



Shawn Lee
HSE Manager, Richmond Refinery

EG 10/15/20
EG 10/15/20 (Oct 15, 2020 12:27 PDT)

CC 10/15/20
CC 10/15/20 (Oct 15, 2020 12:19 PDT)

AR 10/15/20
AR 10/15/20 (Oct 15, 2020 14:13 PDT)

October 8, 2020

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 2020 Flaring Causal Analysis Report**

To Whom It May Concern:

Attached is the flaring causal analysis report for August 2020 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 2020 for any reportable flaring events that occurred during the month of August 2020. There was one reportable flaring event that occurred in August 2020.

If you have any questions, please contact Ms. Katie Gong at 510-242-1930 or katherinegong@chevron.com.

Sincerely,

for

Shawn Lee

Attachment

cc: Chris Crowley, Bay Area Air Quality Management District (via e-mail, w/ attach)
Almira Van, Bay Area Air Quality Management District (via e-mail, w/ attach)
Verntzoone R. Pharn, Bay Area Air Quality Management District (via e-mail, w/ attach)

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Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

August 14, 2020

Flaring Due to Fire Suppression System Activation Malfunction

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: October 8, 2020

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: Katie Gong

Contact Phone Number: (510) 242-1930

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 (SO₂ or Vent Gas Volume)
FCC (S-6016)	SO ₂ , Vent Gas Volume

5. The flaring event duration for each affected flare

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

The Date(s) of the event: August 14, 2020

The start time of the event: 11:21 AM

The end time of the event: 12:39 PM

The net duration of event (in hours and minutes): 1 hour, 19 minutes

6. A brief description of the flaring event –

On August 14, 2020, after ambient temperatures reached approximately 90 deg F, the fire suppression system at the Cogeneration Train 1000 Unit (Utilities and Environmental Area Business Unit) activated. This was due to a false interpretation of a pull from a pull switch station handle, causing the steam producing unit to trip. The sudden loss of steam header pressure caused an unstable process condition, and process gases were depressured per process controls. Flaring began at approximately 11:21 AM at the Fluid Catalytic Cracking (FCC) flare. The primary source of vent gas flared during this event was process material from the FCC Unit in the Cracking Area Business Unit. Operations immediately responded, minimizing vent gas to the flare and reducing steam consumption refinery-wide to restore the steam header pressure, and flaring stopped at approximately 12:39 PM. The sulfur dioxide (SO₂) emissions exceeded 500 pounds (lbs) and the vent gas volume exceeded 500,000 standard cubic feet (SCF) at the FCC Flare on August 14, 2020.

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)
FCC	1.16

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

Flare	Calendar Day	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
FCC	August 14, 2020	247.3	1,976.6	628.9

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.

Root cause: Failure occurred in the pull switch sending signal.

Contributing factor: Early life failure of complex electrical system.

Contributing factor: Temperature limit exceeded for pull switch station.

The main contributor of vent gas flow during this event originated from the FCC 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 immediately responded, minimizing vent gas to the flare and reducing steam consumption refinery-wide to restore the steam header pressure.

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 the result of an emergency, as defined in Regulation 12-12 (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 was caused by a sudden, infrequent and not reasonably preventable equipment failure). The flaring was necessary to prevent an unabated release to the atmosphere. The refinery has requested breakdown relief for emissions excesses, sharing the same root cause (#07U42).

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 the result of an emergency. The flaring is also consistent with Chevron's FMP Section

5.4 Figure 5-1. This event was unplanned. Causes for the flaring were analyzed through a Why Tree investigation and a 5 Why investigation. 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.

Install shade over pull switch station to prevent from overheating.

Completion date: 8/14/2020

Evaluation of alternatives for long-term solutions for pull switch system failure and implementation plan development.

Evaluation projected completion date: 3/31/2021

If a long-term solution is identified and recommended, then a supplemental corrective action will be conducted. The completion date is unknown at this time.

Flaring Due to Fire Suppression System Activation Malfunction

On August 14, 2020, after ambient temperatures reached approximately 90 deg F, the fire suppression system at the Cogeneration Train 1000 Unit (Utilities and Environmental Area Business Unit) activated. This was due to a false interpretation of a pull from a pull switch station handle, causing the steam producing unit to trip. The sudden loss of steam header pressure caused an unstable process condition, and process gases were depressured per process controls. Flaring began at approximately 11:21 AM at the Fluid Catalytic Cracking (FCC) flare. The primary source of vent gas flared during this event was process material from the FCC Unit in the Cracking Area Business Unit. Operations immediately responded, minimizing vent gas to the flare and reducing steam consumption refinery-wide to restore the steam header pressure, and flaring stopped at approximately 12:39 PM. The sulfur dioxide (SO₂) emissions exceeded 500 pounds (lbs) and the vent gas volume exceeded 500,000 standard cubic feet (SCF) at the FCC Flare on August 14, 2020.

