

CC 11/1/21

11/2/2021

11/2/2021

Attachment II

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

August 10, 2021

Flaring Due to Faulty Pressure Transmitter

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: October 29, 2021

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: Brandon Sutter
Contact Phone Number: (510) 242-5212

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

Date of initial report: Not Applicable

Reason for rescission/modification: Not Applicable

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)	Vent Gas Volume
Alky (S-6019)	Vent Gas Volume

5. The flaring event duration for each affected flare

Flare (Source Number): FCC (S-6016)

The Date(s) of the event: August 10, 2021
The start time of the event: 8/10/2021 2:35 PM
The end time of the event: 8/10/2021 3:09 PM

Flare (Source Number): Alky (S-6019)

The Date(s) of the event: August 10, 2021
The start time of the event: 8/10/2021 2:35 PM
The end time of the event: 8/10/2021 3:06 PM

6. A brief description of the flaring event –

On August 10, 2021, visible flaring occurred at the FCC and Alky flares due to a faulty pressure transmitter on a drum which resulted in an unexpected slowdown of an FCC compressor. Additionally, the steam valve on the FCC Flare malfunctioned which limited the operator's ability to increase steam to reduce smoking at the FCC flare, resulting in visible emissions.

Operations immediately responded by troubleshooting and temporarily placed the spillback valves for the FCC compressor in manual control, and flaring stopped.

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

See Attachment IIa.

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

Flare	Volume (MMSCF)
FCC	0.4
Alky	0.2

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
FCC	August 10, 2021	50.2	678.4	444.8
Alky	August 10, 2021	21.6	311.2	174.6

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.

The primary cause of the flaring event is a faulty pressure transmitter.

Note the investigation is ongoing and findings may be updated pending final investigation results.

The main contributor of vent gas flow during this event was the drum in the Cracking Area Business Unit (ABU).

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 by troubleshooting and temporarily placed the spillback valves for the FCC compressor in manual control, and flaring stopped.

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

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 continue to be investigated and necessary 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

Prevention measures will be considered and have or will be implemented.

1. A pressure transmitter has been removed from the control logic system to aid in the prevention of an unexpected slowdown of an FCC compressor.
2. Identify any additional prevention measures with input from subject matter experts, including control logic vendor.

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Flaring Due to Faulty Pressure Transmitter

