UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

APR - 7 2017

Mr. David Friedman, Vice President
Regulatory Affairs
American Fuel and Petrochemical Manufacturers
1667 K Street, NW, Suite 700
Washington, D.C. 20006

Dear Mr. Friedman:

Thank you for your letter of July 12, 2016, regarding the Refinery Sector Rule, 40 CFR 63 Subparts CC and UUU, published on December 1, 2015 (80 Fed Reg. 75178) and amended, July 13, 2016 (81 Fed Reg. 45240). Your letter poses questions regarding how the rule applies in a number of situations. Attached is a document that identifies numerous questions you raise in your letter and our responses. Please note, we are still reviewing your letter and the attached document does not respond to all of the questions that you raise.

Please contact Ms. Brenda Shine at (919) 541-3608 if you have any questions or would like to discuss these issues further.

Sincerely,

Peter Tsirigotis
Director
Sector Policies and Programs Division

Attachment

cc: Matt Todd, API

Responses to Questions Regarding the Refinery Sector Rule

40 CFR 63 Subpart CC

I. Maintenance Vents

Question I.1: It is common that a miscellaneous process vent (MPV) could be at a physical location that would be considered a Group 1 MPV bypass if vented during normal operations. For example, the overhead line from a tower is normally used to route a Group 1 MPV to a control device. A bleeder vent on this overhead line is used to depressure the tower when it is taken out of service for maintenance. Venting from this location during normal operations would be a bypass of the control device. Can we designate a vent as a maintenance vent and comply with §63.643(c) even if the vent's physical location could otherwise be considered a potential bypass line?

EPA Response: Maintenance vents may be located at the same physical location (i.e., vent stack) that could otherwise be used as a bypass (diverting a Group 1 MPV to the atmosphere that would normally be sent to a control device or back into the process or to a fuel gas system). Releases from a maintenance vent are not considered bypasses if they comply with the requirements of §63.643 (c). The key point here is that the maintenance vent must be compliant with §63.643 (c), which states: "An owner or operator may designate a process vent as a maintenance vent ***if the vent is only used*** as a result of startup, shutdown, maintenance, or inspection of equipment where equipment is emptied, degassed or placed into service" [emphasis added].

The point of this language is that the vent at issue "is only used…" and not "… the vent could only be used…." Thus, in order to qualify as a maintenance vent, the vent must be compliant with the requirement in §63.643 (c) that it is "only used as a result of the startup, shutdown, maintenance or inspection event." If the maintenance vent is in a location where a Group 1 MPV stream could be discharged during normal operations, the bypass stack would also be required to comply with the bypass monitoring requirements in §63.644(c) to ensure the vent is not used as a bypass during normal operations.

Question I.2: Typically, when preparing equipment for hot work or entry during maintenance activities, multiple vents are opened and piping is disconnected to assure a fresh air atmosphere is quickly established. Once a single maintenance vent on a particular piece of equipment is released to the atmosphere in compliance with §63.643(c), is that piece of equipment considered to be out-of-service so that additional vents on that same piece of equipment are not required to demonstrate

compliance with the LEL or pressure criterion in §63.643(c)?

EPA Response: The primary requirement in §63.643(c)(1)(i) is specific to the vapor in the equipment and does not require an assessment at each individual venting location. Specifically, §63.643(c)(1)(i) states: "The vapor in the equipment served by the maintenance vent has a lower explosive limit (LEL) of less than 10 percent." Similarly, §63.643(c)(1)(ii) states: "…the pressure in the equipment served by the maintenance vent is reduced to 5 psig or less." Provided that a single location is representative of vapors (or pressure) in that equipment, then only one measurement location is required and you do not need to separately demonstrate that conditions have been met for each maintenance vent opening.

Question I.3: Can the recordkeeping requirements in §63.655(i)(12)(iv) for maintenance vents on equipment containing less than 72 lbs of VOC be satisfied through the use of generic records, such as an event type designation (e.g., replace a pressure gauge), rather than individual records for each release? Specifically, can a generic emission estimate be used to satisfy the VOC emission estimate requirement in §63.655(i)(12)(iv) for maintenance vents on equipment containing less than 72 lbs of VOC? Is individual reporting, as required by §63.655(g)(13) for maintenance vents on equipment containing less than 72 lbs of VOC, required only if a particular event was found to have released more than 72 lb. VOC to the atmosphere?

EPA Response: Section 63.655 (i)(12)(iv) specifies the records required for each maintenance vent opening complying with §63.643(c)(1)(iii). The owner or operator may satisfy the requirement in §63.655(i)(12(iv) to estimate the total quantity of VOC in the equipment using predetermined engineering estimates based on equipment types, sizes and service conditions (pressure) and maintain generic records of those calculations as the "records used to estimate the total quantity of VOC in the equipment at the time the maintenance vent was opened." The records of each maintenance vent opening event should be sufficient to indicate which of the predetermined emission estimates apply for each individual maintenance vent opening.

We note that the reporting requirement in §63.655 (g)(13) applies to equipment that does not meet the limit established in §63.643(c)(1)(iii), i.e., that "[t]he equipment served by the maintenance vent contains less than 72 pounds of VOC." In other words, the reporting requirement in §63.655 (g)(13) applies where the equipment contains 72 pounds or more of VOC. Thus, if the equipment served by the maintenance vent contains 72 pounds or more of VOC, regardless of what quantity of VOC was actually released to the atmosphere, then reporting of that event is required.

Question I.4: Safety and National Fire Protection Association (NFPA) Standards require an open vent between block valves in shutdown fuel gas systems, since leakage into a hot firebox can result in an explosion. These isolation systems are often automated. These vents only operate during combustion device shutdowns, but operate without any ability to purge the gas between the block valves before the vent opens. The fuel gas will generally contain >20 ppm HAP, but the total mass of VOC in the blocked piping is typically less than 72 lbs. Is venting of fuel gas through a combustion device double block and bleed isolation system considered a bypass subject to the bypass monitoring provisions in §63.644(c) or can this vent be designated as a maintenance vent?

EPA Response: Based on the information provided, it appears these block valves and the vent between them are only used during combustion device shutdowns. Since the vent system in question is carrying a Group 1 miscellaneous process vent, the owner or operator can classify the vent for a double block and bleed system as a maintenance vent because the total mass of VOC in the blocked piping is less than 72 lbs, per the requirement in §63.643(c)(1)(iii). As explained in Response to Question I.1, a vent can be designated as a maintenance vent if the vent is only being used as a result of startup, shutdown, maintenance, or inspection of equipment where equipment is emptied, degassed or placed into service. If the system could not be used to discharge a Group 1 miscellaneous process vent to the atmosphere, then the vent stack would not be subject to the bypass monitoring provisions in §63.644(c).

Question I.5: The maintenance vent work practice requirements provide that the owner or operator can designate a process vent as a maintenance vent using the LEL criteria in §63.643(c)(1)(i). The work practice also provides a 5 psig alternative in §63.643(c)(1)(ii) which can be used if there is "no ability to measure the LEL of the vapor in the equipment based on the design of the equipment." Is the 5 psig alternative only allowed when the LEL cannot be measured due to process equipment design constraints (no ports) or can one also consider the monitoring equipment design constraints (high steam content or high temperature)?

EPA Response: We consider the steam content or operating temperature of the equipment to be part of the design of the equipment. If the process equipment design does not allow the LEL to be measured either due to physical design constraints of the equipment (e.g., no ports) or operation design constraints (e.g., high temperature), which impact the ability of the monitoring equipment to function properly, the 5 psig alternative in §63.643(c)(1)(ii) may be used. We note that the 5 psig alternative does not allow for active purging of the equipment until the LEL can be measured and is less than 10 percent.

Question I.6: Section 63.643(c)(1)(iv) provides an allowance (20% LEL with one 35% event in a year) for venting from equipment containing pyrophoric catalysts if a pure hydrogen supply is not available. What constitutes a "pure hydrogen supply"? Does pure hydrogen supply refer to a set hydrogen purity (e.g., 99.9 percent hydrogen content) or is it meant to describe any hydrogen stream that has low enough levels of organics to permit achieving the 10% LEL specified for maintenance vents in general?

EPA Response: The term "pure hydrogen supply" is meant to describe a supply of hydrogen that has low enough levels of organics that permit achieving the 10% LEL specified for maintenance vents and in general would come directly from either an offsite or onsite steam methane reforming hydrogen production plant.

II. Bypass Monitoring

Question II.1: Section 63.644(c) states "Use of the bypass at any time to divert a Group 1 miscellaneous process vent stream to the atmosphere or to a control device that does not comply with the requirements in §63.643(a) is an emissions standards violation" [Underline added]. This seems to make it a violation to route a maintenance vent to the atmosphere through a "bypass" connection. Is it a violation to use a "bypass" connection that is subject to §63.644(c) monitoring as a maintenance vent? Is reporting of such flows required?

EPA Response: Maintenance vents are not bypasses even if they are routed through an emission point that is subject to bypass monitoring under §63.644(c). The first paragraph of §63.643(a) states: "The owner or operator of a Group 1 miscellaneous process vent as defined in §63.641 shall comply with the requirements of either paragraph (a)(1) or (2) of this section ***or, if applicable, paragraph (c) of this section***" [emphasis added]. So, if a vent qualifies as a maintenance vent, releases from that vent that are compliant with the requirements in §63.643(c) are not a violation of the bypass provisions in §63.644(c). Furthermore, §63.643(a) also provides: "The owner or operator of a miscellaneous process vent that meets the conditions in paragraph (c) of this section is only required to comply with the requirements of paragraph (c) of this section and §63.655(g)(13) and (i)(12) for that vent." Therefore, use of the maintenance vent (consistent with the requirements in §63.643) is not subject to reporting as a bypass.

Question II.2: The December 2015 amendments removed "analyzer vents" from the list of exceptions to bypass monitoring and it is now unclear if these vents are bypass systems subject to the monitoring provisions in §63.644(c) or §63.660(i). T h e

amendments also revised the MPV definition to include analyzer vents after January 30, 2019. Analyzer vents are the exhaust from an analyzer and while the sample going to the analyzer may be from a Group 1 MPV or storage vessel, the material vented is different from the sample material because it has been acted on by the analyzer. Is an analyzer vent a separate vent (classified as an MPV after January 30, 2019) and therefore not considered a bypass of the material being sampled by the analyzer?

EPA Response: The exhaust from the analyzer vent is a separate vent (and is classified as an MPV after January 30, 2019).

Question II.3: Sections 63.644(c) and 63.660(i)(2) exempt from bypass monitoring requirements "equipment subject to §63.648." What does this clause in §§63.644(c) and 63.660(i)(2) mean? In explaining the removal of the open-ended line (OEL) and pressure relief device (PRD) exceptions from these paragraphs, EPA stated in the second paragraph on page 139 of the Response to Comment that the OEL and PRD exceptions are not needed because they would remain exempt because they are "equipment subject to 40 CFR 63.648." However, §63.648 only imposes work practice controls on OELs, PRDs, and other types of equipment that contain >5% organic HAP. For storage vessels routed to a control device, §63.660 makes the vent system a closed vent system subject to §63.983 not §63.648. Thus, §63.644(c) and §63.660(i)(2) could be read to only exclude those OELs and PRDs that contain >5% HAP.

Did EPA intend to consider the clause "equipment subject to §63.648" as used in §§63.644(c) and 63.660(i)(2) to apply only to equipment directly required to comply with §63.648 or more broadly to apply to any component subject to NSPS VV, VVa or HON subpart H for any reason or to the closed vent system requirements in those subparts or in §63.983?

EPA Response: Atmospheric discharges from components such as PRDs and open ended lines (OELs) that are located in piping that connect Group 1 miscellaneous process vents to control devices could be considered bypasses to the atmosphere and as such, subject to the bypass monitoring requirements in §63.644(c). However, if these equipment are in HAP service (>5 wt percent HAP), then the provisions of §63.648 would apply such that OELs would be required to be capped and plugged when not in use and PRDs would be subject to the work practice standards requiring monitoring of releases (among other elements). In that case, the bypass monitoring requirements of §63.644 (c) would not apply. However, PRDs and OELs that are not subject to §63.648 because they are not in HAP service but are in the conveyance systems that route Group 1 miscellaneous process vents to control would be subject to the miscellaneous process vent bypass monitoring provisions in §63.644(c). However, if OELs are capped and plugged, which many would be due to other rules such as NSPS

VV, NSPS VVa or the HON subpart H, then those OELs would not need to follow the monitoring requirements in §63.644(c)(1) and (2) because the cap in and of itself is sufficient.

III. The Meaning of "subject to §63.648" in the Definition of MPV.

Question: The definition of MPV contains an exception for "Leaks from equipment regulated under §63.648." While this exception was unchanged by the amendments, the main part of the definition was amended to add "high point bleeds" as an example of MPV. In concert with the changes to the bypass monitoring provisions discussed above, it is now unclear whether leakage from OELs of material greater than 20 ppm by volume organic HAP but less than 5% by weight total organic HAP are now considered MPVs. Does the phrase "leaks from equipment regulated under §63.648" in the MPV definition mean any "leakage" from equipment types addressed by NSPS VV, VVa or HON subpart H requirements?

EPA Response: We consider high point bleeds to be MPV in accordance with the definition in §63.641 when they are actively being used, but agree that these bleeds are regulated under the equipment leak provisions as OEL when they are not in use. See response to Question II.3 for further discussion about PRDs and OELs in HAP service (i.e., >5 wt% HAP) and those not in HAP service but located on vent systems handling Group 1 miscellaneous process vents.

IV. The Meaning of "Uncontrolled" in §63.660(d)

Question: Section 63.660(d) provides compliance time for "uncontrolled" fixed roof storage vessels that become Group 1 storage vessels based on the change to that definition in the December 2015 amendments. Does the term "uncontrolled" mean a totally uncontrolled fixed roof storage vessel or a fixed roof storage vessel that may have some level of control but is uncontrolled to the level of the subpart CC standard which requires 95% emission reduction, specified monitoring systems, and specified fitting requirements for fixed roof tanks with internal floating roofs? Additionally, §63.660(d) provides compliance time for adding or upgrading the storage vessel controls or for installing an internal floating roof. Does this apply to an existing fixed roof storage vessel with an internal floating roof that does not meet all of the seal and fitting requirements of subpart WW or instead would the requirements of §63.660(d) apply?

EPA Response: A fixed roof tank that has an external control device but that does not meet the 95% reduction requirements would be considered "uncontrolled" and would be able to rely on the compliance time provided in §63.660(d). The owner or operator would need to indicate in the notification of compliance report that the existing controls

do not meet the 95% reduction requirement, and the compliance time specified in §63.660(d) will be used to upgrade the control system. The compliance time in §63.660(d) (i.e., the next time the fixed roof storage vessel is emptied and degassed or January 30, 2026, whichever occurs first) is provided to avoid fixed roof storage vessels having to be emptied and degassed in order to install or upgrade controls - an activity that could generate a large quantity of HAP emissions. However, a fixed roof storage vessel that already has controls capable of meeting the reduction requirements of the standard, but not the requisite monitoring equipment, are not considered uncontrolled and the compliance period would not apply.

An existing fixed roof storage vessel with an internal floating roof is not considered an uncontrolled fixed roof tank; it is an internal floating roof tank. If the internal floating roof does not meet all of the seal and fitting requirements of subpart WW, subpart WW specifically provides compliance times to meet these additional fitting requirements.

V. It Should Be Clarified that The Compliance Time Allowance in Subpart WW Applies to the Additional Fitting Requirements in §63.660(b).

Question: Section 63.1063(a)(2)(ix) of subpart WW provides extended compliance time for floating roof seal and fitting upgrades. Section 63.660(b) of subpart CC allows for alternative controls to those specified in §63.1063(a)(2) of subpart WW. Do the extended compliance times provided by §63.1063(a)(2)(ix) of subpart WW apply to the additional and alternative controls specified in §63.660(b) of subpart CC?

EPA Response: Yes, the compliance time extension provisions of §63.1063(a)(2)(ix) of subpart WW apply to the additional and alternative controls specified in §63.660(b).

VI. Safety and Feasibility in Siting Flare Gas Instrumentation

Question: Some of the flare instrumentation placement requirements in Table 13 could be interpreted to require monitors to be placed in unsafe locations or locations where it would be unsafe to maintain them. Must flare instrumentation be located exactly as specified in subpart CC and Table 13, if that location is within the flare safety zone or is infeasible with existing piping configurations?

EPA Response: It was not our intent to require flare instrumentation to be placed in unsafe locations or locations where it would be unsafe to maintain them. The corresponding NHV monitoring requirement in Table 13 of Subpart CC begins with "Where feasible…" We inadvertently omitted this phrase in the H2 analyzer citing requirements.

VII. Use of Liquid Seal Monitoring to Demonstrate that There is no Flow to a Flare.

Question: Many subpart CC flare requirements apply only when there is flow to a flare. Is liquid seal monitoring (in the form of records demonstrating that the pressure differential across a flare drum is less than the pressure exerted by the liquid seal) an acceptable basis for demonstrating that there is no flow?

EPA Response: Yes, liquid seal monitoring is an acceptable basis for demonstrating there is no flow to the flare. Section 63.670(i)(4) specifically provides for such parametric monitoring to determine flare vent gas flow rates, including when there is no flow.

VIII. Flow Monitoring Provisions for Flare Purge Gas

Question: Flare purge gas addition may be downstream of the flare vent gas flowmeter and analyzer, thus making it necessary to add a separate flowmeter so the purge gas flow can be included as part of the total flare vent gas flow as required in §63.670(i). Can purge gas flow rates on flares with a liquid seal be estimated based on orifice flow calculations or manual measurements with a rotameter?

EPA Response: Section 63.670 (i) addresses options for monitoring of flare vent gas, which includes purge gas. The section specifies that different flow monitoring methods can be used for different gaseous streams that make up the flare vent gas, provided that the total flow rates of all gas streams that contribute to the flare vent gas are determined. Further, §63.670 (i)(4) allows the use of continuous pressure/temperature monitoring systems and appropriate engineering calculations in lieu of continuous monitoring systems provided that the molecular weight of the gas is known. The use of orifice flow calculations and/or manual measurements in combination with engineering calculations, as described above, to characterize purge gas flow would be allowed under this section provided the flow rate is determined and included in any calculations for flare tip velocity or combustion zone net heating value.

IX. Pressure Relief Devices (PRDs)

Question: Sections 63.648(j)(3), (6) and (7) address atmospheric releases from PRDs in organic HAP service. A member reports that a single PRD may protect multiple pieces of equipment, which may include some equipment that is not in organic HAP service. If the root cause analysis for an atmospheric release event determines that the equipment causing the release was not in organic HAP service, do the §63.648(j)(3) requirements to perform the corrective action analysis and corrective actions (§63.648(j)(6)); to report (§63.655(g)(10)(iii)); and to count the release events (§63.648(j)(3)(iv)), apply?

EPA Response: If a PRD protects multiple pieces of equipment, only some of which are in organic HAP service, then the PRD is, by definition, in organic HAP service. A root cause analysis as required by §63.648 (j)(6) must be performed for an atmospheric release; however, if the root cause analysis indicates that the equipment causing the release was not in HAP service, ***and*** that the release event was only from equipment not in HAP service, then corrective action (§63.648 (j)(6) and (7)), reporting (§63.655(g)(10)(iii)), and counting the release event (§63.648(j)(3)(iv)), would not apply.

Subpart UUU

X. Ability to Switch Between Wet Gas Scrubber Monitoring Alternatives.

Question: Can a source electing to use the water nozzle and line inspection monitoring alternative for their wet gas scrubber, immediately change to the ΔP alternative, if a leak is detected that cannot be repaired within 12 hours?

EPA Response: Yes, the facility owner or operator can revert to the ΔP monitoring alternative if a daily inspection identifies a problem that cannot be repaired within 12 hours and the owner or operator determined and recorded the minimum ΔP from the most recent source test in order to comply with the ΔP monitoring alternative. If the owner or operator did not determine the ΔP operating limit during the most recent source test, the owner or operator cannot use the ΔP monitoring alternative.

XI. Allowance of the FCCU Regenerator Vent Oxygen Content Calculation on a Wet Basis.

Question: The FCCU alternative organic HAP standard for startup, shutdown and hot standby in §63.1565(a)(5)(ii) requires maintaining the oxygen concentration in the regenerator exhaust gas at or above 1 vol. % (dry). However, process O_2 analyzers provide a wet reading. Since an FCCU vent meeting the 1% oxygen alternative standard on a wet basis will always be in compliance on a dry basis, a moisture measurement and correction of the measured O_2 value to a dry basis is unnecessary. Can a refinery owner or operator use an O_2 analyzer that measures concentration on a wet basis to demonstrate compliance with this requirement?

EPA Response: Yes, the wet oxygen concentration reading can be used to demonstrate compliance with the FCCU alternative organic HAP standard for startup, shutdown and hot standby in §63.1565(a)(5)(ii). If it is used, it must be used directly with no external correction for moisture content.

XII. Chlorsorb™[1] Scrubbers for Halogen Control on Continuous Regenerative CRUs

Question: In the Chlorsorb™ continuous catalytic reforming process, purged reforming catalyst from the reactor is used to control chloride emissions from catalyst regeneration. Section 63.1566(a)(3) states "The emission limitations in Tables 15 and 16 of this subpart do not apply to the coke burn-off, catalyst rejuvenation, reduction or activation vents, or to the control systems used for these vents." Does the Chlorosorb scrubber vent qualify for this exclusion?

EPA Response: The Chlorsorb™ scrubber vent on continuous regenerative CRUs meets the §63.1566(a)(3) exemption criteria as it is a control device used to reduce emissions during coke burn-off and rejuventation. Therefore, the Chlorsorb™ scrubber vent is not subject to Tables 15 and 16 of subpart UUU.

[1] UOP's Chlorsorb™ System enables the refinery to eliminate the use of caustic and the disposal of caustic associated with the operation of the CCR in the UOP Platforming™ unit. The Chlorsorb™ System is used to recycle chloride from the regeneration zone vent gas. In this process, the vent gas is contacted with spent catalyst at appropriate conditions to remove more than 97% of all chlorides from the vent gas.