AIR PERMIT WAIVER
QUARTERLY MONITORING REPORT
THIRD QUARTER 2016

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 &
Environmental Control
391 Lukens Drive
New Castle, Delaware 19720

Submitted and Prepared By:

BrightFields, Inc.
Environmental Services

801 Industrial Street
Wilmington, DE 19801
(302) 656-9600

File # 2734.05.51

BrightFields, Inc.

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:

Prepared By:

Kelly P. Wilkinson
Environmental Analyst

Reviewed and Approved By:

Kenneth Hannon, P.E.
Engineering Program Manager

BrightFields, Inc.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF CHARTS

LIST OF APPENDICES

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 June 30, 2016 through September 27, 2016 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 1,933.8 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.

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 June 30, 2016 through September 27, 2016 (the third quarter of 2016).

2.1 Operations

During the monitoring period from June 30, 2016 through September 27, 2016, the SVE system was not in operation on one occasion. The system was turned off on July 25, 2016 to allow the system to cool down prior to inspecting the catalyst level in the catalytic oxidizer. The catalyst level was filled on August 3, 2016 and the system was running upon departure.

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

Inspection Dates:	Significant Notes:
7/7/2016	System running successfully.
7/14/2016	System running successfully. Adjusted manual dilution valve from 60% to 15% after completion of system check.
7/20/2016	System running successfully. Drained water from knockout drum.
7/25/2016	Collected air bag samples. Drained water from knockout drum. Changed blower filter. System off upon departure.
8/3/2016	Filled catalyst prior to turning on system. System running successfully upon departure.
8/9/2016	System running successfully. Drained water from knockout drum. Gauged SVE wells, GM-MW49, and GM-MW50.
8/17/16	System running successfully.
8/25/2016	Collected air bag samples.

Inspection Dates:	Significant Notes:
9/1/2016	System running successfully. Drained water from knockout drum. Changed blower filter.
9/8/2016	System running successfully.
9/16/2016	System running successfully. Gauged SVE wells, GM-MW49, and GM-MW50. Observed 1.62 feet of free product in SVE-03 and hand bailed.
9/21/2016	Collected air bag samples. Drained water from knockout drum.
9/27/2016	System running successfully.

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 631 lbs of petroleum hydrocarbons for this quarter.

2.4 Free Product Recovery

On September 16, 2016, SVE-03 was gauged and 1.62 feet of product were observed in the well. Upon bailing the product, it was emulsified. Approximately 0.2 gallons of emulsified product was removed from the well. A minimal amount of the product was used to re-prime the passive

bailer. The remainder of the recovered product was placed in a 55-gallon steel drum and is staged onsite for future disposal.

Assuming the density of diesel fuel, approximately 1.4 lbs of product were removed from SVE-03 on September 16, 2016.

3.0 SUMMARY

This Quarterly Monitoring Report documents remediation system operations conducted at the Site for the third quarter of 2016. During this period, the SVE system was operated for 1,933.8 hours. The system was turned off once to allow the system to cool down prior to inspecting and filling the catalyst port.

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 631 lbs. Since startup on March 30, 2015, an estimated 4,309 lbs of hydrocarbons have been removed by the SVE system. An additional 12.7 lbs was 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. In addition, BrightFields will continue to monitor the passive bailer in SVE-03.

BrightFields, Inc.

FIGURES

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. Figure 1	
Project #	2734.04.51			

0 75 150 Feet

N W E S

Path: N:\Aerials and maps\Working GIS Files (Do Not Edit)\51 General Consulting\2734.04.51 - Dodson Ave\MXD\Qtr Report 2015 Q2\Fig1SiteMap.mxd

SVE-01
SVE-02
SVE-03
SVE-04
SVE-05
SVE-06
Anchor Motor
Freight Building
DODSON AV

SVE Extraction Well
SVE Conveyance Piping
SVE Catalytic Oxidizer Unit (housed in shed)
Fence
Former Wilmington Assembly Plant Property (DE-1149)
Tax Parcels

Source: DEMAC - Aerial 2013; Delaware DataMIL - Tax Parcels. New Castle County Office of Administrative Services - GIS and Mapping Services.

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. Figure 2	
Project #	2734.04.51			

0 30 60 Feet

N W E S

Path: N:\Aerials and maps\Working GIS Files (Do Not Edit)\51 General Consulting\2734.04.51 - Dodson Ave\MXD\Qtr Report 2015 Q2\Fig2SVE_Sys.mxd

BrightFields, Inc.

TABLE

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

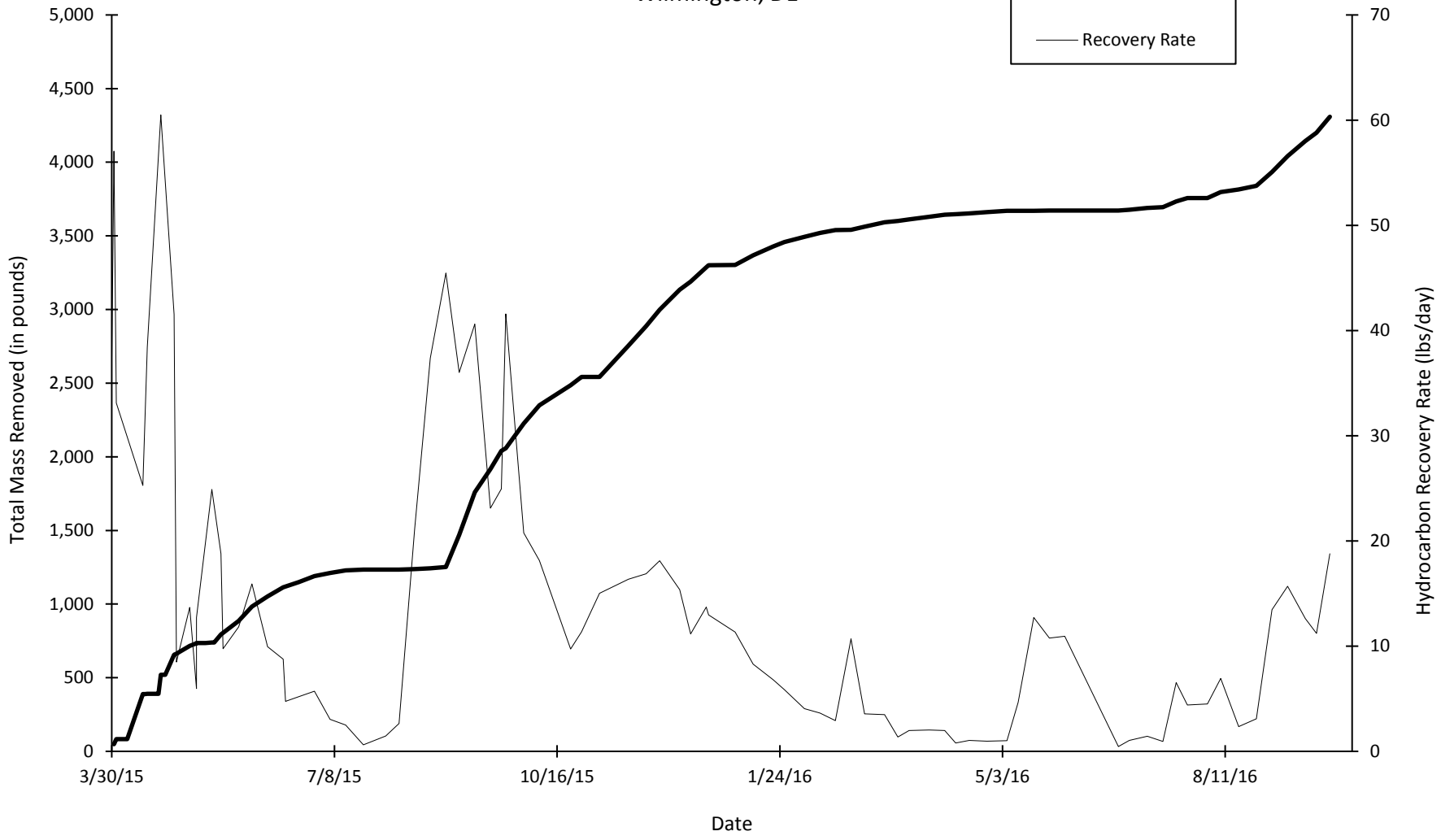
Date	Vacuum ("H_2O)	Influent Air Velocity (FPM - 3" pipe)	Influent Air Flow Rate (CFM)	Influent Vapor Concentration		Effluent Vapor Concentration		Cat/Ox Operating Temperatures		
				PID (ppmv)	Lab (ppmv)	PID (ppmv)	Lab (ppmv)	T1 (°C)	T2 (°C)	T3 (°C)
7/7/16	-33.0	5,844.0	300	13.3	-	3.2	-	330	336	346
7/14/16	-34.0	3,719.0	191	13.6	-	0.0	-	330	336	347
7/20/16	-73.0	2,759.0	142	126.9	-	2.2	-	330	341	353
7/25/16	-70.0	2,762.0	142	188.5	85.5	34.2	7.0	330	341	352
8/3/16	-74.0	3,071.0	158	174.0	-	2.0	-	330	351	356
8/9/16	-74.0	3,136.0	161	261.8	-	1.2	-	330	344	347
8/17/16	-70.0	2,854.0	147	97.7	-	1.1	-	330	344	347
8/25/16	-70.0	2,572.0	132	41.4	64.5	13.0	0.0	330	345	348
9/1/16	-72.0	2,945.0	151	156.9	-	1.0	-	330	347	349
9/8/16	-70.0	2,569.0	132	210.4	-	2.0	-	330	351	351
9/16/16	-70.0	2,802.0	144	155.2	-	20.0	-	330	358	355
9/21/16	-70.0	2,945.0	151	261.8	205	20.9	5.0	330	363	358
9/27/16	-72.0	3,348.0	172	385.5	-	3.2	-	330	366	360

Notes :
FPM - feet per minute
CFM - cubic feet per minute
PID - photoionization detector
ppmv - parts per million by volume
Bold indicates dates in which air bags were collected for laboratory analysis.
Lab vapor concentration is the total VOCs (less methane) detected in the air bag laboratory analysis.

BrightFields, Inc.

CHART

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



BrightFields, Inc.

APPENDICES

BrightFields, Inc.

APPENDIX A

SYSTEM INSPECTION FIELD SHEETS

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 7/7/16; 12:00

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	1,287.0	Not Measured
SVE-03	SVE-03	100	1,183.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	1,056.0	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)	3.2
INF	Cat/Ox Influent Velocity (fpm)	5,844.0
INF	Cat/Ox Influent PID (ppm)	13.3
	Cat/Ox Run Time (hours)	7,963.5
T1	Cat/Ox Temperature - T1 (°C)	330
T2	Cat/Ox Temperature - T2 (°C)	336
T3	Cat/Ox Temperature - T3 (°C)	346
MV	Manual Valve Percentage Open	60%
	Recirculation Valve Percentage Open	0%
VCV	VCV Percentage Open	95%
	Filter Influent Pressure (inches WC)	-33
	Blower Influent Pressure (inches WC)	-40
BP	Blower Backpressure (inches WC)	25.0
	Water Level Check	ABSENT

Air Bag Sample Times:	**Influent**	**Effluent**	**Laboratory**
	12:10	12:12	FIELD SCRN

Additional Comments/Work Performed:

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 7/14/16; 11:20

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	1,296.0	Not Measured
SVE-03	SVE-03	100	1,066.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	1,277.0	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)			0.0
INF	Cat/Ox Influent Velocity (fpm)			3,719.0
INF	Cat/Ox Influent PID (ppm)			13.6
	Cat/Ox Run Time (hours)			8,130.9
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			336
T3	Cat/Ox Temperature - T3 (°C)			347
MV	Manual Valve Percentage Open			60%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-34
	Blower Influent Pressure (inches WC)			-40
BP	Blower Backpressure (inches WC)			25.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	11:49		11:50	FIELD SCRN

Additional Comments/Work Performed:

Adjusted manual dilution valve to 15% open after completion of system check

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 7/20/16; 09:38

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)			2.2
INF	Cat/Ox Influent Velocity (fpm)			2,759.0
INF	Cat/Ox Influent PID (ppm)			126.9
	Cat/Ox Run Time (hours)			8,273.0
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			341
T3	Cat/Ox Temperature - T3 (°C)			353
MV	Manual Valve Percentage Open			15%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-73
	Blower Influent Pressure (inches WC)			-72
BP	Blower Backpressure (inches WC)			15.0
	Water Level Check			PRESENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	9:58		9:56	FIELD SCRN

Additional Comments/Work Performed:

Could not measure SVE-02, SVE-03, and SVE-05 due to moisture; Drained approximately 1 gallon from water knockout drum

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 7/25/16; 11:40

SOIL VAPOR EXTRACTION SYSTEM				
Status			**Arrival**	**Departure**
SVE System			ON	OFF
Alarms			NONE	N/A
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)			34.2
INF	Cat/Ox Influent Velocity (fpm)			2,762.0
INF	Cat/Ox Influent PID (ppm)			188.5
	Cat/Ox Run Time (hours)			8,394.4
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			341
T3	Cat/Ox Temperature - T3 (°C)			352
MV	Manual Valve Percentage Open			15%
	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)			15.0
	Water Level Check			PRESENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	11:54		11:45	EUROFINS

Additional Comments/Work Performed:

Effluent PID taken directly from sample port = 3.7 ppm; Influent PID taken directly from sample port = 173.6 ppm; Could not measure SVE-02, SVE-03, and SVE-05 due to moisture; Turned off system at 12:08; Drained approximately 4 gallons from water knockout drum; Changed blower filter

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 8/3/16; 15:25

SOIL VAPOR EXTRACTION SYSTEM				
Status			**Arrival**	**Departure**
SVE System			OFF	ON
Alarms			N/A	NONE
Tag ID	**Location**	**% Open**	**Velocity (fpm)**	**PID (ppm)**
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	3,326.0	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)			2.0
INF	Cat/Ox Influent Velocity (fpm)			3,071.0
INF	Cat/Ox Influent PID (ppm)			174.0
	Cat/Ox Run Time (hours)			8,395.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			351
T3	Cat/Ox Temperature - T3 (°C)			356
MV	Manual Valve Percentage Open			15%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-75
	Blower Influent Pressure (inches WC)			-74
BP	Blower Backpressure (inches WC)			20.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	13:20		13:19	FIELD SCRN

Additional Comments/Work Performed:

Filled catalyst port prior to turning on system; Could not measure SVE-03 and SVE-05 due to moisture

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson

Date/Time: 8/9/16; 09:28

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	1,056.0	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)			1.2
INF	Cat/Ox Influent Velocity (fpm)			3,136.0
INF	Cat/Ox Influent PID (ppm)			261.8
	Cat/Ox Run Time (hours)			8,533.2
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			344
T3	Cat/Ox Temperature - T3 (°C)			347
MV	Manual Valve Percentage Open			15%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-74
	Blower Influent Pressure (inches WC)			-73
BP	Blower Backpressure (inches WC)			21.0
	Water Level Check			PRESENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	9:31		9:30	FIELD SCRN

Additional Comments/Work Performed:

Could not measure SVE-02, SVE-03, and SVE-05 due to moisture; Turned off system at 09:40; Drained approximately 14 gallons from water knockout drum; Gauged SVE wells, GM-MW49, and GM-MW50; System startup complete at 11:08

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 8/17/16; 14:58

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	3,461.0	Not Measured
SVE-03	SVE-03	100	1,592.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	4,428.0	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)	2,854.0
INF	Cat/Ox Influent PID (ppm)	97.7
	Cat/Ox Run Time (hours)	8,729.7
T1	Cat/Ox Temperature - T1 (°C)	330
T2	Cat/Ox Temperature - T2 (°C)	344
T3	Cat/Ox Temperature - T3 (°C)	347
MV	Manual Valve Percentage Open	15%
	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)	20.0
	Water Level Check	ABSENT

Air Bag Sample Times:	**Influent**	**Effluent**	**Laboratory**
	15:06	15:05	FIELD SCRN

Additional Comments/Work Performed:

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson

Date/Time: 8/25/16; 14:10

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	604.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	126.0	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)			13.0
INF	Cat/Ox Influent Velocity (fpm)			2,572.0
INF	Cat/Ox Influent PID (ppm)			41.4
	Cat/Ox Run Time (hours)			8,920.5
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			345
T3	Cat/Ox Temperature - T3 (°C)			348
MV	Manual Valve Percentage Open			15%
	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)			20.5
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	14:20		14:14	EUROFINS

Additional Comments/Work Performed:

Effluent PID taken directly from sample port = 1.2 ppm; Influent PID taken directly from sample port = 15.2 ppm; Could not measure SVE-02 due to moisture; Turned off system at 14:30 to check water level; System startup complete at 14:37

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson & Mark Lower

Date/Time: 9/1/16; 11:28

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	1,225.0	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)			1.0
INF	Cat/Ox Influent Velocity (fpm)			2,945.0
INF	Cat/Ox Influent PID (ppm)			156.9
	Cat/Ox Run Time (hours)			9,085.6
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			347
T3	Cat/Ox Temperature - T3 (°C)			349
MV	Manual Valve Percentage Open			15%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-72
	Blower Influent Pressure (inches WC)			-72
BP	Blower Backpressure (inches WC)			20.5
	Water Level Check			PRESENT
Air Bag Sample Times:		**Influent**	**Effluent**	**Laboratory**
		11:33	11:32	FIELD SCRN

Additional Comments/Work Performed:

Could not measure SVE-02 and SVE-05 due to moisture; Turned off system at 11:42 to check water level; Drained approximately 0.75 gallons from water knockout drum; Changed blower filter; System startup complete at 11:55

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson

Date/Time: 9/8/16; 10:10

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	1,096.0	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)			2.0
INF	Cat/Ox Influent Velocity (fpm)			2,569.0
INF	Cat/Ox Influent PID (ppm)			210.4
	Cat/Ox Run Time (hours)			9,252.1
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			351
T3	Cat/Ox Temperature - T3 (°C)			351
MV	Manual Valve Percentage Open			15%
	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)			20.5
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	10:13		10:12	FIELD SCRN

Additional Comments/Work Performed:

Could not measure SVE-02 and SVE-05 due to moisture; Turned off system at 10:20 to check water level; System startup complete at 10:26

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson & Mark Lower

Date/Time: 9/16/16; 12:48

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	1,415.0	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)			20.0
INF	Cat/Ox Influent Velocity (fpm)			2,802.0
INF	Cat/Ox Influent PID (ppm)			155.2
	Cat/Ox Run Time (hours)			9,446.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			358
T3	Cat/Ox Temperature - T3 (°C)			355
MV	Manual Valve Percentage Open			15%
	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)			20.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	13:04		12:54	FIELD SCRN

Additional Comments/Work Performed:

Effluent PID taken directly from sample port = 2.2 ppm; Influent PID taken directly from sample port = 160.1 ppm; Could not measure SVE-02 and SVE-05 due to moisture; Turned off system at 1318 to check water level and gauge wells; 1.62 feet of free product observed in SVE-03; Hand bailed approximately 0.2 gallons free product and used some product to prime passive bailer; System startup complete at 14:56

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson

Date/Time: 9/21/16; 14:38

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)			20.9
INF	Cat/Ox Influent Velocity (fpm)			2,945.0
INF	Cat/Ox Influent PID (ppm)			261.8
	Cat/Ox Run Time (hours)			9,566.9
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			363
T3	Cat/Ox Temperature - T3 (°C)			358
MV	Manual Valve Percentage Open			15%
	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)			20.5
	Water Level Check			PRESENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	14:56		14:42	EUROFINS

Additional Comments/Work Performed:

Effluent PID taken directly from sample port = 2.8 ppm; Influent PID taken directly from sample port = 272.4 ppm; Could not measure SVE-02, SVE-03 and SVE-05 due to moisture; Turned off system at 1508 to check water level; Drained approximately 2.5 gallons from water knockout drum; System startup complete at 15:18

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Wilkinson

Date/Time: 9/27/16; 08:56

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	1,697.0	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)			3.2
INF	Cat/Ox Influent Velocity (fpm)			3,348.0
INF	Cat/Ox Influent PID (ppm)			385.5
	Cat/Ox Run Time (hours)			9,705.1
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			366
T3	Cat/Ox Temperature - T3 (°C)			360
MV	Manual Valve Percentage Open			15%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-72
	Blower Influent Pressure (inches WC)			-72
BP	Blower Backpressure (inches WC)			20.5
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	8:59		8:58	FIELD SCRN

Additional Comments/Work Performed:

Could not measure SVE-03 and SVE-05 due to moisture; Turned off system at 09:08 to check water level; System startup complete at 09:13

BrightFields, Inc.

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) C_1-C_4, and TPH C_5-C_{10} 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;

- 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.

BrightFields, Inc.

APPENDIX C

MASS LOADING / EMISSIONS ESTIMATES FROM AIR BAG SAMPLES

APPENDIX C
Soil Vapor Extraction System Vapor Mass Loading / Emissions Estimates
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)	(%)
7/7/16	0.060	1.4	0.015	0.35	75.9%	-	-	-	-	-
7/14/16	0.039	0.94	0.0	0.0	100%	-	-	-	-	-
7/20/16	0.27	6.5	0.0047	0.11	98.3%	-	-	-	-	-
7/25/16	0.18	4.4	0.015	0.36	91.8%	0.15	3.7	0.0068	0.16	95.6%
8/3/16	0.19	4.5	0.0010	0.023	99.5%	-	-	-	-	-
8/9/16	0.29	6.9	0.00060	0.014	99.8%	-	-	-	-	-
8/17/16	0.10	2.4	0.00050	0.012	99.5%	-	-	-	-	-
8/25/16	0.13	3.1	0.026	0.62	79.8%	0.12	2.8	0.0	0.0	100%
9/1/16	0.56	13.4	0.0023	0.055	99.6%	-	-	-	-	-
9/8/16	0.65	15.7	0.0040	0.096	99.4%	-	-	-	-	-
9/16/16	0.53	12.6	0.044	1.0	91.7%	-	-	-	-	-
9/21/16	0.47	11.2	0.011	0.27	97.6%	0.42	10.0	0.010	0.24	97.6%
9/27/16	0.78	18.8	0.0020	0.048	99.7%	-	-	-	-	-

Notes :
PID - photoionization detector
Bold indicates dates in which air bags were collected for laboratory analysis.
Mass emissions for July 7 through July 20 and August 25 through September 16 assume a response factor of 1 since no volatile organic compounds (VOCs) were detected in effluent sample laboratory analysis.

BrightFields, Inc.

APPENDIX D

AIR BAG ANALYTICAL DATA

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

ANALYTICAL RESULTS

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: August 03, 2016

Project: Dodson Ave/2734.05.51

Submittal Date: 07/25/2016
Group Number: 1686706
PO Number: 13768
Release Number: 13768
State of Sample Origin: DE

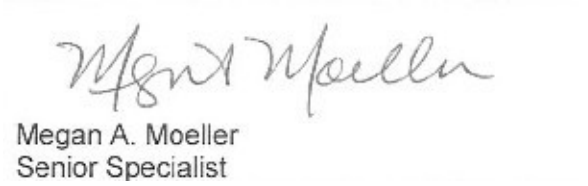
Client Sample Description	Lancaster Labs (LL) #
DA-EFF-072516 Grab Air	8491511
DA-INF-072516 Grab Air	8491512

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

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	Brightfields, Inc.	Attn: Kelly Power
Electronic Copy To	Brightfields, Inc.	Attn: Ken Hannon

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

August 3, 2016

Mr. Ken Hannon
Brightfields, Inc.
Suite 1
801 Industrial Street
Wilmington, DE 19801

Dear Mr. Hannon:

I am writing to inform you of revised analytical reports that are being issued for the following:

Project: Dodson Ave/2734.05.51
Group No.: 1686706, 1676491

ELLE Sample No.	Client Sample Identification	Collection Date
8491511	DA-EFF-072516 Grab Air	7/25/16
8491512	DA-INF-072516 Grab Air	7/25/16
8448267	DA-EFF-062416 Grab Air	6/24/16
8448268	DA-INF-062416 Grab Air	6/24/16

The correction to the data affects the GC Volatiles in Air analysis only.

Per your request, the reported hydrocarbon range for the June and July samples has been updated to C2-C4 Hydrocarbons as hexane. The C1-C4 Hydrocarbons as hexane results initially reported (ELLE Sample No. 8491511 result of 75 ppm(v), ELLE Sample No. 8491512 result of 100 ppm(v), ELLE Sample No. 8448267 result of 75 ppm(v) and ELLE Sample No. 8448268 result of 76 ppm(v)) have been removed and will no longer show on the report.

The revised analytical report reflects this correction and is enclosed.

You are a valued client and we apologize for any inconvenience that this incident may have caused. If you have any questions or require further assistance, please call me at 717-656-2300, Ext. 1246. We appreciate your business and look forward to continuing to serve your laboratory needs.

Sincerely,

Megan A. Moeller
Senior Project Manager/Group Leader
Environmental Client Services

MAM/mc

Enclosures

Eurofins Lancaster Laboratories
Environmental, LLC

2425 New Holland Pike
Lancaster, PA 17601

T | 717-656-2300
F | 717-656-2681
www.EurofinsUS.com/LancLabsEnv

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: DA-EFF-072516 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8491511
LL Group # 1686706
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 07/25/2016 11:45 by KP

Submitted: 07/25/2016 18:30
Reported: 08/03/2016 11:22

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

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.	7	J	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	340		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	M1621030AA	07/28/2016 12:40	Alexander D Sechrist	1

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

REVISED

Sample Description: DA-INF-072516 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8491512
LL Group # 1686706
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 07/25/2016 11:54 by KP

Submitted: 07/25/2016 18:30
Reported: 08/03/2016 11:22

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

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.	10		5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	73		5	1
07090	Ethylbenzene	100-41-4	0.5	J	0.4	1
07090	Methane	74-82-8	460		2	1
07090	Toluene	108-88-3	N.D.		0.8	1
07090	Xylene (total)	1330-20-7	2	J	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	M1621030AA	07/28/2016 13:09	Alexander D Sechrist	1

REVISED

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1686706
Reported: 08/03/2016 11:22

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	MDL
	ppm(v)	ppm(v)
Batch number: M1621030AA	Sample number(s): 8491511-8491512	
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	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ppm(v)	ppm(v)	ppm(v)	ppm(v)					
Batch number: M1621030AA	Sample number(s): 8491511-8491512								
Benzene	10	8.95	10	8.66	89	87	71-116	3	30
Ethylbenzene	10	8.85	10	8.56	89	86	59-144	3	30
Toluene	10	11.46	10	10.96	115	110	77-143	4	30
Xylene (total)	30	26.27	30	24.79	88	83	58-148	6	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.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 4549 Group # 1686706 Sample # 849151I-12

COC # 506328

Client Information

Client: BrightFields Inc.

Acct. #:

Project Name/#: Dodson Ave / 2734.05.51

PWSID #:

Project Manager: Ken Hannon

P.O. #: 13768

Sampler: Kelly Power

Quote #:

State where samples were collected: Delaware

For Compliance: Yes [X] No [ ]

Matrix

Soil [ ] Sediment [ ] Tissue [ ]

Water: Potable [ ] Ground [ ] NPDES [ ] Surface [ ]

Other: Air

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 191801

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Custody seal # 003240

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	BTEX, C1-C4 Hydrocarbons & Methane by Method 18
DA-EFF-072516	7/25/16	1145	X		1	X
DA-INF-072516	7/25/16	1154	X		1	X

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: kpower@brightfieldsinc.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) | Type VI (Raw Data Only)

Type III (Reduced non-CLP) | NJ DKQP | TX TRRP-13

NYSDEC Category A or B | MA MCP | CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	7/25/16	1250	Kelly Power	7/20/16	1250
Kelly Power	7/25/16	1401	Mark D	7/25/16	1401
Mark D	7/25/16	1830			
			Corr	7-25-16	1830

EDD Required? Yes (No)

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes (No)

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 155049

Group Number(s): 1686706

Client: Brightfields Inc

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	07/25/2016 18:30
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	DE		

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 ≥ 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 21:02 on 07/25/2016

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ 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…

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.

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.

ANALYTICAL RESULTS

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: September 07, 2016

Project: Dodson Ave/2734.05.51

Submittal Date: 08/26/2016
Group Number: 1700563
PO Number: 13819
Release Number: 2734.05.51
State of Sample Origin: DE

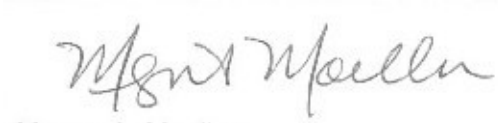
Client Sample Description	Lancaster Labs (LL) #
DA-EFF-082516 Grab Air	8552844
DA-INF-082516 Grab Air	8552845

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

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	Brightfields, Inc.	Attn: Kelly Power
Electronic Copy To	Brightfields, Inc.	Attn: Ken Hannon

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: DA-EFF-082516 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8552844
LL Group # 1700563
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 08/25/2016 14:14 by KW

Submitted: 08/26/2016 17:15
Reported: 09/07/2016 11:08

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

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	190	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	M1624230AA	08/29/2016 21:21	Alexander D Sechrist	1

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: DA-INF-082516 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8552845
LL Group # 1700563
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 08/25/2016 14:20 by KW

Submitted: 08/26/2016 17:15
Reported: 09/07/2016 11:08

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

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.	62		5	1
07090	Ethylbenzene	100-41-4	0.5	J	0.4	1
07090	Methane	74-82-8	190		2	1
07090	Toluene	108-88-3	N.D.		0.8	1
07090	Xylene (total)	1330-20-7	2	J	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	M1624230AA	08/29/2016 21:50	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1700563
Reported: 09/07/2016 11:08

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	MDL
	ppm(v)	ppm(v)
Batch number: M1624230AA	Sample number(s): 8552844-8552845	
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	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ppm(v)	ppm(v)	ppm(v)	ppm(v)					
Batch number: M1624230AA	Sample number(s): 8552844-8552845								
Benzene	10	9.29	10	8.87	93	89	71-116	5	30
Ethylbenzene	10	9.53	10	9.30	95	93	59-144	2	30
Toluene	10	12.06	10	11.52	121	115	77-143	5	30
Xylene (total)	30	27.81	30	27.5	93	92	58-148	1	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.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 4549 | For Eurofins Lancaster Laboratories Environmental use only: Group # 1700563 Sample # 8552844-45

COC # 506648

Client Information

Client: Brightfields Inc.

Acct. #:

Project Name/#: Dodson Ave/2734.05.51

PWSID #:

Project Manager: Ken Hannon

P.O. #: 13819

Sampler: Kelly Wilkinson

Quote #:

State where samples were collected: Delaware

For Compliance: Yes ☑ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐

Other: AIR

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 192760

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Custody seal # 007741

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	BTEX, C_2-C_4, $>C_4$-C_{10}, & methane by method 18
DA-EFF-082516	8/25/16	1414	X		1	X
DA-INF-082516	8/25/16	1420	X		1	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: _____

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	8/26/16	1035	Kelly P. Wilkinson	8/26/16	1035
Kelly P. Wilkinson	8/26/16	1309	BLP D.C. Eng	8-26-16	13:09
BLP D.C. Eng	8-26-16	17:15			

EDD Required? Yes (No)

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes (No)

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 0 °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 160412

Group Number(s): 1700563

Client: Bright field

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	08/26/2016 17:15
Number of Packages:	1	Number of Projects:	1

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 ≥ 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 (3060) at 18:08 on 08/26/2016

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ 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…

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.

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.

ANALYTICAL RESULTS

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: September 28, 2016

Project: Dodson Ave/2734.05.51

Submittal Date: 09/22/2016
Group Number: 1711901
PO Number: 13866
Release Number: 2734.05.51
State of Sample Origin: DE

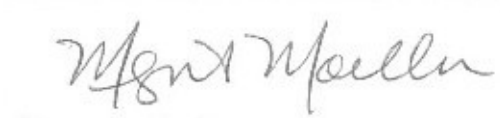
Client Sample Description	Lancaster Labs (LL) #
DA-EFF-092116 Grab Air	8604119
DA-INF-092116 Grab Air	8604120

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

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.	Attn: Kelly Power
Electronic Copy To	Brightfields, Inc.	Attn: Ken Hannon

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: DA-EFF-092116 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8604119
LL Group # 1711901
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 09/21/2016 14:42 by KW

Submitted: 09/22/2016 17:45
Reported: 09/28/2016 15:56

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

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.	5	J	5	1
07090	Ethylbenzene	100-41-4	N.D.		0.4	1
07090	Methane	74-82-8	190		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	M1627030AA	09/26/2016 20:57	Alexander D Sechrist	1

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: DA-INF-092116 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8604120
LL Group # 1711901
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 09/21/2016 14:56 by KW

Submitted: 09/22/2016 17:45
Reported: 09/28/2016 15:56

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

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	0.9	J	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	N.D.		5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	200		5	1
07090	Ethylbenzene	100-41-4	0.6	J	0.4	1
07090	Methane	74-82-8	190		2	1
07090	Toluene	108-88-3	1		0.8	1
07090	Xylene (total)	1330-20-7	2		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	M1627030AA	09/26/2016 21:26	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1711901
Reported: 09/28/2016 15:56

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	MDL
	ppm(v)	ppm(v)
Batch number: M1627030AA	Sample number(s): 8604119-8604120	
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	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ppm(v)	ppm(v)	ppm(v)	ppm(v)					
Batch number: M1627030AA	Sample number(s): 8604119-8604120								
Benzene	10	9.05	10	9.23	91	92	71-116	2	30
Ethylbenzene	10	9.01	10	9.03	90	90	59-144	0	30
Toluene	10	11.71	10	11.59	117	116	77-143	1	30
Xylene (total)	30	25.92	30	26.9	86	90	58-148	4	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.

1-0164

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 4549 Group # 1711901 Sample # 8604119-20

COC # 510919

Client Information

Client: Bright Fields, Inc.

Acct. #:

Project Name/#: Dodson Ave/2734.05.51

PWSID #:

Project Manager: Ken Hannon

P.O. #: 13866

Sampler: Kelly Wilkinson

Quote #:

State where samples were collected: Delaware

For Compliance: Yes ☑ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: Air

Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 194874

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Custody seal # 024127

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	BTEX, C_2-C_4, C_{10}, & Methane by RSK
DA-EFF-092116	9/21/16	1442	X		1	X
DA-INF-092116	9/21/16	1456	X		1	X

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: kwilkinson@brightfieldsinc.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) NJ DKQP TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	9/21/16	mid	Kelly P. Wilkinson	9/21/16	1140
Kelly P. Wilkinson	9/22/16	1038	Mark D	9/22/16	noon

EDD Required? Yes (No)

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes (No)

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt _____ °C

eurofins | Lancaster Laboratories Environmental

Sample Administration Receipt Documentation Log

Doc Log ID: 162958

Group Number(s): 171901

Client: Bright Field

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	09/22/2016 17:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	DE		

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 ≥ 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 (3060) at 18:12 on 09/22/2016

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

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

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ 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…

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.

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.