A0010
12-12-406

Shawn Lee
HES Manager, Richmond Refinery

SIGNED BY
BAAQMD MAILROOM
SEP 03 2019
375 BEALE ST, STE 600, SF CA 94105

August 29, 2019

Bay Area Air Quality Management District
Mail Stop FM 1
375 Beale Street, Suite 600
San Francisco, CA 94105

NEKO

Chevron Richmond Refinery
June 2019 Flaring Causal Analysis Report

To Whom It May Concern:

Attached is the flaring causal analysis report for June 2019 for Chevron's Richmond Refinery. This report is submitted pursuant to Regulation 12, Rule 12, Section 12-12-406. The report is due within 60 days of the end of June 2019 for any reportable flaring events that occurred during the month of June 2019. There were four reportable flaring events that occurred in June 2019.

If you have any questions regarding this report, please contact Laura Kurt at (510) 242–5219.

Sincerely,

Shawn Lee

Attachments

Richmond Refinery
Chevron Products Company
A Division of Chevron U.S.A. Inc.
841 Chevron Way, Richmond, CA 94801
Tel (510) 242-1400 Fax (510) 242-3762
ShawnLee@chevron.com

SC 12-4-A

Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

June 6, 2019
Compressor Shutdown in RLOP

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: August 29, 2019

2. The refinery name and site number:
Refinery: Chevron Richmond Refinery
Refinery Site Number: A0010

3. The assigned refinery contact name and phone number:
Contact Name: Laura Kurt
Contact Phone Number: (510) 242-5219

Is this a rescission/modification of a previous report: No.

Date of initial report: N/A

Reason for rescission/modification: N/A

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4. **Identification of flare (s) at which the reportable event occurred by reviewing water seal monitoring data to determine which seals were breached during the event**

Flare	Reportable Event (SO2 or Vent Gas Volume)
FCC (S-6016)	**SO2**
RLOP (S-6039)	**SO2**

5. The flaring event duration for each affected flare

Flare (Source Number): FCC (S-6016)
The Date(s) of the event: June 6, 2019
The start time of the event: 13:23
The end time of the event: 13:50
The net duration of event (in hours and minutes): 27 minutes

Flare (Source Number): RLOP (S-6039)
The Date(s) of the event: June 6, 2019
The start time of the event: 13:23
The end time of the event: 13:57
The net duration of event (in hours and minutes): 34 minutes

6. A brief description of the flaring event –

On June 6, 2019 at approximately 1:21PM, a compressor in the Hydroprocessing Area Business Unit shutdown due to high liquid level in the compressor knock-out drum. Process gases entered the relief system and flaring began at the Richmond Lube Oil Plant (RLOP) and Fluid Catalytic Cracking (FCC) flares. The primary source of vent gas flared during this event was process material from RLOP process equipment. Flaring ceased on June 6, 2019 at approximately 1:57PM.

The sulfur dioxide (SO2) emissions from the RLOP and FCC flares exceeded 500 pounds (lbs) within a 24-hr period.

7. A process flow diagram showing the equipment and process units that were the primary cause of the event.

See Attachment Ia

8. The total volume of vent gas flared (MMSCF) throughout the event

Flare	Volume (MMSCF)
FCC	0.039
RLOP	0.065

9. The emissions associated with the flaring event per calendar day

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
FCC	June 6, 2019	4.8	57.9	1238.3
RLOP	June 6, 2019	3.6	99.6	2882.2

Assumptions used to calculate emissions – consistent with the reporting under Reg. 12-11.

10. A statement as to whether or not the gas was scrubbed to eliminate or reduce any entrained compounds and a list of the compounds for which the scrubbing was performed.

The vent gas was not scrubbed to eliminate or reduce any entrained compounds.

11. The primary cause of the flaring event including a detailed description of the cause and all contributing factors. Also identify the upstream process units that contributed vent Gas flow to the flare header and provide other flow instrumentation data where available.

A root cause investigation found that leak-by on a level control valve allowed vapor to enter the suction line of the knock-out drum pump, shutting down the pump. Without the pump, level increased in the knock-out drum and the compressor shutdown on high liquid level. A contributing factor to the flaring event was that the high-level alarm was not recognized due to the excessive number of alarms

The main contributor of vent gas flow during this event originated from RLOP process equipment.

12. Describe all immediate corrective actions to stabilize the flaring event, and to reduce or eliminate emissions (flare gas recovered or stored to minimize flaring during the event). If a decision was made not to store or recover flare gas, explain why.

Operations immediately responded to safely restart the compressor.

13. Was the flaring the results of an emergency? If so, was the flaring necessary to prevent an accident, hazard or release to the atmosphere?

The flaring was not due to an Emergency (defined in Regulation 12-12-201) as interpreted by the BAAQMD.

14. If not the result of an emergency and necessary to prevent an accident, hazard or release to the atmosphere, was the flaring consistent with an approved FMP? If yes, provide a citation to the facility's FMP and any explanation necessary to understand the basis for this determination.

The flaring was consistent with Chevron's FMP Section 5.4 Figure 5-1. This event was unplanned. Causes for the flaring were analyzed through a TapRoot® investigation and the corrective actions have already been or will be implemented to reduce the likelihood of a recurrence of flaring resulting from the same causes.

15. If the flaring was due to a regulatory mandate to vent to flare, why couldn't the gas be recovered, treated, and used as fuel gas?

N/A. Flaring was not due to regulatory mandate.

16. Identify and describe in detail each prevention measure (PM) considered to minimize flaring from the type of reportable flaring event that occurred.
a) State whether the PM is feasible (and will be implemented), or not feasible
b) Explain why the PM is not feasible, if applicable

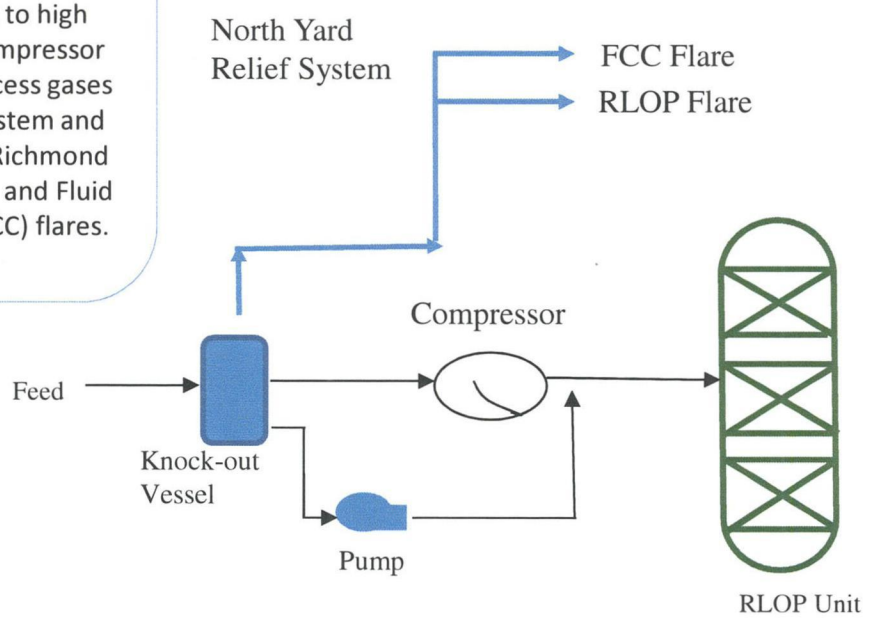
All prevention measures have been considered and will be implemented.

1. Conduct a performance diagnostic test and positioner calibration on the level control valve 89LV041

   Initial Projected Completion Date: December 27, 2019
   Following completion of the root cause investigation for this event, this corrective action was superseded by the corrective action identified in Attachment 4 to replace the level control valve.

2. Conduct an alarm review of the compressor process loop and as feasible reduce the number of deviation alarms without compromising safe and reliable operations

   Projected Completion Date: July 1, 2020

Compressor Shutdown in RLOP

On June 6, 2019 at approximately 1:21PM, a compressor in the Hydroprocessing Area Business Unit shutdown due to high liquid level in the compressor knock-out drum. Process gases entered the relief system and flaring began at the Richmond Lube Oil Plant (RLOP) and Fluid Catalytic Cracking (FCC) flares.