Kris Battleson
HSE Manager, Richmond Refinery

October 28, 2025

Via E-mail

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

Chevron Richmond Refinery
August 2025 Flaring Causal Analysis Report

To Whom It May Concern:

Attached is the flaring causal analysis report for August 2025 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 2025 for any reportable flaring events that occurred during the month of August 2025.

There was one (1) reportable flaring event that occurred in August 2025.

If you have any questions, please contact Luke Honnen at 510-242-5271 or Luke.Honnen@chevron.com.

Sincerely,

for
Kris Battleson

Attachment

cc: Danny Fung, Bay Area Air District (via e-mail, w/ attach)
Cristobal Frias, Bay Area Air District (via e-mail, w/ attach)
Chris Coelho, Bay Area Air District (via e-mail, w/ attach)
Haley Downing, Bay Area Air District (via e-mail, w/ attach)

Richmond Refinery
Chevron Products Company
A Division of Chevron U.S.A. Inc.
841 Chevron Way, Richmond, CA 94801
Tel (510) 242-1400 Fax (510) 242-3762

Attachment I

Causal Analysis Report

Chevron Richmond Refinery
Reportable Flaring Events

August 20, 2025 and August 21, 2025
Flaring Due to Planned Maintenance Activity

Refinery Flare Event – Cause Investigation Report

1. Date on which the report was drafted: October 28, 2025

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: Luke Honnen
Contact Phone Number: (510) 242-5271

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

Date of initial report: Not Applicable

Reason for rescission/modification: Not Applicable

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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)	SO2
NISO (S-6013)	SO2

5. **The flaring event duration for each affected flare**

Flare (Source Number)	Event Date	Start Time	End Time
FCC (S-6016)	20-August-25	8/20/2025 22:19	8/20/2025 23:59
FCC (S-6016)	21-August-25	8/21/2025 00:00	8/21/2025 05:48
NISO (S-6013)	20-August-25	8/20/2025 22:31	8/20/2025 23:59
NISO (S-6013)	21-August-25	8/21/2025 00:00	8/21/2025 05:29
ALKY (S-6019)*	20-August-25	8/20/2025 22:20	8/20/2025 23:59
ALKY (S-6019)*	21-August-25	8/21/2025 00:00	8/21/2025 05:37
RLOP (S-6039)*	20-August-25	8/20/2025 22:31	8/20/2025 23:59
RLOP (S-6039)*	21-August-25	8/21/2025 00:00	8/21/2025 05:39
SISO (S-6012)*	20-August-25	8/20/2025 22:27	8/20/2025 23:59
SISO (S-6012)*	21-August-25	8/21/2025 00:00	8/21/2025 05:29

**Reporting per recommendation from BAAD to include vent gas volume and emission from the other flares occurring during the same flaring event.*

6. A brief description of the flaring event:

On August 20, 2025, a planned maintenance activity was conducted that required shutting down two of the three North Yard Flare Gas Recovery (FGR) Compressors, for approximately seven hours. A notification of this planned shutdown was sent to the Bay Area Air District (Air District) on August 14, 2025. This shutdown was necessary so that two check valves could be removed for compliance with the American Society of Mechanical Engineers code prior to conducting Attachment I

maintenance on the North Isomax flare. Chevron followed the Flare Minimization Plan per Air District Rule 12-12-301 and minimized flaring during this period.

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) and emissions throughout the event per calendar day:

Flare (Source Number)	Event Date	Volume (mmscf)	CH4 (lbs.)	NMHC (lbs.)	SO2 (lbs.)
FCC (S-6016)	20-August-25	0.134	15.9	212.7	140.8
FCC (S-6016)	21-August-25	0.350	41.3	506.8	520.0
NISO (S-6013)	20-August-25	0.0665	7.3	17.4	836.0
NISO (S-6013)	21-August-25	0.196	28.3	96.2	3,091.4
ALKY (S-6019)*	20-August-25	0.0104	1.3	20.1	6.0
ALKY (S-6019)*	21-August-25	0.0453	4.5	58.1	28.1
RLOP (S-6039)*	20-August-25	0.00547	0.9	3.0	28.5
RLOP (S-6039)*	21-August-25	0.0208	3.4	9.3	97.0
SISO (S-6012)*	20-August-25	0.0266	5.3	13.9	41.0
SISO (S-6012)*	21-August-25	0.0730	15.3	63.4	89.3

**Reporting per recommendation from BAAD to include vent gas volume and emission from the other flares occurred during the same flaring event.*

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.

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

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.

Primary causal factor: Replacement of the North Isomax (NISO) flare tip. To replace the flare tip, the NISO flare had to be fully out of service. It was determined that that the flare system had two check valves in the relief system that would make this infeasible. Therefore, these check valves needed to be replaced with straight piping spools, which required the shut down of two of the three North Yard FGR Compressors.

Note: the flare tip replacement was not conducted at the time of this flaring event. That repair was done later after a shutdown of the unit and no additional flaring occurred.

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.

The FGR compressors pull suction on the relief header which keep the relief gases in the header at a lower pressure than the head pressure of the water seals. When the compressors are shut down, flaring cannot be prevented. However, Chevron minimized the additional relief load and the

resulting flaring by developing an action plan prior to conducting the work. Some of the steps taken included the following:

- Chevron selected a time to replace the check valves when there was minimal base load on the relief system, ensuring we minimized the controllable relief sources.

- Tasks and routine duties requiring the use of the north yard relief system (routine blowdowns, equipment cleanup, rail car offloading etc.) were postponed for the duration of the relief system work to minimize flaring.

- Processing units were maintained in stable posture, e.g. no feed rate changes or critical pump swaps that may affect header

- Drum purges were reduced where possible with no manual blowdowns unless in case of emergency or to protect equipment

- Operations optimized steam to the flare to ensure no smoke, reduce back burn during work.

- Board Operator simultaneously monitored and maintained Net Heating Value (NHV) above 280 btu/scf.

12. 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 BAAD.

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.

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).

14. 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.

15. 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

Flaring cannot be prevented during shutdown of flare gas compressors for planned maintenance due to facility and relief system design. Operational activities were consistent with shutdown procedures.

Attachment Ia: Flaring Due to Planned Maintenance Activity