



PM 4/25/13

CERTIFIED MAIL #7009 1680 0001 9221 1656  
Department of Public Safety and Corrections  
Office of State Police  
TESS – Right-to-Know Unit, Mail Slip A-26  
P.O. Box 66614  
Baton Rouge, LA 70896

Shell Chemical LP  
Norco Plant  
P.O. Box 10  
Norco, LA 70079-0010  
Tel +1 (504) 465 7443  
Fax +1 (504) 465 6360

Internet <http://www.shell.com/chemicals>

April 25, 2013

SUBJECT: FINAL RELEASE REPORT: April 19, 2013  
STATE POLICE CASE # 13-01697  
NRC CASE # 1044420  
SHELL CHEMICAL LP - NORCO CHEMICAL PLANT - EAST SITE  
AI# 26336

513-26280

T 148176

AI: 26336

Lee Lemond

Dear Sir/Madam:

In accordance with the authorities listed below, Shell Chemical LP – East Site is providing a final report for a verbal notification on April 19, 2013 at 0438 hours of a release of 1,3 butadiene, ethylbenzene, ethylene, propylene, and xylene from flaring at the OL-5 Elevated Flare (EPN 6-84). The flaring was caused by high pressure on the process gas compressor (PGC) first stage suction drum.

Authorities:

- LAC 33:V.10111
- LAC 33:I.3925.A
- LAC 33:III.5107.B.4
- 40 CFR 355.40(b)(3)
- Title V Permit 2520-V3, General Condition XI and General Condition R

Final calculations confirm that no reportable quantities were exceeded. The maximum permitted limits were exceeded for particulate matter, ethylbenzene, toluene and xylene. If you have any questions regarding this matter, please call Gerard M. Friloux at (504) 465-7443.

I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this report, including all attachments, are true, accurate, and complete.

Sincerely,

Donald Weaver  
General Manager – Norco Manufacturing Complex  
Attorney-in-Fact – Shell Chemical LP

GMF/Itto

Attachments

RECEIVED

MAY - 1 2013

DEQ  
Single Point of Contact

A

cc: CERTIFIED MAIL #7011 1150 0000 0147 3953  
~~Louisiana Department of Environmental Quality~~  
Office of Environmental Compliance  
ATTN : SURVEILLANCE DIVISION-SPOC  
"UNAUTHORIZED DISCHARGE NOTIFICATION REPORT"  
P. O. Box 4312  
Baton Rouge, LA 70821-4312

St. Charles Parish Emergency Planning Committee  
P. O. Box 302  
Hahnville, LA 70057

Louisiana Department of Environmental Quality  
Southeast Regional Office  
201 Evans Rd, Bldg. 4, Suite 420  
New Orleans, LA 70123

**SHELL CHEMICAL LP  
RELEASE NOTIFICATION FORM**

Company Name                      Shell Chemical LP - Norco Chemical Plant - East Site  
 Physical Location                15536 River Road, St. Charles Parish  
 Street or P. O. Box              P.O. Box 10  
 City, State, Zip                  Norco, Louisiana 70079  
 Telephone                          (504) 465-7443 (Gerard M. Friloux)

**II. Date and Time of Verbal Notifications:**

Initial Verbal Contact					
Agency	Agency Contact	Date	Time	Shell Caller	Case Number
State Police and LDEQ	Mason	4/19/2013	0438	A Armenta	13-01697
EOC	Brandon	4/19/2013	0446	A Armenta	N/A
NRC	Weatherly	4/19/2013	0448	A Armenta	1044420

Follow-up Verbal Contact					
Agency	Agency Contact	Date	Time	Shell Caller	Case Number
LADEQ-Air	Lee Lemond	4/19/2013	0514	A Armenta	N/A
EOC	Lee	4/20/2013	0250	JP Le Saicherre	N/A
State Police and LDEQ	Thompson	4/20/2013	0255	JP Le Saicherre	13-01697

**III. Release Start/End Time:**

Date/Time Start	Date/Time End	If Not Ended Anticipated End Time	Weather Conditions At Start Time	Duration of Flare Smoking
04/19/2013 @ 0420	04/19/2013 @ 0800	N/A	Northwest Winds @ 15 MPH Light Rain	OL-5 EF (EPN 6-84) 3 hours 27 mins

<sup>1</sup> LAC 33:III.1105, which limits flare smoking to no more than 6 hours in any 10 consecutive days, was not exceeded during this event for the OL-5 Elevated Flare.

**IV. Release Event Description and Cause:**

On April 19, 2013 Shell Chemical's OL-5 Process Unit experienced an unexpected upset that led to flaring at the OL-5 Elevated Flare (EPN 6-84). The flaring was caused by high pressure on the process gas compressor (PGC) first stage suction drum. A pressure increase on the suction drum was due to the PGC slowing down as a result of the loss of vacuum on the compressor surface condenser. The surface condenser vacuum was lost due to a faulty level indication causing the loss of vacuum on surface condenser. The PGC upset also caused OL-5 cold-side to flare propylene off the outlet of the map converters because of a low flow shutdown of the converters. OL-5 operations field verified the level in the PGC surface condenser and took corrective actions to safely return the unit to normal operating conditions and stop the flaring.

This release did not result in an emergency condition. There were no fatalities, injuries or road closures.

**V.a Materials Released Above an RQ:**

There were no materials released above a reportable quantity.

**V.b Permitted Source Emissions (if applicable):**

The OL-5 Elevated Flare is permitted in AQD Permit # 2520-V3.

Emission Point Identification (EPN)	Pollutant	Permit Limit Avg (lb/hr)	Permit Limit Max (lb/hr)	Event Duration	Total Quantity Released by Event (lbs)	Amount Released/Above Permitted Quantity (lbs) <sup>1</sup>
6-84 (OL-5 Elevated Flare, FE-101)	CO	39.56	988.89	3 hr	2101.72	0 <sup>2</sup>
	NO <sub>x</sub>	7.27	181.74	3 hr	386.26	0 <sup>2</sup>
	PM	1.37	34.21	3 hr	681.64	583.12
	VOC's	23.2	580.46	3 hr	1204.94	0 <sup>2</sup>
	Butadiene	1.13	28.21	3 hr	32.51	0 <sup>2</sup>
	Benzene	1.67	41.73	3 hr	29.69	0 <sup>2</sup>
	Ethylbenzene	0.01	0.22	3hr	2.70	2.07
	Toluene	0.17	4.27	3 hr	20.89	8.59
	Xylene	0.05	1.16	3 hr	10.78	7.45

<sup>1</sup> This is the quantity of material released above permitted maximum emission rates. It is this number-summed for each pollutant- which Shell evaluates against reportable quantities in the table in section V.a of this report. It is calculated using the formula below. This formula conservatively assumes the flare is emitting at its average rate just prior to and during the event.

$$\text{Amount Released Above Permitted Quantity} = \text{Total Quantity Released by Event} - [(\text{Permit Limit}_{\text{max}} - \text{Permit Limit}_{\text{avg}}) * \text{Event Duration}]$$

<sup>2</sup> Incident emissions are presented for completeness only. Permit exceedences did not occur for these pollutants.

**V.c Description of methodology used for calculations and estimates:**

Emission calculations were performed using process data and appropriate AP-42 emission factors. See attachment 2.

**VI. Statement of actual or probable fate or disposition of the material:**

All materials routed to flare were combusted with an approximate destruction efficiency of 99.5%, released from the OL-5 Elevated Flare to the atmosphere, and dispersed naturally. The OL-5 Elevated Flare is 300 feet tall.

**VII. Immediate remedial or corrective actions taken, or to be taken, to stop the release and/or to recover pollutants:**

OL-5 operations field verified the level in the PGC surface condenser and took corrective actions to safely return the unit to normal operating conditions and stop the flaring.

**VIII. Procedures or measures which have or will be adopted to prevent recurrence of the incident or similar incidents:**

OL-5 Maintenance repaired the PGC surface condenser level transmitter. Control systems adjusted the vacuum alarm setting for the PGC surface condenser to warn operators before the surface condenser vacuum is lost.

**IX. If an unpermitted or unlicensed site or facility was involved in the release, a schedule for submitting a permit or license application to the department, or rationale for not requiring a permit or license:**

No unpermitted or unlicensed facility was involved in this release.

**X. For discharges to the ground or ground water, the following information shall also be included: all information of which the reporting party is aware that indicates pollutants are migrating, including, but not limited to, monitoring well data; possible routes of migrations; and all information of which the reporting party is aware regarding any public or private wells in the area of the migration used for drinking, stock watering, or irrigation:**

Not Applicable. There were no discharges to ground or groundwater with relation to this incident.

**XI. Reporting party's status, other responsible parties:**

Shell Chemical LP is the owner and operator of the OL-5 process unit and the OL-5 Elevated Flare.

**XII. A determination of whether or not the release was preventable; if not, an explanation of why the release was not preventable.**

This incident was not preventable by Shell. The malfunction of the surface condenser level transmitter was unexpected.

Table 1 - Flow Information

Material	Total Flow (lbs)	Duration (hrs)	Heating Value (btu/lb)	Calculated Value Heat Input (MMBtus)	Distribution of Vent
1st Stage PGC PIC 4170	134806	1	20407	2751	OL-5 EF 100%
5th Stage PGC PIC 4337	6153	1	20585	127	100%
Crude Hydrogen PIC 5229	1455	1	37393	55	100%
MAP Converters PIC 5456	141351	3	19438	2748	100%
PV-5628 Methane Stream	13	1	23982	0	100%

Table 2 - Material Information

Material	Wt. % Composition							Total VOC (Incl. Listed)
	Ethylene	Propylene	1,3-Butadiene	Benzene	Toluene	Ethylbenzene	Xylene	
1st Stage PGC PIC 4170	22%	14%	5%	4%	3%	0.4%	2%	70%
5th Stage PGC PIC 4337	40%	28%	5%	0.1%	0%	0%	0%	84%
Crude Hydrogen PIC 5229	0%	0%	0%	0%	0%	0%	0%	0%
MAP Converters PIC 5456	0%	92%	0%	0%	0%	0%	0%	100%
PV-5628 Methane Stream	1%	0%	0%	0%	0%	0%	0%	1%

Table 3 - Emission Factors

Pollutant	Value	Notes
NOx (lb/MMBtu)	0.068	AP-42 Chapter 13.5 (9/91) gives 0.068 lb/mmbtu.
PM (lb/MMBtu)	0.12	AP-42 Ch. 13 for Industrial Flares (9/91)
CO (lb/MMBtu)	0.37	Factor for CO from AP-42 Ch. 13 (9/91) Table 13.5-1.
OL5 EF Destruction Efficiency	99.5%	Destruction Efficiency based on internal Shell testing efforts.
H2S to SO2 Conversion Calculation	1.88	Conversion of H2S components in stream to SO2 based on molecular weight of SO2 (64 lb/lb.mole) divided by molecular weight of H2S (34 lb/lb.mole). Multiply lbs H2S by 64 lb/lb.mole (MW SO2) / 34 lb/lb.mole (MW H2S)

**Table 4 - Calculated Release Emissions**

Pollutant	OL5 EF lbs
CO	2101.72
NOx	386.26
PM	681.64
SO2	0.00
Total VOC*	1204.94
1, 3- Butadiene	32.51
Benzene	29.69
Ethylbenzene	2.70
Toluene	20.89
Xylene (Mixed Isomers)	10.78

Calculation Notes

1. NOx, PM, and CO emissions are calculated by summing the product of the individual stream Heat Input values from Table and the corresponding emission factor in lb/MMBtu from Table 3.
2. Total VOC and speciated VOC emissions are calculated by multiplying the individual total flows from Table 1 by the corresponding material composition in Table 2. A destruction efficiency from Table 3 is utilized to estimate the un-combusted emissions that would be emitted from the flare.
3. SO2 emissions are calculated by multiplying the product of the individual stream quantity of flow from Table 1 in lbs. and the H2S content from Table 2. This value is then converted to SO2 emissions utilizing the conversion factor from Table 3.