BAAQMD received on 04/27/26

Benicia Refinery • Valero Refining Company - California
3400 East Second Street • Benicia, California 94510-1097 • Telephone (707) 745-7011 • Facsimile (707) 745-7339

Via Email Notification

April 27, 2026

Reportable Flaring Event Causal Analysis
January 31, 2026
Plant No. B2626

Dr. Philip Fine
Bay Area Air District
Bay Area Metro Center
375 Beale Street, Suite 600
San Francisco, CA 94105

Dear Dr. Fine:

A reportable flaring event occurred on January 31, 2026 at the Valero Refining Company – California, Benicia Refinery (Valero Refinery) (Id. No. B2626). The following Causal Analysis for this Reportable Flaring Event is provided to the Bay Area Air District (District) pursuant to and in accordance with Section 12-12-406 and the District's Compliance Advisory dated June 25, 2007. This report summarizes the ongoing flaring event through the end of February 2026.

1. *Date on which the report was drafted (12-12-406).*

   March 26, 2026

2. *The refinery name and site number (12-12-406).*

   Valero Benicia Refinery, Id. No. B2626

3. *The assigned refinery contact name and phone number (12-12-406).*

   Taryn Goodwin at (707) 745-7475

4. *Identification of the flare(s) at which the reportable event occurred by reviewing water seal monitoring data to determine which seals were breached during the event (12-12-406).*

   North Flare (S-19)

   South Flare (S-18)

   Acid Gas Flare (S-16)

5. *The flaring event duration for each affected flare (12-12-406.1):*

a) The date(s) of the event;
b) The start and end time of the event; and
c) The net duration of event (in hours and minutes).

Item	North Flare (S-19)	South Flare (S-18)	Acid Gas Flare (S-16)
Start Date	01/31/2026	01/31/2026	02/01/2026
Start Time (hh:mm)	00:01	08:18	01:55
End Date	*4/2/2026*	*4/2/2026*	*4/2/2026*
End Time (hh:mm)	*10:00*	*10:00*	*10:00*
Duration (hh:mm)	*1473:59*	*1465:42*	*1448:05*

6. *A brief description of the flaring event (12-12-406.1) (e.g., "flaring due to turnaround maintenance").*

   Flaring from the North Flare and South Flare occurred subsequent to the initiation of refinery-wide idling activities.

7. *A process flow diagram showing the equipment and process units that were the primary cause of the event (12-12-406.1).*

   The relevant piping and instrumentation diagrams (P&IDs) are attached.

   Please note that the attached P&ID contains information that the Valero Refinery considers to be trade secret and confidential business information (CBI) as defined by the California Public Records Act, Government Code § 6254.7 et seq., and the Freedom of Information Act, 40 CFR Part 2 (40 CFR § 2.105(a)(4)), 5 USC 552(b)(4), and 18 USC 1905. Because of the sensitive and competitive nature of this information, the Valero Refinery requests that the District afford the information CBI status and treatment indefinitely.

8. *The total volume of vent gas flared (MMSCF) throughout the event (12-12-406.5).*

Item	North Flare (S-19)	South Flare (S-18)	Acid Gas Flare (S-16)	Total Flow (S19)(S-18)(S-16)
1/31/2026				
Volume (MMSCF)	0.077	0.706	0.000	0.783
2/1/2026				
Volume (MMSCF)	0.057	0.023	0.005	0.084
2/2/2026				
Volume (MMSCF)	0.371	0.000	.000	0.371
2/3/2026				
Volume (MMSCF)	0.267	0.002	0.000	0.269
2/4/2026				

Volume (MMSCF)	1.457	0.002	0.000	1.458
2/5/2026				
Volume (MMSCF)	0.388	0.078	0.000	0.466
2/6/2026				
Volume (MMSCF)	1.461	0.000	0.000	1.461
2/7/2026				
Volume (MMSCF)	7.442	0.005	0.000	7.447
2/8/2026				
Volume (MMSCF)	11.311	0.012	0.000	11.323
2/9/2026				
Volume (MMSCF)	10.848	0.009	0.003	10.860
2/10/2026				
Volume (MMSCF)	1.602	0.002	0.000	1.604
2/11/2026				
Volume (MMSCF)	0.241	0.000	0.000	0.241
2/12/2026				
Volume (MMSCF)	0.088	0.000	0.000	0.088
2/13/2026				
Volume (MMSCF)	1.333	0.000	0.000	1.333
2/14/2026				
Volume (MMSCF)	3.081	0.000	0.000	3.081
2/15/2026				
Volume (MMSCF)	3.761	0.038	0.000	3.799
2/16/2026				
Volume (MMSCF)	5.000	0.059	0.000	5.059
2/17/2026				
Volume (MMSCF)	7.727	0.484	0.000	8.211
2/18/2026				
Volume (MMSCF)	6.101	0.253	0.000	6.354
2/19/2026				
Volume (MMSCF)	5.094	0.061	0.000	5.155
2/20/2026				

Volume (MMSCF)	4.321	0.005	0.000	4.326
2/21/2026				
Volume (MMSCF)	7.669	0.030	0.000	7.699
2/22/2026				
Volume (MMSCF)	9.239	0.005	0.000	9.244
2/23/2026				
Volume (MMSCF)	8.745	0.093	0.000	8.838
2/24/2026				
Volume (MMSCF)	7.398	0.049	0.869	8.316
2/25/2026				
Volume (MMSCF)	7.032	0.142	0.002	7.176
2/26/2026				
Volume (MMSCF)	7.454	0.043	0.005	7.503
2/27/2026				
Volume (MMSCF)	7.022	0.014	0.002	7.038
2/28/2026				
Volume (MMSCF)	9.211	0.062	0.001	9.274
3/1/2026				
Volume (MMSCF)	9.897	0.153	0.002	10.051
3/2/2026				
Volume (MMSCF)	9.153	0.216	0.002	9.371
3/3/2026				
Volume (MMSCF)	8.681	0.185	0.072	8.938
3/4/2026				
Volume (MMSCF)	6.880	0.132	0.066	7.078
3/5/2026				
Volume (MMSCF)	8.572	0.048	0.042	8.662
3/6/2026				
Volume (MMSCF)	8.116	0.047	9.237	17.400
3/7/2026				
Volume (MMSCF)	6.018	0.011	5.993	12.023
3/8/2026				

Volume (MMSCF)	4.048	0.084	0.296	4.428
3/9/2026				
Volume (MMSCF)	4.271	0.174	0.266	4.712
3/10/2026				
Volume (MMSCF)	3.988	0.206	0.037	4.231
3/11/2026				
Volume (MMSCF)	3.892	0.015	0.004	3.910
3/12/2026				
Volume (MMSCF)	4.413	0.082	0.003	4.498
3/13/2026				
Volume (MMSCF)	3.582	0.000	0.002	3.585
3/14/2026				
Volume (MMSCF)	3.030	0.021	0.003	3.054
3/15/2026				
Volume (MMSCF)	3.359	0.006	0.005	3.369
3/16/2026				
Volume (MMSCF)	3.397	0.001	0.007	3.405
3/17/2026				
Volume (MMSCF)	3.705	0.000	0.008	3.713
3/18/2026				
Volume (MMSCF)	3.478	0.700	0.006	4.184
3/19/2026				
Volume (MMSCF)	4.607	0.314	0.007	4.928
3/20/2026				
Volume (MMSCF)	4.934	0.134	0.009	5.077
3/21/2026				
Volume (MMSCF)	4.862	0.048	0.004	4.914
3/22/2026				
Volume (MMSCF)	3.097	0.488	0.003	3.589
3/23/2026				
Volume (MMSCF)	2.612	0.784	0.005	3.400
3/24/2026				

Volume (MMSCF)	2.577	0.820	0.004	3.401
3/25/2026				
Volume (MMSCF)	3.002	0.383	0.003	3.387
3/26/2026				
Volume (MMSCF)	2.730	0.000	0.002	2.731
3/27/2026				
Volume (MMSCF)	2.033	0.000	0.004	2.037
3/28/2026				
Volume (MMSCF)	2.399	0.000	0.002	2.401
3/29/2026				
Volume (MMSCF)	2.557	0.000	0.001	2.558
3/30/2026				
Volume (MMSCF)	2.887	0.000	0.004	2.891
3/31/2026				
Volume (MMSCF)	2.600	0.000	0.001	2.601
4/1/2026				
Volume (MMSCF)	1.380	0.000	0.000	1.381
4/2/2026				
Volume (MMSCF)	0.000	0.000	0.005	0.005
EVENT TOTAL				
Volume (MMSCF)	277.55	7.23	17.08	300.86

9. *The emissions associated with the flaring event per calendar day (12-12-406.5):*
    a) *# methane (CH_4) emitted;*
    b) *# non-methane hydrocarbon emitted; and*
    c) *# SO_2 emitted.*

    Also provide *the assumptions used to calculate emissions associated with the flaring event if they are different from those used for reporting under Regulation 12, Rule 11.*

Item	North Flare (S-19)	South Flare (S-18)	Acid Gas Flare (S-16)	Daily Total (S-19)(S-18)(S-16)
1/31/2026				
CH4 (lbs)	25	137	0	162
NMHC's (lbs)	14	364	0	378

SO2 (lbs)	14	269	0	283
2/1/2026				
CH4 (lbs)	18	14	0	31
NMHC's (lbs)	7	5	0	13
SO2 (lbs)	10	11	0	21
2/2/2026				
CH4 (lbs)	172	0	0	173
NMHC's (lbs)	86	0	0	86
SO2 (lbs)	18	0	0	18
2/3/2026				
CH4 (lbs)	179	2	0	181
NMHC's (lbs)	37	0	0	37
SO2 (lbs)	3	0	0	4
2/4/2026				
CH4 (lbs)	785	1	0	786
NMHC's (lbs)	289	0	0	289
SO2 (lbs)	130	0	0	130
2/5/2026				
CH4 (lbs)	210	53	0	263
NMHC's (lbs)	52	28	0	79
SO2 (lbs)	5	1	0	6
2/6/2026				
CH4 (lbs)	450	0	0	450
NMHC's (lbs)	115	0	0	115
SO2 (lbs)	31	0	0	31
2/7/2026				
CH4 (lbs)	1882	4	0	1886
NMHC's (lbs)	635	1	0	635
SO2 (lbs)	363	0	0	363
2/8/2026				
CH4 (lbs)	3459	10	0	3469
NMHC's (lbs)	1128	1	0	1129
SO2 (lbs)	642	0	0	642
2/9/2026				
CH4 (lbs)	3336	7	3	3346
NMHC's (lbs)	1153	1	0	1154
SO2 (lbs)	468	0	0	468
2/10/2026				
CH4 (lbs)	575	1	0	576
NMHC's (lbs)	159	0	0	159

SO2 (lbs)	67	0	0	67
2/11/2026				
CH4 (lbs)	139	0	0	139
NMHC's (lbs)	31	0	0	31
SO2 (lbs)	7	0	0	7
2/12/2026				
CH4 (lbs)	51	0	0	51
NMHC's (lbs)	15	0	0	15
SO2 (lbs)	3	0	0	3
2/13/2026				
CH4 (lbs)	506	0	0	506
NMHC's (lbs)	148	0	0	148
SO2 (lbs)	74	0	0	74
2/14/2026				
CH4 (lbs)	1843	0	0	1843
NMHC's (lbs)	312	0	0	312
SO2 (lbs)	69	0	0	69
2/15/2026				
CH4 (lbs)	2239	28	0	2267
NMHC's (lbs)	348	13	0	361
SO2 (lbs)	9	0	0	9
2/16/2026				
CH4 (lbs)	2505	43	0	2548
NMHC's (lbs)	433	19	0	452
SO2 (lbs)	18	0	0	18
2/17/2026				
CH4 (lbs)	3326	374	0	3700
NMHC's (lbs)	689	70	0	759
SO2 (lbs)	22	0	0	22
2/18/2026				
CH4 (lbs)	3003	197	0	3200
NMHC's (lbs)	579	30	0	609
SO2 (lbs)	17	0	0	17
2/19/2026				
CH4 (lbs)	2819	47	0	2867
NMHC's (lbs)	576	7	0	583
SO2 (lbs)	12	0	0	12
2/20/2026				
CH4 (lbs)	2260	4	0	2264
NMHC's (lbs)	519	1	0	520

SO2 (lbs)	11	0	0	11
2/21/2026				
CH4 (lbs)	4557	23	0	4580
NMHC's (lbs)	855	4	0	859
SO2 (lbs)	16	0	0	16
2/22/2026				
CH4 (lbs)	5323	4	0	5327
NMHC's (lbs)	989	1	0	989
SO2 (lbs)	16	0	0	16
2/23/2026				
CH4 (lbs)	4787	72	0	4859
NMHC's (lbs)	893	13	0	906
SO2 (lbs)	11	3	0	14
2/24/2026				
CH4 (lbs)	4063	36	733	4833
NMHC's (lbs)	730	10	0	740
SO2 (lbs)	3	0	8	11
2/25/2026				
CH4 (lbs)	3733	109	2	3844
NMHC's (lbs)	995	23	0	1018
SO2 (lbs)	2	0	0	2
2/26/2026				
CH4 (lbs)	3114	33	3	3150
NMHC's (lbs)	1281	6	0	1287
SO2 (lbs)	74	0	4	79
2/27/2026				
CH4 (lbs)	3121	11	1	3133
NMHC's (lbs)	891	2	0	892
SO2 (lbs)	125	0	0	125
2/28/2026				
CH4 (lbs)	3953	48	0	4002
NMHC's (lbs)	964	7	0	971
SO2 (lbs)	18	0	0	18
3/1/2026				
CH4 (lbs)	3884	119	1	4004
NMHC's (lbs)	766	18	0	784
SO2 (lbs)	8	0	0	8
3/2/2026				
CH4 (lbs)	3421	168	2	3592
NMHC's (lbs)	717	24	0	741

SO2 (lbs)	6	0	0	6
3/3/2026				
CH4 (lbs)	3202	144	61	3407
NMHC's (lbs)	673	21	0	694
SO2 (lbs)	4	0	0	4
3/4/2026				
CH4 (lbs)	2992	102	56	3150
NMHC's (lbs)	685	18	0	703
SO2 (lbs)	7	0	0	7
3/5/2026				
CH4 (lbs)	3563	37	36	3636
NMHC's (lbs)	1154	6	0	1160
SO2 (lbs)	46	0	0	46
3/6/2026				
CH4 (lbs)	3523	37	1682	5242
NMHC's (lbs)	837	5	0	843
SO2 (lbs)	132	0	0	132
3/7/2026				
CH4 (lbs)	2152	9	276	2437
NMHC's (lbs)	616	1	0	618
SO2 (lbs)	87	0	0	87
3/8/2026				
CH4 (lbs)	1379	64	251	1694
NMHC's (lbs)	1070	14	0	1084
SO2 (lbs)	169	0	0	169
3/9/2026				
CH4 (lbs)	1786	157	225	2168
NMHC's (lbs)	437	207	0	644
SO2 (lbs)	23	0	0	23
3/10/2026				
CH4 (lbs)	1681	242	31	1954
NMHC's (lbs)	565	613	0	1178
SO2 (lbs)	5	1	0	6
3/11/2026				
CH4 (lbs)	1731	9	3	1743
NMHC's (lbs)	431	4	0	435
SO2 (lbs)	3	0	0	3
3/12/2026				
CH4 (lbs)	1711	38	3	1751
NMHC's (lbs)	981	25	0	1006

SO2 (lbs)	232	0	0	232
3/13/2026				
CH4 (lbs)	1498	0	2	1500
NMHC's (lbs)	819	0	0	819
SO2 (lbs)	168	0	0	168
3/14/2026				
CH4 (lbs)	1471	15	3	1488
NMHC's (lbs)	301	5	0	306
SO2 (lbs)	22	0	0	22
3/15/2026				
CH4 (lbs)	1754	4	4	1763
NMHC's (lbs)	306	1	0	307
SO2 (lbs)	9	0	0	9
3/16/2026				
CH4 (lbs)	1632	1	6	1639
NMHC's (lbs)	641	1	0	642
SO2 (lbs)	7	0	0	7
3/17/2026				
CH4 (lbs)	2183	0	7	2190
NMHC's (lbs)	403	0	0	403
SO2 (lbs)	4	0	0	4
3/18/2026				
CH4 (lbs)	1885	519	5	2409
NMHC's (lbs)	973	111	0	1084
SO2 (lbs)	16	90	0	106
3/19/2026				
CH4 (lbs)	3018	240	6	3264
NMHC's (lbs)	523	29	0	551
SO2 (lbs)	2	0	0	2
3/20/2026				
CH4 (lbs)	2659	27	7	2693
NMHC's (lbs)	919	273	0	1193
SO2 (lbs)	17	48	0	65
3/21/2026				
CH4 (lbs)	503	37	3	542
NMHC's (lbs)	190	6	0	197
SO2 (lbs)	3	0	0	3
3/22/2026				
CH4 (lbs)	265	371	3	639
NMHC's (lbs)	105	53	0	158

SO2 (lbs)	63	0	0	63
3/23/2026				
CH4 (lbs)	787	594	4	1385
NMHC's (lbs)	171	88	0	259
SO2 (lbs)	31	0	0	31
3/24/2026				
CH4 (lbs)	1508	624	4	2135
NMHC's (lbs)	259	88	0	347
SO2 (lbs)	6	0	0	6
3/25/2026				
CH4 (lbs)	1504	290	2	1796
NMHC's (lbs)	261	43	0	304
SO2 (lbs)	6	0	0	6
3/26/2026				
CH4 (lbs)	1451	0	2	1453
NMHC's (lbs)	322	0	0	322
SO2 (lbs)	24	0	0	24
3/27/2026				
CH4 (lbs)	1238	0	3	1242
NMHC's (lbs)	224	0	0	224
SO2 (lbs)	3	0	0	3
3/28/2026				
CH4 (lbs)	1455	0	2	1457
NMHC's (lbs)	242	0	0	242
SO2 (lbs)	2	0	0	2
3/29/2026				
CH4 (lbs)	1476	0	1	1477
NMHC's (lbs)	284	0	0	284
SO2 (lbs)	2	0	0	2
3/30/2026				
CH4 (lbs)	1794	0	3	1797
NMHC's (lbs)	281	0	0	281
SO2 (lbs)	18	0	0	18
3/31/2026				
CH4 (lbs)	1481	0	1	1482
NMHC's (lbs)	266	0	0	266
SO2 (lbs)	59	0	0	59
4/1/2026				
CH4 (lbs)	706	0	0	706
NMHC's (lbs)	122	0	0	122

SO2 (lbs)	0	0	0	0
4/2/2026				
CH4 (lbs)	0	0	1	1
NMHC's (lbs)	0	0	0	0
SO2 (lbs)	0	0	0	0
EVENT TOTAL				
CH4 (lbs)	123728	5107	3521	132357
NMHC's (lbs)	31464	2264	0	33728
SO2 (lbs)	3445	425	12	3882

The assumptions used to calculate emissions associated with the flaring event are consistent with those used for reporting under Regulation 12, Rule 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 (12-12-406.1).*

    The vent gases flared during this event were not scrubbed.

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 (12-12-406.1).*

    This flaring event occurred as a result of refinery-wide equipment idling and clearing activities. During unit shutdowns, various materials are routed to flare to clear the unit. This idling process began in January and is ongoing.

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 (12-12-406.1).*

    The flaring is a result of controlled oil-out and clearing procedures. These procedures are intended to minimize flaring and ensure the safety of personnel and equipment. Flare gases are recovered to the extent possible by the flare gas recovery compressors, but not all material is able to be recovered and is therefore flared. Operations took actions to minimize visible emissions from flaring by increasing steam during periods of higher flare load.

    The Valero Refinery does not have the ability to store flare gas. Per Section 4.2 of the FMP, the ability to store flare gas is not a cost-effective prevention measure.

13. *Was the flaring the result of an emergency (See definition in Reg. 12-12-201)? If so, was the flaring necessary to prevent an accident, hazard or release to the atmosphere (12-12-406.4)?*

    This section is not applicable, as the flaring incident was not the result of an emergency.

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 (12-12-406.3).*

    This series of events is consistent with Section 2.2 of the Valero Refinery FMP, Reasons for Flaring:

    2.2.1 Planned Maintenance Activities

    2.2.2 Fuel Gas Quantity and Quality

15. *If the flaring was due to a regulatory mandate to vent to a flare, why couldn't the gas be recovered, treated, and used as fuel gas (12-12-406.4)?*

    The flaring was not due to a regulatory mandate to vent to a flare. The flaring was consistent with the Valero Refinery's approved FMP.

16. *Identify and describe in detail each prevention measure (PM) considered to minimize flaring from the type of reportable flaring event that occurred (12-12-406.2):*

    There are no additional prevention measures that are feasible or practical which can further minimize or eliminate flaring from this planned idling activity. All feasible prevention measures were incorporated to the extent possible for the event. These measures helped to minimize, but not prevent, the flaring event.

Please contact Taryn Goodwin at (707) 745-7475 if you have any questions on this reportable flare event.

Sincerely,

Taryn Goodwin

Taryn Goodwin
Manager – Environmental Engineering

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Enclosures: (1 P&ID)
36-000-03E-73503– Confidential Business Information (CBI)