AIR PERMIT WAIVER
QUARTERLY MONITORING REPORT
SECOND 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

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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 April 1, 2016 through June 29, 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 968.5 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.

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 April 1, 2016 through June 29, 2016 (the second quarter of 2016).

2.1 Operations

During the monitoring period from April 1, 2016 through June 29, 2016, the SVE system was not in operation on five occasions. The system was turned off on May 5, 2016 to allow for subsurface stabilization for system optimization. Prior to restarting the system on May 10, 2016, the six SVE wells were gauged and SVE-04 and SVE-06 were closed at the manifold. In addition, the manual dilution valve was closed.

There were four occasions in which 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. During the last occasion, on June 9, the pump attached to the water knockout drum malfunctioned and the drum could not be drained. The pump issues were investigated and the pump was removed. The system remained off until June 24, 2016.

2.2 Site Visits

The SVE system was inspected approximately 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:
4/7/2016	System running successfully.
4/12/2016	Collected air bag samples. Changed blower filter. VCV filter adequate.
4/18/2016	System running successfully.
4/26/2016	System running successfully.

Inspection Dates:	Significant Notes:
5/5/2016	System running successfully. Turned off system prior to departure for system optimization.
5/10/2016	System off upon arrival. Gauged SVE wells. Closed SVE-04 and SVE-06 at SVE manifold. Closed manual dilution valve and restarted system. System running upon departure.
5/17/2016	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted system. Blower filter and low pressure switch low pressure port adequate. Collected air bag samples after system stabilization. System running upon departure.
5/24/2016	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted system.
5/31/2016	System off upon arrival due to high water level in knockout drum. Drained water from knockout drum and restarted system.
6/9/2016	System off upon arrival due to high water level in knockout drum. Attempted to drain water from knockout drum. Pump attached to knockout drum malfunctioning and unable to fully drain knockout drum. System remained off upon departure.
6/15/16	System off upon arrival. Further investigated pump issues. Unable to perform system check. System remained off upon departure.
6/16/16	System off upon arrival. Removed pump. Still unable to fully drain water knockout drum. Free product observed on surface of water drained from knockout drum. Unable to perform system check. System remained off upon departure.
6/24/2016	System off upon arrival. Cleaned out ball valve on water knockout drum and finished draining water knockout drum. Free product observed on surface of water drained from knockout drum. Opened manual dilution valve to 50%. Restarted system and collected air bag samples. System running upon departure.
6/29/2016	System running successfully. Changed blower filter. Opened manual dilution vale to approximately 60% after performing system check. System running upon departure.

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 48 lbs of petroleum hydrocarbons for this quarter.

2.4 Free Product Recovery

Free product was not observed in SVE-03 during this quarter.

Free product was observed on the surface of water drained from the water knockout drum on June 16 and June 24. The volume was minimal and could not be measured.

3.0 SUMMARY

This Quarterly Monitoring Report documents remediation system operations conducted at the Site for the second quarter of 2016. During this period, the SVE system was operated for 968.5 hours. The system was turned off once for system optimization and four times due to the high water level switch.

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 48 lbs. Since startup on March 30, 2015, an estimated 3,678 lbs of hydrocarbons have been removed by the SVE system. An additional 10.3 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

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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.
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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

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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)
4/7/16	-18.0	5,577.0	287	36.1	-	0.3	-	330	339	343
4/12/16	-18.0	5,288.0	272	22.6	8.0	4.2	0.0	330	337	342
4/18/16	-25.0	5,533.0	284	28.4	-	1.1	-	330	338	343
4/26/16	-25.0	4,586.0	236	31.8	-	0.4	-	330	337	342
5/5/16	-18.0	5,644.0	290	27.2	-	0.1	-	330	337	342
5/10/16	-95.0	2,550.0	131	276.1	-	0.0	-	330	363	371
5/17/16	-95.0	2,602.0	134	330.6	262.6	3.9	7.0	330	363	372
5/24/16	-95.0	2,338.0	120	311.3	-	1.1	-	330	362	370
5/31/16	-95.0	2,383.0	122	309.9	-	1.4	-	330	361	367
6/24/16	-45.0	3,775.0	194	6.5	0.0	5.0	0.0	330	332	343
6/29/16	-45.0	3,208.0	165	17.5	-	0.2	-	330	332	342

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.

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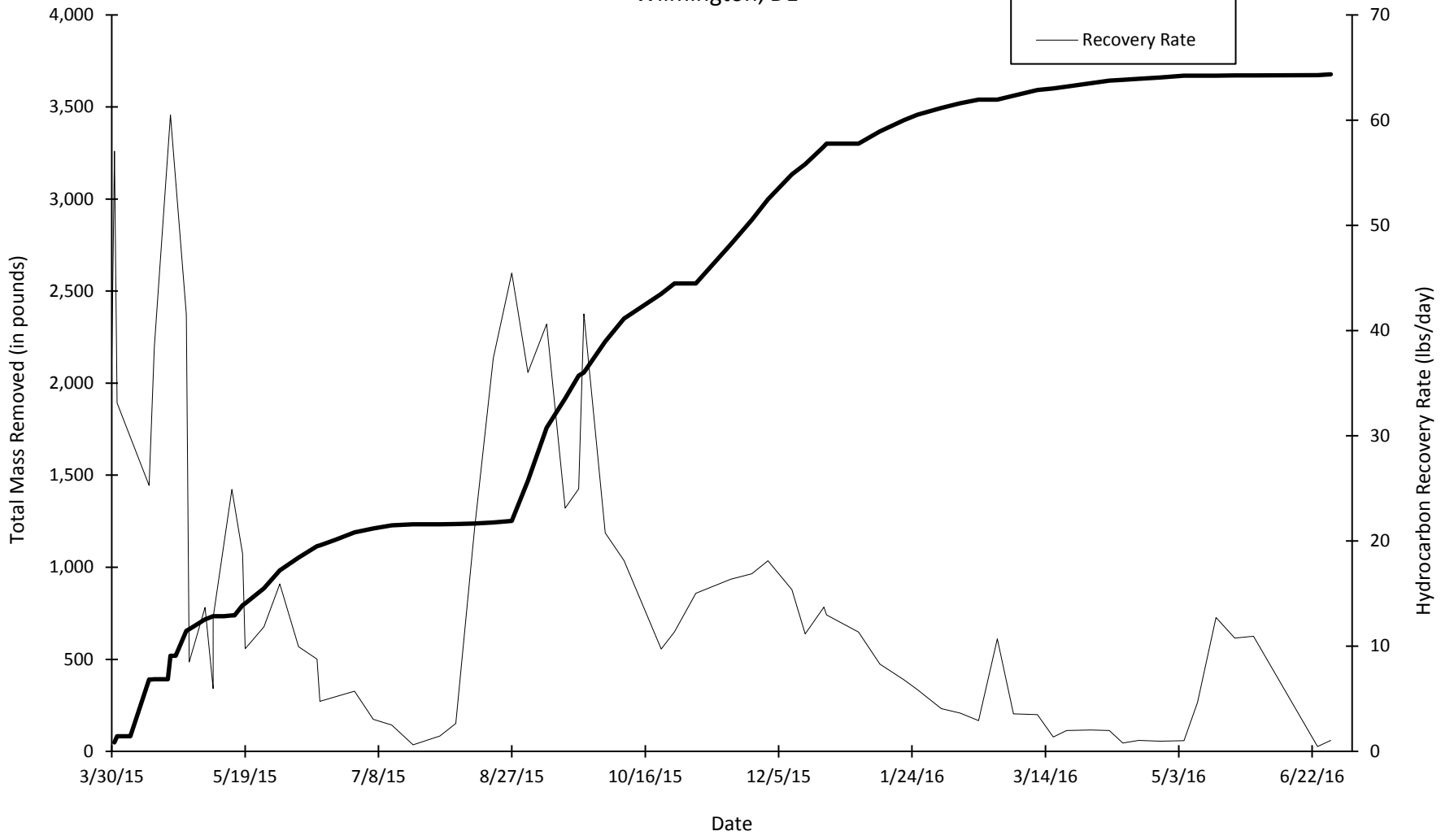
CHART

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



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APPENDICES

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APPENDIX A

SYSTEM INSPECTION FIELD SHEETS

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley/Kelly Power

Date/Time: 4/7/16; 13:12

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	147.0	Not Measured
SVE-03	SVE-03	100	169.0	Not Measured
SVE-04	SVE-04	100	120.0	Not Measured
SVE-05	SVE-05	100	171.0	Not Measured
SVE-06	SVE-06	100	120.0	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)			5,577.0
INF	Cat/Ox Influent PID (ppm)			36.1
	Cat/Ox Run Time (hours)			6,972.6
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			339
T3	Cat/Ox Temperature - T3 (°C)			343
MV	Manual Valve Percentage Open			75%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-18
	Blower Influent Pressure (inches WC)			-26
BP	Blower Backpressure (inches WC)			41.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	13:20		13:19	FIELD SCRN

Additional Comments/Work Performed:

Cat/Ox Effluent PID and Influent PID measured directly from sample ports;

Turning off system to check water level and gauge GM-MW49, GM-MW50, &

SVE-03 at 13:31; Startup complete at 13:59

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 4/12/16; 14:36

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	140.0	Not Measured
SVE-03	SVE-03	100	199.0	Not Measured
SVE-04	SVE-04	100	107.0	Not Measured
SVE-05	SVE-05	100	252.0	Not Measured
SVE-06	SVE-06	100	110.0	Not Measured
Tag ID	**Additional Data**			**Reading**
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm)			4.2
INF	Cat/Ox Influent Velocity (fpm)			5,288.0
INF	Cat/Ox Influent PID (ppm)			22.6
	Cat/Ox Run Time (hours)			7,093.6
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			337
T3	Cat/Ox Temperature - T3 (°C)			342
MV	Manual Valve Percentage Open			75%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-18
	Blower Influent Pressure (inches WC)			-26
BP	Blower Backpressure (inches WC)			41.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	14:50		14:45	EUROFINS

Additional Comments/Work Performed:

Cat/Ox Effluent PID taken directly from sample port = 0.7 ppm; Influent PID taken directly from sample port = 21.5 ppm; Changing blower filter; VCV filter adequate; Turning off system to check water level and gauge GM-MW49, GM-MW50, & SVE-03 at 15:02; No product observed in SVE-03 passive bailer; Startup complete at 15:34

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 4/18/16; 12:55

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	134.0	Not Measured
SVE-03	SVE-03	100	187.0	Not Measured
SVE-04	SVE-04	100	214.0	Not Measured
SVE-05	SVE-05	100	224.0	Not Measured
SVE-06	SVE-06	100	82.0	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)			5,533.0
INF	Cat/Ox Influent PID (ppm)			28.4
	Cat/Ox Run Time (hours)			7,235.4
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			338
T3	Cat/Ox Temperature - T3 (°C)			343
MV	Manual Valve Percentage Open			75%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-25
	Blower Influent Pressure (inches WC)			-17
BP	Blower Backpressure (inches WC)			37.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	NONE		NONE	N/A

Additional Comments/Work Performed:

Cat/Ox Effluent PID and Influent PID measured directly from sample ports

BrightFields File: 2734.05.51

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nick Bradley

Date/Time: 4/26/16; 14:00

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	77.0	Not Measured
SVE-03	SVE-03	100	134.0	Not Measured
SVE-04	SVE-04	100	85.0	Not Measured
SVE-05	SVE-05	100	227.0	Not Measured
SVE-06	SVE-06	100	80.0	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)			4,586.0
INF	Cat/Ox Influent PID (ppm)			31.8
	Cat/Ox Run Time (hours)			7,428.5
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			337
T3	Cat/Ox Temperature - T3 (°C)			342
MV	Manual Valve Percentage Open			75%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-25
	Blower Influent Pressure (inches WC)			-17
BP	Blower Backpressure (inches WC)			40.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	NONE		NONE	N/A

Additional Comments/Work Performed:

Cat/Ox Effluent PID and Influent PID measured directly from sample ports;

SVE-03 air velocity would not stabilize

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 5/5/16; 14:10

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	108.0	Not Measured
SVE-03	SVE-03	100	127.0	Not Measured
SVE-04	SVE-04	100	119.0	Not Measured
SVE-05	SVE-05	100	219.0	Not Measured
SVE-06	SVE-06	100	105.0	Not Measured
Tag ID	**Additional Data**			**Reading**
EFF	Cat/Ox Effluent Velocity (fpm)			Not Measured
EFF	Cat/Ox Effluent PID (ppm)			0.1
INF	Cat/Ox Influent Velocity (fpm)			5,644.0
INF	Cat/Ox Influent PID (ppm)			27.2
	Cat/Ox Run Time (hours)			7,644.4
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			337
T3	Cat/Ox Temperature - T3 (°C)			342
MV	Manual Valve Percentage Open			75%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-18
	Blower Influent Pressure (inches WC)			-26
BP	Blower Backpressure (inches WC)			41.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	14:15		14:13	FIELD SCRN

Additional Comments/Work Performed:

Cat/Ox Effluent PID and Influent PID measured directly from sample ports;

Turning off system to check water level; Keeping system turned off for

system optimization

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 5/10/16; 11:35

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	-	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)			0.0
INF	Cat/Ox Influent Velocity (fpm)			2,550.0
INF	Cat/Ox Influent PID (ppm)			276.1
	Cat/Ox Run Time (hours)			7,645.2
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			363
T3	Cat/Ox Temperature - T3 (°C)			371
MV	Manual Valve Percentage Open			0%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-95
	Blower Influent Pressure (inches WC)			-95
BP	Blower Backpressure (inches WC)			15.5
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	11:39		11:38	FIELD SCRN

Additional Comments/Work Performed:

Gauged SVE wells and closed manual dilution valve prior to turning on system; Cat/Ox Effluent PID and Influent PID measured directly from sample ports; Could not measure velocity in SVE-02, SVE-03, and SVE-05 due to high moisture

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 5/17/16; 14:30

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)			3.9
INF	Cat/Ox Influent Velocity (fpm)			2,602.0
INF	Cat/Ox Influent PID (ppm)			330.6
	Cat/Ox Run Time (hours)			7,646.3
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			363
T3	Cat/Ox Temperature - T3 (°C)			372
MV	Manual Valve Percentage Open			0%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-95
	Blower Influent Pressure (inches WC)			-92
BP	Blower Backpressure (inches WC)			15.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	14:44		14:34	EUROFINS

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Terminal 70 light turned off upon arrival (water knockout high-level switch); Drained water knockout drum; Blower filter and low pressure port adequate; System startup complete at 14:12; Cat/Ox Effluent PID taken directly from sample port = 1.1 ppm; Influent PID taken directly from sample port = 360.0 ppm; Could not measure velocity in SVE-02, SVE-03, and SVE-05 due to high moisture; Turned off and drained water knockout drum at 14:48; Startup complete at 14:58

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 5/24/16; 11:56

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	1,462.0	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)			1.1
INF	Cat/Ox Influent Velocity (fpm)			2,338.0
INF	Cat/Ox Influent PID (ppm)			311.3
	Cat/Ox Run Time (hours)			7,648.4
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			362
T3	Cat/Ox Temperature - T3 (°C)			370
MV	Manual Valve Percentage Open			0%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-95
	Blower Influent Pressure (inches WC)			-94
BP	Blower Backpressure (inches WC)			14.5
	Water Level Check			ABSENT
Air Bag Sample Times:		**Influent**	**Effluent**	**Laboratory**
		11:59	11:58	FIELD SCRN

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Terminal 70 light turned off upon arrival (water knockout high-level switch); Drained water knockout drum; System startup complete at 11:33; Performed system check once system appeared to stabilize; Could not measure velocity in SVE-03 and SVE-05 due to high moisture

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 5/31/16; 10:50

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	1,754.0	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)			1.4
INF	Cat/Ox Influent Velocity (fpm)			2,383.0
INF	Cat/Ox Influent PID (ppm)			309.9
	Cat/Ox Run Time (hours)			7,649.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			361
T3	Cat/Ox Temperature - T3 (°C)			367
MV	Manual Valve Percentage Open			0%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-95
	Blower Influent Pressure (inches WC)			-90
BP	Blower Backpressure (inches WC)			14.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	10:53		10:52	FIELD SCRN

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Terminal 70 light turned off upon arrival (water knockout high-level switch); Drained water knockout drum; System startup complete at 10:22; Performed system check once system appeared to stabilize; Could not measure velocity in SVE-03 and SVE-05 due to high moisture

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 6/9/16; 12:38

SOIL VAPOR EXTRACTION SYSTEM				
Status			**Arrival**	**Departure**
SVE System			OFF	OFF
Alarms			High Water (70)	High Water (70)
Tag ID	**Location**	**% Open**	**Velocity (fpm)**	**PID (ppm)**
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	Not Measured	Not Measured
SVE-03	SVE-03	100	Not Measured	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	Not Measured	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)			Not Measured
INF	Cat/Ox Influent Velocity (fpm)			Not Measured
INF	Cat/Ox Influent PID (ppm)			Not Measured
	Cat/Ox Run Time (hours)			7,650.7
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			361
T3	Cat/Ox Temperature - T3 (°C)			368
MV	Manual Valve Percentage Open			0%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-95
	Blower Influent Pressure (inches WC)			-94
BP	Blower Backpressure (inches WC)			15.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	N/A		N/A	N/A

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Terminal 70 light turned off upon arrival (water knockout high-level switch); Drained water knockout drum; System turned off prior to completion of system check; Pump malfunctioning and unable to drain water knockout drum

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Nicholas Bradley

Date/Time: 6/15/16; 09:38

SOIL VAPOR EXTRACTION SYSTEM				
Status			**Arrival**	**Departure**
SVE System			OFF	OFF
Alarms			High Water (70)	High Water (70)
Tag ID	**Location**	**% Open**	**Velocity (fpm)**	**PID (ppm)**
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	Not Measured	Not Measured
SVE-03	SVE-03	100	Not Measured	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	Not Measured	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)			Not Measured
INF	Cat/Ox Influent Velocity (fpm)			Not Measured
INF	Cat/Ox Influent PID (ppm)			Not Measured
	Cat/Ox Run Time (hours)			Not Measured
T1	Cat/Ox Temperature - T1 (°C)			Not Measured
T2	Cat/Ox Temperature - T2 (°C)			Not Measured
T3	Cat/Ox Temperature - T3 (°C)			Not Measured
MV	Manual Valve Percentage Open			Not Measured
	Recirculation Valve Percentage Open			Not Measured
VCV	VCV Percentage Open			Not Measured
	Filter Influent Pressure (inches WC)			Not Measured
	Blower Influent Pressure (inches WC)			Not Measured
BP	Blower Backpressure (inches WC)			Not Measured
	Water Level Check			Not Measured
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	N/A		N/A	N/A

Additional Comments/Work Performed:

Terminal 70 light turned off upon arrival (water knockout high-level switch);

Drained approximately 10 gallons from water knockout drum; Unable to drain

water knockout drum completely due to pump malfunctioning

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 6/16/16; 11:28

SOIL VAPOR EXTRACTION SYSTEM				
Status			**Arrival**	**Departure**
SVE System			OFF	OFF
Alarms			High Water (70)	High Water (70)
Tag ID	**Location**	**% Open**	**Velocity (fpm)**	**PID (ppm)**
SVE-01	SVE-01	0	-	Not Measured
SVE-02	SVE-02	100	Not Measured	Not Measured
SVE-03	SVE-03	100	Not Measured	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	Not Measured	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)			Not Measured
INF	Cat/Ox Influent Velocity (fpm)			Not Measured
INF	Cat/Ox Influent PID (ppm)			Not Measured
	Cat/Ox Run Time (hours)			Not Measured
T1	Cat/Ox Temperature - T1 (°C)			Not Measured
T2	Cat/Ox Temperature - T2 (°C)			Not Measured
T3	Cat/Ox Temperature - T3 (°C)			Not Measured
MV	Manual Valve Percentage Open			Not Measured
	Recirculation Valve Percentage Open			Not Measured
VCV	VCV Percentage Open			Not Measured
	Filter Influent Pressure (inches WC)			Not Measured
	Blower Influent Pressure (inches WC)			Not Measured
BP	Blower Backpressure (inches WC)			Not Measured
	Water Level Check			Not Measured
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	N/A		N/A	N/A

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Terminal 70 light turned off upon arrival (water knockout high-level switch); Removed pump connected to water knockout drum; Manually drained approximately 10 gallons from water knockout drum; Product present in drained water; Unable to drain water knockout drum completely due to clogged valve

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 6/24/16; 10:55

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	768.0	Not Measured
SVE-03	SVE-03	100	606.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	682.0	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)			5.0
INF	Cat/Ox Influent Velocity (fpm)			3,775.0
INF	Cat/Ox Influent PID (ppm)			6.5
	Cat/Ox Run Time (hours)			7,651.6
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			332
T3	Cat/Ox Temperature - T3 (°C)			343
MV	Manual Valve Percentage Open			50%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-45
	Blower Influent Pressure (inches WC)			-50
BP	Blower Backpressure (inches WC)			29.5
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	11:01		10:57	EUROFINS

Additional Comments/Work Performed:

Gauged GM-MW49, GM-MW50, & SVE-03; Finished draining water knockout drum; System startup complete at 10:31; Cat/Ox Effluent PID taken directly from sample port = 0.2 ppm; Influent PID taken directly from sample port = 4.3 ppm

Former General Motors Plant
Wilmington, DE
System Check Sheet

Name: Kelly Power

Date/Time: 6/29/16; 10:38

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	670.0	Not Measured
SVE-03	SVE-03	100	1,365.0	Not Measured
SVE-04	SVE-04	0	-	Not Measured
SVE-05	SVE-05	100	711.0	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)			0.2
INF	Cat/Ox Influent Velocity (fpm)			3,208.0
INF	Cat/Ox Influent PID (ppm)			17.5
	Cat/Ox Run Time (hours)			7,771.3
T1	Cat/Ox Temperature - T1 (°C)			330
T2	Cat/Ox Temperature - T2 (°C)			332
T3	Cat/Ox Temperature - T3 (°C)			342
MV	Manual Valve Percentage Open			50%
	Recirculation Valve Percentage Open			0%
VCV	VCV Percentage Open			95%
	Filter Influent Pressure (inches WC)			-45
	Blower Influent Pressure (inches WC)			-48
BP	Blower Backpressure (inches WC)			29.0
	Water Level Check			ABSENT
Air Bag Sample Times:	**Influent**		**Effluent**	**Laboratory**
	10:40		10:39	FIELD SCRN

Additional Comments/Work Performed:

Cat/Ox Effluent PID and Influent PID measured directly from sample ports; Turned system off at 10:48; Changed blower filter; Gauged GM-MW49, GM-MW50, & SVE-03; Opened manual dilution valve to ~60% after performing system check; System startup complete at 11:15

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)	(%)
4/7/16	0.082	2.0	0.0013	0.031	98.4%	-	-	-	-	-
4/12/16	0.033	0.79	0.017	0.41	47.5%	0.029	0.70	0.0	0.0	100%
4/18/16	0.043	1.0	0.0047	0.11	89.1%	-	-	-	-	-
4/26/16	0.040	0.96	0.0014	0.034	96.4%	-	-	-	-	-
5/5/16	0.042	1.0	0.00044	0.011	99.0%	-	-	-	-	-
5/10/16	0.19	4.6	0.0	0.0	100%	-	-	-	-	-
5/17/16	0.53	12.7	0.014	0.34	97.3%	0.46	11.0	0.0064	0.15	98.6%
5/24/16	0.45	10.8	0.0036	0.086	99.2%	-	-	-	-	-
5/31/16	0.46	10.9	0.0046	0.11	99.0%	-	-	-	-	-
6/24/16	0.019	0.46	0.015	0.35	23.1%	0.0	0.0	0.0	0.0	-
6/29/16	0.044	1.0	0.00050	0.012	98.9%	-	-	-	-	-

Notes :
PID - photoionization detector
Bold indicates dates in which air bags were collected for laboratory analysis.
Mass loading for June 24 and June 29 assume response factor of 1 since no VOCs were detected in influent sample laboratory analysis.
Mass emissions for April 7 through May 10, June 24, and June 29 assume response factor of 1 since no 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

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: April 22, 2016

Project: Dodson Ave/2734.05.51

Submittal Date: 04/13/2016
Group Number: 1650297
PO Number: 13576
Release Number: 2734.05.51
State of Sample Origin: DE

Client Sample Description	Lancaster Labs (LL) #
DA-EFF-041216 Grab Air	8331914
DA-INF-041216 Grab Air	8331915

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-041216 Grab Air
Dodson Ave/2734.04.51

LL Sample # AQ 8331914
LL Group # 1650297
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 04/12/2016 14:45 by KP

Submitted: 04/13/2016 17:22
Reported: 04/22/2016 10:35

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	160	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	M1610630AA	04/15/2016 20:06	Alexander D Sechrist	1

Sample Description: DA-INF-041216 Grab Air
Dodson Ave/2734.04.51

LL Sample # AQ 8331915
LL Group # 1650297
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 04/12/2016 14:50 by KP

Submitted: 04/13/2016 17:22
Reported: 04/22/2016 10:35

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.	8	J	5	1
07090	Ethylbenzene	100-41-4	N.D.		0.4	1
07090	Methane	74-82-8	170		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	M1610630AA	04/15/2016 20:35	Alexander D Sechrist	1

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1650297
Reported: 04/22/2016 10:35

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: M1610630AA	Sample number(s): 8331914-8331915	
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: M1610630AA	Sample number(s): 8331914-8331915								
Benzene	10.1	9.01	10.1	8.23	89	82	71-116	9	30
Ethylbenzene	10	8.66	10	7.82	87	78	59-144	10	30
Toluene	10	10.6	10	9.94	106	99	77-143	6	30
Xylene (total)	29.8	25.08	29.8	22.13	84	74	58-148	12	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

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 4549 Group # 1650297 Sample # 8331914-5

COC # 496741

Client Information

Client: Brightfields, Inc.
Acct. #:
Project Name/#: 2734.05.51 / Dodson Avenue
PWSID #:
Project Manager: Ken Hannon
P.O. #: 13576
Sampler: Kelly Power
Quote #:
State where samples were collected: DE
For Compliance: Yes ☑ No ☐

Matrix

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

Analysis Requested

Preservation Codes

BTEX, C1-C4, >C4-C10, & Methane by TO-15

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

Remarks
Custody seal # 509086

For Lab Use Only
FSC:
SCR#: 18701

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	BTEX, C1-C4, >C4-C10, & Methane by TO-15
DA-EFF-041216	4/12/16	1445	X		1	X
DA-INF-041216	4/12/16	1450	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 MD	4/8/16	1145	Kelly Power	4/8/16	1145
Kelly Power	4/13/16	1000	Kathleen M. Stutter	4/13/16	10:00
Kathleen M. Stutter	4/13/16	11:37	Mark D	4/13/16	1137
Mark D	4/13/16	1711			
			Paul S	4/13/16	1727

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 NA °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 142730

Group Number(s): 1656297

Client: Bright Fields

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	04/13/2016 17:22
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 Patrick Engle (3472) at 17:36 on 04/13/2016

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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.

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Analysis Report

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: May 26, 2016

Project: Dodson Ave/2734.05.51

Submittal Date: 05/18/2016
Group Number: 1663089
PO Number: 13626
Release Number: 2734.05.51
State of Sample Origin: DE

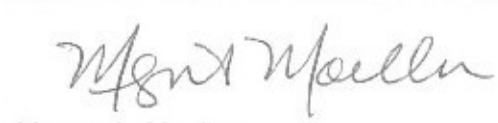
Client Sample Description	Lancaster Labs (LL) #
DA-EFF-051716 Grab Air	8387744
DA-INF-051716 Grab Air	8387745

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-051716 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8387744
LL Group # 1663089
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 05/17/2016 14:34 by KP

Submitted: 05/18/2016 16:45
Reported: 05/26/2016 14:15

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	200		20	10
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	M1614130AA	05/20/2016 12:27	Alexander D Sechrist	1
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1614430AA	05/23/2016 14:00	Alexander D Sechrist	10

Sample Description: DA-INF-051716 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8387745
LL Group # 1663089
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 05/17/2016 14:44 by KP

Submitted: 05/18/2016 16:45
Reported: 05/26/2016 14:15

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	0.6	J	0.5	1
07090	C2-C4 Hydrocarbons as hexane	n.a.	15		5	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	240		5	1
07090	Ethylbenzene	100-41-4	1		0.4	1
07090	Methane	74-82-8	1,100		20	10
07090	Toluene	108-88-3	2		0.8	1
07090	Xylene (total)	1330-20-7	4		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	M1614130AA	05/20/2016 12:56	Alexander D Sechrist	1
07090	BTEX/MTBE/Hydrocarbons by GC	EPA 18 mod/EPA 25 mod	1	M1614430AA	05/23/2016 14:29	Alexander D Sechrist	10

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1663089
Reported: 05/26/2016 14:15

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: M1614130AA	Sample number(s): 8387744-8387745	
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
Toluene	N.D.	0.8
Xylene (total)	N.D.	0.7
Batch number: M1614430AA	Sample number(s): 8387744-8387745	
Methane	N.D.	2

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: M1614130AA	Sample number(s): 8387744-8387745								
Benzene	10.1	9.50	10.1	9.18	94	91	71-116	3	30
Ethylbenzene	10	9.53	10	8.69	95	87	59-144	9	30
Toluene	10	11.75	10	10.62	117	106	77-143	10	30
Xylene (total)	29.8	27.8	29.8	25.39	93	85	58-148	9	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

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Acct. # AEA9 Group # 1663089 Sample # 8387744-5

COC # 500989

Client Information

Client: Brightfields Inc.

Acct. #:

Project Name/#: 2734.05.51 / Dodson Ave.

PWSID #:

Project Manager: Ken Hannon

P.O. #: 13626

Sampler: Kelly Power

Quote #:

State where samples were collected: DE

For Compliance: Yes ☑ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐

Other: AIR

Total # of Containers

Analysis Requested

Preservation Codes

BTEX, C1-C4, >C4-C10, & Methane by Method 18

For Lab Use Only

FSC:

SCR#: 188655

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

custody seal # 507996

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers
DA-EFF-051716	5/17/16	1434	X		1
DA-INF-051716	5/17/16	1444	X		1

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	5-12-16	1200	Kelly E Power	5/12/16	1200
Kelly E Power	5/18/16	1330		5/18/16	1330
	5/18/16	1358		5/18/16	1400
Mark D	5-18-16	1645			
				5/16/16	1645

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 NA °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 147077

Group Number(s): 1663089

Client: Bright Fields

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	05/18/2016 16:45
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 Patrick Engle (3472) at 16:47 on 05/18/2016

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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.

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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.

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.

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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: 06/27/2016
Group Number: 1676491
PO Number: 13665
Release Number: 13665
State of Sample Origin: DE

Client Sample Description	Lancaster Labs (LL) #
DA-EFF-062416 Grab Air	8448267
DA-INF-062416 Grab Air	8448268

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

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Analysis Report

REVISED

Sample Description: DA-EFF-062416 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8448267
LL Group # 1676491
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 06/24/2016 10:57 by KP

Submitted: 06/27/2016 17:00
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.	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	M1618230AA	06/30/2016 14:49	Alexander D Sechrist	1

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Analysis Report

REVISED

Sample Description: DA-INF-062416 Grab Air
Dodson Ave/2734.05.51

LL Sample # AQ 8448268
LL Group # 1676491
Account # 04549

Project Name: Dodson Ave/2734.05.51

Collected: 06/24/2016 11:01 by KP

Submitted: 06/27/2016 17:00
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.	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	M1618230AA	06/30/2016 15:19	Alexander D Sechrist	1

REVISED

Quality Control Summary

Client Name: Brightfields, Inc. Group Number: 1676491
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: M1618230AA	Sample number(s): 8448267-8448268	
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: M1618230AA	Sample number(s): 8448267-8448268								
Benzene	10	8.98	10	8.74	90	87	71-116	3	30
Ethylbenzene	10	8.74	10	8.49	87	85	59-144	3	30
Toluene	10	11.69	10	11.15	117	112	77-143	5	30
Xylene (total)	30	26.06	30	24.93	87	83	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.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

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Acct. # 4549 Group # 1676491 Sample # 8448267-68

COC # 501914

Client Information

Client: Bright Fields Inc

Acct. #:

Project Name/#: Dodson Ave/2734.05.51

PWSID #:

Project Manager: Ken Hannon

P.O. #: 13665

Sampler: Kelly Power

Quote #:

State where samples were collected: DE

For Compliance: Yes ☑ No ☐

Matrix

Soil ☐ Sediment ☐ Tissue ☐

Water Potable ☐ Ground ☐ NPDES ☐ Surface ☐

Other: Air

Analysis Requested

Preservation Codes

BTEXC-C4; 7C4-C10 & Naphthalene by headspace

For Lab Use Only

FSC:

SCR#: 189826

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Remarks

Custody seal # 002460

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other: Air	Total # of Containers	BTEXC-C4; 7C4-C10 & Naphthalene by headspace
DA-EFF-062416	6/24/16	1057	X				X	1	X
DA-INF-062416	6/24/16	1101	X				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	6/18/16	1325	Kelly Power	6/18/16	1325
Kelly Power	6/27/16	1205	Mark Denlinger	6/27/16	1205
Mark D	6/27/16	1700			
			Pat S	6/27/16	1700

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 NA °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 151817

Group Number(s): 1676491

Client: Brightfields

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	06/27/2016 17:00
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 Patrick Engle (3472) at 17:32 on 06/27/2016

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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.

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