PM 12/20/12

Shell Chemicals

CERTIFIED MAIL #7009 1680 0001 9221 3964
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

December 20, 2012

Lemond, Lee
ER
s12-20647
T145352

SUBJECT: FINAL RELEASE REPORT: December 13, 2012
STATE POLICE CASE # 12-07869
NRC CASE # 1033188
SHELL CHEMICAL LP - NORCO CHEMICAL PLANT - EAST SITE
AI# 26336

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 December 13, 2012 at 1843 hours of a release of 1,3 butadiene, benzene, and nitrogen oxide from flaring at the OL-5 Elevated Flare (EPN 6-84). An unexpected process upset during the swapping of heat exchangers in the OL-5 Process Unit caused the flaring.

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

Calculations confirm that reportable quantity for 1,3 butadiene was exceeded. The maximum permitted limit for 1,3 butadiene was also exceeded during this event. 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,

Odeh Khoury
Production Manager – Norco Manufacturing Complex

GMF/lto

Attachments

RECEIVED
DEC 2 7 2012
DEQ
Single Point of Contact

cc: CERTIFIED MAIL #7004 0550 0001 1384 6286
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

I.

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**
EOC	Eric	12/13/2012	1841	JP Le Saicherre	N/A
State Police and LDEQ	Christie	12/13/2012	1843	JP Le Saicherre	12-07869
NRC	P. O. O'Brien	12/13/2012	1850	JP Le Saicherre	1033188

	Follow-up Verbal Contact				
Agency	**Agency Contact**	**Date**	**Time**	**Shell Caller**	**Case Number**
USCG-NO	Jessica Evans	12/13/2012	1955	JP Le Saicherre	N/A
LDEQ-Air	Lee Lemond	12/13/2012	2017	JP Le Saicherre	N/A
EPA Region VI	Eric Delgado	12/13/2012	2130	JP Le Saicherre	N/A
State Police and LDEQ	Susan	12/14/2012	1402	BK Allen	12-07869

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

Date/Time Start	**Date/Time End**	**If Not Ended, Anticipated End Time**	**Weather Conditions At Start Time**
12/13/2012 @ 1800	12/13/2012 @ 2100	N/A	East Winds @ 5 MPH Temp 58 degrees Clear

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

On December 13, 2012 Shell Chemical's OL-5 Process Unit experienced an unexpected unit upset which led to flaring at the OL-5 Elevated Flare. The process upset was caused by the production of off specification debutanizer overhead product. The off specification debutanizer overhead product was caused by temperature control issues while OL-5 operations was in the process of swapping heat exchangers. This release did not result in an emergency condition. There were no fatalities, injuries or road closures.

V.a Materials Released Above an RQ:

Name	CAS Number	US DOT Hazard Class	EHS ?	Physical State (solid, liquid, gas	RQ Standard	RQ(s)	Amount Released (lbs)
1,3 Butadiene	106-99-0	Flammable	Yes	Gas	CERCLA/ LADEQ	10 lbs	40.35 lbs

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)[1]
6-84 (OL-5 Elevated Flare, FE-101)	CO	39.56	988.89	3 hrs	378.13	0[2]
	NO_x	7.27	181.74	3 hrs	69.49	0[2]
	PM	1.37	34.21	3 hrs	13.08	0[2]
	VOC's	23.2	580.46	3 hrs	272.25	0[2]
	1,3 Butadiene	1.13	28.21	3 hrs	117.07	40.35

[1] 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.

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

[2] 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 left both exchangers in service to regain temperature control and recover from the unit upset 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 Operations will return to single exchanger operation as soon as practical and clean the fouled exchanger. The cause of the exchanger fouling is attributed to the breaking off of polymer

produced in the process. The polymer was believed to have been broken off and moved into the exchanger causing it to be fouled during a recent unexpected process upset. A further investigation into the cause of this incident will be conducted and any preventative actions discovered will be implemented.

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 fouling of the exchanger was not expected.

Release Calculation
State Police Case No. 12-07869
Date 12/13/2012

Table 1 - Flow Information

Material	Total Flow (lbs)	Duration (hrs)	Heating Value (btu/lb)	Calculated Value - Heat Input (MMBtus)	Distribution of Vent
					OL-5 EF
Debutanizer PIC 5533	54450	2.833	18769	1022	100%

Table 2 - Material Information

Material	Wt. % Composition	
	1-3 Butadiene	Total VOC (Incl. Listed)
Debutanizer PIC 5533	43%	100%

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)	0.0128	Given that AP-42 Ch. 13 for Industrial Flares (9/91) provides a wide range of values (0 - 274 ug/L), the site has retained the historically utilized 0.0128 lb/mmbtu emission factor from AP-42, Ch. 1.4 for estimation of PM emissions.
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.

Table 4 - Calculated Release Emissions

Pollutant	OL5 EF lbs
CO	378.13
NOx	69.49
PM	13.08
SO2	0.00
Total VOC*	272.25
1, 3- Butadiene	117.07

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.