From:	Hurst, Benjamin M
To:	Robinson, Jeffrey; Kovacs, Jeffrey K
Cc:	Bass, Margaret S; Rebecca Rentz (rrentz@winstead.com); Wilson, Aimee; Tomasovic, Brian
Subject:	PSD-TX-102982_GHG_Clarifying Information
Date:	Friday, September 27, 2013 8:59:18 AM
Attachments:	2013.09.27_PSD-TX-102982_GHG_Clarifying Information.pdf

Jeff,

We are submitting the attached document as further clarification with regard to items contain in the Sierra Club comment letter on draft permit PSD-TX-102982-GHG for the Baytown Olefins Plant. If you have any questions, please contact me at (281) 834-6110.

Thank you,

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RE: *Baytown Olefins Plant Draft Permit PSD-TX-102982-GHG*

Fugitive Equipment Leaks

The following is clarifying information related to Serria Club's comments in "*E. The Analysis of Fugitive Equipment Leaks is Flawed"* on pages 15 through 16 of the SC Letter[1]:

Sierra Club states, "*First, the BACT analysis in the application (Section 4.6) and SOB (Section XIV) incorrectly dismiss the most effective control technology: leakless technology… It is a reasonable and technically feasible control technology.*" The Sierra Club goes on to say, "*The principal difference is that the leakless component does not leak over its lifetime while non-leakless components leak constantly at a design rate greater than zero. Leakless components should be BACT in this application.*"

Flanged connections are part of the Proposed BOP Project design to allow for safe and efficient isolation of equipment through blinding. "Leakless" connectors are not technically feasible to replace flanged connections in the Proposed BOP Project.[2] Replacing flanged connectors with "leakless" connectors will result in higher maintenance and shutdown emissions attributable to the inability to achieve small isolation areas, i.e., a larger area must be cleared or a full shutdown executed to perform maintenance when non-flanged connections are used.

It is also incorrect that other "leakless" components, such as valves, do no leak over the lifetime of the component. For example, the valve packing configurations noted in the Bay Area Air Quality Management District (BAAQMD) permits for refineries noted by the Sierra Club, such as bellow sealed valves and live loaded packed valves do leak. Bellow seals can fail, live load packing wears and leaks, etc. Even if the "leakless" technology proposed by the comment were technologically feasible, it would result in only de minimis emissions reductions, both as a stand-alone amount but as well as a percentage of the total. Therefore such technology would not be more effective than the currently proposed design and monitoring for piping components.

In comparison, the "leakless" technology proposed by Sierra Club and the Proposed BOP Project's fugitive design and monitoring proposals have comparable control efficiencies with negligible differences in GHG emissions avoided, if any. See *In re Prairie State Generating Company (p. 34–38)* finding that a full cost-analysis is not required when a control technology has comparable control effectiveness (citing the *Draft NSR Manual*, B.20-.21).[3] The draft permit will authorize 1 ton per year (tpy) of methane fugitive emissions resulting in 21 tpy of CO_2e from Proposed BOP Project, which is approximately 0.0014% of the total CO_2e (1,453,272 tpy of CO_2e)[4] from the Proposed BOP Project. In summary, the GHG emissions from fugitive equipment leaks in the Proposed BOP Project are minimal and the incremental GHG emissions reduction from the use of "leakless" components, if any, cannot be quantified and would not provide any appreciable environmental benefit.

Finally, the Sierra Club incorrectly asserts that "…*the application and SOB conclude that the audio/visual/olfactory (AVO) leak detection method is the most effective method to detect leaks from GHG sources. (Application at p. 4-16; SOB at p. 27) Relying solely on AVO is not reasonable.*" The

[1] Correspondence from Mr. Travis Ritchie, Sierra Club to Ms. Aimee Wilson, EPA R6, *RE: ExxonMobil Baytown Olefins Plant –Permit No. PSD-TX-102982-GHG*, dated July 8, 2013.
[2] The "Proposed BOP Project" refers to the proposed project at BOP that is the subject of the draft permit PSD-TX-102982-GHG.
[3] http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Published%20and%20Unpublished%20Decisions/_7414685644289CEB852571D4006785E2/$File/Prairie%20State.pdf
[4] Based on adjusted project totals considering a FGR system discussed in electronic correspondence from Mr. Benjamin Hurst, ExxonMobil to Mr. Jeffrey Robinson, EPA R6, dated September 20, 2013.

application on p. 4-16 selects LDAR for piping components in VOC service and as-observed AVO for piping components that are only in natural gas service. This means that the vast majority of components will be monitored with a hand-held detection device. The components in natural gas service that will be subject to as-observed AVO will be monitored at least once per shift (i.e., at least twice per day). The Texas Commission of Environmental Quality (TCEQ) lists as-observed AVO control efficiencies for gas/vapor service components as high as lowest achievable emission rate (LAER) levels of control.[5]

BACT Limits on Furnace Section

The following is clarifying information related to Sierra Club's comments in "*H. Miscellaneous Draft Permit Issues*", on page 19 of the SC Letter:

Sierra Club states, "*The GHG limits in Table 1 are set so that there is one limit for all eight cracking furnaces. (See page 8, Note 3) When one or more of the units are down, this would allow the other operating units to operate less efficiently than would otherwise be considered as BACT. The Region should set GHG BACT limits for each emission unit, not for a group of emission units.*" This is incorrect. The daft permit in Section III (Special Permit Conditions) specifies energy efficiency requirements for individual furnaces. Specifically, Special Permit Condition Nos. III.A.1.d (pg 9) and III.A.1.f (pg 10) limit: (1) the oxygen concentration in and (2) the maximum temperature of each furnace's exhaust gas, respectively, to ensure energy efficient operation on an individual furnace basis.

We requested a cap for the annual GHG mass and CO_2e limits in Table 1 in order to minimize the project total emissions of GHG in Table 1. Each of the eight steam cracking furnaces might operate at a capacity as high as 515 million British thermal units (MMBtu) per hour (see Special Permit Condition No. III.A.h) in a 12-month period. However, all the furnaces will not simultaneously operate at 515 MMBtu/hr for an entire 12-month period. Therefore, annual GHG mass and CO_2e limits in Table 1 were based on the expected annual firing rate for the entire furnace section resulting in lower permitted emissions overall.

Finally, even though the BACT was established for each individual furnace, EPA can group like emission units to demonstrate BACT. This also supports EPA's emission limit approach for the furnace block: to set a BACT for each individual furnace and then group the furnace block for purposes of setting the annual emission limit. See *In re General Motors, Inc.*, 10 E.A.D. 360, 382–83 (EAB 2002) (stating that "As reflected by Draft NSR Manual, the current EPA policy is that 'each new or modified emission unit (or logical grouping of new or modified emissions units) subject to PSD is required to undergo BACT review.' Draft NSR Manual at B.10. Permitting authorities are encouraged by the Draft Manual to evaluate 'logical grouping' of emission units in each industry on a reasonable case-by-case basis, focused on analysis of technical feasibility and control effectiveness.")

[5] http://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/control_eff.pdf