



PROVIDING ENERGY. IMPROVING LIVES.

PHILLIPS 66
 RODEO RENEWABLE ENERGY COMPLEX
 1380 San Pablo Avenue
 Rodeo, CA 94572

May 30, 2024

188-ESDR-24
 02-E-01-B

Via E-Mail at Compliance@BAAQMD.gov

Mail Stop FM1
 Bay Area Air Quality Management District
 939 Ellis Street
 San Francisco, CA 94109

**Subject: Determination and Reporting of Cause:
 Main Flare (S-296) March 5 – March 8, 2023
 BAAQMD 12-12-406 & Consent Decree 167 – 169
 Phillips 66, Rodeo Renewable Energy Complex (Plant 16)**

As required by BAAQMD 12-12-406 a Causal Analysis was conducted on the following flaring incident. A Causal Analysis is required when the volume flared exceeds 0.5 MMSCF or sulfur dioxide emissions are greater than 500 pounds. The flaring of scrubbed and unscrubbed gas occurred intermittently from March 5, 2025, at approximately 10:00 a.m. until March 9, 2024, at approximately 10:40 a.m. This report covers shutdown flaring that occurred from March 5, 2024 to March 7, 2024. A separate report covers startup flaring that occurred from March 8, 2024 to March 9, 2024. The report contents are based on requirements of the Phillips 66 Consent Decree (CD) and the BAAQMD June 25, 2007 Compliance Advisory (BCA) and are referenced as such.

- The BAAQMD and Consent Decree 500 lb. SO₂ report threshold **was not** exceeded.
- The BAAQMD 500,000 scf/calendar day flow threshold was exceeded on March 7, 2024.

Total Volume and Emissions from Affected Flares [BCA 4, 5, 8, 9; CD 153(a) & (b)]:

Refinery Main Flare (S-296):

Date/Flare	Start Time	End Time	Duration (Hrs:Min)	Gas Flow Rate, SCF	Avg. H ₂ S Mole %	SO ₂ , lb.	CH ₄ , lb.	NMHC, lb.
3/05/2024	10:00 a.m.	11:59 p.m.	14:00 (int)	389,941 (<500k)	0.01%	6	216	75
3/06/2024	12:00 a.m.	11:59 p.m.	24:00 (int)	481,598 (<500k)	0.01%	8	220	120
3/07/2024	12:00 a.m.	11:59 p.m.	24:00 (int)	558,187	0.01%	9	255	119
Totals			62:00 (int)	1,420,697		24	692	314

SO₂ emissions are calculated using the following equation:
 SO₂ (lb.) = (FR) * (H₂S conc.) * (0.1689)
 FR = total flow rate during flaring, scf
 0.1689 = [lb-mol H₂S/379 scf H₂S]*[64 lb SO₂/mol H₂S]
 Non-detect H₂S is assumed to be 0.01% by volume.

Flaring Event Description [BCA 6, 7, 10, 11]

On March 5, 2024 Unit 250 was being shut down for planned maintenance work. As part of the unit shutdown, and to prepare for maintenance and entry, the unit was depressured and purged. Purge gases were directed to the flare. Shutdown of Unit 250 also caused fuel gas imbalance. Flaring continued through March 9 due to subsequent Unit 250 startup and will be addressed in a separate root cause analysis report.

Primary Cause and Contributing Factors [BAAQMD 12-12-406.1, BCA 11, CD 153(d)]:

The primary cause of the flaring was the scheduled shutdown of Unit 250. Shutdown of U250 also led to fuel gas imbalance.

Measures to Limit Duration/Quantity [BCA 10, 11, 12, CD 153(c)]

Flaring was stopped once Unit 250 was successfully started up and fuel gas balance was restored.

Prevention Measures [BAAQMD 12-12-406.2, BCA 16, CD 153(e) & 154]:

No new prevention measures or corrective actions were identified. The shutdown of Unit 250 and depressurization is a planned activity.

Was the Flaring the Result of an Emergency [BAAQMD 12-12-406.4, BCA 13]:

No.

Was flaring due to a Regulatory Mandate to Vent to a Flare [BAAQMD 12-12-406.4, BCA 15]:

No.

Consistency with Flare Minimization Plan (FMP) [BAAQMD 12-12-406.3, BCA 14]:

The activities described that resulted in flaring are consistent with activities included in the Flare Minimization Plan. Specifically, these activities can be found described in the FMP in more detail in Section 4.2 as described below:

- Maintenance, Turnaround, Startup, Shutdown – Equipment Preparation for Maintenance (e.g. equipment depressuring, Nitrogen purging, equipment steaming). (Section 4.2.1.1)
- Maintenance, Turnaround, Startup, Shutdown – Fuel Gas Balance (Section 4.2.1.1)

Please contact Morgan Zellers at 510-245-5893 if you have any questions.

Sincerely,



Jennifer Ahlskog
Environmental Team Lead



Attachments

PFDR Refinery Flare & Blowdown System (RVR-ENVRNM-YF-FLRE-001)

cc:

- C. Crowley – BAAQMD, via e-mail: CCrowley@baaqmd.gov
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Community Distribution via CFEP Community Agreement – Condition 11
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