

**FLARE CAUSAL ANALYSIS REPORT – PUBLIC COPY***API Thermal Oxidizer Shutdown*

- 1. Date on which the report was drafted.**  
September 21, 2021
- 2. The refinery name and site number.**  
Marathon's Tesoro Martinez Refinery, Plant # B2758
- 3. The assigned refinery contact name and phone number.**  
Sharon Lim, Advance HES Professional
- 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.**  
East Air Flare, **S854**

During this flaring event, the East Air Flare was already experiencing an ongoing flaring event (report submitted on 6/29/20). As a result of this ongoing event, the water seal was already breached during the time of the flaring event contained in this report. The start and stop times of this reported flaring event were determined based on when the API/DNF gases were routed to vapor recovery system/No. 1 Gas Plant.

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

- a. The date(s) of the event**  
07/07/2020 – 07/08/2021
- b. The start and end time of the event**  
Start time: 07/07/2020 3:07 PM  
End Time: 07/08/2020 7:42 PM

**The net duration of the event**

28 hours and 35 minutes

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

Vent gas flow to the flare system was increased when the API Thermal Oxidizer (BAAQMD A-39) was shutdown for maintenance and the API DNF gases were sent to vapor recovery. East Air Flare combusted the additional vapors.

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

Redacted.

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

About 0.7 MMSCF was flared during this flaring event.

This value was estimated from the flare flows minus 0.25 MMSCFD, which is the average flare daily flow from July 1-6, 2021.

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

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**a. # methane emitted**

See table below

**b. # non-methane hydrocarbon emitted**

See table below

**c. # SO<sub>2</sub> emitted**

See table below

Date:	7/7/2021	7/8/2021
Lb CH4	106	219
Lb Non-CH4	9	21
Lb SO2	2	5

These values were estimated using the measured emissions on July 7<sup>th</sup> and 8<sup>th</sup> minus the average daily emissions from July 1-6, 2021.

**Also provide the assumptions used to calculate emissions associated with the flaring event if they are different from those used for reporting under Regulation 12 Rule 11.**

The emissions associated with this flaring event were based on the methodology used for reporting under Regulation 12 Rule 11.

This reportable flaring event occurred concurrently with the ongoing April 28, 2020 event (causal analysis submitted on June 29, 2020). The methane, non-methane, and sulfur dioxide emissions from pilots, purges, and vent gas from other sources within the Refinery routed to flare system during the event covered in this report are not included in the tabulation displayed in paragraph 9.c.

**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.**

Due to the indefinite idling of the Martinez Refinery, all potential consumers of recovered flare gas were shut down at the time of the flaring event. Since the heaters that would process the No. 1 Gas Plant vapor recovery gas were shutdown, the vapors had to go to flare. The flared gas was not being recovered by the flare gas recovery compressors, the vented gas was not being scrubbed, but combusted at the flares.

**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 was the scheduled maintenance of the thermal oxidizer. The thermal oxidizer burns the purge gas from the API/DNF Covers and API Separator. A valve on the suction of blower had to be replaced as it had malfunctioned during the preventative maintenance and testing of the shutdown

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system in May 2021. A new valve was purchased. Operations and Maintenance worked together to plan and execute the valve changeout.

**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.**

Operations shutdown the thermal oxidizer as planned. Maintenance performed the valve changeout and returned the equipment to Operations as quickly as possible. Operations followed procedures to restart the thermal oxidizer and began combustion of the vapors in the API thermal oxidizer.

In April 2020, the Martinez Refinery was brought to an idle operating state. This resulted in all potential consumers of recovered flare gas being shut down. Due to the lack of flare gas consumers, all flare gas was being combusted at the flares during this flaring event.

**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 the result of 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, vent gas was flared at the Refinery in accordance with the Flare Minimization Plan (FMP), Section 3.4.1, which explains maintenance activities. As explained, the first step is to recover as much hydrocarbon as possible but flow during these times is usually larger than the capacity of the Refinery's flare gas compressors which results in flaring. Since the Refinery's gas plants have been idled, it was necessary to also shut down the flare gas recovery compressors as they would have nowhere to discharge the recovered flare gas – all fuel gas consumers (furnaces and boilers) are idled.

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**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?**

There are no heaters running in our current operations. While the vapor recovery system is active there is no viable destination for the recovered gases other than combustion in the flare system.

**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**

A thermal oxidizer was rented and started up on August 9, 2021, to process gases from the vapor recovery system.

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

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