

March 1, 2016

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 Emission Report, Reporting Year 2015
Shell Oil Products US
Roxana Site, I.D. No. 119090AAO**

To whom it may concern:

AECOM, on behalf of Shell Oil Products US, is submitting the enclosed Annual Emission 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



Claire Mitchell, PE
Senior Engineer



Robert E. Mooshegian, CHMM
Senior Program Manager

Enclosures: Annual Emissions Report, Reporting Year 2015

cc:
Mr. Kevin E. Dyer, Shell Oil Products US

DAPC - ANNUAL AIR EMISSIONS REPORT - 2015

119090AAO - Shell Oil Products US

- SOURCE DATA -


AIRS:	17-119-00440	IEPA USE ONLY	SIC 1:	4613	NAICS 1:	486910
FINDS:		IEPA USE ONLY	SIC 2:		NAICS 2:	
FEIN:	522074528		SIC 3:		NAICS 3:	
D&B:			SIC 4:		NAICS 4:	
LATITUDE:	38:50:42.3168		SIC 5:		NAICS 5:	
LONGITUDE:	90:04:34.0752		SIC 6:		NAICS 6:	

Shell Oil Products US
 CONTACT: Kevin E. Dyer
 Chaffer St. and 8th St.
 PHONE: (618) 288-7237 EXT:
 Roxana, IL 62084

Shell Oil Products US
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 Glen Carbon, IL 62034-43000
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 E-Mail:

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 (h))

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
 Kevin E. Dyer, Sr. Principal Program Manager
 TYPED OR PRINTED NAME AND TITLE
 DATE: 3/1/16
 (618) 288-7237
 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 5/24-45.

119090AAO - Shell Oil Products US

- ANNUAL SOURCE EMISSIONS -

POLLUTANT CODE	SOURCE REPORTED EMISSIONS FOR 2015 (TONS/YEAR)	ALLOWABLE* EMISSIONS (TONS/YEAR)	EMISSIONS REPORTED FOR 2014 (TONS/YEAR)	IEPA 2015 ESTIMATED EMISSIONS (TONS/YEAR)
CO	1.380502	0.511056 2.665283	0.884165	0.421949
CO ₂	1972.145506	681.408000	1263.092926	602.784000
Methane	0.037799	0.013060	0.024209	0.011553
N ₂ O	0.036156	0.012492	0.023157	0.011051
NH ₃	0.052591	0.018171	0.033682	0.016074
NO _x	1.643455	0.620256 3.172956	1.052577	0.502320
Part	0.124903	0.048048 0.241145	0.079996	0.038176
PM ₁₀	0.124903	0.043156 0.241145	0.079996	0.038176
PM _{2.5}	0.124903	0.043156 0.241145	0.079996	0.038176
SO ₂	0.009861	3.699696 0.019038	0.009631 0.006315	0.003014
VOM	2.236080	24.928831 24.900000	0.950800	11.503708

* The Allowable Emissions have been corrected to reflect all permitted emission units authorized in permit 110600036. This permit does not contain limits for CO₂, CO₂E, Methane, N₂O or NH₃.

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:	34.70%	32.35%	MAR - MAY:	27.95%	23.43%
BEGAN OPERATION:	06/2011	01/2012	JUN - AUG:	23.93%	30.74%	13.42%
CEASED OPERATION:	00/0000		SEP - NOV:			13.48%

FUEL TYPE: 1 NATURAL GAS
INPUT (MMBTU/HR): 1.4

HEAT CONTENT: Natural Gas 1,000 Btu/ft3
SULFUR CONTENT (%):
ASH CONTENT (%):
NITROGEN CONTENT (%):

UNITS: MILLION CUBIC FEET BURNED MILLION BTU BURNED

ANNUAL OPERATION		PEAK OZONE SEASON OPERATION	
HOURS/DAY:	24.0	HOURS/DAY:	24.0
DAYS/WEEK:	7.0	DAYS/WEEK:	7.0
WEEKS/YEAR:	47	WEEKS/YEAR:	12
HOURS/YEAR:	7,952	HOURS/YEAR:	2,066
RATE/HR:	0.0000	START TIME:	00:00
	0.15	END TIME:	23:59
		RATE/HR:	0.0001

119090AAO - Shell Oil Products US

- FUEL COMBUSTION DATA -

POINT 0003 - Regenerative Thermal Oxidizer

BEGAN OPERATION: 01/2012

CEASED OPERATION: /

MODE 01 - Natural Gas Combustion

PERMIT: 11060036

SCC: 40290013

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	0.0127
CO ₂	3	3	120,000	120000 lbs/10 ⁶ scf	156	18.1930
Methane	3	3	2.3	2.3 lbs/10 ⁶ scf	0-00299	0.0003
N ₂ O	3	3	2.2	2.2 lbs/10 ⁶ scf	0-00286	0.0003
NH ₃	3	3	3.2	3.2 lbs/10 ⁶ scf	0-00416	0.0005
NO _x	3	3	100	100 lbs/10 ⁶ scf	0-13	0.0152
PM	3	3	7.6	7.6 lbs/10 ⁶ scf	0-00988	0.0012
PM ₁₀	3	3	7.6	7.6 lbs/10 ⁶ scf	0-00988	0.0012
PM _{2.5}	3	3	7.6	7.6 lbs/10 ⁶ scf	0-00988	0.0012
SO ₂	3	3	0.6	0.6 lb/10 ⁶ scf	0-00078	0.0001
VOM*	3	NA	5-5	NA lbs/10 ⁶ scf	0-00715	NA

OZONE SEASON

EMISSION RATE (LB/HR)	
IEPA	REPORTED
0-268	0.0188
0-015	NA

POLLUTANT CODE	METHOD		EMISSION FACTOR	
	IEPA	REP	IEPA	REPORTED
NO _x	3	3	100	100 lbs/10 ⁶ scf
VOM*	3	NA	5-5	NA lbs/10 ⁶ scf

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: /

MODE 02 - Soil Vapor Combustion
SCC: 40290013

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 22.27 % MAR - MAY: 30.97 %
BEGAN OPERATION: / 01/2012 JUN - AUG: 26.66 % SEP - NOV: 20.09 %
CEASED OPERATION: /

FUEL TYPE: 9 OTHER GASEOUS FUEL-SOIL VAPORS HEAT CONTENT: Soil Vapors 21,070 Btu/lb
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: 24.0
DAYS/WEEK: 7.0
WEEKS/YEAR: 50
HOURS/YEAR: 8,318

HOURS/DAY: 24.0
DAYS/WEEK: 7.0
WEEKS/YEAR: 12
HOURS/YEAR: 2,066

RATE/HR: 3.88

START TIME: 00:00
END TIME: 23:59
RATE/HR: 4.16

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	3	84 lbs/10 ⁶ scf	120,000 lbs/10 ⁶ scf	0.32	455.99
CO ₂	3	3	2.3 lbs/10 ⁶ scf	2.2 lbs/10 ⁶ scf	0.01	0.01
Methane	3	3	3.2 lbs/10 ⁶ scf	100 lbs/10 ⁶ scf	0.01	0.38
N ₂ O	3	3	7.6 lbs/10 ⁶ scf	7.6 lbs/10 ⁶ scf	0.03	0.03
NH ₃	3	3	7.6 lbs/10 ⁶ scf	7.6 lbs/10 ⁶ scf	0.03	0.03
NO _x	3	3	0.6 lb/10 ⁶ scf	0.6 lb/10 ⁶ scf	0.03	0.03
PM	3	3	NA	NA	NA	0.00
PM ₁₀	3	3				
PM _{2.5}	3	3				
SO ₂	3	3				
VOM*	NA	NA				

POLLUTANT CODE	METHOD		EMISSION FACTOR		EMISSION RATE (LB/HR)	
	IEPA	REP	IEPA	REPORTED	IEPA	REPORTED
NO _x	3	3	100 lbs/10 ⁶ scf	100 lbs/10 ⁶ scf	0.41	0.41

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: 12/2010 05/2011

CEASED OPERATION: /

SCC: 50410310

MODE: 01 -

DESCRIPTION CORRECTION:

PERCENT THROUGHPUTS: DEC - FEB: 24.12% 24.87% MAR - MAY: 21.68% 25.49%
 JUN - AUG: 28.72% 24.84% SEP - NOV: 25.48% 24.80%

BEGAN OPERATION: 12/2010 05/2011
 CEASED OPERATION: /

UNITS: TONS-PROCESSED HOURS OPERATED

UNITS: TONS-PROCESSED HOURS OPERATED

ANNUAL OPERATION		PEAK OZONE SEASON OPERATION	
HOURS/DAY:	24.0	HOURS/DAY:	24.0
DAYS/WEEK:	7.0	DAYS/WEEK:	7.0
WEEKS/YEAR:	47	WEEKS/YEAR:	12
HOURS/YEAR:	7,852	HOURS/YEAR:	2,066
RATE/HR:	0.0000 NA*	START TIME:	00:00
		END TIME:	23:59
		RATE/HR:	0.0000 NA*

*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: 12/2010 05/2011
CEASED OPERATION: 00/0000

SCC: 50410310

MODE: 01

POLLUTANT	METHOD	EMISSION FACTOR	EMISSION RATE (LB/HR)
CODE	IEPA REP	REPORTED	IEPA REPORTED
VOM	2 1	NA*	2-97 0.54

OZONE SEASON			
POLLUTANT	METHOD	EMISSION FACTOR	EMISSION RATE (LB/HR)
CODE	IEPA REP	REPORTED	IEPA REPORTED
VOM	1 1	NA*	9-19 0.78

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 IEPA	METHOD REPORTED	EFFICIENCY IEPA	METHOD REPORTED
VOM	97.00 %	99.3%*	99.30 %	1

CAPTURING CONTROLS:

CAPTURING STACKS:
STACK 0001 0003 CAPTURE EFFICIENCY: 100.00 % 100.00 %

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

119090AAO - Shell Oil Products US

- STACK DATA -

STACK	DIAMETER (FT)		HEIGHT (FT)		FLOW RATE (ACFM)		TEMPERATURE (°F)	
	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED	IEPA	REPORTED
0001	0-74	NA	18	NA	17020	NA	104	NA
0003	1-83	2.5	30	18.5	10,000	10,000	200	200

~~Soil vapor extraction system~~

Regenerative Thermal Oxidizer

*The soil vapor extraction system (POINT 001) exhausts through STACK 0003.