

**AIR PERMIT WAIVER
QUARTERLY MONITORING REPORT
FOURTH QUARTER 2017**

**FORMER GENERAL MOTORS PLANT
801 BOXWOOD ROAD, WILMINGTON, DELAWARE**

UST Facility ID: 3-000541

LUST Project#: N8708035

DE-1149 Operable Unit 4

Prepared For:

Air Quality Management Section
Division of Air and Waste Management
Department of Natural Resources &
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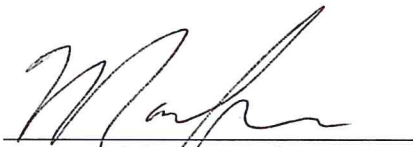


INTERNAL QUALITY CONTROL SHEET

This Quarterly Monitoring Report has been prepared by BrightFields, Inc. (BrightFields). This Report represents BrightFields' knowledge of conditions on the subject site at the time of preparation.

This Quarterly Monitoring Report was prepared and reviewed by the following BrightFields personnel:

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QUARTERLY MONITORING REPORT

1.0 INTRODUCTION

BrightFields, Inc. (BrightFields) has been retained by the Revitalizing Auto Communities Environmental Response (RACER) Trust to install and operate an interim remediation system to remediate hydrocarbon contamination in soil vapors and prevent migration of soil vapors to offsite receptors located at the Former General Motors Plant on Boxwood Road in Wilmington, Delaware, Underground Storage Tank (UST) Facility ID 3-000541 (herein referred to as the “Site”) (Figure 1). This Quarterly Monitoring Report is being submitted to meet the requirements of the State of Delaware Department of Natural Resources and Environmental Control (DNREC) Permit Waiver for air emissions and to document the conditions of the Site during this reporting period.

Petroleum contamination has been confirmed present at the Site through numerous investigations. The contamination appears to have resulted from the historical operation of the Site and leakage from several former USTs.

This Quarterly Monitoring Report describes the system installation and covers all operations from September 26, 2017 through December 28, 2017 and contains operations details, monitoring details, and air sampling results.

The remediation system was installed by BrightFields and started in late March 2015. During this quarter, the soil vapor extraction (SVE) system was operated for 1,601.5 hours. System inspection field sheets are included in Appendix A.

1.1 Purpose

This Quarterly Monitoring Report has been prepared to meet air permit waiver requirements. The permit waiver is included as Appendix B.

1.2 Site History

The Former General Motors Plant is approximately 142 acres consisting of two tax parcels. The larger parcel is 126.6 acres with a 3-million square foot auto assembly plant, waste water

treatment plant, and parking lots. The second parcel is a 15-acre undeveloped wooded lot. The surrounding use of the Site is commercial and residential.

Historical research indicates that the main plant facility was constructed by General Motors in 1947 and operated until July 2009. General Motors filed for bankruptcy in June 2009 and the property was purchased by Fisker Automotive in July 2010. In March 2011, the RACER Trust was formed as part of the bankruptcy settlement to clean up and promote redevelopment of Former General Motors properties. In April 2014, Wanxiang Delaware acquired the property. In October 2017, Boxwood Industrial Park, LLC acquired the property.

An April 9, 1990 letter from DNREC to General Motors stated that 12 underground storage tanks (USTs) were removed from the property. Ten of those tanks were adjacent to the Anchor Motor Freight Building, located in the southeast section of the plant along Dodson Avenue. 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 contained diesel (four tanks), gasoline (three tanks), heating oil (two tanks), waste oil (two tanks), and engine oil (one tank).

A contaminated groundwater plume extends from the Anchor Motor Freight Building towards the northeast across Dodson Avenue. Groundwater contamination includes several volatile organic compounds (VOCs) including 1,2,4-trimethylbenzene, benzene, ethylbenzene, toluene, and xylenes (BTEX). Groundwater contamination also includes semivolatile organic compounds (SVOCs) including naphthalene and 2-methylnaphthalene. Subsurface contaminated soil extends from the edge of the Anchor Motor Freight Building to approximately the eastern edge of Dodson Avenue. Soil contamination also consists of VOCs including 1,2,4-trimethylbenzene, benzene, ethylbenzene, toluene, and xylenes.

Results of a vapor intrusion investigation, with sampling events from October 2012 through December 2013, show that offsite contaminated soil vapors extended from the edge of the property to approximately 100 feet east of Dodson Avenue. Soil gas samples that were collected contain VOCs, including 1,2,4-trimethylbenzene, benzene, ethylbenzene, and xylenes.

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 SVE system as an interim vapor phase remediation.

1.3 System Installation

In order to facilitate the remediation activities for the property, BrightFields installed six 2-inch diameter extraction wells northeast of the Anchor Motor Freight Building from December 17 to December 19, 2014. The wells were drilled to depths of approximately 20 feet below ground surface (bgs) and screened from approximately 12 feet bgs to 20 feet bgs. Each screen is 2-inch outer diameter polyvinyl chloride (PVC), 12 feet in length, with a slot size of 0.020 inches.

BrightFields began installing the underground conveyance piping to the blower on February 6, 2015. Each well was connected to the manifold by a separate 2-inch PVC line. An additional 4-inch PVC pipe was installed in the conveyance trench and capped inside of the trench box for future use if needed.

The installation was completed in February 2015 and system start-up was implemented on March 30, 2015.

1.4 Description of System

The remediation system consists of a Falco 300 Catalytic Oxidizer with a 15-horsepower (hp) regenerative blower. The blower is capable of extracting 295 standard cubic feet per minute (scfm) of vapor flow at 60-inches of water vacuum. The blower is connected to extraction wells SVE-01 through SVE-06 (Figure 2).

Extracted vapors are currently treated by means of a catalytic oxidizer. Main components of the treatment system are as follows:

- Below ground piping to connect remediation wells to the system;
- Regenerative 15-hp SVE vacuum blower; and,
- Catalytic oxidizer to treat the extracted soil-gas.

There is a 40-gallon water knockout drum between the manifold and the catalytic oxidizer. A high-level switch connected to the water knockout drum turns off the blower and catalytic oxidizer to prevent drawing water into the catalytic oxidizer.

2.0 SYSTEM OPERATIONS AND MONITORING

BrightFields started the SVE system on March 30, 2015. This Quarterly Monitoring Report documents the remediation and monitoring activities performed at the Site from September 26, 2017 through December 28, 2017 (the fourth quarter of 2017).

2.1 Operations

During the fourth quarter, the SVE system was not in operation on four occasions. On all occasions, the SVE system automatically shut down due to the high water level switch in the water knockout drum. Water was drained and staged in 55-gallon steel drums onsite prior to restarting the SVE system on each occasion.

During this quarter, no changes were made to the SVE system manifold valve positions. Valves for wells SVE-01, SVE-04, and SVE-06 remained closed (0%), while SVE-02, SVE-03, and SVE-05 remained open (100%).

2.2 Site Visits

The SVE system was inspected once per week during this quarter in an effort to optimize system operations and ensure compliance with the permit waiver requirements. The table below outlines the inspection dates and significant notes collected at the time of the inspection (the raw field sheets are included in Appendix A). The manual dilution valve was adjusted on three occasions. On November 7, 2017, the valve was changed from 25% to 10% in an effort to draw more vapors from the wells. On November 15, the dilution valve was adjusted back to its original 25% position. Finally, on December 6, the manual dilution valve was adjusted from 25% to 35%. The November 15 and December 6 adjustments were made in an effort to reduce entrained water entering the knockout drum.

The following table presents the inspection dates and relevant information. Bolded dates represent dates that air bag samples were collected.

Inspection Dates:	Significant Notes:
10/2/2017	System running successfully. Drained water from knockout drum.
10/10/2017	System running successfully.
10/17/2017	System running successfully. Drained water from knockout drum.
10/25/2017	System running successfully. Gauged SVE wells, GM-MW49, and GM-MW50. Blower filter adequate. Drained water from knockout drum. Collected air bag samples.
10/31/2017	System running successfully. Catalyst check adequate. Drained water from knockout drum.
11/7/2017	System running successfully. Drained water from knockout drum. Adjusted manual dilution valve from 25% to 10% after performing system check.
11/15/2017	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted the system. Adjusted manual dilution valve from 10% to 25%.
11/22/2017	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted the system. Collected air bag samples.
11/29/2017	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted the system.
12/6/2017	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted the system. Blower filter adequate. Adjusted manual dilution valve from 25% to 35%.
12/13/2017	System running successfully. Drained water from knockout drum.
12/22/2017	System running successfully. Drained water from knockout drum.
12/28/2017	System running successfully. Drained water from knockout drum. Gauged SVE wells, GM-MW49, and GM-MW50. Vacuum filter changed. VCV filter adequate. Collected air bag samples.

2.3 Compliance

Air samples were collected from the system to evaluate the efficiency of the system and to comply with the air permit waiver. Grab air samples were collected during system operations at the influent (pre-treatment) and at the effluent to the catalytic oxidizer (post-treatment) using one liter Tedlar[®] bags. Influent samples provided information pertaining to the mass extraction of hydrocarbons of subsurface soil vapor, and the effluent samples provided information regarding the efficiency of the catalytic oxidizer destruction of the contaminants, prior to their discharge to the atmosphere. All air samples were submitted to Eurofins Scientific in Lancaster,

Pennsylvania for analysis using Environmental Protection Agency (EPA) Method TO-18. Raw mass loading/emission estimates and analytical data for each air bag sample collected are provided in Appendix C and Appendix D, respectively.

Based on the analytical data and data collected during the site visits, the effluent discharge estimates for this monitoring period have not exceeded the limit of 0.1 pounds (lbs)/hour or 2.4 lbs/day (system post treatment).

Table 1 provides the SVE System Monitoring Data summary and Chart 1 displays the estimated hydrocarbon mass removal for the SVE system. The mass removal estimate for the SVE system was approximately 70.6 lbs of petroleum hydrocarbons for this quarter.

2.4 Free Product Recovery

No measurable amounts of free product were recovered this quarter.

3.0 SUMMARY

This Quarterly Monitoring Report documents remediation system operations conducted at the Site for the fourth quarter of 2017. During this period, the SVE system was operated for 1,601.5 hours.

3.1 Estimated Recovery

Based on the monitoring data, the total mass of hydrocarbons removed during this monitoring period from SVE recovery efforts is estimated to be approximately 70.6 lbs. Since startup on March 30, 2015, an estimated 7,749.7 lbs of hydrocarbons have been removed by the SVE system. An additional 13.8 lbs were removed as separate phase product by hand bailing and absorbent sock since the system was installed.

3.2 Plan for Next Quarter

The remediation effort began in late March 2015; since that date, significant quantities of VOCs have been recovered. BrightFields will continue to operate the SVE system and monitor recovery, as required by the permit waiver.

FIGURES



Former Wilmington Assembly Plant Property (DE-1149)

Tax Parcels

Source: DEMAC - Aerial 2013; Delaware DataMIL - Tax Parcels.

BrightFields, Inc.
Environmental Evaluation
Investigation, and Remediation

801 Industrial Street, Suite 1
Wilmington, Delaware 19801

302-656-9600
302-656-9700 fax

Site Map
Former General Motors Plant
Wilmington, DE

	By	Date	Scale:	File Name:
Drawn	KEP	7/9/2015	1:1,800	Fig1SiteMap.mxd
Checked	KLH	7/9/2015	Fig. No.	
Project #	2734.04.51		Figure 1	

075150

Feet

N

W

E

S



SVE Extraction Well

SVE Conveyance Piping

SVE Catalytic Oxidizer Unit (housed in shed)

XXXX

Fence

Former Wilmington Assembly Plant Property (DE-1149)

Tax Parcels

BrightFields, Inc.

Environmental Evaluation
Investigation, and Remediation

801 Industrial Street, Suite 1
Wilmington, Delaware 19801

302-656-9600
302-656-9700 fax

SVE System Layout
Former General Motors Plant
Wilmington, Delaware

	By	Date	Scale:	File Name:
Drawn	KEP	8/18/2015	1:720	Fig2SVE_Sys.mxd
Checked	KLH	8/18/2015	Fig. No.	
Project #	2734.04.51	Figure 2		

03060

Feet

N

W

E

S

TABLE

TABLE 1
Soil Vapor Extraction System Monitoring Data
Former GM Plant
Wilmington, DE

Date	Vacuum ("H ₂ O)	Influent Air Velocity (FPM - 3" pipe)	Influent Air Flow Rate (CFM)	Influent Vapor Concentration		Effluent Vapor Concentration		Cat/Ox Operating Temperatures		
				PID (ppmv)	Lab (ppmv)	PID (ppmv)	Lab (ppmv)	T1 (°C)	T2 (°C)	T3 (°C)
10/2/17	-70.0	2,905.0	149	13.7	-	0.7	-	330	333	342
10/10/17	-68.0	3,179.0	163	47.0	-	0.3	-	330	333	343
10/17/17	-71.0	3,396.0	175	16.4	-	0.2	-	330	334	344
10/25/17	-70.0	3,653.0	188	1,278.0	15	23.5	0	330	334	344
10/31/17	-71.0	2,820.0	145	49.3	-	0.4	-	330	335	345
11/7/17	-72.0	2,787.0	143	39.2	-	0.2	-	330	334	345
11/15/17	-100.0	2,127.0	109	15,000.0	-	56.1	-	330	339	354
11/22/17	-90.0	3,054.0	157	666.0	65	28.7	0	330	325	357
11/29/17	-85.0	2,533.0	130	115.0	-	1.1	-	330	342	350
12/6/17	-67.0	4,444.0	228	91.5	-	1.3	-	330	334	359
12/13/17	-67.0	4,300.0	221	67.3	-	0.8	-	330	339	348
12/22/17	-63.0	3,626.0	186	78.8	-	0.7	-	330	339	347
12/28/17	-68.0	4,550.0	234	87.6	40	3.4	0	330	339	348

Notes :

FPM - feet per minute.

CFM - cubic feet per minute.

PID - photoionization detector.

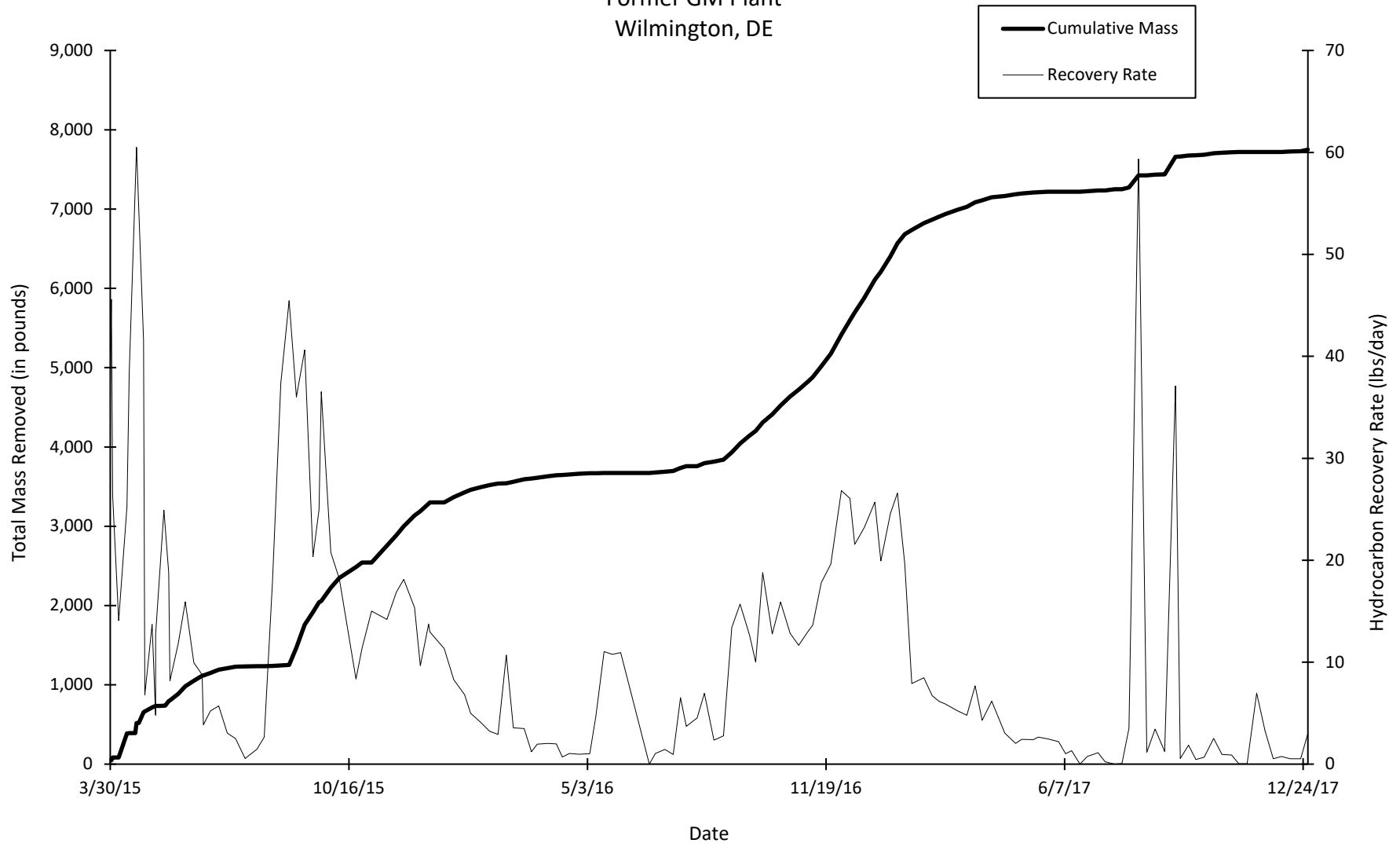
ppmv - parts per million by volume.

Bold indicates dates on which air bags were collected for laboratory analysis.

Lab vapor concentration is the total Volatile Organic Compounds (VOCs) (less methane) detected in the air bag laboratory analysis.

CHART

Chart 1
Soil Vapor Extraction System
Hydrocarbon Mass Removal Estimate
Falco 300
Former GM Plant
Wilmington, DE



APPENDICES



APPENDIX A

SYSTEM INSPECTION FIELD SHEETS

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 10/2/2017; 15:25

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.7
INF	Cat/Ox Influent Velocity (fpm)			2,905.0
INF	Cat/Ox Influent PID (ppm) ***			13.7
	Cat/Ox Run Time (hours)			16,846.0
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			333
T3	Cat/Ox Temperature - T3 (°C)			342
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-70
	Blower Influent Pressure (inches WC)			-70
BP	Blower Backpressure (inches WC)			21
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	EUROFINS
Cat/Ox PID Taken From Sample Port		15:46	15:45	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Turning off system at 15:47 to check water knockout drum; Drained ~8 gallons of water from water knockout drum; Turning on system at 16:11

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 10/10/2017; 10:20

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.3
INF	Cat/Ox Influent Velocity (fpm)			3,179
INF	Cat/Ox Influent PID (ppm) ***			47.0
	Cat/Ox Run Time (hours)			17,032.4
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			333
T3	Cat/Ox Temperature - T3 (°C)			343
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-68
	Blower Influent Pressure (inches WC)			-70
BP	Blower Backpressure (inches WC)			21
	Water Level Check			ABSENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	EUROFINS
Cat/Ox PID Taken From Sample Port		10:31	10:30	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Background
PID reading = 0.2 ppm; Water knockout drum could not be drained
because there were no drums were onsite

*** - When collecting grab air bag samples, enter PID reading from
sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 10/17/2017; 15:04

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.2
INF	Cat/Ox Influent Velocity (fpm)			3,396.0
INF	Cat/Ox Influent PID (ppm) ***			16.4
	Cat/Ox Run Time (hours)			17,205.1
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			334
T3	Cat/Ox Temperature - T3 (°C)			344
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-71
	Blower Influent Pressure (inches WC)			-71
BP	Blower Backpressure (inches WC)			21
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	EUROFINS
Cat/Ox PID Taken From Sample Port		15:18	15:17	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Background PID reading = 0.1 ppm; Turning off system at 15:20 to check water knockout drum; Drained ~12.5 gallons of water from water knockout drum; Turning on system at 15:47

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 10/25/17; 10:22

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			23.5
INF	Cat/Ox Influent Velocity (fpm)			3,653.0
INF	Cat/Ox Influent PID (ppm) ***			1,278.0
	Cat/Ox Run Time (hours)			17,391.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			334
T3	Cat/Ox Temperature - T3 (°C)			344
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-70
	Blower Influent Pressure (inches WC)			-71
BP	Blower Backpressure (inches WC)			21
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged: SVE wells, GM-MW49, GM-MW50			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		10:37	10:36	EUROFINS
Cat/Ox PID Taken From Sample Port		3,379.0	8.7	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure velocities in SVE wells due to moisture; Turning off system at 10:48 to check water knockout drum; Drained ~19.25 gallons of water from water knockout drum; Gauged SVE wells, GM-MW49, and GM-MW50; Blower filter adequate; Turning on system at 16:45; Checked filters, grounds, heater, and blower connections - all adequate.

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 10/31/17; 11:30

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.4
INF	Cat/Ox Influent Velocity (fpm)			2,820.0
INF	Cat/Ox Influent PID (ppm) ***			49.3
	Cat/Ox Run Time (hours)			17,530.9
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			335
T3	Cat/Ox Temperature - T3 (°C)			345
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-71
	Blower Influent Pressure (inches WC)			-73
BP	Blower Backpressure (inches WC)			22
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	EUROFINS
Cat/Ox PID Taken From Sample Port		11:39	11:38	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure velocities in SVE wells due to moisture; Background
PID reading = 0.2 ppm; Turning off system at 11:41 to check water knockout
drum; Drained ~12 gallons of water from water knockout drum; Catalyst
check adequate; Turning on system at 12:38

*** - When collecting grab air bag samples, enter PID reading from
sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 11/7/2017; 11:49

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	1,836.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.2
INF	Cat/Ox Influent Velocity (fpm)			2,787.0
INF	Cat/Ox Influent PID (ppm) ***			39.2
	Cat/Ox Run Time (hours)			17,699.2
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			334
T3	Cat/Ox Temperature - T3 (°C)			345
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-72
	Blower Influent Pressure (inches WC)			-73
BP	Blower Backpressure (inches WC)			22
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	-
Cat/Ox PID Taken From Sample Port		12:11	12:10	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Turning off system at 12:11 to check water knockout drum; Drained ~10.5 gallons of water from water knockout drum; Turning on system at 12:47; Before leaving, the manual dilution valve was changed from 25% to 10%.

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 11/15/2017; 11:43

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			OFF	ON
Alarms			High Water (70)	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data		Reading	
EFF	Cat/Ox Effluent Velocity (fpm)		Not Measured	
EFF	Cat/Ox Effluent PID (ppm) ***		56.1	
INF	Cat/Ox Influent Velocity (fpm)		2,127.0	
INF	Cat/Ox Influent PID (ppm) ***		15,000	
	Cat/Ox Run Time (hours)		17,701.8	
T1	Cat/Ox Temperature - T1 (°C)		330	
T2	Cat/Ox Temperature - T2 (°C)		339	
T3	Cat/Ox Temperature - T3 (°C)		354	
MV	Manual Valve Percentage Open		10%	
	Recirculation Valve Percentage Open		0%	
VCV	VCV Percentage Open		95%	
	Filter Influent Pressure (inches WC)		-100	
	Blower Influent Pressure (inches WC)		-96	
BP	Blower Backpressure (inches WC)		13	
	Water Level Check		PRESENT - FULL	
	Blower Filter Check - If Yes, list conditions below		Yes / No?	
	Gauged Wells - If Yes, list gauged wells below		Yes / No?	
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	-
Cat/Ox PID Taken From Sample Port		13:36	13:35	FIELD SCRIN

Additional Comments/Work Performed:

Water knockout drum full upon arrival. Drained ~32.5 gallons from water
knockout drum; Could not measure air velocities in SVE wells due to moisture;
Restarted system at 12:28; Before leaving, the manual dilution valve was
changed from 10% to 25%

*** - When collecting grab air bag samples, enter PID reading from
sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 11/22/2017; 15:25

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			OFF	ON
Alarms			High Water (70)	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data		Reading	
EFF	Cat/Ox Effluent Velocity (fpm)		Not Measured	
EFF	Cat/Ox Effluent PID (ppm) ***		28.7	
INF	Cat/Ox Influent Velocity (fpm)		3,054.0	
INF	Cat/Ox Influent PID (ppm) ***		666.0	
	Cat/Ox Run Time (hours)		17,706.0	
T1	Cat/Ox Temperature - T1 (°C)		330	
T2	Cat/Ox Temperature - T2 (°C)		325	
T3	Cat/Ox Temperature - T3 (°C)		357	
MV	Manual Valve Percentage Open		25%	
	Recirculation Valve Percentage Open		0%	
VCV	VCV Percentage Open		95%	
	Filter Influent Pressure (inches WC)		-90	
	Blower Influent Pressure (inches WC)		-86	
BP	Blower Backpressure (inches WC)		16	
	Water Level Check		PRESENT - FULL	
	Blower Filter Check - If Yes, list conditions below		Yes / No?	
	Gauged Wells - If Yes, list gauged wells below		Yes / No?	
	Wells Gauged: SVE 1-6, MW-49, & MW-50			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		15:37	15:36	EUROFINS
Cat/Ox PID Taken From Sample Port		15,000	55.6	FIELD SCRIN

Additional Comments/Work Performed:

Water knockout drum full upon arrival. Drained ~33 gallons from water
knockout drum; Could not measure air velocities in SVE wells due to moisture.
Restarted system at 14:52

*** - When collecting grab air bag samples, enter PID reading from
sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 11/29/2017; 9:59

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			OFF	ON
Alarms			High Water (70)	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			1.1
INF	Cat/Ox Influent Velocity (fpm)			2,533.0
INF	Cat/Ox Influent PID (ppm) ***			115.0
	Cat/Ox Run Time (hours)			17,718.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			342
T3	Cat/Ox Temperature - T3 (°C)			350
MV	Manual Valve Percentage Open			25%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-85
	Blower Influent Pressure (inches WC)			-85
BP	Blower Backpressure (inches WC)			17.5
	Water Level Check			PRESENT - FULL
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	-
Cat/Ox PID Taken From Sample Port		12:18	12:17	FIELD SCRIN

Additional Comments/Work Performed:

Water knockout drum full upon arrival. Drained ~33 gallons from water
knockout drum; Could not measure air velocities in SVE wells due to moisture.
Restarted system at 10:59

*** - When collecting grab air bag samples, enter PID reading from
sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 12/6/2017; 12:34

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			OFF	ON
Alarms			High Water (70)	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			1.3
INF	Cat/Ox Influent Velocity (fpm)			4,444.0
INF	Cat/Ox Influent PID (ppm) ***			91.5
	Cat/Ox Run Time (hours)			17,751.6
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			334
T3	Cat/Ox Temperature - T3 (°C)			359
MV	Manual Valve Percentage Open			35%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-67
	Blower Influent Pressure (inches WC)			-69
BP	Blower Backpressure (inches WC)			24
	Water Level Check			PRESENT-FULL
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	-
Cat/Ox PID Taken From Sample Port		14:04	14:03	FIELD SCREEN

Additional Comments/Work Performed:

Water knockout drum was full upon arrival. Drained ~32 gallons from water

knockout drum; Could not measure air velocities in SVE wells due to moisture;

Restarted system at 13:24; Blower filter adequate - no cleaning or replacement

required; Before leaving, the manual dilution valve was changed from 25% to

35%

*** - When collecting grab air bag samples, enter PID reading from

sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 12/13/2017; 10:21

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data		Reading	
EFF	Cat/Ox Effluent Velocity (fpm)		Not Measured	
EFF	Cat/Ox Effluent PID (ppm) ***		0.8	
INF	Cat/Ox Influent Velocity (fpm)		4,300.0	
INF	Cat/Ox Influent PID (ppm) ***		67.3	
	Cat/Ox Run Time (hours)		17,916.1	
T1	Cat/Ox Temperature - T1 (°C)		330	
T2	Cat/Ox Temperature - T2 (°C)		339	
T3	Cat/Ox Temperature - T3 (°C)		348	
MV	Manual Valve Percentage Open		35%	
	Recirculation Valve Percentage Open		0%	
VCV	VCV Percentage Open		95%	
	Filter Influent Pressure (inches WC)		-67	
	Blower Influent Pressure (inches WC)		-65	
BP	Blower Backpressure (inches WC)		26	
	Water Level Check		PRESENT	
	Blower Filter Check - If Yes, list conditions below		Yes / No?	
	Gauged Wells - If Yes, list gauged wells below		Yes / No?	
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	-
Cat/Ox PID Taken From Sample Port		10:31	10:30	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Turning off system at 10:35; Drained ~5 gallons of water from water knockout drum; Turning on system at 10:55

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

**Former General Motors Plant
Wilmington, DE
System Check Sheet**

Name: Nick Bradley

Date/Time: 12/22/2017; 15:32

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			0.7
INF	Cat/Ox Influent Velocity (fpm)			3,626.0
INF	Cat/Ox Influent PID (ppm) ***			78.8
	Cat/Ox Run Time (hours)			18,136.9
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			339
T3	Cat/Ox Temperature - T3 (°C)			347
MV	Manual Valve Percentage Open			35%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-63
	Blower Influent Pressure (inches WC)			-66
BP	Blower Backpressure (inches WC)			25
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged:			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		-	-	EUROFINS
Cat/Ox PID Taken From Sample Port		15:47	15:46	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Turned off system at 15:48; Drained ~6.5 gallons of water from water knockout drum; Restarted system at 16:14

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

Name: Nick Bradley

Date/Time: 12/28/2017; 13:00

SOIL VAPOR EXTRACTION SYSTEM				
Status			Arrival	Departure
SVE System			ON	ON
Alarms			NONE	NONE
Tag ID	Location	% Open	Velocity (fpm)	PID (ppm)
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	-	Not Measured
SVE-03	SVE-03	100	-	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	-	Not Measured
SVE-06	SVE-06	0	-	Not Measured
Tag ID	Additional Data			Reading
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm) ***			3.4
INF	Cat/Ox Influent Velocity (fpm)			4,550.0
INF	Cat/Ox Influent PID (ppm) ***			87.6
	Cat/Ox Run Time (hours)			18,278.0
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			339
T3	Cat/Ox Temperature - T3 (°C)			348
MV	Manual Valve Percentage Open			35%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-68
	Blower Influent Pressure (inches WC)			-70
BP	Blower Backpressure (inches WC)			27
	Water Level Check			PRESENT
	Blower Filter Check - If Yes, list conditions below			Yes / No?
	Gauged Wells - If Yes, list gauged wells below			Yes / No?
	Wells Gauged: SVE wells, GM-MW49, GM-MW50			
Air Bag Sample Times:		Influent	Effluent	Laboratory
		13:06	13:05	EUROFINS
Cat/Ox PID Taken From Sample Port		802.2	4.9	FIELD SCRIN

Additional Comments/Work Performed:

Could not measure air velocities in SVE wells due to moisture; Turned off system at 13:20; Drained ~4.25 gallons of water from water knockout drum; Restarted system at 13:45; Vacuum filter was changed; VCV filter was in good condition

*** - When collecting grab air bag samples, enter PID reading from sample bag on this line

APPENDIX B

PERMIT WAIVER



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF AIR & WASTE MANAGEMENT
715 GRANTHAM LANE
NEW CASTLE, DELAWARE 19720

AIR QUALITY MANAGEMENT
SECTION

TELEPHONE: (302) 323 - 4542
FAX NO.: (302) 323 - 4598

March 23, 2015

Brightfields Inc.
801 Industrial Street
Wilmington, Delaware 19801

ATTENTION: Ken Hannon
Engineering Program Manager

UST Facility ID#: 3-000541
LUST Project ID #: N8708035

SUBJECT: Former GM Plant
801 Boxwood Road, Wilmington, DE 19804
SVE System, Dodson Avenue

Dear Mr. Hannon:

This is in reference to the information in your submission dated December 29, 2014, in which you requested, on behalf of Brightfields Inc., the Department's permission to operate a Soil Vapor Extraction system for the owner, Racer Trust, controlled by thermal incineration with controlled rate located at the Former GM Plant at 801 Boxwood Road, Newport, Delaware 19804.

In the Department's opinion, the air contaminant emissions from this proposed source have little or no potential to cause a condition of air pollution; therefore, since this equipment will emit less than 0.1 pounds per hour and 2.4 pounds per day, permits for installation and operation are not required as long as the said equipment is operating as described on Form AQM-12 dated December 29, 2014 and signed by Pamela Barnett.

When the system is placed in operation, the owner or operator shall immediately fine-tune the system components based upon inlet Volatile Organic Compound (VOC) concentrations to ensure that VOC emissions do not exceed the emission limit of 0.1 pounds per hour and 2.4 pounds per day.

The owner or operator shall, at a minimum, perform system monitoring as follows:

- Field samples from the influent and effluent shall be collected and field screened using a PID at least twice a month.
- Influent and effluent samples shall be collected for laboratory analysis on a monthly basis. These samples shall be tested for benzene, toluene, ethylbenzene, and xylenes (BTEX), Total Petroleum Hydrocarbons (TPH) C₁-C₄, and TPH C₅-C₁₀ using Reference Method 18.

The following information shall be recorded, initialed, and maintained in a log book:

- Monthly VOC concentrations and inlet gas flow rate;

RECEIVED
MAR 30 2015

BY:

Delaware's good nature depends on you!

PRINTED ON
RECYCLED PAPER

Brightfields Inc.
801 Industrial Street
Wilmington, Delaware 19801
Former GM Plant, 801 Boxwood Road
Permit Waiver
March 23, 2015
Page 2

- The date, time and results of each field analysis;
- The date, time collected, and results of each laboratory analysis;
- The date, type of work, and reason for any maintenance performed on the equipment;
- Calculated thermal destruction efficiencies based upon the monitoring results; and
- Inlet gas flow proportioning adjustments required to avoid exceedance of the 0.1 pound per hour and 2.4 pounds per day VOC emission limit.

All air monitoring results from the process shall be forwarded to the Department's Underground Storage Tank Branch and the Site Investigation and Restoration Branch (SIRB) on a quarterly basis as part of the normal report to that Branch. Reference UST Facility ID # **3-000541** and LUST Project ID# **N8708035** when submitting these results.

If any change in operation is necessary (i.e. emission rates, flow rates, etc.) to the above equipment, the Department's Air Quality Management, Site Investigation And Restoration and Underground Storage Tank Branches shall be notified, in writing, two (2) weeks prior to commencement of operation of this equipment.

If, at any time, the above equipment fails to meet the requirements of Regulation No. 2, Section 2.1(a), either by exceeding the emission limitation of 2.4 pounds per day on a site-wide basis or by causing a condition of air pollution, then operation of said equipment shall be immediately discontinued and shall be reported to the Department via the Emergency Notification and Complaint Hotline (1-800-662-8802). The equipment shall remain inactive until the necessary permits have been issued or the problem has been resolved to the satisfaction of the Department.

Sincerely,



Everett L. DeWhitt, Jr., PhD.
Environmental Engineer
Engineering & Compliance Branch

PEF
F:\EngAndCompliance\eld15013

pc: Dover File
Paul E. Foster, P.E.
Rick Galloway, P.G.

APPENDIX C

MASS LOADING / EMISSIONS ESTIMATES FROM AIR BAG SAMPLES

APPENDIX C
Mass Loading / Emissions Estimates from Air Bag Samples
Former GM Plant
Wilmington, DE

Date	PID Readings					Laboratory Data				
	Mass Loading Rate		Mass Emissions Rate		Destruction Efficiency	Mass Loading Rate		Mass Emissions Rate		Destruction Efficiency
	(lbs/hr)	(lbs/day)	(lbs/hr)	(lbs/day)	(%)	(lbs/hr)	(lbs/day)	(lbs/hr)	(lbs/day)	(%)
10/2/17	0.028	0.67	0.00016	0.0038	99.4%	-	-	-	-	-
10/10/17	0.11	2.5	0.000074	0.0018	99.9%	-	-	-	-	-
10/17/17	0.039	0.94	0.000053	0.0013	99.9%	-	-	-	-	-
10/25/17	0.043	1.0	0.0067	0.16	84.3%	0.038	0.91	0.0	0.0	100%
10/31/17	0.0013	0.030	0.000088	0.0021	93.1%	-	-	-	-	-
11/7/17	0.0010	0.024	0.000043	0.0010	95.7%	-	-	-	-	-
11/15/17	0.29	7.0	0.0093	0.22	96.8%	-	-	-	-	-
11/22/17	0.15	3.7	0.0068	0.16	95.6%	0.14	3.3	0.0	0.0	100%
11/29/17	0.022	0.53	0.00022	0.0052	99.0%	-	-	-	-	-
12/6/17	0.031	0.74	0.00045	0.011	98.5%	-	-	-	-	-
12/13/17	0.022	0.53	0.00027	0.0064	98.8%	-	-	-	-	-
12/22/17	0.022	0.52	0.00020	0.0047	99.1%	-	-	-	-	-
12/28/17	0.14	3.4	0.0012	0.029	99.2%	0.13	3.0	0.0	0.0	100%

Notes :

PID - photoionization detector.

Bold indicates dates on which air bags were collected for laboratory analysis.

Mass emissions for September 26 through December 28 assume a response factor of 0.1 since no volatile organic compounds (VOCs) were detected in effluent sample laboratory analysis.

APPENDIX D

AIR BAG ANALYTICAL DATA



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brightfields, Inc.
801 Industrial St.
Suite 1
Wilmington DE 19801

Report Date: November 06, 2017 17:51

Project: Dodson Ave/2734.06.51

Account #: 04549
Group Number: 1869329
PO Number: 12778
Release Number: 2734.06.51
State of Sample Origin: DE

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.

Attn: Mae Langrehr
Attn: Kelly Wilkinson
Attn: Ken Hannon

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261



SAMPLE INFORMATION

Client Sample Description

DA-EFF-102517 Grab Air
DA-INF-102517 Grab Air

Sample Collection

Date/Time

10/25/2017 10:36
10/25/2017 10:37

ELLE#

9292096
9292097

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: DA-EFF-102517 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9292096
ELLE Group #: 1869329
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 10/31/2017 18:30
Collection Date/Time: 10/25/2017 10:36

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	N.D.	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	110	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1730730AA	11/03/2017 16:14	Alexander D Sechrist	1

Sample Description: DA-INF-102517 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9292097
ELLE Group #: 1869329
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 10/31/2017 18:30
Collection Date/Time: 10/25/2017 10:37

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	15	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	110	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1730730AA	11/03/2017 16:42	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc.
Reported: 11/06/2017 17:51

Group Number: 1869329

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ppm(v)	MDL ppm(v)
Batch number: M1730730AA	Sample number(s): 9292096-9292097	
Benzene	N.D.	0.5
C2-C4 Hydrocarbons as hexane	N.D.	5
>C4-C10 Hydrocarbons hexane	N.D.	5
Ethylbenzene	N.D.	0.4
Methane	N.D.	2
Toluene	N.D.	0.8
Xylene (total)	N.D.	0.7

LCS/LCSD

Analysis Name	LCS Spike Added ppm(v)	LCS Conc ppm(v)	LCSD Spike Added ppm(v)	LCSD Conc ppm(v)	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M1730730AA	Sample number(s): 9292096-9292097								
Benzene	10	8.99	10	8.81	90	88	65-118	2	30
Ethylbenzene	10	9.24	10	9.39	92	94	62-123	2	30
Toluene	10	11.78	10	11.57	118	116	79-149	2	30
Xylene (total)	30	28.24	30	28.8	94	96	58-125	2	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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COC # 523685

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

Sample Administration Receipt Documentation Log

Doc Log ID: 199448



Group Number(s): 1869329

Client: BRIGHTFIELD

Delivery and Receipt Information

Delivery Method:	<u>ELLE Courier</u>	Arrival Timestamp:	<u>10/31/2017 18:30</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	N/A
Samples Chilled:	N/A	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	Yes
Samples Intact:	Yes	Air Quality Flow Controllers Present:	No
Missing Samples:	No	Air Quality Returns:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Karen Diem (3 060) at 19:02 on 10/31/2017

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.

Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brightfields, Inc.
801 Industrial St.
Suite 1
Wilmington DE 19801

Report Date: December 08, 2017 10:29

Project: Dodson Ave/2734.06.51

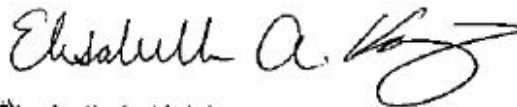
Account #: 04549
Group Number: 1879970
PO Number: 14717
Release Number: 2734.06.51
State of Sample Origin: DE

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.

Attn: Mae Langrehr
Attn: Kelly Wilkinson
Attn: Ken Hannon

Respectfully Submitted,



Elisabeth A. Knisley
Project Manager

(717) 556-7262



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
DA-EFF-112217 Grab Air	11/22/2017 15:36	9337589
DA-INF-112217 Grab Air	11/22/2017 15:37	9337590

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: DA-EFF-112217 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9337589
ELLE Group #: 1879970
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 11/28/2017 19:10
Collection Date/Time: 11/22/2017 15:36

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	N.D.	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	210	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1733830AA	12/04/2017 16:59	Alexander D Sechrist	1

Sample Description: DA-INF-112217 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9337590
ELLE Group #: 1879970
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 11/28/2017 19:10
Collection Date/Time: 11/22/2017 15:37

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	65	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	230	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1733830AA	12/04/2017 17:27	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc.
Reported: 12/08/2017 10:29

Group Number: 1879970

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ppm(v)	MDL ppm(v)
Batch number: M1733830AA	Sample number(s): 9337589-9337590	
Benzene	N.D.	0.5
C2-C4 Hydrocarbons as hexane	N.D.	5
>C4-C10 Hydrocarbons hexane	N.D.	5
Ethylbenzene	N.D.	0.4
Methane	N.D.	2
Toluene	N.D.	0.8
Xylene (total)	N.D.	0.7

LCS/LCSD

Analysis Name	LCS Spike Added ppm(v)	LCS Conc ppm(v)	LCSD Spike Added ppm(v)	LCSD Conc ppm(v)	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M1733830AA	Sample number(s): 9337589-9337590								
Benzene	10	9.67	10	10.09	97	101	65-118	4	30
Ethylbenzene	10	9.57	10	10.07	96	101	62-123	5	30
Toluene	10	12.58	10	12.82	126	128	79-149	2	30
Xylene (total)	30	28.69	30	29.17	96	97	58-125	2	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Acct. # 4549 Group # 1079970 Sample # 9337609-90

COC # 558746

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7044 0717

Sample Administration
Receipt Documentation Log

Doc Log ID: 202237



Group Number(s): 1879970

Client: Brightfileds

Delivery and Receipt Information

Delivery Method:	<u>ELLE Courier</u>	Arrival Timestamp:	<u>11/28/2017 19:10</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>DE</u>		

Arrival Condition Summary

Shipping Container Sealed:	No	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	N/A	VOA Vial Headspace $\geq$ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	Yes
Missing Samples:	No	Air Quality Flow Controllers Present:	No
Extra Samples:	No	Air Quality Returns:	No
Discrepancy in Container Qty on COC:	No		

Unpacked by Simon Nies (25 112) at 19:56 on 11/28/2017

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.

Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brightfields, Inc.
801 Industrial St.
Suite 1
Wilmington DE 19801

Report Date: January 08, 2018 15:15

Project: Dodson Ave/2734.06.51

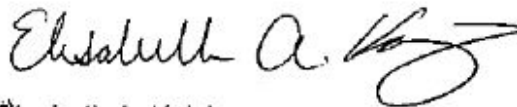
Account #: 04549
Group Number: 1891795
PO Number: 14758
Release Number: 2734.06.51
State of Sample Origin: DE

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.
Electronic Copy To Brightfields, Inc.

Attn: Mae Langrehr
Attn: Kelly Wilkinson
Attn: Ken Hannon

Respectfully Submitted,



Elisabeth A. Knisley
Project Manager

(717) 556-7262



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
DA-EFF-122817 Grab Air	12/28/2017 13:05	9389231
DA-INF-122817 Grab Air	12/28/2017 13:06	9389232

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Sample Description: DA-EFF-122817 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9389231
ELLE Group #: 1891795
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 12/29/2017 16:15
Collection Date/Time: 12/28/2017 13:05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	N.D.	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	200	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1800330AA	01/03/2018 15:26	Alexander D Sechrist	1

Sample Description: DA-INF-122817 Grab Air
Dodson Ave/2734.06.51

Brightfields, Inc.
ELLE Sample #: AQ 9389232
ELLE Group #: 1891795
Matrix: Air

Project Name: Dodson Ave/2734.06.51

Submittal Date/Time: 12/29/2017 16:15
Collection Date/Time: 12/28/2017 13:06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Volatiles in Air		EPA 18 mod/EPA 25 mod	ppm(v)	ppm(v)	
07090	Benzene	71-43-2	N.D.	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.	5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	40	5	1
07090	Ethylbenzene	100-41-4	N.D.	0.4	1
07090	Methane	74-82-8	210	2	1
07090	Toluene	108-88-3	N.D.	0.8	1
07090	Xylene (total)	1330-20-7	N.D.	0.7	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1800330AA	01/03/2018 15:54	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc.
Reported: 01/08/2018 15:15

Group Number: 1891795

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ppm(v)	MDL ppm(v)
Batch number: M1800330AA	Sample number(s): 9389231-9389232	
Benzene	N.D.	0.5
C2-C4 Hydrocarbons as hexane	N.D.	5
>C4-C10 Hydrocarbons hexane	N.D.	5
Ethylbenzene	N.D.	0.4
Methane	N.D.	2
Toluene	N.D.	0.8
Xylene (total)	N.D.	0.7

LCS/LCSD

Analysis Name	LCS Spike Added ppm(v)	LCS Conc ppm(v)	LCSD Spike Added ppm(v)	LCSD Conc ppm(v)	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M1800330AA	Sample number(s): 9389231-9389232								
Benzene	10	9.91	10	9.63	99	96	65-118	3	30
Ethylbenzene	10	10.19	10	10.17	102	102	62-123	0	30
Toluene	10	13.21	10	12.97	132	130	79-149	2	30
Xylene (total)	30	31.23	30	31.35	104	105	58-125	0	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

[illegible]

Acct. # 4549 For Eurofins Lancaster Laboratories Environmental use only
Group # 1871795 Sample # 4389231-32
Instructions on reverse side correspond with circled numbers.

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7044 0315

Sample Administration
Receipt Documentation Log

Doc Log ID: 205045



Group Number(s): 1891795

Client: Brightfields, Inc

Delivery and Receipt Information

Delivery Method:	<u>ELLE Courier</u>	Arrival Timestamp:	<u>12/29/2017 16:15</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>DE</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	N/A
Samples Chilled:	N/A	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	Yes
Samples Intact:	Yes	Air Quality Flow Controllers Present:	No
Missing Samples:	No	Air Quality Returns:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Cory Jeremiah (10469) at 16:28 on 12/29/2017

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value $\geq$ the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.

Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.