



Tesoro Refining & Marketing Company LLC

A subsidiary of Marathon Petroleum Corporation
Martinez Refinery
150 Solano Way
Martinez, CA 94553-1487

December 12, 2019

USPS CERTIFIED MAIL: 7019 2280 0000 9282 6385

Mr. Jeff Gove
Director of Enforcement
Bay Area Air Quality Management District
375 Beale Street, Suite 600
San Francisco, CA 94105

**SUBJECT: October 17, 2019 - Flare Event Causal Analysis
Tesoro Refining and Marketing Company, subsidiary of Marathon Petroleum, Martinez Refinery Plant #B2758**

Dear Mr. Gove:

Pursuant to Regulation 12, Rule 12, and the Compliance Advisory dated June 25, 2007 from the BAAQMD Compliance and Enforcement Division, the flare causal analysis for the October 17, 2019 event is attached. This report is being submitted under both the requirements specified in Regulation 12-12-406, for a reportable event when flaring occurs within a facility, and the Required Contents for Causal Analysis Reports, outlined in the Compliance Advisory.

This event triggered a team incident investigation. The investigation is complete, and the following report includes recommended corrective actions. If you have any questions or wish to discuss any of these items further, please feel free to call Sharon Lim at (925) 335-3467.

Sincerely,

David Chetkowski
Advanced HES Professional

SYL/kds

SYL

Attachments

cc: (via e-mail)
Miguel Zepeda, BAAQMD Air Quality Inspector

FLARE CAUSAL ANALYSIS REPORT

*Flaring Associated with #5 Gas Plant Compressors Shutdown
October 17, 2019*

Public
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- 1) **Date on which the report was drafted.**
December 12, 2019
- 2) **The refinery name and site number.**
Tesoro Martinez Refinery, Plant # B2758
- 3) **The assigned refinery contact name and phone number.**
Sharon Lim, Senior Engineer, (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.**
Steam Flares, **S944 & S945**; Coker Flare, **S1517**; and East Air Flare, **S854**.
[REDACTED]
- 5) **The flaring event duration for each affected flare:**
 - a. **The date(s) of the event**
October 17, 2019
 - b. **The start and end time of the event**
Starting time 4:35 AM
Ending time 8:05 AM
 - c. **The net duration of the event (in hours and minutes)**
3 hours 30 minutes [REDACTED]
- 6) **A brief description of the flaring event**

Flare gas compressors tripped due to high pressure at 5 Gas Plant.
- 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.**
Based on the Regulation 12 Rule 11 Flare Monitoring report for October 2019, the corrected net gas flow to the flare was 0.60 MMSCF.
- 9) **The emissions associated with the flaring event per calendar day:**
 - a. # methane emitted = 180 lbs
 - b. # non-methane hydrocarbon emitted = 73 lbs
 - c. # SO₂ emitted = 1133 lbs

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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.

- 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.**

[REDACTED] The vented gas which was flared was not scrubbed in the refinery fuel gas treating system.

- 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.**

On October 17, 2019, high pressure at 5Gas Plant caused the flare gas recovery compressor to shut down. The 5Gas Compressors could not compress the gas at its suction. Prior to the shutdown, Operations tried various moves to lower the suction pressure which has historically been successful. Operations shutdown the compressors and vented the compressor Low Pressure Stage case. After the case was purged, Operations was able to restart the wet gas compressors and then the flare gas recovery compressors. It is believed that low molecular weight material caused the event but the moves from Operations and the design of the compressors should have processed this material.

Industry experts were consulted but no definitive explanation was revealed. The compressor has two stages: Low Pressure and High Pressure. Typically, performance degradation impacts both stages but this event only impacted the Low Pressure Stage and the High Pressure Stage showed no degradation. The efficiency of the LP stage showed a slow decline beginning 8 hrs prior to the event.

- 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.**

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Unit rates were reduced to decrease any flow to 5 Gas Plant. Operations quickly restarted the wet gas compressors after purging the non-compressible material and flare gas recovery compressors.

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" as defined by the BAAQMD.

"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.

The Flare Management Minimization Plan Section 3.4, Prevention Measures, Subsection 3.4.3 Malfunctions and Upsets, discusses upsets where flaring is necessary to address the upset situation. On page 11-12 of the FMP, it discusses the automatic shutdown of the flare gas compressors when 5 Gas pressures are high. The system operated as designed.

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.

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**

Consider adding an alarm for compressor efficiency to increase time to troubleshoot the system. Due date is 7/1/2020.

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

Not applicable.