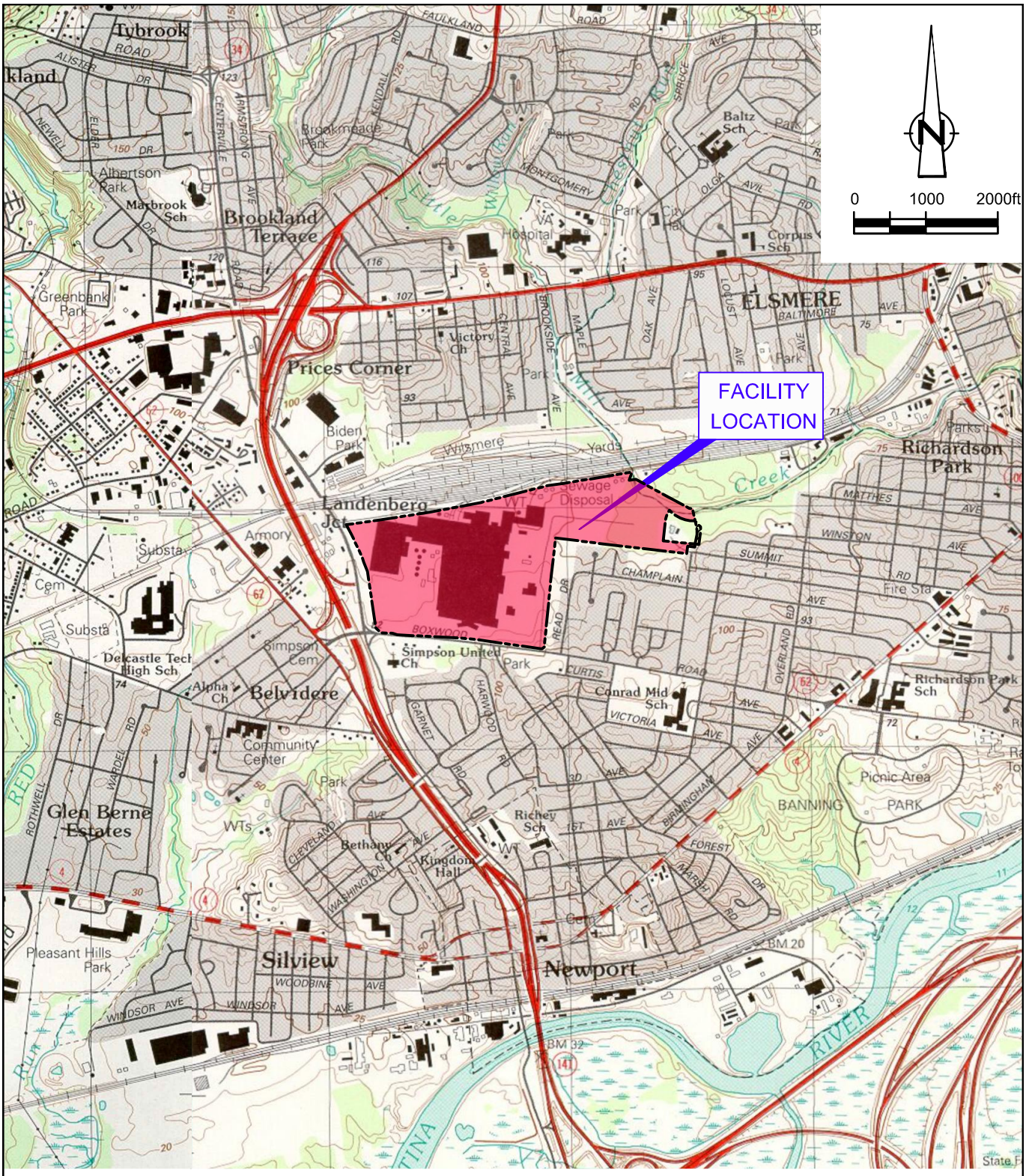
Figures



LEGEND

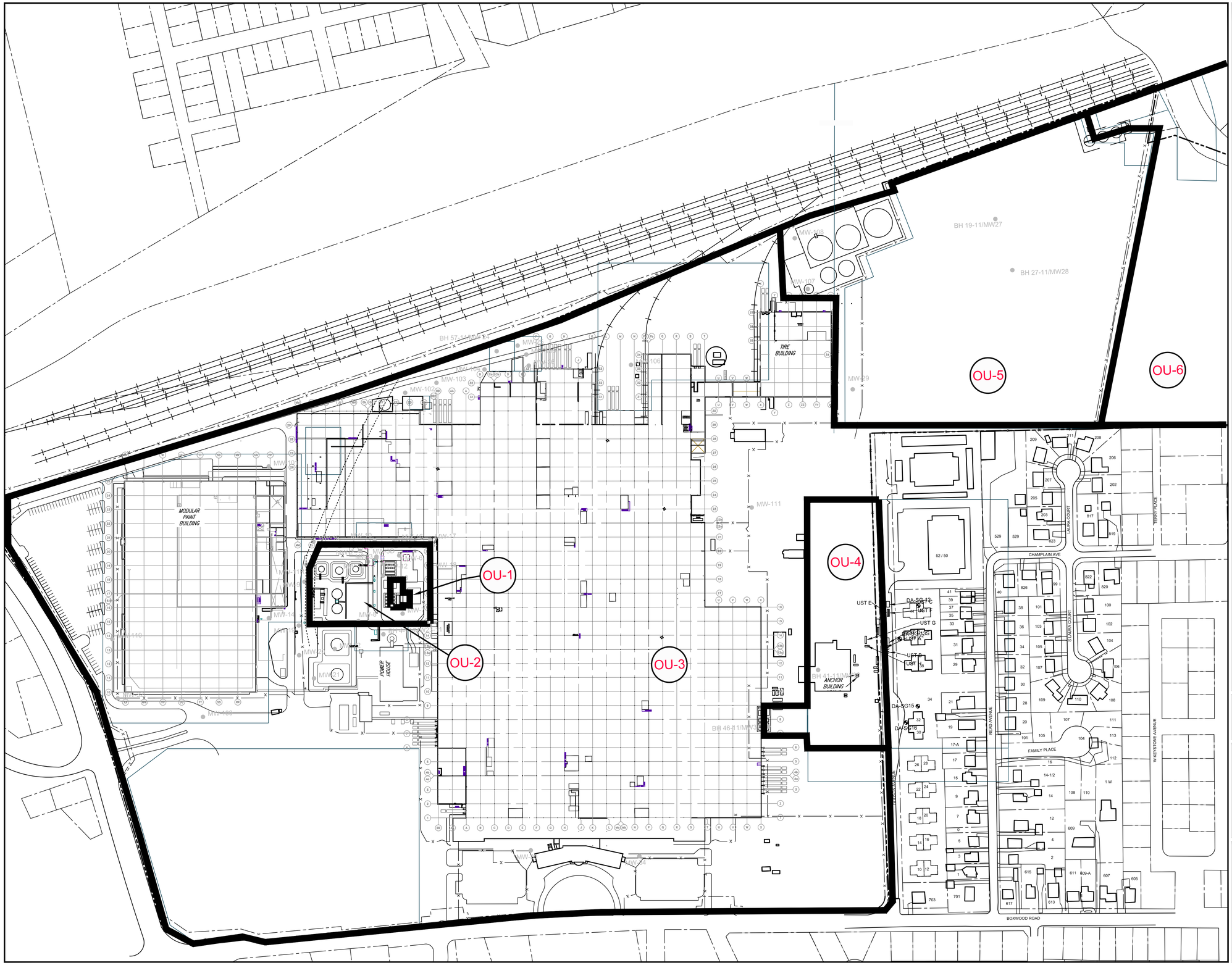
APPROXIMATE FACILITY BOUNDARY

figure 1.1

FACILITY LOCATION
OU-4 FEASIBILITY REPORT
FORMER GM WILMINGTON ASSEMBLY PLANT
Wilmington, Delaware

REFERENCE:
USGS WILMINGTON SOUTH QUADRANGLE, DEL TOPOGRAPHIC, 7.5 MINUTES SERIES 1997 SCALE: 1:24,000

17338(042)-FIG 1.1 NOV 19



0 50 150ft

LEGEND

- APPROXIMATE FACILITY BOUNDARY
- FENCELINE
- RAILWAY
- APPROXIMATE LOCATION OF FORMER OPEN DITCH
- OPERABLE UNIT BOUNDARY

NOTE:

1. FIGURE INCLUDES FORMER ON-SITE BUILDING FOOTPRINTS.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

FORMER WILMINGTON ASSEMBLY PLANT

OU-4 FEASIBILITY REPORT

SITE LAYOUT

GHD

Source Reference:			
Project Manager: G. CARLI	Reviewed By:	Date: NOVEMBER 19	
Scale: 1"=150'	Project №: 17338-00	Report №: 042	Drawing №: 1.2

17338(042)-FIG 1.2 NOV 19

0 50 100ft

ANCHOR BUILDING

DA-AA15-G001
DA-SS-44
DA-SS-46
DA-IA-44
DA-IA-46
DA-SG-11
DA-SG-10
DA-SS-3/DA-SA-40
DA-SG-17
DA-SS-4/DA-SS-42
DA-SG-14S
DA-IA-4/DA-IA-42
DA-IA-3/DA-IA-40
DA-SG13D
DA-SG13S
DA-SG-9
DA-SG-18
DA-SG-8
DA-SS-1/DA-SS-36
DA-SS-2/DA-SS-38
DA-IA-1/DA-IA-36
DA-IA-2/DA-IA-38
DA-SG-7
DA-SG-19
DA-AA17-G001
DA-AA18-G001
DA-SG-20
DA-AA16-G001
DA-SG-22
DA-SG15
DA-SS-32
DA-IA-32
DA-SG16
DA-SS-30
DA-IA-30

CHAMPLAIN AV
READ AVENUE
FAMILY PLACE
DODSON AVENUE

LEGEND FOR SAMPLES:

- ▲ SUB-SLAB SAMPLING LOCATION
- ◒ SOIL GAS SAMPLING LOCATION
- ◆ INDOOR AIR SAMPLE LOCATION
- ▼ OUTDOOR AIR SAMPLE LOCATION

NOTE:

1. FIGURE INCLUDES FORMER ON-SITE BUILDING FOOTPRINTS.

LEGEND

- APPROXIMATE FACILITY BOUNDARY
- FENCELINE
- RAILWAY
- OU-4 BOUNDARY AREA
- SVE CONVEYANCE PIPING
- SVE CATALYTIC OXIDIZER UNIT

GHD

figure 2.1

OU-4 2019 SUPPLEMENTAL SAMPLE LOCATIONS
OU-4 FEASIBILITY STUDY
FORMER GM WILMINGTON ASSEMBLY PLANT

Wilmington, Delaware

17338(042)-FIG 2.1 NOV 27/2019

Tables

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters		Sample Location:	DA-IA32	DA-IA32	DA-IA32	DA-IA32	DA-IA32	DA-IA38	DA-IA38	DA-IA38
		Sample ID:	DA-IA32-G001	DA-IA32-G002	DA-IA32-G102	DA-IA32-G003	DA-IA32-G103	DA-IA38-G002	DA-IA38-G102	DA-IA-2-G001
		Sample Date:	1/21/2012	6/13/2014	6/13/2014 (Duplicate)	9/6/2019	9/6/2019	12/21/2012	12/21/2012 (Duplicate)	10/4/2012
Volatile Organic Compounds	**USEPA RSL**									
1,1,1,2-Tetrachloroethane	0.38		1.4 U	-	-	-	-	1.4 U	1.4 U	-
1,1,1-Trichloroethane	520		1.1 U	-	-	-	-	1.1 U	1.1 U	-
1,1,2,2-Tetrachloroethane	0.048		**5.7 J**	-	-	-	-	1.4 U	1.4 U	-
1,1,2-Trichloroethane	0.021		1.1 U	-	-	-	-	1.1 U	1.1 U	-
1,1-Dichloroethane	1.8		0.81 U	-	-	-	-	0.81 U	0.81 U	-
1,1-Dichloroethene	21		0.79 U	-	-	-	-	0.79 U	0.79 U	-
1,2,3-Trichloropropane	0.031		**3.5 J**	-	-	-	-	1.2 U	1.2 U	-
1,2,4-Trimethylbenzene	6.3		**13**	1.5	2.0	1	1	0.98 U	0.98 U	**7.7**
1,2-Dibromoethane	0.0047		**2.5 J**	-	-	-	-	1.5 U	1.5 U	-
1,2-Dichlorobenzene	21		15	-	-	-	-	1.2 U	1.2 U	-
1,2-Dichloroethane	0.11		0.81 U	-	-	-	-	0.81 U	0.81 U	-
1,2-Dichloropropane	0.42		0.92 U	-	-	-	-	0.92 U	0.92 U	-
1,2-Dichlorotetrafluoroethane	-		1.4 U	-	-	-	-	1.4 U	1.4 U	-
1,3,5-Trimethylbenzene	6.3		**11**	-	-	-	-	0.98 U	0.98 U	-
1,3-Butadiene	0.094		1.1 U	-	-	-	-	1.1 U	1.1 U	-
1,3-Dichlorobenzene	-		14	-	-	-	-	1.2 U	1.2 U	-
1,4-Dichlorobenzene	0.26		**16**	-	-	-	-	1.2 U	1.2 U	-
2,2,4-Trimethylpentane	-		0.93 U	0.93 U	0.93 U	-	-	0.93 U	0.93 U	0.070 U
2-Butanone	520		3.3 J	-	-	-	-	4.4 J	2.3 J	-
2-Hexanone	3.1		2.0 U	-	-	-	-	2.0 U	2.0 U	-
4-Ethyl toluene	-		8.5	-	-	-	-	0.98 U	0.98 U	-
4-Methyl-2-pentanone	310		2.0 U	-	-	-	-	2.0 U	2.0 U	-
Acetone	3200		70	-	-	-	-	60	56	-
Allyl chloride	0.1		0.63 U	-	-	-	-	0.63 U	0.63 U	-
Benzene	0.36		**3.2**	**1.1**	**1.4**	**2**	**2**	**0.85 J**	0.64 U	**1.1**
Bromobenzene	6.3		4.7 J	-	-	-	-	1.3 U	1.3 U	-
Bromodichloromethane	0.076		1.3 U	-	-	-	-	1.3 U	1.3 U	-
Bromoform	2.6		**4.4 J**	-	-	-	-	2.1 U	2.1 U	-
Bromomethane	0.52		0.78 U	-	-	-	-	0.78 U	0.78 U	-
Carbon disulfide	73		1.6 U	-	-	-	-	1.6 U	1.6 U	-
Carbon tetrachloride	0.47		1.3 U	-	-	-	-	1.3 U	1.3 U	-
Chlorobenzene	5.2		2.3 J	-	-	-	-	0.92 U	0.92 U	-
Chlorodifluoromethane	5200		1.2 J	-	-	-	-	1.3 J	0.71 U	-
Chloroethane	1000		0.53 U	-	-	-	-	0.53 U	0.53 U	-
Chloroform	0.12		0.98 U	-	-	-	-	0.98 U	0.98 U	-
Chloromethane	9.4		0.41 U	-	-	-	-	2.2	0.97 J	-
cis-1,2-Dichloroethene	-		0.79 U	-	-	-	-	0.79 U	0.79 U	-
cis-1,3-Dichloropropene	-		0.91 U	-	-	-	-	0.91 U	0.91 U	-
Cyclohexane	630		-	0.69 U	0.79	-	-	-	-	0.94
Dibromochloromethane	-		1.7 U	-	-	-	-	1.7 U	1.7 U	-
Dibromomethane	0.42		1.4 U	-	-	-	-	1.4 U	1.4 U	-
Dichlorodifluoromethane	10		3.0 J	-	-	-	-	4.2 J	0.99 U	-
Dichlorofluoromethane	-		0.84 U	-	-	-	-	0.84 U	0.84 U	-
Ethylbenzene	1.1		**19**	**1.6**	**2.0**	**2**	**2**	0.87 U	0.87 U	1.1

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-IA32	DA-IA32	DA-IA32	DA-IA32	DA-IA32	DA-IA38	DA-IA38	DA-IA38
	Sample ID:	DA-IA32-G001	DA-IA32-G002	DA-IA32-G102	DA-IA32-G003	DA-IA32-G103	DA-IA38-G002	DA-IA38-G102	DA-IA-2-G001
	Sample Date:	1/21/2012	6/13/2014	6/13/2014 (Duplicate)	9/6/2019	9/6/2019	12/21/2012	12/21/2012 (Duplicate)	10/4/2012
Parameters									
Hexachloroethane	0.26	1.9 U	-	-	-	-	1.9 U	1.9 U	-
Hexane	73	2.8 J	3.4	4.1	3	2	1.4 J	0.80 J	22
Isopropyl benzene	42	0.98 U	-	-	-	-	0.98 U	0.98 U	-
Methyl tert butyl ether	11	0.72 U	-	-	-	-	0.72 U	0.72 U	-
Methylene chloride	63	0.79 J	-	-	-	-	1.3 J	0.95 J	-
N-Heptane	42	3.2 J	3.1	3.8	-	-	0.82 U	0.82 U	4.8
Octane	-	7.0	-	-	-	-	0.93 U	0.93 U	-
Pentane	100	3.4	-	-	-	-	3.7	1.9 J	-
Styrene	100	5.0	-	-	-	-	0.85 U	0.85 U	-
Tetrachloroethene	4.2	**4.7 J**	-	-	-	-	1.4 U	1.4 U	-
Toluene	520	5.3	11	14	10	13	0.83 J	0.75 U	8.6
trans-1,2-Dichloroethene	-	0.79 U	-	-	-	-	0.79 U	0.79 U	-
trans-1,3-Dichloropropene	-	0.91 U	-	-	-	-	0.91 U	0.91 U	-
Trichloroethene	0.21	1.1 U	-	-	-	-	1.1 U	1.1 U	-
Trichlorofluoromethane	-	1.5 J	-	-	-	-	2.0 J	1.7 J	-
Trifluorotrichloroethane	520	3.8 U	-	-	-	-	3.8 U	3.8 U	-
Vinyl chloride	0.17	0.51 U	-	-	-	-	0.51 U	0.51 U	-
Xylenes (total)	10	**81**	6.3	8.0	7	9	2.6	1.535	3.7

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL) Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters		Sample Location:	DA-IA38	DA-IA38	DA-IA44	DA-IA44	DA-IA44	DA-IA44	DA-IA44
		Sample ID:	DA-IA38-G003	DA-IA38-G004	DA-IA44-G001	DA-IA44-G002	DA-IA44-G102	DA-IA44-G003	DA-IA44-G004
		Sample Date:	6/13/2014	9/6/2019	9/10/2013	12/6/2013	12/6/2013 (Duplicate)	6/13/2014	9/6/2019
Volatile Organic Compounds	**USEPA RSL**								
1,1,1,2-Tetrachloroethane	0.38		-	-	-	-	-	-	-
1,1,1-Trichloroethane	520		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.048		-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.021		-	-	-	-	-	-	-
1,1-Dichloroethane	1.8		-	-	-	-	-	-	-
1,1-Dichloroethene	21		-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.031		-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	6.3		7.1	3	5.0	1.5	1.2	2.8	2
1,2-Dibromoethane	0.0047		-	-	-	-	-	-	-
1,2-Dichlorobenzene	21		-	-	-	-	-	-	-
1,2-Dichloroethane	0.11		-	-	-	-	-	-	-
1,2-Dichloropropane	0.42		-	-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	-		-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	6.3		-	-	-	-	-	-	-
1,3-Butadiene	0.094		-	-	-	-	-	-	-
1,3-Dichlorobenzene	-		-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.26		-	-	-	-	-	-	-
2,2,4-Trimethylpentane	-		5.3	-	1.9	1.1	0.92	2.8	-
2-Butanone	520		-	-	-	-	-	-	-
2-Hexanone	3.1		-	-	-	-	-	-	-
4-Ethyl toluene	-		-	-	-	-	-	-	-
4-Methyl-2-pentanone	310		-	-	-	-	-	-	-
Acetone	3200		-	-	-	-	-	-	-
Allyl chloride	0.1		-	-	-	-	-	-	-
Benzene	0.36		10	5	4.2	1.5	1.1	0.75	0.5 J
Bromobenzene	6.3		-	-	-	-	-	-	-
Bromodichloromethane	0.076		-	-	-	-	-	-	-
Bromoform	2.6		-	-	-	-	-	-	-
Bromomethane	0.52		-	-	-	-	-	-	-
Carbon disulfide	73		-	-	-	-	-	-	-
Carbon tetrachloride	0.47		-	-	-	-	-	-	-
Chlorobenzene	5.2		-	-	-	-	-	-	-
Chlorodifluoromethane	5200		-	-	-	-	-	-	-
Chloroethane	1000		-	-	-	-	-	-	-
Chloroform	0.12		-	-	-	-	-	-	-
Chloromethane	9.4		-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-		-	-	-	-	-	-	-
cis-1,3-Dichloropropene	-		-	-	-	-	-	-	-
Cyclohexane	630		1.7	-	0.89	1.0	0.82	2.9	-
Dibromochloromethane	-		-	-	-	-	-	-	-
Dibromomethane	0.42		-	-	-	-	-	-	-
Dichlorodifluoromethane	10		-	-	-	-	-	-	-
Dichlorofluoromethane	-		-	-	-	-	-	-	-
Ethylbenzene	1.1		7.1	2	1.5	0.87 U	0.87 U	0.91	0.3 U

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-IA38	DA-IA38	DA-IA44	DA-IA44	DA-IA44	DA-IA44	DA-IA44	DA-IA44
	Sample ID:	DA-IA38-G003	DA-IA38-G004	DA-IA44-G001	DA-IA44-G002	DA-IA44-G102	DA-IA44-G003	DA-IA44-G004
	Sample Date:	6/13/2014	9/6/2019	9/10/2013	12/6/2013	12/6/2013 (Duplicate)	6/13/2014	9/6/2019
Parameters								
Hexachloroethane	0.26	-	-	-	-	-	-	-
Hexane	73	11	3	8.3	5.9 J	3.3 J	13	1
Isopropyl benzene	42	-	-	-	-	-	-	-
Methyl tert butyl ether	11	-	-	-	-	-	-	-
Methylene chloride	63	-	-	-	-	-	-	-
N-Heptane	42	7.8	-	5.5	2.4	2.0	13	-
Octane	-	-	-	-	-	-	-	-
Pentane	100	-	-	-	-	-	-	-
Styrene	100	-	-	-	-	-	-	-
Tetrachloroethene	4.2	-	-	-	-	-	-	-
Toluene	520	37	12	7.4	5.9	4.0	5.3	13
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-
Trichloroethene	0.21	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-
Trifluorotrichloroethane	520	-	-	-	-	-	-	-
Vinyl chloride	0.17	-	-	-	-	-	-	-
Xylenes (total)	10	**30**	8	6.6	3.8	2.6	0.87 U	3 J

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL) Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters									
Sample Location:		**DA-IA46**	**DA-IA46**	**DA-IA46**	**DA-IA46**	**DA-IA30**	**DA-IA30**	**DA-IA36**	**DA-IA36**
Sample ID:		**DA-IA46-G001**	**DA-IA46-G002**	**DA-IA46-G003**	**DA-IA46-G004**	**DA-IA30-G001**	**DA-IA30-G002**	**DA-IA-1-G001**	**DA-IA36-G002**
Sample Date:		**9/10/2013**	**12/6/2013**	**6/13/2014**	**9/6/2019**	**6/13/2014**	**9/6/2019**	**10/4/2012**	**6/13/2014**
Volatile Organic Compounds	**USEPA RSL**								
1,1,1,2-Tetrachloroethane	0.38	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	520	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.048	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.021	-	-	-	-	-	-	-	-
1,1-Dichloroethane	1.8	-	-	-	-	-	-	-	-
1,1-Dichloroethene	21	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.031	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	6.3	5.6	1.8	4.1	2 U	0.98 U	2	**7.2**	0.98 U
1,2-Dibromoethane	0.0047	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	21	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.11	-	-	-	-	-	-	-	-
1,2-Dichloropropane	0.42	-	-	-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	6.3	-	-	-	-	-	-	-	-
1,3-Butadiene	0.094	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.26	-	-	-	-	-	-	-	-
2,2,4-Trimethylpentane	-	1.5	0.93 U	0.93 U	-	0.93 U	-	1.4	0.93 U
2-Butanone	520	-	-	-	-	-	-	-	-
2-Hexanone	3.1	-	-	-	-	-	-	-	-
4-Ethyl toluene	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	310	-	-	-	-	-	-	-	-
Acetone	3200	-	-	-	-	-	-	-	-
Allyl chloride	0.1	-	-	-	-	-	-	-	-
Benzene	0.36	**0.82**	**0.96**	**0.88**	1 U	0.64 U	**3**	**2.8**	0.64 U
Bromobenzene	6.3	-	-	-	-	-	-	-	-
Bromodichloromethane	0.076	-	-	-	-	-	-	-	-
Bromoform	2.6	-	-	-	-	-	-	-	-
Bromomethane	0.52	-	-	-	-	-	-	-	-
Carbon disulfide	73	-	-	-	-	-	-	-	-
Carbon tetrachloride	0.47	-	-	-	-	-	-	-	-
Chlorobenzene	5.2	-	-	-	-	-	-	-	-
Chlorodifluoromethane	5200	-	-	-	-	-	-	-	-
Chloroethane	1000	-	-	-	-	-	-	-	-
Chloroform	0.12	-	-	-	-	-	-	-	-
Chloromethane	9.4	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-
Cyclohexane	630	0.69 U	0.69 U	0.69 U	-	0.69 U	-	1.0	1.0
Dibromochloromethane	-	-	-	-	-	-	-	-	-
Dibromomethane	0.42	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	10	-	-	-	-	-	-	-	-
Dichlorofluoromethane	-	-	-	-	-	-	-	-	-
Ethylbenzene	1.1	**1.2**	0.87 U	1.1	2 U	0.87 U	**2**	**1.6**	0.87 U

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-IA46	DA-IA46	DA-IA46	DA-IA46	DA-IA30	DA-IA30	DA-IA36	DA-IA36
	Sample ID:	DA-IA46-G001	DA-IA46-G002	DA-IA46-G003	DA-IA46-G004	DA-IA30-G001	DA-IA30-G002	DA-IA-1-G001	DA-IA36-G002
	Sample Date:	9/10/2013	12/6/2013	6/13/2014	9/6/2019	6/13/2014	9/6/2019	10/4/2012	6/13/2014
Parameters									
Hexachloroethane	0.26	-	-	-	-	-	-	-	-
Hexane	73	6.4	3.0	4.1	3 U	0.70 U	4	14	1.7
Isopropyl benzene	42	-	-	-	-	-	-	-	-
Methyl tert butyl ether	11	-	-	-	-	-	-	-	-
Methylene chloride	63	-	-	-	-	-	-	-	-
N-Heptane	42	7.5	2.5	7.2	-	0.82 U	-	3.9	0.82 U
Octane	-	-	-	-	-	-	-	-	-
Pentane	100	-	-	-	-	-	-	-	-
Styrene	100	-	-	-	-	-	-	-	-
Tetrachloroethene	4.2	-	-	-	-	-	-	-	-
Toluene	520	7.2	3.4	8.7	3 J	0.75 U	8	11	0.75 U
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-
Trichloroethene	0.21	-	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane	520	-	-	-	-	-	-	-	-
Vinyl chloride	0.17	-	-	-	-	-	-	-	-
Xylenes (total)	10	5.0	2.6	4.0	3 U	0.87 U	6	5.3	0.87 U

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL) Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters / Volatile Organic Compounds	USEPA RSL	Sample Location: DA-IA36 / Sample ID: DA-IA36-G003 / Sample Date: 9/6/2019	DA-IA40 / DA-IA-3-G001 / 10/4/2012	DA-IA40 / DA-IA40-G002 / 6/13/2014	DA-IA40 / DA-IA40-G003 / 9/6/2019	DA-IA42 / DA-IA-4-G001 / 10/4/2012	DA-IA42 / DA-IA42-G002 / 6/13/2014	DA-IA42 / DA-IA42-G003 / 9/6/2019
1,1,1,2-Tetrachloroethane	0.38	-	-	-	-	-	-	-
1,1,1-Trichloroethane	520	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.048	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.021	-	-	-	-	-	-	-
1,1-Dichloroethane	1.8	-	-	-	-	-	-	-
1,1-Dichloroethene	21	-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.031	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	6.3	0.4 U	**7.2**	4.5	2 U	**7.3**	2.1	2
1,2-Dibromoethane	0.0047	-	-	-	-	-	-	-
1,2-Dichlorobenzene	21	-	-	-	-	-	-	-
1,2-Dichloroethane	0.11	-	-	-	-	-	-	-
1,2-Dichloropropane	0.42	-	-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	6.3	-	-	-	-	-	-	-
1,3-Butadiene	0.094	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.26	-	-	-	-	-	-	-
2,2,4-Trimethylpentane	-	-	0.070 U	19	-	0.070 U	1.6	-
2-Butanone	520	-	-	-	-	-	-	-
2-Hexanone	3.1	-	-	-	-	-	-	-
4-Ethyl toluene	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	310	-	-	-	-	-	-	-
Acetone	3200	-	-	-	-	-	-	-
Allyl chloride	0.1	-	-	-	-	-	-	-
Benzene	0.36	**0.6 J**	**1.3**	**7.2**	1 U	**1.1**	**1.1**	**4**
Bromobenzene	6.3	-	-	-	-	-	-	-
Bromodichloromethane	0.076	-	-	-	-	-	-	-
Bromoform	2.6	-	-	-	-	-	-	-
Bromomethane	0.52	-	-	-	-	-	-	-
Carbon disulfide	73	-	-	-	-	-	-	-
Carbon tetrachloride	0.47	-	-	-	-	-	-	-
Chlorobenzene	5.2	-	-	-	-	-	-	-
Chlorodifluoromethane	5200	-	-	-	-	-	-	-
Chloroethane	1000	-	-	-	-	-	-	-
Chloroform	0.12	-	-	-	-	-	-	-
Chloromethane	9.4	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-
Cyclohexane	630	-	1.2	2.1	-	0.95	0.94	-
Dibromochloromethane	-	-	-	-	-	-	-	-
Dibromomethane	0.42	-	-	-	-	-	-	-
Dichlorodifluoromethane	10	-	-	-	-	-	-	-
Dichlorofluoromethane	-	-	-	-	-	-	-	-
Ethylbenzene	1.1	0.4 J	**2.0**	**5.2**	2 U	**1.3**	1.0	1

Table 2.1

OU-4 Screened Indoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-IA36	DA-IA40	DA-IA40	DA-IA40	DA-IA42	DA-IA42	DA-IA42
	Sample ID:	DA-IA36-G003	DA-IA-3-G001	DA-IA40-G002	DA-IA40-G003	DA-IA-4-G001	DA-IA42-G002	DA-IA42-G003
	Sample Date:	9/6/2019	10/4/2012	6/13/2014	9/6/2019	10/4/2012	6/13/2014	9/6/2019
Parameters								
Hexachloroethane	0.26	-	-	-	-	-	-	-
Hexane	73	0.8	30	16	3 U	27	4.1	14
Isopropyl benzene	42	-	-	-	-	-	-	-
Methyl tert butyl ether	11	-	-	-	-	-	-	-
Methylene chloride	63	-	-	-	-	-	-	-
N-Heptane	42	-	7.1	8.7	-	5.8	2.9	-
Octane	-	-	-	-	-	-	-	-
Pentane	100	-	-	-	-	-	-	-
Styrene	100	-	-	-	-	-	-	-
Tetrachloroethene	4.2	-	-	-	-	-	-	-
Toluene	520	2	15	33	6	13	6.0	14
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-
Trichloroethene	0.21	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-
Trifluorotrichloroethane	520	-	-	-	-	-	-	-
Vinyl chloride	0.17	-	-	-	-	-	-	-
Xylenes (total)	10	1 J	8.9	**22**	4 U	5.2	3.6	7

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL) Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.2

OU-4 Screened Sub-Slab Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters			Sample Location:	DA-SS44	DA-SS44	DA-SS44	DA-SS44	DA-SS44	DA-SS46	DA-SS46
			Sample ID:	DA-SS44-G001	DA-SS44-G101	DA-SS44-G002	DA-SS44-G003	DA-SS44-G004	DA-SS46-G001	DA-SS46-G002
			Sample Date:	9/10/2013	9/10/2013 (Duplicate)	12/6/2013	6/13/2014	9/6/2019	9/10/2013	12/6/2013
Volatile Organic Compou	**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**								
		b								
1,2,4-Trimethylbenzene	210	209		2.8	2.9	0.98 U	0.98 U	0.5 J	49 U	0.98 U
2,2,4-Trimethylpentane	-	-		0.93 U	0.93 U	0.93 U	0.93 U	-	46 U	0.93 U
Benzene	12	12		1.8	1.9	0.64 U	0.64 U	0.7	**3700[ab]**	0.64 U
Cyclohexane	21000	20900		0.69 U	0.69 U	0.69 U	0.69 U	-	240	0.69 U
Ethylbenzene	36	37.4		0.87 U	0.87 U	1.3	0.87 U	3	43 U	0.87 U
Hexane	2400	2430		0.70 U	0.70 U	1.5	0.70 U	2	**2600[ab]**	0.70 U
N-Heptane	1400	1390		0.82 U	0.82 U	0.81	0.82 U	-	150	0.82 U
Toluene	17000	17400		1.1	1.6	3.8	0.75 U	33	75	0.75 U
Xylenes (total)	330	348		2.8	3.0	3.1	0.87 U	12	43 U	0.87 U

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.

b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.2

OU-4 Screened Sub-Slab Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters		Sample Location: / Sample ID: / Sample Date:	DA-SS46 DA-SS46-G102 12/6/2013 (Duplicate)	DA-SS46 DA-SS46-G003 6/13/2014	DA-SS46 DA-SS46-G103 6/13/2014 (Duplicate)	DA-SS46 DA-SS46-G004 9/6/2019	DA-SS46 DA-SS46-G104 9/6/2019 (Duplicate)	DA-SS30 DA-SS30-G001 6/13/2014	DA-SS30 DA-SS30-G002 9/6/2019
Volatile Organic Compou	**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**							
		b							
1,2,4-Trimethylbenzene	210	209	0.98 U	0.98 U	0.98 U	3 J	0.4 UJ	0.98 U	2
2,2,4-Trimethylpentane	-	-	0.93 U	0.93 U	0.93 U	-	-	0.93 U	-
Benzene	12	12	0.64 U	0.64 U	0.64 U	2 J	0.2 UJ	0.64 U	2
Cyclohexane	21000	20900	0.69 U	0.69 U	0.69 U	-	-	1.2	-
Ethylbenzene	36	37.4	0.87 U	0.87 U	0.87 U	13 J	0.4 J	0.87 U	16
Hexane	2400	2430	0.70 U	0.70 U	0.70 U	2 J	0.6 UJ	0.70 U	2
N-Heptane	1400	1390	0.82 U	0.82 U	0.82 U	-	-	0.82 U	-
Toluene	17000	17400	1.0	0.75 U	0.75 U	110 J	3 J	0.75 U	140
Xylenes (total)	330	348	1.4	0.87 U	0.87 U	50 J	1 J	0.87 U	65

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.

b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.2

OU-4 Screened Sub-Slab Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters			Sample Location:	DA-SS32	DA-SS32	DA-SS36	DA-SS36	DA-SS36	DA-SS36	DA-SS38	DA-SS38
			Sample ID:	DA-SS32-G001	DA-SS32-G002	DA-SS-1-G001	DA-SS-1-G101	DA-SS36-G002	DA-SS36-G003	DA-SS-2-G001	DA-SS38-G002
			Sample Date:	6/13/2014	9/6/2019	10/4/2012	10/4/2012 (Duplicate)	6/13/2014	9/6/2019	10/4/2012	6/13/2014
Volatile Organic Compou	**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**									
		b									
1,2,4-Trimethylbenzene	210	209		0.98 U	7	2.7	3.1	0.98 U	0.4 U	0.10 U	0.98 U
2,2,4-Trimethylpentane	-	-		0.93 U	-	1.1	0.070 U	2.7	-	0.070 U	33
Benzene	12	12		0.64 U	1	1.6	1.2	0.64 U	0.2 U	0.058 U	0.83
Cyclohexane	21000	20900		0.69 U	-	1.8	0.065 U	0.69 U	-	0.065 U	5.3
Ethylbenzene	36	37.4		0.87 U	17	1.4	0.065 U	0.87 U	0.5 J	0.065 U	0.87 U
Hexane	2400	2430		0.70 U	7	7.8	6.5	2.1	4	0.070 U	17
N-Heptane	1400	1390		0.82 U	-	3.1	1.8	0.82 U	-	0.070 U	4.8
Toluene	17000	17400		0.75 U	130	11 J	5.0 J	2.0	4	0.053 U	0.75 U
Xylenes (total)	330	348		0.87 U	61	5.3	0.069 U	0.87 U	1 J	0.069 U	0.87 U

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.

b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.2

OU-4 Screened Sub-Slab Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	DA-SS38	DA-SS40	DA-SS40	DA-SS40	DA-SS42	DA-SS42	DA-SS42
		Sample ID:	DA-SS38-G003	DA-SS-3-G001	DA-SS40-G002	DA-SS40-G003	DA-SS-4-G001	DA-SS42-G002	DA-SS42-G003
		Sample Date:	9/6/2019	10/4/2012	6/13/2014	9/6/2019	10/4/2012	6/13/2014	9/6/2019
Parameters									
Volatile Organic Compou	**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**							
		b							
1,2,4-Trimethylbenzene	210	209	0.4 U	1.5	0.98 U	0.5 J	0.10 U	2.0 U	2
2,2,4-Trimethylpentane	-	-	-	0.070 U	2.7	-	0.070 U	2.0	-
Benzene	12	12	2	1.3	0.99	0.4 J	0.058 U	1.4	1
Cyclohexane	21000	20900	-	0.71	0.96	-	0.065 U	180	-
Ethylbenzene	36	37.4	2	0.065 U	0.87 U	3	0.065 U	1.7 U	10
Hexane	2400	2430	2	2.4	2.1	2	2.0	3.5	1
N-Heptane	1400	1390	-	1.5	1.3	-	0.070 U	1.6 U	-
Toluene	17000	17400	20	3.8	4.3	5	1.7	8.3	42
Xylenes (total)	330	348	7	4	0.87 U	8	0.069 U	1.7 U	38

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.

b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters			Sample Location:	AA-2	AA-3	AA-4	Ambient	DA-AA05	DA-AA06
			Sample ID:	DA-AA-2-G001	DA-AA3-G001	DA-AA-4-G001	SGA-17338-081712-MM-01	DA-AA05-G001	DA-AA06-G001
			Sample Date:	10/24/2012	10/4/2012	10/25/2012	8/17/2012	12/21/2012	3/1/2013
Volatile Organic Compounds		**USEPA RSL**							
1,1,1,2-Tetrachloroethane	630-20-6	0.38	-	-	-	-	1.4 U	-
1,1,1-Trichloroethane	71-55-6	520	-	-	-	0.065 U	1.1 U	-
1,1,2,2-Tetrachloroethane	79-34-5	0.048	-	-	-	0.16 U	3.6 J	-
1,1,2-Trichloroethane	79-00-5	0.021	-	-	-	0.11 U	1.1 U	-
1,1-Dichloroethane	75-34-3	1.8	-	-	-	0.040 U	0.81 U	-
1,1-Dichloroethene	75-35-4	21	-	-	-	0.052 U	0.79 U	-
1,2,3-Trichloropropane	96-18-4	0.031	-	-	-	-	2.2 J	-
1,2,4-Trichlorobenzene	120-82-1	0.21	-	-	-	0.29 UJ	-	-
1,2,4-Trimethylbenzene	95-63-6	6.3	0.10 U	2.6	0.10 U	0.12 U	6.7	0.10 U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0047	-	-	-	0.14 U	1.6 J	-
1,2-Dichlorobenzene	95-50-1	21	-	-	-	0.17 U	9.5	-
1,2-Dichloroethane	107-06-2	0.11	-	-	-	0.077 U	0.81 U	-
1,2-Dichloropropane	78-87-5	0.42	-	-	-	0.097 U	0.92 U	-
1,2-Dichlorotetrafluoroethane (CFC 114)	76-14-2	-	-	-	-	0.091 U	1.4 U	-
1,3,5-Trimethylbenzene	108-67-8	6.3	-	-	-	0.13 U	5.4	-
1,3-Butadiene	106-99-0	0.094	-	-	-	-	1.1 U	-
1,3-Dichlorobenzene	541-73-1	-	-	-	-	0.16 U	9.5	-
1,4-Dichlorobenzene	106-46-7	0.26	-	-	-	0.16 U	10	-
1,4-Dioxane	123-91-1	0.56	-	-	-	0.29 U	-	-
2,2,4-Trimethylpentane	540-84-1	-	1.8	1.1	0.070 U	0.075 U	0.93 U	0.070 U
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	520	-	-	-	1.7	1.5 U	-
2-Hexanone	591-78-6	3.1	-	-	-	-	2.0 U	-
4-Ethyl toluene	622-96-8	-	-	-	-	-	4.8 J	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	108-10-1	310	-	-	-	0.074 U	2.0 U	-
Acetone	67-64-1	3200	-	-	-	-	7.4	-
Allyl chloride	107-05-1	0.1	-	-	-	-	0.63 U	-
Benzene	71-43-2	0.36	2.5	1.4	0.058 U	0.28	2.5 J	0.058 U
Benzyl chloride	100-44-7	0.057	-	-	-	0.16 U	-	-
Bromobenzene	108-86-1	6.3	-	-	-	-	2.7 J	-
Bromodichloromethane	75-27-4	0.076	-	-	-	0.12 U	1.3 U	-
Bromoform	75-25-2	2.6	-	-	-	0.20 U	2.3 J	-
Bromomethane (Methyl bromide)	74-83-9	0.52	-	-	-	0.050 U	0.78 U	-
Carbon disulfide	75-15-0	73	-	-	-	-	1.6 U	-
Carbon tetrachloride	56-23-5	0.47	-	-	-	0.46	1.3 U	-
Chlorobenzene	108-90-7	5.2	-	-	-	0.092 U	1.7 J	-
Chlorodifluoromethane	75-45-6	5200	-	-	-	-	1.1 J	-
Chloroethane	75-00-3	1000	-	-	-	0.037 U	0.53 U	-
Chloroform (Trichloromethane)	67-66-3	0.12	-	-	-	0.073 U	0.98 U	-
Chloromethane (Methyl chloride)	74-87-3	9.4	-	-	-	1.2	0.83 J	-
cis-1,2-Dichloroethene	156-59-2	-	-	-	-	0.095 U	0.79 U	-
cis-1,3-Dichloropropene	10061-01-5	-	-	-	-	0.13 U	0.91 U	-
Cyclohexane	110-82-7	630	0.86	0.065 U	0.065 U	0.055 U	-	0.065 U
Dibromochloromethane	124-48-1	-	-	-	-	0.14 U	1.7 U	-
Dibromomethane	74-95-3	0.42	-	-	-	-	1.4 U	-
Dichlorodifluoromethane (CFC-12)	75-71-8	10	-	-	-	2.2	3.2 J	-
Dichlorofluoromethane	75-43-4	-	-	-	-	-	0.84 U	-
Ethanol	64-17-5	-	-	-	-	2.0	-	-
Ethylbenzene	100-41-4	1.1	0.065 U	1.8	0.065 U	0.12 U	13	0.065 U
Hexachlorobutadiene	87-68-3	0.13	-	-	-	0.33 U	-	-
Hexachloroethane	67-72-1	0.26	-	-	-	-	1.9 U	-
Hexane	110-54-3	73	2.1	2.2	2.8	0.046 U	1.4 J	0.070 U
Isopropyl benzene	98-82-8	42	-	-	-	-	1.2 J	-

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	AA-2	AA-3	AA-4	Ambient	DA-AA05	DA-AA06
		Sample ID:	DA-AA-2-G001	DA-AA3-G001	DA-AA-4-G001	SGA-17338-081712-MM-01	DA-AA05-G001	DA-AA06-G001
		Sample Date:	10/24/2012	10/4/2012	10/25/2012	8/17/2012	12/21/2012	3/1/2013
Parameters								
Methyl tert butyl ether (MTBE)	1634-04-4	11	-	-	-	0.25 U	0.72 U	-
Methylene chloride	75-09-2	63	-	-	-	1.0	1.0 J	-
N-Heptane	142-82-5	42	1.1	1.0	0.070 U	-	1.4 J	0.070 U
Octane	111-65-9	-	-	-	-	-	4.0 J	-
Pentane	109-66-0	100	-	-	-	-	0.80 J	-
Styrene	100-42-5	100	-	-	-	0.098 U	2.8 J	-
tert-Butyl alcohol	75-65-0	-	-	-	-	0.045 U	-	-
Tetrachloroethene	127-18-4	4.2	-	-	-	0.11 U	3.3 J	-
Toluene	108-88-3	520	5.9	11	1.7	0.82	3.4 J	0.053 U
trans-1,2-Dichloroethene	156-60-5	-	-	-	-	0.079 U	0.79 U	-
trans-1,3-Dichloropropene	10061-02-6	-	-	-	-	0.086 U	0.91 U	-
Trichloroethene	79-01-6	0.21	-	-	-	0.075 U	1.1 U	-
Trichlorofluoromethane (CFC-11)	75-69-4	-	-	-	-	1.3	1.7 J	-
Trifluorotrichloroethane (CFC-113)	76-13-1	520	-	-	-	0.092 U	3.8 U	-
Vinyl chloride	75-01-4	0.17	-	-	-	0.074 U	0.51 U	-
Xylenes (total)	1330-20-7	10	3.35	**11.4**	0.069 U	0.10 U	**57**	0.069 U

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL)
Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-AA07	DA-AA08	DA-AA09	DA-AA10	DA-AA11	DA-AA12	DA-AA13
			Sample ID:	DA-AA07-G001	DA-AA08-G001	DA-AA09-G001	DA-AA10-G001	DA-AA11-G001	DA-AA12-G001	DA-AA13-G001
			Sample Date:	9/10/2013	9/10/2013	9/11/2013	9/12/2013	9/13/2013	12/6/2013	6/13/2014
Parameters										
Volatile Organic Compounds		**USEPA RSL**								
1,1,1,2-Tetrachloroethane	630-20-6	0.38		-	-	-	-	-	-	-
1,1,1-Trichloroethane	71-55-6	520		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	0.048		-	-	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.021		-	-	-	-	-	-	-
1,1-Dichloroethane	75-34-3	1.8		-	-	-	-	-	-	-
1,1-Dichloroethene	75-35-4	21		-	-	-	-	-	-	-
1,2,3-Trichloropropane	96-18-4	0.031		-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	0.21		-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	6.3		0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0047		-	-	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	21		-	-	-	-	-	-	-
1,2-Dichloroethane	107-06-2	0.11		-	-	-	-	-	-	-
1,2-Dichloropropane	78-87-5	0.42		-	-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane (CFC 114)	76-14-2	-		-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	6.3		-	-	-	-	-	-	-
1,3-Butadiene	106-99-0	0.094		-	-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	-		-	-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	0.26		-	-	-	-	-	-	-
1,4-Dioxane	123-91-1	0.56		-	-	-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	-		0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U	0.93 U
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	520		-	-	-	-	-	-	-
2-Hexanone	591-78-6	3.1		-	-	-	-	-	-	-
4-Ethyl toluene	622-96-8	-		-	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	108-10-1	310		-	-	-	-	-	-	-
Acetone	67-64-1	3200		-	-	-	-	-	-	-
Allyl chloride	107-05-1	0.1		-	-	-	-	-	-	-
Benzene	71-43-2	0.36		**0.75**	0.64 U	0.64 U	0.64 U	**0.64**	0.64 U	0.64 U
Benzyl chloride	100-44-7	0.057		-	-	-	-	-	-	-
Bromobenzene	108-86-1	6.3		-	-	-	-	-	-	-
Bromodichloromethane	75-27-4	0.076		-	-	-	-	-	-	-
Bromoform	75-25-2	2.6		-	-	-	-	-	-	-
Bromomethane (Methyl bromide)	74-83-9	0.52		-	-	-	-	-	-	-
Carbon disulfide	75-15-0	73		-	-	-	-	-	-	-
Carbon tetrachloride	56-23-5	0.47		-	-	-	-	-	-	-
Chlorobenzene	108-90-7	5.2		-	-	-	-	-	-	-
Chlorodifluoromethane	75-45-6	5200		-	-	-	-	-	-	-
Chloroethane	75-00-3	1000		-	-	-	-	-	-	-
Chloroform (Trichloromethane)	67-66-3	0.12		-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	74-87-3	9.4		-	-	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	-		-	-	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	-		-	-	-	-	-	-	-
Cyclohexane	110-82-7	630		0.69 U	0.69 U	0.69 U	0.69 U	1.6	0.69 U	0.69 U
Dibromochloromethane	124-48-1	-		-	-	-	-	-	-	-
Dibromomethane	74-95-3	0.42		-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	75-71-8	10		-	-	-	-	-	-	-
Dichlorofluoromethane	75-43-4	-		-	-	-	-	-	-	-
Ethanol	64-17-5	-		-	-	-	-	-	-	-
Ethylbenzene	100-41-4	1.1		0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U
Hexachlorobutadiene	87-68-3	0.13		-	-	-	-	-	-	-
Hexachloroethane	67-72-1	0.26		-	-	-	-	-	-	-
Hexane	110-54-3	73		0.75	0.70 U	0.70 U	0.75	2.0	1.4	0.70 U
Isopropyl benzene	98-82-8	42		-	-	-	-	-	-	-

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	DA-AA07	DA-AA08	DA-AA09	DA-AA10	DA-AA11	DA-AA12	DA-AA13
		Sample ID:	DA-AA07-G001	DA-AA08-G001	DA-AA09-G001	DA-AA10-G001	DA-AA11-G001	DA-AA12-G001	DA-AA13-G001
		Sample Date:	9/10/2013	9/10/2013	9/11/2013	9/12/2013	9/13/2013	12/6/2013	6/13/2014
Parameters									
Methyl tert butyl ether (MTBE)	1634-04-4	11	-	-	-	-	-	-	-
Methylene chloride	75-09-2	63	-	-	-	-	-	-	-
N-Heptane	142-82-5	42	0.82 U	0.82 U	0.82 U	0.82 U	15	0.82 U	0.82 U
Octane	111-65-9	-	-	-	-	-	-	-	-
Pentane	109-66-0	100	-	-	-	-	-	-	-
Styrene	100-42-5	100	-	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	-	-	-	-	-	-	-	-
Tetrachloroethene	127-18-4	4.2	-	-	-	-	-	-	-
Toluene	108-88-3	520	1.5	3.3	2.1	1.9	12	1.8	1.0
trans-1,2-Dichloroethene	156-60-5	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	-	-	-	-	-	-	-	-
Trichloroethene	79-01-6	0.21	-	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	75-69-4	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (CFC-113)	76-13-1	520	-	-	-	-	-	-	-
Vinyl chloride	75-01-4	0.17	-	-	-	-	-	-	-
Xylenes (total)	1330-20-7	10	1.9	0.87 U	0.87 U	0.87 U	2.0	2.2	0.87 U

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL)
Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	**DA-AA14**	**DA-AA15**	**DA-AA16**	**DA-AA17**	**DA-AA18**
		Sample ID:	**DA-AA14-G001**	**DA-AA15-G001**	**DA-AA16-G001**	**DA-AA17-G001**	**DA-AA18-G001**
		Sample Date:	**6/13/2014**	**9/6/2019**	**9/6/2019**	**9/9/2019**	**9/10/2019**
Parameters							
Volatile Organic Compounds		**USEPA RSL**					
1,1,1,2-Tetrachloroethane	630-20-6	0.38	-	-	-	-	-
1,1,1-Trichloroethane	71-55-6	520	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	0.048	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.021	-	-	-	-	-
1,1-Dichloroethane	75-34-3	1.8	-	-	-	-	-
1,1-Dichloroethene	75-35-4	21	-	-	-	-	-
1,2,3-Trichloropropane	96-18-4	0.031	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	0.21	-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	6.3	0.98 U	0.4 U	0.4 U	0.4 U	1
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0047	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	21	-	-	-	-	-
1,2-Dichloroethane	107-06-2	0.11	-	-	-	-	-
1,2-Dichloropropane	78-87-5	0.42	-	-	-	-	-
1,2-Dichlorotetrafluoroethane (CFC 114)	76-14-2	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	6.3	-	-	-	-	-
1,3-Butadiene	106-99-0	0.094	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	0.26	-	-	-	-	-
1,4-Dioxane	123-91-1	0.56	-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	-	0.93 U	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	520	-	-	-	-	-
2-Hexanone	591-78-6	3.1	-	-	-	-	-
4-Ethyl toluene	622-96-8	-	-	-	-	-	-
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	108-10-1	310	-	-	-	-	-
Acetone	67-64-1	3200	-	-	-	-	-
Allyl chloride	107-05-1	0.1	-	-	-	-	-
Benzene	71-43-2	0.36	0.64 U	0.3 J	0.3 J	0.2 U	0.2 J
Benzyl chloride	100-44-7	0.057	-	-	-	-	-
Bromobenzene	108-86-1	6.3	-	-	-	-	-
Bromodichloromethane	75-27-4	0.076	-	-	-	-	-
Bromoform	75-25-2	2.6	-	-	-	-	-
Bromomethane (Methyl bromide)	74-83-9	0.52	-	-	-	-	-
Carbon disulfide	75-15-0	73	-	-	-	-	-
Carbon tetrachloride	56-23-5	0.47	-	-	-	-	-
Chlorobenzene	108-90-7	5.2	-	-	-	-	-
Chlorodifluoromethane	75-45-6	5200	-	-	-	-	-
Chloroethane	75-00-3	1000	-	-	-	-	-
Chloroform (Trichloromethane)	67-66-3	0.12	-	-	-	-	-
Chloromethane (Methyl chloride)	74-87-3	9.4	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	-	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	-	-	-	-	-	-
Cyclohexane	110-82-7	630	0.69 U	-	-	-	-
Dibromochloromethane	124-48-1	-	-	-	-	-	-
Dibromomethane	74-95-3	0.42	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	75-71-8	10	-	-	-	-	-
Dichlorofluoromethane	75-43-4	-	-	-	-	-	-
Ethanol	64-17-5	-	-	-	-	-	-
Ethylbenzene	100-41-4	1.1	0.87 U	0.3 U	0.3 U	0.3 U	3
Hexachlorobutadiene	87-68-3	0.13	-	-	-	-	-
Hexachloroethane	67-72-1	0.26	-	-	-	-	-
Hexane	110-54-3	73	0.70 U	0.6 U	0.6 U	0.6 U	0.6 U
Isopropyl benzene	98-82-8	42	-	-	-	-	-

Table 2.3

OU-4 Screened Outdoor Air Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	DA-AA14	DA-AA15	DA-AA16	DA-AA17	DA-AA18
		Sample ID:	DA-AA14-G001	DA-AA15-G001	DA-AA16-G001	DA-AA17-G001	DA-AA18-G001
		Sample Date:	6/13/2014	9/6/2019	9/6/2019	9/9/2019	9/10/2019
Parameters							
Methyl tert butyl ether (MTBE)	1634-04-4	11	-	-	-	-	-
Methylene chloride	75-09-2	63	-	-	-	-	-
N-Heptane	142-82-5	42	0.82 U	-	-	-	-
Octane	111-65-9	-	-	-	-	-	-
Pentane	109-66-0	100	-	-	-	-	-
Styrene	100-42-5	100	-	-	-	-	-
tert-Butyl alcohol	75-65-0	-	-	-	-	-	-
Tetrachloroethene	127-18-4	4.2	-	-	-	-	-
Toluene	108-88-3	520	1.1	1	0.9	0.4 J	2
trans-1,2-Dichloroethene	156-60-5	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	-	-	-	-	-	-
Trichloroethene	79-01-6	0.21	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	75-69-4	-	-	-	-	-	-
Trifluorotrichloroethane (CFC-113)	76-13-1	520	-	-	-	-	-
Vinyl chloride	75-01-4	0.17	-	-	-	-	-
Xylenes (total)	1330-20-7	10	0.87 U	0.6 U	0.6 U	0.6 U	2 J

Footnotes:
U: Not detected at the associated reporting limit.
J:Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a: United States Environmental Protection Agency Regional Screening Levels (RSL)
Residential air (TCR = 1 x 10^-6 and HI = 0.1). May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG06	DA-SG06	DA-SG07	DA-SG07	DA-SG07	DA-SG07	DA-SG08
				Sample ID:	DA-SG-6-G001	DA-SG06-G002	DA-SG-7-G001	DA-SG07-G002	DA-SG07-G102	DA-SG7-G003	DA-SG-8-G001
				Sample Date:	10/25/2012	9/11/2013	10/25/2012	9/11/2013	9/11/2013 *(Duplicate)*	9/9/2019	10/24/2012
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**								
		a	b								
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-	-	-	-	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-	-	-	-	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-	-	-	-	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-	-	-	-	-	
1,1-Dichloroethene	75-35-4	690	695	-	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	0.52 U	2.0 U	200	0.98 U	1.3	1	1.0 U	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-	-	-	-	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-	-	-	-	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-	-	-	-	-	
1,2-Dichloroethene	540-59-0	---	---	-	-	-	-	-	-	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-	-	-	-	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-	-	-	-	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-	-	-	-	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-	-	-	-	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-	-	-	-	-	
1,4-Dioxane	123-91-1	18	18.7	-	-	-	-	-	-	-	
2,2,4-Trimethylpentane	540-84-1	---	---	0.35 U	11	0.70 U	0.93 U	0.93 U	-	9.9	
2-Butanone	78-93-3	17000	17400	-	-	-	-	-	-	-	
2-Chlorotoluene	95-49-8	---	---	-	-	-	-	-	-	-	
2-Hexanone	591-78-6	100	104	-	-	-	-	-	-	-	
2-Phenylbutane	135-98-8	---	---	-	-	-	-	-	-	-	
4-Ethyl toluene	622-96-8	---	---	-	-	-	-	-	-	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-	-	-	-	-	
Acetone	67-64-1	110000	107000	-	-	-	-	-	-	-	
Allyl chloride	107-05-1	3.3	3.48	-	-	-	-	-	-	-	
Benzene	71-43-2	12	12	0.29 U	1.5	0.58 U	0.83	0.72	0.8	0.58 U	
Benzyl chloride	100-44-7	1.9	1.91	-	-	-	-	-	-	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-	-	-	-	-	
Bromoform	75-25-2	86	85.1	-	-	-	-	-	-	-	
Bromomethane	74-83-9	17	17.4	-	-	-	-	-	-	-	
Carbon disulfide	75-15-0	2400	2430	-	-	-	-	-	-	-	
Carbon tetrachloride	56-23-5	16	15.6	-	-	-	-	-	-	-	
Chlorobenzene	108-90-7	170	174	-	-	-	-	-	-	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-	-	-	-	-	
Chloroethane	75-00-3	33000	34800	-	-	-	-	-	-	-	
Chloroform	67-66-3	4	4.07	-	-	-	-	-	-	-	
Chloromethane	74-87-3	310	313	-	-	-	-	-	-	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-	-	-	-	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-	-	-	-	-	
Cyclohexane	110-82-7	21000	20900	0.33 U	1.4 U	11	0.69 U	0.69 U	-	30	
Cymene	99-87-6	---	---	-	-	-	-	-	-	-	
Dibromochloromethane	124-48-1	---	---	-	-	-	-	-	-	-	
Dichlorodifluoromethane	75-71-8	330	348	-	-	-	-	-	-	-	
Ethylbenzene	100-41-4	36	37.4	0.33 U	1.7 U	68[ab]	0.87 U	0.87 U	4	0.65 U	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-	-	-	-	-	
Hexane	110-54-3	2400	2430	0.35 U	3.8	14	0.70 U	0.70 U	1	19	
Isopropyl alcohol	67-63-0	690	695	-	-	-	-	-	-	-	

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG06	DA-SG06	DA-SG07	DA-SG07	DA-SG07	DA-SG07	DA-SG08
			Sample ID:	DA-SG-6-G001	DA-SG06-G002	DA-SG-7-G001	DA-SG07-G002	DA-SG07-G102	DA-SG7-G003	DA-SG-8-G001
			Sample Date:	10/25/2012	9/11/2013	10/25/2012	9/11/2013	9/11/2013 *(Duplicate)*	9/9/2019	10/24/2012
Parameters										
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	0.35 U	170	40	20	0.82 U	-	0.70 U
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-	-	-
Toluene	108-88-3	17000	17400	560	110	830	0.75 U	0.85	58	1300
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	-	6.1	-	0.87 U	1.2	16	-

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG08	DA-SG08	DA-SG09	DA-SG09	DA-SG09
				Sample ID:	DA-SG08-G002	DA-SG8-G003	DA-SG-9-G001	DA-SG9-G002	SVE-SG9-G001_20180702_N
				Sample Date:	9/12/2013	9/9/2019	10/25/2012	9/11/2013	7/9/2018
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**						
		a	b						
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-	-	-
1,1-Dichloroethene	75-35-4	690	695	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209	0.98 U	2 U	250[ab]	2.5	6 U
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-	-	-
1,2-Dichloroethene	540-59-0	---	---	-	-	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-	-	-
1,4-Dioxane	123-91-1	18	18.7	-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---	6.5	-	0.42 U	13	-
2-Butanone	78-93-3	17000	17400	-	-	-	-	-
2-Chlorotoluene	95-49-8	---	---	-	-	-	-	-
2-Hexanone	591-78-6	100	104	-	-	-	-	-
2-Phenylbutane	135-98-8	---	---	-	-	-	-	-
4-Ethyl toluene	622-96-8	---	---	-	-	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-	-	-
Acetone	67-64-1	110000	107000	-	-	-	-	-
Allyl chloride	107-05-1	3.3	3.48	-	-	-	-	-
Benzene	71-43-2	12	12	6.7	1 J	3.8	6.6	4 U
Benzyl chloride	100-44-7	1.9	1.91	-	-	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-	-	-
Bromoform	75-25-2	86	85.1	-	-	-	-	-
Bromomethane	74-83-9	17	17.4	-	-	-	-	-
Carbon disulfide	75-15-0	2400	2430	-	-	-	-	-
Carbon tetrachloride	56-23-5	16	15.6	-	-	-	-	-
Chlorobenzene	108-90-7	170	174	-	-	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-	-	-
Chloroethane	75-00-3	33000	34800	-	-	-	-	-
Chloroform	67-66-3	4	4.07	-	-	-	-	-
Chloromethane	74-87-3	310	313	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-	-	-
Cyclohexane	110-82-7	21000	20900	21	-	6.6	22	-
Cymene	99-87-6	---	---	-	-	-	-	-
Dibromochloromethane	124-48-1	---	---	-	-	-	-	-
Dichlorodifluoromethane	75-71-8	330	348	-	-	-	-	-
Ethylbenzene	100-41-4	36	37.4	1.2	2 U	58[ab]	2.2	5 U
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-	-	-
Hexane	110-54-3	2400	2430	12	3 U	13	36	4 U
Isopropyl alcohol	67-63-0	690	695	-	-	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG08	DA-SG08	DA-SG09	DA-SG09	DA-SG09
			Sample ID:	DA-SG08-G002	DA-SG8-G003	DA-SG-9-G001	DA-SG9-G002	SVE-SG9-G001_20180702_N
			Sample Date:	9/12/2013	9/9/2019	10/25/2012	9/11/2013	7/9/2018
Parameters								
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	3.6	-	21	17	-
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-
Toluene	108-88-3	17000	17400	2.6	18	390	3.0	380
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	2.4	3 U	-	4.1	18 U

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG09	DA-SG09	DA-SG09	DA-SG10	DA-SG10
				Sample ID:	SVE-SG9-G002_20180827_N	SVE-SG09-G003_12/19/18	DA-SG9-G003	DA-SG-10-G001	DA-SG10-G002
				Sample Date:	8/31/2018	12/19/2018	9/10/2019	10/24/2012	9/11/2013
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**						
		a	b						
1,1,1-Trichloroethane	71-55-6	17000	17400	-	0.4 U	-	-	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	0.5 U	-	-	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	0.4 U	-	-	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	0.1 U	-	-	-	
1,1-Dichloroethene	75-35-4	690	695	-	0.1 U	-	-	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	2 U	-	-	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	1 U	0.4 U	10 U	1.0 U	0.98 U	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	0.5 U	-	-	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	0.4 U	-	-	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	0.3 U	-	-	-	
1,2-Dichloroethene	540-59-0	---	---	-	0.4 U	-	-	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	0.6 U	-	-	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	0.5 U	-	-	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	0.3 U	-	-	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	0.1 U	-	-	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	0.5 U	-	-	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	0.4 U	-	-	-	
1,4-Dioxane	123-91-1	18	18.7	-	5 U	-	-	-	
2,2,4-Trimethylpentane	540-84-1	---	---	-	0.4 U	-	27	3.9	
2-Butanone	78-93-3	17000	17400	-	0.6 U	-	-	-	
2-Chlorotoluene	95-49-8	---	---	-	0.4 U	-	-	-	
2-Hexanone	591-78-6	100	104	-	2 U	-	-	-	
2-Phenylbutane	135-98-8	---	---	-	0.4 U	-	-	-	
4-Ethyl toluene	622-96-8	---	---	-	0.3 U	-	-	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	1 U	-	-	-	
Acetone	67-64-1	110000	107000	-	7 J	-	-	-	
Allyl chloride	107-05-1	3.3	3.48	-	0.8 U	-	-	-	
Benzene	71-43-2	12	12	0.6	0.4 J	6 U	15[ab]	18[ab]	
Benzyl chloride	100-44-7	1.9	1.91	-	0.6 U	-	-	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	0.6 U	-	-	-	
Bromoform	75-25-2	86	85.1	-	0.9 U	-	-	-	
Bromomethane	74-83-9	17	17.4	-	0.2 U	-	-	-	
Carbon disulfide	75-15-0	2400	2430	-	1 J	-	-	-	
Carbon tetrachloride	56-23-5	16	15.6	-	0.2 U	-	-	-	
Chlorobenzene	108-90-7	170	174	-	0.2 U	-	-	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	0.9 U	-	-	-	
Chloroethane	75-00-3	33000	34800	-	0.6 U	-	-	-	
Chloroform	67-66-3	4	4.07	-	0.3 U	-	-	-	
Chloromethane	74-87-3	310	313	-	0.5 U	-	-	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	0.1 U	-	-	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	0.4 U	-	-	-	
Cyclohexane	110-82-7	21000	20900	-	1	-	9.6	7.4	
Cymene	99-87-6	---	---	-	0.4 U	-	-	-	
Dibromochloromethane	124-48-1	---	---	-	0.6 U	-	-	-	
Dichlorodifluoromethane	75-71-8	330	348	-	1 U	-	-	-	
Ethylbenzene	100-41-4	36	37.4	0.9 U	0.3 U	8 U	0.65 U	0.87 U	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	0.9 U	-	-	-	
Hexane	110-54-3	2400	2430	4	0.8	14 U	0.70 U	0.70 U	
Isopropyl alcohol	67-63-0	690	695	-	6 J	-	-	-	

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG09	DA-SG09	DA-SG09	DA-SG10	DA-SG10
			Sample ID:	SVE-SG9-G002_20180827_N	SVE-SG09-G003_12/19/18	DA-SG9-G003	DA-SG-10-G001	DA-SG10-G002
			Sample Date:	8/31/2018	12/19/2018	9/10/2019	10/24/2012	9/11/2013
Parameters								
Isopropyl benzene	98-82-8	1400	1390	-	0.3 U	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	0.9 U	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	0.2 U	-	-	-
Methylene chloride	75-09-2	2100	2090	-	0.7 U	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	2 U	-	-	-
N-Butylbenzene	104-51-8	---	---	-	0.4 U	-	-	-
N-Heptane	142-82-5	1400	1390	-	0.6 U	-	0.70 U	0.82 U
N-Propylbenzene	103-65-1	3300	3480	-	0.3 U	-	-	-
Styrene	100-42-5	3300	3480	-	0.4 U	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	5 U	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	0.3 U	-	-	-
Tetrachloroethene	127-18-4	140	139	-	0.2 U	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	8 U	-	-	-
Toluene	108-88-3	17000	17400	2	0.4 J	540	1000	4.3
trans-1,2-Dichloroethene	156-60-5	---	---	-	0.3 U	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	0.5 U	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	0.2 U	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	0.7 J	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	0.2 U	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	0.2 U	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	0.1 U	-	-	-
Xylenes (total)	1330-20-7	330	348	-	0.6 U	15 U	-	0.97

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG10	DA-SG10	DA-SG10	DA-SG10
				Sample ID:	SVE-SG10-G001_20180702_N	SVE-SG10-G002_20180827_N	SVE-SG10-G003_12/19/18	DA-SG10-G003
				Sample Date:	7/10/2018	8/31/2018	12/19/2018	9/10/2019
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**					
		a	b					
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	0.4 U	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	0.5 U	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	0.4 U	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	-	0.1 U	-	
1,1-Dichloroethene	75-35-4	690	695	-	-	0.1 U	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	2 UJ	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	7 U	1 U	0.4 U	10 U	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	0.5 U	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	-	0.4 U	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	0.3 U	-	
1,2-Dichloroethene	540-59-0	---	---	-	-	0.4 U	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	-	0.6 U	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	0.5 U	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	0.3 U	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	-	0.1 U	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	-	0.5 U	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	0.4 U	-	
1,4-Dioxane	123-91-1	18	18.7	-	-	5 U	-	
2,2,4-Trimethylpentane	540-84-1	---	---	-	-	0.4 U	-	
2-Butanone	78-93-3	17000	17400	-	-	1 J	-	
2-Chlorotoluene	95-49-8	---	---	-	-	0.4 U	-	
2-Hexanone	591-78-6	100	104	-	-	2 U	-	
2-Phenylbutane	135-98-8	---	---	-	-	0.4 U	-	
4-Ethyl toluene	622-96-8	---	---	-	-	0.3 U	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	1 U	-	
Acetone	67-64-1	110000	107000	-	-	8 J	-	
Allyl chloride	107-05-1	3.3	3.48	-	-	0.8 U	-	
Benzene	71-43-2	12	12	4 U	0.6 U	0.2 J	6 U	
Benzyl chloride	100-44-7	1.9	1.91	-	-	0.6 U	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	-	0.6 U	-	
Bromoform	75-25-2	86	85.1	-	-	0.9 U	-	
Bromomethane	74-83-9	17	17.4	-	-	0.2 U	-	
Carbon disulfide	75-15-0	2400	2430	-	-	0.4 U	-	
Carbon tetrachloride	56-23-5	16	15.6	-	-	0.2 U	-	
Chlorobenzene	108-90-7	170	174	-	-	0.2 U	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	-	0.9 U	-	
Chloroethane	75-00-3	33000	34800	-	-	0.6 U	-	
Chloroform	67-66-3	4	4.07	-	-	0.3 U	-	
Chloromethane	74-87-3	310	313	-	-	0.5 U	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	0.1 U	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	0.4 U	-	
Cyclohexane	110-82-7	21000	20900	-	-	0.2 U	-	
Cymene	99-87-6	---	---	-	-	0.4 U	-	
Dibromochloromethane	124-48-1	---	---	-	-	0.6 U	-	
Dichlorodifluoromethane	75-71-8	330	348	-	-	2 J	-	
Ethylbenzene	100-41-4	36	37.4	6 U	0.9 U	0.3 U	8 U	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	0.9 U	-	
Hexane	110-54-3	2400	2430	5 U	0.7 U	0.9	14 U	
Isopropyl alcohol	67-63-0	690	695	-	-	5 J	-	

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG10	DA-SG10	DA-SG10	DA-SG10
			Sample ID:	SVE-SG10-G001_20180702_N	SVE-SG10-G002_20180827_N	SVE-SG10-G003_12/19/18	DA-SG10-G003
			Sample Date:	7/10/2018	8/31/2018	12/19/2018	9/10/2019
Parameters							
Isopropyl benzene	98-82-8	1400	1390	-	-	0.3 U	-
Methyl methacrylate	80-62-6	2400	2430	-	-	0.9 U	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	0.2 U	-
Methylene chloride	75-09-2	2100	2090	-	-	0.7 U	-
Naphthalene	91-20-3	2.7	2.75	-	-	2 UJ	-
N-Butylbenzene	104-51-8	---	---	-	-	0.4 U	-
N-Heptane	142-82-5	1400	1390	-	-	0.7 J	-
N-Propylbenzene	103-65-1	3300	3480	-	-	0.3 U	-
Styrene	100-42-5	3300	3480	-	-	0.4 U	-
tert-Butyl alcohol	75-65-0	---	---	-	-	5 U	-
tert-Butylbenzene	98-06-6	---	---	-	-	0.3 U	-
Tetrachloroethene	127-18-4	140	139	-	-	0.3 J	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	8 U	-
Toluene	108-88-3	17000	17400	510	0.8	0.5 J	580
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	0.3 U	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	0.5 U	-
Trichloroethene	79-01-6	6.9	6.95	-	-	0.2 U	-
Trichlorofluoromethane	75-69-4	---	---	-	-	0.7 J	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	0.2 J	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	0.2 U	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	0.1 U	-
Xylenes (total)	1330-20-7	330	348	21 U	-	0.6 U	15 U

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters									
Sample Location:				**DA-SG11**	**DA-SG11**	**DA-SG11**	**DA-SG12**	**DA-SG12**	**DA-SG13D**
Sample ID:				**DA-SG-11-G001**	**DA-SG11-G002**	**DA-SG11-G003**	**DA-SG-12-G001**	**DA-SG-12-G002**	**DA-SG-13D-G001**
Sample Date:				**10/24/2012**	**9/12/2013**	**9/9/2019**	**10/25/2012**	**3/1/2013**	**10/24/2012**
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**						
		a	b						
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-	-	-	-
1,1-Dichloroethene	75-35-4	690	695	-	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209	**1400[ab]**	350 U	0.8 U	2.8	1.4	110 U
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-	-	-	-
1,2-Dichloroethene	540-59-0	---	---	-	-	-	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-	-	-	-
1,4-Dioxane	123-91-1	18	18.7	-	-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---	370	5700	-	0.11 U	1.7	190000
2-Butanone	78-93-3	17000	17400	-	-	-	-	-	-
2-Chlorotoluene	95-49-8	---	---	-	-	-	-	-	-
2-Hexanone	591-78-6	100	104	-	-	-	-	-	-
2-Phenylbutane	135-98-8	---	---	-	-	-	-	-	-
4-Ethyl toluene	622-96-8	---	---	-	-	-	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-	-	-	-
Acetone	67-64-1	110000	107000	-	-	-	-	-	-
Allyl chloride	107-05-1	3.3	3.48	-	-	-	-	-	-
Benzene	71-43-2	12	12	2.1 U	230 U	3	0.092 U	**14[ab]**	**810[ab]**
Benzyl chloride	100-44-7	1.9	1.91	-	-	-	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-	-	-	-
Bromoform	75-25-2	86	85.1	-	-	-	-	-	-
Bromomethane	74-83-9	17	17.4	-	-	-	-	-	-
Carbon disulfide	75-15-0	2400	2430	-	-	-	-	-	-
Carbon tetrachloride	56-23-5	16	15.6	-	-	-	-	-	-
Chlorobenzene	108-90-7	170	174	-	-	-	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-	-	-	-
Chloroethane	75-00-3	33000	34800	-	-	-	-	-	-
Chloroform	67-66-3	4	4.07	-	-	-	-	-	-
Chloromethane	74-87-3	310	313	-	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-	-	-	-
Cyclohexane	110-82-7	21000	20900	730	6800	-	0.10 U	0.065 U	**37000[ab]**
Cymene	99-87-6	---	---	-	-	-	-	-	-
Dibromochloromethane	124-48-1	---	---	-	-	-	-	-	-
Dichlorodifluoromethane	75-71-8	330	348	-	-	-	-	-	-
Ethylbenzene	100-41-4	36	37.4	**600[ab]**	310 U	0.6 U	2.0	0.065 U	68 U
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-	-	-	-
Hexane	110-54-3	2400	2430	**2900[ab]**	**44000[ab]**	3	0.11 U	0.070 U	**16000[ab]**
Isopropyl alcohol	67-63-0	690	695	-	-	-	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG11	DA-SG11	DA-SG11	DA-SG12	DA-SG12	DA-SG13D
			Sample ID:	DA-SG-11-G001	DA-SG11-G002	DA-SG11-G003	DA-SG-12-G001	DA-SG-12-G002	DA-SG-13D-G001
			Sample Date:	10/24/2012	9/12/2013	9/9/2019	10/25/2012	3/1/2013	10/24/2012
Parameters									
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	**2000[ab]**	**22000[ab]**	-	0.11 U	0.070 U	**16000[ab]**
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-	-
Toluene	108-88-3	17000	17400	1900	270 U	6	180	3.0	55 U
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	-	310 U	1 U	-	1.0	-

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG13D	DA-SG13D	DA-SG13S	DA-SG13S	DA-SG13S	DA-SG13S
				Sample ID:	DA-SG-13D-G101	DA-SG13D-G002	DA-SG-13S-G001	DA-SG-13S-G002	DA-SG-13S-G102	DA-SG13S-G003
				Sample Date:	10/24/2012 *(Duplicate)*	9/10/2019	10/24/2012	3/1/2013	3/1/2013 *(Duplicate)*	9/12/2013
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**							
		a	b							
1,1,1-Trichloroethane	71-55-6	17000	17400		-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61		-	-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695		-	-	-	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5		-	-	-	-	-	-
1,1-Dichloroethene	75-35-4	690	695		-	-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95		-	-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209		230 U	0.9 J	0.46 U	5.2 U	6.2 U	24 U
1,2-Dibromoethane	106-93-4	0.16	0.156		-	-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695		-	-	-	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6		-	-	-	-	-	-
1,2-Dichloroethene	540-59-0	---	---		-	-	-	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9		-	-	-	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---		-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209		-	-	-	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12		-	-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---		-	-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51		-	-	-	-	-	-
1,4-Dioxane	123-91-1	18	18.7		-	-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---		240000	-	290	14000	9200	2800
2-Butanone	78-93-3	17000	17400		-	-	-	-	-	-
2-Chlorotoluene	95-49-8	---	---		-	-	-	-	-	-
2-Hexanone	591-78-6	100	104		-	-	-	-	-	-
2-Phenylbutane	135-98-8	---	---		-	-	-	-	-	-
4-Ethyl toluene	622-96-8	---	---		-	-	-	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400		-	-	-	-	-	-
Acetone	67-64-1	110000	107000		-	-	-	-	-	-
Allyl chloride	107-05-1	3.3	3.48		-	-	-	-	-	-
Benzene	71-43-2	12	12		130 U	0.2 U	0.26 U	2.9 U	3.4 U	15 U
Benzyl chloride	100-44-7	1.9	1.91		-	-	-	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53		-	-	-	-	-	-
Bromoform	75-25-2	86	85.1		-	-	-	-	-	-
Bromomethane	74-83-9	17	17.4		-	-	-	-	-	-
Carbon disulfide	75-15-0	2400	2430		-	-	-	-	-	-
Carbon tetrachloride	56-23-5	16	15.6		-	-	-	-	-	-
Chlorobenzene	108-90-7	170	174		-	-	-	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000		-	-	-	-	-	-
Chloroethane	75-00-3	33000	34800		-	-	-	-	-	-
Chloroform	67-66-3	4	4.07		-	-	-	-	-	-
Chloromethane	74-87-3	310	313		-	-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---		-	-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---		-	-	-	-	-	-
Cyclohexane	110-82-7	21000	20900		**50000[ab]**	-	17	3.3 U	3.9 U	130
Cymene	99-87-6	---	---		-	-	-	-	-	-
Dibromochloromethane	124-48-1	---	---		-	-	-	-	-	-
Dichlorodifluoromethane	75-71-8	330	348		-	-	-	-	-	-
Ethylbenzene	100-41-4	36	37.4		150 U	0.4 J	0.29 U	3.3 U	3.9 U	21 U
Hexachlorobutadiene	87-68-3	4.3	4.25		-	-	-	-	-	-
Hexane	110-54-3	2400	2430		**24000[ab]**	3	28	1100	1100	660
Isopropyl alcohol	67-63-0	690	695		-	-	-	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG13D	DA-SG13D	DA-SG13S	DA-SG13S	DA-SG13S	DA-SG13S
			Sample ID:	DA-SG-13D-G101	DA-SG13D-G002	DA-SG-13S-G001	DA-SG-13S-G002	DA-SG-13S-G102	DA-SG13S-G003
			Sample Date:	10/24/2012 *(Duplicate)*	9/10/2019	10/24/2012	3/1/2013	3/1/2013 *(Duplicate)*	9/12/2013
Parameters									
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	**21000[ab]**	-	11	410	310	150
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-	-
Toluene	108-88-3	17000	17400	120 U	99	390	2.7 U	3.2 U	18 U
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	-	2 J	-	3.5 U	4.2 U	21 U

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG13S	DA-SG13S	DA-SG13S	DA-SG13S
				Sample ID:	SVE-SG135-G001_20180702_N	SVE-SG135-G002_20180827_N	SVE-SG13S-G003_12/19/18	DA-SG13S-G004
				Sample Date:	7/9/2018	8/31/2018	12/19/2018	9/10/2019
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**					
		a	b					
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	0.4 U	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	0.5 U	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	0.4 U	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	-	0.1 U	-	
1,1-Dichloroethene	75-35-4	690	695	-	-	0.1 U	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	2 U	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	28 U	4	0.4 U	1	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	0.5 U	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	-	0.4 U	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	0.3 U	-	
1,2-Dichloroethene	540-59-0	---	---	-	-	0.4 U	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	-	0.6 U	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	0.5 U	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	0.3 U	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	-	0.1 U	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	-	0.5 U	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	0.4 U	-	
1,4-Dioxane	123-91-1	18	18.7	-	-	5 U	-	
2,2,4-Trimethylpentane	540-84-1	---	---	-	-	7	-	
2-Butanone	78-93-3	17000	17400	-	-	0.6 U	-	
2-Chlorotoluene	95-49-8	---	---	-	-	0.4 U	-	
2-Hexanone	591-78-6	100	104	-	-	2 U	-	
2-Phenylbutane	135-98-8	---	---	-	-	0.4 U	-	
4-Ethyl toluene	622-96-8	---	---	-	-	0.3 U	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	1 U	-	
Acetone	67-64-1	110000	107000	-	-	14	-	
Allyl chloride	107-05-1	3.3	3.48	-	-	0.8 U	-	
Benzene	71-43-2	12	12	18 U	0.6 U	0.6	2	
Benzyl chloride	100-44-7	1.9	1.91	-	-	0.6 U	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	-	0.6 U	-	
Bromoform	75-25-2	86	85.1	-	-	0.9 U	-	
Bromomethane	74-83-9	17	17.4	-	-	0.2 U	-	
Carbon disulfide	75-15-0	2400	2430	-	-	0.6 J	-	
Carbon tetrachloride	56-23-5	16	15.6	-	-	0.2 U	-	
Chlorobenzene	108-90-7	170	174	-	-	0.2 U	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	-	0.9 U	-	
Chloroethane	75-00-3	33000	34800	-	-	0.6 U	-	
Chloroform	67-66-3	4	4.07	-	-	0.7 J	-	
Chloromethane	74-87-3	310	313	-	-	0.5 U	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	0.1 U	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	0.4 U	-	
Cyclohexane	110-82-7	21000	20900	-	-	6	-	
Cymene	99-87-6	---	---	-	-	0.4 U	-	
Dibromochloromethane	124-48-1	---	---	-	-	0.6 U	-	
Dichlorodifluoromethane	75-71-8	330	348	-	-	1 U	-	
Ethylbenzene	100-41-4	36	37.4	24 U	0.9 U	0.3 U	3	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	0.9 U	-	
Hexane	110-54-3	2400	2430	20 U	0.7 U	6	0.6 U	
Isopropyl alcohol	67-63-0	690	695	-	-	6 J	-	

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG13S	DA-SG13S	DA-SG13S	DA-SG13S
			Sample ID:	SVE-SG135-G001_20180702_N	SVE-SG135-G002_20180827_N	SVE-SG13S-G003_12/19/18	DA-SG13S-G004
			Sample Date:	7/9/2018	8/31/2018	12/19/2018	9/10/2019
Parameters							
Isopropyl benzene	98-82-8	1400	1390	-	-	0.3 U	-
Methyl methacrylate	80-62-6	2400	2430	-	-	0.9 U	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	0.2 U	-
Methylene chloride	75-09-2	2100	2090	-	-	0.7 U	-
Naphthalene	91-20-3	2.7	2.75	-	-	2 U	-
N-Butylbenzene	104-51-8	---	---	-	-	0.4 U	-
N-Heptane	142-82-5	1400	1390	-	-	2	-
N-Propylbenzene	103-65-1	3300	3480	-	-	0.3 U	-
Styrene	100-42-5	3300	3480	-	-	0.4 U	-
tert-Butyl alcohol	75-65-0	---	---	-	-	5 U	-
tert-Butylbenzene	98-06-6	---	---	-	-	0.3 U	-
Tetrachloroethene	127-18-4	140	139	-	-	4	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	8 U	-
Toluene	108-88-3	17000	17400	2300	2	0.4 J	1
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	0.3 U	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	0.5 U	-
Trichloroethene	79-01-6	6.9	6.95	-	-	0.2 U	-
Trichlorofluoromethane	75-69-4	---	---	-	-	0.8 J	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	0.2 U	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	0.2 U	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	0.1 U	-
Xylenes (total)	1330-20-7	330	348	85 U	-	0.6 U	7

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG14D	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG14S
				Sample ID:	DA-SG-14D-G001	DA-SG-14S-G001	DA-SG14S-G002	DA-SG14S-G102	SVE-SG145-G001_20180702_N
				Sample Date:	10/24/2012	10/24/2012	9/12/2013	9/12/2013 *(Duplicate)*	7/9/2018
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**						
		a	b						
1,1,1-Trichloroethane	71-55-6	17000	17400		-	-	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61		-	-	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695		-	-	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5		-	-	-	-	-
1,1-Dichloroethene	75-35-4	690	695		-	-	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95		-	-	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209		330000[ab]	2800[ab]	4200[ab]	4100[ab]	340[ab]
1,2-Dibromoethane	106-93-4	0.16	0.156		-	-	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695		-	-	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6		-	-	-	-	-
1,2-Dichloroethene	540-59-0	---	---		-	-	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9		-	-	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---		-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209		-	-	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12		-	-	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---		-	-	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51		-	-	-	-	-
1,4-Dioxane	123-91-1	18	18.7		-	-	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---		450000	35000	42000	38000	-
2-Butanone	78-93-3	17000	17400		-	-	-	-	-
2-Chlorotoluene	95-49-8	---	---		-	-	-	-	-
2-Hexanone	591-78-6	100	104		-	-	-	-	-
2-Phenylbutane	135-98-8	---	---		-	-	-	-	-
4-Ethyl toluene	622-96-8	---	---		-	-	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400		-	-	-	-	-
Acetone	67-64-1	110000	107000		-	-	-	-	-
Allyl chloride	107-05-1	3.3	3.48		-	-	-	-	-
Benzene	71-43-2	12	12		5300 U	450[ab]	470[ab]	470[ab]	63[ab]
Benzyl chloride	100-44-7	1.9	1.91		-	-	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53		-	-	-	-	-
Bromoform	75-25-2	86	85.1		-	-	-	-	-
Bromomethane	74-83-9	17	17.4		-	-	-	-	-
Carbon disulfide	75-15-0	2400	2430		-	-	-	-	-
Carbon tetrachloride	56-23-5	16	15.6		-	-	-	-	-
Chlorobenzene	108-90-7	170	174		-	-	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000		-	-	-	-	-
Chloroethane	75-00-3	33000	34800		-	-	-	-	-
Chloroform	67-66-3	4	4.07		-	-	-	-	-
Chloromethane	74-87-3	310	313		-	-	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---		-	-	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---		-	-	-	-	-
Cyclohexane	110-82-7	21000	20900		2700000[ab]	24000[ab]	26000[ab]	24000[ab]	-
Cymene	99-87-6	---	---		-	-	-	-	-
Dibromochloromethane	124-48-1	---	---		-	-	-	-	-
Dichlorodifluoromethane	75-71-8	330	348		-	-	-	-	-
Ethylbenzene	100-41-4	36	37.4		630000[ab]	2200[ab]	3000[ab]	2900[ab]	220[ab]
Hexachlorobutadiene	87-68-3	4.3	4.25		-	-	-	-	-
Hexane	110-54-3	2400	2430		11000000[ab]	55000[ab]	50000[ab]	48000[ab]	4500[ab]
Isopropyl alcohol	67-63-0	690	695		-	-	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG14D	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG14S
			Sample ID:	DA-SG-14D-G001	DA-SG-14S-G001	DA-SG14S-G002	DA-SG14S-G102	SVE-SG145-G001_20180702_N
			Sample Date:	10/24/2012	10/24/2012	9/12/2013	9/12/2013 *(Duplicate)*	7/9/2018
Parameters								
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	**4300000[ab]**	**11000[ab]**	**12000[ab]**	**11000[ab]**	-
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-
Toluene	108-88-3	17000	17400	**1700000[ab]**	1300	360 U	300 U	1200
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	**2450000[ab]**	**4300[ab]**	**2300[ab]**	**2400[ab]**	**820[ab]**

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG15
				Sample ID:	SVE-SG145-G002_20180827_N	SVE-SG14S-G003_12/19/18	DA-SG14S-G003	DA-SG14S-G103	DA-SG-15-G001
				Sample Date:	8/31/2018	12/19/2018	9/10/2019	9/10/2019 *(Duplicate)*	3/1/2013
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**						
		a	b						
1,1,1-Trichloroethane	71-55-6	17000	17400		-	10 U	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61		-	14 U	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695		-	11 U	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5		-	3 U	-	-	-
1,1-Dichloroethene	75-35-4	690	695		-	4 U	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95		-	48 U	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209		1500[ab]	340[ab]	2500 J[ab]	3300 J[ab]	2.1 U
1,2-Dibromoethane	106-93-4	0.16	0.156		-	14 U	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695		-	12 U	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6		-	7 U	-	-	-
1,2-Dichloroethene	540-59-0	---	---		-	12 U	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9		-	15 U	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---		-	13 U	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209		-	200	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12		-	4 U	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---		-	13 U	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51		-	11 U	-	-	-
1,4-Dioxane	123-91-1	18	18.7		-	130 U	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---		-	3300	-	-	1.4 U
2-Butanone	78-93-3	17000	17400		-	16 U	-	-	-
2-Chlorotoluene	95-49-8	---	---		-	10 U	-	-	-
2-Hexanone	591-78-6	100	104		-	46 U	-	-	-
2-Phenylbutane	135-98-8	---	---		-	40	-	-	-
4-Ethyl toluene	622-96-8	---	---		-	80	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400		-	40 U	-	-	-
Acetone	67-64-1	110000	107000		-	170 U	-	-	-
Allyl chloride	107-05-1	3.3	3.48		-	23 U	-	-	-
Benzene	71-43-2	12	12		230[ab]	140[ab]	200[ab]	220[ab]	1.1 U
Benzyl chloride	100-44-7	1.9	1.91		-	17 U	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53		-	17 U	-	-	-
Bromoform	75-25-2	86	85.1		-	24 U	-	-	-
Bromomethane	74-83-9	17	17.4		-	7 U	-	-	-
Carbon disulfide	75-15-0	2400	2430		-	28 J	-	-	-
Carbon tetrachloride	56-23-5	16	15.6		-	4 U	-	-	-
Chlorobenzene	108-90-7	170	174		-	5 U	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000		-	25 U	-	-	-
Chloroethane	75-00-3	33000	34800		-	15 U	-	-	-
Chloroform	67-66-3	4	4.07		-	7 U	-	-	-
Chloromethane	74-87-3	310	313		-	14 U	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---		-	4 U	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---		-	12 U	-	-	-
Cyclohexane	110-82-7	21000	20900		-	4900	-	-	1.3 U
Cymene	99-87-6	---	---		-	23 J	-	-	-
Dibromochloromethane	124-48-1	---	---		-	16 U	-	-	-
Dichlorodifluoromethane	75-71-8	330	348		-	27 U	-	-	-
Ethylbenzene	100-41-4	36	37.4		950[ab]	360[ab]	670[ab]	680[ab]	1.3 U
Hexachlorobutadiene	87-68-3	4.3	4.25		-	24 U	-	-	-
Hexane	110-54-3	2400	2430		12000[ab]	11000[ab]	14000[ab]	14000[ab]	1.4 U
Isopropyl alcohol	67-63-0	690	695		-	120 U	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG14S	DA-SG15
			Sample ID:	SVE-SG145-G002_20180827_N	SVE-SG14S-G003_12/19/18	DA-SG14S-G003	DA-SG14S-G103	DA-SG-15-G001
			Sample Date:	8/31/2018	12/19/2018	9/10/2019	9/10/2019 *(Duplicate)*	3/1/2013
Parameters								
Isopropyl benzene	98-82-8	1400	1390	-	85	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	24 U	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	6 U	-	-	-
Methylene chloride	75-09-2	2100	2090	-	19 U	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	44 U	-	-	-
N-Butylbenzene	104-51-8	---	---	-	12 U	-	-	-
N-Heptane	142-82-5	1400	1390	-	**2800[ab]**	-	-	1.4 U
N-Propylbenzene	103-65-1	3300	3480	-	97	-	-	-
Styrene	100-42-5	3300	3480	-	10 U	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	120 U	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	25 J	-	-	-
Tetrachloroethene	127-18-4	140	139	-	5 U	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	210 U	-	-	-
Toluene	108-88-3	17000	17400	75 U	7 U	11 J	19 U	89
trans-1,2-Dichloroethene	156-60-5	---	---	-	8 U	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	15 U	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	4 U	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	9 U	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	6 U	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	7 U	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	3 U	-	-	-
Xylenes (total)	1330-20-7	330	348	**2660[ab]**	**360[ab]**	**830[ab]**	**850[ab]**	22

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG15	DA-SG15	DA-SG16	DA-SG16	DA-SG16	DA-SG17
				Sample ID:	DA-SG15-G002	DA-SG15-G003	DA-SG-16-G001	DA-SG16-G002	DA-SG16-G003	DA-SG17-G001
				Sample Date:	9/11/2013	9/9/2019	3/1/2013	9/11/2013	9/9/2019	9/10/2013
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**							
		a	b							
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-	-	-	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-	-	-	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-	-	-	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-	-	-	-	
1,1-Dichloroethene	75-35-4	690	695	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	1.5	0.4 J	2.0 U	0.98 U	0.4 U	0.98 U	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-	-	-	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-	-	-	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-	-	-	-	
1,2-Dichloroethene	540-59-0	---	---	-	-	-	-	-	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-	-	-	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-	-	-	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-	-	-	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-	-	-	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-	-	-	-	
1,4-Dioxane	123-91-1	18	18.7	-	-	-	-	-	-	
2,2,4-Trimethylpentane	540-84-1	---	---	0.93 U	-	1.4 U	9.0	-	0.93 U	
2-Butanone	78-93-3	17000	17400	-	-	-	-	-	-	
2-Chlorotoluene	95-49-8	---	---	-	-	-	-	-	-	
2-Hexanone	591-78-6	100	104	-	-	-	-	-	-	
2-Phenylbutane	135-98-8	---	---	-	-	-	-	-	-	
4-Ethyl toluene	622-96-8	---	---	-	-	-	-	-	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-	-	-	-	
Acetone	67-64-1	110000	107000	-	-	-	-	-	-	
Allyl chloride	107-05-1	3.3	3.48	-	-	-	-	-	-	
Benzene	71-43-2	12	12	0.64 U	0.2 U	1.1 U	2.8	0.2 U	0.64 U	
Benzyl chloride	100-44-7	1.9	1.91	-	-	-	-	-	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-	-	-	-	
Bromoform	75-25-2	86	85.1	-	-	-	-	-	-	
Bromomethane	74-83-9	17	17.4	-	-	-	-	-	-	
Carbon disulfide	75-15-0	2400	2430	-	-	-	-	-	-	
Carbon tetrachloride	56-23-5	16	15.6	-	-	-	-	-	-	
Chlorobenzene	108-90-7	170	174	-	-	-	-	-	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-	-	-	-	
Chloroethane	75-00-3	33000	34800	-	-	-	-	-	-	
Chloroform	67-66-3	4	4.07	-	-	-	-	-	-	
Chloromethane	74-87-3	310	313	-	-	-	-	-	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-	-	-	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-	-	-	-	
Cyclohexane	110-82-7	21000	20900	0.69 U	-	1.3 U	4.1	-	0.69 U	
Cymene	99-87-6	---	---	-	-	-	-	-	-	
Dibromochloromethane	124-48-1	---	---	-	-	-	-	-	-	
Dichlorodifluoromethane	75-71-8	330	348	-	-	-	-	-	-	
Ethylbenzene	100-41-4	36	37.4	0.87 U	0.3 U	1.3 U	0.87 U	0.3 U	0.87 U	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-	-	-	-	
Hexane	110-54-3	2400	2430	0.70 U	0.6 U	1.4 U	4.2	0.6 U	1.4	
Isopropyl alcohol	67-63-0	690	695	-	-	-	-	-	-	

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG15	DA-SG15	DA-SG16	DA-SG16	DA-SG16	DA-SG17
			Sample ID:	DA-SG15-G002	DA-SG15-G003	DA-SG-16-G001	DA-SG16-G002	DA-SG16-G003	DA-SG17-G001
			Sample Date:	9/11/2013	9/9/2019	3/1/2013	9/11/2013	9/9/2019	9/10/2013
Parameters									
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	8.3	-	1.4 U	7.9	-	0.82 U
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-	-
Toluene	108-88-3	17000	17400	7.1	1	150	19	1	2.7
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	7.2	0.6 U	1.4 U	1.9	0.6 U	1.3

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Parameters				Sample Location:	DA-SG17	DA-SG18	DA-SG18	DA-SG19	DA-SG19	DA-SG20	DA-SG20
				Sample ID:	DA-SG17-G002	DA-SG18-G001	DA-SG18-G002	DA-SG19-G001	DA-SG19-G002	DA-SG20-G001	DA-SG20-G002
				Sample Date:	9/9/2019	9/10/2013	9/9/2019	9/10/2013	9/9/2019	9/10/2013	9/9/2019
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**								
		a	b								
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-	-	-	-	-	
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-	-	-	-	-	
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-	-	-	-	-	
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-	-	-	-	-	
1,1-Dichloroethene	75-35-4	690	695	-	-	-	-	-	-	-	
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	95-63-6	210	209	0.5 J	0.98 U	1	0.98 U	0.5 J	1.9	0.4 U	
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-	-	-	-	-	
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-	-	-	-	-	
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-	-	-	-	-	
1,2-Dichloroethene	540-59-0	---	---	-	-	-	-	-	-	-	
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-	-	-	-	-	
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-	-	-	-	-	
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-	-	-	-	-	
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-	-	-	-	-	
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-	-	-	-	-	
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-	-	-	-	-	
1,4-Dioxane	123-91-1	18	18.7	-	-	-	-	-	-	-	
2,2,4-Trimethylpentane	540-84-1	---	---	-	0.93 U	-	0.93 U	-	0.93 U	-	
2-Butanone	78-93-3	17000	17400	-	-	-	-	-	-	-	
2-Chlorotoluene	95-49-8	---	---	-	-	-	-	-	-	-	
2-Hexanone	591-78-6	100	104	-	-	-	-	-	-	-	
2-Phenylbutane	135-98-8	---	---	-	-	-	-	-	-	-	
4-Ethyl toluene	622-96-8	---	---	-	-	-	-	-	-	-	
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-	-	-	-	-	
Acetone	67-64-1	110000	107000	-	-	-	-	-	-	-	
Allyl chloride	107-05-1	3.3	3.48	-	-	-	-	-	-	-	
Benzene	71-43-2	12	12	0.2 U	0.64 U	0.2 U	0.70	0.3 J	0.90	0.2 U	
Benzyl chloride	100-44-7	1.9	1.91	-	-	-	-	-	-	-	
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-	-	-	-	-	
Bromoform	75-25-2	86	85.1	-	-	-	-	-	-	-	
Bromomethane	74-83-9	17	17.4	-	-	-	-	-	-	-	
Carbon disulfide	75-15-0	2400	2430	-	-	-	-	-	-	-	
Carbon tetrachloride	56-23-5	16	15.6	-	-	-	-	-	-	-	
Chlorobenzene	108-90-7	170	174	-	-	-	-	-	-	-	
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-	-	-	-	-	
Chloroethane	75-00-3	33000	34800	-	-	-	-	-	-	-	
Chloroform	67-66-3	4	4.07	-	-	-	-	-	-	-	
Chloromethane	74-87-3	310	313	-	-	-	-	-	-	-	
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-	-	-	-	-	
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-	-	-	-	-	
Cyclohexane	110-82-7	21000	20900	-	0.69 U	-	1.4	-	0.69 U	-	
Cymene	99-87-6	---	---	-	-	-	-	-	-	-	
Dibromochloromethane	124-48-1	---	---	-	-	-	-	-	-	-	
Dichlorodifluoromethane	75-71-8	330	348	-	-	-	-	-	-	-	
Ethylbenzene	100-41-4	36	37.4	0.3 U	0.87 U	0.3 U	0.87 U	1	1.2	0.3 U	
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-	-	-	-	-	
Hexane	110-54-3	2400	2430	0.7 J	0.70 U	2	1.0	0.8	2.5	0.6 U	
Isopropyl alcohol	67-63-0	690	695	-	-	-	-	-	-	-	

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG17	DA-SG18	DA-SG18	DA-SG19	DA-SG19	DA-SG20	DA-SG20
			Sample ID:	DA-SG17-G002	DA-SG18-G001	DA-SG18-G002	DA-SG19-G001	DA-SG19-G002	DA-SG20-G001	DA-SG20-G002
			Sample Date:	9/9/2019	9/10/2013	9/9/2019	9/10/2013	9/9/2019	9/10/2013	9/9/2019
Parameters										
Isopropyl benzene	98-82-8	1400	1390	-	-	-	-	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-	-	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-	-	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-	-	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-	-	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-	-	-	-	-
N-Heptane	142-82-5	1400	1390	-	0.82 U	-	2.2	-	0.85	-
N-Propylbenzene	103-65-1	3300	3480	-	-	-	-	-	-	-
Styrene	100-42-5	3300	3480	-	-	-	-	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-	-	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-	-	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-	-	-	-	-
Toluene	108-88-3	17000	17400	5	1.5	2	7.7	6	9.9	0.8
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-	-	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-	-	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-	-	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-	-	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-	-	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-	-	-	-	-
Xylenes (total)	1330-20-7	330	348	0.7 J	1.1	0.8 J	1.9	3	7.0	0.6 U

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	**DA-SG21**	**DA-SG22**	**DA-SG22**
			Sample ID:	**DA-SG21-G001**	**DA-SG22-G001**	**DA-SG22-G002**
			Sample Date:	**9/10/2013**	**9/10/2013**	**9/9/2019**
Parameters						
Volatile Organic Compounds		**HSCA - Sub Slab and Soil Gas**	**USEPA Residential Sub-Slab VISL**			
		a	b			
1,1,1-Trichloroethane	71-55-6	17000	17400	-	-	-
1,1,2,2-Tetrachloroethane	79-34-5	1.6	1.61	-	-	-
1,1,2-Trichloroethane	79-00-5	0.69	0.695	-	-	-
1,1-Dichloroethane	75-34-3	59	58.5	-	-	-
1,1-Dichloroethene	75-35-4	690	695	-	-	-
1,2,4-Trichlorobenzene	120-82-1	6.9	6.95	-	-	-
1,2,4-Trimethylbenzene	95-63-6	210	209	17	6.7	0.4 U
1,2-Dibromoethane	106-93-4	0.16	0.156	-	-	-
1,2-Dichlorobenzene	95-50-1	690	695	-	-	-
1,2-Dichloroethane	107-06-2	3.6	3.6	-	-	-
1,2-Dichloroethene	540-59-0	---	---	-	-	-
1,2-Dichloropropane	78-87-5	14	13.9	-	-	-
1,2-Dichlorotetrafluoroethane	76-14-2	---	---	-	-	-
1,3,5-Trimethylbenzene	108-67-8	210	209	-	-	-
1,3-Butadiene	106-99-0	3.1	3.12	-	-	-
1,3-Dichlorobenzene	541-73-1	---	---	-	-	-
1,4-Dichlorobenzene	106-46-7	8.6	8.51	-	-	-
1,4-Dioxane	123-91-1	18	18.7	-	-	-
2,2,4-Trimethylpentane	540-84-1	---	---	38	28	-
2-Butanone	78-93-3	17000	17400	-	-	-
2-Chlorotoluene	95-49-8	---	---	-	-	-
2-Hexanone	591-78-6	100	104	-	-	-
2-Phenylbutane	135-98-8	---	---	-	-	-
4-Ethyl toluene	622-96-8	---	---	-	-	-
4-Methyl-2-pentanone	108-10-1	10000	10400	-	-	-
Acetone	67-64-1	110000	107000	-	-	-
Allyl chloride	107-05-1	3.3	3.48	-	-	-
Benzene	71-43-2	12	12	1.0	0.64 U	0.2 U
Benzyl chloride	100-44-7	1.9	1.91	-	-	-
Bromodichloromethane	75-27-4	2.5	2.53	-	-	-
Bromoform	75-25-2	86	85.1	-	-	-
Bromomethane	74-83-9	17	17.4	-	-	-
Carbon disulfide	75-15-0	2400	2430	-	-	-
Carbon tetrachloride	56-23-5	16	15.6	-	-	-
Chlorobenzene	108-90-7	170	174	-	-	-
Chlorodifluoromethane	75-45-6	170000	174000	-	-	-
Chloroethane	75-00-3	33000	34800	-	-	-
Chloroform	67-66-3	4	4.07	-	-	-
Chloromethane	74-87-3	310	313	-	-	-
cis-1,2-Dichloroethene	156-59-2	---	---	-	-	-
cis-1,3-Dichloropropene	10061-01-5	---	---	-	-	-
Cyclohexane	110-82-7	21000	20900	0.69 U	0.69 U	-
Cymene	99-87-6	---	---	-	-	-
Dibromochloromethane	124-48-1	---	---	-	-	-
Dichlorodifluoromethane	75-71-8	330	348	-	-	-
Ethylbenzene	100-41-4	36	37.4	4.8	1.7	0.3 U
Hexachlorobutadiene	87-68-3	4.3	4.25	-	-	-
Hexane	110-54-3	2400	2430	0.70 U	0.70 U	0.6 U
Isopropyl alcohol	67-63-0	690	695	-	-	-

Table 2.4

OU-4 Screened Soil Gas Sample Analytical Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

			Sample Location:	DA-SG21	DA-SG22	DA-SG22
			Sample ID:	DA-SG21-G001	DA-SG22-G001	DA-SG22-G002
			Sample Date:	9/10/2013	9/10/2013	9/9/2019
Parameters						
Isopropyl benzene	98-82-8	1400	1390	-	-	-
Methyl methacrylate	80-62-6	2400	2430	-	-	-
Methyl tert butyl ether	1634-04-4	360	360	-	-	-
Methylene chloride	75-09-2	2100	2090	-	-	-
Naphthalene	91-20-3	2.7	2.75	-	-	-
N-Butylbenzene	104-51-8	---	---	-	-	-
N-Heptane	142-82-5	1400	1390	0.82 U	0.82 U	-
N-Propylbenzene	103-65-1	3300	3480	-	-	-
Styrene	100-42-5	3300	3480	-	-	-
tert-Butyl alcohol	75-65-0	---	---	-	-	-
tert-Butylbenzene	98-06-6	---	---	-	-	-
Tetrachloroethene	127-18-4	140	139	-	-	-
Tetrahydrofuran	109-99-9	6900	6950	-	-	-
Toluene	108-88-3	17000	17400	12	7.9	80
trans-1,2-Dichloroethene	156-60-5	---	---	-	-	-
trans-1,3-Dichloropropene	10061-02-6	---	---	-	-	-
Trichloroethene	79-01-6	6.9	6.95	-	-	-
Trichlorofluoromethane	75-69-4	---	---	-	-	-
Trifluorotrichloroethane	76-13-1	17000	17400	-	-	-
Vinyl bromide	593-60-2	2.9	2.92	-	-	-
Vinyl chloride	75-01-4	5.6	5.59	-	-	-
Xylenes (total)	1330-20-7	330	348	24	9.7	0.6 U

Notes:
U: Not detected at the associated reporting limit.
J: Estimated concentration.
UJ: Not detected; associated reporting limit is estimated.
All criteria and concentrations are in units of ug/m^3
Any bolded and highlighted cell's concentration exceeded the respective criteria.
a - Delaware Department of Natural Resources and Environmental Control - Remediation Section (DNREC-RS) Hazardous Substance Cleanup Act (HSCA) Soil Gas Screening Levels, February 2018.
b - United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) subslab-soil gas residential (TCR $1x10^{-6}$ and THQ= 0.1), May 2019.

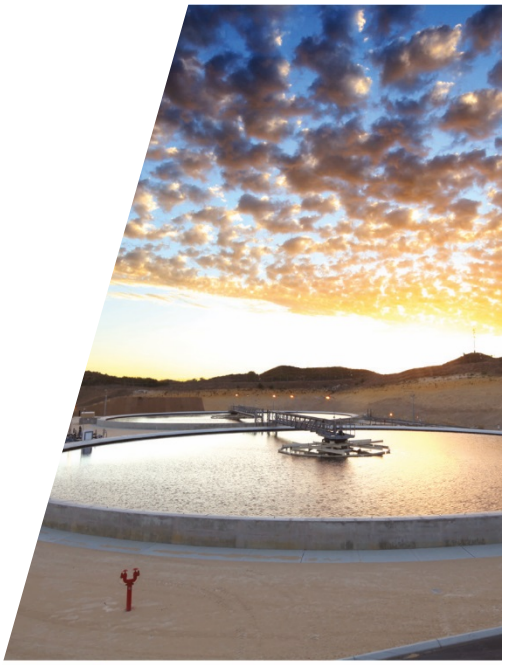
OU-4 Tentatively Identified Compound (TICs) Temporal Comparison
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Matrix	Total TICs	
	2012-2018	2019
Outdoor Air	3.74E+02	3.51E+02
Indoor Air	5.73E+03	2.64E+03
Soil gas Shallow	2.26E+06	1.06E+06
Soil Gas Deep	3.82E+07	1.90E+04
Sub-slab soil gas	5.85E+03	1.09E+03

Notes:
All concentrations are in units of $\mu g/m^3$
Total TIC concentration does not include unknown compounds because the molecular weight was not provided.
Total TIC Concentration is the highest detected concentration from all samples in the time period.

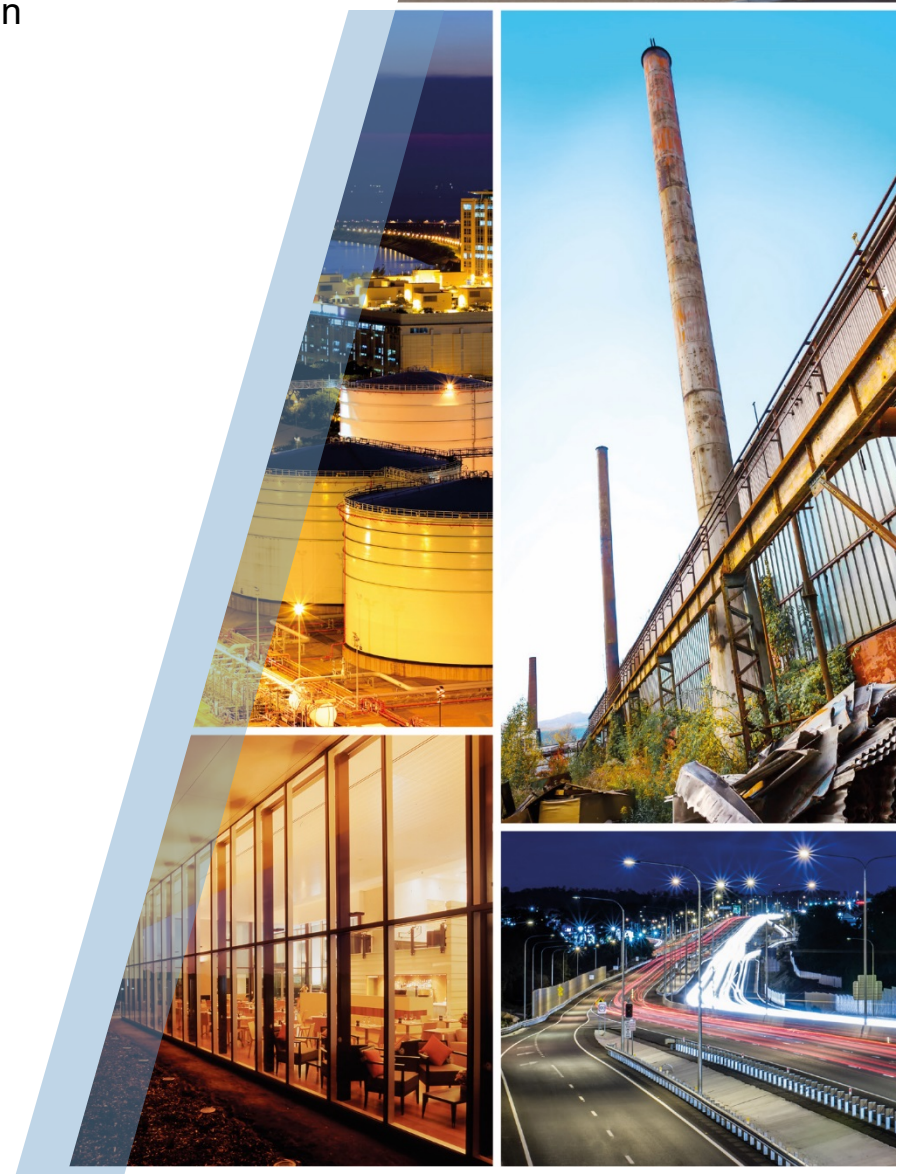
Appendices

Appendix A
OU-4 Supplemental VI Risk Evaluation



OU-4 Supplemental VI Risk Evaluation

Former GM Wilmington
Assembly Plant
Wilmington, Delaware



RACER Trust

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List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below Ground Surface
CDI	Chronic Daily Intake
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSM	Conceptual Site Model
DNREC	Delaware Department of Natural Resources and Environmental Control
EPC	Exposure Point Concentration
ESA	Environmental Site Assessment
ft	Feet
GM	General Motors
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IRIS	Integrated Risk Information System
IRM	Interim Remedial Measure
ITRC	Interstate Technology Regulatory Counsel
kg	Kilogram
L	Liter
mg	Milligram
MLC	Motors Liquidation Company
Mod	Modular
NCEA	National Center for Environmental Assessment
OU-4	Operable Unit 4
PPRTV	Provisional Peer Reviewed Toxicity Values
PVI	Petroleum Vapor Intrusion
RACER	Revitalizing Auto Communities Environmental Response
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RI	Remedial Investigation

List of Acronyms

RME	Reasonable Maximum Exposure
RSL	Regional Screening Level
SIRS	Site Investigation and Restoration Section
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
µg/m^3	Microgram per Cubic Meter
URF	Unit Risk Factor
UST	Underground Storage Tank
USEPA	United States Environmental Protection Agency
VI	Vapor Intrusion
VOC	Volatile Organic Compound

1. Introduction

1.1 Purpose

GHD Services Inc. (GHD) on behalf of Revitalizing Auto Communities Environmental Response Trust (RACER Trust), has prepared this Operable Unit 4 (OU-4) Supplemental Vapor Intrusion (VI) Risk Evaluation (Risk Evaluation) to support the ongoing evaluation activities for OU-4 of the former General Motors (GM) Corporation Wilmington Assembly Plant (Site or Facility) located in Wilmington, Delaware. The potential for significant VI exposures was previously evaluated during the Remedial Investigation (RI) and at the time it was concluded that there was a potential for significant VI if on-Site concentrations were to migrate off-Site. Therefore, RACER Trust implemented an interim remedial measure (IRM) in the form of a soil vapor extraction (SVE) system at the downgradient property boundary to eliminate the off-Site migration of on-Site concentrations of petroleum hydrocarbons in groundwater.

This Risk Evaluation assesses the potential for significant VI into on-Site and off-Site structures from the petroleum hydrocarbons from the former on-Site underground storage tanks (USTs) in OU-4 after the implementation of the IRM. This Risk Evaluation uses the on-Site and off-Site data from OU-4 that were presented in the 2015 RI Report (CRA, 2015) and additional data collected subsequent to the RI. This Risk Evaluation presents a multiple-lines of evidence evaluation relative to current VI guidance [i.e., Interstate Technology Regulatory Counsel (ITRC, 2014) and the United States Environmental Protection Agency (USEPA, 2015a)].

This Risk Evaluation summarizes relevant information from the RI Report dated July 2015, which presented the results of RI activities conducted at the Site between September 2011 and November 2014, BrightFields' Vapor Intrusion and Groundwater Delineation Investigation Report (BrightFields, 2014), BrightFields' Draft Supplemental Vapor Intrusion Off-Site Investigation (BrightFields, 2015), BrightFields' Draft OU-4 Feasibility Study Report (BrightFields, 2016), the groundwater sampling event conducted by GHD in October and November 2017, and the groundwater and soil gas sampling conducted by BrightFields in July, August, and December 2018, summarized in the Soil Vapor Extraction System Evaluation Report (BrightFields, 2019).

1.2 Approach

This Risk Evaluation assesses the significance of current and potential future VI exposures into on-Site and off-Site structures from the petroleum hydrocarbons from the former on-Site USTs in OU-4. The potential for significant VI from groundwater at and downgradient of OU-4 was evaluated in the 2015 RI Report. However, subsequent to initiating the evaluation of potentially significant VI exposures, ITRC and USEPA finalized guidance for evaluating the potential for significant VI from petroleum hydrocarbons. As recognized by ITRC and USEPA, petroleum hydrocarbons are unique from certain other volatile organic compounds (e.g., chlorinated hydrocarbons), because petroleum hydrocarbons biodegrade in the vadose zone as they migrate from a source to potential indoor receptors. Because of this natural ability to biodegrade, ITRC and USEPA both recommend approaches that account for this natural biodegradation. Specifically, lateral inclusion distances,

vertical separation distances, and attenuation factors that account for biodegradation are recommended.

This Risk Evaluation uses the current recommendations for the evaluation of potential petroleum VI, conservative estimates of exposure concentrations, and generic default exposure factors recommended by USEPA to evaluate the potential for significant VI exposure from OU-4. The results of this Risk Evaluation are intended to be used to evaluate corrective measures alternatives for OU-4.

1.3 Environmental Setting

1.3.1 Site Location and History

The Facility is located at 801 Boxwood Road, New Castle County, Wilmington, Delaware. The Facility currently consists of approximately 142 acres of land located on two tax parcels (07 042.10 055 and 07 042.20 010), including the approximately 3.2 million square foot Main Assembly Building, and several outlying buildings and structures (i.e., Waste Water Treatment Plant, Pump Houses, and Powerhouse). The Facility was developed in 1945 by GM Corporation for the purpose of automobile assembly. GM Corporation commenced operations at the Facility in 1946 and continued automobile assembly operations until July 2009 when the plant was idled. The Facility location is presented on Figure 1. The Facility layout is presented on Figure 2.

As a result of GM Corporation's 2009 bankruptcy, certain operating assets of GM Corporation were sold on July 10, 2009, to a newly formed company now known as GM LLC. Existing non-continuing assets, including the Site, remained the property of GM Corporation which was known as Motors Liquidation Company (MLC), in its capacity as debtor in possession in the bankruptcy case. The Site was sold by MLC to Fisker Automotive, Inc. (Fisker) in July 2010. However, MLC retained liability for the remediation of the Site. In October of 2010, the United States Government announced that MLC had agreed to resolve its liabilities at 89 sites relating to liabilities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and the Clean Air Act through an environmental response trust fund. On March 31, 2011, RACER Trust became effective and is conducting, managing, and funding cleanup at the 89 sites formerly owned by MLC, including the former Wilmington Assembly Plant.

Between July 2009 and April 2014, the plant remained idle with limited activities at the Site while Fisker evaluated opportunities to revive the assembly plant. Fisker filed for bankruptcy in November 2013 and the Site was purchased by Wanxiang Delaware Real Estate Holdings (Wanxiang) in April 2014 as part of a purchase by Wanxiang of Fisker's assets out of the bankruptcy. In October 2017 Boxwood Industrial Park, LLC purchased the Site from Wanxiang.

1.3.2 OU-4 Impacted Area

OU-4 is identified as the area at and around a former petroleum dispensing station and UST adjacent to the Anchor Motor Freight Building in the southeast corner of the Site where a release was identified in 1990. As discussed in the RI Report, the resulting dissolved volatile organic

compound (VOC) impacted groundwater plume migrated from the source area near the eastern property boundary downgradient and off-Site to the northeast.

1.3.2.1 On-Site and Off-Site Land Use

The land use on-Site is currently commercial/industrial and there are no currently occupied buildings in the on Site portion of OU 4. In addition, any other future use of the Site will be limited to commercial/industrial uses by deed restrictions that will prohibit residential development at the Site.

The off-Site land use directly east, downgradient, of OU-4 is a public road, Dodson Avenue, and a residential area. The residential neighborhood includes a combination of multi-family (i.e., duplexes) and single-family homes, some of which have basements. Future off-Site uses are expected to remain similar to the current uses.

1.3.2.2 Summary of Impacted Media

As discussed in the RI Report, the concentrations of VOCs in groundwater decline as the plume moves away from the source area and to the east. The RI Report identified concentrations of certain VOCs and semi-volatile organic compounds (SVOCs) in groundwater in OU-4 that exceeded the Delaware Department of Natural Resources and Environmental Control's (DNREC's) Site Investigation and Restoration Section (SIRS) Screening Levels. The RI Report evaluated the potential significance of VI to potential on-Site and off-Site receptors from OU-4 and concluded that there was a potential for significant VI if the on-Site concentrations were to migrate off-Site. Therefore, RACER Trust implemented an IRM in the form of an SVE system at the downgradient property boundary to eliminate the off-Site migration of on-Site concentrations of petroleum hydrocarbons in groundwater. As discussed in the First Quarter 2017 Quarterly Monitoring Report Prepared by BrightFields, Inc. (BrightFields, 2017), this IRM has been effective at reducing the off-Site migration of petroleum hydrocarbons in groundwater.

1.3.2.3 Lateral Inclusion Distance

Both ITRC and USEPA guidance on petroleum vapor intrusion (PVI) include evaluating the lateral distance from the perimeter of a PVI source in groundwater to potential receptors. ITRC recommends a conservative generic distance of 30 feet (ft) from a PVI source to potential receptors and USEPA recommends a dynamic distance that varies based on the spacing of existing groundwater monitoring wells. If the distance from the PVI source in groundwater to potential receptors is greater than these distances, ITRC and USEPA recommend no further evaluation of the potential PVI route of exposure, (i.e., the Site screens out).

In the RI Report the off-Site groundwater plume was defined to extend beneath the residential neighborhood. The current definition of the off-Site petroleum groundwater plume has a minimum lateral distance from the source to off-Site residences of no more than 10 ft, as shown on Figure 3. On-Site, the plume extends under the Anchor Building to within 50 ft of the Main Assembly Building, as shown on Figure 3. Therefore, using current PVI guidance there is a potential for significant PVI and additional evaluation would be performed.

1.3.2.4 Vertical Screening Distance

Both ITRC and USEPA guidance on PVI include evaluating the vertical distance between the PVI source in groundwater and the potential receptors (i.e., the bottom of the building). ITRC recommends a conservative generic distance of 5 ft from a dissolved phase PVI source to potential receptors and USEPA recommends a distance of 6 ft. If the vertical distance from the dissolved phase PVI source to potential receptors is greater than these distances, ITRC and USEPA recommend no further evaluation of the potential PVI route of exposure (i.e., the Site screens out).

The minimum vertical distance from the Site-related dissolved phase PVI source in groundwater to off-Site residential buildings is calculated as the difference between the typical high water elevation of 12-16 ft below ground surface (bgs) and the typical depth of a residential basement (i.e., 6 ft bgs). On-site the typical depth to water is 7-17 ft bgs. Therefore, the vertical screening distance recommended by both ITRC and USEPA is met in the off-Site portions of OU-4 for residential buildings with basements and on-Site for nonresidential slab-on-grade buildings. Both on- and off-Site buildings would screen out and no additional evaluation is necessary. However, because soil gas, sub-slab soil gas, and indoor and outdoor (background) air data have been collected and were previously evaluated, these data are further evaluated in this Risk Evaluation.

1.3.3 Site Physical Characteristics

1.3.3.1 Geology

A review of soil borings in the RI Report shows the soils at the Site to be fill-underlain by unconsolidated sediments consisting primarily of silty sands and clays, from below paved surface to a depth of approximately 8 to 10 ft bgs. Gravel lenses are seen ranging in thickness from 1 to 10 ft at varying depth across the Site. There appears to be a continuous sand layer ranging from 16 to 30 ft in thickness with starting depths ranging from approximately 7.8 ft bgs to 11.5 ft bgs and extending to depths ranging from approximately 23.8 ft bgs to 40 ft bgs. The historical boring logs also indicate the sand layer is underlain by reddish-brown clay of an undetermined thickness.

1.3.3.2 Hydrogeology

On-Site, groundwater was observed at an average depth of approximately 12 ft bgs during the RI Report. The assembly plant appears to create a groundwater divide at the Site with groundwater on the east side flowing to the east toward Little Mill Creek and groundwater on the west side flowing to the west towards Red Clay Creek.

Surface water flow across the Facility is directed to the Facility storm sewer system, which discharges to Little Mill Creek at Outfall 001. With the exception of Little Mill Creek, there are no surface water bodies or waterways (streams, rivers, lakes, etc.), including associated wetlands, floodplains, and riparian zones present on-Site or immediately adjacent to the Site.

According to Facility personnel interviewed during the 2009 Phase I Environmental Site Assessment (ESA), there was no historical use of Facility groundwater for potable or non-potable purposes. At the time of Facility inspections conducted in 2009, there was no visual evidence suggesting that potable water, production, or irrigation wells were located at the Facility. There are two groundwater sumps, one on the east side and one on the north side of the modular (Mod) Paint

Building that dewater the area in the vicinity of the Mod Paint Building. According to Facility personnel, the sumps are approximately 30 to 40 ft deep. Groundwater in the sumps is pumped and discharged to the storm sewer discharge system located on northeastern side of the Facility. The sumps are operated manually as needed.

As part of the VI and groundwater delineation investigation at AOI-16, BrightFields conducted an assessment to identify the residential and commercial addresses within proximity of the former UST area and to determine whether public water service or private wells were used. The evaluation focused on the properties located within a two-block area east of the Site (AOI-16). BrightFields contacted Artesian Resources Corporation (Artesian), the local water supplier, and based on the information provided to BrightFields, there were no private wells reported to currently be in use in the assessment area. There was a rumored historical well at 19 Read Ave. that was reportedly taken out of service approximately 30 years ago; however, municipal water is supplied to this location address.

2. Data Collection and Preparation

This Risk Evaluation incorporates data evaluated in the 2015 RI Report and data collected subsequent to the 2015 RI Report. These data that were subsequently collected by RACER Trust to assist in the evaluation of the IRM/SVE system performance at the downgradient property boundary and confirm that off-Site concentrations were not increasing. Sample locations are shown on Figure 3.

3. Exposure Assessment

This section discusses the potential exposures that are relevant under current and reasonably expected future land use at and around the Site. The exposure setting, potentially exposed populations, and exposure pathways are discussed below.

Exposure via inhalation is quantified as a time-weighted average concentration in air. The exposure concentration for evaluating cancer risk is averaged over a lifetime. For evaluating non-cancer effects, the exposure concentration is averaged over the period of exposure. The methods for estimating the concentration term are discussed below. The fate and transport models that are used to calculate the concentration of chemicals in the exposure medium (e.g., indoor air), are discussed below. The exposure factors that are used to quantify the magnitude, frequency, and duration of potential exposures are discussed below.

3.1 Potential Human Exposure

As discussed above, the Site is an industrial property located in an industrial and residential area where future land and groundwater use on-Site and off-Site are expected to remain unchanged. The potentially exposed populations at and around the Site based on current and expected future land and groundwater uses are summarized in the conceptual site model (CSM) in Table 3.1.

Table 3.1 Scenarios for Potential VI Exposure at OU-4

Source Media	Potential Route of Exposure	Routine Workers	Off-Site Residents
Groundwater	Vapor Intrusion	●	●

● = Potentially complete pathway

Notes:
· Secondary media, i.e., soil gas and sub-slab soil gas, were also measured to evaluate the potential for significant vapor intrusion. The Facility's current health & safety procedures ensure that maintenance worker and construction worker exposures are not significant.
· Outdoor and indoor air were also measured and evaluated.

As part of the corrective measures at the Site, a deed restriction for the Site will be put in place to maintain commercial/industrial land use. As such, workers comprise the main receptor population on-Site under both current and reasonably expected future land use.

The following summarizes the receptors and exposure pathways evaluation in this Risk Evaluation.

3.1.1 On-Site

Manufacturing operations on-Site ceased in 2009. Thus, under current conditions, there are no populations that would be expected to have significant exposure via assumed VI into the existing or future on-Site buildings in OU-4. Under reasonably expected future conditions, the only population with potentially significant on-Site exposure via VI are routine workers.

These workers could be exposed via inhalation of constituents from the groundwater if constituents were to volatilize and migrate through cracks in building foundations into indoor air.

3.1.2 Off-Site

The areas around the Site consist of a mixture of residential and industrial. As such, the largest potentially exposed populations via assumed VI from VOCs from the OU-4 groundwater plume are residents and workers.

Residents could be exposed via indoor inhalation of constituents from the off-Site groundwater if constituents were to volatilize and migrate through cracks in the building foundations into indoor air.

3.2 Exposure Concentrations

Appendix A presents the Exposure Point Concentrations (EPCs) used in this Risk Evaluation and their sample location IDs. This risk evaluation conservatively used maximum detected concentrations from the most recent sampling event(s) at each location in all media to evaluate the potential for significant VI both on-Site and off-Site. This approach of using maximum detected

concentrations as the EPCs is conservative because it overestimates the reasonable maximum exposures (RME) concentration, but is efficient for identifying potentially significant exposures.

3.2.1 Groundwater

To assess potential exposures to groundwater under current and potential future conditions on- and off-Site, the highest detected concentrations collected since 2012 for each constituent from all monitoring wells associated with OU-4 that are screened to monitor shallow groundwater were used to calculate upper-bound estimates of cumulative cancer and non-cancer risks representative of current conditions. As discussed above, the use of the most recent maximum detected concentrations introduces more conservatism than necessary for RME estimates.

3.2.2 Soil Gas

Deep and shallow soil gas samples were collected at on- and off-Site locations to provide an additional line of evidence in the evaluation of the potential for VI from groundwater into indoor air. To assess potential VI exposures to constituents in soil gas under current and potential future conditions, the highest detected concentration for each constituent from the most recent sampling of all soil gas monitoring points sampled since 2012 were used. During the December 2018 sampling event, one location (DA-SG-31) served as a surrogate for a previous temporary sample location (DA-SG-2) that was no longer able to be sampled yet previously had the highest detected concentration of benzene (BrightFields, 2019). As discussed above, the use of maximum detected concentrations introduces more conservatism than necessary for RME estimates.

3.2.3 Sub-slab Soil Gas

Sub-slab soil gas samples were collected at off-Site locations to provide an additional line of evidence in the evaluation of the potential for VI from groundwater into indoor air. To assess potential VI exposures to constituents in sub-slab soil gas under current and potential future conditions, the highest detected concentration for each constituent from all sub-slab soil gas monitoring points sampled since 2012 were used. As discussed above, the use of maximum detected concentrations introduces more conservatism than necessary for RME estimates.

3.2.4 Indoor and Background Outdoor Air

Indoor and background outdoor air samples were collected at off-Site locations to provide additional lines of evidence in the evaluation of the potential for VI from groundwater into indoor air. These data were evaluated to determine whether the concentrations detected in these media are associated with the groundwater conditions related to the Site.

3.3 Fate & Transport – Vapor Intrusion into Buildings

The following approach was used in this Risk Evaluation to estimate exposure concentrations in indoor air from assumed vapor intrusion from the subsurface for the exposure scenarios previously discussed. The use of an empirical attenuation factor model is used by USEPA and state regulatory agencies for screening level analysis; i.e., they tend to overestimate concentrations, and are consistent with the models used in the 2015 RI Human Health Risk Assessment (HHRA).

Indoor air concentrations resulting from migration of vapors from groundwater into a building are estimated using the empirical model described by ITRC and USEPA for evaluating potential VI from petroleum hydrocarbons. ITRC and USEPA evaluated data from numerous PVI sites to derive attenuation factors that account for the distance between the source and the potential receptor and the concentration (strength) of petroleum products, i.e., benzene, at the source. These calculations are summarized in graphical form in Figures 3-5 and 3-6, and Figure 9 from ITRC and USEPA, respectively. For the purpose of this Risk Evaluation the attenuation factors were selected from Figures 3-5 and 3-6, and Figure 9 from ITRC and USEPA, ignoring biodegradation and using a conservatively assumed benzene source concentration of 1 milligram per liter (mg/L). This assumed concentration of benzene is conservative when using these figures because actual concentrations of benzene in groundwater at OU-4 are lower and could have even lower attenuation factors. A distance from the groundwater source to potential off-Site residential receptors of 6-9 ft bgs, based on the difference between the typical high water table of 12-15 ft bgs and the depth of typical residential basements, i.e., approximately 6 ft bgs was also used when reading from these figures.

Using Figures 3-5 and 3-6, and Figure 9 from ITRC and USEPA, for groundwater and deep soil gas an attenuation factor of 0.0000001 (1E-7) was used following this approach. Similarly, an attenuation factor of 0.001 (1E-3), i.e., that did not account for biodegradation, was selected from Figures 3-5 and 3-6, and Figure 9 from ITRC and USEPA and used for shallow soil gas and sub-slab soil gas.

These attenuation factors are designed for screening data to determine whether there is a potential for significant VI exposure into residential buildings. These attenuation factors are conservative for sites with coarse-grained soil, but are conservatively used here even though the vadose zone consists primarily of silty sands and clays, as discussed in Section 1.3.3.1. These attenuation factors are also conservatively used in the evaluation of potential VI into non-residential buildings at the Site. The previously discussed attenuation factors are used in the risk calculations in Appendix B and also summarized in Table B.2 in Appendix B.

As a sensitivity analysis, the applicability of the attenuation factors from ITRC and USEPA were evaluated relative to empirical attenuation factors calculated using the data collected in the off-Site portion of OU-4. Specifically, these empirical attenuation factors were calculated using concentrations of constituents detected in indoor air, but not in outdoor air, and the detected concentrations in the subsurface from the same sampling event, except as follows. There were no constituents that were detected in both the indoor air and in deep soil gas; therefore, 2,2,4-trimethylpentane was used because it was not detected in outdoor air. Similarly, there were no constituents that were detected in the sub-slab and indoor air that were also not detected in the outdoor air; therefore, benzene and hexane were used. 1,2,4-Trimethylbenzene was used for the groundwater attenuation factor while 2,2,4-trimethylpentane and 1,2,4-trimethylbenzene were utilized for soil gas attenuation factor, assuming that all detected concentrations in the indoor air were from the subsurface.

The empirical attenuation factors are summarized in Table 3.2. As shown in Table 3.2, the empirical attenuation factors from groundwater and deep soil gas are somewhat higher, less conservative, than the generic values from ITRC and USEPA. However, the soil gas empirical attenuation factors are similar to two orders of magnitude lower, more conservative, than the generic values from ITRC and USEPA. The sub-slab empirical attenuation factors are within a factor of three (3) of the generic

values from ITRC and USEPA, which makes them effectively the same. Therefore, while there are some differences between the generic attenuation factors and empirical factors, the generic factors are similar to or more conservative than empirical values in the soil gas and sub-slab and slightly less conservative in groundwater. Therefore, use of generic attenuation factors that are based on data from numerous UST releases are appropriate.

Table 3.2 Calculated Site-Specific Attenuation Factors

Media	Calculated Alpha	Indoor Air Concentration ($\mu g/m^3$)	Subsurface Concentration ($\mu g/m^3$)	Chemical	Sample Date(s)
Sub-Slab	$3.2x10^{-3}$	8.3	2,600	Hexane	9/10/2013; 9/10/2013
	$1.1x10^{-3}$	4.2	3,700	Benzene	9/10/2013; 9/10/2013
Soil Gas	$1.0x10^{-5}$	0.67	67,000	2,2,4-Trimethylpentane	12/21/2012; 8/17/2012
	$7.0x10^{-4}$	5.0	7,100	1,2,4 Trimethylbenzene	9/10/2013; 9/12/2013
Deep Soil Gas	$1.5x10^{-6}$	0.67	450,000	2,2,4-Trimethylpentane	12/21/2012; 10/24/2012
Groundwater	$5.3x10^{-5}$	5.0	94,000	1,2,4 Trimethylbenzene	9/10/2013; 9/18/2013

3.4 Exposure Factors

The exposure factors for evaluating the exposure scenarios summarized in the CSM are discussed in this section. In this Risk Evaluation, standard default exposure factors recommended by USEPA for estimating RME are used where available and appropriate. According to USEPA, the standard default exposure factors are conservative assumptions about the magnitude, frequency, and duration of exposures, which in combination, are intended to provide estimates of exposures that are higher than actual exposures to a large portion (90 percent to 99 percent) of a potentially exposed population.

The exposure factors are the same as those used in the 2015 HHRA, except certain exposure factors such as adult body weight and skin surface area were updated to be consistent with USEPA's current recommendations (USEPA 2014).

3.4.1 Routine Workers

In the 2015 HHRA and this Risk Evaluation, potential exposure of on-Site routine workers is conservatively evaluated using the standard default exposure factors that USEPA (1991, 2014) recommends for estimating RME. Quantitative evaluation of off-Site routine workers is unnecessary because the exposure factors for the off-Site routine workers are lower than the off-Site residents.

3.4.1.1 Exposure Time

Routine workers are assumed to be at the Site and inhale vapors and particulates from Site-related sources for 8 hours per day, which is the USEPA recommended value for full time workers (USEPA 2009, 2014).

3.4.1.2 Exposure Frequency and Duration

Routine workers are assumed to be at the Site for 250 days per year for 25 years. This combination of exposure frequency and exposure duration is conservative for the time workers could be exposed indoors while at work. USEPA has recommended the use of these values for evaluating high end routine worker exposures (USEPA 1991, 2014).

3.4.1.3 Averaging Time

The averaging time for evaluating cancer risk is equal to a lifetime of 70 years, and the averaging time for evaluating non-cancer risk is equal to the exposure duration (USEPA 1989, 2014).

Although it is recognized that the use of the default exposure factors, rather than Site-specific factors (e.g., a Site-specific exposure frequency or a fraction contacted term <1), results in overestimation of RME risks at the Site, this approach streamlines this update of the HHRA.

3.4.2 Residents

The exposure factors used for evaluating potential exposure of off-site residents, which are consistent with those in the 2015 HHRA, except where USEPA has revised its recommendations, are as follows.

3.4.2.1 Exposure Time

Residents are assumed to be at home and inhale vapors and particulates from Site-related sources for 24 hours per day, the USEPA recommended value for residents (USEPA 2009, 2014).

3.4.2.2 Exposure Frequency and Duration

Residents are assumed to be at home for 350 days per year for 26 years (6 years as children and 20 years as adults). This combination of exposure frequency and exposure duration is expected to be conservative for the amount of time that residents could actually be exposed while at home. USEPA has recommended the use of these values for evaluating high end residential exposures (USEPA 2014).

3.4.2.3 Averaging Time

The averaging time for evaluating cancer risk is equal to a lifetime of 70 years, and the averaging time for evaluating non-cancer risk is equal to the exposure duration (USEPA 1989, 2014).

4. Toxicity Values

A toxicity assessment identifies potential adverse health effects that are associated with exposure to chemicals, and determines the dose response relationship between exposure and the occurrence of adverse effects. The toxicity values used in this Risk Evaluation were compiled from USEPA's hierarchy of sources are as follows:

1. Integrated Risk Information System (IRIS)
2. Provisional Peer Reviewed Toxicity Values (PPRTV)
3. Other Toxicity Values (e.g., historical HEAST [Health Effects Assessment Summary Tables], NCEA [EPA National Center for Environmental Assessment] provisional values and ATSDR [Agency for Toxic Substances and Disease Registry])

When a toxicity value was not available from the first two tiers of the hierarchy, other USEPA and non-USEPA sources (e.g., ATSDR) of toxicity values were consulted. The toxicity values used in this Risk Evaluation were taken directly from USEPA's Regional Screening Levels (RSL) Calculator, which preferentially selects the most conservative toxicity values when multiple Tier 3 sources are available, regardless of the strength of the assessment. Similarly, the RSLs select cancer toxicity values independent of the carcinogenic weight of evidence determination, e.g., for ethylbenzene. Therefore, the toxicity values from the RSL are conservative for risk evaluation. The toxicity values are current as of May 2017.

Estimation of the human intake received through the various exposure pathways is based upon Chronic Daily Intakes (CDIs) expressed in terms of the mass of the substance taken into the body per unit body weight per unit time [mg/kilogram (kg) - day]. For each constituent, two different estimates of the CDI, one for non-carcinogenic (systemic) effects and a second for carcinogens are calculated. The CDIs used in the assessment of non-carcinogenic effects is the average daily dose or exposure concentration an individual is likely to receive during the period of exposure. For carcinogens, the CDIs are estimated by averaging the total cumulative intake over a lifetime.

4.1 Cancer Toxicity Values

The potential carcinogenic health effect from exposure to a constituents was evaluated by multiplying the CDI by the inhalation unit risk factors (URFs). This product is termed the cancer risk, and is defined as the estimated upper bound on additional risk of cancer over a lifetime in an individual exposed to the carcinogen for a specified exposure period (unitless). The sum of the cancer risks from multiple carcinogens and multiple exposure routes is termed the cumulative cancer risk. The potential cumulative risks resulting from exposure to the constituents are compared to the DNREC's target cancer risk level of $1x10^{-5}$, which falls within the cumulative target risk range provided by USEPA of $1x10^{-6}$ or 1 in 1,000,000 to $1x10^{-4}$ or 1 in 10,000.

4.2 Non-Cancer Toxicity Values

The potential for non-cancer health effect from exposure to a constituent was evaluated by comparing the CDI to a reference concentration (RfC). This ratio is termed the hazard quotient (HQ). The Hazard Index (HI) for an exposure situation is the sum of the HQs estimated for the individual constituents. An HI less than 1 is considered health protective for a lifetime exposure and is therefore not an exposure of concern. If the HI is greater than 1, it may be appropriate to re-evaluate the toxicity of the individual constituents to determine if individual chemicals have the same or differing toxicological endpoints that would support conclusions that the HQs should or should not be added.

5. Risk Characterization

As discussed above, there are no currently occupied buildings in the on-Site portion of OU-4. The evaluation of potential off-Site would screen out based on the vertical distance from the off-Site dissolved PVI source in groundwater to potential off-Site receptors using current ITRC and USEPA guidance. However, as discussed with DNREC, because data have been collected from additional media, those data are also evaluated in this assessment.

The cumulative cancer risk and HI estimates for each receptor population were calculated and compared with DNREC's cancer risk limit of $1x10^{-5}$ and HI limit of 1, respectively, for determining whether corrective measures are warranted for a particular area of the Site (DNREC, 2007). The risk estimates and the evaluation of these results for multiple media (i.e., multiple lines of evidence), were evaluated for determining whether remedial activities are warranted and for determining what remedial alternatives should be considered.

For the evaluation of potential VI, the calculated risk estimates from groundwater, soil gas, sub-slab soil gas, indoor air, and background outdoor air were evaluated simultaneously to determine whether a potential for significant VI exposure from on-Site sources, which necessitates remedial activities exists.

5.1 Estimating Risks to Off-Site Residents

As discussed above, quantification of potential VI risks is not necessary per ITRC and USEPA guidance documents, i.e., because there are no currently occupied on-Site buildings and off-Site buildings screen out using vertical distances. However, in this evaluation off-Site residents are conservatively assumed to be exposed to constituents in off-Site groundwater that volatilize and are assumed to migrate into indoor air.

Soil gas and sub-slab soil gas samples were also collected to provide additional lines of evidence regarding the potential for significant VI from groundwater into off-Site residential buildings.

Background outdoor air samples and indoor air samples were collected at certain residential properties and were evaluated to determine whether the detected concentrations in these media are associated with the groundwater conditions related to the Site.

These risk estimates are summarized below in Table 5.1 and shown by chemical in Appendix B.

Table 5.1 OU-4 Off-Site Cumulative Cancer Risk and Non-Cancer HI Estimates

Media	Cancer Risk	Hazard Index	Appendix B Table
Shallow Groundwater	$1x10^{-8}$	0.0005	Appendix B.2
Deep Soil Gas	$6x10^{-8}$	0.003	Appendix B.3
Shallow Soil Gas	$7x10^{-7}$	0.1	Appendix B.4
Sub-slab	$1x10^{-5}$	0.1	Appendix B.5
Background Outdoor Air	$2x10^{-5}$	0.3	Appendix B.7
Indoor Air	$4x10^{-5}$	0.9	Appendix B.6

Table 5.1 shows that the upper-bound risks for off-Site residential exposures to off-Site groundwater via assumed VI meet DNREC's and USEPA's cancer risk and HI limits for RME risks.

Soil gas and sub-slab soil gas were evaluated to provide additional lines of evidence to confirm the conclusions regarding the potential significant VI from groundwater. As discussed above, the deep soil gas risk estimates were calculated using the groundwater attenuation factor. The shallow soil gas risk estimates were calculated using the sub-slab soil gas attenuation factor, which does not account for the 1-2 ft of silty sand and clay soil in the vadose zone between these samples and the bottom of the residential buildings. As shown in Table 5.1, the upper-bound risks for off-Site residential exposures to deep soil gas, shallow soil gas, and sub-slab soil gas via potential VI also meet DNREC's and USEPA's cancer risk and HI limits for RME risks and confirm the conclusions from groundwater. The risk estimates for potential VI from groundwater, deep soil gas, shallow soil gas, and sub-slab soil gas consistently show risks that follow the ITRC and USEPA petroleum vapor intrusion model.

Background outdoor air and indoor air data were also collected from certain residential buildings in the adjacent neighborhood downgradient of OU-4. As shown in Table 5.1, the background outdoor air and indoor air cancer risk estimates are slightly higher than DNREC's cancer risk limit of 1×10^{-5}, which are inconsistent with the risks calculated from the groundwater source and other subsurface media. As shown in Appendix B, the cancer risk estimates for both background outdoor air and indoor air are due to the detected concentrations of benzene and ethylbenzene.

The cancer risk estimate for both background outdoor air and indoor air exceed DNREC's risk limit, and both are the result of detected concentrations of the same two constituents. Therefore, it is likely that at least a significant portion of the indoor concentrations are from other sources, which could include background outdoor air. The detected concentrations in indoor air were also compared to the estimated indoor air concentrations from groundwater and other subsurface media collected during the same sampling events in 2012 and 2013 to determine whether the indoor air concentrations better correlate with background outdoor air or vapors from the subsurface.

Table 5.2 OU-4 Off-Site Indoor Air Concentrations

Chemical	Indoor Air	Bkg Outdoor Air	Indoor Air from Shallow Groundwater	Indoor Air from Deep Soil Gas	Indoor Air from Shallow Soil Gas	Indoor Air from Sub-Slab
	Measured		Calculated			
Benzene	10	2.5	0.000086	0.081	0.47	3.7
Ethylbenzene	19	13	0.025	0.063	3	0.0014

All concentrations in Table 5.2 are in $\mu g/m^3$ (microgram per cubic meter)

As shown in Table 5.2, the detected concentrations of benzene and ethylbenzene in indoor air do not correlate with the source concentrations in groundwater or the soil gas results. Similarly, the detected concentrations of benzene and ethylbenzene in background outdoor air do not correlate with the source concentrations in groundwater or the soil gas results, except for the calculated

concentration of benzene in the sub-slab soil gas, which does not agree with any of the other data points/lines of evidence, including results for ethylbenzene.

Additionally, the indoor air concentrations of benzene and ethylbenzene are in the range of typical residential indoor air (USEPA 2011) in the United States and they are also within the range of background outdoor air data measured in Wilmington, DE (USEPA 2015b). Background residential indoor air concentrations of benzene and ethylbenzene range from 4.7 – 29 µg/m^3 (mean to upper percentile) and 3.7-17 µg/m^3, respectively (USEPA 2011). Background outdoor air concentrations of benzene and ethyl benzene range from 4.8 – 11 µg/m^3 (mean to upper percentile) and 2.2-21 µg/m^3, respectively (USEPA 2015b). In addition, the locations with the highest indoor air concentrations do not correlate with the locations where the highest sub-slab concentrations were measured, which further supports that measured concentrations indoors are from background sources.

Using multiple lines of evidence, these results confirm that VI from groundwater does not pose an unacceptable risk via VI to off-Site residences.

5.2 Estimating Risks to On-Site Workers

As discussed above, there are currently no occupied buildings in OU-4. However, in this evaluation on-Site workers are conservatively assumed to be exposed to constituents in on-Site groundwater that volatilize and are assumed to migrate into indoor air.

Soil gas samples were also collected to provide an additional line of evidence regarding the potential for significant VI from groundwater into on-Site nonresidential buildings.

These risk estimates are summarized below in Table 5.3 and shown by chemical in Appendix B.

Table 5.3 OU-4 On-Site Cumulative Cancer Risk and Non-Cancer HI Estimates

Media	Cancer Risk	Hazard Index	Appendix B Table
Shallow Groundwater	$2x10^{-8}$	0.0008	Appendix B.8
Shallow Soil Gas	$8x10^{-6}$	0.2	Appendix B.9

Table 5.3 shows that the upper-bound risks for on-Site worker exposures to on-Site groundwater and soil gas via assumed VI meet DNREC's and USEPA's cancer risk and HI limits for RME risks.

As discussed above, the shallow soil gas risk estimates were calculated using the sub-slab soil gas attenuation factor, which does not account for the 1-2 ft of silty sand and clay soil in the vadose zone between these samples and the bottom of buildings. As shown in Table 5.3, the upper-bound risks for on-Site nonresidential exposures to shallow soil gas via assumed VI did not exceed DNREC's and USEPA's cancer risk and HI limits for RME risks. These risk estimates are conservatively calculated using a sub-slab attenuation factor for residential buildings and likely overestimate the risks.

Groundwater and soil gas results, along with the silty sand and clay soil, form the multiple lines of evidence that confirm that VI from groundwater does not pose an unacceptable risk via VI to potential on-site workers on OU-4.

6. Conclusions

GHD, on behalf of RACER Trust, has prepared this OU-4 Supplemental VI Risk Evaluation to support the ongoing evaluations for OU-4 of the former GM Corporation Wilmington Assembly Plant located in Wilmington, Delaware. This Risk Evaluation evaluates the potential for significant VI into on-Site and off-Site structures from the petroleum hydrocarbons from the former on-Site USTs in OU-4. This Risk Evaluation presents a multiple-lines of evidence evaluation relative to current VI guidance [i.e., Interstate Technology Regulatory Counsel (ITRC 2014) and the United States Environmental Protection Agency (USEPA 2015a)].

Off-Site residential buildings along Dodson Avenue are within the Lateral Inclusion Zone/Distance that ITRC and USEPA use to screen out the potential for significant VI. The off-Site residential buildings do however, screen out for further evaluation based on the Vertical Separation Distance between the dissolved-phase source (groundwater) and the depth of off-Site residential structures. Nevertheless, because soil gas, sub-slab soil gas, and indoor and background outdoor air data have been collected and were previously evaluated in a HHRA, these data are further evaluated in this Risk Evaluation.

The upper-bound risks for off-Site residential exposures to off-Site groundwater via assumed VI meet DNREC's and USEPA's cancer risk and HI limits for RME risks, as shown in Table 5.1. Soil gas and sub-slab soil gas were evaluated to provide additional lines of evidence to confirm the conclusions regarding the potential significant VI from groundwater. The upper-bound risks for off-Site residential exposures to deep soil gas, shallow soil gas, and sub-slab soil gas via assumed VI also meet DNREC's and USEPA's cancer risk and HI limits for RME risks and confirm the conclusions from groundwater, as shown in Table 5.1, i.e., the risks calculated from subsurface media are consistent with the ITRC and USEPA petroleum vapor intrusion model.

Background outdoor air and indoor air data were also collected from certain residential buildings in the adjacent neighborhood downgradient of OU-4. As shown in Table 5.1, the background outdoor air and indoor air cancer risk estimates are slightly higher than DNREC's cancer risk limit of 1×10^{-5}; however, the evaluation of all of the multiple lines of evidence shows that the indoor concentrations do not result from VI from the groundwater source. Therefore, using multiple lines of evidence, these results confirm that VI from groundwater does not pose an unacceptable risk via VI to off-Site residences.

There are no currently occupied buildings in the on-Site portion of OU-4 and according to site owners. However, in this evaluation on-Site workers are conservatively assumed to be exposed to constituents in on-Site groundwater that volatilize and are assumed to migrate into indoor air. Soil gas samples were also collected to provide an additional line of evidence regarding the potential for significant VI from groundwater into on-Site nonresidential buildings.

The upper-bound risks for on-Site worker exposures to on-Site groundwater and soil gas via assumed VI meet DNREC's and USEPA's cancer risk and HI limits for RME risks, as shown in Table 5.3.

Therefore, the on-Site and off-Site VI risks are acceptable for current and reasonably anticipated future scenarios and as such, no additional remedial activities are necessary.

7. References

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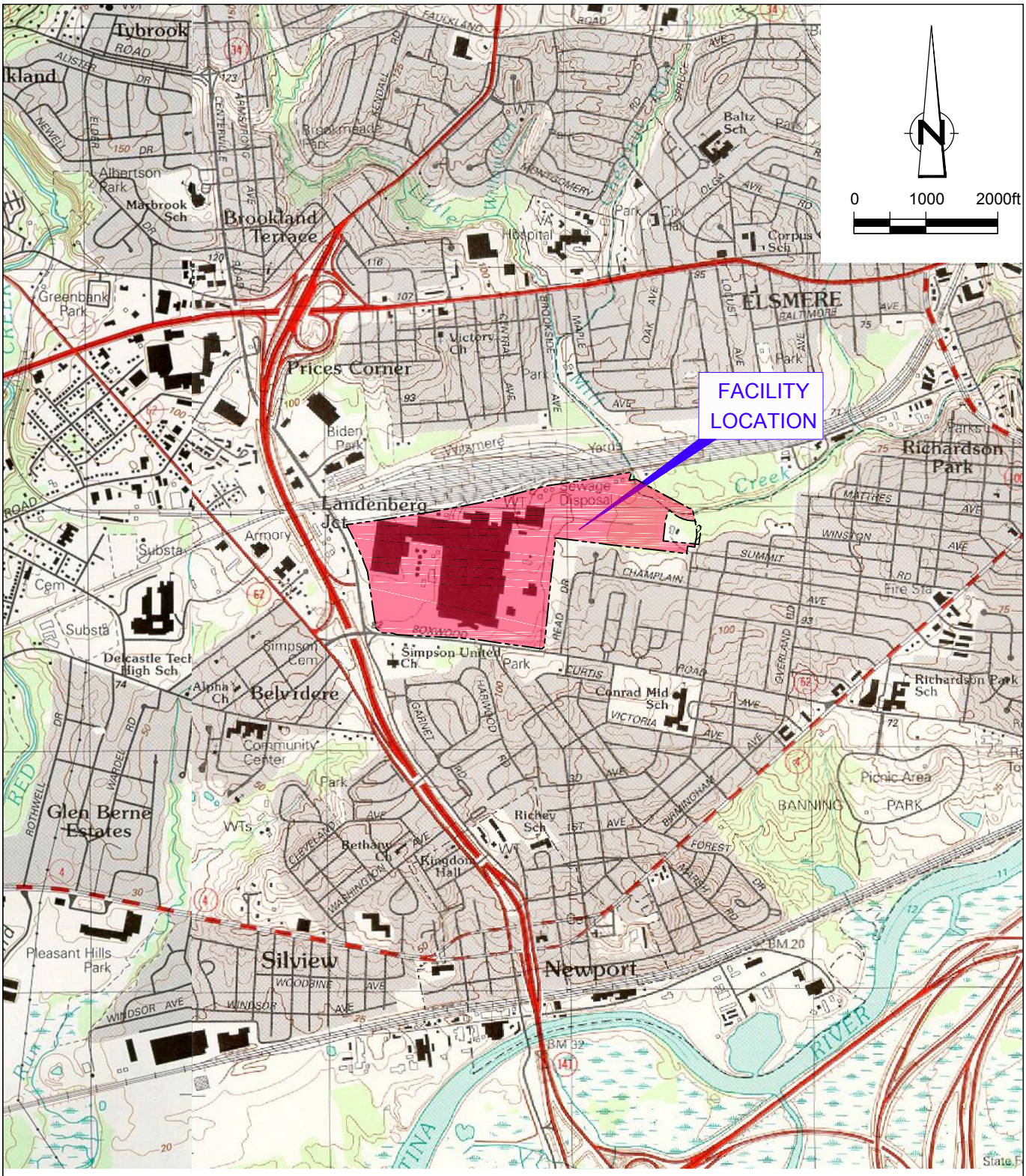


LEGEND

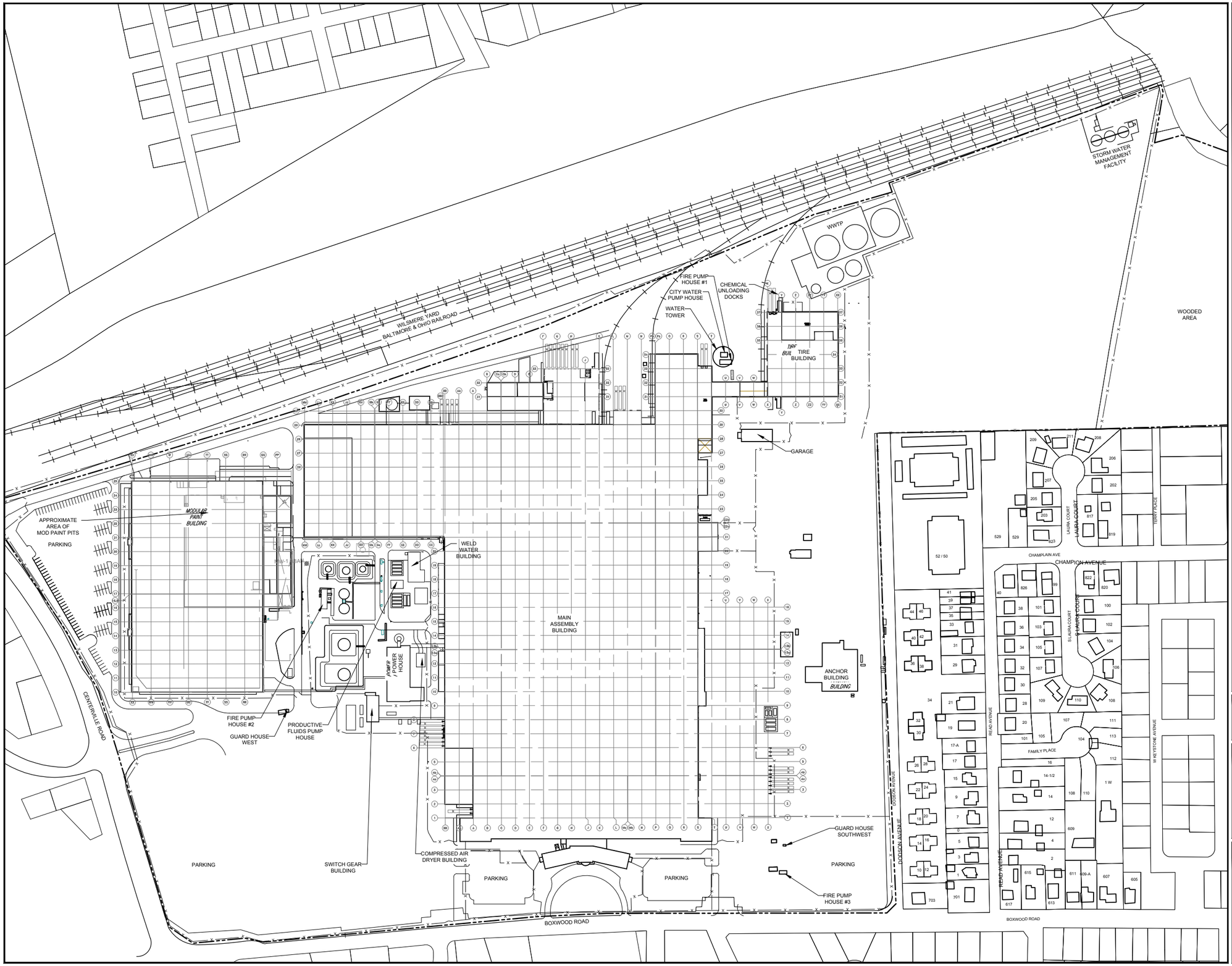
APPROXIMATE FACILITY BOUNDARY

figure 1

FACILITY LOCATION
OU-4 SUPPLEMENTAL VI RISK EVALUATION
FORMER GM WILMINGTON ASSEMBLY PLANT
Wilmington, Delaware

REFERENCE:
USGS WILMINGTON SOUTH QUADRANGLE, DEL TOPOGRAPHIC, 7.5 MINUTES SERIES 1997 SCALE: 1:24,000

17338-00(030)GN-NI001 JUN 27/2017



0 50 150ft

LEGEND

- APPROXIMATE FACILITY BOUNDARY
- FENCELINE
- RAILWAY

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

FORMER WILMINGTON ASSEMBLY PLANT

OU-4 SUPPLEMENTAL VI RISK EVALUATION

FACILITY LAYOUT

GHD

Source Reference:			
Project Manager: G. CARLI	Reviewed By: S. SASNOW	Date: JUNE 2017	
Scale: 1" = 150'	Project №: 17338-T05	Report №: 030	Drawing №: 2

17338-00(030)GN-NI002 JUL 05/2017

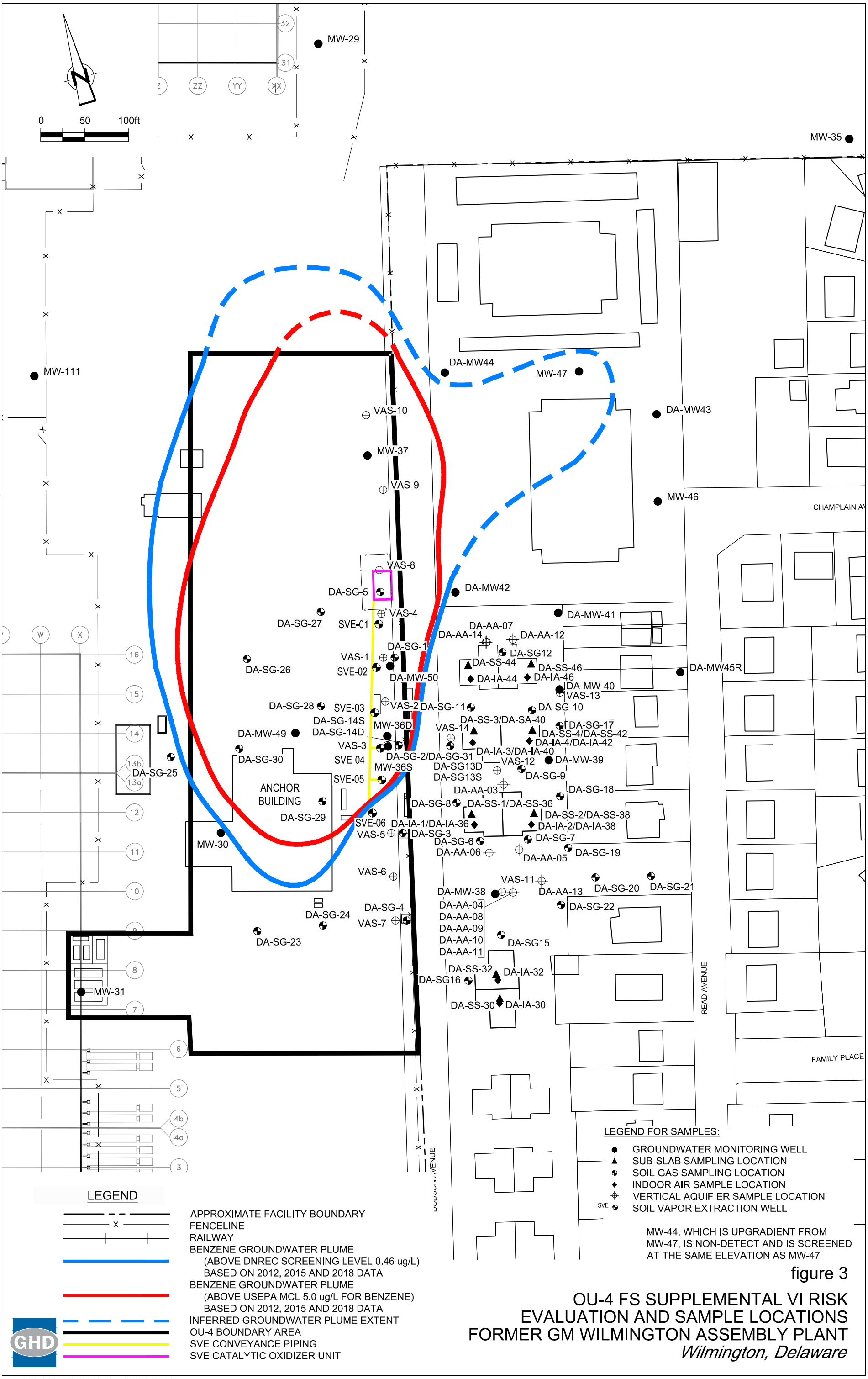


figure 3

OU-4 FS SUPPLEMENTAL VI RISK EVALUATION AND SAMPLE LOCATIONS FORMER GM WILMINGTON ASSEMBLY PLANT

Wilmington, Delaware

17338-00(030)GN-NI005 JUN 24/2019

Appendices

Appendix A
Samples Used in Risk Evaluation

Table A.1

OU-4 Supplemental VI Risk Evaluation
Sample ID and Exposure Point Concentrations
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Sample ID	Sample Type	Location
Ambient	Ambient Air	Off-Site
AA-2	Ambient Air	Off-Site
AA-3	Ambient Air	Off-Site
AA-4	Ambient Air	Off-Site
DA-AA5	Ambient Air	Off-Site
DA-AA6	Ambient Air	Off-Site
DA-AA7	Ambient Air	Off-Site
DA-AA8	Ambient Air	Off-Site
DA-AA9	Ambient Air	Off-Site
DA-AA10	Ambient Air	Off-Site
DA-AA11	Ambient Air	Off-Site
DA-AA12	Ambient Air	Off-Site
DA-AA13	Ambient Air	Off-Site
DA-AA14	Ambient Air	Off-Site
DA-IA30	Indoor Air	Off-Site
DA-IA32	Indoor Air	Off-Site
DA-IA36	Indoor Air	Off-Site
DA-IA38	Indoor Air	Off-Site
DA-IA40	Indoor Air	Off-Site
DA-IA42	Indoor Air	Off-Site
DA-IA44	Indoor Air	Off-Site
DA-IA46	Indoor Air	Off-Site
IA-1	Indoor Air	Off-Site
IA-2	Indoor Air	Off-Site
IA-3	Indoor Air	Off-Site
IA-4	Indoor Air	Off-Site
MW-30	Groundwater	On-Site
MW-31	Groundwater	On-Site
MW-35	Groundwater	On-Site
MW-36D	Groundwater	On-Site
MW-36S	Groundwater	On-Site
MW-37	Groundwater	On-Site
DA-MW-38	Groundwater	Off-Site
DA-MW-39	Groundwater	Off-Site
DA-MW-40	Groundwater	Off-site

Table A.1

OU-4 Supplemental VI Risk Evaluation
Sample ID and Exposure Point Concentrations
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Sample ID	Sample Type	Location
DA-MW-41	Groundwater	Off-Site
DA-MW-42	Groundwater	Off-Site
DA-MW-43	Groundwater	Off-Site
DA-MW-44	Groundwater	Off-Site
DA-MW-45R	Groundwater	Off-Site
DA-MW-46	Groundwater	Off-Site
DA-MW-47	Groundwater	Off-Site
DA-MW-49	Groundwater	On-Site
DA-MW-50	Groundwater	On-Site
VAS-1	Groundwater	On-Site
VAS-2	Groundwater	On-Site
VAS-3	Groundwater	On-Site
VAS-4	Groundwater	On-Site
VAS-5	Groundwater	On-Site
VAS-6	Groundwater	On-Site
VAS-7	Groundwater	On-Site
VAS-8	Groundwater	On-Site
VAS-9	Groundwater	On-Site
VAS-10	Groundwater	On-Site
VAS-11	Groundwater	Off-Site
VAS-12	Groundwater	Off-Site
VAS-13	Groundwater	Off-Site
VAS-14	Groundwater	Off-Site
DA-SG-1	Soil Gas	On-Site
DA-SG-2	Soil Gas	On-Site
DA-SG-3	Soil Gas	On-Site
DA-SG-4	Soil Gas	On-Site
DA-SG-5	Soil Gas	On-Site
DA-SG-6	Soil Gas	Off-Site
DA-SG-7	Soil Gas	Off-Site
DA-SG-8	Soil Gas	Off-Site
DA-SG-9	Soil Gas	Off-Site
DA-SG-10	Soil Gas	Off-Site
DA-SG-11	Soil Gas	Off-Site
DA-SG-12	Soil Gas	Off-Site

Table A.1

OU-4 Supplemental VI Risk Evaluation
Sample ID and Exposure Point Concentrations
Former GM Wilmington Assembly Plant
Wilmington, Delaware

Sample ID	Sample Type	Location
DA-SG-13D	Soil Gas	Off-Site
DA-SG-13S	Soil Gas	Off-Site
DA-SG-14D	Soil Gas	Off-Site
DA-SG-14S	Soil Gas	Off-Site
DA-SG-15	Soil Gas	Off-Site
DA-SG-16	Soil Gas	Off-Site
DA-SG-17	Soil Gas	Off-Site
DA-SG-18	Soil Gas	Off-Site
DA-SG-19	Soil Gas	Off-Site
DA-SG-20	Soil Gas	Off-Site
DA-SG-21	Soil Gas	Off-Site
DA-SG-22	Soil Gas	Off-Site
DA-SG-23	Soil Gas	On-Site
DA-SG-24	Soil Gas	On-Site
DA-SG-25	Soil Gas	On-Site
DA-SG-26	Soil Gas	On-Site
DA-SG-27	Soil Gas	On-Site
DA-SG-28	Soil Gas	On-Site
DA-SG-29	Soil Gas	On-Site
DA-SG-30	Soil Gas	On-Site
DA-SG-31	Soil Gas	On-Site
DA-SS-1	Sub-slab Soil Gas	Off-Site
DA-SS-2	Sub-slab Soil Gas	Off-Site
DA-SS-3	Sub-slab Soil Gas	Off-Site
DA-SS-4	Sub-slab Soil Gas	Off-Site
DA-SS-30	Sub-slab Soil Gas	Off-Site
DA-SS-32	Sub-slab Soil Gas	Off-Site
DA-SS-36	Sub-slab Soil Gas	Off-Site
DA-SS-38	Sub-slab Soil Gas	Off-Site
DA-SS-40	Sub-slab Soil Gas	Off-Site
DA-SS-42	Sub-slab Soil Gas	Off-Site
DA-SS-44	Sub-slab Soil Gas	Off-Site
DA-SS-46	Sub-slab Soil Gas	Off-Site

Appendix B
Supporting VI Risk Calculations

Toxicity Values
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

CAS	Chemical Name	Inhalation Unit Risk (IUR) (µg/m3)-1	IUR Source	Reference Concentration (RfC) (mg/m3)	RfC Source	Mutagenic Indicator i
67-64-1	Acetone	--	--	31	A	
83-32-9	Acenaphthene	--	--	--	--	
98-86-2	Acetophenone	--	--	--	--	
120-12-7	Anthracene	--	--	--	--	
71-43-2	Benzene	0.0000078	I	0.03	I	
75-27-4	Bromodichloromethane	0.000037	CA	--	--	
105-60-2	Caprolactam	--	--	--	--	
75-15-0	Carbon Disulfide	--	--	0.7	I	
56-23-5	Carbon Tetrachloride	0.000006	I	0.1	I	
86-74-8	Carbazole	--	--	--	--	
108-90-7	Chlorobenzene	--	--	0.05	P	
67-66-3	Chloroform	0.000023	I	0.098	A	
74-87-3	Chloromethane	--	--	0.09	I	
95-48-7	Cresol, M-	--	--	--	--	
106-44-5	Cresol, P-	--	--	--	--	
98-82-8	Cumene (Isopropyl benzene)	--	--	0.4	I	
110-82-7	Cyclohexane	--	--	6	I	
110-83-8	Cyclohexene	--	--	1	X	
132-64-9	Dibenzofuran	--	--	--	--	
106-93-4	Dibromoethane, 1,2-	0.0006	I	0.009	I	
95-50-1	Dichlorobenzene, 1,2-	--	--	0.2	H	
541-73-1	Dichlorobenzene, 1,3-	--	--	--	--	
106-46-7	Dichlorobenzene, 1,4-	0.000011	CA	0.8	I	
75-71-8	Dichlorodifluoromethane	--	--	0.1	X	
75-34-3	Dichloroethane, 1,1-	0.0000016	CA	--	--	
107-06-2	Dichloroethane, 1,2-	0.000026	I	0.007	P	
75-35-4	Dichloroethylene, 1,1-	--	--	0.2	I	
156-59-2	Dichloroethylene, 1,2-cis-	--	--	--	--	
78-87-5	Dichloropropane, 1,2-	0.00001	CA	0.004	I	
84-66-2	Diethyl phthalate	--	--	--	--	
105-67-9	Dimethylphenol, 2,4-	--	--	--	--	
75-00-3	Ethyl Chloride (Chloroethane)	--	--	10	I	
100-41-4	Ethylbenzene	0.0000025	CA	1	I	
86-73-7	Fluorene	--	--	--	--	
39635-31-9	Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB	0.0011	E	0.0013	E	
142-82-5	Heptane, N-	--	--	0.4	P	
110-54-3	Hexane, N-	--	--	0.7	I	
591-78-6	Hexanone, 2-	--	--	0.03	I	
67-63-0	Isopropanol	--	--	0.2	P	
108-87-2	Methyl Cyclohexane	--	--	--	--	
78-93-3	Methyl Ethyl Ketone (2-Butanone)	--	--	5	I	
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentan	--	--	3	I	
91-57-6	Methylnaphthalene, 2-	--	--	--	--	
1634-04-4	Methyl tert-Butyl Ether (MTBE)	0.00000026	CA	3	I	
75-09-2	Methylene Chloride	0.00000001	I	0.6	I	Mut
91-20-3	Naphthalene	0.000034	CA	0.003	I	
85-01-8	Phenanthrene	--	--	--	--	
108-95-2	Phenol	--	--	--	--	
103-65-1	Propyl benzene	--	--	1	X	
129-00-0	Pyrene	--	--	--	--	
100-42-5	Styrene	--	--	1	I	
127-18-4	Tetrachloroethylene	0.00000026	I	0.04	I	
108-88-3	Toluene	--	--	5	I	
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-	--	--	30	H	
79-00-5	Trichloroethane, 1,1,2-	0.000016	I	0.0002	X	
79-01-6	Trichloroethylene	see note 4	I	0.002	I	TCE
75-69-4	Trichlorofluoromethane	--	--	--	--	
95-63-6	Trimethylbenzene, 1,2,4-	--	--	0.06	P	
108-67-8	Trimethylbenzene, 1,3,5-	0.00066	CA	--	--	
540-84-1	Trimethylpentane, 2,2,4-	--	--	--	--	
75-01-4	Vinyl Chloride	0.0000044	I	0.1	I	VC
1330-20-7	Xylenes	--	--	0.1	I	

Notes:
-- Not available
i = Symbol for mutagenic indicator
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see note (4) below).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see note (4) below).

Sources:
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs).
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
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

Appendix B.2

Off-Site (Shallow) Cumulative Cancer and Non-Cancer Risk Estimates from Groundwater
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater to Indoor Air Concentration to Risk (IAC-Risk) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1
Average Groundwater Temperature (^{o}C)	Tgw	14

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
67-64-1	Acetone	8.8E+01	7.7E-06	No IUR	2.4E-10
98-86-2	Acetophenone	3.5E+01	5.8E-07	No IUR	No RfC
71-43-2	Benzene	4.5E+00	6.1E-05	1.7E-10	1.9E-06
117-81-7	Bis(2-ethylhexyl)phthalate	1.2E+01	1.3E-08	1.1E-14	No RfC
67-66-3	Chloroform	1.6E+00	1.5E-05	1.2E-10	1.4E-07
106-44-5	Cresol, P-	5.8E+00	2.4E-08	No IUR	3.8E-11
98-82-8	Cumene	4.5E+01	9.4E-04	No IUR	2.2E-06
110-82-7	Cyclohexane	3.0E+02	1.1E-01	No IUR	1.8E-05
84-66-2	Diethyl phthalate	1.4E+02	3.5E-07	No IUR	No RfC
105-67-9	Dimethylphenol, 2,4-	3.5E+01	1.4E-07	No IUR	No RfC
100-41-4	Ethylbenzene	5.7E+02	9.5E-03	8.5E-09	9.2E-06
591-78-6	Hexanone, 2-	2.6E+01	5.1E-06	No IUR	1.6E-07
108-87-2	Methyl cyclohexane	3.7E+02	6.5E-01	No IUR	No RfC
78-93-3	Methyl Ethyl Ketone (2-Butanone)	3.1E+01	4.2E-06	No IUR	8.0E-10
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	1.4E+00	4.2E-07	No IUR	1.3E-10
91-57-6	Methylnaphthalene, 2-	2.9E+01	2.2E-05	No IUR	No RfC
1634-04-4	Methyl tert-Butyl Ether (MTBE)	8.6E-01	1.3E-06	1.2E-13	4.1E-10
91-20-3	Naphthalene	2.6E+02	2.0E-04	2.5E-09	6.5E-05
100-42-5	Styrene	1.6E+01	9.2E-05	No IUR	8.8E-08
108-88-3	Toluene	2.4E+02	3.6E-03	No IUR	6.9E-07
95-63-6	Trimethylbenzene, 1,2,4-	7.9E+02	9.4E-03	No IUR	1.5E-04
108-67-8	Trimethylbenzene, 1,3,5-	2.3E+02	3.9E-03	No IUR	6.2E-05
1330-20-7	Xylenes	1.6E+03	2.2E-02	No IUR	2.1E-04
		Cumulative:		1E-08	5E-04

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.3

Off-Site (Deep) Cumulative Cancer and Non-Cancer Risk Estimates from Soil Gas
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1
Average Groundwater Temperature (^{o}C)	Tgw	14

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
71-43-2	Benzene	8.1E+02	8.1E-05	2.3E-10	2.6E-06
110-82-7	Cyclohexane	2.7E+06	2.7E-01	No IUR	4.3E-05
100-41-4	Ethylbenzene	6.3E+05	6.3E-02	5.6E-08	6.0E-05
142-82-5	Heptane, N-	4.3E+06	4.3E-01	No IUR	1.0E-03
110-54-3	Hexane, N-	1.1E+07	1.1E+00	No IUR	1.5E-03
108-88-3	Toluene	1.7E+06	1.7E-01	No IUR	3.3E-05
95-63-6	Trimethylbenzene, 1,2,4-	3.3E+05	3.3E-02	No IUR	5.3E-04
540-84-1	Trimethylpentane, 2,2,4-	4.5E+05	4.5E-02	No IUR	No RfC
			Cumulative:	6E-08	3E-03

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.4

Off-Site (Shallow) Cumulative Cancer and Non-Cancer Risk Estimates from Soil Gas
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1
Average Groundwater Temperature (^{o}C)	Tgw	14

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
67-64-1	Acetone	1.4E+01	1.40E-02	No IUR	4.3E-07
71-43-2	Benzene	1.4E+02	1.4E-01	3.9E-07	4.5E-03
75-15-0	Carbon Disulfide	2.8E+01	2.80E-02	No IUR	3.8E-05
67-66-3	Chloroform	7.0E-01	7.0E-04	5.7E-09	6.8E-06
98-82-8	Cumene	8.5E+01	8.50E-02	No IUR	2.0E-04
110-82-7	Cyclohexane	6.8E+03	6.8E+00	No IUR	1.1E-03
110-83-8	Cyclohexene	6.0E+00	6.00E-03	No IUR	5.8E-06
75-71-8	Dichlorodifluoromethane	2.0E+00	2.00E-03	No IUR	1.9E-05
75-34-3	Dichloroethane, 1,1-	1.3E+01	1.30E-02	7.4E-09	No RfC
100-41-4	Ethylbenzene	3.6E+02	3.6E-01	3.2E-07	3.5E-04
142-82-5	Heptane, N-	2.2E+04	2.2E+01	No IUR	5.3E-02
110-54-3	Hexane, N-	4.4E+04	4.4E+01	No IUR	6.0E-02
67-63-0	Isopropanol	6.0E+00	6.0E-03	No IUR	2.9E-05
78-93-3	Methyl Ethyl Ketone (2-Butanone)	1.0E+00	1.0E-03	No IUR	1.9E-07
103-65-1	Propyl benzene	9.7E+01	9.7E-02	No IUR	9.3E-05
127-18-4	Tetrachloroethylene	4.0E+00	4.0E-03	3.7E-10	9.6E-05
108-88-3	Toluene	1.1E+02	1.1E-01	No IUR	2.1E-05
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2	2.0E-01	2.00E-04	No IUR	6.4E-09
75-69-4	Trichlorofluoromethane	8.0E-01	8.0E-04	No IUR	No RfC
95-63-6	Trimethylbenzene, 1,2,4-	3.4E+02	3.4E-01	No IUR	5.4E-03
108-67-8	Trimethylbenzene, 1,3,5-	2.0E+02	2.0E-01	No IUR	3.2E-03
540-84-1	Trimethylpentane, 2,2,4-	5.7E+03	5.7E+00	No IUR	No RfC
1330-20-7	Xylenes	3.6E+02	3.6E-01	No IUR	3.5E-03
		Cumulative:		7E-07	1.3E-01

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.5

Off-Site Cumulative Cancer and Non-Cancer Risk Estimates from Sub-Slab
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1
Average Groundwater Temperature (^{o}C)	Tgw	14

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk[a] CR	VI Hazard[a] HQ
71-43-2	Benzene	3.7E+03	3.7E+00	1.0E-05	1.2E-01
110-82-7	Cyclohexane	2.4E+02	2.4E-01	No IUR	3.8E-05
100-41-4	Ethylbenzene	1.4E+00	1.4E-03	1.2E-09	1.3E-06
142-82-5	Heptane, N-	1.5E+02	1.5E-01	No IUR	3.6E-04
110-54-3	Hexane, N-	2.6E+03	2.6E+00	No IUR	3.6E-03
108-88-3	Toluene	7.5E+01	7.5E-02	No IUR	1.4E-05
95-63-6	Trimethylbenzene, 1,2,4-	3.1E+00	3.1E-03	No IUR	5.0E-05
540-84-1	Trimethylpentane, 2,2,4-	1.1E+00	1.1E-03	No IUR	No RfC
1330-20-7	Xylenes	3.1E+00	3.1E-03	No IUR	3.0E-05
		Cumulative:		1E-05	1E-01

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.6

Off-Site Cumulative Cancer and Non-Cancer Risk Estimates from Indoor Air
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Indoor Air Concentration to Risk (IAC-Risk) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1

CAS	Chemical Name	Site Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
71-43-2	Benzene	1.0E+01	**2.8E-05**	3.2E-01
110-82-7	Cyclohexane	2.9E+00	No IUR	4.6E-04
100-41-4	Ethylbenzene	1.9E+01	**1.7E-05**	1.8E-02
142-82-5	Heptane, N-	1.3E+01	No IUR	3.1E-02
110-54-3	Hexane, N-	3.0E+01	No IUR	4.1E-02
108-88-3	Toluene	3.7E+01	No IUR	7.1E-03
95-63-6	Trimethylbenzene, 1,2,4-	1.3E+01	No IUR	2.1E-01
540-84-1	Trimethylpentane, 2,2,4-	1.9E+01	No IUR	No RfC
1330-20-7	Xylenes	3.0E+01	No IUR	2.9E-01
		Cumulative:	**4E-05**	9E-01

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.7

Off-Site Cumulative Cancer and Non-Cancer Risk Estimates from Outdoor Air
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Indoor Air Concentration to Risk (IAC-Risk) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Residential
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1

CAS	Chemical Name	Site Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
71-43-2	Benzene	2.5E+00	6.9E-06	8.0E-02
110-82-7	Cyclohexane	1.6E+00	No IUR	2.6E-04
100-41-4	Ethylbenzene	1.3E+01	**1.2E-05**	1.2E-02
142-82-5	Heptane, N-	1.5E+01	No IUR	3.6E-02
110-54-3	Hexane, N-	2.8E+00	No IUR	3.8E-03
108-88-3	Toluene	1.2E+01	No IUR	2.3E-03
95-63-6	Trimethylbenzene, 1,2,4-	6.7E+00	No IUR	1.1E-01
540-84-1	Trimethylpentane, 2,2,4-	1.8E+00	No IUR	No RfC
1330-20-7	Xylenes	2.2E+00	No IUR	2.1E-02
		Cumulative:	**2E-05**	3E-01

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.8

On-Site (Shallow) Cumulative Cancer and Non-Cancer Risk Estimates from Groundwater
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

VISL Calculator Output:
EPA-OLEM VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5.1 (May 2016 RSLs)

Parameter	Symbol	Value
Exposure Scenario	Scenario	Commercial
Target Risk for Carcinogens	TCR	1.00E-05
Target Hazard Quotient for Non-Carcinogens	THQ	1
Average Groundwater Temperature (^{o}C)	Tgw	14

CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
83-32-9	Acenaphthene	2.7E+00	7.15E-07	No IUR	No RfC
67-64-1	Acetone	2.8E+02	2.5E-05	No IUR	1.8E-10
98-86-2	Acetophenone	3.9E+01	6.4E-07	No IUR	No RfC
120-12-7	Anthracene	2.6E+00	1.8E-07	No IUR	No RfC
71-43-2	Benzene	1.4E+03	1.9E-02	1.2E-08	1.4E-04
92-52-4	Biphenyl, 1,1'-	1.1E+01	5.6E-06	No IUR	3.2E-06
117-81-7	bis(2-Ethylhexyl)phthalate	1.3E+01	1.4E-08	2.8E-15	No RfC
86-74-8	Carbazole	1.8E+00	1.1E-10	No IUR	No RfC
75-15-0	Carbon Disulfide	7.7E-01	2.9E-05	No IUR	9.6E-09
56-23-5	Carbon Tetrachloride	1.3E+01	8.8E-04	4.3E-10	2.0E-06
105-60-2	Caprolactam	1.2E+02	1.2E-08	No IUR	1.3E-09
108-90-7	Chlorobenzene	4.4E-01	3.0E-06	No IUR	1.4E-08
67-66-3	Chloroform	2.4E+01	2.2E-04	4.2E-10	5.2E-07
95-48-7	Cresol, M-	2.1E+01	7.4E-08	No IUR	2.8E-11
106-44-5	Cresol, P-	5.3E+01	2.2E-07	No IUR	8.2E-11
98-82-8	Cumene	1.3E+02	2.7E-03	No IUR	1.5E-06
110-82-7	Cyclohexane	7.0E+02	2.6E-01	No IUR	9.8E-06
132-64-9	Dibenzofuran	3.6E+00	1.1E-08	No IUR	No RfC
106-93-4	Dibromoethane, 1,2-	1.8E+00	2.5E-06	1.2E-10	6.3E-08
95-50-1	Dichlorobenzene, 1,2-	1.0E+01	3.7E-05	No IUR	4.2E-08
541-73-1	Dichlorobenzene, 1,3-	7.8E-01	9.9E-06	No IUR	No RfC
106-46-7	Dichlorobenzene, 1,4-	1.2E+00	5.7E-06	5.1E-12	1.6E-09
75-34-3	Dichloroethane, 1,1-	2.9E-01	4.1E-06	5.4E-13	No RfC
107-06-2	Dichloroethane, 1,2-	4.6E+01	1.3E-04	2.7E-10	4.2E-06
75-35-4	Dichloroethylene, 1,1-	1.4E-01	9.9E-06	No IUR	1.1E-08
156-59-2	Dichloroethylene, 1,2-cis-	1.3E+00	1.3E-05	No IUR	No RfC
78-87-5	Dichloropropane, 1,2-	1.9E-01	1.3E-06	1.0E-12	7.2E-08
105-67-9	Dimethylphenol, 2,4-	2.1E+01	8.2E-08	No IUR	No RfC
100-41-4	Ethylbenzene	2.4E+03	4.0E-02	8.2E-09	9.2E-06
86-73-7	Fluorene	6.2E+00	8.6E-07	No IUR	No RfC
591-78-6	Hexanone, 2-	2.3E+01	4.5E-06	No IUR	3.4E-08
108-87-2	Methyl cyclohexane	3.6E+02	6.3E-01	No IUR	No RfC
78-93-3	Methyl Ethyl Ketone (2-Butanone)	9.0E+01	1.2E-05	No IUR	5.6E-10
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	3.0E+01	9.0E-06	No IUR	6.8E-10
91-57-6	Methylnaphthalene, 2-	1.7E+02	1.3E-04	No IUR	No RfC
1634-04-4	Methyl tert-Butyl Ether (MTBE)	1.6E+00	2.4E-06	5.1E-14	1.8E-10
75-09-2	Methylene Chloride	9.1E+01	7.7E-04	6.3E-13	2.9E-07
91-20-3	Naphthalene	2.4E+02	1.9E-04	5.2E-10	1.4E-05
85-01-8	Phenanthrene	9.9E+00	9.4E-07	No IUR	No RfC
108-95-2	Phenol	7.3E+00	9.9E-09	No IUR	1.1E-11
129-00-0	Pyrene	2.4E+00	3.0E-08	No IUR	No RfC
100-42-5	Styrene	7.2E+01	4.1E-04	No IUR	9.4E-08
127-18-4	Tetrachloroethylene	1.3E+00	5.1E-05	1.1E-12	2.9E-07
108-88-3	Toluene	6.1E+03	9.2E-02	No IUR	4.2E-06
79-01-6	Trichloroethylene	9.5E+00	2.2E-04	7.4E-11	2.5E-05
95-63-6	Trimethylbenzene, 1,2,4-	2.8E+03	3.3E-02	No IUR	1.3E-04
108-67-8	Trimethylbenzene, 1,3,5-	2.3E+02	3.9E-03	No IUR	1.5E-05
75-01-4	Vinyl Chloride	2.3E+01	1.9E-03	6.8E-10	4.3E-06
1330-20-7	Xylenes	1.3E+04	1.8E-01	No IUR	4.2E-04
		Cumulative:		2E-08	8E-04

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B.9

On-Site (Shallow) Cumulative Cancer and Non-Cancer Risk Estimates from Soil Gas
RACER Trust
OU-4, Former GM Wilmington Assembly Plant, Wilmington, Delaware

CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ
67-64-1	Acetone	1.0E+01	1.00E-02	No IUR	7.4E-08
71-43-2	Benzene	1.0E+04	1.0E+01	6.4E-06	7.6E-02
75-27-4	Bromodichloromethane	3.6E+00	3.6E-03	1.1E-08	No RfC
75-15-0	Carbon Disulfide	1.3E+02	1.30E-01	No IUR	4.2E-05
56-23-5	Carbon Tetrachloride	2.9E-01	2.9E-04	1.4E-10	6.6E-07
108-90-7	Chlorobenzene	9.9E+02	9.9E-01	No IUR	4.5E-03
67-66-3	Chloroform	1.5E+01	1.5E-02	2.8E-08	3.5E-05
74-87-3	Chloromethane	3.0E+00	3.0E-03	No IUR	7.6E-06
98-82-8	Cumene	5.3E+02	5.30E-01	No IUR	3.0E-04
110-82-7	Cyclohexane	1.1E+05	1.1E+02	No IUR	4.2E-03
75-71-8	Dichlorodifluoromethane	2.0E+00	2.0E-03	No IUR	4.6E-06
75-34-3	Dichloroethane, 1,1-	1.3E+01	1.30E-02	1.7E-09	No RfC
107-06-2	Dichloroethane, 1,2-	2.2E+02	2.20E-01	4.7E-07	7.2E-03
75-00-3	Ethyl Chloride (Chloroethane)	4.5E-01	4.5E-04	No IUR	1.0E-08
100-41-4	Ethylbenzene	3.8E+03	3.8E+00	7.7E-07	8.7E-04
142-82-5	Heptane, N-	8.4E+04	8.4E+01	No IUR	4.8E-02
110-54-3	Hexane, N-	2.4E+05	2.4E+02	No IUR	7.8E-02
67-63-0	Isopropanol	9.0E+00	9.00E-03	No IUR	1.0E-05
78-93-3	Methyl Ethyl Ketone (2-Butanone)	1.6E+01	1.6E-02	No IUR	7.3E-07
108-10-1	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	3.1E+03	3.1E+00	No IUR	2.4E-04
75-09-2	Methylene Chloride	2.3E+00	2.3E-03	1.9E-12	8.8E-07
103-65-1	Propyl benzene	6.1E+02	6.10E-01	No IUR	1.4E-04
127-18-4	Tetrachloroethylene	1.2E+01	1.2E-02	2.5E-10	6.8E-05
108-88-3	Toluene	1.1E+03	1.1E+00	No IUR	5.0E-05
76-13-1	Trichloro-1,2,2-trifluoroethane, 1,1,2-	6.9E-01	6.9E-04	No IUR	5.3E-09
95-63-6	Trimethylbenzene, 1,2,4-	1.4E+03	1.4E+00	No IUR	5.3E-03
108-67-8	Trimethylbenzene, 1,3,5-	1.1E+00	1.1E-03	No IUR	4.2E-06
540-84-1	Trimethylpentane, 2,2,4-	2.7E+04	2.7E+01	No IUR	No RfC
75-01-4	Vinyl Chloride	3.6E-01	3.6E-04	1.3E-10	8.2E-07
1330-20-7	Xylenes	2.8E+03	2.8E+00	No IUR	6.4E-03
		Cumulative:		8E-06	2E-01

Notes:
Cia = Indoor Air Concentration
CR = Carcinogenic Risk
HQ = Hazard Quotient
IUR = Inhalation Unit Risk
VI = Vapor Intrusion

Appendix B
Soil Vapor Extraction System Evaluation Report (Electronic)

Appendix C
Field Documentation

Appendix C.1
Slug Test Logs and AQTESOLVTM Output (October 29, 2015)

SLUG TEST FIELD DATA FORM

Well Designation: DA-MW38 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 13.19 at 07:37 **Ref Elevation (Top of PVC, NAVD88):** 82.47

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.63

Slug Length (in): 36.48 **Slug Volume (in^3):** 11.20

Start Test Time: 08:30 **End Test Time:** 09:16

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
08:30 / (08:18)	-	Deploying transducer
08:37 / (08:25)	-	Deploying slug
08:45 / (08:33)	-	Removing slug
08:56 / (08:44)	-	Stable; Adjusting transducer cable
08:57 / (08:45)	-	Deploying slug
09:06 / (08:54)	-	Removing slug
09:16 / (09:04)	-	Stable; Test complete
09:18 / (09:06)	13.21	Post test

Comments: PID Headspace = 0.1 ppm; Transducer Cable Length = 23 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: DA-MW39 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 16.58 at 07:40 **Ref Elevation (Top of PVC, NAVD88):** 81.97

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.63

Slug Length (in): 36.48 **Slug Volume (in^3):** 11.20

Start Test Time: 09:49 **End Test Time:** 10:02

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
09:46 / (09:34)	16.60	Measured with transducer in well
09:50 / (09:38)	-	Deploying slug
09:52 / (09:40)	-	Removing slug
09:54 / (09:42)	-	Deploying slug
09:56 / (09:44)	-	Removing slug
09:58 / (09:46)	-	Deploying slug
10:00 / (09:48)	-	Removing slug
10:03 / (09:51)	16.61	Post test

Comments: PID Headspace = 0.1 ppm; Depth to Bottom = 25.10 ft; Transducer Cable Length = 24 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: DA-MW42 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 14.31 at 10:27 **Ref Elevation (Top of PVC, NAVD88):** 79.51

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.63

Slug Length (in): 36.48 **Slug Volume (in^3):** 11.20

Start Test Time: 10:35 **End Test Time:** 11:02

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
10:45 / (10:33)	-	Deploying slug
10:47 / (10:35)	-	Removing slug
10:49 / (10:37)	-	Deploying slug
10:50 / (10:39)	-	Removing slug
10:52 / (10:41)	-	Deploying slug
10:54 / (10:42)	-	Removing slug
10:56 / (10:44)	-	Deploying slug
10:58 / (10:46)	-	Removing slug
11:00 / (10:48)	-	Deploying slug
11:01 / (10:49)	-	Removing slug
11:04 / (10:52)	14.33	Post test

Comments: PID Headspace = 5.5 ppm (Ambient = 0.2 ppm); Depth to Bottom = 22.95 ft; Transducer Cable Length = 21.95 ft; Slug fit tightly in well with transducer cable which may have cause transducer to shift during test

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: DA-MW37 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 12.74 at 07:46 **Ref Elevation (Top of PVC, NAVD88):** 78.03

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.63

Slug Length (in): 36.48 **Slug Volume (in^3):** 11.20

Start Test Time: 11:35 **End Test Time:** 12:07

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
11:40 / (11:28)	12.75	Prior to test
11:50 / (11:38)	-	Deploying slug
11:52 / (11:40)	-	Removing slug
11:54 / (11:42)	-	Deploying slug
11:57 / (11:45)	-	Removing slug
11:59 / (11:47)	-	Deploying slug
12:02 / (11:50)	-	Removing slug
12:04 / (11:52)	-	Deploying slug
12:08 / (11:56)	-	Removing slug
12:11 / (11:59)	-	Deploying slug
12:15 / (12:03)	-	Removing slug
12:21 / (12:09)	12.76	Post test

Comments: PID Headspace = 0.1 ppm (Ambient = 0.1 ppm); Depth to Bottom = 21.20 ft; Transducer Cable Length = 20.20 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: DA-MW36S

Project Name: Dodson Avenue – OU4 Char

Date: 10/29/15

Project Number: 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 15.15 at 07:55

Ref Elevation (Top of PVC, NAVD88): 80.82

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC

Slug Diameter (in): 0.63

Slug Length (in): 36.48

Slug Volume (in^3): 11.20

Start Test Time: 12:30

End Test Time: 12:55

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
12:29 / (12:17)	15.25	Prior to test
12:38 / (12:26)	-	Deploying slug
12:41 / (12:29)	-	Removing slug
12:43 / (12:32)	-	Deploying slug
12:45 / (12:34)	-	Removing slug
12:49 / (12:37)	-	Deploying slug
12:52 / (12:40)	-	Removing slug
12:55 / (12:43)	15.27	Post test

Comments: PID Headspace = 159.7 ppm; Depth to Bottom = 22.70 ft; Transducer Cable Length = 21.70 ft

Slug Volume/Foot

Diameter (inch)	$inch^2$/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: DA-MW36D

Project Name: Dodson Avenue – OU4 Char

Date: 10/29/15

Project Number: 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 16.10 at 07:51

Ref Elevation (Top of PVC, NAVD88): 80.75

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC

Slug Diameter (in): 0.63

Slug Length (in): 36.48

Slug Volume (in^3): 11.20

Start Test Time: 12:30

End Test Time: 12:55

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
13:00 / (12:48)	16.12	Prior to test
13:10 / (12:58)	-	Deploying slug
13:18 / (13:06)	-	Removing slug
13:26 / (13:14)	-	Deploying slug
13:36 / (13:24)	-	Removing slug
13:47 / (13:35)	16.24	Post test

Comments: PID Headspace = 306.8 ppm; Depth to Bottom = 40.00 ft; Transducer Cable Length = 30.00 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: GM-MW49 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 14.93 at 08:01 **Ref Elevation (Top of PVC, NAVD88):** 80.51

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.785

Slug Length (in): 25.44 **Slug Volume (in^3):** 19.97

Start Test Time: 14:04 **End Test Time:** 14:27

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
13:53 / (13:41)	14.93	Prior to test
14:05 / (13:53)	-	Deploying slug
14:07 / (13:56)	-	Removing slug
14:12 / (14:00)	-	Deploying slug
14:15 / (14:03)	-	Removing slug
14:18 / (14:06)	-	Deploying slug
14:20 / (14:08)	-	Removing slug
14:21 / (14:09)	-	Deploying slug
14:23 / (14:11)	-	Removing slug
14:25 / (14:13)	-	Deploying slug
14:26 / (14:14)	-	Removing slug
14:31 / (14:19)	14.96	Post test

Comments: PID Headspace = 520.6 ppm; Depth to Bottom = 25.70 ft; Transducer Cable Length = 24.70 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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SLUG TEST FIELD DATA FORM

Well Designation: GM-MW50 **Project Name:** Dodson Avenue – OU4 Char

Date: 10/29/15 **Project Number:** 2734.04.51

Personnel: VMB/KEP

Static Depth to Water: 14.70 at 07:58 **Ref Elevation (Top of PVC, NAVD88):** 80.07

Test Method: **Rising Head** ___X___ **Falling Head** ___X___

Slug Material: PVC **Slug Diameter (in):** 0.785

Slug Length (in): 25.44 **Slug Volume (in^3):** 19.97

Start Test Time: 14:52 **End Test Time:** 15:10

Time Real Time / (Computer Time)	Depth to Water (Manual)	Description
14:40 / (14:28)	14.68	Prior to test
14:53 / (14:41)	-	Deploying slug
14:56 / (14:44)	-	Removing slug
14:59 / (14:47)	-	Deploying slug
15:01 / (14:49)	-	Removing slug
15:03 / (14:52)	-	Deploying slug
15:07 / (14:56)	-	Removing slug
15:11 (14:59)	14.72	Post test

Comments: PID Headspace = 844.0 ppm; Depth to Bottom = 25.70 ft; Transducer Cable Length = 24.70 ft

Slug Volume/Foot

Diameter (inch)	inch^2/foot
5/8 inch	0.307
3/4 inch	0.442
1 inch	0.785
2 inch	3.14
3 inch	12.6

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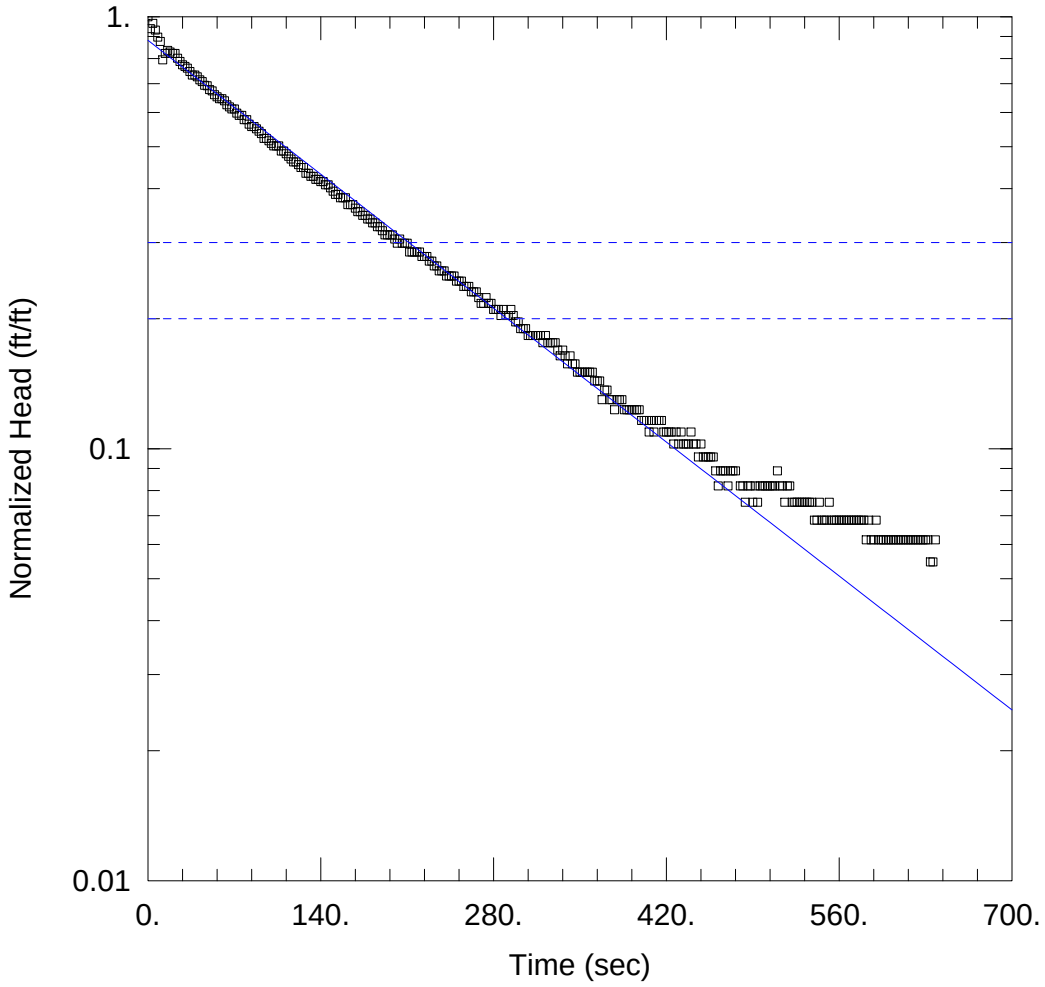


WELL TEST ANALYSIS

Data Set: V:\...\36D falling.aqt
Date: 12/08/15 Time: 09:53:55

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW36D
Test Date: 11/01/15

AQUIFER DATA

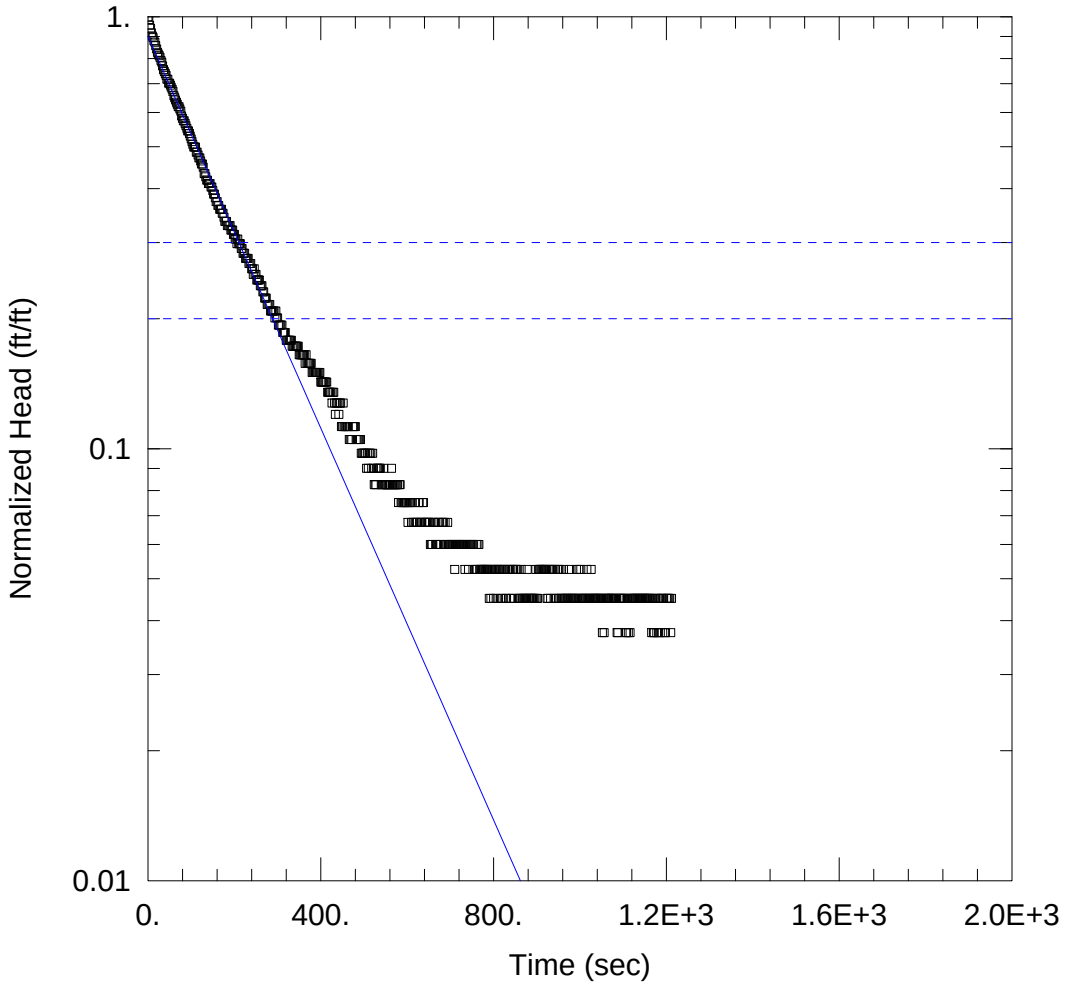
Saturated Thickness: 23.9 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW36D)

Initial Displacement: 1.12 ft Static Water Column Height: 16.1 ft
Total Well Penetration Depth: 40. ft Screen Length: 5. ft
Casing Radius: 0.0417 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0001014 cm/sec y0 = 0.9876 ft



WELL TEST ANALYSIS

Data Set: \...\36DRising.aqt
Date: 12/08/15 Time: 10:27:25

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW36D Rising
Test Date: 11/01/15

AQUIFER DATA

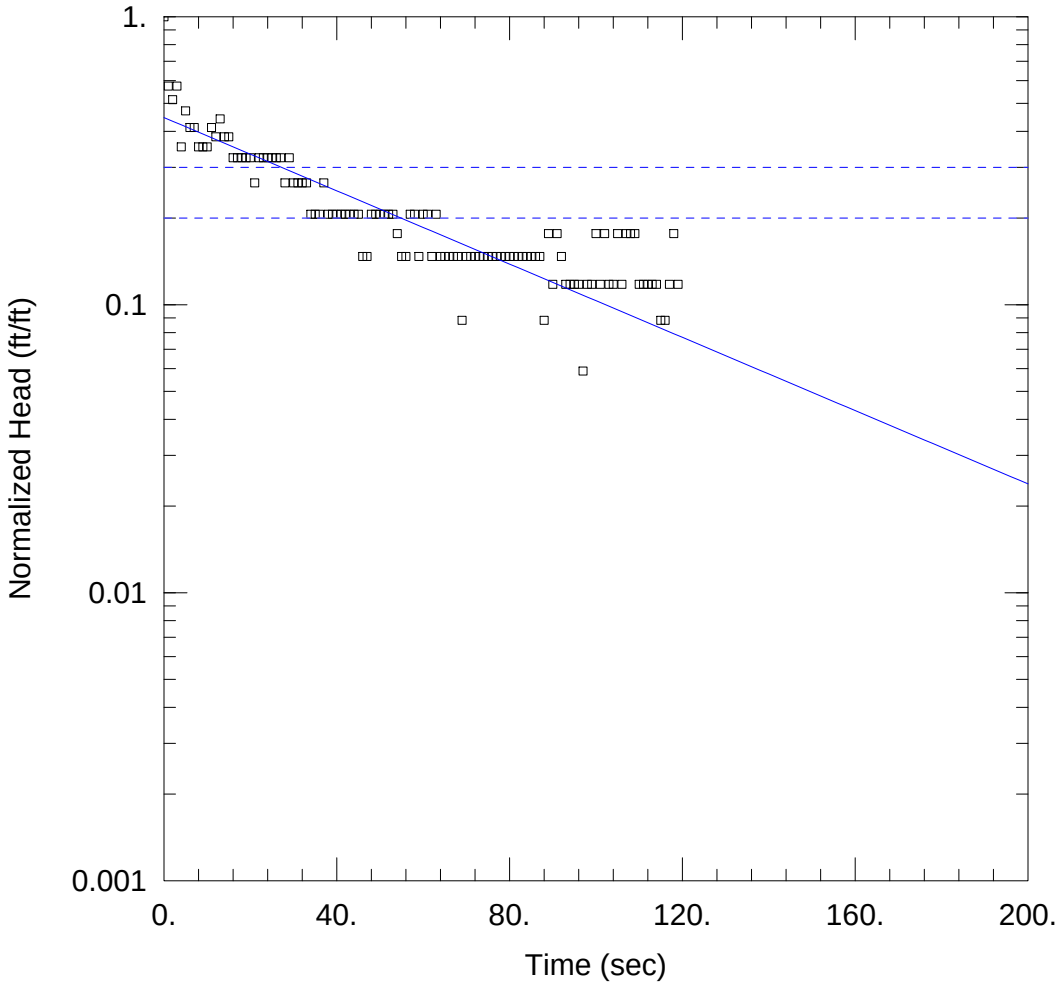
Saturated Thickness: 23.9 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.02 ft
Total Well Penetration Depth: 40. ft
Casing Radius: 0.0417 ft
Static Water Column Height: 16.1 ft
Screen Length: 5. ft
Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0001038 cm/sec
y0 = 0.9184 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW36SF.aqt
Date: 12/08/15 Time: 09:51:24

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-36S Falling
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 7.85 ft Anisotropy Ratio (Kz/Kr): 1.

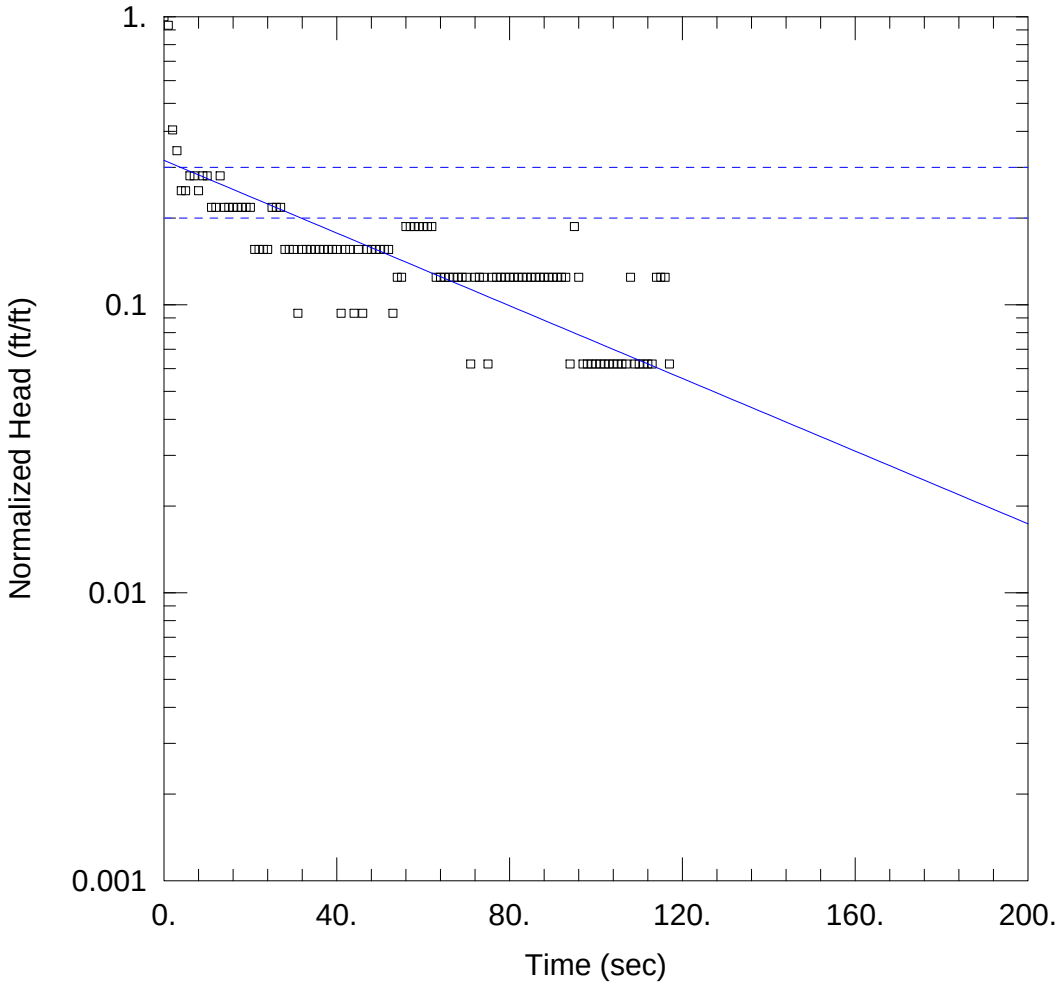
WELL DATA (MW36S-Falling)

Initial Displacement: 0.13 ft Static Water Column Height: 15.15 ft
Total Well Penetration Depth: 23. ft Screen Length: 10. ft
Casing Radius: 0.0417 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001783 cm/sec y0 = 0.05806 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW36SR.aqt
Date: 12/08/15 Time: 09:50:57

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-36S Rising
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 7.85 ft Anisotropy Ratio (Kz/Kr): 1.

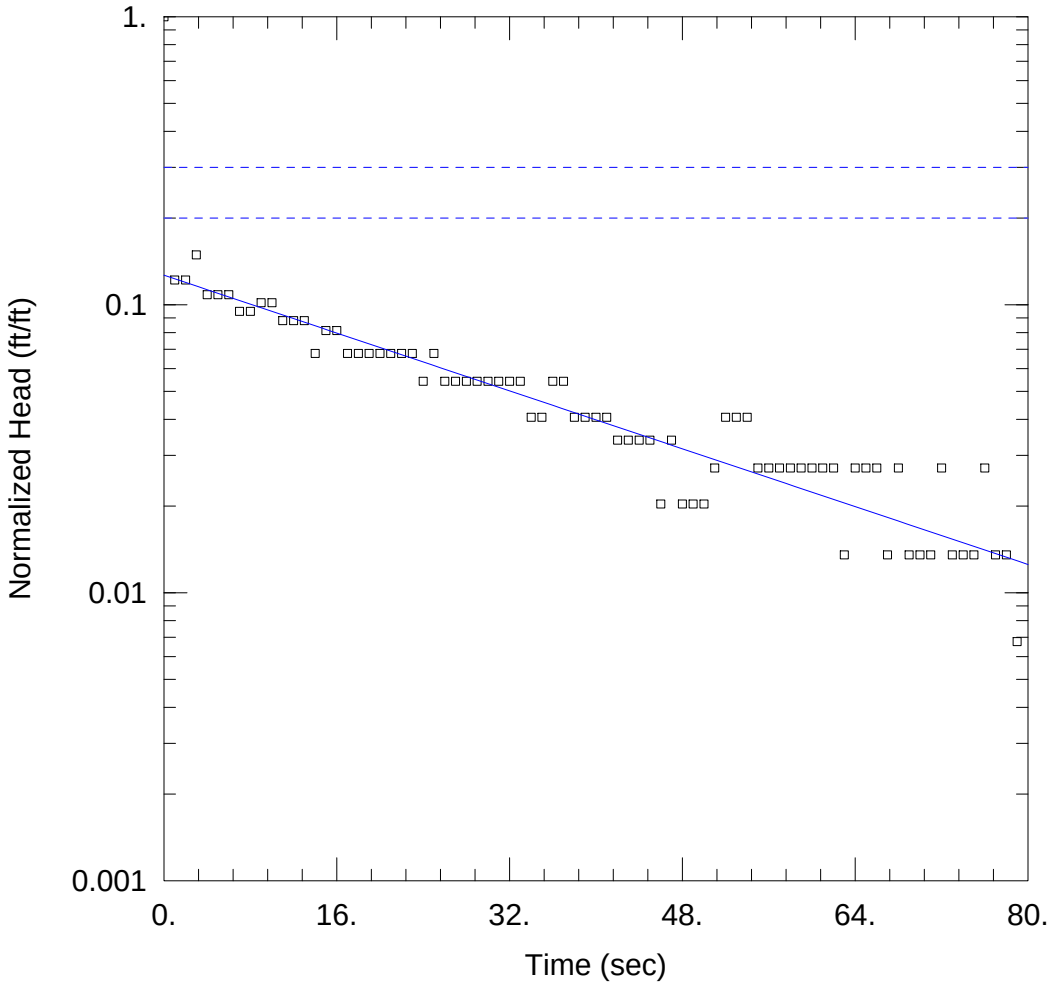
WELL DATA (MW36S Rising)

Initial Displacement: 0.123 ft Static Water Column Height: 15.15 ft
Total Well Penetration Depth: 23. ft Screen Length: 10. ft
Casing Radius: 0.0417 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001769 cm/sec y0 = 0.039 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW37F.aqt
Date: 12/08/15 Time: 10:20:46

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-37 Falling
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 7.26 ft Anisotropy Ratio (Kz/Kr): 1.

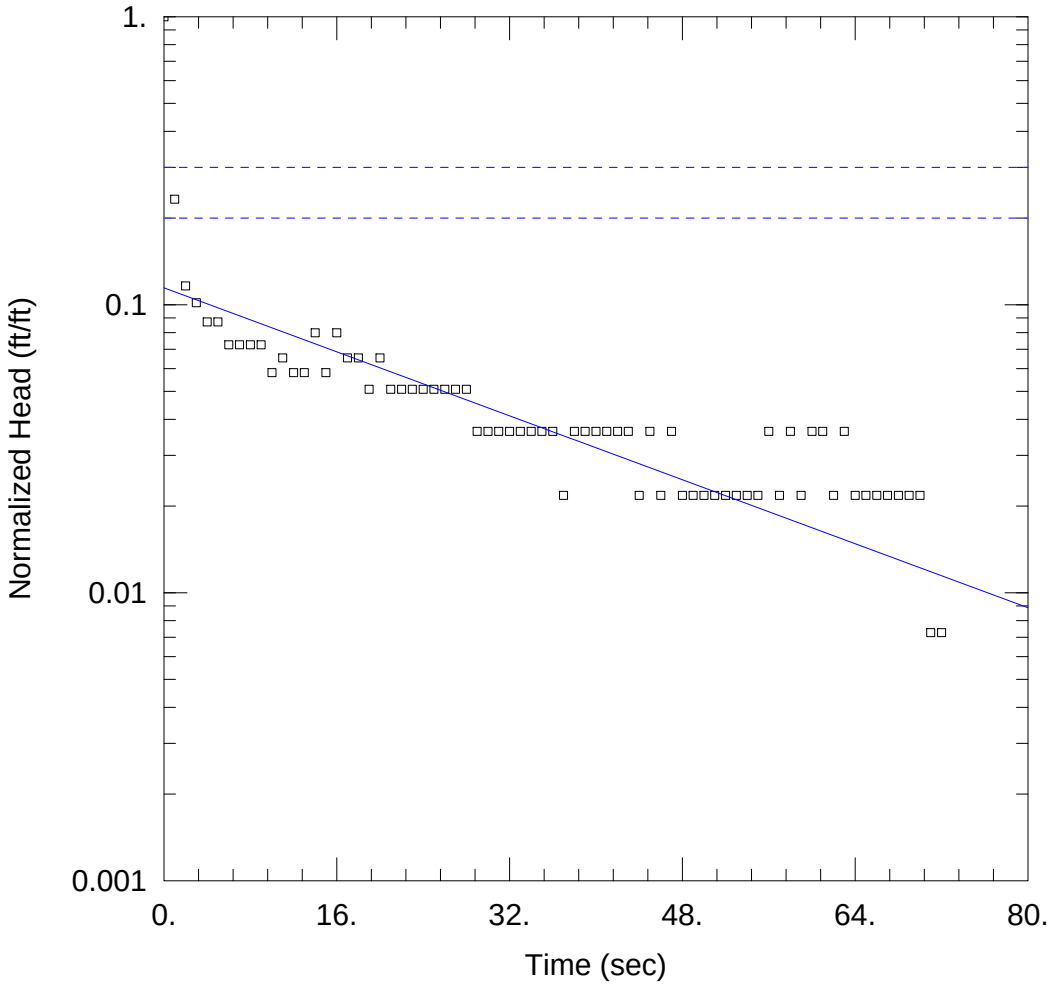
WELL DATA (MW37 Falling)

Initial Displacement: 0.565 ft Static Water Column Height: 12.74 ft
Total Well Penetration Depth: 20. ft Screen Length: 10. ft
Casing Radius: 0.0417 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0003696 cm/sec y0 = 0.07153 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW37R-2.aqt
Date: 12/08/15 Time: 10:25:12

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-37 Rising-2
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 7.26 ft Anisotropy Ratio (Kz/Kr): 1.

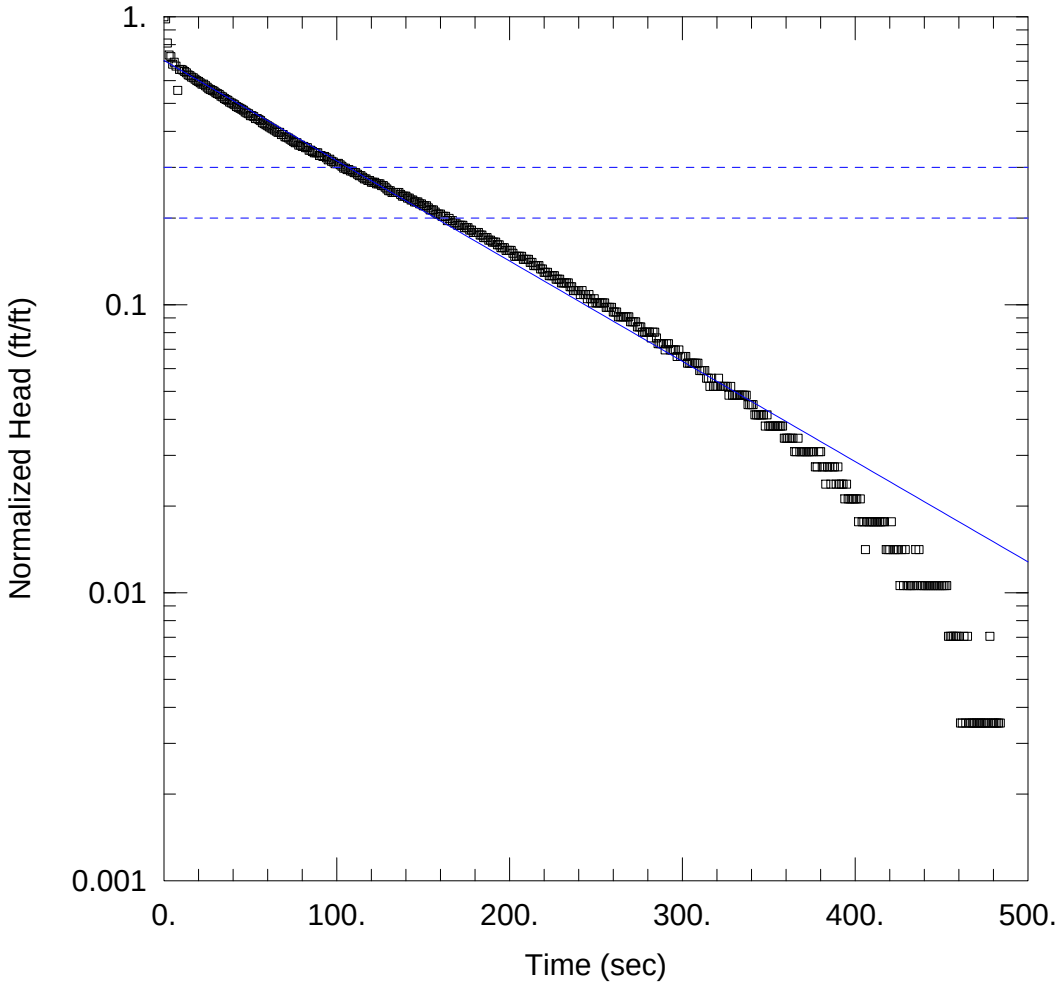
WELL DATA (MW37 R-2)

Initial Displacement: 0.527 ft Static Water Column Height: 12.74 ft
Total Well Penetration Depth: 20. ft Screen Length: 10. ft
Casing Radius: 0.0417 ft Well Radius: 0.167 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0004087 cm/sec y0 = 0.06029 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW38 Falling.aqt
Date: 12/09/15 Time: 10:42:25

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW38 Falling
Test Date: 11/01/15

AQUIFER DATA

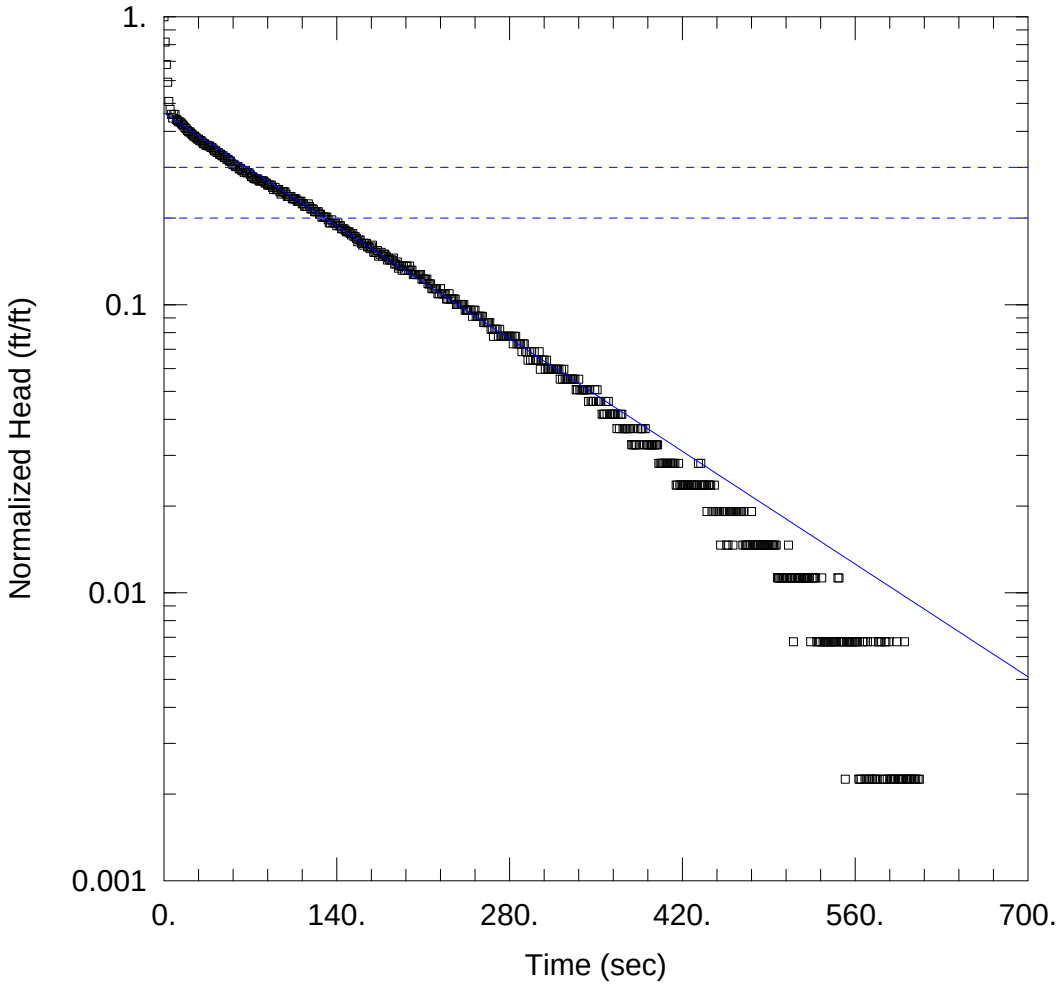
Saturated Thickness: 10.31 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 2.17 ft
Total Well Penetration Depth: 23.5 ft
Casing Radius: 0.0312 ft
Static Water Column Height: 13.19 ft
Screen Length: 10. ft
Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 4.645E-5 cm/sec
y0 = 1.529 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW38 Rising.aqt
Date: 12/09/15 Time: 11:11:55

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-38 Rising
Test Date: 11/01/15

AQUIFER DATA

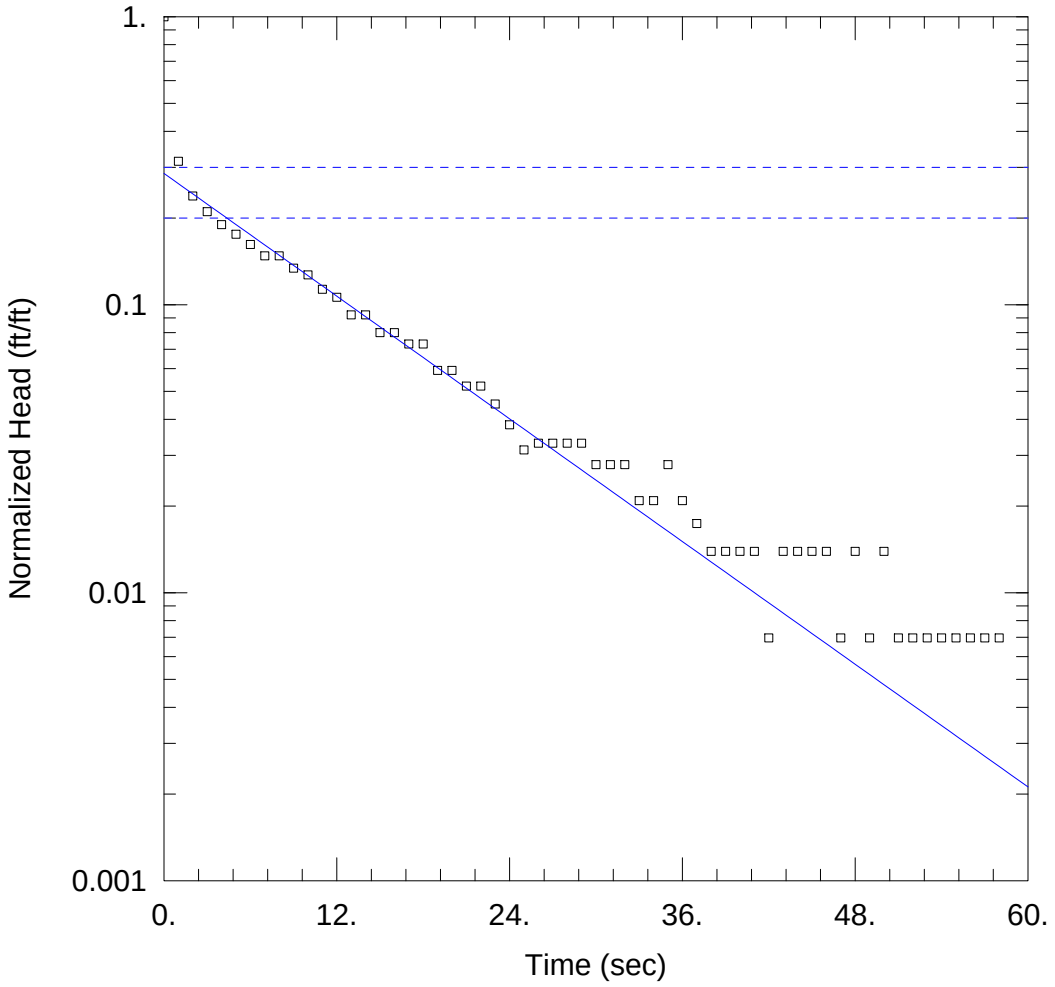
Saturated Thickness: 10.31 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-38 Rising)

Initial Displacement: 1.7 ft Static Water Column Height: 13.19 ft
Total Well Penetration Depth: 123.5 ft Screen Length: 110. ft
Casing Radius: 0.0312 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 4.517E-5 cm/sec y0 = 0.7868 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW39Falling.aqt
Date: 12/09/15 Time: 11:22:10

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-39 Falling
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 8.72 ft Anisotropy Ratio (Kz/Kr): 1.

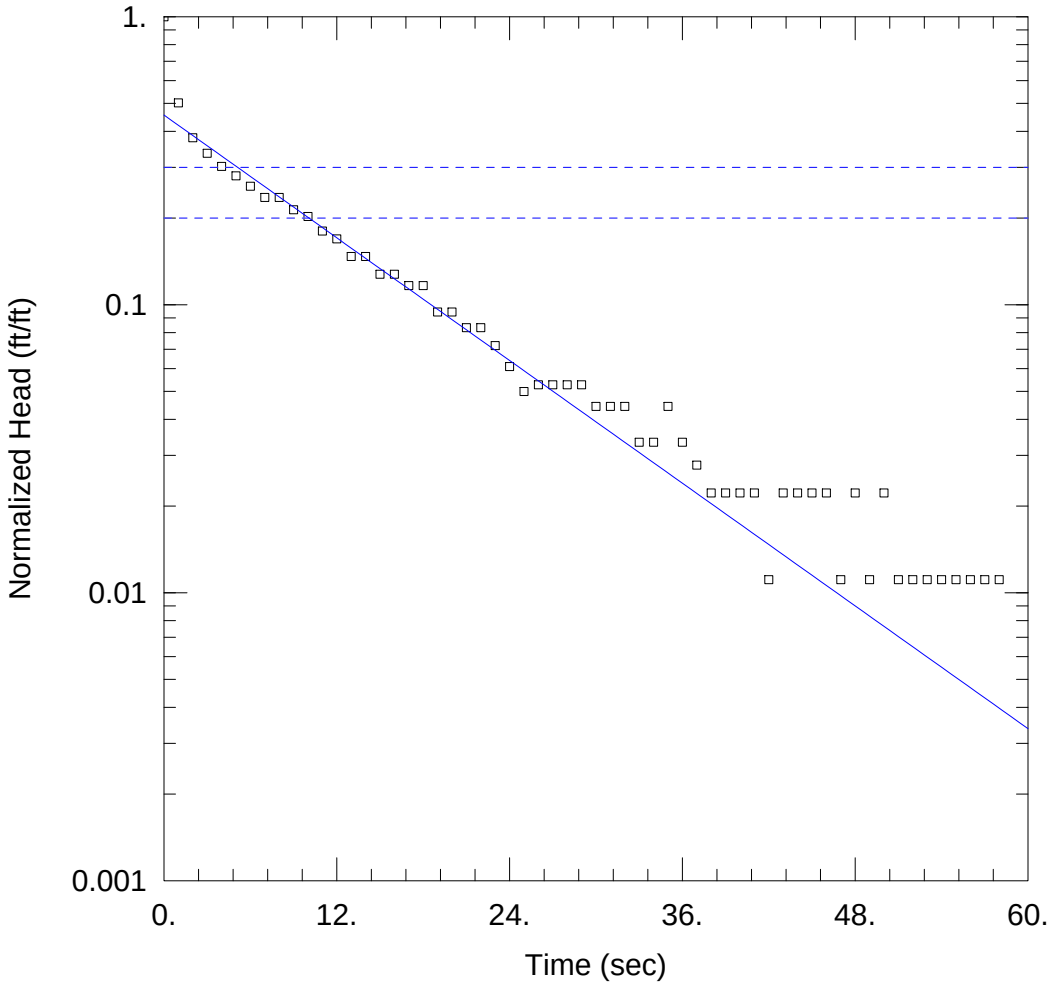
WELL DATA (MW39 Falling)

Initial Displacement: 1.1 ft Static Water Column Height: 16.58 ft
Total Well Penetration Depth: 25.3 ft Screen Length: 10. ft
Casing Radius: 0.0312 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005457 cm/sec y0 = 0.3143 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW39 Rising.aqt
Date: 12/09/15 Time: 11:52:00

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-39 Rising
Test Date: 11/01/15

AQUIFER DATA

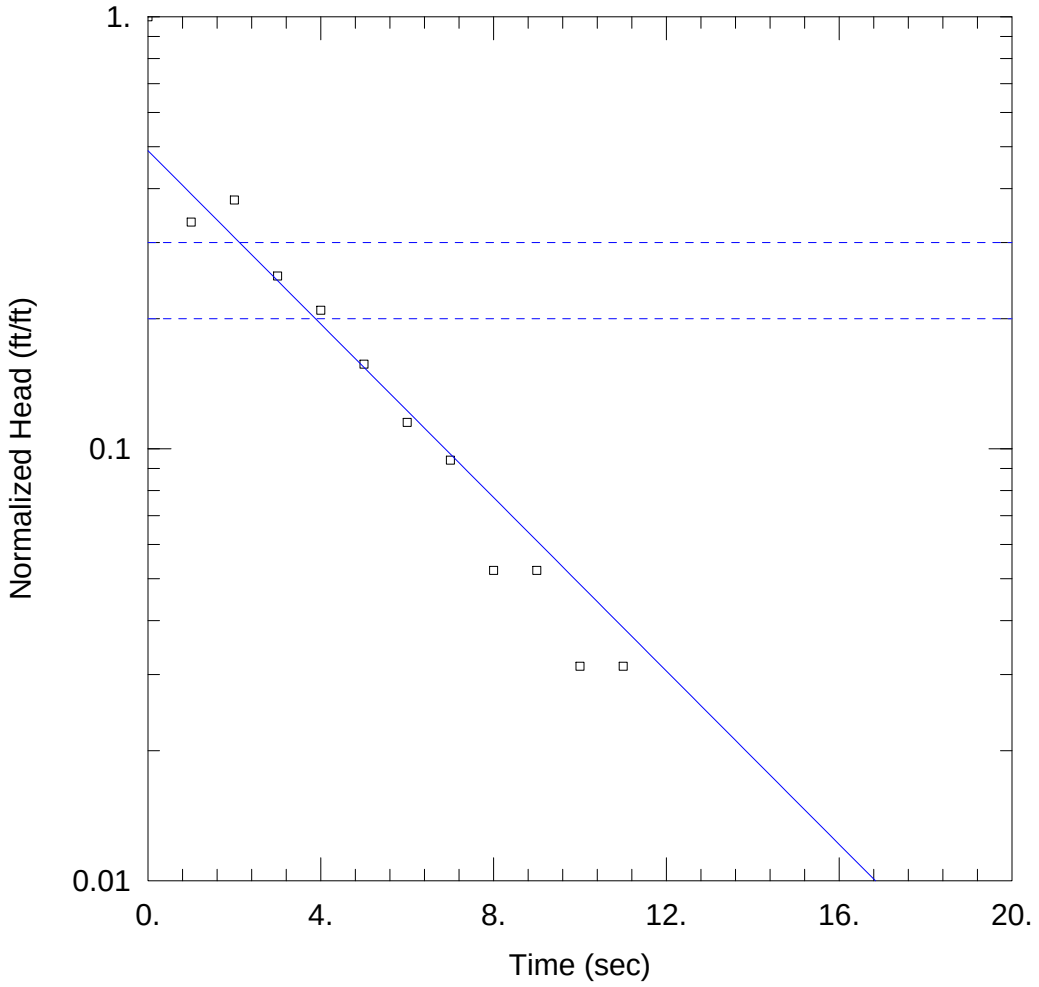
Saturated Thickness: 8.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW39 Rising)

Initial Displacement: 0.69 ft Static Water Column Height: 8.72 ft
Total Well Penetration Depth: 25.3 ft Screen Length: 10. ft
Casing Radius: 0.0312 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0005457 cm/sec y0 = 0.3143 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW42Falling.aqt
Date: 12/09/15 Time: 10:39:53

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-42 Falling
Test Date: 11/01/15

AQUIFER DATA

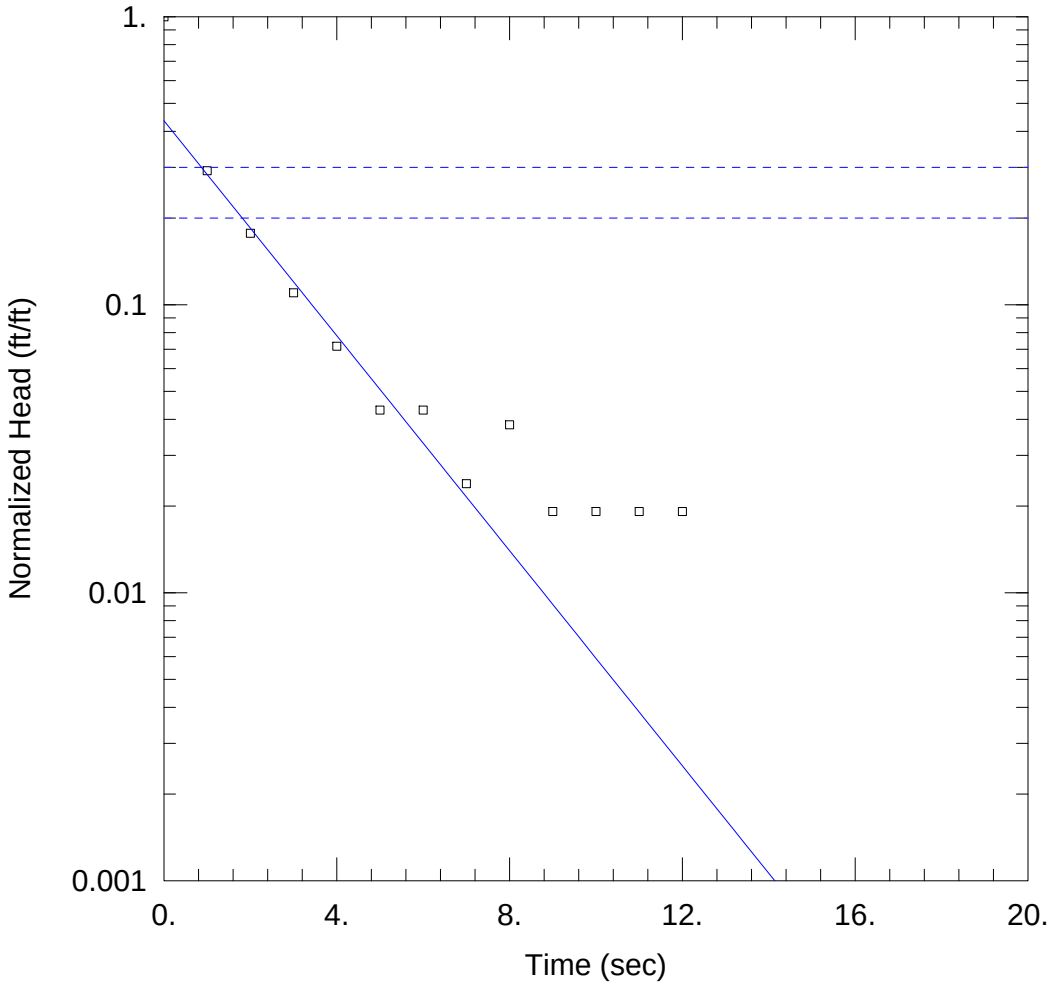
Saturated Thickness: 8.69 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW42 Falling)

Initial Displacement: 0.183 ft Static Water Column Height: 14.31 ft
Total Well Penetration Depth: 23. ft Screen Length: 10. ft
Casing Radius: 0.0312 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.001525 cm/sec y0 = 0.08961 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW42Rising.aqt
Date: 12/09/15 Time: 10:39:25

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-42 Rising
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 8.69 ft Anisotropy Ratio (Kz/Kr): 1.

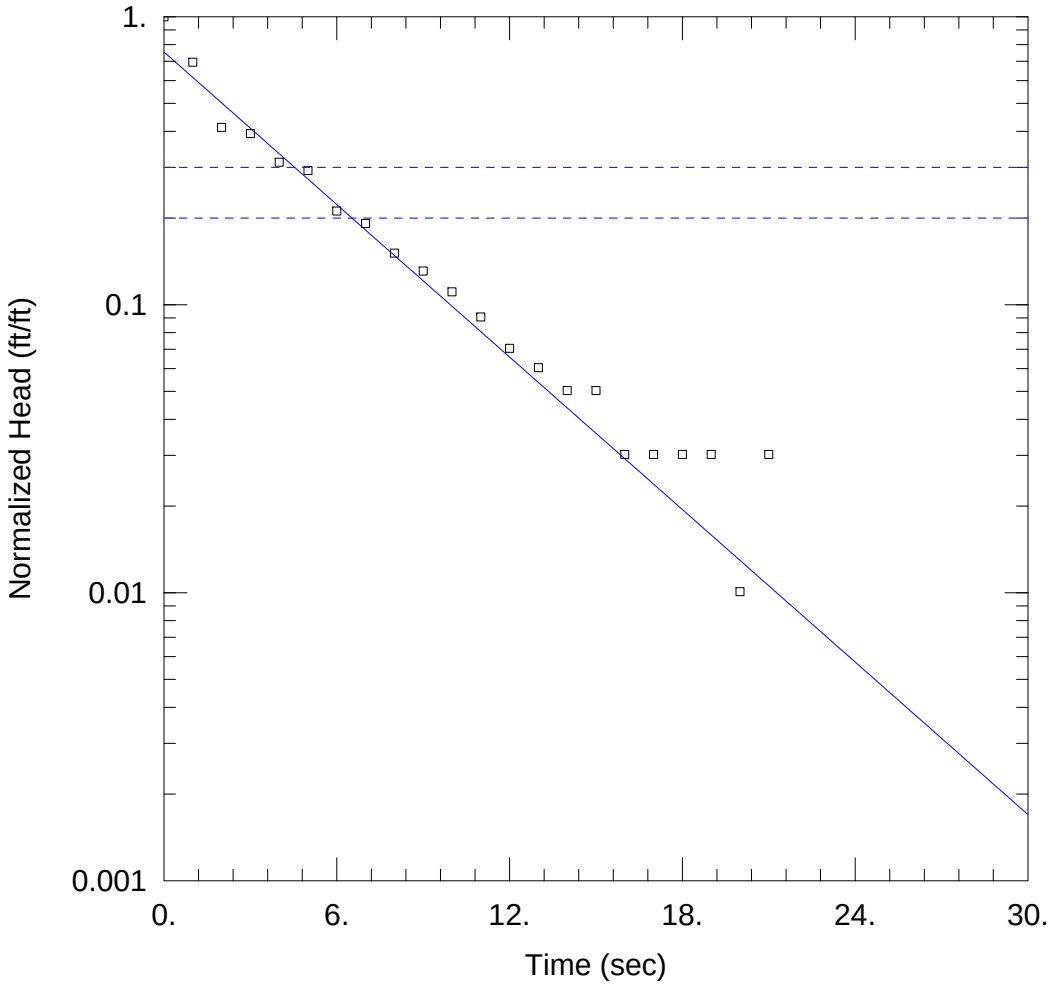
WELL DATA (MW42 Rising)

Initial Displacement: 0.4 ft Static Water Column Height: 14.31 ft
Total Well Penetration Depth: 23. ft Screen Length: 10. ft
Casing Radius: 0.0312 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002836 cm/sec y0 = 0.1741 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW49Falling.aqt
Date: 12/09/15 Time: 10:37:31

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-49 Falling
Test Date: 11/01/15

AQUIFER DATA

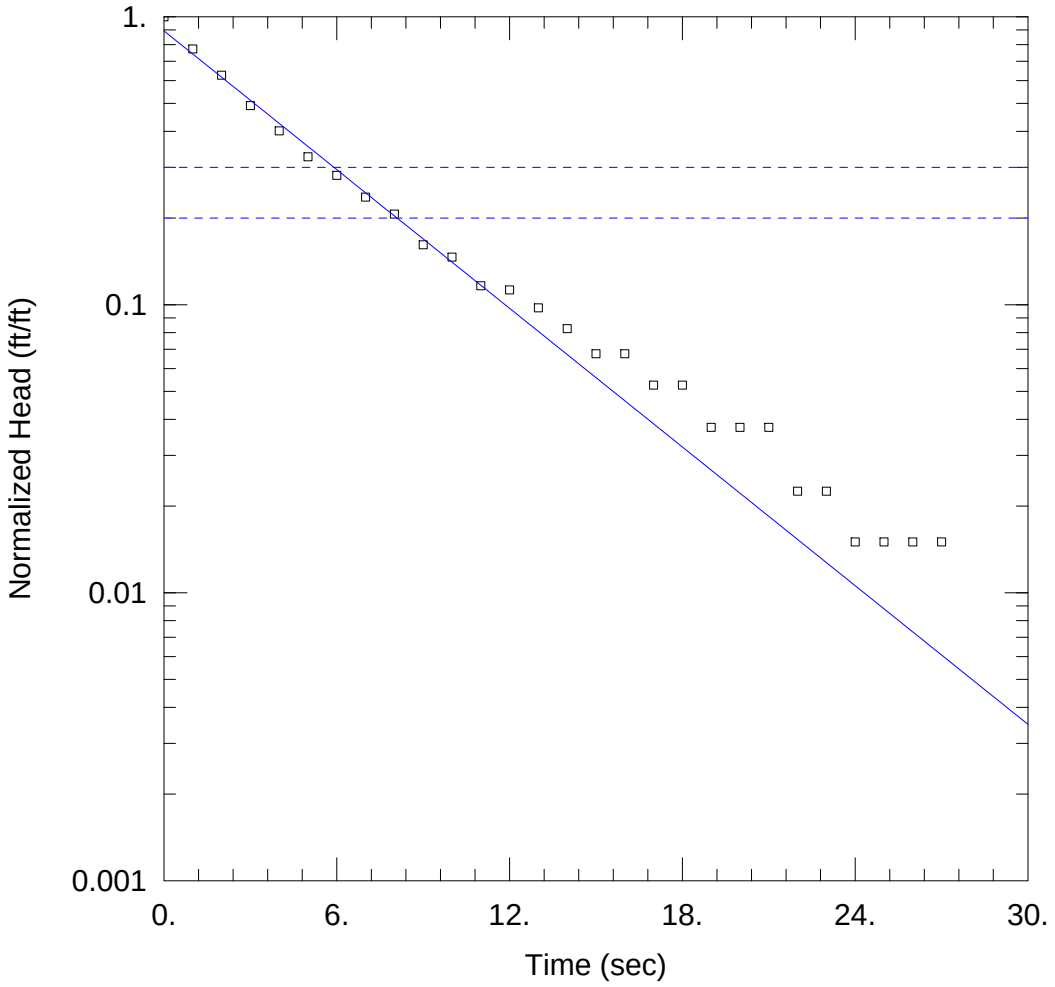
Saturated Thickness: 10.07 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-49 Falling)

Initial Displacement: 0.38 ft
Total Well Penetration Depth: 25. ft
Casing Radius: 0.083 ft
Static Water Column Height: 14.93 ft
Screen Length: 15. ft
Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.007155 cm/sec
y0 = 0.2866 ft



WELL TEST ANALYSIS

Data Set: J:\CSV\MW49R.aqt
Date: 12/09/15 Time: 10:38:13

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-49 Rising
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 10.07 ft Anisotropy Ratio (Kz/Kr): 1.

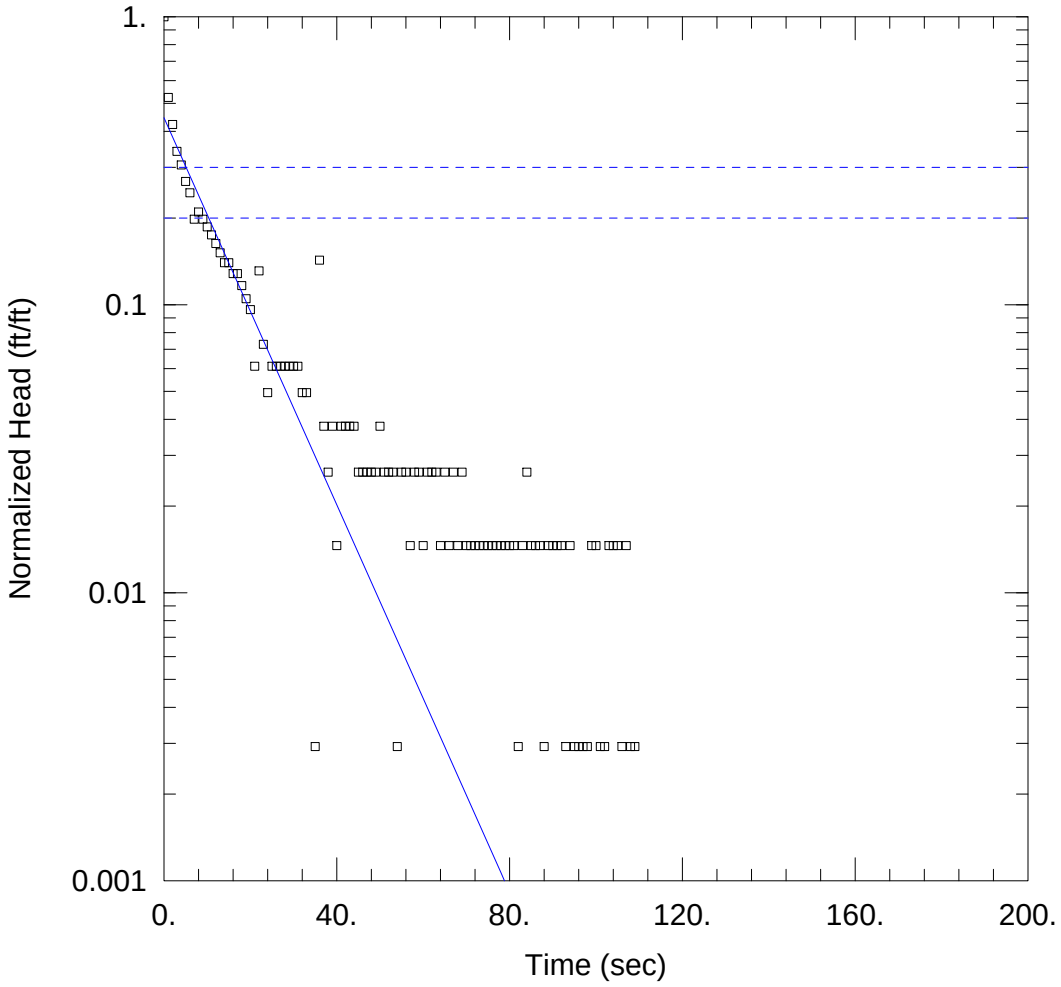
WELL DATA (MW-49 Rising)

Initial Displacement: 0.51 ft Static Water Column Height: 14.93 ft
Total Well Penetration Depth: 25. ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.006507 cm/sec y0 = 0.4553 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW50 Falling SJ.aqt
Date: 12/08/15 Time: 11:05:30

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW-50 Falling 3
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 10.3 ft Anisotropy Ratio (Kz/Kr): 1.

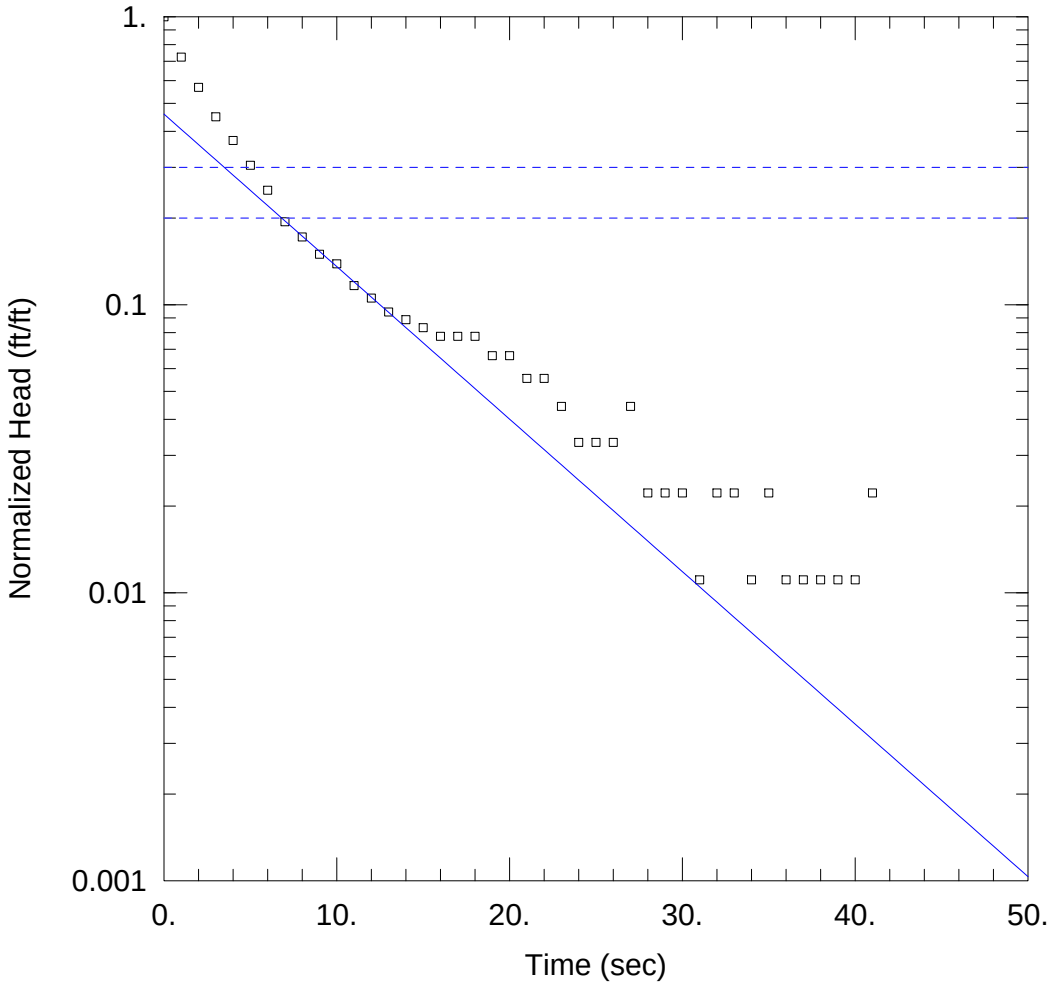
WELL DATA (MW-50 Falling 3)

Initial Displacement: 0.657 ft Static Water Column Height: 14.7 ft
Total Well Penetration Depth: 25. ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.002668 cm/sec y0 = 0.293 ft



WELL TEST ANALYSIS

Data Set: V:\...\MW50rising.aqt
Date: 02/04/16 Time: 15:54:10

PROJECT INFORMATION

Company: BrightFields, Inc.
Client: DNREC-SIRS
Project: 2734.04.21
Location: Dodson
Test Well: MW 38 Falling
Test Date: 11/01/15

AQUIFER DATA

Saturated Thickness: 10.3 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW50R1)

Initial Displacement: 0.69 ft Static Water Column Height: 14.7 ft
Total Well Penetration Depth: 25. ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.25 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.004204 cm/sec y0 = 0.3167 ft

Appendix C.2
Building Inspection Log
(August 29, 2019)

Basement Indoor Air Survey

Building Unit #: _30_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	Yes
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

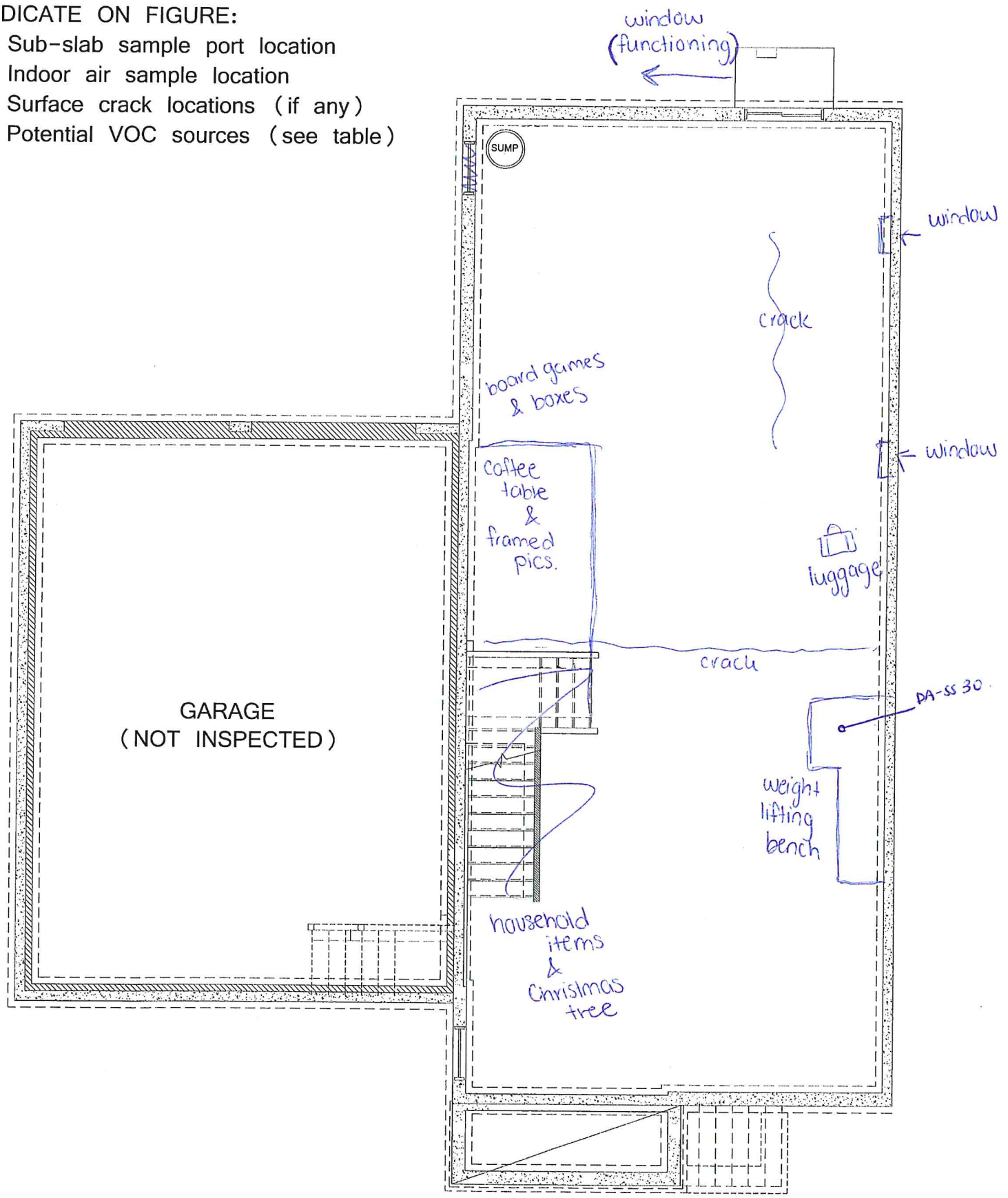
General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 30, 36, 40, & 44

UNIT#: 30

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _32_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	
Other (specify): _____			

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	Yes
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	Yes
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

General Comments:

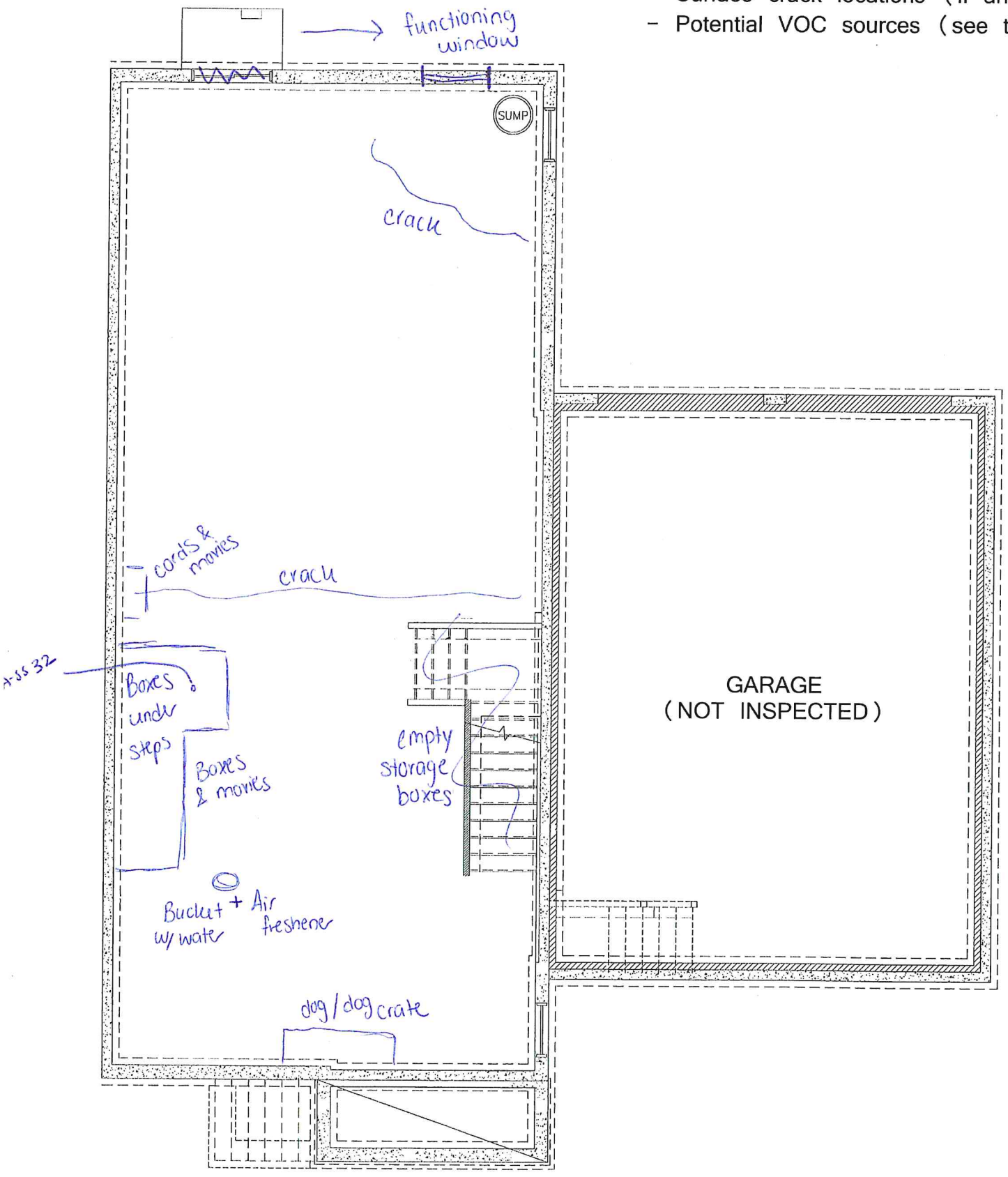
Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 32, 38, 42, & 46

UNIT#: 32

INDICATE ON FIGURE:

- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _36_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	No
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

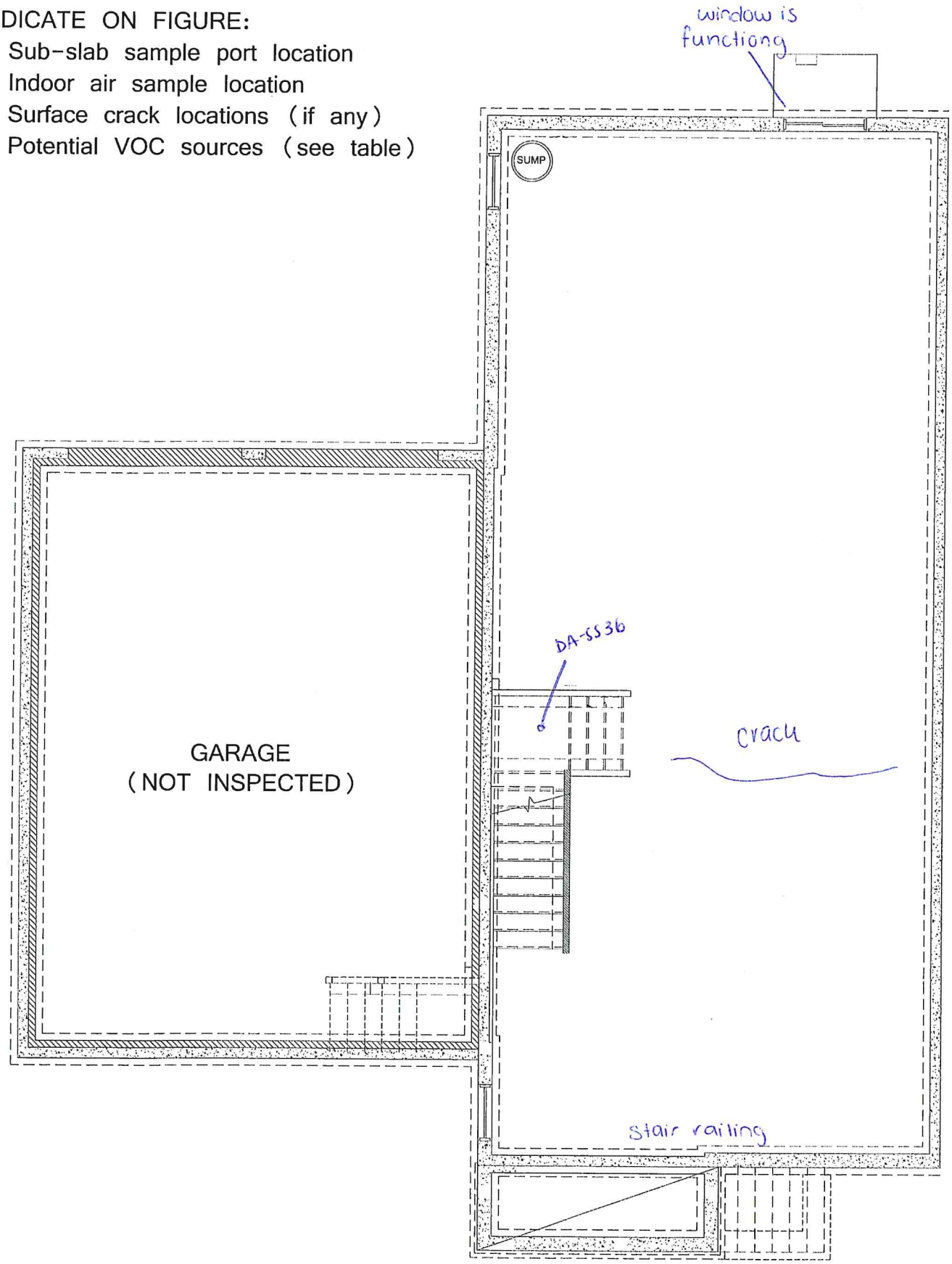
General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 30, 36, 40, & 44

UNIT#: 36

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _38_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	Yes
Other: Candles/candle making supplies/candle fragrance	Yes

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

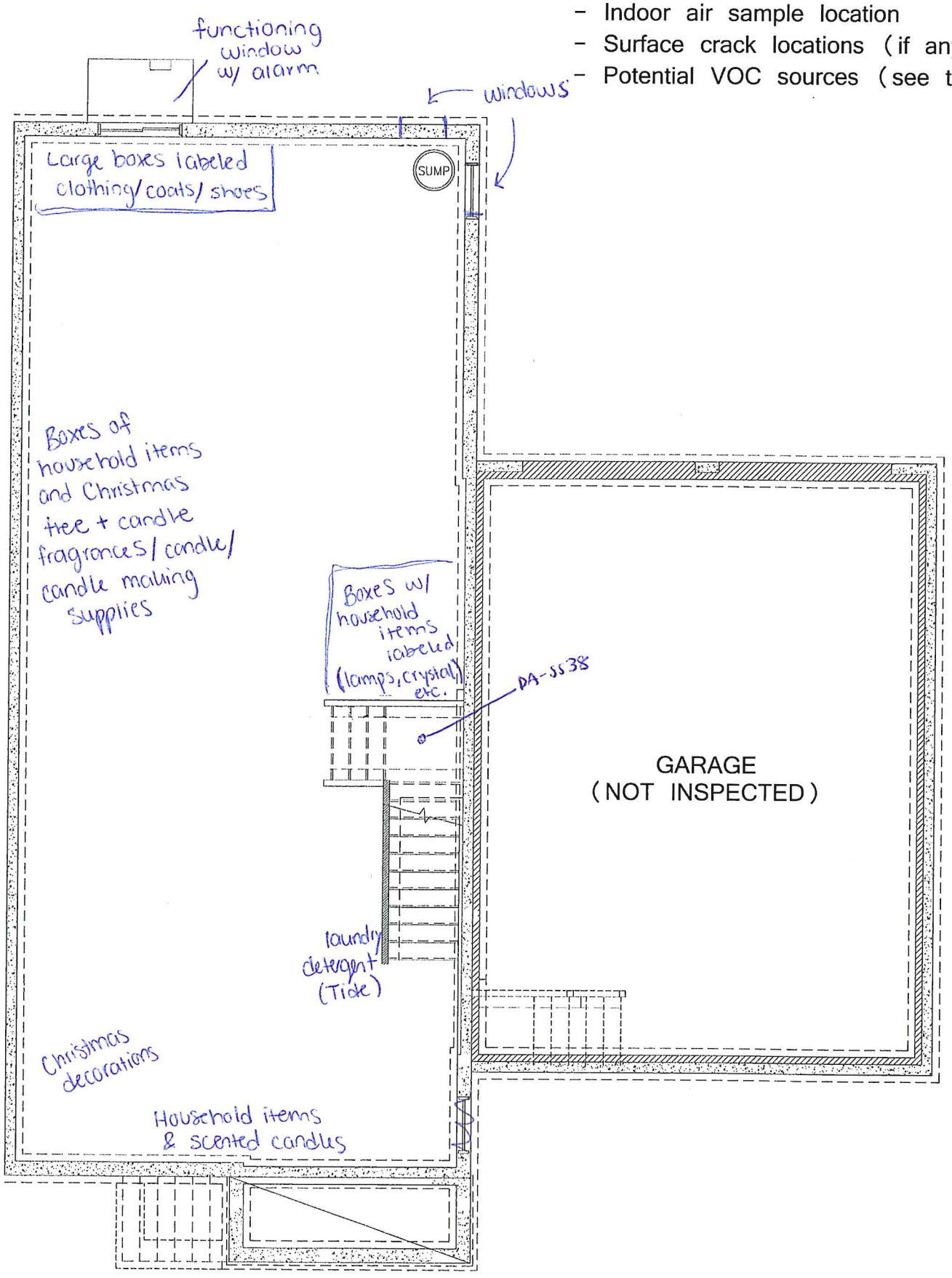
General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sou of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement?

10 sealed 1 gallon bottles of Tide "Simply Clean + Sensitive" at base of stairs. Basement used for storage of home goods and packing materials.

BASEMENT LAYOUT: UNITS 32, 38, 42, & 46
UNIT#: 38

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _40_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	Yes
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

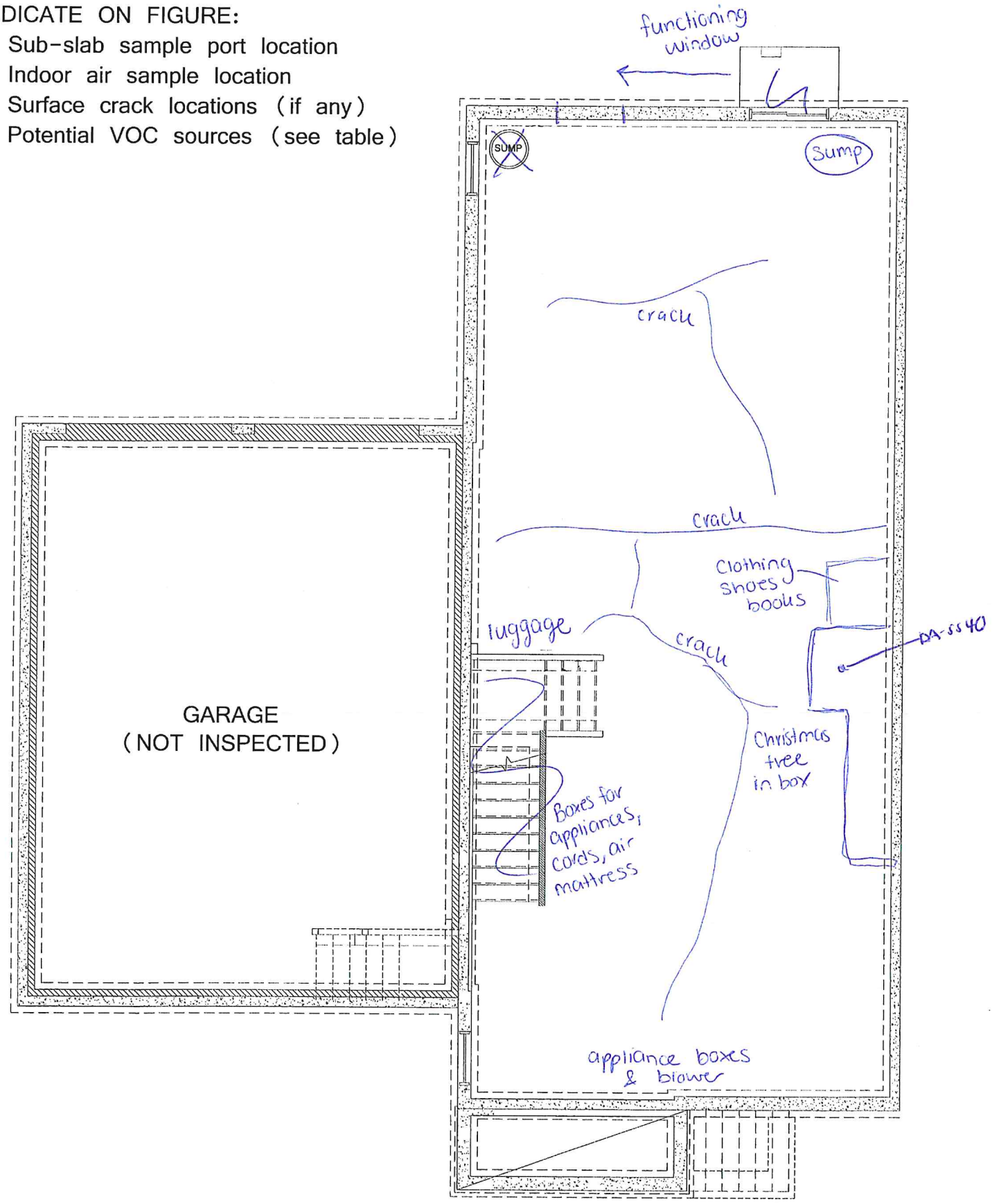
General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 30, 36, 40, & 44

UNIT#: 40

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _42_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	No
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

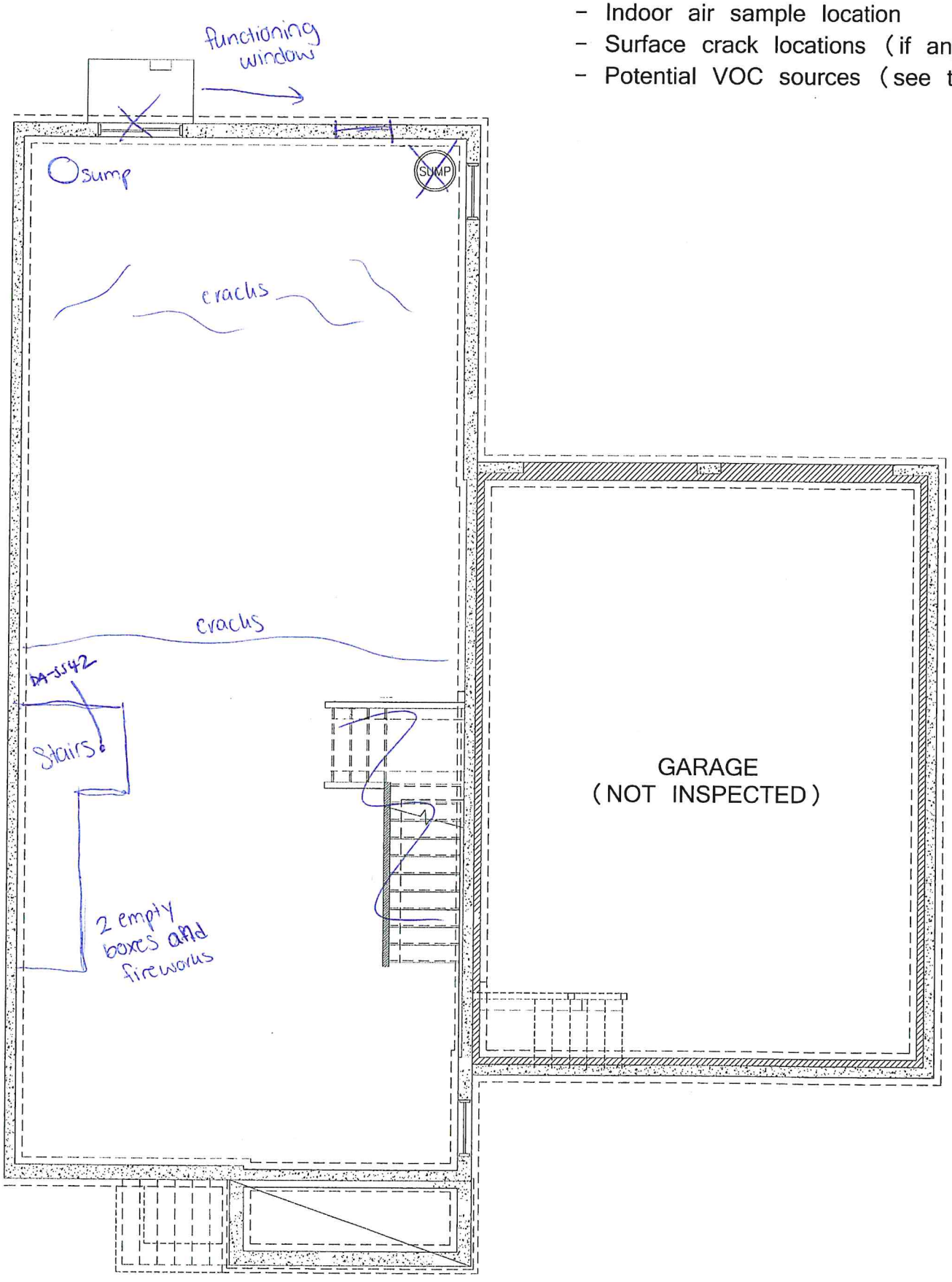
Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 32, 38, 42, & 46
UNIT#: 42

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _44_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	No
Other	

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

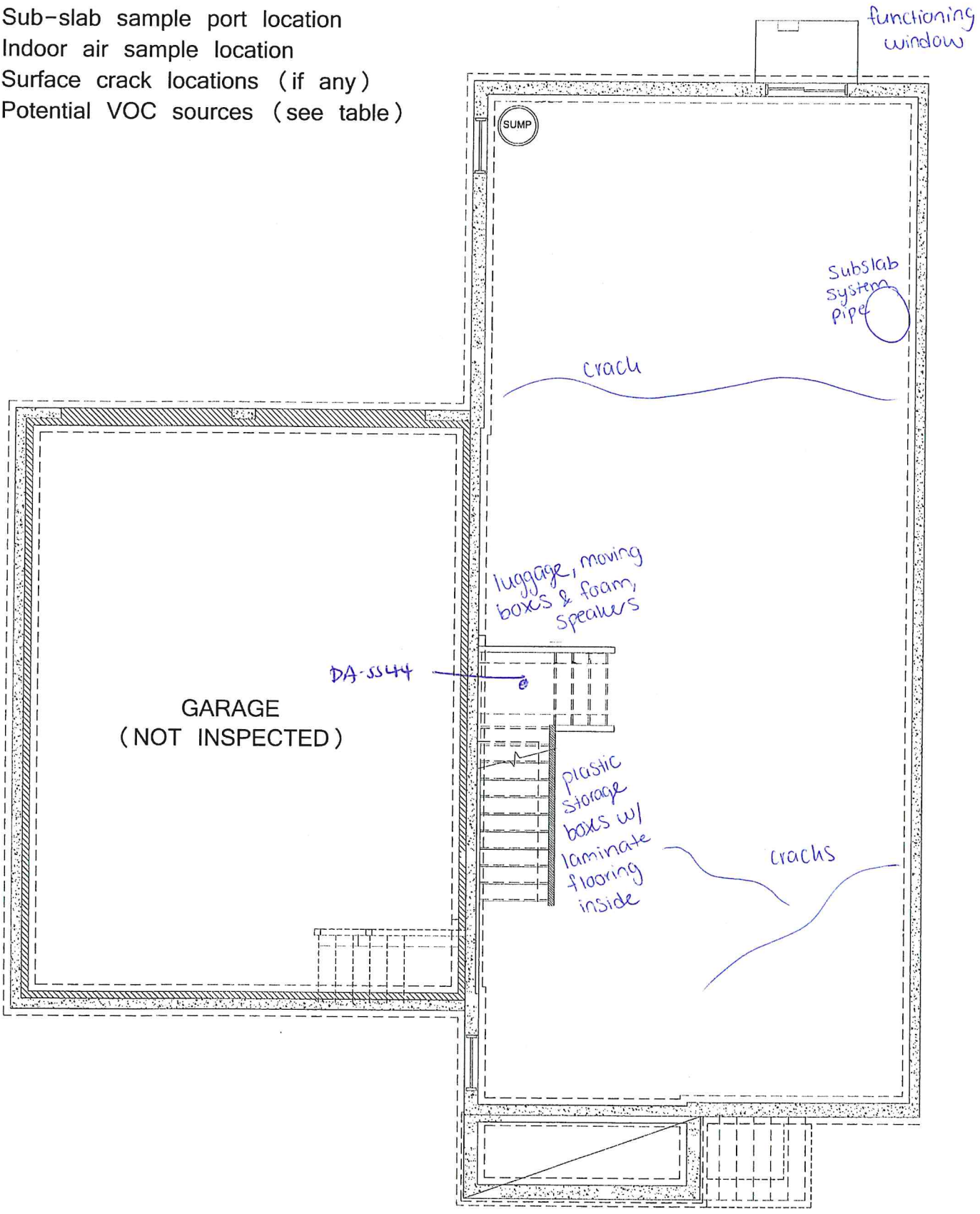
General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 30, 36, 40, & 44

UNIT#: 44

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Basement Indoor Air Survey

Building Unit #: _46_
Inspector Name: ___Kelly Wilkinson_____ Date of Survey: __8/29/19___

Building Construction Characteristics:

What is the building type? (Circle appropriate response)

Single Family	Multiple Family	School	Commercial
Ranch	2-Family		
Raised Ranch	Duplex		
Cape	Apartment House		
Colonial	# of units _2__		
Split Level	Condominium		
Colonial	# of units ____		
Mobile Home	Other (specify) _____		
Other (specify)_____			

General Description of Basement Construction Materials: Treated and untreated lumber, glass, metal, fiberglass insulation, paint, drywall, PVC, poured concrete

What type of basement does the building have? (Circle all that apply)

Full basement Crawlspace Slab-on-Grade Other (specify) _____

What are the characteristics of the basement? (Circle all that apply)

Finished	Basement Floor:	Foundation Walls:	Moisture:
Unfinished	Concrete	Poured Concrete	Wet
	Dirt	Block	Damp
	Other (specify) _____	Layed Up Stone	Dry

Is a basement sump present? (Y/N) Yes

Does the basement have any of the following characteristics (i.e., preferential pathways into the building) that might permit soil vapor entry? (Circle all that apply)

Cracks	Pipes/Utility Conduits	Other (specify) _____
Foundation/slab drainage	Sump pumps	

What type of heating system(s) were observed in the basement of unit entrance way? (Circle all that apply)

Hot Air Circulation	Heat Pump	Steam Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	

Other (specify): _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Fuel Oil
Wood	Solar	Other (specify): _____	

Potential Sources of Chemical Contamination

Fill out the table below. The location of any potential VOC source indicated as "present" on the table should be indicated on the accompanying figure and a photograph of the object should be taken.

Potential VOC Source	Present in Basement? (Yes*/No)
Paints or paint thinners	No
Gas-powered equipment	No
Gasoline storage cans	No
Cleaning solvents	No
Air fresheners	No
Oven cleaners	No
Carpet/upholstery cleaners	No
Hairspray	No
Nail polish/polish remover	No
Bathroom cleaner	No
Appliance cleaner	No
Furniture/floor polish	No
Moth balls	No
Fuel tank	No
Wood stove	No
Fireplace	No
Perfume/colognes	No
Hobby supplies (e.g., solvents, paints, lacquers, glues, photographic darkroom chemicals)	No
Scented trees, wreaths, potpourri, etc.	No
Other: Christmas Decorations	Yes
Other: Scented candle	Yes

* If yes, indicate location on provided figure.

Outdoor Sources of Contamination:

Is there any stationary emission source in the vicinity of the building? _No stationary source_____

_____

Are there any mobile emission sources (e.g., bus stop; high-traffic area) in the vicinity of the building?

_Vehicle traffic along Dodson Avenue_____ _____

_____

Weather Conditions During Sampling:

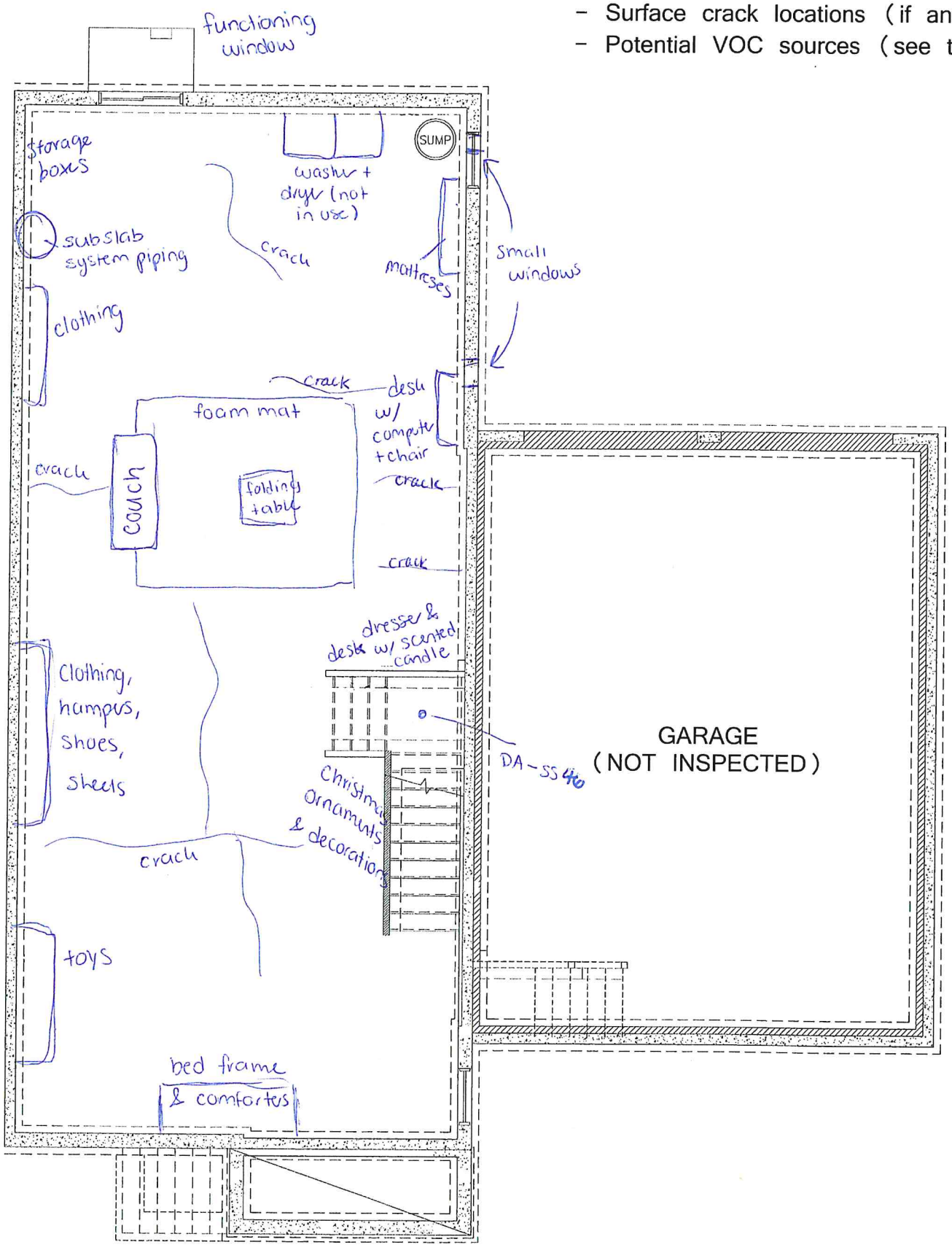
Outside Temperature (^{o}F):_____
Prevailing wind direction: _____
Weather conditions (e.g., sunny, cloudy, rain): _____
Was there any significant precipitation (0.1 inches) within 12 hours preceding the sampling event? ____
Type of ground cover (e.g., grass, pavement, etc.) outside the building: _____

General Comments:

Is there any other information about the structural features of the basement or building exterior, or potential sources of chemical contaminants to the indoor air that may be of importance in facilitating the evaluation of the indoor air quality of the basement? _____

BASEMENT LAYOUT: UNITS 32, 38, 42, & 46
UNIT#: 46

INDICATE ON FIGURE:
- Sub-slab sample port location
- Indoor air sample location
- Surface crack locations (if any)
- Potential VOC sources (see table)



Appendix C.3
Sub-slab Soil Gas Sample and Purge Logs (September 5, 2019)

SOIL GAS DEVELOPMENT LOG

SHEET: 1 of 2

PROJECT NAME:	Dodson Avenue	Developed By:	CMC/NSB/MRY
Project No:	2734.08.51	Date:	9/5/2019

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation:	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

DEVELOPMENT METHOD:

Development Method:	Peristaltic Pump	Were Any Wells Blocked?:	No
Volumes Purged:	3L	If yes, which one(s)?	NA

Soil Gas Screening Results

Soil Gas ID	Date	Time	Helium In Shroud (%)	Helium in Sample Train (ppm or %)	PID Reading (ppm)	LEL (%)	H_2S (ppm)	CO (ppm)	O_2(%)	Odor
SS36	9/5/19	9:15	49.4	675 ppm	50.6	0	0.0	0	20.9	-
SS36	9/5/19	9:20	51.5	1,050 ppm	33.7	0	0.0	0	20.9	-
SS36	9/5/19	9:25	50.2	1,850 ppm	28.3	0	0.0	0	20.9	-
SS38	9/5/19	10:37	38.5	2,125 ppm	23.8	0	0.0	0	20.5	-
SS38	9/5/19	10:42	40.0	2,100 ppm	28.1	0	0.0	0	20.3	-
SS38	9/5/19	10:47	40.7	2,525 ppm	25.4	0	0.0	0	20.2	-
SS32	9/5/19	12:00	45.4	2,475 ppm	31.0	0	0.0	0	20.5	-
SS32	9/5/19	12:05	49.6	3,125 ppm	17.8	0	0.0	0	20.9	-
SS32	9/5/19	12:10	96.8	10,700 ppm	15.9	0	0.0	0	20.4	-
SS30	9/5/19	12:55	78.6	3.0%	17.0	0	0.0	0	19.4	-
SS30	9/5/19	13:00	86.6	2.9%	13.4	0	0.0	0	18.4	-
SS30	9/5/19	13:05	87.8	3.5%	12.5	0	0.0	0	14.9	-

Notes:

Basement known to have gravel base with french drain connected to sump in all units.

Background PID readings: 8.9 ppm in unit 36, 13.1 ppm in unit 38, 14.4 ppm in unit 32, 10.8 ppm in unit 30.

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Environmental Services

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SOIL GAS DEVELOPMENT LOG

SHEET: 2 of 2

PROJECT NAME:	Dodson Avenue	Developed By:	NAP/KPW/AMO
Project No:	2734.08.51	Date:	9/5/2019

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation:	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

DEVELOPMENT METHOD:

Development Method:	Peristaltic Pump	Were Any Wells Blocked?:	No
Volumes Purged:	3L	If yes, which one(s)?	NA

Soil Gas Screening Results

Soil Gas ID	Date	Time	Helium In Shroud (%)	Helium in Sample Train (ppm)	PID Reading (ppm)	LEL (%)	H_2S (ppm)	CO (ppm)	O_2(%)	Odor
SS46	9/5/19	10:22	97.6	2,675	10.9	0	0.0	0	20.8	-
SS46	9/5/19	10:27	96.0	1,750	5.6	0	0.0	0	20.8	-
SS46	9/5/19	10:32	93.0	3,100	4.1	0	0.0	0	20.8	-
SS44	9/5/19	11:26	97.3	675	3.0	0	0.0	0	20.8	-
SS44	9/5/19	11:31	98.0	2,225	5.1	0	0.0	0	20.8	-
SS44	9/5/19	11:36	97.3	1,300	4.5	0	0.0	0	20.8	-
SS42	9/5/19	12:23	93.6	1,850	5.1	0	0.0	0	20.8	-
SS42	9/5/19	12:28	98.0	1,725	3.5	0	0.0	0	20.8	-
SS42	9/5/19	12:33	98.6	2,050	3.9	0	0.0	0	20.8	-
SS40	9/5/19	13:04	98.0	2,225	4.1	0	0.0	0	19.7	-
SS40	9/5/19	13:09	98.2	2,675	3.9	0	0.0	0	19.4	-
SS40	9/5/19	13:14	98.2	2,650	4.0	0	0.0	0	19.5	-

Notes:

Basement known to have gravel base with french drain connected to sump in all units.

Background PID readings: 2.2 ppm in unit 46, 2.8 ppm in unit 44, 2.3 ppm in unit 42, 2.9 ppm in unit 40.

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS30-G002
Project No:	2734.08.51	Time:	12:35
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	0.4	Installed Date:	5/8/14
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active			
Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	4736
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	2707	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 13:12	Start Pressure ("Hg): -7
Helium in Shroud:	87.8%	End Time: 13:17	End Pressure ("Hg): -7
Helium in Tubing:	3.5%		
Percent Breakthrough:	4.0%		Difference ("Hg): 0

COLLECTING SOIL GAS SAMPLE			
Start Time:	13:55	Start Pressure ("Hg):	-27
End Time:	11:49	End Pressure ("Hg):	-5

QA/QC samples: None

Notes: 0.5"Hg at rest

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS32-G002
Project No:	2734.08.51	Time:	11:45
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	0.4	Installed Date:	5/8/14
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active			
Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	4194
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	2862	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 12:20	Start Pressure ("Hg): -7
Helium in Shroud:	96.8%	End Time: 12:25	End Pressure ("Hg): -7
Helium in Tubing:	10,700 ppm		
Percent Breakthrough:	1.1%		Difference ("Hg): 0

COLLECTING SOIL GAS SAMPLE			
Start Time:	14:02	Start Pressure ("Hg):	-28
End Time:	11:56	End Pressure ("Hg):	-4

QA/QC samples: None

Notes: 0.5"Hg at rest

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS36-G003
Project No:	2734.08.51	Time:	8:45
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	0.4	Installed Date:	5/8/14
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	3739
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	3293	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 9:35	Start Pressure ("Hg): -7
Helium in Shroud:	50.2%	End Time: 9:40	End Pressure ("Hg): -7
Helium in Tubing:	1,850ppm		
Percent Breakthrough:	0.37%		Difference ("Hg): 0

COLLECTING SOIL GAS SAMPLE

Start Time:	14:14	Start Pressure ("Hg):	-27.5
End Time:	11:34	End Pressure ("Hg):	-2.5

QA/QC samples: None

Notes: 1.5"Hg at rest

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS38-G003
Project No:	2734.08.51	Time:	10:00
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	0.4	Installed Date:	10/3/12
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	4455
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	5161	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:35	Start Pressure ("Hg): -7
Helium in Shroud:	40.7%	End Time: 11:40	End Pressure ("Hg): -6
Helium in Tubing:	2,525 ppm		
Percent Breakthrough:	0.62%		Difference ("Hg): 1

COLLECTING SOIL GAS SAMPLE

Start Time:	14:12	Start Pressure ("Hg):	-27.75
End Time:	12:01	End Pressure ("Hg):	-12.5

QA/QC samples: None

Notes: 0"Hg at rest

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS40-G003
Project No:	2734.08.51	Time:	12:50
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	0.4	Installed Date:	10/3/12
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active			
Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	3987
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	3072	Ind Cert?	Batch Certified
Date Cleaned:	8/20/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 13:17	Start Pressure ("Hg): -7
Helium in Shroud:	98.2%	End Time: 13:23	End Pressure ("Hg): -5.5
Helium in Tubing:	2,650ppm		
Percent Breakthrough:	0.27%		Difference ("Hg): 1.5

COLLECTING SOIL GAS SAMPLE			
Start Time:	14:04	Start Pressure ("Hg):	-30
End Time:	12:07	End Pressure ("Hg):	-5

QA/QC samples: None

Notes:

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS42-G003
Project No:	2734.08.51	Time:	12:05
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	0.4	Installed Date:	10/3/2012
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	3664
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	4363	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 12:37	Start Pressure ("Hg): -7
Helium in Shroud:	98.6%	End Time: 12:42	End Pressure ("Hg): -6
Helium in Tubing:	2,050ppm		
Percent Breakthrough:	0.21%		Difference ("Hg): 1

COLLECTING SOIL GAS SAMPLE

Start Time:	14:01	Start Pressure ("Hg):	-30
End Time:	12:11	End Pressure ("Hg):	-5

QA/QC samples: None

Notes:

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS44-G004
Project No:	2734.08.51	Time:	10:45
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	0.4	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	3239
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	3565	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:40	Start Pressure ("Hg): -7
Helium in Shroud:	97.3%	End Time: 11:45	End Pressure ("Hg): -6
Helium in Tubing:	1300ppm		
Percent Breakthrough:	0.13%		Difference ("Hg): 1

COLLECTING SOIL GAS SAMPLE

Start Time:	13:58	Start Pressure ("Hg):	-28
End Time:	10:31	End Pressure ("Hg):	-2

QA/QC samples: None

Notes:

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SS46-G004
Project No:	2734.08.51	Time:	9:55
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	0.4	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	gravel base basement slab
Other Characteristics:	N/A	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Sub-Slab Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	4043 / 4244(DUP)
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5 / -29.5(DUP)
Sample Container #:	2791 / 4301(DUP)	Ind Cert?	Batch Certified
Date Cleaned:	8/22/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:01	Start Pressure ("Hg): -7
Helium in Shroud:	93.0%	End Time: 11:06	End Pressure ("Hg): -6
Helium in Tubing:	3,100ppm		
Percent Breakthrough:	0.33%		Difference ("Hg): 1

COLLECTING SOIL GAS SAMPLE

Start Time:	13:55 / 13:55(DUP)	Start Pressure ("Hg):	-27 / -30(DUP)
End Time:	11:40 / 11:41(DUP)	End Pressure ("Hg):	-3.5 / -7(DUP)

QA/QC samples: Duplicate sample DA-SS46-G104

Notes: Duplicate bumped during packaging, new pressure = -1.5"Hg

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Appendix C.4
Indoor Air Sample Logs
(September 5, 2019)

INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA30-G002
Project No:	2734.08.51	Time:	12:35
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	3855
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	6019		
Date Cleaned	8/20/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	13:56	Start Pressure:	>-30
End Time:	11:49	End Pressure:	-8

QA/QC samples: None

Notes: 1.5"Hg at rest

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA32-G003
Project No:	2734.08.51	Time:	11:45
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4768 / 2806(DUP)
Sample Container Type:	Summa	Tested Vacuum	-29.5 (Both)
Batch Cert ID #	3326 37434 (Both)	Ind Cert	Batch Certified
Sample Container #	5632 / 4553(DUP)		
Date Cleaned	8/20/2019 (Both)		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:00 / 14:00	Start Pressure:	>-30 / >-30(DUP)
End Time:	11:54 / 11:55	End Pressure:	-6 / -9(DUP)

QA/QC samples: Duplicate sample DA-IA32-G103

Notes: 0"Hg at rest / -2"Hg at rest(DUP)

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA36-G003
Project No:	2734.08.51	Time:	8:45
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4526
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	5664		
Date Cleaned	8/20/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:13	Start Pressure:	>-30
End Time:	11:59	End Pressure:	-6

QA/QC samples: None

Notes: 0"Hg at rest

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA38-G004
Project No:	2734.08.51	Time:	10:00
Date:	9/5/2019	Sampled By:	CMC/NSB/MRY

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4031
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	4555 37459	Ind Cert	Batch Certified
Sample Container #	5404		
Date Cleaned	8/29/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:10	Start Pressure:	>-30
End Time:	12:00	End Pressure:	-7

QA/QC samples: None

Notes: 0.5"Hg at rest

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA40-G003
Project No:	2734.08.51	Time:	12:50
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	3296
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	3265		
Date Cleaned	8/20/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:05	Start Pressure:	-29
End Time:	12:06	End Pressure:	-6.5

QA/QC samples: None

Notes:

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA42-G003
Project No:	2734.08.51	Time:	12:05
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	3174
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	4455		
Date Cleaned	8/22/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:10	Start Pressure:	-30
End Time:	12:10	End Pressure:	-5

QA/QC samples: None

Notes:

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA44-G004
Project No:	2734.08.51	Time:	10:45
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4752
Sample Container Type:	Summa	Tested Vacuum	-29.8
Batch Cert ID #	3757 36114	Ind Cert	Batch Certified
Sample Container #	5146		
Date Cleaned	5/23/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	13:59	Start Pressure:	-30
End Time:	12:14	End Pressure:	-5

QA/QC samples: None

Notes:

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INDOOR AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-IA46-G004
Project No:	2734.08.51	Time:	9:55
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Indoor active	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4739
Sample Container Type:	Summa	Tested Vacuum	-29.8
Batch Cert ID #	3757 36114	Ind Cert	Batch Certified
Sample Container #	5893		
Date Cleaned	5/23/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	13:54	Start Pressure:	>-30
End Time:	12:17	End Pressure:	-6.5

QA/QC samples: None

Notes:

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Appendix C.5
Outdoor Air Sample Logs
(September 5, 2019)

AMBIENT AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-AA15-G001
Project No:	2734.08.51	Time:	
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Outside back porch of unit 46	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4207
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	4445		
Date Cleaned	8/20/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:12	Start Pressure:	>-30
End Time:	12:20	End Pressure:	-8

QA/QC samples: None

Notes:

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AMBIENT AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-AA16-G001
Project No:	2734.08.51	Time:	
Date:	9/5/2019	Sampled By:	NAP/AMO/KPW

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1017.5	Temperature (°F):	71.1
Wind Speed (mph):	4.7	Wind Direction:	62.9° ENE

SAMPLE AREA DESCRIPTION:

Sample Area:	3ft above ground	Installed Date:	9/5/19
Other Characteristics:	Outside under tent	Sampling Rate:	~4 mL/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Indoor Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4506
Sample Container Type:	Summa	Tested Vacuum	-29.5
Batch Cert ID #	3326 37434	Ind Cert	Batch Certified
Sample Container #	5752		
Date Cleaned	8/20/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	14:15	Start Pressure:	-30
End Time:	11:57	End Pressure:	-3

QA/QC samples: None

Notes: 1"Hg at rest

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Appendix C.6
Soil Gas Sample and Purge Logs
(September 9-10, 2019)

SOIL GAS DEVELOPMENT LOG

SHEET: 1 of 2

PROJECT NAME:	Dodson Avenue	Developed By:	NAP/NSB/AMO
Project No:	2734.08.51	Date:	9/9/2019

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation:	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E

DEVELOPMENT METHOD:

Development Method:	Peristaltic Pump	Were Any Wells Blocked?:	No
Volumes Purged:	3L	If yes, which one(s)?	NA

Soil Gas Screening Results

Soil Gas ID	Date	Time	Helium In Shroud (%)	Helium in Sample Train (ppm)	PID Reading (ppm)	LEL (%)	H_2S (ppm)	CO (ppm)	O_2(%)	Odor
SG8	9/9/19	9:38	49.6	0	304.0	0	0.0	0	14.5	-
SG8	9/9/19	9:43	47.4	125	151.5	0	0.0	0	18.9	-
SG8	9/9/19	9:48	44.6	0	77.7	0	0.0	0	13.4	-
SG18	9/9/19	10:03	36.5	300	36.6	0	0.0	0	20.0	-
SG18	9/9/19	10:08	36.2	125	28.3	0	0.0	0	18.4	-
SG18	9/9/19	10:13	36.2	0	18.7	0	0.0	0	18.4	-
SG7	9/9/19	10:29	21.5	300	137.6	0	0.0	0	18.4	-
SG7	9/9/19	10:34	21.6	550	61.9	0	0.0	0	18.3	-
SG7	9/9/19	10:39	22.0	475	51.1	0	0.0	0	18.4	-
SG19	9/9/19	10:58	27.1	275	115.7	0	0.0	0	19.4	-
SG19	9/9/19	11:03	27.8	100	65.9	0	0.0	3.0	19.6	-
SG19	9/9/19	11:08	27.8	1,125	40.4	0	0.0	0	19.6	-
SG20	9/9/19	11:21	39.0	0	24.0	0	0.0	0	19.4	-
SG20	9/9/19	11:26	39.0	1,875	18.4	0	0.0	0	17.0	-
SG20	9/9/19	11:31	38.1	0	13.4	0	0.0	0	16.8	-

Notes:

Background PID reading: 0.5 ppm.

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SOIL GAS DEVELOPMENT LOG

SHEET: 2 of 2

PROJECT NAME:	Dodson Avenue	Developed By:	NAP/NSB/AMO
Project No:	2734.08.51	Date:	9/9/2019

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation:	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE

DEVELOPMENT METHOD:

Development Method:	Peristaltic Pump	Were Any Wells Blocked?:	No
Volumes Purged:	3L	If yes, which one(s)?	NA

Soil Gas Screening Results

Soil Gas ID	Date	Time	Helium In Shroud (%)	Helium in Sample Train (ppm or %)	PID Reading (ppm)	LEL (%)	H_2S (ppm)	CO (ppm)	O_2(%)	Odor
SG16	9/9/19	11:15	96.1	0 ppm	74.6	0	0.0	0	14.2	-
SG16	9/9/19	11:20	92.7	0 ppm	74.7	0	0.0	0	13.2	-
SG16	9/9/19	11:25	86.0	0 ppm	62.5	0	0.0	0	20.4	-
SG22	9/9/19	11:44	30.2	1,350 ppm	337.8	0	0.0	0	18.9	-
SG22	9/9/19	11:49	27.5	6,150 ppm	82.5	0	0.0	0	18.9	-
SG22	9/9/19	11:54	34.3	9,125 ppm	54.8	0	0.0	0	19.0	-
SG15	9/9/19	11:51	76.2	275 ppm	26.4	0	0.0	0	20.8	-
SG15	9/9/19	11:56	73.9	0 ppm	13.5	0	0.0	0	20.8	-
SG15	9/9/19	12:01	71.3	0 ppm	17.2	0	0.0	0	16.9	-
SG11	9/9/19	14:04	76.3	2.7%	369.5	0	0.0	0	11.2	-
SG11	9/9/19	14:09	63.9	2.6%	139.8	59	0.0	0	5.2	-
SG11	9/9/19	14:14	55.5	2.7%	40.5	100	0.0	0	6.4	-
SG17	9/9/19	15:00	96.1	1,595 ppm	6.4	0	0.0	0	20.8	-
SG17	9/9/19	15:05	96.0	3.7%	113.1	0	0.0	0	19.3	-
SG17	9/9/19	15:10	95.6	6.9%	82.7	0	0.0	0	18.6	-

Notes:

Background PID readings: 0.8 ppm at SG11, 1.5 ppm at SG17, and 0.5 ppm at SG22.

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SOIL GAS DEVELOPMENT LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Developed By:	NAP/MDG/AMO
Project No:	2734.08.51	Date:	9/10/2019

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation:	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S

DEVELOPMENT METHOD:

Development Method:	Peristaltic Pump	Were Any Wells Blocked?:	Yes
Volumes Purged:	3L (except 5L for SG13D)	If yes, which one(s)?	14D filled with water

Soil Gas Screening Results

Soil Gas ID	Date	Time	Helium In Shroud (%)	Helium in Sample Train (ppm or %)	PID Reading (ppm)	LEL (%)	H_2S (ppm)	CO (ppm)	O_2(%)	Odor
SG9	9/10/19	9:55	65.0	2.7%	15,000	11	0.0	0	14.1	-
SG9	9/10/19	10:00	52.0	2.7%	15,000	10	0.0	12	8.3	-
SG9	9/10/19	10:05	43.2	2.5%	15,000	10	0.0	43	9.4	-
SG10	9/10/19	10:25	38.3	6,000 ppm	15,000	4	0.0	0	20.1	-
SG10	9/10/19	10:30	86.1	0 ppm	15,000	0	0.0	0	19.9	-
SG10	9/10/19	10:35	96.6	0 ppm	6,564	2	0.0	0	13.3	-
SG13D	9/10/19	10:51	92.1	0 ppm	3,528	0	0.0	0	10.5	-
SG13D	9/10/19	10:56	95.8	0 ppm	1,318	0	0.0	0	11.9	-
SG13D	9/10/19	11:01	96.2	0 ppm	754.0	0	0.0	0	13.0	-
SG13D	9/10/19	11:06	96.5	0 ppm	560.0	0	0.0	0	16.6	-
SG13D	9/10/19	11:11	96.4	0 ppm	367.0	3	0.0	3	19.2	-
SG14S	9/10/19	11:55	65.0	3.6%	634.0	0	0.0	4	18.2	-
SG14S	9/10/19	12:00	68.0	13,200 ppm	160.0	5	0.0	4	13.0	-
SG14S	9/10/19	12:05	58.3	14,700 ppm	316.0	15	0.0	8	3.7	-
SG13S	9/10/19	14:40	62.8	5.1%	111.0	0	0.0	0	22.0	-
SG13S	9/10/19	14:45	57.2	1.9%	15.3	0	0.0	0	20.8	-
SG13S	9/10/19	14:50	90.0	6.0%	22.8	0	0.0	0	20.8	-

Notes:

Background PID readings 0.4 ppm at SG9, 0.6 ppm at SG13D, 0.8 ppm at SG14S, 0.4 ppm at SG13S.

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG7-G003
Project No:	2734.08.51	Time:	10:20
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6055
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	5067	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 10:43	Start Pressure ("Hg): -7
Helium in Shroud:	22.0%	End Time: 10:48	End Pressure ("Hg): -6
Helium in Tubing:	475 ppm		
Percent Breakthrough:	0.22%		Difference ("Hg): 1
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:23	Start Pressure ("Hg):	>-30
End Time:	12:48	End Pressure ("Hg):	-8
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG8-G003
Project No:	2734.08.51	Time:	9:20
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6540
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	2952	Ind Cert?	Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 9:51	Start Pressure ("Hg): -7
Helium in Shroud:	44.6%	End Time: 9:56	End Pressure ("Hg): -7
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0

COLLECTING SOIL GAS SAMPLE

Start Time:	12:18	Start Pressure ("Hg):	-28
End Time:	12:50	End Pressure ("Hg):	-7.5

QA/QC samples: None

Notes:

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG9-G003
Project No:	2734.08.51	Time:	9:45
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	River rock
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	4708
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	4084	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 10:09	Start Pressure ("Hg): -7
Helium in Shroud:	43.2%	End Time: 10:14	End Pressure ("Hg): -6.5
Helium in Tubing:	2.5%		
Percent Breakthrough:	5.8%		Difference ("Hg): 0.5
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:20	Start Pressure ("Hg):	-30
End Time:	12:50	End Pressure ("Hg):	-11
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG10-G003
Project No:	2734.08.51	Time:	10:10
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6036
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	3514	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 10:39	Start Pressure ("Hg): -7
Helium in Shroud:	96.6%	End Time: 10:44	End Pressure ("Hg): -7
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:21	Start Pressure ("Hg):	-27
End Time:	12:49	End Pressure ("Hg):	-4
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG11-G003
Project No:	2734.08.51	Time:	13:50
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6344
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.8
Sample Container #:	3662	Ind Cert?	0.2 Batch Certified
Date Cleaned:	8/16/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 14:19	Start Pressure ("Hg): -7
Helium in Shroud:	55.5%	End Time: 14:24	End Pressure ("Hg): -7
Helium in Tubing:	2.7%		
Percent Breakthrough:	4.9%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	15:50	Start Pressure ("Hg):	>-30
End Time:	16:22	End Pressure ("Hg):	-6.5
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG13S-G004
Project No:	2734.08.51	Time:	14:25
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S

SAMPLE AREA DESCRIPTION:

Sample Depth (ft bgs):	6.0	Installed Date:	10/15/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6108
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	5708	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		

BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 14:53	Start Pressure ("Hg): -7
Helium in Shroud:	90.0%	End Time: 14:58	End Pressure ("Hg): -6
Helium in Tubing:	6.0%		
Percent Breakthrough:	6.7%		Difference ("Hg): 1

COLLECTING SOIL GAS SAMPLE

Start Time:	14:59	Start Pressure ("Hg):	>-30
End Time:	15:29	End Pressure ("Hg):	-6.5

QA/QC samples: None

Notes:

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG13D-G002
Project No:	2734.08.51	Time:	10:40
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	16.0	Installed Date:	10/15/12
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	5L
Sample Volume:	6 Liter	Flow Controller #:	4688
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.7
Sample Container #:	4383	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 13:02	Start Pressure ("Hg): -7
Helium in Shroud:	96.4%	End Time: 13:07	End Pressure ("Hg): -7
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	13:07	Start Pressure ("Hg):	-28
End Time:	13:37	End Pressure ("Hg):	-4
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET: 1 of 1	
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG14S-G003
Project No:	2734.08.51	Time:	11:30
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	10/18/12
Purge Odor:	N/A	Surface Cover:	Asphalt
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM: Whole Air Active			
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6089 / 6536(DUP)
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5 (Both)
Sample Container #:	3487 / 4338(DUP)	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019 (Both)		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 12:09	Start Pressure ("Hg): -7
Helium in Shroud:	58.3%	End Time: 12:14	End Pressure ("Hg): -7
Helium in Tubing:	14,700 ppm		
Percent Breakthrough:	2.5%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:20 / 12:21(DUP)	Start Pressure ("Hg):	>-30 / >-30(DUP)
End Time:	1250 / 12:51(DUP)	End Pressure ("Hg):	-12 / -9(DUP)
QA/QC samples:	Duplicate sample DA-SG14S-G103		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG15-G003
Project No:	2734.08.51	Time:	11:35
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	2/28/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6075
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	4313	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 12:08	Start Pressure ("Hg): -7
Helium in Shroud:	71.3%	End Time: 12:13	End Pressure ("Hg): -5.5
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 1.5
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:19	Start Pressure ("Hg):	-29.5
End Time:	12:47	End Pressure ("Hg):	-7
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG16-G003
Project No:	2734.08.51	Time:	11:05
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	2/27/13
Purge Odor:	N/A	Surface Cover:	Mulch
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6503
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	4369	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:37	Start Pressure ("Hg): -7
Helium in Shroud:	86.0%	End Time: 11:42	End Pressure ("Hg): -6.5
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0.5
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:18	Start Pressure ("Hg):	-28.5
End Time:	12:48	End Pressure ("Hg):	-6
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG17-G002
Project No:	2734.08.51	Time:	14:45
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6246
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	3010	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 15:13	Start Pressure ("Hg): -7
Helium in Shroud:	95.6%	End Time: 15:18	End Pressure ("Hg): -7
Helium in Tubing:	6.9%		
Percent Breakthrough:	7.2%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	15:51	Start Pressure ("Hg):	-28
End Time:	16:21	End Pressure ("Hg):	-5.5
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG18-G002
Project No:	2734.08.51	Time:	9:55
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6088
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	5721	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/23/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 10:16	Start Pressure ("Hg): -7
Helium in Shroud:	36.2%	End Time: 10:21	End Pressure ("Hg): -7
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:19	Start Pressure ("Hg):	-28
End Time:	12:48	End Pressure ("Hg):	-9.5
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG19-G002
Project No:	2734.08.51	Time:	10:45
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6401
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	4451	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:13	Start Pressure ("Hg): -7
Helium in Shroud:	27.8%	End Time: 11:18	End Pressure ("Hg): -6.5
Helium in Tubing:	1,125 ppm		
Percent Breakthrough:	0.40%		Difference ("Hg): 0.5
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:21	Start Pressure ("Hg):	>-30
End Time:	12:47	End Pressure ("Hg):	-10
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG20-G002
Project No:	2734.08.51	Time:	11:10
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1022.2	Temperature (°F):	72.3
Wind Speed (mph):	1.3	Wind Direction:	84.2° E
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6338
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	2745	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:34	Start Pressure ("Hg): -7
Helium in Shroud:	38.1%	End Time: 11:39	End Pressure ("Hg): -7
Helium in Tubing:	0 ppm		
Percent Breakthrough:	<1%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:21	Start Pressure ("Hg):	-26
End Time:	12:45	End Pressure ("Hg):	-5
QA/QC samples:	None		
Notes:			

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SUB-SLAB SOIL GAS SAMPLING LOG		SHEET:	1 of 1
PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-SG22-G002
Project No:	2734.08.51	Time:	11:35
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO
ATMOSPHERIC CONDITIONS:			
Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE
SAMPLE AREA DESCRIPTION:			
Sample Depth (ft bgs):	6.0	Installed Date:	9/3/13
Purge Odor:	N/A	Surface Cover:	Grass
Other Characteristics:	N/A	Sampling Rate:	0.2 L/min
SAMPLING SYSTEM:	Whole Air Active		
Sample Type:	Soil gas	Volumes Purged:	3L
Sample Volume:	6 Liter	Flow Controller #:	6105
Sample Container Type:	Summa	Tested Vacuum ("Hg):	-29.5
Sample Container #:	6247	Ind Cert?	0.04 Batch Certified
Date Cleaned:	8/24/2019		
Sample Analysis:	TO-15		
BREAKTHROUGH TEST		**CANISTER CONNECTION LEAK TEST**	
Tracer Gas:	Helium		
Prior to Sampling		Start Time: 11:59	Start Pressure ("Hg): -7
Helium in Shroud:	34.3%	End Time: 12:04	End Pressure ("Hg): -7
Helium in Tubing:	9,125ppm		
Percent Breakthrough:	2.7%		Difference ("Hg): 0
COLLECTING SOIL GAS SAMPLE			
Start Time:	12:20	Start Pressure ("Hg):	-26.5
End Time:	12:46	End Pressure ("Hg):	-5
QA/QC samples:	None		
Notes:			

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AMBIENT AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-AA17-G001
Project No:	2734.08.51	Time:	15:45
Date:	9/9/2019	Sampled By:	NAP/NSB/AMO

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1021.7	Temperature (°F):	79.2
Wind Speed (mph):	2.6	Wind Direction:	157.3° SSE

SAMPLE AREA DESCRIPTION:

Sample Area:	3 ft above ground	Installed Date:	9/9/19
Other Characteristics:	Outside on chair	Sampling Rate:	0.2 L/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Ambient Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	6538
Sample Container Type:	Summa	Tested Vacuum	-29.7
Batch Cert ID #	3006 37397	Ind Cert	0.04 Batch Certified
Sample Container #	5074		
Date Cleaned	8/17/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	15:50	Start Pressure:	-28
End Time:	16:20	End Pressure:	-6.5

QA/QC samples: None

Notes:

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AMBIENT AIR SAMPLING LOG

SHEET: 1 of 1

PROJECT NAME:	Dodson Avenue	Sample Designation :	DA-AA18-G001
Project No:	2734.08.51	Time:	12:15
Date:	9/10/2019	Sampled By:	NAP/MDG/AMO

ATMOSPHERIC CONDITIONS:

Data Source:	DEOS	Precipitation (in.):	0.0
Barometric Pressure (mbar):	1026.1	Temperature (°F):	78.7
Wind Speed (mph):	6.0	Wind Direction:	184.4° S

SAMPLE AREA DESCRIPTION:

Sample Area:	3 ft above ground	Installed Date:	9/10/19
Other Characteristics:	Outside on chair	Sampling Rate:	0.2 L/min

SAMPLING SYSTEM: Whole Air Active

Sample Type:	Ambient Air	Volumes Purged:	0
Sample Volume:	6 Liters	Flow Controller #	4974
Sample Container Type:	Summa	Tested Vacuum	-29.5
Sample Container #	3012	Ind Cert	0.04 Batch Certified
Date Cleaned	8/24/2019		
Sample Analysis:	TO-15		

COLLECTING INDOOR AIR SAMPLE

Start Time:	12:19	Start Pressure:	>-30
End Time:	12:49	End Pressure:	-4

QA/QC samples: None

Notes:

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Appendix D
Contaminant Volume Calculations

TABLE D.1
Calculation of Mass - Total TPH > 100 mg/kg
Former Wilmington Assembly Plant - Operable Unit 4
Wilmington, Delaware

Main Body

1	2	3	4	5	6	7	8	9
Concentration "TPH" mg/kg	Area (ft^{2}) - calculated from Contours	Net Area (ft2)	Thickness (ft)	Volume (ft^{3}) 3 x 4A	Soil Mass (lbs) 5 x 6A	Soil Mass (kg) 6 x 7A	TPH Mass (mg) 1 x 7	TPH Mass (lbs) 8 x 9A
Conversion Numbers - Row A			13		100	4.5E-01		2.2E-06
2100	590	590		7.7E+03	7.7E+05	3.5E+05	7.3E+08	1.6E+03
2000	1,280	690		9.0E+03	9.0E+05	4.1E+05	8.1E+08	1.8E+03
1900	1,900	620		8.1E+03	8.1E+05	3.7E+05	6.9E+08	1.5E+03
1800	2,910	1,010		1.3E+04	1.3E+06	6.0E+05	1.1E+09	2.4E+03
1700	3,760	850		1.1E+04	1.1E+06	5.0E+05	8.5E+08	1.9E+03
1600	4,560	800		1.0E+04	1.0E+06	4.7E+05	7.5E+08	1.7E+03
1500	5,370	810		1.1E+04	1.1E+06	4.8E+05	7.2E+08	1.6E+03
1400	5,885	515		6.7E+03	6.7E+05	3.0E+05	4.3E+08	9.4E+02
1300	6,570	685		8.9E+03	8.9E+05	4.0E+05	5.3E+08	1.2E+03
1200	7,420	850		1.1E+04	1.1E+06	5.0E+05	6.0E+08	1.3E+03
1100	8,210	790		1.0E+04	1.0E+06	4.7E+05	5.1E+08	1.1E+03
1000	9,340	1,130		1.5E+04	1.5E+06	6.7E+05	6.7E+08	1.5E+03
900	9,900	560		7.3E+03	7.3E+05	3.3E+05	3.0E+08	6.5E+02
800	10,690	791		1.0E+04	1.0E+06	4.7E+05	3.7E+08	8.2E+02
700	11,481	791		1.0E+04	1.0E+06	4.7E+05	3.3E+08	7.2E+02
600	12,272	791		1.0E+04	1.0E+06	4.7E+05	2.8E+08	6.2E+02
500	13,062	791		1.0E+04	1.0E+06	4.7E+05	2.3E+08	5.1E+02
400	13,853	791		1.0E+04	1.0E+06	4.7E+05	1.9E+08	4.1E+02
300	14,644	791		1.0E+04	1.0E+06	4.7E+05	1.4E+08	3.1E+02
100	15,435	791		1.0E+04	1.0E+06	4.7E+05	4.7E+07	1.0E+02
Volume (cubic yards)		9,340		7.4E+03				

"TPH" assumed to be Sum of Organic Concentrations including TICs	Total TPH Mass (lbs)	22,590
100 mg/kg based on screening level of Gasoline-Range Organics (GRO)	Total TPH Mass (tons)	11.3

Northern (SVE01) Lobe

1	2	3	4	5	6	7	8	9
Concentration "TPH" mg/kg	Area (ft^{2}) - calculated from Contours	Net Area (ft2)	Thickness (ft)	Volume (ft^{3}) 3 x 4A	Soil Mass (lbs) 5 x 6A	Soil Mass (kg) 6 x 7A	TPH Mass (mg) 1 x 7	TPH Mass (lbs) 8 x 9A
Conversion Numbers - Row A			13		100	4.5E-01		2.2E-06
900	109	109		1.4E+03	1.4E+05	6.4E+04	5.8E+07	1.3E+02
800	480	371		4.8E+03	4.8E+05	2.2E+05	1.8E+08	3.9E+02
700	1,170	690		9.0E+03	9.0E+05	4.1E+05	2.8E+08	6.3E+02
600	2,270	1,100		1.4E+04	1.4E+06	6.5E+05	3.9E+08	8.6E+02
500	3,900	1,630		2.1E+04	2.1E+06	9.6E+05	4.8E+08	1.1E+03
400	6,430	2,530		3.3E+04	3.3E+06	1.5E+06	6.0E+08	1.3E+03
300	7,940	1,510		2.0E+04	2.0E+06	8.9E+05	2.7E+08	5.9E+02
100	11,000	3,060		4.0E+04	4.0E+06	1.8E+06	1.8E+08	4.0E+02
Volume (cubic yards)				5.3E+03				

"TPH" assumed to be Sum of Organic Concentrations including TICs	Total TPH Mass (lbs)	5,360
100 mg/kg based on screening level of Gasoline-Range Organics (GRO)	Total TPH Mass (tons)	2.7

Total Volume (cubic yards)	12,730
Total TPH Mass (lbs)	27,950
Total TPH Mass (tons)	14.0

TABLE D.2
Calculation of Mass - Total TPH > 1,000 mg/kg
Former Wilmington Assembly Plant - Operable Unit 4
Wilmington, Delaware

1	2	3	4	5		6	7	8	9
Concentration "TPH" mg/kg	Area (ft^{2}) - calculated from Contours	Net Area (ft2)	Thickness (ft)	Volume (ft^{3}) 3 x 4A	Soil (tons)	Soil Mass (lbs) 5 x 6A	Soil Mass (kg) 6 x 7A	TPH Mass (mg) 1 x 7	TPH Mass (lbs) 8 x 9A
Conversion Numbers - Row A			13			111.1	4.54E-01		2.20E-06
2100	590	590		7.7E+03	4.3E+02	8.5E+05	3.9E+05	8.1E+08	1.8E+03
2000	1,280	690		9.0E+03	5.0E+02	1.0E+06	4.5E+05	9.0E+08	2.0E+03
1900	1,900	620		8.1E+03	4.5E+02	9.0E+05	4.1E+05	7.7E+08	1.7E+03
1800	2,910	1,010		1.3E+04	7.3E+02	1.5E+06	6.6E+05	1.2E+09	2.6E+03
1700	3,760	850		1.1E+04	6.1E+02	1.2E+06	5.6E+05	9.5E+08	2.1E+03
1600	4,560	800		1.0E+04	5.8E+02	1.2E+06	5.2E+05	8.4E+08	1.8E+03
1500	5,370	810		1.1E+04	5.9E+02	1.2E+06	5.3E+05	8.0E+08	1.8E+03
1400	5,885	515		6.7E+03	3.7E+02	7.4E+05	3.4E+05	4.7E+08	1.0E+03
1300	6,570	685		8.9E+03	4.9E+02	9.9E+05	4.5E+05	5.8E+08	1.3E+03
1200	7,420	850		1.1E+04	6.1E+02	1.2E+06	5.6E+05	6.7E+08	1.5E+03
1100	8,210	790		1.0E+04	5.7E+02	1.1E+06	5.2E+05	5.7E+08	1.3E+03
1000	9,340	1,130		1.5E+04	8.2E+02	1.6E+06	7.4E+05	7.4E+08	1.6E+03
	Square Feet	9,340	Cubic Yards	4,500					

"TPH" assumed to be Sum of Organic Concentrations including TICs

1,000 mg/kg based on screening level of Diesel-Range Organics (DRO)

Total TPH Mass (lbs)	20500
Total TPH Mass (tons)	10.3

TABLE D.3
NAPL Volume Calculations
Former Wilmington Assembly Plant - Operable Unit 4
Wilmington, Delaware

NAPL Volume Calculation:

Maximum Area where NAPL was observed - feet^2	6,425	
NAPL thickness based on baildown tests- feet	0.3	
Soil Volume - feet^3	1,930	
Maximum Soil Porosity	0.3	
Maximum NAPL volume - ft^3	580	
Assuming fully oil saturated - 7.48 gallons/feet^3	4,340	gallons
However, assuming fully oil saturated - not realistic for whole area		
Assuming an average of 30 product percent saturation -	1,300	gallons present
Typical Oil Field Recovery - 30 percent	390	gallons - recoverable product

TABLE D.4
Calculation of Mass Dissolved in Groundwater- Total TPH
Former Wilmington Assembly Plant - Operable Unit 4
Wilmington, Delaware

1	2	3	4	5	6	7	8	9
Concentration "TPH" µg/L	Area (ft^{2}) - calculated from Contours	Net Area (ft2)	Thickness (ft)	Volume (ft^3) 3 x 4A	GW Volume (ft3) 5 x 6A	GW Volume (L) 6 x 7A	TPH Mass (µg) 1 x 7	TPH Mass (lbs) 8 x 9A
Conversion Numbers - Row A			27		0.3	28.32		2.20E-09
26000	350	350		9.5E+03	2.8E+03	8.0E+04	2.1E+09	4.6E+00
24000	1,000	650		1.8E+04	5.3E+03	1.5E+05	3.6E+09	7.9E+00
22000	2,245	1,245		3.4E+04	1.0E+04	2.9E+05	6.3E+09	1.4E+01
20000	4,330	2,086		5.6E+04	1.7E+04	4.8E+05	9.6E+09	2.1E+01
18000	7,660	3,325		9.0E+04	2.7E+04	7.6E+05	1.4E+10	3.0E+01
16000	14,380	6,721		1.8E+05	5.4E+04	1.5E+06	2.5E+10	5.4E+01
14000	26,640	12,259		3.3E+05	9.9E+04	2.8E+06	3.9E+10	8.7E+01
12000	48,450	21,811		5.9E+05	1.8E+05	5.0E+06	6.0E+10	1.3E+02
10000	71,970	23,520		6.4E+05	1.9E+05	5.4E+06	5.4E+10	1.2E+02
8000	99,160	27,190		7.3E+05	2.2E+05	6.2E+06	5.0E+10	1.1E+02
6000	135,040	35,880		9.7E+05	2.9E+05	8.2E+06	4.9E+10	1.1E+02
4000	181,380	46,340		1.3E+06	3.8E+05	1.1E+07	4.3E+10	9.4E+01
2000	236,500	55,120		1.5E+06	4.5E+05	1.3E+07	2.5E+10	5.6E+01
		72,000	sq ft		1.4E+07	gallons		
"TPH" assumed to be Sum of Organic Concentrations including TICs							Total TPH Mass (lbs)	840

Shaded values indicate two separate areas present at that concentration

Appendix E
Approval from DNREC for Final SVE Extraction System Evaluation Report

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WASTE AND HAZARDOUS SUBSTANCES
REMEDIATION SECTION

391 LUKENS DRIVE
NEW CASTLE, DE 19720

TELEPHONE: (302) 395-2600
FAX: (302) 395-2601

August 8, 2019

Mr. Ken Hannon
BrightFields, Inc.
801 Industrial St.
Wilmington, DE 19801

RE: Approval for August 1, 2019 Final Soil Vapor Extraction System Evaluation Report
General Motors Corp-Wilm. Assembly Plant (DE-1149)
Wilmington, DE

Dear Mr. Hannon:

The Department of Natural Resources and Environmental Control, Remediation Section (DNREC-RS) has completed and approves the above noted document for the General Motors Wilmington Assembly Plant (Site). Please let me know if you have any additional questions or comments.

Sincerely,

Richard M. Galloway, P.G.

Rick Galloway, P.G.
Project Manager

RMG:gpb
RMG19034.doc
DE 1149 II D 3

pc: Paul Will, Environmental Program Manager II
Pam Barnett, RACER

Appendix F
OU-4 Laboratory Analytical Reports (Electronic)

Appendix G
Tentatively Identified Compounds (TICs) Analytical Results

Appendix G: Table 1

OU-4 Indoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-IA32*	*DA-IA32*	*DA-IA32*	*DA-IA32*	*DA-IA32*	*DA-IA38*	*DA-IA38*
	Sample ID:	*DA-IA32-G003*	*DA-IA32-G103*	*DA-IA32-G002*	*DA-IA32-G102*	*DA-IA32-G001*	*DA-IA38-G004*	*DA-IA38-G003*
	Sample Date:	*9/6/2019*	*9/6/2019*	*6/13/2014*	*6/13/2014 (Duplicate)*	*12/21/2012*	*9/6/2019*	*6/13/2014*
Tentatively Identified Compound	**CAS RN**							
(+)-(-)-3-carene	498-15-7	-	-	-	-	-	-	-
(+)4-Carene	29050-33-7	-	-	-	-	-	-	-
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	56 JN	68 JN	-	40 J	-
1,1-Difluoroethane	75-37-6	-	-	-	-	-	-	-
1,3,5-Cycloheptatriene	544-25-2	-	-	-	-	-	-	8.6 JN
1,7,7-Trimethyl-bicyclo[2.2.1]hept-2-ene	464-17-5	-	-	-	-	-	-	-
1,8-Cineole	470-82-6	6.1 J	7.4 J	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	16 J	-	-	-	-	-	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-	-
1-Methyl-4-(1-methylethenyl)-(S)-cyclohexene	5989-54-8	-	-	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	31 J	34 J	-	-	-	-	58 JN
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	6.5 JN
2-Bromofluorobenzene	1072-85-1	-	16 J	-	-	-	14 J	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	11 J	-	-	-	3.4 J	-
2-Methyl-hexane	591-76-4	3.4 J	-	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-	-
3-Methylheptane	589-81-1	-	-	-	-	-	-	5.5 JN
3-Methylhexane	589-34-4	-	5.0 J	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	13 JN	16 JN	-	-	-
7-Trimethylsilylmethylene-bicyclo[3.3.0]octan-2-one	109613-14-1	-	-	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	-	-	-
Amylcohol	71-41-0	-	-	-	-	-	-	-
Beta-myrcene	123-35-3	-	-	-	-	-	-	-
beta-Pinene	127-91-3	-	-	-	-	-	-	13 JN
Butylcetone	110-43-0	-	-	-	-	-	-	-
Camphene	79-92-5	-	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	9.1 JN
Cyclohexanone	108-94-1	-	-	-	-	-	-	-
d-Limonene	5989-27-5	9.4 J	11 J	7.5 JN	9.7 JN	-	9.8 J	-
Ethylcetate	141-78-6	-	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	12 J	-	-	-	2.6 J	-
Hexanal	66-25-1	6.9 J	9.8 J	23 JN	29 JN	-	6.3 J	25 JN
Isobutane	75-28-5	-	-	-	-	-	-	-
Isopropyllcohol	67-63-0	-	-	3.8 JN	4.5 JN	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	-	-	-	-	-	-
Methyl propyl ketone	107-87-9	-	-	-	-	-	-	-
p-Bromofluorobenzene	460-00-4	-	-	-	-	-	-	-
Pentanal	110-62-3	-	-	5.2 JN	6.5 JN	-	-	-
Pentane	109-66-0	-	-	-	-	-	-	-
Pinene	80-56-8	-	-	-	-	-	-	-
Tetrahydrofuran	109-99-9	-	-	-	-	-	-	-
Total TIC VOCS	TOTALVOCSTIC	-	-	-	-	69 J	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-	-
Unknown 1	TICUNK1	2.7 J	31 J	22 J	26 J	52 J	5.7 J	5.6 J
Unknown 2	TICUNK2	26 J	18 J	4.3 J	5.1 J	6 J	19 J	6.8 J
Unknown 3	TICUNK3	4.2 J	-	11 J	13 J	4 J	2.2 J	37 J
Unknown 4	TICUNK4	11 J	-	25 J	30 J	3 J	4.3 J	-
Unknown 5	TICUNK5	-	-	-	-	2 J	-	-
Unknown 6	TICUNK6	-	-	-	-	1 J	-	-
Unknown 7	TICUNK7	-	-	-	-	1 J	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Indoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-IA38*	*DA-IA38*	*DA-IA38*	*DA-IA44*	*DA-IA44*	*DA-IA44*	*DA-IA44*	*DA-IA44*	*DA-IA46*
	Sample ID:	*DA-IA38-G002*	*DA-IA38-G102*	*DA-IA-2-G001*	*DA-IA44-G004*	*DA-IA44-G003*	*DA-IA44-G002*	*DA-IA44-G102*	*DA-IA44-G001*	*DA-IA46-G004*
	Sample Date:	*12/21/2012*	*12/21/2012 (Duplicate)*	*10/4/2012*	*9/6/2019*	*6/13/2014*	*12/6/2013*	*12/6/2013 (Duplicate)*	*9/10/2013*	*9/6/2019*
Tentatively Identified Compound	**CAS RN**									
(+)-(-)-3-carene	498-15-7	-	-	-	-	6.5 JN	-	-	-	-
(+)4-Carene	29050-33-7	-	-	-	-	-	-	-	-	-
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	-	-	120 JN	-	-	-	-
1,1-Difluoroethane	75-37-6	-	-	-	-	-	-	-	-	17 J
1,3,5-Cycloheptatriene	544-25-2	-	-	-	-	-	-	-	-	-
1,7,7-Trimethyl-bicyclo[2.2.1]hept-2-ene	464-17-5	-	-	-	-	-	-	-	-	-
1,8-Cineole	470-82-6	-	-	-	-	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	14 J	-	-	-	-	73 J
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-	-	-	-
1-Methyl-4-(1-methylethenyl)-(S)-cyclohexene	5989-54-8	-	-	-	-	-	2.9 JN	-	19 JN	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-	-	8.9	-
2-Methylbutane	78-78-4	-	-	-	-	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	-	-	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-	-	-	-
3-Methylheptane	589-81-1	-	-	-	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	-	42 JN	-	-	42 JN	-
7-Trimethylsilylmethylene-bicyclo[3.3.0]octan-2-one	109613-14-1	-	-	-	-	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	-	-	-	110 E	-
Amylcohol	71-41-0	-	-	-	-	-	-	-	-	-
Beta-myrcene	123-35-3	-	-	5.3 JN	-	-	-	-	-	-
beta-Pinene	127-91-3	-	-	48 JN	-	-	7.0 JN	7.5 JN	-	-
Butylcetone	110-43-0	-	-	-	-	-	-	-	-	-
Camphene	79-92-5	-	-	7.6 JN	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	-	-	-
Cyclohexanone	108-94-1	-	-	-	-	-	-	-	-	-
d-Limonene	5989-27-5	-	-	-	-	15 JN	-	-	-	7.4 J
Ethylcetate	141-78-6	-	-	-	-	-	3.1 JN	1.8 JN	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	-	-	-	-	-	-
Hexanal	66-25-1	-	-	41 JN	-	45 JN	-	10 JN	33 JN	-
Isobutane	75-28-5	-	-	-	140 J	-	-	-	-	-
Isopropyllcohol	67-63-0	-	-	-	-	-	-	-	33	-
Limonene isomer	138-86-3	-	-	20 JN	-	-	-	2.9 JN	-	-
Methoxytrimethyl-silane	1825-61-2	-	-	-	-	-	-	-	-	-
Methyl propyl ketone	107-87-9	-	-	-	-	-	-	-	8.7 JN	-
p-Bromofluorobenzene	460-00-4	-	-	-	-	-	-	-	-	-
Pentanal	110-62-3	-	-	-	-	17 JN	-	-	-	-
Pentane	109-66-0	-	-	-	-	6.7 JN	2.2 JN	1.8 JN	-	-
Pinene	80-56-8	-	-	180 JN	-	-	42 JN	46 JN	150 JN	31 J
Tetrahydrofuran	109-99-9	-	-	-	-	-	-	-	12	-
Total TIC VOCS	TOTALVOCSTIC	52 J	45 J	-	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	14 J	-	-	-	-	-
Unknown 1	TICUNK1	38 J	33 J	8.1 J	270 J	6.7 J	2.8 J	2.9 J	11 J	41 J
Unknown 2	TICUNK2	6 J	5 J	11 J	16 J	7.7 J	1.8 J	1.4 J	-	7.9 J
Unknown 3	TICUNK3	2 J	4 J	5.9 J	14 J	46 J	1.4 J	1.4 J	-	5.3 J
Unknown 4	TICUNK4	2 J	2 J	5.2 J	20 J	-	2.8 J	2.9 J	-	10 J
Unknown 5	TICUNK5	2 J	1 J	-	18 J	-	9.8 J	-	-	-
Unknown 6	TICUNK6	1 J	-	-	19 J	-	-	-	-	-
Unknown 7	TICUNK7	1 J	-	-	9.5 J	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Indoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-IA46*	*DA-IA46*	*DA-IA46*	*DA-IA30*	*DA-IA30*	*DA-IA36*	*DA-IA36*	*DA-IA36*	*DA-IA40*
	Sample ID:	*DA-IA46-G003*	*DA-IA46-G002*	*DA-IA46-G001*	*DA-IA30-G002*	*DA-IA30-G001*	*DA-IA36-G003*	*DA-IA36-G002*	*DA-IA-1-G001*	*DA-IA40-G003*
	Sample Date:	*6/13/2014*	*12/6/2013*	*9/10/2013*	*9/6/2019*	*6/13/2014*	*9/6/2019*	*6/13/2014*	*10/4/2012*	*9/6/2019*
Tentatively Identified Compound	**CAS RN**									
(+)-(-)-3-carene	498-15-7	-	-	-	-	-	-	-	-	-
(+)4-Carene	29050-33-7	100 JN	-	-	-	-	-	-	-	-
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	-	-	-	-	-	-	-
1,1-Difluoroethane	75-37-6	-	-	-	-	-	-	20 JN	-	-
1,3,5-Cycloheptatriene	544-25-2	-	-	-	-	-	-	-	-	-
1,7,7-Trimethyl-bicyclo[2.2.1]hept-2-ene	464-17-5	-	-	-	-	-	-	-	-	-
1,8-Cineole	470-82-6	-	-	-	-	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	-	-	-	-	-	79 J
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-	-	6.9 JN	-
1-Methyl-4-(1-methylethenyl)-(S)-cyclohexene	5989-54-8	-	-	-	-	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	38 J	1.9 JN	33 J	-	-	26 J
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	16 J	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	14	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	4.4 J	-	-	5.8 JN	-	8.9 J
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	-	-	-	-	-	-	5.2 JN	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-	-	-
3-Carene	13466-78-9	8.8 JN	-	-	-	-	-	-	-	-
3-Methylheptane	589-81-1	-	-	-	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	-	-	-	-	-	-
7-Trimethylsilylmethylene-bicyclo[3.3.0]octan-2-one	109613-14-1	-	-	-	-	-	-	-	-	8.4 J
Acetone	67-64-1	-	-	140 E	-	-	-	-	-	-
Amylcohol	71-41-0	5.7 JN	-	-	-	-	-	-	-	-
Beta-myrcene	123-35-3	-	-	-	-	-	-	-	4.0 JN	-
beta-Pinene	127-91-3	34 JN	10 JN	-	-	-	-	-	35 JN	-
Butylcetone	110-43-0	-	-	8.2 JN	-	-	-	-	-	-
Camphene	79-92-5	-	-	-	-	-	-	-	6.9 JN	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	-	-	-
Cyclohexanone	108-94-1	-	-	-	-	-	44 J	-	-	-
d-Limonene	5989-27-5	12 JN	-	21 JN	12 J	-	-	-	-	11 J
Ethylcetate	141-78-6	-	-	-	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	-	-	-	-	-	-
Hexanal	66-25-1	-	-	36 JN	7.8 J	-	8.6 J	-	35 JN	-
Isobutane	75-28-5	-	-	-	67 J	-	-	-	-	-
Isopropyllcohol	67-63-0	17 JN	-	25	-	-	-	4.3 JN	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-	-	17 JN	-
Methoxytrimethyl-silane	1825-61-2	-	-	-	-	-	-	-	-	-
Methyl propyl ketone	107-87-9	-	-	19 JN	-	-	-	-	-	-
p-Bromofluorobenzene	460-00-4	-	-	-	16 J	-	-	-	-	-
Pentanal	110-62-3	15 JN	-	8.6 JN	-	-	2.5 J	-	-	-
Pentane	109-66-0	-	-	-	-	-	-	2.5 JN	-	-
Pinene	80-56-8	-	57 JN	180 JN	-	-	-	-	160 JN	-
Tetrahydrofuran	109-99-9	-	-	23	-	-	-	-	-	-
Total TIC VOCS	TOTALVOCSTIC	-	-	-	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-	-	-	-
Unknown 1	TICUNK1	7.4 J	14 J	-	2.7 J	1.8 J	3.1 J	35 J	8.1 J	180 J
Unknown 2	TICUNK2	46 J	19 J	-	3.7 J	2.2 J	3.2 J	3.6 J	4.7 J	-
Unknown 3	TICUNK3	33 J	7.1 J	-	5.5 J	-	3.2 J	2.8 J	-	-
Unknown 4	TICUNK4	-	8.9 J	-	7.1 J	-	6.4 J	22 J	-	-
Unknown 5	TICUNK5	-	4.2 J	-	-	-	2.7 J	2.7 J	-	-
Unknown 6	TICUNK6	-	5.9 J	-	-	-	-	45 J	-	-
Unknown 7	TICUNK7	-	5.1 J	-	-	-	-	-	-	-
Unknown 8	TICUNK8	-	21 J	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Indoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-IA40*	*DA-IA40*	*DA-IA42*	*DA-IA42*	*DA-IA42*
	Sample ID:	*DA-IA40-G002*	*DA-IA-3-G001*	*DA-IA42-G003*	*DA-IA42-G002*	*DA-IA-4-G001*
	Sample Date:	*6/13/2014*	*10/4/2012*	*9/6/2019*	*6/13/2014*	*10/4/2012*
Tentatively Identified Compound	**CAS RN**					
(+)-(-)-3-carene	498-15-7	-	-	-	-	-
(+)4-Carene	29050-33-7	-	-	-	-	-
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	82 JN	-	-	-	-
1,1-Difluoroethane	75-37-6	-	-	-	-	-
1,3,5-Cycloheptatriene	544-25-2	-	-	-	-	-
1,7,7-Trimethyl-bicyclo[2.2.1]hept-2-ene	464-17-5	-	22 JN	-	-	-
1,8-Cineole	470-82-6	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	27 J	-	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	7.6 JN	-	-	9.6 JN
1-Methyl-4-(1-methylethenyl)-(S)-cyclohexene	5989-54-8	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	27 J	80 JN	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	29 J	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-
2-Methylnaphthalene	91-57-6	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	7.3 J	-	-
3-Carene	13466-78-9	-	-	-	3.9 JN	-
3-Methylheptane	589-81-1	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	4.2 J	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	14 JN	-
7-Trimethylsilylmethylene-bicyclo[3.3.0]octan-2-one	109613-14-1	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	-
Amylcohol	71-41-0	-	-	-	-	-
Beta-myrcene	123-35-3	-	-	-	-	-
beta-Pinene	127-91-3	18 JN	35 JN	-	-	31 JN
Butylcetone	110-43-0	-	-	-	-	-
Camphene	79-92-5	-	-	-	-	5.5 JN
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-
Cyclohexanone	108-94-1	-	-	-	-	-
d-Limonene	5989-27-5	11 JN	-	12 J	12 JN	18 JN
Ethylcetate	141-78-6	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	-	-
Hexanal	66-25-1	-	36 JN	5.5 J	22 JN	15 JN
Isobutane	75-28-5	-	-	-	-	-
Isopropyllcohol	67-63-0	17 JN	-	-	7.5 JN	-
Limonene isomer	138-86-3	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	17 JN	-	-	-
Methyl propyl ketone	107-87-9	-	-	-	-	7.3 JN
p-Bromofluorobenzene	460-00-4	-	-	-	-	-
Pentanal	110-62-3	11 JN	-	-	5.8 JN	-
Pentane	109-66-0	-	-	-	-	-
Pinene	80-56-8	-	140 JN	-	-	120 JN
Tetrahydrofuran	109-99-9	-	-	-	-	-
Total TIC VOCS	TOTALVOCSTIC	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-
Unknown 1	TICUNK1	12 J	11 J	48 J	7.6 J	4.9 J
Unknown 2	TICUNK2	10 J	12 J	4.7 J	24 J	3.5 J
Unknown 3	TICUNK3	37 J	15 J	19 J	3.7 J	5.3 J
Unknown 4	TICUNK4	14 J	10 J	-	-	-
Unknown 5	TICUNK5	91 J	-	-	-	-
Unknown 6	TICUNK6	-	-	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

Appendix G: Table 2

OU-4 Sub-slab Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SS44*	*DA-SS44*	*DA-SS44*	*DA-SS44*	*DA-SS44*	*DA-SS46*
	Sample ID:	*DA-SS44-G004*	*DA-SS44-G003*	*DA-SS44-G002*	*DA-SS44-G001*	*DA-SS44-G101*	*DA-SS46-G004*
	Sample Date:	*9/6/2019*	*6/13/2014*	*12/6/2013*	*9/10/2013*	*9/10/2013 (Duplicate)*	*9/6/2019*
Tentatively Identified Compound	**CAS RN**						
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	-	-	-	-
1,1-Dichloro-1-fluoroethane	1717-00-6	-	-	-	-	-	-
1,1-Difluoroethane	75-37-6	6.2 J	-	-	-	-	23 J
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	-	-	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	-	-	-
2,4,4-Trimethyl-1-pentene (Diisobutylene)	107-39-1	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-
2,6-Dimethyloctane	2051-30-1	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	16 J
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	1.0	1.6	-
2-Methylbutane	78-78-4	-	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	2.1 J
2-Methyl-nonane	871-83-0	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	-	-	-
9,10-Dihydro-9,10-bis(trimethylsilyl)-anthracene	18586-37-3	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	2.2 JN	-	-	-
Acetone	67-64-1	-	-	-	9.1	14	-
Acetophenone	98-86-2	-	-	-	3.3 JN	2.6 JN	-
Amyllcohol	71-41-0	-	-	-	-	-	-
beta-Pinene	127-91-3	-	-	-	-	-	-
Butane	106-97-8	-	-	-	1.3	-	-
Camphene	79-92-5	-	-	-	-	-	-
Chloroform (Trichloromethane)	67-66-3	-	-	-	12	12	-
Cyclohexane, methyl	108-87-2	-	-	-	-	-	2.0 J
d-Limonene	5989-27-5	-	-	-	-	-	1.1 J
Ethanol	64-17-5	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	3.7 J	-	-	3.8 JN	16 JN	-
Hexanal	66-25-1	-	-	-	-	1.8 JN	-
Isopropyllcohol	67-63-0	-	-	-	-	-	-
Isopropyl benzene (1-Methylethyl-benzene)	98-82-8	-	-	-	0.78	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-
Methylcyclopentane	96-37-7	-	-	-	-	-	-
Octanal	124-13-0	-	-	-	-	-	-
p-Bromofluorobenzene	460-00-4	21 J	-	-	-	-	-
Pentanal	110-62-3	-	-	-	-	-	-
Pentane	109-66-0	-	-	-	-	-	-
Pinene	80-56-8	-	-	2.0 JN	-	7.3 JN	1.7 J
Trimethylsilanol	1066-40-6	-	-	-	-	9.3 JN	-
Unknown 1	TICUNK1	-	2.4 J	2.1 J	7.7 J	8.1 J	1.2 J
Unknown 10	TICUNK10	-	-	-	-	-	-
Unknown 2	TICUNK2	-	9.2 J	2.4 J	1.3 J	2.5 J	13 J
Unknown 3	TICUNK3	-	5.4 J	2.3 J	1.9 J	-	-
Unknown 4	TICUNK4	-	-	3.4 J	-	-	-
Unknown 5	TICUNK5	-	-	2.0 J	-	-	-
Unknown 6	TICUNK6	-	-	2.1 J	-	-	-
Unknown 7	TICUNK7	-	-	5.3 J	-	-	-
Unknown 8	TICUNK8	-	-	3.6 J	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Sub-slab Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SS46*	*DA-SS46*	*DA-SS46*	*DA-SS46*	*DA-SS46*	*DA-SS46*	*DA-SS30*	*DA-SS30*
	Sample ID:	*DA-SS46-G104*	*DA-SS46-G003*	*DA-SS46-G103*	*DA-SS46-G002*	*DA-SS46-G102*	*DA-SS46-G001*	*DA-SS30-G002*	*DA-SS30-G001*
	Sample Date:	*9/6/2019 (Duplicate)*	*6/13/2014*	*6/13/2014*	*12/6/2013*	*12/6/2013 (Duplicate)*	*9/10/2013*	*9/6/2019*	*6/13/2014*
Tentatively Identified Compound	**CAS RN**								
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	-	-	-	-	-	-
1,1-Dichloro-1-fluoroethane	1717-00-6	-	-	-	-	-	-	-	-
1,1-Difluoroethane	75-37-6	15 J	-	-	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	-	-	-	14 J	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	-	-	-	-	1.2 JN
2,4,4-Trimethyl-1-pentene (Diisobutylene)	107-39-1	-	-	-	-	-	-	-	1.1 JN
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-	-	-
2,6-Dimethyloctane	2051-30-1	-	-	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	-	-	140 JN	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-	-
2-Methyl-nonane	871-83-0	-	-	-	-	-	-	1.0 J	-
2-Methylpentane	107-83-5	-	-	-	-	-	220 JN	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	2.0 J	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	-	-	-	-	-
9,10-Dihydro-9,10-bis(trimethylsilyl)-anthracene	18586-37-3	-	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	1.5 JN	1.2 JN	-	-	-
Acetone	67-64-1	-	-	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-	-	-	-
Amyllcohol	71-41-0	-	-	-	-	-	-	-	-
beta-Pinene	127-91-3	-	-	-	-	-	-	-	-
Butane	106-97-8	-	-	-	-	-	150	-	-
Camphene	79-92-5	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	67-66-3	-	-	-	-	-	70	-	-
Cyclohexane, methyl	108-87-2	-	-	-	-	-	-	2.3 J	-
d-Limonene	5989-27-5	-	-	-	-	-	-	-	-
Ethanol	64-17-5	-	-	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	22 J	-	-	1.5 JN	1.4 JN	-	2.8 J	1.9 JN
Hexanal	66-25-1	-	-	-	-	-	-	-	-
Isopropyllcohol	67-63-0	-	-	-	-	-	-	-	-
Isopropyl benzene (1-Methylethyl-benzene)	98-82-8	-	-	-	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-	-	-
Methylcyclopentane	96-37-7	-	-	-	-	-	-	-	-
Octanal	124-13-0	-	-	-	-	-	-	-	-
p-Bromofluorobenzene	460-00-4	17 J	-	-	-	-	-	-	-
Pentanal	110-62-3	-	-	-	-	-	-	-	-
Pentane	109-66-0	-	-	-	-	-	550 JN	-	-
Pinene	80-56-8	-	-	-	-	-	-	2.4 J	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-	-	-
Unknown 1	TICUNK1	1.3 J	8.2 J	7.7 J	2.5 J	2.3 J	240 J	1.2 J	2.9 J
Unknown 10	TICUNK10	-	-	-	-	-	-	-	-
Unknown 2	TICUNK2	9.7 J	1.8 J	1.4 J	5.7 J	5.6 J	81 J	1.3 J	7.2 J
Unknown 3	TICUNK3	-	1.5 J	5.4 J	1.0 J	1.3 J	180 J	1.1 J	1.7 J
Unknown 4	TICUNK4	-	5.5 J	-	1.4 J	1.2 J	-	1.7 J	-
Unknown 5	TICUNK5	-	-	-	1.4 J	1.3 J	-	-	-
Unknown 6	TICUNK6	-	-	-	1.4 J	-	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Sub-slab Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SS32*	*DA-SS32*	*DA-SS36*	*DA-SS36*	*DA-SS36*	*DA-SS36*	*DA-SS38*	*DA-SS38*
	Sample ID:	*DA-SS32-G002*	*DA-SS32-G001*	*DA-SS36-G003*	*DA-SS36-G002*	*DA-SS-1-G001*	*DA-SS-1-G101*	*DA-SS38-G003*	*DA-SS38-G002*
	Sample Date:	*9/6/2019*	*6/13/2014*	*9/6/2019*	*6/13/2014*	*10/4/2012*	*10/4/2012 (Duplicate)*	*9/6/2019*	*6/13/2014*
Tentatively Identified Compound	**CAS RN**								
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	-	-	-	-	-	-	-
1,1-Dichloro-1-fluoroethane	1717-00-6	-	-	-	-	-	-	-	-
1,1-Difluoroethane	75-37-6	13 J	-	-	12 JN	-	-	30 J	2.7 JN
1-Bromo-3-fluoro-benzene	1073-06-9	17 J	-	-	-	-	-	14 J	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	2.8 JN	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	19 JN	-	-	9.2 J	-
2,4,4-Trimethyl-1-pentene (Diisobutylene)	107-39-1	-	-	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-	-	3.8 JN
2,6-Dimethyloctane	2051-30-1	3.1 J	-	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	-	-	-	1.3 J	11 JN
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-	4.9 JN
2-Methyl-nonane	871-83-0	-	-	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-	18 JN
3-Methylhexane	589-34-4	-	-	-	-	-	-	-	6.4 JN
3-Methylpentane	96-14-0	-	-	-	-	-	-	-	9.4 JN
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	-	-	1.7 JN	-	-	-	-
9,10-Dihydro-9,10-bis(trimethylsilyl)-anthracene	18586-37-3	-	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-	-	-	-
Amyllcohol	71-41-0	-	-	-	-	-	-	-	-
beta-Pinene	127-91-3	-	-	-	-	11 JN	16 JN	-	-
Butane	106-97-8	-	-	-	-	-	-	-	-
Camphene	79-92-5	-	-	-	-	-	3.2 JN	-	-
Chloroform (Trichloromethane)	67-66-3	-	-	-	-	-	-	-	-
Cyclohexane, methyl	108-87-2	-	-	-	-	-	-	-	-
d-Limonene	5989-27-5	5.4 J	-	-	-	-	-	-	-
Ethanol	64-17-5	-	-	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	30 J	-	-	-	2.0 J	-
Hexanal	66-25-1	-	-	-	-	17 JN	20 JN	-	-
Isopropyllcohol	67-63-0	-	-	-	-	-	-	-	-
Isopropyl benzene (1-Methylethyl-benzene)	98-82-8	-	-	-	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	5.8 JN	8.0 JN	-	-
Methylcyclopentane	96-37-7	-	-	-	-	-	-	-	8.4 JN
Octanal	124-13-0	-	-	-	-	-	1.5 JN	-	-
p-Bromofluorobenzene	460-00-4	-	-	17 J	-	-	-	-	-
Pentanal	110-62-3	-	-	-	-	3.4 JN	-	-	-
Pentane	109-66-0	-	-	-	-	-	-	-	4.5 JN
Pinene	80-56-8	7.9 J	-	-	-	84 JN	100 JN	-	-
Trimethylsilanol	1066-40-6	-	-	2.3 J	-	-	-	4.3 J	-
Unknown 1	TICUNK1	3.6 J	1.7 J	4.9 J	9.8 J	32 J	3.8 J	1.8 J	11 J
Unknown 10	TICUNK10	-	-	-	-	-	-	-	-
Unknown 2	TICUNK2	3.9 J	2.1 J	2.0 J	1.7 J	9.7 J	2.1 J	1.4 J	-
Unknown 3	TICUNK3	3.1 J	8.7 J	-	2.4 J	3.3 J	1.8 J	2.9 J	-
Unknown 4	TICUNK4	3.0 J	-	-	1.9 J	11 J	-	-	-
Unknown 5	TICUNK5	3.3 J	-	-	14 J	8.1 J	-	-	-
Unknown 6	TICUNK6	-	-	-	2.9 J	-	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

Appendix G: Table 2

OU-4 Sub-slab Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SS40*	*DA-SS40*	*DA-SS40*	*DA-SS42*	*DA-SS42*	*DA-SS42*
	Sample ID:	*DA-SS40-G003*	*DA-SS40-G002*	*DA-SS-3-G001*	*DA-SS42-G003*	*DA-SS42-G002*	*DA-SS-4-G001*
	Sample Date:	*9/6/2019*	*6/13/2014*	*10/4/2012*	*9/6/2019*	*6/13/2014*	*10/4/2012*
Tentatively Identified Compound	**CAS RN**						
(1S)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene	7785-26-4	-	17 JN	-	-	-	-
1,1-Dichloro-1-fluoroethane	1717-00-6	1.3 J	-	-	1.0 J	-	-
1,1-Difluoroethane	75-37-6	18 J	-	-	27 J	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	15 J	-	-	-	-	-
1-Methoxy-4-(2-propenyl)benzene	140-67-0	-	-	-	-	-	-
1R-.alpha.-Pinene	7785-70-8	-	-	-	-	66 JN	-
2,4,4-Trimethyl-1-pentene (Diisobutylene)	107-39-1	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-
2,6-Dimethyloctane	2051-30-1	-	-	-	-	-	-
2-Bromofluorobenzene	1072-85-1	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	1.4 J	-	-
2-Methyl-nonane	871-83-0	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-
6,6-Dimethyl-2-me-bicyclo[3.1.1]heptane	18172-67-3	-	2.3 JN	-	-	-	-
9,10-Dihydro-9,10-bis(trimethylsilyl)-anthracene	18586-37-3	-	-	-	-	21 JN	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	39 JN	-
Acetophenone	98-86-2	-	-	-	-	-	-
Amyllcohol	71-41-0	-	-	-	-	9.0 JN	-
beta-Pinene	127-91-3	-	-	-	-	8.0 JN	2.3 JN
Butane	106-97-8	-	-	-	-	-	-
Camphene	79-92-5	-	-	-	-	-	-
Chloroform (Trichloromethane)	67-66-3	-	-	-	-	-	-
Cyclohexane, methyl	108-87-2	-	-	-	1.3 J	-	-
d-Limonene	5989-27-5	-	-	-	-	-	-
Ethanol	64-17-5	-	-	-	-	7.1 JN	-
Hexamethylcyclotrisiloxane	541-05-9	4.8 J	-	-	22 J	-	-
Hexanal	66-25-1	-	-	-	-	35 JN	1.5 JN
Isopropyllcohol	67-63-0	-	3.2 JN	-	-	13 JN	-
Isopropyl benzene (1-Methylethyl-benzene)	98-82-8	-	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	1.8 JN
Methylcyclopentane	96-37-7	-	-	-	-	-	-
Octanal	124-13-0	-	-	-	-	8.3 JN	-
p-Bromofluorobenzene	460-00-4	-	-	-	37 J	-	-
Pentanal	110-62-3	-	2.0 JN	-	-	-	-
Pentane	109-66-0	-	-	-	-	-	-
Pinene	80-56-8	-	-	-	3.9 J	-	18 JN
Trimethylsilanol	1066-40-6	-	-	-	2.6 J	17 JN	-
Unknown 1	TICUNK1	2.4 J	2.6 J	26 J	3.9 J	-	8.6 J
Unknown 10	TICUNK10	-	-	6.6 J	-	-	-
Unknown 2	TICUNK2	1.1 J	2.2 J	12 J	2.1 J	-	3.9 J
Unknown 3	TICUNK3	1.0 J	6.2 J	47 J	-	-	2.2 J
Unknown 4	TICUNK4	-	2.8 J	13 J	-	-	3.0 J
Unknown 5	TICUNK5	-	21 J	67 J	-	-	2.0 J
Unknown 6	TICUNK6	-	29 J	36 J	-	-	2.0 J
Unknown 7	TICUNK7	-	-	8.8 J	-	-	-
Unknown 8	TICUNK8	-	-	10 J	-	-	-
Unknown 9	TICUNK9	-	-	16 J	-	-	-

Footnotes:
All concentrations are in units of ppbv
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Outdoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	***AA-2***	***AA-3***	***AA-4***	***DA-AA05***	***DA-AA06***	***DA-AA07***	***DA-AA08***
	Sample ID:	***DA-AA-2-G001***	***DA-AA3-G001***	***DA-AA-4-G001***	***DA-AA05-G001***	***DA-AA06-G001***	***DA-AA07-G001***	***DA-AA08-G001***
	Sample Date:	***10/24/2012***	***10/4/2012***	***10/25/2012***	***12/21/2012***	***3/1/2013***	***9/10/2013***	***9/10/2013***
Tentatively Identified Compound	**CAS RN**							
1,4-Dichlorobenzene	106-46-7	-	-	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	-	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	1.3	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	2.2 JN	2.1 JN
Acetone	67-64-1	-	-	-	-	-	11	-
Chloromethane (Methyl chloride)	74-87-3	-	-	-	-	-	0.63	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	-	-	22 JN	-
Nonanal	124-19-6	-	-	-	-	-	-	-
p-Bromofluorobenzene	460-00-4	-	-	-	-	-	-	-
Pentane	109-66-0	-	-	-	-	-	-	-
Total TIC VOCS	TOTALVOCSTIC	-	-	-	2 J	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-	-
Unknown 1	TICUNK1	2.7 J	45 J	3.6 J	2 J	4.9 J	1.5 J	8.4 J
Unknown 10	TICUNK10	-	23 J	5.0 J	-	1.1 J	-	-
Unknown 2	TICUNK2	1.5 J	47 J	3.0 J	-	4.2 J	2.3 J	-
Unknown 3	TICUNK3	2.4 J	13 J	7.0 J	-	1.5 J	2.1 J	-
Unknown 4	TICUNK4	1.1 J	15 J	6.3 J	-	1.4 J	3.6 J	-
Unknown 5	TICUNK5	-	31 J	3.6 J	-	1.2 J	3.0 J	-
Unknown 6	TICUNK6	-	27 J	2.9 J	-	1.1 J	-	-
Unknown 7	TICUNK7	-	41 J	2.7 J	-	1.8 J	-	-
Unknown 8	TICUNK8	-	15 J	3.9 J	-	1.4 J	-	-
Unknown 9	TICUNK9	-	36 J	2.5 J	-	1.2 J	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Outdoor Air Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-AA10*	*DA-AA11*	*DA-AA13*	*DA-AA14*	*DA-AA15*	*DA-AA16*	*DA-AA17*	*DA-AA18*
	Sample ID:	*DA-AA10-G001*	*DA-AA11-G001*	*DA-AA13-G001*	*DA-AA14-G001*	*DA-AA15-G001*	*DA-AA16-G001*	*DA-AA17-G001*	*DA-AA18-G001*
	Sample Date:	*9/12/2013*	*9/13/2013*	*6/13/2014*	*6/13/2014*	*9/6/2019*	*9/6/2019*	*9/9/2019*	*9/10/2019*
Tentatively Identified Compound	**CAS RN**								
1,4-Dichlorobenzene	106-46-7	-	-	1.3 JN	-	-	-	-	-
1-Bromo-3-fluoro-benzene	1073-06-9	-	-	-	-	13 J	-	-	-
2-Butanone (Methyl ethyl ketone) (MEK)	78-93-3	-	-	-	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	3.7 JN	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	5.3 JN	-	-	-	-	-	-
Acetaldehyde	75-07-0	2.9 JN	-	-	-	-	-	-	-
Acetone	67-64-1	-	-	-	-	-	-	-	-
Chloromethane (Methyl chloride)	74-87-3	-	-	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	1.9 JN	-	-	-	-	22 J	12 J	2.9 J
Nonanal	124-19-6	-	-	-	-	-	-	3.2 J	-
p-Bromofluorobenzene	460-00-4	-	-	-	-	-	15 J	-	-
Pentane	109-66-0	-	-	-	-	-	-	-	2.7 NJ
Total TIC VOCS	TOTALVOCSTIC	-	-	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-	4.6 J	-
Unknown 1	TICUNK1	18 J	6.0 J	1.0 J	2.3 J	280 J	290 J	2.4 J	1.2 J
Unknown 10	TICUNK10	-	-	-	-	-	-	-	-
Unknown 2	TICUNK2	4.4 J	9.8 J	-	-	7.5 J	9.4 J	-	1.2 J
Unknown 3	TICUNK3	9.3 J	4.7 J	-	-	4.6 J	7.3 J	-	-
Unknown 4	TICUNK4	4.0 J	7.1 J	-	-	1.3 J	2.0 J	-	-
Unknown 5	TICUNK5	2.3 J	4.1 J	-	-	1.6 J	4.1 J	-	-
Unknown 6	TICUNK6	2.8 J	5.8 J	-	-	1.9 J	1.7 J	-	-
Unknown 7	TICUNK7	4.7 J	3.7 J	-	-	-	1.1 J	-	-
Unknown 8	TICUNK8	2.8 J	2.3 J	-	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG06*	*DA-SG06*	*DA-SG07*	*DA-SG07*	*DA-SG07*	*DA-SG07*	*DA-SG08*
	Sample ID:	*DA-SG06-G002*	*DA-SG-6-G001*	*DA-SG7-G003*	*DA-SG07-G002*	*DA-SG07-G102*	*DA-SG-7-G001*	*DA-SG8-G003*
	Sample Date:	*9/11/2013*	*10/25/2012*	*9/9/2019*	*9/11/2013*	*9/11/2013 (Duplicate)*	*10/25/2012*	*9/9/2019*
Tentatively Identified Compound	**CAS RN**							
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	50 JN	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	28 JN	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	8.9 JN	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-	38 J
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-	-
2-Methyl heptane	592-27-8	4.2 JN	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	-	-	-	-
2-Methyl-hexane	591-76-4	22 JN	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-	-
3-Methylhexane	589-34-4	33 JN	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	5.4 JN	1.7 JN	-	-
Acetophenone	98-86-2	-	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG06*	*DA-SG06*	*DA-SG07*	*DA-SG07*	*DA-SG07*	*DA-SG07*	*DA-SG08*
	Sample ID:	*DA-SG06-G002*	*DA-SG-6-G001*	*DA-SG7-G003*	*DA-SG07-G002*	*DA-SG07-G102*	*DA-SG-7-G001*	*DA-SG8-G003*
	Sample Date:	*9/11/2013*	*10/25/2012*	*9/9/2019*	*9/11/2013*	*9/11/2013 (Duplicate)*	*10/25/2012*	*9/9/2019*
Cyclohexane, methyl	108-87-2	13 JN	-	-	-	-	-	-
Cyclopentanone	120-92-3	-	-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1	-	-	-	-	-	-	-
Decahydro-naphthalene	91-17-8	-	-	-	-	-	-	-
Dimethyl disulfide	624-92-0	-	-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0	-	-	160 J	-	-	-	180 J
Hexamethylcyclotrisiloxane	541-05-9	-	41 JN	-	-	7.9 JN	54 JN	38 J
Isobutylene	115-11-7	-	-	-	-	-	-	-
Isobutyraldehyde	78-84-2	-	-	-	6.7 JN	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	1500 JN	76 J	-	-	2000 JN	-
Methylcyclopentane	96-37-7	-	-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7	-	-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7	-	-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7	-	-	-	-	-	120 JN	40 J
Octane	111-65-9	4.8 JN	-	-	-	-	-	-
Pentane	109-66-0	-	-	-	-	-	-	-
Pinene	80-56-8	-	-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9	-	-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207	-	-	-	-	-	-	-
trans-2-Hexene	4050-45-7	-	-	-	-	-	-	-
Trimethylfluorosilane	420-56-4	-	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	2100 JN	610 J	-	-	4700 JN	7200 J
Unknown 1	TICUNK1	37 J	2600 J	380 J	25 J	37 J	5400 J	2200 J
Unknown 2	TICUNK2	5.5 J	15 J	38 J	1.4 J	2.6 J	43 J	230 J
Unknown 3	TICUNK3	8.8 J	13 J	480 J	3.0 J	7.2 J	200 J	680 J
Unknown 4	TICUNK4	35 J	80 J	110 J	-	-	96 J	190 J
Unknown 5	TICUNK5	-	77 J	100 J	-	-	26 J	79 J
Unknown 6	TICUNK6	-	94 J	94 J	-	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG08*	*DA-SG08*	*DA-SG09*	*DA-SG09*	*DA-SG09*	*DA-SG09*
	Sample ID:	*DA-SG08-G002*	*DA-SG-8-G001*	*DA-SG9-G003*	*SVE-SG9-G001_20180702_N*	*DA-SG9-G002*	*DA-SG-9-G001*
	Sample Date:	*9/12/2013*	*10/24/2012*	*9/10/2019*	*7/9/2018*	*9/11/2013*	*10/25/2012*
Tentatively Identified Compound	**CAS RN**						
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	60 JN	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	44 JN	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-	21 JN
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	50 JN	-	-	-	28 JN
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-
2-Methylbutane	78-78-4	15 JN	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-
3-Methylpentane	96-14-0	6.9 JN	-	-	-	-	-
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	12 JN	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG08*	*DA-SG08*	*DA-SG09*	*DA-SG09*	*DA-SG09*	*DA-SG09*
		Sample ID:	*DA-SG08-G002*	*DA-SG-8-G001*	*DA-SG9-G003*	*SVE-SG9-G001_20180702_N*	*DA-SG9-G002*	*DA-SG-9-G001*
		Sample Date:	*9/12/2013*	*10/24/2012*	*9/10/2019*	*7/9/2018*	*9/11/2013*	*10/25/2012*
Cyclohexane, methyl	108-87-2		7.9 JN	-	-	-	-	-
Cyclopentanone	120-92-3		-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-	-	-
Decahydro-naphthalene	91-17-8		-	-	-	-	-	-
Dimethyl disulfide	624-92-0		-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0		-	-	21000 J	860 JN	-	-
Hexamethylcyclotrisiloxane	541-05-9		-	44 JN	1100 J	330 JN	-	44 JN
Isobutylene	115-11-7		10 JN	-	-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-	-	-
Limonene isomer	138-86-3		-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2		-	6500 JN	30000 J	-	-	940 JN
Methylcyclopentane	96-37-7		-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7		-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7		-	75 JN	-	-	-	-
Octane	111-65-9		-	-	-	-	-	-
Pentane	109-66-0		13 JN	56 JN	-	-	-	-
Pinene	80-56-8		-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-	-	-
trans-2-Hexene	4050-45-7		-	-	-	-	-	-
Trimethylfluorosilane	420-56-4		-	-	-	-	-	-
Trimethylsilanol	1066-40-6		-	4500 JN	89000 J	-	-	-
Unknown 1	TICUNK1		21 J	150 J	25000 J	4200 J	56 J	8500 J
Unknown 2	TICUNK2		9.4 J	5100 J	29000 J	1700 J	70 J	1800 J
Unknown 3	TICUNK3		6.5 J	950 J	3500 J	1300 J	35 J	110 J
Unknown 4	TICUNK4		54 J	85 J	5400 J	930 J	36 J	44 J
Unknown 5	TICUNK5		-	-	630 J	380 J	86 J	130 J
Unknown 6	TICUNK6		-	-	450 J	300 J	38 J	52 J
Unknown 7	TICUNK7		-	-	-	240 J	37 J	-
Unknown 8	TICUNK8		-	-	-	170 J	49 J	-
Unknown 9	TICUNK9		-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG10*	*DA-SG10*	*DA-SG10*	*DA-SG10*	*DA-SG11*	*DA-SG11*
	Sample ID:	*DA-SG10-G003*	*SVE-SG10-G001_20180702_N*	*DA-SG10-G002*	*DA-SG-10-G001*	*DA-SG11-G003*	*DA-SG11-G002*
	Sample Date:	*9/10/2019*	*7/10/2018*	*9/11/2013*	*10/24/2012*	*9/9/2019*	*9/12/2013*
Tentatively Identified Compound	**CAS RN**						
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	440 J	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	5200 JN
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	140 J	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	7.4 JN	-	-	7100 JN
2-Methyl-hexane	591-76-4	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	8400 JN
3-Carene	13466-78-9	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	7600 JN
3-Methylpentane	96-14-0	-	-	-	-	-	5400 JN
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG10*	*DA-SG10*	*DA-SG10*	*DA-SG10*	*DA-SG11*	*DA-SG11*
		Sample ID:	*DA-SG10-G003*	*SVE-SG10-G001_20180702_N*	*DA-SG10-G002*	*DA-SG-10-G001*	*DA-SG11-G003*	*DA-SG11-G002*
		Sample Date:	*9/10/2019*	*7/10/2018*	*9/11/2013*	*10/24/2012*	*9/9/2019*	*9/12/2013*
Cyclohexane, methyl	108-87-2		-	-	2.1 JN	-	-	7000 JN
Cyclopentanone	120-92-3		-	-	2.0 JN	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-	-	-
Decahydro-naphthalene	91-17-8		-	-	-	57 JN	-	-
Dimethyl disulfide	624-92-0		-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0		9300 J	860 JN	-	-	690 J	-
Hexamethylcyclotrisiloxane	541-05-9		170 J	300 JN	12 JN	57 JN	-	-
Isobutylene	115-11-7		-	-	-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-	-	-
Limonene isomer	138-86-3		-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2		45000 J	-	-	4700 JN	-	-
Methylcyclopentane	96-37-7		-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7		-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7		870 J	-	-	-	-	-
Octane	111-65-9		-	-	-	-	-	-
Pentane	109-66-0		-	-	-	-	-	5400 JN
Pinene	80-56-8		-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-	-	-
trans-2-Hexene	4050-45-7		-	-	-	-	-	-
Trimethylfluorosilane	420-56-4		620 J	-	-	-	110 J	-
Trimethylsilanol	1066-40-6		110000 J	-	-	4600 JN	-	-
Unknown 1	TICUNK1		1100 J	4800 J	11 J	2100 J	150 J	9300 J
Unknown 2	TICUNK2		540 J	1500 J	7.8 J	800 J	410 J	6400 J
Unknown 3	TICUNK3		180 J	1100 J	59 J	130 J	1500 J	3100 J
Unknown 4	TICUNK4		46000 J	1100 J	28 J	82 J	610 J	-
Unknown 5	TICUNK5		-	360 J	2.0 J	100 J	310 J	-
Unknown 6	TICUNK6		-	350 J	1.3 J	58 J	350 J	-
Unknown 7	TICUNK7		-	240 J	-	-	-	-
Unknown 8	TICUNK8		-	230 J	-	-	-	-
Unknown 9	TICUNK9		-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG11*	*DA-SG12*	*DA-SG12*	*DA-SG13D*	*DA-SG13D*	*DA-SG13D*
	Sample ID:	*DA-SG-11-G001*	*DA-SG-12-G002*	*DA-SG-12-G001*	*DA-SG13D-G002*	*DA-SG-13D-G001*	*DA-SG-13D-G101*
	Sample Date:	*10/24/2012*	*3/1/2013*	*10/25/2012*	*9/10/2019*	*10/24/2012*	*10/24/2012 (Duplicate)*
Tentatively Identified Compound	**CAS RN**						
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	47000 JN
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	43000 JN	-
1-Ethyl-2-methylbenzene	611-14-3	330 JN	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	33000 JN	59000 JN
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	62000 JN
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-
2-Methylbutane	78-78-4	560 JN	-	-	-	38000 JN	66000 JN
2-Methyl-hexane	591-76-4	870 JN	-	-	-	-	-
2-Methylpentane	107-83-5	1400 JN	-	-	-	56000 JN	95000 JN
3-Carene	13466-78-9	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	77000 JN	130000 JN
3-Methylpentane	96-14-0	810 JN	-	-	-	37000 JN	65000 JN
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetophenone	98-86-2	-	3.6 JN	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	57000 JN
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG11*	*DA-SG12*	*DA-SG12*	*DA-SG13D*	*DA-SG13D*	*DA-SG13D*
		Sample ID:	*DA-SG-11-G001*	*DA-SG-12-G002*	*DA-SG-12-G001*	*DA-SG13D-G002*	*DA-SG-13D-G001*	*DA-SG-13D-G101*
		Sample Date:	*10/24/2012*	*3/1/2013*	*10/25/2012*	*9/10/2019*	*10/24/2012*	*10/24/2012 (Duplicate)*
Cyclohexane, methyl	108-87-2		490 JN	-	-	-	-	-
Cyclopentanone	120-92-3		-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-	-	-
Decahydro-naphthalene	91-17-8		-	1.9 JN	-	-	-	-
Dimethyl disulfide	624-92-0		-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0		-	-	-	250 J	-	-
Hexamethylcyclotrisiloxane	541-05-9		-	7.3 JN	-	320 J	-	-
Isobutylene	115-11-7		-	-	-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-	-	-
Limonene isomer	138-86-3		-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2		13000 JN	-	890 JN	35 J	-	-
Methylcyclopentane	96-37-7		-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7		-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7		-	4.7 JN	41 JN	25 J	-	-
Octane	111-65-9		-	-	-	-	-	-
Pentane	109-66-0		470 JN	-	-	-	-	-
Pinene	80-56-8		-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-	-	-
trans-2-Hexene	4050-45-7		-	-	-	-	-	-
Trimethylfluorosilane	420-56-4		-	-	-	-	-	-
Trimethylsilanol	1066-40-6		11000 JN	140 JN	1200 JN	3800 J	-	-
Unknown 1	TICUNK1		3400 J	2.6 J	310 J	460 J	68000 J	93000 J
Unknown 2	TICUNK2		-	16 J	3.9 J	140 J	46000 J	54000 J
Unknown 3	TICUNK3		-	30 J	23 J	140 J	42000 J	-
Unknown 4	TICUNK4		-	6.1 J	340 J	31 J	21000 J	-
Unknown 5	TICUNK5		-	5.2 J	75 J	260 J	-	-
Unknown 6	TICUNK6		-	-	16 J	-	-	-
Unknown 7	TICUNK7		-	-	31 J	-	-	-
Unknown 8	TICUNK8		-	-	-	-	-	-
Unknown 9	TICUNK9		-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*
	Sample ID:	*DA-SG13S-G004*	*SVE-SG135-G001_20180702_N*	*DA-SG13S-G003*	*DA-SG-13S-G002*	*DA-SG-13S-G102*
	Sample Date:	*9/10/2019*	*7/9/2018*	*9/12/2013*	*3/1/2013*	*3/1/2013 (Duplicate)*
Tentatively Identified Compound	**CAS RN**					
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	1800 JN	1300 JN
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	620 JN	1500 JN Dup 4000 DJN	1600 JN
2,4-Dimethylhexane	589-43-5	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	2100 DJN	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-
2-Methylbutane	78-78-4	-	-	760 JN	1300 JN	1600 JN
2-Methyl-hexane	591-76-4	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	810 JN	2700 JN Dup 4900 DJN	3200 JN
3-Carene	13466-78-9	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	950 JN	2200 JN Dup 6400 DJN	2400 JN
3-Methylpentane	96-14-0	-	-	610 JN	3400 DJN	-
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	1900 JN	1300 JN
8-Methyl heptadecane	13287-23-5	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	2700 DJN	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*	*DA-SG13S*
	Sample ID:	*DA-SG13S-G004*	*SVE-SG135-G001_20180702_N*	*DA-SG13S-G003*	*DA-SG-13S-G002*	*DA-SG-13S-G102*
	Sample Date:	*9/10/2019*	*7/9/2018*	*9/12/2013*	*3/1/2013*	*3/1/2013 (Duplicate)*
Cyclohexane, methyl	108-87-2	-	-	-	-	-
Cyclopentanone	120-92-3	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1	-	-	-	-	-
Decahydro-naphthalene	91-17-8	-	-	-	-	-
Dimethyl disulfide	624-92-0	-	-	-	-	-
Hexamethyl disiloxane	107-46-0	-	3600 JN	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	13 J	730 JN	-	-	-
Isobutylene	115-11-7	-	-	-	-	-
Isobutyraldehyde	78-84-2	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	4600 JN	-	-	-
Methylcyclopentane	96-37-7	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7	-	540 JN	-	-	-
Octane	111-65-9	-	-	-	-	-
Pentane	109-66-0	6.2 NJ	-	-	-	-
Pinene	80-56-8	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207	-	-	-	-	-
trans-2-Hexene	4050-45-7	-	-	-	-	-
Trimethylfluorosilane	420-56-4	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-
Unknown 1	TICUNK1	2.3 J	19000 J	1000 J	1600 J Dup 3100 DJ	1900 J
Unknown 2	TICUNK2	1.5 J	8100 J	710 J	2900 DJ Dup 2600 J	1900 J
Unknown 3	TICUNK3	1.5 J	5600 J	740 J	2100 DJ Dup 1400 J	2200 J
Unknown 4	TICUNK4	5.8 J	2000 J	530 J	1500 DJ	1300 J
Unknown 5	TICUNK5	2.3 J	900 J	550 J	-	-
Unknown 6	TICUNK6	5.9 J	530 J	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG13S*	*DA-SG14D*	*DA-SG14S*	*DA-SG14S*	*DA-SG14S*
	Sample ID:	*DA-SG-13S-G001*	*DA-SG-14D-G001*	*DA-SG14S-G003*	*DA-SG14S-G103*	*SVE-SG145-G001_20180702_N*
	Sample Date:	*10/24/2012*	*10/24/2012*	*9/10/2019*	*9/10/2019 (Duplicate)*	*7/9/2018*
Tentatively Identified Compound	**CAS RN**					
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	4600 J	7600 J	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	4800 J	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	4100 J	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	7900 J	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	490000 JN	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-
2-Methylbutane	78-78-4	89 JN	-	-	-	2700 JN
2-Methyl-hexane	591-76-4	-	970000 JN	-	-	-
2-Methylpentane	107-83-5	140 JN	2200000 JN	8300 J	16000 J	4800 JN
3-Carene	13466-78-9	-	-	-	-	-
3-Methylhexane	589-34-4	-	1000000 JN	-	-	-
3-Methylpentane	96-14-0	83 JN	1400000 JN	4600 J	8500 J	3000 JN
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG13S*	*DA-SG14D*	*DA-SG14S*	*DA-SG14S*	*DA-SG14S*
		Sample ID:	*DA-SG-13S-G001*	*DA-SG-14D-G001*	*DA-SG14S-G003*	*DA-SG14S-G103*	*SVE-SG145-G001_20180702_N*
		Sample Date:	*10/24/2012*	*10/24/2012*	*9/10/2019*	*9/10/2019 (Duplicate)*	*7/9/2018*
Cyclohexane, methyl	108-87-2		-	740000 JN	6400 J	9600 J	-
Cyclopentanone	120-92-3		-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-	-
Decahydro-naphthalene	91-17-8		-	-	-	-	-
Dimethyl disulfide	624-92-0		-	-	-	-	-
Hexamethyl disiloxane	107-46-0		-	-	-	-	29000 JN
Hexamethylcyclotrisiloxane	541-05-9		-	-	-	-	-
Isobutylene	115-11-7		-	-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-	-
Limonene isomer	138-86-3		-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2		780 JN	-	-	-	-
Methylcyclopentane	96-37-7		-	1300000 JN	-	-	1700 JN
m-Tolyl isothiocyanate	621-30-7		-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	4800 J	9300 J	-
Octamethyl-trisiloxane	107-51-7		-	-	-	-	-
Octane	111-65-9		-	-	-	-	-
Pentane	109-66-0		-	1800000 JN	-	-	2200 JN
Pinene	80-56-8		-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-	-
trans-2-Hexene	4050-45-7		-	430000 JN	-	-	-
Trimethylfluorosilane	420-56-4		-	-	-	-	-
Trimethylsilanol	1066-40-6		1300 JN	-	-	-	-
Unknown 1	TICUNK1		1400 J	2300000 J	7500 J	7300 J	49000 J
Unknown 2	TICUNK2		47 J	-	10000 J	15000 J	8400 J
Unknown 3	TICUNK3		710 J	-	5000 J	20000 J	4000 J
Unknown 4	TICUNK4		100 J	-	-	9400 J	1900 J
Unknown 5	TICUNK5		110 J	-	-	-	-
Unknown 6	TICUNK6		-	-	-	-	-
Unknown 7	TICUNK7		-	-	-	-	-
Unknown 8	TICUNK8		-	-	-	-	-
Unknown 9	TICUNK9		-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG14S*	*DA-SG14S*	*DA-SG14S*	*DA-SG15*	*DA-SG15*	*DA-SG15*
	Sample ID:	*DA-SG14S-G002*	*DA-SG14S-G102*	*DA-SG-14S-G001*	*DA-SG15-G003*	*DA-SG15-G002*	*DA-SG-15-G001*
	Sample Date:	*9/12/2013*	*9/12/2013 (Duplicate)*	*10/24/2012*	*9/9/2019*	*9/11/2013*	*3/1/2013*
Tentatively Identified Compound	**CAS RN**						
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	35 J	-	-
2,3-Dimethyl butane	79-29-8	7400 JN	-	12000 JN	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	7600 JN	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-
2-Methylbutane	78-78-4	18000 JN	16000 JN	43000 JN	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	1.1 JN	-
2-Methylpentane	107-83-5	13000 JN	11000 JN	22000 JN	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-
3-Methylhexane	589-34-4	6900 JN	6100 JN	5900 JN	-	1.6 JN	-
3-Methylpentane	96-14-0	11000 JN	9600 JN	19000 JN	-	-	-
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	10 J	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG14S*	*DA-SG14S*	*DA-SG14S*	*DA-SG15*	*DA-SG15*	*DA-SG15*
	Sample ID:	*DA-SG14S-G002*	*DA-SG14S-G102*	*DA-SG-14S-G001*	*DA-SG15-G003*	*DA-SG15-G002*	*DA-SG-15-G001*
	Sample Date:	*9/12/2013*	*9/12/2013 (Duplicate)*	*10/24/2012*	*9/9/2019*	*9/11/2013*	*3/1/2013*
Cyclohexane, methyl	108-87-2	-	-	-	-	-	-
Cyclopentanone	120-92-3	-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1	-	-	-	-	-	-
Decahydro-naphthalene	91-17-8	-	-	-	-	-	-
Dimethyl disulfide	624-92-0	-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0	-	-	-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	19 J	19 JN	-
Isobutylene	115-11-7	-	-	-	-	-	-
Isobutyraldehyde	78-84-2	-	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	-	-	-	-	2800 JN
Methylcyclopentane	96-37-7	-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7	-	-	-	10 J	-	-
Naphthalene, decahydro-, trans-	493-02-7	-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7	-	-	-	-	-	-
Octane	111-65-9	-	-	-	-	-	-
Pentane	109-66-0	7400 JN	6300 JN	11000 JN	-	-	-
Pinene	80-56-8	-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9	8200 JN	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207	-	8300 JN	-	-	-	-
trans-2-Hexene	4050-45-7	-	-	-	-	-	-
Trimethylfluorosilane	420-56-4	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	460 J	-	5100 JN
Unknown 1	TICUNK1	9100 J	6800 J	8500 J	440 J	2.1 J	190 J
Unknown 2	TICUNK2	11000 J	8000 J	8600 J	48 J	1.1 J	58 J
Unknown 3	TICUNK3	15000 J	11000 J	12000 J	55 J	-	21 J
Unknown 4	TICUNK4	-	14000 J	-	78 J	-	34 J
Unknown 5	TICUNK5	-	-	-	77 J	-	-
Unknown 6	TICUNK6	-	-	-	-	-	-
Unknown 7	TICUNK7	-	-	-	-	-	-
Unknown 8	TICUNK8	-	-	-	-	-	-
Unknown 9	TICUNK9	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG16*	*DA-SG16*	*DA-SG16*	*DA-SG17*	*DA-SG17*	*DA-SG18*	*DA-SG18*
	Sample ID:	*DA-SG16-G003*	*DA-SG16-G002*	*DA-SG-16-G001*	*DA-SG17-G002*	*DA-SG17-G001*	*DA-SG18-G002*	*DA-SG18-G001*
	Sample Date:	*9/9/2019*	*9/11/2013*	*3/1/2013*	*9/9/2019*	*9/10/2013*	*9/9/2019*	*9/10/2013*
Tentatively Identified Compound	**CAS RN**							
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	3.0 JN	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	12 JN	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	12 JN	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	4.1 JN	-	-	-	-	-
2,4-Pentanedione	123-54-6	35 J	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	22 JN	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	22 JN	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	23 JN	-	-	-	-	-
4-Methoxybenzonitrile	874-90-8	-	-	90 JN	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-	2.4 JN	-	-
Acetophenone	98-86-2	-	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	14 J	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-SG16	DA-SG16	DA-SG16	DA-SG17	DA-SG17	DA-SG18	DA-SG18
	Sample ID:	DA-SG16-G003	DA-SG16-G002	DA-SG-16-G001	DA-SG17-G002	DA-SG17-G001	DA-SG18-G002	DA-SG18-G001
	Sample Date:	9/9/2019	9/11/2013	3/1/2013	9/9/2019	9/10/2013	9/9/2019	9/10/2013
Cyclohexane, methyl	108-87-2	-	-	-	-	-	-	-
Cyclopentanone	120-92-3	-	-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1	-	-	-	-	-	-	-
Decahydro-naphthalene	91-17-8	-	-	-	-	-	-	-
Dimethyl disulfide	624-92-0	-	-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0	15 J	-	-	31 J	-	-	-
Hexamethylcyclotrisiloxane	541-05-9	27 J	-	-	-	-	-	-
Isobutylene	115-11-7	-	-	-	-	-	-	-
Isobutyraldehyde	78-84-2	-	-	-	-	-	-	-
Limonene isomer	138-86-3	-	-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	21 J	-	5600 JN	-	-	41 J	-
Methylcyclopentane	96-37-7	-	-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7	-	-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7	-	-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7	-	-	-	-	-	-	-
Octane	111-65-9	-	-	-	-	-	-	-
Pentane	109-66-0	-	7.3 JN	-	-	-	-	-
Pinene	80-56-8	-	-	190 JN	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9	-	-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207	-	-	-	-	-	-	-
trans-2-Hexene	4050-45-7	-	-	-	-	-	-	-
Trimethylfluorosilane	420-56-4	-	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	4500 JN	1800 J	-	1400 J	-
Unknown 1	TICUNK1	430 J	16 J	320 J	400 J	2.4 J	760 J	11 J
Unknown 2	TICUNK2	93 J	6.3 J	250 J	50 J	1.5 J	22 J	-
Unknown 3	TICUNK3	120 J	2.5 J	28 J	340 J	-	14 J	-
Unknown 4	TICUNK4	100 J	-	-	73 J	-	120 J	-
Unknown 5	TICUNK5	85 J	-	-	82 J	-	96 J	-
Unknown 6	TICUNK6	-	-	-	39 J	-	15 J	-
Unknown 7	TICUNK7	-	-	-	34 J	-	19 J	-
Unknown 8	TICUNK8	-	-	-	150 J	-	97 J	-
Unknown 9	TICUNK9	-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG19*	*DA-SG19*	*DA-SG20*	*DA-SG20*	*DA-SG21*	*DA-SG22*	*DA-SG22*
	Sample ID:	*DA-SG19-G002*	*DA-SG19-G001*	*DA-SG20-G002*	*DA-SG20-G001*	*DA-SG21-G001*	*DA-SG22-G002*	*DA-SG22-G001*
	Sample Date:	*9/9/2019*	*9/10/2013*	*9/9/2019*	*9/10/2013*	*9/10/2013*	*9/9/2019*	*9/10/2013*
Tentatively Identified Compound	**CAS RN**							
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	1.8 JN	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-	1.5 JN	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	4.7 JN	-	4.4 JN
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	2.2 JN	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-	-
2,4-Pentanedione	123-54-6	27 J	-	8.9 J	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-	-
2-Methylbutane	78-78-4	-	2.7 JN	-	-	-	-	-
2-Methyl-hexane	591-76-4	-	-	-	-	-	-	-
2-Methylpentane	107-83-5	-	-	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-	-
3-Methylhexane	589-34-4	-	-	-	-	-	-	-
3-Methylpentane	96-14-0	-	-	-	-	-	-	-
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	-	-	-
Acetaldehyde	75-07-0	-	1.5 JN	-	1.9 JN	1.1 JN	-	2.4 JN
Acetophenone	98-86-2	-	-	-	-	-	-	-
Adamantane	281-23-2	-	-	-	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	1.0 JN	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG19*	*DA-SG19*	*DA-SG20*	*DA-SG20*	*DA-SG21*	*DA-SG22*	*DA-SG22*
		Sample ID:	*DA-SG19-G002*	*DA-SG19-G001*	*DA-SG20-G002*	*DA-SG20-G001*	*DA-SG21-G001*	*DA-SG22-G002*	*DA-SG22-G001*
		Sample Date:	*9/9/2019*	*9/10/2013*	*9/9/2019*	*9/10/2013*	*9/10/2013*	*9/9/2019*	*9/10/2013*
Cyclohexane, methyl	108-87-2		-	-	-	-	-	-	-
Cyclopentanone	120-92-3		-	-	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-	-	-	-
Decahydro-naphthalene	91-17-8		-	-	-	-	-	-	-
Dimethyl disulfide	624-92-0		-	-	-	-	-	-	-
Hexamethyl disiloxane	107-46-0		14 J	-	13 J	-	-	340 J	-
Hexamethylcyclotrisiloxane	541-05-9		20 J	3.2 JN	-	-	2.5 JN	48 J	4.6 JN
Isobutylene	115-11-7		-	-	-	-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-	-	-	-
Limonene isomer	138-86-3		-	-	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2		-	-	-	-	-	140 J	-
Methylcyclopentane	96-37-7		-	-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7		-	-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7		23 J	-	-	-	-	39 J	-
Octane	111-65-9		-	-	-	-	-	-	-
Pentane	109-66-0		-	-	-	-	-	-	-
Pinene	80-56-8		-	-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-	-	-	-
trans-2-Hexene	4050-45-7		-	-	-	-	-	-	-
Trimethylfluorosilane	420-56-4		26 J	-	53 J	-	-	-	-
Trimethylsilanol	1066-40-6		-	-	2300 J	-	-	720 J	-
Unknown 1	TICUNK1		29 J	1.2 J	440 J	1.0 J	1.1 J	690 J	-
Unknown 2	TICUNK2		320 J	2.3 J	44 J	1.1 J	-	230 J	-
Unknown 3	TICUNK3		210 J	1.6 J	91 J	1.4 J	-	110 J	-
Unknown 4	TICUNK4		16 J	1.4 J	46 J	3.3 J	-	65 J	-
Unknown 5	TICUNK5		80 J	4.3 J	11 J	7.2 J	-	-	-
Unknown 6	TICUNK6		-	-	99 J	1.1 J	-	-	-
Unknown 7	TICUNK7		-	-	-	-	-	-	-
Unknown 8	TICUNK8		-	-	-	-	-	-	-
Unknown 9	TICUNK9		-	-	-	-	-	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG23*	*DA-SG24*	*DA-SG25*	*DA-SG26*	*DA-SG27*	*DA-SG28*
	Sample ID:	*DA-SG23-G001*	*DA-SG24-G001*	*DA-SG25-G001*	*DA-SG26-G001*	*DA-SG27-G001*	*SVE-SG28-G001_20180702_N*
	Sample Date:	*9/13/2013*	*9/13/2013*	*9/13/2013*	*9/13/2013*	*9/13/2013*	*7/9/2018*
Tentatively Identified Compound	**CAS RN**						
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	1.2 JN	-	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	1.7 JN	3.1 JN	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	2.0 JN	-	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-	-	-
2,3-Dimethyl butane	79-29-8	-	-	-	-	-	1200 JN
2,3-Dimethylpentane	565-59-3	-	-	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-	-	-
2,4-Dimethylpentane	108-08-7	-	-	-	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	1.8 JN	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-	-	-
2-Methylbutane	78-78-4	5.8 JN	-	-	14 JN	-	2300 JN
2-Methyl-hexane	591-76-4	-	-	-	-	-	-
2-Methylpentane	107-83-5	3.4 JN	-	-	-	-	-
3-Carene	13466-78-9	-	-	-	-	-	-
3-Methylhexane	589-34-4	3.2 JN	3.6 JN	-	-	-	-
3-Methylpentane	96-14-0	2.7 JN	-	-	-	-	1300 JN
4-Methoxybenzonitrile	874-90-8	-	-	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-	23 JN	-
Acetaldehyde	75-07-0	-	-	-	-	-	-
Acetophenone	98-86-2	-	-	3.0 JN	2.9 JN	-	-
Adamantane	281-23-2	-	2.7 JN	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	1.6 JN	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	2.1 JN	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	DA-SG23	DA-SG24	DA-SG25	DA-SG26	DA-SG27	DA-SG28
	Sample ID:	DA-SG23-G001	DA-SG24-G001	DA-SG25-G001	DA-SG26-G001	DA-SG27-G001	SVE-SG28-G001_20180702_N
	Sample Date:	9/13/2013	9/13/2013	9/13/2013	9/13/2013	9/13/2013	7/9/2018
Cyclohexane, methyl	108-87-2	-	-	-	-	-	-
Cyclopentanone	120-92-3	1.1 JN	-	-	-	-	-
Decahydro-2-methylnaphthalene	2958-76-1	-	-	1.6 JN	-	-	-
Decahydro-naphthalene	91-17-8	-	-	2.4 JN	-	-	-
Dimethyl disulfide	624-92-0	-	3.2 JN	-	-	-	-
Hexamethyl disiloxane	107-46-0	-	-	-	-	-	4100 JN
Hexamethylcyclotrisiloxane	541-05-9	-	-	-	-	-	1000 JN
Isobutylene	115-11-7	-	-	21 JN	-	-	-
Isobutyraldehyde	78-84-2	-	-	-	-	-	-
Limonene isomer	138-86-3	1.4 JN	-	-	-	-	-
Methoxytrimethyl-silane	1825-61-2	-	-	-	-	-	2700 JN
Methylcyclopentane	96-37-7	-	-	-	-	-	-
m-Tolyl isothiocyanate	621-30-7	-	-	-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7	-	-	-	-	-	-
Octamethyl-trisiloxane	107-51-7	-	-	-	-	-	-
Octane	111-65-9	-	-	-	-	-	-
Pentane	109-66-0	4.7 JN	-	-	-	-	-
Pinene	80-56-8	-	-	-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9	-	-	-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207	-	-	-	-	-	-
trans-2-Hexene	4050-45-7	-	-	-	-	-	-
Trimethylfluorosilane	420-56-4	-	-	-	-	-	-
Trimethylsilanol	1066-40-6	-	-	-	-	-	-
Unknown 1	TICUNK1	1.5 J	2.2 J	25 J	17 J	33 J	44000 J
Unknown 2	TICUNK2	-	3.8 J	6.6 J	14 J	85 J	12000 J
Unknown 3	TICUNK3	-	2.0 J	12 J	6.0 J	34 J	4400 J
Unknown 4	TICUNK4	-	3.6 J	2.1 J	2.3 J	15 J	2400 J
Unknown 5	TICUNK5	-	-	1.9 J	2.3 J	62 J	-
Unknown 6	TICUNK6	-	-	-	1.5 J	34 J	-
Unknown 7	TICUNK7	-	-	-	1.5 J	17 J	-
Unknown 8	TICUNK8	-	-	-	-	22 J	-
Unknown 9	TICUNK9	-	-	-	-	41 J	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

	Sample Location:	*DA-SG28*	*DA-SG29*	*DA-SG29*	*DA-SG30*
	Sample ID:	*DA-SG28-G001*	*SVE-SG29-G001_20180702_N*	*DA-SG29-G001*	*DA-SG30-G001*
	Sample Date:	*9/12/2013*	*7/9/2018*	*9/12/2013*	*9/13/2013*
Tentatively Identified Compound	**CAS RN**				
(1alpha,2beta,4beta)-1,2,4-Trimethyl-cyclohexane	7667-60-9	-	-	-	-
1,1,3-Trimethylcyclohexane	3073-66-3	-	-	-	-
1,2,4-Trimethyl cyclopentane	2815-58-9	-	-	-	-
1,2,4-Trimethylcyclohexane	2234-75-5	-	-	-	-
1,3,5-Trimethylbenzene	108-67-8	-	-	-	-
1,4-Dimethylcyclohexane	589-90-2	-	-	-	-
1-Ethyl-2-methylbenzene	611-14-3	-	-	-	-
1-Ethyl-3-methylbenzene	620-14-4	-	-	-	-
1-Ethyl-3-methylcyclohexane (total)	3728-55-0	-	-	-	-
1-Ethyl-4-methyl cyclohexane	3728-56-1	-	-	-	-
1-Methyl-4-(1-methylethylid)-cyclohexane	1124-27-2	-	-	-	-
2,2-Dimethyl butane	75-83-2	-	-	-	-
2,3,3-Trimethylpentane	560-21-4	-	-	-	-
2,3,4-Trimethylpentane	565-75-3	-	-	-	-
2,3-Butanedione	431-03-8	-	-	-	-
2,3-Dimethyl butane	79-29-8	110000 JN	-	-	-
2,3-Dimethylpentane	565-59-3	-	-	-	-
2,4-Dimethylhexane	589-43-5	-	-	-	-
2,4-Dimethylpentane	108-08-7	45000 JN	-	-	-
2,4-Pentanedione	123-54-6	-	-	-	-
2,5-Dimethylhexane	592-13-2	-	-	-	-
2-Butyl-1,1,3-trimethyl-cyclohexane	54676-39-0	-	-	-	-
2-Methyl heptane	592-27-8	-	-	-	-
2-Methylbutane	78-78-4	-	-	-	-
2-Methyl-hexane	591-76-4	45000 JN	-	-	-
2-Methylpentane	107-83-5	160000 JN	-	-	-
3-Carene	13466-78-9	-	-	-	-
3-Methylhexane	589-34-4	58000 JN	-	1.6 JN	-
3-Methylpentane	96-14-0	-	-	-	1.4 JN
4-Methoxybenzonitrile	874-90-8	-	-	-	-
4-Methylheptane	589-53-7	-	-	-	-
8-Methyl heptadecane	13287-23-5	-	-	-	-
Acetaldehyde	75-07-0	-	-	-	-
Acetophenone	98-86-2	-	-	-	-
Adamantane	281-23-2	-	-	-	-
alpha-Methylstyrene	98-83-9	-	-	-	-
Arsenouscid, tris(trimethylsilyl) este	55429-29-3	-	-	-	-
Benzene, 1-methyl-2-(1-methylethyl)-	527-84-4	-	-	-	-
c,t,c-1,2,4-Trimethylcyclopentane	4850-28-6	-	-	-	-
cis-1,2-Dimethylcyclopropane	930-18-7	-	-	-	-
cis-1,3-Dimethylcyclohexane	638-04-0	-	-	-	-
Cyclohexane, 1,1,2,3-tetramethyl-	6783-92-2	-	-	-	-

OU-4 Soil Gas Sample Tentatively Identified Compound (TICs) Results
OU-4 Feasibility Study
Former GM Wilmington Assembly Plant
Wilmington, Delaware

		Sample Location:	*DA-SG28*	*DA-SG29*	*DA-SG29*	*DA-SG30*
		Sample ID:	*DA-SG28-G001*	*SVE-SG29-G001_20180702_N*	*DA-SG29-G001*	*DA-SG30-G001*
		Sample Date:	*9/12/2013*	*7/9/2018*	*9/12/2013*	*9/13/2013*
Cyclohexane, methyl	108-87-2		-	-	1.0 JN	-
Cyclopentanone	120-92-3		-	-	1.6 JN	-
Decahydro-2-methylnaphthalene	2958-76-1		-	-	-	-
Decahydro-naphthalene	91-17-8		-	-	-	-
Dimethyl disulfide	624-92-0		-	-	-	-
Hexamethyl disiloxane	107-46-0		-	-	-	-
Hexamethylcyclotrisiloxane	541-05-9		-	110 JN	-	-
Isobutylene	115-11-7		-	-	-	-
Isobutyraldehyde	78-84-2		-	-	-	-
Limonene isomer	138-86-3		-	-	-	-
Methoxytrimethyl-silane	1825-61-2		-	-	-	-
Methylcyclopentane	96-37-7		-	-	-	-
m-Tolyl isothiocyanate	621-30-7		-	-	-	-
Naphthalene, decahydro-, trans-	493-02-7		-	-	-	-
Octamethyl-trisiloxane	107-51-7		-	-	-	-
Octane	111-65-9		-	-	-	-
Pentane	109-66-0		-	-	-	-
Pinene	80-56-8		-	-	-	-
trans-1,2-Dimethylcyclohexane	6876-23-9		-	-	-	-
trans-1,3-Dimethylcyclohexane	3/6/2207		-	-	-	-
trans-2-Hexene	4050-45-7		-	-	-	-
Trimethylfluorosilane	420-56-4		-	-	-	-
Trimethylsilanol	1066-40-6		-	-	-	-
Unknown 1	TICUNK1		300000 J	560 J	5.1 J	1.2 J
Unknown 2	TICUNK2		140000 J	220 J	2.8 J	2.1 J
Unknown 3	TICUNK3		74000 J	180 J	1.9 J	1.2 J
Unknown 4	TICUNK4		150000 J	160 J	16 J	2.3 J
Unknown 5	TICUNK5		74000 J	51 J	1.2 J	-
Unknown 6	TICUNK6		-	36 J	3.3 J	-
Unknown 7	TICUNK7		-	26 J	-	-
Unknown 8	TICUNK8		-	17 J	-	-
Unknown 9	TICUNK9		-	16 J	-	-

Footnotes:
All concentrations are in units of ppbv
J: Estimated concentration.
NJ: Tentatively identified compound, estimated concentration.
-: TIC not Detected

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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