BAAQMD received on 08/28/25

Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

June 6, 2025
Flaring Due to Malfunction of Pressure Indicator at Hydrogen Plant Train

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: August 26, 2025

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: Wilma Dreessen
Contact Phone Number: (510) 242-2894

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 (SO2 or Vent Gas Volume)**
H2 (S-6021)	Vent Gas Volume

5. The flaring event duration for each affected flare

Flare (Source Number): H2 (S-6021)
The Date(s) of the event: June 6, 2025
The start time of the event: 06/06/2025 15:15
The end time of the event: 06/06/2025 16:59

The Date(s) of the event: June 7, 2025
The start time of the event: 06/07/2025 1:42
The end time of the event: 06/07/2025 1:50

6. A brief description of the flaring event –

On June 6, 2025, PSA 3 at the Hydrogen Plant tripped offline due to a malfunction of a pressure indicator. The indicator faulted to high scale, which caused the trip. The unit was stabilized and the pressure indicator was replaced. The unit was restarted on June 7, 2025 at about 1:42 and flaring during start-up lasted 8 minutes.

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	Date	Volume (MMSCF)
H2	6/6/2025	0.931
H2	6/7/2025	0.261

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
H2	June 6, 2025	189	347	6.44
H2	June 7, 2025	70	20	0.478

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 includes 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: Malfunction of a Pressure Indicator that could not be foreseen.

The primary contributor of the vent gas to the flare was the Hydrogen Plant Train PSA 3 trip.

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 proceeded to repair/replace the pressure indicator. Once repaired, Operations proceeded with the startup activities per the procedure to reduce any associated emissions. The Hydrogen Plant does not have flare gas recovery.

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 due to an Emergency (as defined in Regulation 12-12-201) as interpreted by the BAAQMD. The pressure instrument failed requiring immediate action to restore to normal and safe operation. The pressure indicator malfunction was a sudden, infrequent and not reasonably preventable equipment failure.

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.

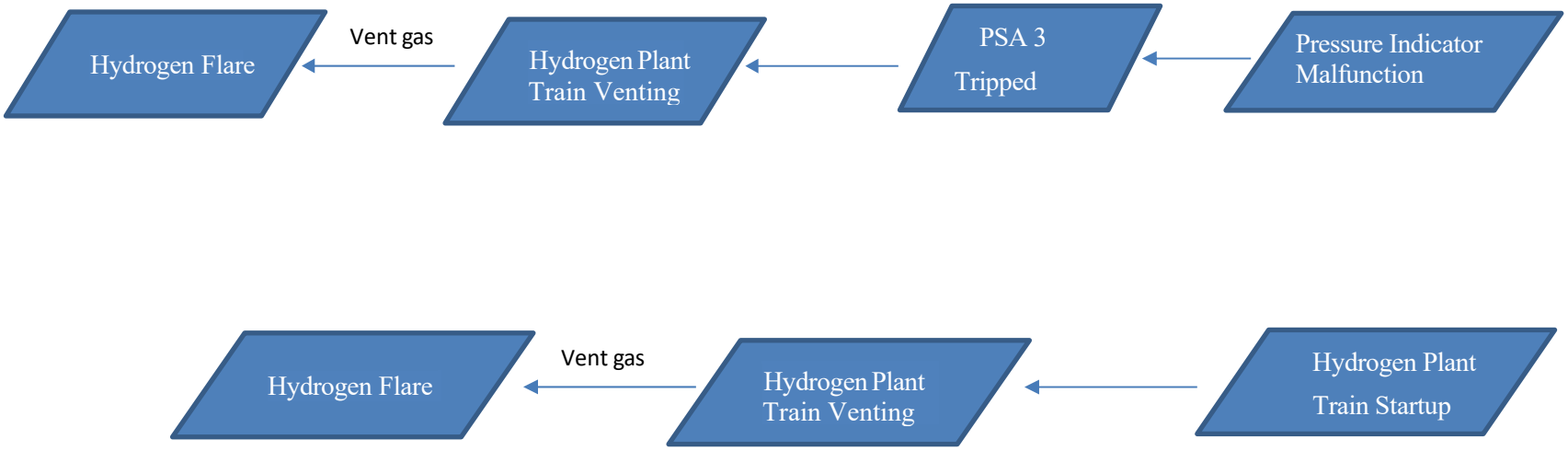
Subsequent flaring was caused by startup and was consistent with Chevron's FMP Section 2.1 Table 2-4. Table 2-4, which identifies sources that can be flared in non-emergency situations (e.g. start-up, shutdown).

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 a 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

The event was an unforeseen malfunction of the pressure indicator. The work to replace the indicator was done immediately, the unit was stabilized, and Chevron restarted the unit as soon as possible. Flaring cannot be prevented during Hydrogen Plant startup due to facility and relief system design. Operational activities were consistent with shutdown procedures.



Attach Ia: Flaring Due to Malfunction and Startup of Hydrogen Plant Train