

PHILLIPS 66
SAN FRANCISCO REFINERY
 1380 San Pablo Avenue
 Rodeo, CA 94572



cc 8/17/23
 DF 8/17/23
 SW

PROVIDING ENERGY. IMPROVING LIVES.

July 28, 2023

299-ESDR-23
 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:
 MP-30 Flare (S-398) May 14 and 15, 2023
 BAAQMD 12-12-406
 Phillips 66, San Francisco Refinery (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 May 14, 2023 at 3:52 a.m. until May 15, 2023 at 1:04 p.m. The report contents are based on requirements of 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 May 14 & 15, 2023.

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

MP-30 Flare (S398):

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
05/14/23	03:52	24:00	20	691,000	0.01%	7	49	45
05/15/23	00:00	13:04	13	542,000	0.03%	26	41	35
Totals			33	1,232,000	0.02	33	90	80

SO₂ emissions are calculated using the following equation:
 $SO_2 \text{ (lb)} = (FR) * (H_2S \text{ conc.}) * (0.1689)$
 FR = total flow rate during flaring, scf
 $0.1689 = [lb\text{-mol } H_2S / 379 \text{ scf } H_2S] * [64 \text{ lb } SO_2 / \text{mol } H_2S]$
Int = intermittent flare activity

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

During the early morning of May 14, 2023, it was discovered that the relief valve located on top of the Unit 246 Cold High-Pressure Separator, F-801, was leaking into piping that discharges to the MP-30 Flare. The leaking relief valve was identified as PSV-05B.

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

The primary cause for flaring was due to a leaking pilot-type relief valve PSV-05B. Upon identification of elevated flow, the pressure relief valve was isolated and the relief valve was removed for repairs. The relief valve was switched to the redundant valve PSV-05A. These valves are undergo periodic preventive maintenance.

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

Upon discovery of the cause of flaring, repair plans were made to isolate relief valve PSV-05B and remove it from service for repairs. The relief was switched to the redundant relief valve PSV-05A, which reduced the elevated flow to the flare. PSV-05B was sent to a third-party vendor for repairs. The relief valve was pre-tested, refurbished (i.e. components cleaned, machined and lapped, soft components replaced, etc), and pressure tested after repairs. Following refurbishing and third-party testing PSV-05B was reinstalled on May 19, 2023.

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

See below for prevention measures and corrective actions were identified.

Root Cause Finding	Action Item(s)	Date
PSV 05B Lifting	PSV-05B removed from service for repair and refurbishing.	COMPLETED May 19, 2023

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:

- 4.2.1.2 High Base/ Continuous Load – Leakage of relief valves



Please contact Andrea Fabio at (510) 245-4635 if you have any questions.

Sincerely,



Jennifer Ahlskog
Environmental Team Lead
Attachments

PFD Refinery Flare & Blowdown System (RVR-ENVRNM-YF-FLRE-001)
U246 P&ID Plant 8 UK Cold HP Separator (0246-YD-001-023) **CONFIDENTIAL**

cc:

C. Crowley – BAAQMD, via e-mail: CCrowley@baaqmd.gov
J. Kearns – BAAQMD, via e-mail: JKearns@baaqmd.gov



Community Distribution via CFEP Community Agreement – Condition 11
 w/o Confidential attachments

Name	Citizens Advisory Panel (CAP) Members	Memorandum of Understanding (dtd. 4/16/12) Signatories	Submit via
F. Brosnan	x	x	Email
C. Davis	x		Email
D. Drake	x		Email
C. Erickson	x		Email
M. Kirker	x	x	Email
R. Wilson	x		Email
D. Foote	x		Email
B. Vargen Kotchevar	x		Email
E. Gray	x		Email
L. Marley	x		Email
D. Brandon	x		Email
D. Columbo	x		Email
B. Craig	x		Email
C. Herrera	x		Email
H. Adams		x	Email
J. Callaghan		x	Email and paper mail
B. Concannon		x	Email
D. Fugere		x	Email
J. May		x	Email
E. Tannenbaum		x	Email
M. Brennan		x	Email
J. Gunkelman		x	Email



