

FLARE CAUSAL ANALYSIS REPORT - PUBLIC

1. **Date on which the report was drafted:** November 25, 2024
2. **The refinery name and site number.**
Martinez Refinery, Plant # B2758
3. **The assigned refinery contact name and phone number.**
Sharon Lim, (925) 335-3467
4. **Identification of the flare(s) at which the reportable event occurred by reviewing the water seal monitoring data to determine which seals were breached during the event.**
West Air Flare **S1012**; East Air Flare **S854**
5. **The flaring event duration for each affected flare**
 - a. **West Air Flare – 7 hours and 1 minute**
 - **The start time of the event:** 9/27/2024 9:12
 - **The end time of the event:** 9/27/2024 16:13
 - b. **East Air Flare intermittently – about 2 hours**
 - **The start time of the event:** 9/27/2024 9:12
 - **The end time of the event:** 9/27/2024 13:43

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

Flaring was associated with the start-up of #2 Hydrogen Plant, putting off-spec hydrogen into the flare header.

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

Process Flow Diagrams redacted.

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

1,848,573 SCF

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

Date	Methane (lbs)	Non-methane (lbs)	SO2 (lbs)
9/27/2024	128	254	6

Assumptions used to calculate emissions associated with the flaring event were based on the methodology used for reporting under Regulation 12 Rule 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 scrubbing was performed.**

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

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- 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: The incident began when the #2 Hydrogen Plant, owned and operated by Air Products, started up. Air Products followed their established Flare Minimization Startup Procedure to bring their plant online and minimize flows to the flare gas recovery system.

Excess hydrogen was flared until #3 HDO started up. Hydrogen was made in preparation of HDO startup.

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

Air Products followed their established Flare Minimization Startup Procedure to bring their plant online and minimize flows to the flare gas recovery system.

- 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?**

No, this was not classified as an emergency.

“Emergency: A condition at a petroleum refinery beyond the reasonable control of the owner or operator requiring immediate corrective action to restore normal and safe operation that is caused by sudden, infrequent and not reasonably preventable equipment failure, natural disaster, act of war or terrorism or external power curtailment, excluding power curtailment due to an interruptible power service agreement from a utility.”

- 14. If not the result of an emergency and necessary to prevent an accident, hazard or release to 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.**

Yes, the flaring was consistent with the FMP and discussed in Section 3.4.1, Startup and Shutdowns, which contains information on the startup of the No.2 Hydrogen Plant and the associated flaring due to offspec hydrogen. With the higher concentration of hydrogen in the vented gas created during the #2 Hydrogen Plant Startup, the BTU value of the recovered fuel gas drops, causing difficulties with furnace

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operations in the refinery. There is a limit to the amount of H₂ that we can recover. Operations has to monitor the fuel gas hydrogen content and put hydrogen to the flare if necessary.

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

Not applicable. Flaring was not due to a regulatory mandate.

16. Identify and describe in detail each preventative measure (PM) considered to minimize the flaring from the type of reportable flaring event that occurred:

a. State whether the PM is feasible (and will be implemented), or not feasible

	Prevention Measure	Due Date
1	2 HDO startup. This will help in hydrogen balance.	Completed

b. Explain why the PM is not feasible, if applicable

Air Products followed their procedure to safely startup their plant and get their product onspec.

Please note that Marathon does not own any portion of this plant and this report is provided as a courtesy.