

Regulation 12 Rule 12 Reportable Flaring Event Causal Analysis Report

1. **Report Date:** May 24, 2022
2. **Refinery Name and Site Number:** Martinez Refining Company - BAAQMD Site # A0011
3. **Refinery Contact and Phone Number:** Rick Shih, (925) 313-0586
4. **Flare Identification:** Delayed Coking Unit (DCU) Flare S-4201 and OPCEN HC Flare S-1772
5. **Flaring Event Duration:**
 - a. **Start Date:** March 17, 2022
 - b. **Time for DCU Flare:** 1:33 PM to 3:04 PM
Time for OPCEN HC Flare: 1:39 PM to 3:19 PM, intermittent
 - c. **Total Duration of Event:** approximately 1.5 hours
6. **Brief Description of Flaring Event:** Leak in the Distillate Hydrotreater (DHT) resulted in flaring of more than 0.5 MMSCF.
7. **Process Flow Diagram:** see attached process flow diagram
8. **Volume of Gas Flared:** 0.62 MMSCF at DCU Flare and 0.33 MMSCF at OPCEN HC Flare
9. **Total Emissions due to flaring based on Regulation 12 Rule 11 Methodology:**
 - a. 31 lbs (S-4201) and 2.7 lbs (S-1772) of methane
 - b. 1 lbs (S-4201) and 7.1 lbs (S-1772) of NMHC
 - c. 0 lbs (S-4201) and 0 lbs (S-1772) of sulfur dioxide
10. **Was the Gas Scrubbed?** The vent gas that went to the flare was not scrubbed.
11. **Primary Cause of Flaring Event including Detailed Description of the Cause and Contributing Factors:**

Distillate Hydrotreater (DHT) treats coker gas oils by reducing the sulfur, nitrogen, oxygen, aromatic, and olefin content to produce high quality feedstock for the Catalytic Cracking Unit (CCU).

During the restart of the DHT, a level control valve () between the DHT High Pressure High Temperature (HPHT) Separator and Low Pressure High Temperature (LPHT) Separator had a packing leak, causing the release of flushing oil. MRC staff triggered the emergency de-pressuring system to safely de-pressure the unit to the flare. Flaring stopped once the unit was depressurized. Crews isolated the control valve and then the unit was then safely restarted.

It was later determined that the packing system in the control valve was not correctly assembled at the third party shop. In particular, an anti-extrusion ring was missing from the valve.

12. **Immediate Corrective Actions Taken:**

Once the leak was discovered, the DHT was depressurized, safely sending material to the flare. Once the unit was sufficiently depressurized, flaring stopped

13. Was the Flaring the Result of an Emergency?

Yes, Regulation 12 Rule 12 defines “Emergency” as “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 a 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.” A sudden leak in DHT resulted in following emergency procedures to safely depressurize the unit to the flare.

14. Was the Flaring Consistent with an Approved FMP?

Yes, the flaring was consistent with Martinez Refining Company approved Flare Management Plan (FMP). As stated on page 3-1 of the FMP, Martinez Refining Company believes the key to flare minimization is careful planning to avoid flaring coupled with evaluation of any flaring events that occur and incorporation of lessons learned back into the planning process to further reduce flaring. As part of the FMP, Martinez Refining Company developed procedures to implement this process. As stated on page 3-1 of the FMP, “when these procedures are followed, any flaring is consistent with the FMP.” Operations followed procedure C(F)-20 – Unanticipated Flaring. This procedure addresses flare events caused by process upsets or unplanned events.

15. Was the Flaring due to a Regulatory Mandate to Vent to a Flare?

The flaring was not due to a regulatory mandate to vent to the flare.

16. Prevention Measures Considered or Implemented to Minimize Flaring from this Type of Flaring Event

- a. The third party shop will undergo additional training.
- b. MRC will assign staff specifically for monitoring quality assurance of control valves during turnaround related activities.
- c. Other valves with the similar design were inspected and work was done to ensure proper assembly.

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Public Version

Figure 1: Process Flow Diagram of Distillate Hydrotreater

[This figure has been redacted from the Public Version as it contains Business Confidential Information]