



Kris Battleson
HSE Manager, Richmond Refinery

October 30, 2024

Via E-mail

Bay Area Air Quality Management District
Attn: Compliance and Enforcement Division
375 Beale Street, Suite 600
San Francisco, CA 94105

**Chevron Richmond Refinery
August 2024 Flaring Causal Analysis Report**

To Whom It May Concern:

Attached is the flaring causal analysis report for June 2024 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 August 2024 for any reportable flaring events that occurred during the month of August 2024. There were two (2) reportable flaring events that occurred in August 2024.

If you have any questions, please contact Duy Nguyen at 510-242-3132 or duy.nguyen@chevron.com

Sincerely,

Danny Barbour

for

Kris Battleson

Attachment

cc: Danny Fung, Bay Area Air Quality Management District (via e-mail, w/ attach)
Vernzoone R. Pharn, Bay Area Air Quality Management District (via e-mail, w/ attach)
Chris Coelho, Bay Area Air Quality Management District (via e-mail, w/ attach) Haley
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Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

August 02, 2024

Flaring Due to Mechanical Failure of Compressor Steam System

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: October 8, 2024

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: Duy Nguyen
Contact Phone Number: (510) 242-3132

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

Date of initial report: Not Applicable

Reason for rescission/modification: Not Applicable

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 (SO2 or Vent Gas Volume)
NISO (S-6013)	Vent Gas Volume

5. The flaring event duration for each affected flare

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

The Date(s) of the event: August 02, 2024

The start time of the event: 08/02/2024 02:25 AM

The end time of the event: 08/02/2024 03:21 AM

6. A brief description of the flaring event –

On August 02, 2024, a mechanical failure occurred within the steam system associated with a recycle hydrogen compressor.. The mechanical failure caused the steam system to close, shutting down the associated compressor. The loss of the recycle hydrogen stream to the process unit initiated a shutdown of the process unit and led to the flaring event.

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	1.31

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
NISO	August 02, 2024	110.1	157	64.8

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.

Primary causal factor: Mechanical failure of Heim joint within the steam system

The primary contributor of the vent gas to the flare was a hydrocracking unit.

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 timely proceeded with the shutdown activities per the procedure to reduce the flaring duration.

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 due to an Emergency (defined in Regulation 12-12-201) as interpreted by the BAAQMD.

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.

Flaring was consistent with Chevron's FMP Section 2.1 Table 2-2. Table 2-2 identifies sources that can be flared in non-emergency situations (e.g. start-up, shut-down).

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 a 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.

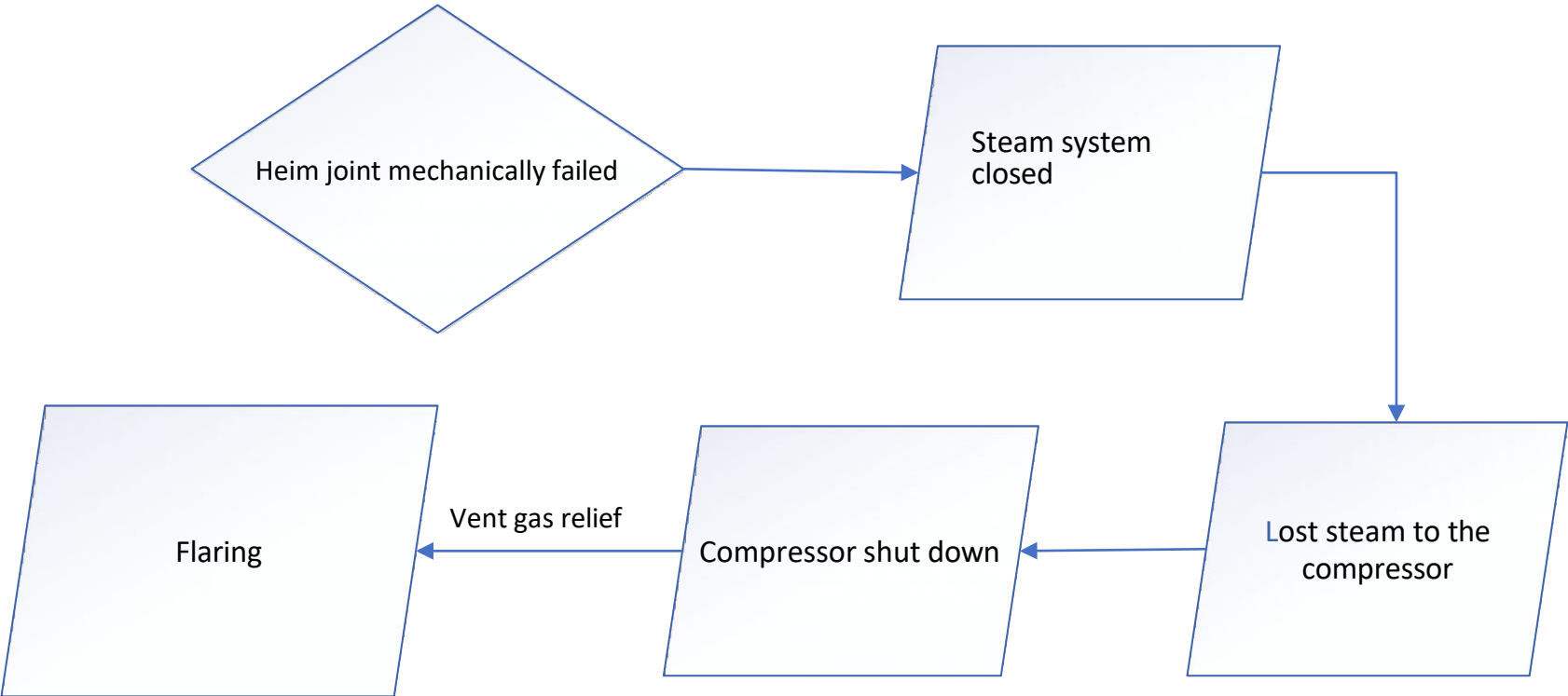
a) State whether the PM is feasible (and will be implemented), or not feasible

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

The prevention measure listed below is feasible and will be considered:

1. Evaluate Heim joint durability for this and similar steam turbine governor linkage systems. Make appropriate updates to standards, if necessary.
 - a. Estimated Completion Date: 12/31/2025

Attachment Ia: Flaring Due to Mechanical Failure of Compressor Steam Rack



Attachment II

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

August 15, 2024
Flaring Due to Startup of Process Unit

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: October 8, 2024

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: Duy Nguyen

Contact Phone Number: (510) 242-3132

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

Date of initial report: Not Applicable

Reason for rescission/modification: Not Applicable

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)
FCC (S-6016) and Alky (S-6019)	SO ₂

5. The flaring event duration for each affected flare

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

The Date(s) of the event: August 15, 2024

The start time of the event: 08/15/2024 03:07 AM

The end time of the event: 08/15/2024 03:36 AM

Flare (Source Number): Alky (S-6019)

The Date(s) of the event: August 15, 2024

The start time of the event: 08/15/2024 03:07 AM

The end time of the event: 08/15/2024 03:30 AM

6. A brief description of the flaring event –

On August 15, 2024, the startup of a process unit resulted in an increased gas flow to a separation vessel, which subsequently raised the vessel pressure. The pressure increase activated the associated pressure relief devices, leading to flaring.

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

See Attachment IIa.

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

Flare	Volume (MMSCF)
FCC	0.16
Alky	0.02

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
FCC	August 15, 2024	19.7	115.8	446.2
Alky	August 15, 2024	0.5	1.8	77
Total	August 15, 2024	20.2	117.6	523.2

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.

Primary causal factor: ambiguous guidance in the startup procedure to manage high pressure alarm during startup.

Contributing factor: Pressure relief devices malfunctioned

The primary contributor of vent gas: a hydrocracking unit

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 timely proceeded with the shutdown activities per the procedure to reduce the emissions.

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 due to an Emergency (defined in Regulation 12-12-201) as interpreted by the BAAQMD.

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.

Flaring was consistent with Chevron's FMP Section 2.1 Table 2-2. Table 2-2 identifies sources that can be flared in non-emergency situations (e.g. start-up, shutdown).

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 a 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

The prevention measure listed below is feasible and will be considered:

1. Revise the startup procedure to include guidelines for managing high pressure alarm on this equipment during startup.
 - a. Estimated Completion Date: 03/31/2025

Attachment IIa: Flaring Due to Startup of Process Unit

