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Benicia Refinery • Valero Refining Company - California

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Via Email Notification

February 24, 2021

Reportable Flaring Event Causal Analysis  
December 5<sup>th</sup>, 2020  
Plant No. B2626

Mr. Jack Broadbent  
Bay Area Air Quality Management District  
Bay Area Metro Center  
375 Beale Street, Suite 600  
San Francisco, CA 94105

Dear Mr. Broadbent:

A reportable flaring event occurred on December 5th, 2020 at the Valero Refining Company – California, Benicia Refinery (Valero Refinery) (Id. No. B2626). The following Causal Analysis for this Reportable Flaring Event is provided to the Bay Area Air Quality Management District (District) pursuant to and in accordance with Section 12-12-406 and the District's Compliance Advisory dated June 25, 2007.

1. *Date on which the report was drafted (12-12-406).*  
February 12, 2021
2. *The refinery name and site number (12-12-406).*  
Valero Refinery, Id. No. B2626
3. *The assigned refinery contact name and phone number (12-12-406).*  
Kimberly Ronan at (707) 745-7990
4. *Identification of the flare(s) at which the reportable event occurred by reviewing water seal monitoring data to determine which seals were breached during the event (12-12-406).*  
Acid Gas Flare (S-16)
5. *The flaring event duration for each affected flare (12-12-406.1):*
  - a) *The date(s) of the event;*
  - b) *The start and end time of the event; and*
  - c) *The net duration of event (in hours and minutes).*

Item	Acid Gas Flare (S-16)
Start Date	12/05/2020
Start Time (hh:mm)	05:07
End Date	12/05/2020
End Time (hh:mm)	05:14
Duration (hh:mm)	00:07

6. *A brief description of the flaring event (12-12-406.1) (e.g., “flaring due to turnaround maintenance”).*

Flaring from the Acid Gas Flare (AGF) occurred due to TGU-B and subsequent SRU-A trip offline.

*A process flow diagram showing the equipment and process units that were the primary cause of the event (12-12-406.1).*

The relevant piping and instrumentation diagrams (P&IDs) are attached and highlighted.

Please note that the attached P&ID contains information that the Valero Refinery considers to be trade secret and confidential business information (CBI) as defined by the California Public Records Act, Government Code § 6254.7 et seq., and the Freedom of Information Act, 40 CFR Part 2 (40 CFR § 2.105(a)(4)), 5 USC 552(b)(4), and 18 USC 1905. Because of the sensitive and competitive nature of this information, the Valero Refinery requests that the District afford the information CBI status and treatment indefinitely.

7. *The total volume of vent gas flared (MMSCF) throughout the event (12-12-406.5).*

Item	Acid Gas Flare (S-16)
Volume (MMSCF)	0.052

8. *The emissions associated with the flaring event per calendar day (12-12-406.5):*

- a) # methane (CH<sub>4</sub>) emitted;
- b) # non-methane hydrocarbon emitted; and
- c) # SO<sub>2</sub> emitted.

*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.*

Item	Acid Gas Flare (S-16)
CH <sub>4</sub> (lbs)	15.29
NMHC's (lbs)	0
SO <sub>2</sub> (lbs)	4330.53

The assumptions used to calculate emissions associated with the flaring event are consistent with those used for reporting under Regulation 12, Rule 11.

9. *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 the scrubbing was performed (12-12-406.1).*

The vent gases flared during this event were not scrubbed.

10. *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 (12-12-406.1).*

On December 5<sup>th</sup>, TGU-B (F3001B) tripped due to low fuel gas pressure which caused the pilot to trip out as well. Several attempts were made to relight F3001B but was unsuccessful. During the attempted restarts and I/E trouble-shooting the R3001B bed temperatures dropped and the SRU trains tailgas was diverted to the incinerator per procedure. While attempting to divert SRU-A to F-1302A, both SRU-A outlet valves closed because 30MV001 (SRU-A to F-1302A) did not open when the CBO called for it to open and the interlock did not function as designed. 30MV001 (SRU-A to F-1302A) did not open because it had not been properly racked in while clearing a prior EIF. The interlock did not function as designed possibly due to the 30MV052 (SRU-B to TGU-B) limit switches not being set properly.

11. *Describe all immediate corrective actions to stabilize the flaring event, and to reduce or eliminate emissions (flare gas recovered or stored to minimize flaring during the event). If a decision was made not to store or recover flare gas, explain why (12-12-406.1).*

Immediate corrective actions that were taken to stabilize the flaring event and to reduce or eliminate emissions include:

- A. Control House monitoring
- B. MOV to the incinerator was manually opened and SRU A was restarted. T-1203 overhead was lined up to SRU and away from the Acid gas Flare.
- C. The pilot was able to be re-lit and the TGU combustor restarted. SRU-A/B tailgas was normalized to TGU and away from the incinerator and operations were normalized.

The Valero Refinery does not have the ability to store flare gas. Per Section 4.2 of the FMP, the ability to store flare gas is not a cost effective prevention measure.

12. *Was the flaring the result of an emergency (See definition in Reg. 12-12-201)? If so, was the flaring necessary to prevent an accident, hazard or release to the atmosphere (12-12-406.4)?*

This section is not applicable, as this flaring incident was not the result of an emergency. However, the trip was automatically triggered to avoid an emergency and required immediate shutdown and subsequent restart of the SRU.

13. *If not the result of an emergency and necessary to prevent an accident, hazard or release to the 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 (12-12-406.3).*

Pursuant to Regulation 12-12-301, flaring is prohibited unless it is consistent with an approved FMP. The current approved FMP is Revision 15.0 dated September 30, 2019. This series of events is consistent with Section 2.2 of the Valero Refinery FMP, Reasons for Flaring:

2.2.3 – Equipment Failure and Malfunction

14. *If the flaring was due to a regulatory mandate to vent to a flare, why couldn't the gas be recovered, treated, and used as fuel gas (12-12-406.4)?*

The flaring was not due to a regulatory mandate to vent to a flare. The flaring was consistent with the Valero Refinery's approved FMP.

15. *Identify and describe in detail each prevention measure (PM) considered to minimize flaring from the type of reportable flaring event that occurred (12-12-406.2):*

- a) *State whether the PM is feasible (and will be implemented), or not feasible.*
- b) *Explain why the PM is not feasible, if applicable.*

During a post-incident review of the flaring event, the following additional prevention measures were identified in order to prevent a similar flaring event from reoccurring in the future:

- A. Provide additional EIF training and review incident with operators.
- B. Test all SRU-A diversion MOVs are functioning properly via CIC TGU004.
- C. Test all SRU-B diversion MOVs are functioning properly via CIC TGU004.

Please contact Mr. John Lazorik at (707) 745-7660 if you have any questions on this reportable flare event.

Sincerely,



Kimberly A. Ronan  
Director HSE & Regulatory Affairs

ecc:

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MSK3393 – Confidential Business Information (CBI)

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