



Tesoro Refining & Marketing Company LLC

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

May 20, 2020

USPS CERTIFIED MAIL: 7019 2280 0000 9282 7177

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

SUBJECT: March 18, 2020 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 March 18, 2020 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,

A handwritten signature in blue ink, appearing to read 'D. Chetkowski', with a stylized flourish at the end.

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 Debutanizer Overpressure

March 18, 2020 Public Copy

- 1) **Date on which the report was drafted.**
May 20, 2020
- 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, 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**; East Air Flare, **S854**;
West Air Flare, **S1012**; [REDACTED]
[REDACTED]
- 5) **The flaring event duration for each affected flare:**
 - a. **The date(s) of the event**
March 18, 2020
 - b. **The start and end time of the event**
Starting time 10:17 PM
Ending time 11:24 PM
 - c. **The net duration of the event (in hours and minutes)**
1 hours and 7 minutes [REDACTED]
- 6) **A brief description of the flaring event**
5 Gas Plant Debutanizer overpressured and valves opened to flare due to ethane entrainment from deethanizer. Flare gas compressor tripped off at high pressure.
- 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 July 2019, the corrected net gas flow to the flare was 0.50 MMSCF.
- 9) **The emissions associated with the flaring event per calendar day:**
 - a. # methane emitted = 216 lbs
 - b. # non-methane hydrocarbon emitted = 67 lbs
 - c. # SO₂ emitted = 5 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 and reviewing the minute by minute averages for SO₂.

- 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.**

The Debutanizer tower at 5 Gas pressured up and relieved to the flare system. The flare compressor was overwhelmed and tripped off, resulting in flaring event. It was later discovered that there was ethane carry under from the upstream Deethanizer tower to the Debutanizer. When this happens, the vent on the Debutanizer accumulator opens up to relieve pressure in order to keep the tower stable. With excessive carry under, the vent cannot relieve the pressure even at 100% open.

The gas plant was turned down on rate during this time period due to the lower market demands. The need to adjust the flow rate handles on the tower were not highlighted and so the tower operated with the same higher lean oil and intercooler flow rates needed for maximum propane recovery at normal gas plant rates. Because of this, there was more liquid traffic in the tower and so increased ethane adsorption occurred.

The composition analyzers downstream are on the Debutanizer overhead and the Depropanizer overhead. There is significant lag time to discover the ethane carry under. There is an alarm on the Debutanizer pressure but this did not allow for adequate troubleshooting and response time. Lowering this specific alarm is not beneficial and would become a nuisance. Additional alarms on the vent gas valve positions from the depropanizer and debutanizer could be increase time for troubleshooting.

- 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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Operations quickly restarted the first compressor, started up the second flare gas recovery compressor and worked to get the debutanizer stable.

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 & Upsets, addresses situations with abnormal operations. The flare is used to process vent gases during the upset situation.

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

	Corrective Actions	Anticipated Date of Completion
1	Evaluate alarm changes to include the max position on Debutanizer/Depropanizer vents and improve guidance for existing Tray 11 temperature alarm on the Deethanizer to lower circulation rates.	9/30/2020
2	Investigate triggers to alert Operations and/or Technical that tower operations need to be adjusted due to a low rate situation.	9/30/2020

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

Not applicable.