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April 10, 2020

Illinois Environmental Protection Agency
Bureau of Air
Air Quality Planning Section (#39)
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Attn: Annual Emission Report

**Re: Annual Emissions Report, Reporting Year 2019
Shell Oil Products US
Roxana Source, I.D. No. 119090AAO**

To Whom It May Concern:

AECOM Technical Services, Inc. (AECOM), on behalf of Shell Oil Products US, is submitting the enclosed Annual Emissions Report for activities at the Roxana Site. If you have any questions or need any additional information, please contact Robert E. Mooshegian at (314) 429-0100 or via email at robert.mooshegian@aecom.com.

Sincerely,
AECOM

Robert E. Mooshegian, STS
Senior Program Manager

Enclosures: Annual Emission Report, Reporting Year 2019

cc: Mr. Dan Kirk, Shell Oil Products US
Project File


119090A00 - Shell Oil Products US

- SOURCE DATA -

SOURCE IDG AND LOCATION	AIRS: 17-119-0044	IEPA USE ONLY	SIC 1: 4613	NAICS 1: 486910
	FINDS:	IEPA USE ONLY	SIC 2:	NAICS 2:
	FEIN: 522074528		SIC 3:	NAICS 3:
	DAB:		SIC 4:	NAICS 4:
	LATITUDE: 38:50:42.3168		SIC 5:	NAICS 5:
	LONGITUDE: 90:04:34.0752		SIC 6:	NAICS 6:
SOURCE ADDRESS	Shell Oil Products US		CONTACT: Dan Kirk	
	Chaffier St. and 8th St.		PHONE: (281)-544-9796	EXT:
	Rockana, IL 62084		Fax:	
			E-mail: dan.kirk@shell.com	
ANNUAL EMISSION REPORT MAILING ADDRESS	AECOM		CONTACT: Laura Faletto	
	100 N. Broadway 20th Fl		PHONE: 314-429-0100	
	St. Louis, MO 63102		FAX: 314-429-0462	
			E-Mail: laura.faletto@aecom.com	

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44 (b))

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

 _____ AUTHORIZED SIGNATURE	4-7-20 _____ DATE
Dan Kirk, Principal Program Manager _____ TYPED OR PRINTED NAME AND TITLE	(281)-544-9796 _____ TELEPHONE NUMBER

The Illinois EPA is authorized to require, and you must disclose, the information on this form pursuant to 35 Ill. Adm. Code 201.302 (a,b) and 254. It is not necessary to use this form in providing the information. Failure to disclose the information may result in penalties as provided for in the Environmental Protection Act. 415 ILCS 5/24-43.

119090AAO - Shell Oil Products US

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCE REPORTED EMISSIONS FOR 2019 (TONS/YEAR)	EMISSIONS REPORTED FOR 2018 (TONS/YEAR)	IEPA 2019 ESTIMATED EMISSIONS (TONS/YEAR)
CO	0.498632	0.606829	0.421949
CO ₂	712.330395	866.898191	602.784000
Methane	0.013653	0.016616	0.011553
N ₂ O	0.013060	0.015893	0.011051
NH ₃	0.018996	0.023117	0.016074
NO _x	0.593609	0.722415	0.502320
Part	0.045115	0.054904	0.038176
PM ₁₀	0.045115	0.054904	0.038176
PM _{2.5}	0.045115	0.054904	0.038176
SO ₂	0.003562	0.004334	0.003014
VOM	1.233110	1.431560	11.503708

119090AAO - Shell Oil Products US

- PERMIT LISTING -

PERMIT NUMBER	TYPE OF PERMIT	OPERATION NAME	STATUS	STATUS DATE	EXPIRES
10120040	CONSTRUCTION	Soil Vapor Extraction Treatment System	GRANTED	03-01-2011	04-01-2012
11050032	CONSTRUCTION	Soil Vapor Extraction Treatment System w/Dual ICE	GRANTED	05-31-2011	05-31-2012
11060036	LIFETIME	SVE Treatment System	GRANTED	07-14-2011	07-14-2012
12040025 *	TITLE V	Treatment of Contaminated Soil Vapor			

* A renewal application was submitted to IEPA in April 2012.

119090AAO - Shell Oil Products US

- FUEL COMBUSTION DATA -

POINT 0003 - Regenerative Thermal Oxidizer PERMIT: 11060036
 BEGAN OPERATION: 01/2012 _____
 CEASED OPERATION: / _____
 MODE 01 - Natural gas combustion SCC: 40290013

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: ~~27.92 %~~ 26.59 % MAR - MAY: ~~24.01 %~~ 23.10 %
 BEGAN OPERATION: ~~06/2011~~ 01/2012 JUN - AUG: ~~23.30 %~~ 24.06 % SEP - NOV: ~~24.70 %~~ 26.25 %
 CEASED OPERATION: _____

FUEL TYPE: 1 NATURAL GAS HEAT CONTENT: Natural Gas 1,000 Btu/ft3
 INPUT (MMBTU/HR): 1.4 _____

UNITS: ~~MILLION CUBIC FEET BURNED~~ MILLION BTU BURNED

UNITS: ~~MILLION CUBIC FEET BURNED~~ MILLION BTU BURNED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	24.0	<u>24.0</u>
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	7.0	<u>7.0</u>
WEEKS/YEAR:	49	<u>48</u>	WEEKS/YEAR:	13	<u>12</u>
HOURS/YEAR:	8,220	<u>8,016</u>	HOURS/YEAR:	2,157	<u>2,026</u>
			START TIME:		<u>00:00</u>
			END TIME:		<u>23:59</u>
RATE/HR:	0.0003	<u>0.32</u>	RATE/HR:	0.0003	<u>0.30</u>

119090AAO - Shell Oil Products US

- FUEL COMBUSTION DATA -

POINT 0003 - Regenerative Thermal Oxidizer PERMIT: 11060036
 BEGAN OPERATION: 01/2012 _____
 CEASED OPERATION: / _____ SCC: 40290013

MODE 01 - Natural Gas Combustion

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO	3	3	84	84 lbs/10 ⁶ scf	0.1092	0.0263
CO ₂	3	3	120,000	120000 lbs/10 ⁶ scf	156	37.6203
Methane	3	3	2.3	2.3 lbs/10 ⁶ scf	0.00299	0.0007
N ₂ O	3	3	2.2	2.2 lbs/10 ⁶ scf	0.00286	0.0007
NH ₃	3	3	3.2	3.2 lbs/10 ⁶ scf	0.00416	0.0010
NO _x	3	3	100	100 lbs/10 ⁶ scf	0.13	0.0314
PART	3	3	7.6	7.6 lbs/10 ⁶ scf	0.00988	0.0024
PM ₁₀	3	3	7.6	7.6 lbs/10 ⁶ scf	0.00988	0.0024
PM _{2.5}	3	3	7.6	7.6 lbs/10 ⁶ scf	0.00988	0.0024
SO ₂	3	3	0.6	0.6 lb/10 ⁶ scf	0.00078	0.0002
VOM*	3	NA	5.5	NA lbs/10 ⁶ scf	0.00715	NA

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
NO _x	3	3	100	100 lbs/10 ⁶ scf	0.0308	0.0298
VOM*	3	NA		NA lbs/10 ⁶ scf	0	NA

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0003 CAPTURE EFFICIENCY: 100.00 % 100.00 %

*VOM emissions from combustion are accounted for in the SVE emissions on page 9.

119090AAO - Shell Oil Products US

- FUEL COMBUSTION DATA -

POINT 0003 - Regenerative Thermal Oxidizer

PERMIT: 11060036

BEGAN OPERATION: / 01/2012

CEASED OPERATION: / _____

SCC: 40290013

MODE 02 - Soil Vapor Combustion

DESCRIPTION CORRECTION:

	PERCENT THROUGHPUTS: DEC - FEB:	<u>26.70 %</u>	MAR - MAY:	<u>39.63 %</u>	
BEGAN OPERATION: /	<u>01/2012</u>	JUN - AUG:	<u>20.43 %</u>	SEP - NOV:	<u>13.23 %</u>
CEASED OPERATION: /	_____				

FUEL TYPE:	<u>9 OTHER GASEOUS FUEL-SOIL VAPORS</u>	HEAT CONTENT:	Soil Vapors	<u>21,070 Btu/lb</u>
INPUT (MMBTU/HR):	_____	SULFUR CONTENT (%):		_____
		ASH CONTENT (%):		_____
		NITROGEN CONTENT (%):		_____

UNITS: MILLION BTU BURNED

UNITS: MILLION BTU BURNED

ANNUAL OPERATION		PEAK OZONE SEASON OPERATION	
HOURS/DAY:	<u>24.0</u>	HOURS/DAY:	<u>24.0</u>
DAYS/WEEK:	<u>7.0</u>	DAYS/WEEK:	<u>7.0</u>
WEEKS/YEAR:	<u>48</u>	WEEKS/YEAR:	<u>12</u>
HOURS/YEAR:	<u>8,016</u>	HOURS/YEAR:	<u>2,026</u>
		START TIME:	<u>00:00</u>
		END TIME:	<u>23:59</u>
RATE/HR:	<u>1.19</u>	RATE/HR:	<u>0.96</u>

119090AAO - Shell Oil Products US

- FUEL COMBUSTION DATA -

POINT 0003 - Regenerative Thermal Oxidizer PERMIT: 11060036
 BEGAN OPERATION: / 01/2012
 CEASED OPERATION: / _____
 SCC: 40290013

MODE 02 - Soil Vapor Combustion

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
CO		3		84 lbs/10 ⁶ scf		0.0981
CO ₂		3		120,000 lbs/10 ⁶ scf		140.1068
Methane		3		2.3 lbs/10 ⁶ scf		0.0027
N ₂ O		3		2.2 lbs/10 ⁶ scf		0.0026
NH ₃		3		3.2 lbs/10 ⁶ scf		0.0037
NO _x		3		100 lbs/10 ⁶ scf		0.1168
PM		3		7.6 lbs/10 ⁶ scf		0.0089
PM ₁₀		3		7.6 lbs/10 ⁶ scf		0.0089
PM _{2.5}		3		7.6 lbs/10 ⁶ scf		0.0089
SO ₂		3		0.6 lb/10 ⁶ scf		0.0007
VOM*		NA		NA lbs/10 ⁶ scf		NA

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
NO _x		3		100 lbs/10 ⁶ scf		0.09

CAPTURING CONTROLS:
 CAPTURING STACKS:

STACK 0003 CAPTURE EFFICIENCY: 100.00 %

*VOM emissions from combustion are accounted for in the SVE emissions on page 9.

119090AAO - Shell Oil Products US

- OTHER SOURCE DATA -

POINT 001 - Soil vapor extraction system PERMIT: 11060036
 BEGAN OPERATION: 05/2011 _____
 CEASED OPERATION: / _____
 MODE: 01 - SCC: 50410310

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: ~~22.69%~~ 24.23 % MAR - MAY: ~~24.66%~~ 26.15 %
 BEGAN OPERATION: ~~12/2010~~ 05/2011 JUN - AUG: ~~26.24%~~ 25.27 % SEP - NOV: ~~26.41%~~ 24.35 %
 CEASED OPERATION: / _____

UNITS: HOURS OPERATED

UNITS: HOURS OPERATED

ANNUAL OPERATION			PEAK OZONE SEASON OPERATION		
HOURS/DAY:	24.0	<u>24.0</u>	HOURS/DAY:	24.0	<u>24.0</u>
DAYS/WEEK:	7.0	<u>7.0</u>	DAYS/WEEK:	7.0	<u>7.0</u>
WEEKS/YEAR:	49	<u>48</u>	WEEKS/YEAR:	43	<u>12</u>
HOURS/YEAR:	8,220	<u>8,016</u>	HOURS/YEAR:	2,157	<u>2,026</u>
			START TIME:	<u>00:00</u>	
			END TIME:	<u>23:59</u>	
RATE/HR:	0.0000	<u>NA*</u>	RATE/HR:	0.0000	<u>NA*</u>

*The rate/hr is not applicable because emissions are estimated using a measured emissions rate (lb/hr) and the system operating hours.

119090AAO - Shell Oil Products US

- OTHER SOURCE DATA -

POINT 001 - Soil vapor extraction system

PERMIT: 11060036

BEGAN OPERATION: 05/2011 _____
 CEASED OPERATION: _____

SCC: 50410310

MODE: 01 -

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
VOM	2	1		NA*	2.97	0.31

POLLUTANT CODE	METHOD		EMISSION FACTOR		OZONE SEASON EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
VOM	3	1		NA*	0.35	0.42

CAPTURING CONTROLS:

CONTROL 0001 CAPTURE EFFICIENCY: 100.00 % 100.00 %

CAPTURING STACKS:

STACK 0003

*The rate/hr is not applicable because emissions are estimated using a measured emissions rate (lb/hr) and the system operating hours.

119090AAO - Shell Oil Products US

- CONTROL DEVICE DATA -

CONTROL 0001 - Regenerative Thermal Oxidizer PERMIT: 11060036
 BEGAN OPERATION: ~~06/2011~~ 01/2012
 CEASED OPERATION: / CONTROL CODE: 319

DESCRIPTION CORRECTION:

REMOVAL EFFICIENCY

POLLUTANT	ANNUAL OPERATION				PEAK OZONE SEASON OPERATION			
	EFFICIENCY		METHOD		EFFICIENCY		METHOD	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
VOM	97.00 %	<u>99.3%*</u>		<u>1</u>		99.3%		<u>1</u>

CAPTURING CONTROLS:

CAPTURING STACKS:

STACK 0003 CAPTURE EFFICIENCY: 100.00 % 100.00 %

*The RTO was tested for VOM destruction efficiency on June 25 and June 26, 2013.

- STACK DATA -

STACK	DIAMETER (FT)		HEIGHT (FT)		FLOW RATE (ACFM)		TEMPERATURE (°F)	
0003 - Regenerative Thermal Oxidizer	2.50	<u>2.5</u>	19	<u>18.5</u>	10,000	<u>10,000</u>	200	<u>200</u>