



Shawn Lee
HES Manager, Richmond Refinery

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BAY AREA AIR QUALITY
MANAGEMENT DISTRICT

July 30, 2019

Bay Area Air Quality Management District
Mail Stop FM 1
375 Beale Street, Suite 600
San Francisco, CA 94105

**Chevron Richmond Refinery
May 2019 Flaring Causal Analysis Report**

To Whom It May Concern:

Attached is the flaring causal analysis report for May 2019 for Chevron's Richmond Refinery. This report is submitted pursuant to Regulation 12, Rule 12, Section 12-12-406. The report is due within 60 days of the end of May 2019 for any reportable flaring events that occurred during the month of May 2019. There were seven reportable flaring events that occurred in May 2019.

If you have any questions regarding this report, please contact Laura Kurt at (510) 242-5219.

Sincerely,


Shawn Lee

Attachments

Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

May 3, 2019

TKC Flaring Due to Level Indication Malfunction

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: July 30, 2019

2. The refinery name and site number:

Refinery: Chevron Richmond Refinery

Refinery Site Number: A0010

3. The assigned refinery contact name and phone number:

Contact Name: Laura Kurt

Contact Phone Number: (510) 242-5219

Is this a rescission/modification of a previous report: No.

Date of initial report: N/A

Reason for rescission/modification: N/A

4. Identification of flare (s) at which the reportable event occurred by reviewing water seal monitoring data to determine which seals were breached during the event

Flare	Reportable Event (SO ₂ or Vent Gas Volume)
NISO (S-6013)	None
SISO (S-6012)	SO ₂
FCC (S-6016)	None

5. The flaring event duration for each affected flare

Flare (Source Number): NISO (S-6013)

The Date(s) of the event: May 3, 2019

The start time of the event: 8:03AM

The end time of the event: 8:10AM

The net duration of event (in hours and minutes): 7 Minutes

Flare (Source Number): SISO (S-6012)

The Date(s) of the event: May 3, 2019

The start time of the event: 7:47AM

The end time of the event: 8:13AM

The net duration of event (in hours and minutes): 26 Minutes

Flare (Source Number): FCC (S-6016)

The Date(s) of the event: May 3, 2019

The start time of the event: 7:53AM

The end time of the event: 8:12AM

The net duration of event (in hours and minutes): 19 Minutes

6. A brief description of the flaring event –

On May 3, 2019 at approximately 7:00AM, a compressor knock-out vessel in the Hydroprocessing Area Business Unit began indicating a false high level. Level control equipment automatically adjusted to reduce the level which resulted in increased downstream pressure, lifting a pressure safety valve. Process gases entered the relief system and flaring began at the Fluid Catalytic Cracking (FCC), South Isomax (SISO) and North Isomax (NISO) flares. The primary source of vent gas flared during this event was process material from Taylor Katalytic Converter (TKC) process equipment. Flaring ceased on May 3, 2019 at approximately 8:13AM. The sulfur dioxide (SO₂) emissions from only the SISO flare exceeded 500 pounds (lbs) on the May 3, 2019 calendar day.

This flaring incident occurred after previously restoring indication on the same level indicator and compressor knock-out vessel following the April 13, 2019 reportable flaring incident (see April 12-12 Report, Attachment II). This second incident led to further investigation of both incidents. The resultant root cause and corrective actions from the investigation are identified here and are the same for both the May 3, 2019 and the April 13, 2019 flaring events.

7. A process flow diagram showing the equipment and process units that were the primary cause of the event.

See Attachment Ia

8. The total volume of vent gas flared (MMSCF) throughout the event

Flare	Volume (MMSCF)
NISO	0.003
SISO	0.03
FCC	0.03

9. The emissions associated with the flaring event per calendar day

Flare	Calendar Day	CH ₄ (lbs.)	NMHC (lbs.)	SO ₂ (lbs.)
NISO	May 3, 2019	1.2	2.5	31.5
SISO	May 3, 2019	1	15	726.9
FCC	May 3, 2019	9	29	33.2

Assumptions used to calculate emissions – consistent with the reporting under Reg. 12-11.

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 the scrubbing was performed.

The vent gas was not scrubbed to eliminate or reduce any entrained compounds.

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.

Ammonium bisulfide salts accumulated in the level indication equipment on the compressor knock-out vessel, resulting in false high level indication.

The main contributor of vent gas flow during this event originated from TKC reactor vessels.

12. 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.

Operations took immediate action to reduce downstream pressure, allowing the pressure safety valve to reseal.

13. Was the flaring the results of an emergency? If so, was the flaring necessary to prevent an accident, hazard or release to the atmosphere?

The flaring was not due to an Emergency (defined in Regulation 12-12-201) as interpreted by the BAAQMD. However, the root cause of the flaring was due to malfunction, which resulted in the sudden flow of gas to relief.

14. 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.

The flaring was consistent with Chevron's FMP Section 5.4 Figure 5-1. This event was unplanned. Causes for the flaring were analyzed through a TapRoot® investigation and the corrective actions have already been or will be implemented to reduce the likelihood of a recurrence of flaring resulting from the same causes.

15. If the flaring was due to a regulatory mandate to vent to flare, why couldn't the gas be recovered, treated, and used as fuel gas?

N/A. Flaring was not due to regulatory mandate.

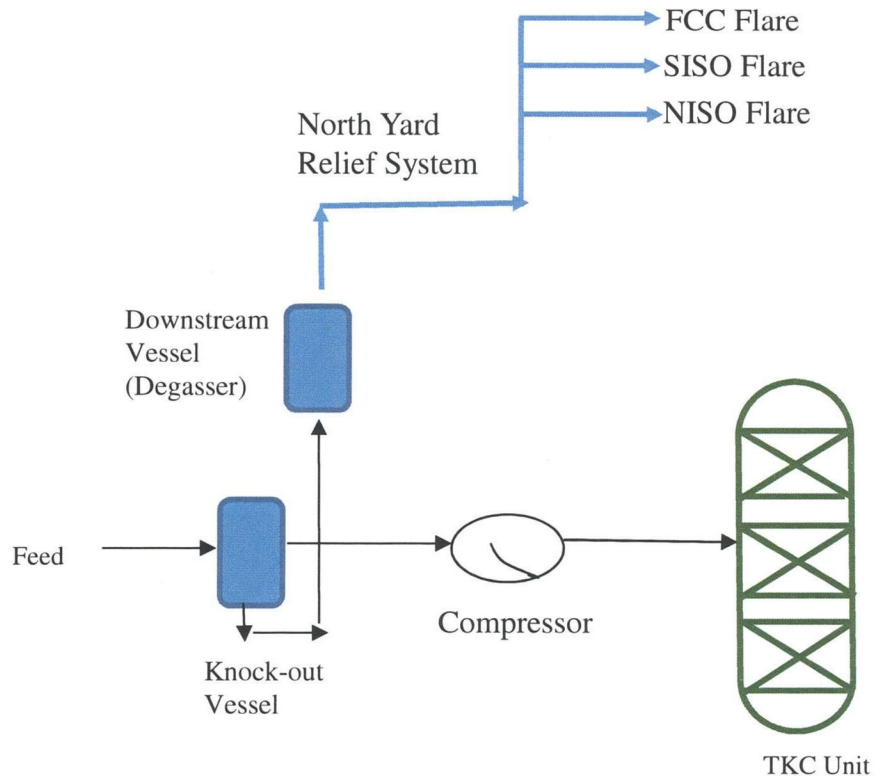
16. Identify and describe in detail each prevention measure (PM) considered to minimize flaring from the type of reportable flaring event that occurred.

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

All prevention measures have been considered and have or will be implemented.

1. Install permanent heat tracing on all level indication bridles on the compressor knock-out vessel to prevent the formation of ammonium bisulfide salts.
Projected Completion Date: November 31, 2019

TKC Flaring Due to Level Indication Malfunction



On May 3, 2019 at approximately 7:00AM, a compressor knock-out vessel in the Hydroprocessing Area Business Unit began indicating a false high level. Level control equipment automatically adjusted to reduce the level which resulted in increased downstream pressure, lifting a pressure safety valve. Process gases entered the relief system and flaring began at the Fluid Catalytic Cracking (FCC), South Isomax (SISO) and North Isomax (NISO) flares.