

**Attachment IV**

Causal Analysis Report

Chevron Richmond Refinery  
Reportable Flaring Events

August 14, 2021

Flaring Due to Overpressure of Separator

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

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

Date of initial report: Not Applicable

Reason for rescission/modification: Not Applicable

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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 (SO <sub>2</sub> or Vent Gas Volume)
RLOP (S-6039)	Vent Gas Volume and SO <sub>2</sub>

**5. The flaring event duration for each affected flare**

**Flare (Source Number): RLOP (S-6039)**

The Date(s) of the event: August 14, 2021

The start time of the event: 8/14/2021 6:59 AM

The end time of the event: 8/14/2021 9:26 AM

**6. A brief description of the flaring event –**

On August 14<sup>th</sup>, 2021, the Refinery was starting up a hydrocracker in the Hydroprocessing Area Business Unit (ABU). As the plant was starting up, there was a faulty level reading in a high-pressure separator. This led to a pressure increase in a low-pressure separator (LPS), causing the LPS to relieve process gases to the Flare Gas Recovery (FGR) system. Flows sent to the Flare Gas Recovery system exceeded FGR system capacity, and gas was routed to the flare relief system. Operations pulled feed from the plant, reducing the pressure in the LPS. This stopped flows to the flare relief system, and the flaring ceased.

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

See Attachment IVa.

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

Flare	Volume (MMSCF)
RLOP	1.4

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
RLOP	August 14, 2021	11.9	358.3	8,909.5

*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.**

Primary Causal Factor: Faulty level indicator in the high-pressure separator.

Contributing Causal Factor: Valve in low-pressure separator was set in the open position.

The main contributor of vent gas flow during this event was a hydrocracker in the Hydroprocessing 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 pulled feed from the plant which reduced the pressure in the low-pressure separator. This stopped flows to the flare relief system, and the flaring ceased.

**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 were investigated 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 have or will be implemented.

1. Evaluate need for additional preventative maintenance on dP transmitters. If deemed necessary, determine the required frequency of preventative maintenance.
2. Add learnings from this event to hydrocracker startup procedure.
3. Conduct refresher training as necessary.

# Flaring Due to Overpressure of Separator

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