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Valero Benicia Refinery B2626
MACT CC Applicability to Flares

Mr. Art Valla
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Dear Mr. Valla:

Discussed below is additional information regarding 40 CFR Part 63, Subpart CC applicability to flares. Valero is submitting this information to provide further support for the proposed Revision 3 Title V permit Statement of Basis on why the use of the flares does not subject these sources to Subpart CC requirements.

Overview of Applicability

40 CFR Part 63, Subpart CC contains requirements for flares acting as control devices for miscellaneous process vents (MPVs). Section 63.641 defines a MPV as "a gas stream containing **greater than 20 parts per million by volume organic HAP** that is continuously or periodically discharged **during normal operation** of a petroleum refining process unit." The definition identifies various types of "gas streams" that are included but it also sets forth fourteen exclusions.

The first exclusion covers "gaseous streams routed to a fuel gas system"

Under the second exclusion, MPVs "do not include…relief valve discharges." Such discharges are one component of flare header streams that may cause episodic flaring.

Thirdly, the MPV definition expressly excludes "episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations."

BAAQMD's September 22, 2005 email

"As I understand it, under normal operating conditions, all non-sour process vents (that do not have dedicated vapor recovery systems and are not sent directly to the fuel gas system), both routine and episodic, are collected in the flare gas recovery header. The sources that discharge to the flare gas recovery header are 9, 51, 52, 133, 188, 189, 211, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1014, 1020, 1021, 1022, 1023, 1024, 1026, and 1027. From this header, the process vents are recovered by A-13/26 C-2101A/B compressors located at the South Flare end of the flare gas recovery header. (Based on my notes from the flare system audit conducted in May 2005, the only exception is the discharge from A-19 C-2801 -- on S-55 Sour Water Stripper Feed Tank TK-2801 -- which discharges into the North Flare end of the flare gas recovery header only when the gas is too sour to be discharged to its normal destination.)"

"What I need from Valero is a list of all process vents that flow to the flare gas recovery header (e.g. S-X D-XXXX reflux drum manual vent valve). Based on my understanding of the process vent and flare gas recovery system detailed in the second paragraph above, I envision this list to be in two parts. One part will show the routine process vents that essentially provide a base load to the C-2101A/B compressors. The second part will show the non-routine process vents that are collected by the flare gas recovery header"

The only routine process vents that were designed to provide a base load to the C-2101A/B compressors is the vapor recovery from the OMS oil/water separators, S-188 and S-189. The remainder of the process vents only relieve to the fuel gas recovery header during episodic events.

There are hundreds of vapor and liquid process lines that tie into the header. These process lines are equipped with block valves and/or control valves, **which are normally closed**. However, most of these process lines do not have flow meters. Valero does not currently have a list of all specific process vents that have the capability of relieving to the fuel gas recovery header. It would be a huge effort to identify and summarize all these vents and there are not sufficient staff resources available at this time. In addition, there are hundreds of fugitive components that are connected to the header, including pressure relief valves, pump and compressor seals, enclosed sampling systems, analyzer streams, etc.

In conclusion, the base load in the fuel gas recovery header is less than 3-4 percent of the total refinery fuel gas consumption. Since the header is enclosed, it is difficult to identify and quantify specific streams that may be in the header at any time. Some of these valves and fugitive components may leak into the header unmetered and undetected, resulting in a base load in the header. These streams are not intentionally and routinely routed to the header, but nevertheless are efficiently recovered as valuable fuel gas.

"Then, for each flaring event from January 1, 2004 to January 31, 2005 (the dates referred to in the EPA letter), please provide the date, time, duration, amount of flared gas, and the cause of the flare event. The cause needs to be provided in detail from all refinery records, not just the required (>1MMSCFD) records."

Listed below are four tables. The first two tables summarize flare events > 1 MMSCFD from January 1, 2004 through August 31, 2005 for the North and South Flares. The third and fourth tables focus on all events in one month – January 2005 – with the details requested above. Only one month was chosen due to time constraints and limited availability of data; a flaring event < 1 MMSCFD is extremely small and historically records have not been kept for these events.

Table 1a. South Flare Events > 1 MMSCFD
January 2004 – August 2005

Date	Cause	Reason Why Not a MPV
1/6/2004	Depropanizer Clearing	Shutdown
1/8/2004	C-101C Shutdown	Shutdown
1/31/2004	JHF Start-up	Start-up
2/2/2004	HCNHF and Alky shutdown	Shutdown
2/3/2004	HCNHF and Alky shutdown	Shutdown
2/10/2004	HCNHF and Dimersol Start-up	Start-up
3/28/2004	HCNHF Shutdown	Shutdown
6/12/2004	Reformer start-up	Start-up
6/15/2004	Off-spec Propane	Upset/malfunction. Normal disposition is not to flare. See definition of MPV. Furthermore, propane does not contain HAPS.
7/2/2004	Off-spec Propane	
7/6/2004	Off-spec Propane	
7/8/2004	Off-spec Propane	
10/1/2004	Refinery Shutdown	Shutdown
10/2/2004	Refinery Shutdown	Shutdown
10/3/2004	Refinery Shutdown	Shutdown
10/4/2004	Refinery Shutdown	Shutdown
10/5/2004	Refinery Shutdown	Shutdown
10/6/2004	Refinery Shutdown	Shutdown
10/7/2004	Refinery Shutdown	Shutdown
10/8/2004	Refinery Shutdown	Shutdown
10/9/2004	Refinery Shutdown	Shutdown
10/10/2004	Refinery Shutdown	Shutdown
10/11/2004	Refinery Shutdown	Shutdown
10/12/2004	Refinery Shutdown	Shutdown
10/13/2004	Refinery Shutdown	Shutdown
10/14/2004	Refinery Shutdown	Shutdown

Table 1a. South Flare Events > 1 MMSCFD
January 2004 – August 2005

Date	Cause	Reason Why Not a MPV
10/15/2004	Refinery Shutdown	Shutdown
10/30/2004	Refinery Shutdown	Shutdown
10/31/2004	Refinery Shutdown	Shutdown
11/1/2004	Refinery Start-up	Start-up
11/2/2004	Refinery Start-up	Start-up
11/3/2004	Refinery Start-up	Start-up
11/4/2004	Refinery Start-up	Start-up
11/5/2004	Refinery Start-up	Start-up
11/6/2004	Refinery Start-up	Start-up
11/7/2004	Refinery Start-up	Start-up
11/8/2004	Refinery Start-up	Start-up
11/9/2004	Refinery Start-up	Start-up
11/10/2004	Refinery Start-up	Start-up
11/12/2004	Refinery Start-up	Start-up
11/13/2004	Refinery Start-up	Start-up
11/14/2004	Refinery Start-up	Start-up
11/15/2004	Refinery Start-up	Start-up
11/24/2004	Abnormal flowmeter	n/a
11/26/2004	Abnormal flowmeter	n/a
11/27/2004	Abnormal flowmeter	n/a
12/3/2004	Abnormal flowmeter	n/a
12/28/2004	Abnormal flowmeter	n/a
12/29/2004	Abnormal flowmeter	n/a
12/30/2004	Abnormal flowmeter	n/a
03/25/05	HCU Shutdown	Shutdown
03/29/05	CFHF Shutdown	Shutdown
03/30/05	CFHF Shutdown	Shutdown
04/07/05	CFHF Start-up	Start-up
04/08/05	CFHF Start-up	Start-up
05/08/05	COGEN unit trip	Shutdown

Note: There were no South Flare events > 1 MMSCFD from 5/9/05 through 8/31/05.

Table 1b. North Flare Events > 1 MMSCFD
January 2004 – August 2005

Date	Cause	Reason Why Not a MPV
2/3/2004	HCNHF and Alky shutdown	Shutdown
10/15/2004	Refinery Shutdown	Shutdown
10/16/2004	Refinery Shutdown	Shutdown
10/17/2004	Refinery Shutdown	Shutdown
10/18/2004	Refinery Shutdown	Shutdown
10/19/2004	Refinery Shutdown	Shutdown
10/20/2004	Refinery Shutdown	Shutdown
10/21/2004	Refinery Shutdown	Shutdown
10/22/2004	Refinery Shutdown	Shutdown
10/23/2004	Refinery Shutdown	Shutdown
10/24/2004	Refinery Shutdown	Shutdown
10/25/2004	Refinery Shutdown	Shutdown
10/26/2004	Refinery Shutdown	Shutdown
10/27/2004	Refinery Shutdown	Shutdown
10/28/2004	Refinery Shutdown	Shutdown
10/29/2004	Refinery Shutdown	Shutdown
11/4/2004	Refinery Start-up	Start-up
11/5/2004	Refinery Start-up	Start-up
11/6/2004	Refinery Start-up	Start-up
11/7/2004	Refinery Start-up	Start-up
11/8/2004	Refinery Start-up	Start-up
11/9/2004	Refinery Start-up	Start-up
11/10/2004	Refinery Start-up	Start-up
03/30/05	CFHF Shutdown	Shutdown

Note: There were no North Flare events > 1 MMSCFD from 3/31/05 through 8/31/05.

Table 2a. South Flare Events
January 2005

Date	Time	Duration (hours)	Amount of Flared Gas[(1)] (MMSCFH)	Cause of the Flare Event	Reason Why Not a MPV
January 2, 2005	1900 – 2000	2	0.136	C-2101 trip	shutdown
January 4, 2005	1000 – 1100, 1300, 1500, 1900	5	0.188	SV-333 lift	relief valve discharge
January 6, 2005	900, 1300, 1800, 2200	4	0.104	C-601 startup	startup
January 9, 2005	900	1	0.018	E-215 and E-216 clearing	shutdown
January 10, 2005	1400 – 1500	2	0.026	E-215 and SV-501 clearing	shutdown
January 11, 2005	0000	1	0.002	D-613 clearing	shutdown
January 12, 2005	0700 – 1000, 1400	5	0.094	unknown	unknown
January 14, 2005	0700, 1100 – 1600	7	0.235	equipment trip due to power blip	shutdown / malfunction
January 20, 2005	1200	1	0.004	C-302 trip; T-1101 sight glass clearing	malfunction; shutdown
January 22, 2005	1900 – 2000	2	0.064	SV-205 lift	relief valve discharge
January 29, 2005	1600 – 1800	3	0.027	R-1001 clearing	shutdown
January 30, 2005	1600 – 1700	2	0.039	D-204B clearing; D-613 changeout	shutdown; maintenance
January 31, 2005	1600	1	0.011	D-204B startup and D-610 clearing	startup; shutdown
Total		**36**			

(1) Pressure-validated flow

Table 2b. North Flare Events
January 2005*

*There was no North Flare activity in January 2005

EPA's May 24, 2005 comments

"...This rationale is that the flares at the Bay Area refineries are not within the definition of "miscellaneous process vent" because these flares only combust non-routine, episodic releases. In general, EPA agrees with this analysis. Such emissions are excluded from the definition of "miscellaneous process vent" per Section 63.641. Therefore, if a flare only combusts episodic, non-routine releases, it will never be used to control "miscellaneous process vents" and will never be subject to the requirements for flares in Section 63.644(a)(2).

However, EPA notes that the monitoring data provided on BAAQMD's website for some of these flares...indicate that these flares may be combusting routinely released gases. For instance, Shell's OPS Central Flare operated every day from January 1, 2004 to January 31, 2005... The other flares mentioned have operated between 45 and 69 percent of the time during the same period. The data suggest that these flares may be used for more than episodic, non-routine releases. The applicability determination in the statements of basis for at least these flares at Shell, Tesoro, and Valero would greatly benefit from a discussion of why the apparently routine use of these flares is still considered non-routine and episodic by the District in evaluating the applicability of Subpart CC."

The tables above summarize past flare use. **In summary, the flare control provisions of miscellaneous process vents in Subpart CC never apply to Valero's flares.**

The Subpart CC flare requirements are contained in 40 CFR 63.644, the monitoring provisions for Group 1 miscellaneous process vents. At the Valero Benicia Refinery the only Group 1 miscellaneous process vent subject to 40 CFR 63.644 is the Coker flue gas vent. This vents to the crude unit (CO) furnaces and then to the ESPs and Main Stack. This vent is not subject to 40 CFR 63.644(a)(2) because it does not vent to the flare. The correct applicability is documented in Table IV-A5 of the Title V permit.

Other refinery gaseous streams are not "miscellaneous process vents" as defined in 40 CFR 63.641. These streams are routed either directly to the fuel gas system or indirectly via the flare gas recovery compressors to the fuel gas system. Therefore, for **normal operation or routine use**, the streams are not miscellaneous process vents as defined because miscellaneous process vents do not include gaseous streams routed to a fuel gas system.

When the capacity of the flare gas recovery compressors is exceeded (or if neither compressor is operating) and flaring occurs, the streams are also not "miscellaneous process vents" as defined in 40 CFR 63.641. This is an **episodic or nonroutine event** because it occurs during startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations.

If you have further questions on the applicability of 40 CFR 63, Subpart CC, please do not hesitate to contact me at (707) 745-7807.

Sincerely,

K S Bellanca

K. Sky Bellanca
Sr. Environmental Engineer

cc: Mr. Steve Hill, BAAQMD