

FLARE CAUSAL ANALYSIS REPORT - PUBLIC

- 1. Date on which the report was drafted:** February 21, 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.**
The reportable event was related to vent gas volume exceeding 500,000 SCF/day. The flare that processed the vent gas was West Air Flare S1012.

5. The flaring event duration for each affected flare

West Air Flare – 2 hours and 58 minutes

- a. The date(s) of the event:** December 29, 2023
- b. The start time of the event:** 12/29/2023 15:09
- c. The end time of the event:** 12/29/2023 17:57

6. A brief description of the flaring event

As a result of the Martinez Refinery cutting the No. 3 HDO feed rates to stop a suspected leak at an exchanger, a hydrogen imbalance resulted at the No. 1 and No. 2 H2 Plants which caused flaring.

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

Process Flow Diagrams redacted: No. 1 H2 Plant, No. 2 H2 Plant, and No. 3 HDO

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

718,005 SCF

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

Date	Flow (SCF)	Methane (lbs)	Non-methane (lbs)	SO2 (lbs)
12/29	718,005	139	71	1

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.

FLARE CAUSAL ANALYSIS REPORT - PUBLIC

The gas that was flared was not scrubbed to eliminate or reduce 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: At approximately 2:50 PM on December 29, 2023, the Martinez Refinery began cutting the No. 3 HDO feed rate to address what appeared to be product leaking from the heat exchanger E-4679 product fin fan. In order to isolate the heat exchanger and make repairs to stop the leak, the Refinery needed to reduce the feed rate at the No. 3 HDO. Additionally, the Refinery conducted a rapid reduction to minimize the potential release of hydrocarbons in the No. 3 HDO. Due to this reduction in feed rate at the No. 3 HDO, the hydrogen system became imbalanced which resulted in hydrogen being flared at the West Flare.

Upon inspection of the heat exchanger leak, the Refinery determined that condensate was leaking from the steam coils on the exchanger rather than product. Operations immediately took steps to increase the feed rate at the No. 3 HDO to use up the excess hydrogen and regain hydrogen balance.

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.

Refinery Operations took immediate steps to increase the amount of gas that the fuel gas recovery compressors could recover and directed the gas to the No. 5 Gas Plant. Additionally, the Refinery reduced the hydrogen production rate in order to decrease the amount of gases vented to the flare.

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.”

FLARE CAUSAL ANALYSIS REPORT - PUBLIC

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 Facility's 2023 FMP. Please refer to Section 3.4.1 Startup and Shutdown of Process Units of the FMP and pages 22 in the FMP pertaining to Hydrogen System Imbalance. As described in the FMP, an imbalance in the hydrogen system can occur when the production of hydrogen is out of balance with hydrogen consumption at various units.

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**

No additional PM's were identified.

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

Not applicable.