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Martinez
Refining Company

3485 Pacheco Boulevard
Martinez, CA 94553

VIA UPS

June 29, 2023

Bay Area Air Quality Management District
ATTN: Mail Stop FM1
375 Beale Street, Suite 600
San Francisco, CA 94105

Subject: April 2023 Reportable FXG Flaring Event Incident Report -Public Version

To Whom It May Concern:

Pursuant to Regulation 12 Rule 12 Section 406, Martinez Refining Company submits the following information regarding a reportable flaring event as defined in Regulation 12-12-208 that occurred on April 21, 2023. The attached report discusses the cause of the flaring event and any prevention measures considered to prevent recurrence of the event.

Should you have any questions or concerns regarding this report, please contact Ms. Katie Hoffmann at (925) 313-5161 / kaitlyn.hoffmann@pbfenergy.com, or you may contact me at the numbers below.

Sincerely,

Michael Marlowe

Michael Marlowe
Manager, Environmental Affairs
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Attachment

cc: ccrowley@baaqmd.gov

Regulation 12 Rule 12 Reportable Flaring Event Causal Analysis Report

1. **Report Date:** June 29, 2023

2. **Refinery Name and Site Number:** Martinez Refining Company LLC - BAAQMD Site # A0011

3. **Refinery Contact and Phone Number:** Katie Hoffmann (925) 313-5161

4. **Flare Identification:** Flexigas Flare [redacted]

5. **Flaring Event Duration:**
   a. **Date:** April 21, 2023
      i. **Start Time:** 7:48 AM
      ii. **End Time:** 8:55 AM
      iii. **Total Duration of Event:** 67 Minutes

6. **Brief Description of Flaring Event:**
   Flexigas (FXG) is a low-BTU fuel gas made in the Flexicoker and burned in the refinery heaters along with refinery fuel gas. The gasifier (gx) feed line plugged causing FXG flaring greater than 0.5 MMSCFD.

7. **Process Flow Diagram:** see attached process flow diagram

8. **Volume of Gas Flared:** 1,399,908 SCF

9. **Total Emissions due to flaring based on Regulation 12 Rule 11 Methodology**

   a. 117 lbs of methane
   b. 8.27 lbs of non-methane hydrocarbons
   c. 25.98 lbs of sulfur dioxide

10. **Was the Gas Scrubbed?** Yes, the vent gas that went to the flare was scrubbed in the upstream Flexsorb Unit.

11. **Primary Cause of Flaring Event including Detailed Description of the Cause and Contributing Factors:**
    Coke is circulated between the heater, gasifier, and reactor. The gasifier coke contacts air and steam creating flexigas. Circulation of hot coke between the vessels is required to supply heat to the reactor. The flow of coke from the heater to the gasifier in the FXU is controlled via the operation of a gasifier feed line (GFL). The gasifier feed line uses steam or nitrogen as aeration to fluidize coke allowing it to flow. Maintaining a sufficient flow of coke to the gasifier is required for FXU operation to control the unit's coke inventory. The operation of the GFL can be influenced by circulating solids particle size distribution, GFL aeration profile, transfer line flux limits, and factors that influence pressure differential between the Gasifier and Heater vessels.
    The GFL stalls when too much or too little aeration has created a pocket and the coke cannot flow or the coke is no longer fluidized. When the line stalls we are no longer feeding coke into the gasifier. Because there is less coke in the gasifier, air needs to be backed down and then supplemented with steam to control the temperature. The change in temperature at the heater from loss of its main heat medium requires adding more air. The steam and the condensate that are used to control the temperature of the system add more volume creating a pressure increase in the FXG system.

Controlling the pressure increase is typically done in two way, the first is the header pressure control program and the second option is the pressure valves to the FXG flare., typically, the FXU sets a pressure control target on the FXG header and then furnaces will receive more or less FXG to control pressure. [redacted]

The GFL stalling could be due to plugged aeration taps. [redacted] After start-up it was also noted that flow transmitters and pressure gauges were not reading correctly. Additional difficulty was that the slide valve on the GFL would not fully seal making restarting flow of the line very difficult.

12. **Immediate Corrective Actions Taken:**
Cut the unit feed rate from [redacted]. Unit was slowed down until heater level came under control and gasifier feed line flow was resumed.

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." The prolonged stalling of the GFL is not a reasonably preventable issue.

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 to Minimize Flaring from this Type of Flaring Event**
    a. All aeration taps were rodded out
    b. Plan to fix open and close position of the slide valve by the end of the 3rd quarter
    c. Guideline for operations for proactive response to GFL stalling – work instructions
    d. [redacted]

Figure 1: Process Flow Diagram

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

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