

**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY**

COMMENT AND RESPONSE DOCUMENT (FOR PUBLIC COMMENTS)

DRAFT PLAN APPROVALS

**SUNOCO PARTNERS MARKETING & TERMINALS, LP
MARCUS HOOK
PLAN APPROVAL NOS. 23-0119E (REVISED) & 23-0119J**

February 5, 2021

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[Notes: 1. While public commentators 65, 96, and 100 each submitted the same set of comments twice, each is listed only once in the above table. 2. While public commentators 84 and 153 are the same person, he is listed twice in the above table because he submitted separate comments in his personal and professional capacities (the latter jointly with public commentators 154–155).]

The Department of Environmental Protection (DEP) has prepared these responses to the public’s and U.S. Environmental Protection Agency’s (EPA’s) comments on the draft Plan Approvals (Nos. 23-0119E [revised] and 23-0119J) for Sunoco Partners Marketing & Terminals, LP (SPMT) for its natural gas liquids (NGLs) processing, storage, and distribution facility located at the Marcus Hook Industrial Complex (MHIC) in Marcus Hook Borough, Delaware County (hereinafter referred to as “the facility”).¹

DEP published notice of the public comment period in the *Pennsylvania Bulletin* on February 29, 2020. SPMT published notice of the public comment period in the *Delaware County Daily Times* on March 4–6, 2020. DEP intended to hold a public hearing on the draft Plan Approvals on April 2, 2020, at the Mary M. Campbell Marcus Hook Public Library, 1015 Green Street, Marcus Hook, PA 19061. However, following the issuance of stay-at-home orders from Governor Tom Wolf to minimize the spread of COVID-19 within the Commonwealth, DEP canceled the public hearing. Nonetheless, pursuant to 25 Pa. Code § 127.49(c), DEP maintained the public comment period open through 10 days after the scheduled public hearing date.

DEP appreciates all the comments submitted and the concerns expressed. The number(s) in brackets at the end of each group of concerns, quotation, or topic corresponds to the respective public commentator(s). For certain topics, specific quotations are also included. Responses that reference conditions from the draft Plan Approval(s) are consistent with the section designations and condition numbering contained therein.

General Concerns in Clean Air Council Template Letter [1–142, 145, 150–152, 157–169, 171–172]

1. “Residents in and around Marcus Hook in Delaware County are already reporting increased respiratory issues, migraine headaches, and other negative health impacts.”

Response: This (general) statement notwithstanding, DEP did not receive any comments (from people living near the facility or otherwise) regarding specific health issues or concerns relating to the draft Plan Approvals. As such, DEP cannot offer a response to this general concern.

2. Holding a public hearing.

Comment A: “Residents must be afforded the opportunity to give public testimony regarding their serious air quality and public health concerns.”

Comment B: “DEP must wait until it is safe to have an in-person public hearing on this proposal before making any decisions on this permit application.”

Response: As discussed in the second paragraph of this page of the Comment and Response document, DEP intended to hold a public hearing on the draft Plan Approvals, but had to cancel it following the issuance of stay-at-home orders stemming from the COVID-19 pandemic. While DEP generally endeavors to hold a public hearing whenever there is significant public interest regarding a proposed Plan Approval, as indicated in 25 Pa. Code § 127.48(a), such a hearing is held at DEP’s discretion and is not required. Moreover, as stated in the notices of the public comment period, and as indicated on the webpage created by DEP to house and share materials and updates relating to the draft Plan Approvals (accessible at <https://www.dep.pa.gov/About/Regional/SoutheastRegion/Community%20Information/Pages/SPMT.aspx>), “[a]ll comments, whether delivered orally at [a] hearing or submitted to DEP in writing, shall merit equal consideration.” Therefore, DEP considers the public to have had sufficient opportunity to provide comments on the draft Plan Approvals, and does not intend to schedule another public hearing or extend the public comment period.

¹ SPMT’s comments, along with DEP’s responses, appear in a separate Comment and Response Document.

3. “Delaware County already has some of the worst air quality in Pennsylvania. It is one of only 9 counties in the entire United States designated as non-attainment for the 2012 federal limit on Particulate Matter [less than 2.5 µm in aerodynamic diameter (PM_{2.5})] pollution (soot). Delaware County is also in nonattainment of the 2015 8-hour Ozone standard.”

Response: Delaware County is in marginal nonattainment (the lowest nonattainment classification) of the 2015 8-hour Ozone National Ambient Air Quality Standards (NAAQS), though as part of the larger Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD nonattainment area (hereinafter referred to as the “Philadelphia area”) and the ozone transport region discussed in DEP’s response to General Concern 6, below. The current classification is based on the Philadelphia area’s attainment of the 2008 8-hour Ozone NAAQS, and represents a greater than 25% reduction in ozone design values over nearly the past 20 years. Additionally, on September 30, 2019, EPA approved DEP’s request for redesignation of the attainment status for Delaware County from nonattainment to attainment for the 2012 annual PM_{2.5} NAAQS. DEP acknowledges that there is room for continued improvement of the air quality in Delaware County, but felt it important to highlight some of the improvement that has been and continues to be realized.

4. “Sunoco’s Marcus Hook facility has also been in ‘significant violation’ of the Clean Air Act since July 2018, leading to over \$800,000 in state and federal fines in the last five years. The Marcus Hook Industrial Facility has also failed its last two DEP inspections in February and March of 2020. With Sunoco’s current application still under review, the March violation was for ‘Failure to obtain a plan approval for the construction, modification, reactivation of source(s) and/or cleaning device.’”

Response: DEP acknowledges that it has discovered various violations at the facility since 2013 (when SPMT first commenced construction of some of the sources and equipment of the single aggregated project), including some which DEP considered to be high priority violations (HPVs). Specifically, out of 133 unique inspection ID entries listed for the facility on DEP’s eFACTS website, a violation(s) was noted for fourteen. The February 20, 2020, inspection ID referenced in this general concern is indicated as a routine/partial inspection, during which DEP discovered several violations (none of which were considered HPVs). On March 19, 2020, DEP issued a Notice of Violation (NOV) to SPMT for these violations, which SPMT has since all resolved. The March 3, 2020, inspection ID referenced in this general concern is indicated as an administrative/file review, under which DEP issued a NOV to SPMT on the same date for not obtaining a minor operating permit modification (MOPM) to Title V Operating Permit (TVOP) No. 23-00119 for the former deethanizer (former Source ID 106) at the facility prior to performing physical changes and processing a different feedstock. To abate this violation, SPMT submitted a MOPM application to TVOP No. 23-00119 to authorize the conversion of this source to a demethanizer (Source ID 106A). DEP issued the MOPM to TVOP No. 23-00119 on August 25, 2020.

5. “Because of its significant proposed air pollution, this project requires the surrendering of Emission Reduction Credits (ERCs). [DEP] should require Sunoco to clarify that it will surrender ERCs from the five-county Philadelphia area, rather than other regions, so that nearby residents can experience the pollution reductions associated with ERCs. Sunoco has previously used ERCs purchased in Maryland.”

Response: While the ideal scenario may be that ERCs are generated and used by facilities located in close proximity to each other, the provisions of 25 Pa. Code § 127.208(5), (8), and (11) make it clear that this is not required. While beyond the scope of these Plan Approvals, the ERCs from Maryland referenced in this comment, as surrendered by SPMT to offset the net emissions increase of volatile organic compounds [VOCs] authorized under Plan Approval No. 23-0119H, satisfied these requirements, as follows:

- DEP and the Maryland Department of the Environment have a reciprocity agreement on the interstate trading of ERCs (accessible at http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Permits/erc/rec_md.pdf).
- The ERCs from Maryland were generated from the shutdown of the Crown Cork & Seal USA, Inc., facility located in Baltimore County, MD, which is part of the larger Baltimore, MD, nonattainment area. This nonattainment area has an equal classification to, and neighbors, the Philadelphia area discussed in DEP’s response to General Concern 4, above. In addition, as indicated in 42 U.S. Code § 7511c(a), Pennsylvania

and Maryland, along with the states of Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia, comprise a single ozone transport region. Therefore, emissions from the Baltimore, MD, nonattainment area contribute to a violation of the NAAQS for the Philadelphia area.

6. “This permit proposal also includes an additional 183,500 tons per year of greenhouse gas [GHG] pollution, calculated as [carbon dioxide] CO₂ equivalents of methane, but that number is based on a conservative estimate of methane’s Global Warming Potential (GWP). [DEP] uses the metric that methane is 25 times more potent a heat-trapping gas than CO₂ over a 100-year time period. The U.S. Department of Energy categorizes the GWP of methane as 36 times that of carbon dioxide over a 100-year time period. Using this more accurate GWP factor would increase estimated [GHG] pollution from this facility by 44%.”

Response: DEP does not concur, though, before elaborating, DEP must point out three pieces of information in this general concern that are incorrect and/or misleading. First, GHG emissions are expressed in units of CO₂ equivalents [CO₂e], not “CO₂ equivalents of methane.” Second, the vast majority of GHG emissions from the facility are CO₂ from products of combustion (i.e., from the auxiliary boilers and flares), not methane (i.e., fugitive emissions from piping and components). Third, the vast majority of GHG emissions indicated represent potential emissions and are from sources that existed prior to the NGL processing, storage, and distribution operations at the facility, so the term “additional” is misleading. Therefore, even if DEP used the larger GWP, the increase in potential GHG emissions calculated would be much less than 44%. [Moreover, as detailed on the Understanding GWPs page in the GHG Emissions section of EPA’s website (accessible at <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>), while methane is currently estimated to have a GWP of 28–36 over a 100-year time horizon based on the Intergovernmental Panel on Climate Change’s (IPCC’s) Fifth Assessment Report (AR5), EPA’s *Inventory of U.S. GHG Emissions and Sinks* and GHG Reporting Program use the GWP of 25 (over the same time horizon) based on the IPCC’s Fourth Assessment Report (AR4).]

Having said that, DEP acknowledges that SPMT has provided updated short-term emission rates and factors for the auxiliary boilers (based on 2018–2019 auxiliary boiler performance with a 20% margin) that result in the net emissions increase of CO₂e calculated for the facility increasing to 223,200 *tons/yr*. While the updated CO₂e emission factor is almost 2.5 times greater than that applied by DEP in its previous analysis, after accounting for the updated operational steam demand for the single aggregated project, the majority of the difference in the net emissions increase of CO₂e is due to the application of the 20% margin.

7. “[O]ther air pollution sources have not been accounted for in Sunoco’s application [for Plan Approval No. 23-0119J]. Sunoco mentions a ‘Natural Gas System’ and a ‘Methane/Ethane System’ in its application, but claims neither generates any air pollution and does not describe how this is possible. The emissions of two pollutants originating in the amine treatment system and emitted in part from the boilers, sulfur dioxide and greenhouse gases, are also not properly accounted for in the Review Memo.”

Response: See Comments 5–6 on Draft Plan Approval No. 23-0119J (where these concerns are fleshed out in joint comments submitted by Clean Air Council, Environmental Integrity Project, and Sierra Club), below, along with DEP’s responses.

8. “DEP must require Sunoco to abide by the strictest air pollution control technologies regarding their current expansion proposal at the [MHIC].”

Response: DEP concurs. Plan Approval No. 23-0119J requires SPMT to meet all applicable regulatory requirements, including the following:

- Those specified for the refrigerated ethane storage tanks in the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) For Which Construction, Reconstruction, or Modification Commenced After July 23, 1984 [40 CFR Part 60, Subpart Kb].
- Those specified for the piping and components in the Standards of Performance for New Stationary Sources (NSPS) for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006 [40 CFR Part 60, Subpart VVa], including leak detection and repair (LDAR).
- Those specified for the Project Phoenix Cold Flare in 40 CFR § 60.18 and Part 60, Subpart VVa.

In addition, in accordance with 25 Pa. Code § 127.205(1), Plan Approval No. 23-0119J requires these sources to meet Lowest Achievable Emission Rate (LAER), as follows:

- The refrigerated ethane storage tanks are designed to have zero VOC emissions and, therefore, meet LAER.
- The piping and components are subject to the LDAR requirements specified in 40 CFR Part 60, Subpart VVa, except for the following more stringent LDAR requirements indicated in the Texas Commission on Environmental Quality’s (TCEQ’s) 28LAER program:
 - The leak definition for pumps of 500 ppm (instead of 2,000 ppm).
 - The leak percentage for valves required for a reduction in monitoring frequency of 0.5% (instead of 2.0%).
- The design and operating requirements of 40 CFR § 60.18 (including maximum exit velocity, visible emissions, and a minimum net heating value for gas streams combusted in flares) for the Project Phoenix Cold Flare, except for a VOC destruction and removal efficiency (DRE) restriction of 99.0%.

Additional General Concern from Member of Public [143]

9. “Any burning of fossil fuels (oil, gas, natural) exacerbates climate change. Also, any existing (or proposed new) fossil fuel infrastructure harms (or will harm) nearby communities, environments and wildlife. Please deny any permits from Sunoco to expand its operations anywhere in PA.”

Response: DEP appreciates this general concern. However, DEP’s authority is limited to ensuring that companies comply with all applicable federal and state regulations and requirements for proposed or actual sources of air contaminant emissions. (To be clear, the requirements specified in Plan Approval No. 23-0119J are designed to this end.) As long as a company is willing to comply with these regulations and requirements, there is no basis for DEP to deny its application(s) for Plan Approval or Operating Permit.

General Comments in Support [144, 146–149, 170]

1. The facility and energy industry provide economic benefits to the Commonwealth and, in particular, Southeast Pennsylvania.

Comment A: “[T]he [MHIC] [is] a driver of economic activity in Southeast Pennsylvania.”

Comment B.: “This industry not only produces jobs for [IBEW 654] members, but provides necessary energy resources for Pennsylvanians and countless benefits to every community in Pennsylvania [*sic*].”

Comment C.: “[T]he addition of two new 600,000-barrel ethane storage tanks ... will support up to 600 construction jobs during peak construction and 20 new, permanent positions. They will also facilitate and support a significant number of upstream jobs related to the drilling and production of ethane.”

Comment D.: “These plan approvals are important for Pennsylvania’s continued economic growth.”

Comment E.: “Approval of these permits will benefit workers and consumers throughout the Commonwealth by sustaining and growing operations within Pennsylvania’s energy industry.”

Comment F.: “[T]he operator of Marcus Hook, Energy Transfer, has made a solid commitment to local labor that guarantees good-paying jobs on new construction and maintenance at the complex.”

Comment G.: “The permits will help support the ongoing revitalization of the MHIC and are a critical step in maximizing the economic and jobs potential of the Commonwealth’s natural resources to benefit Pennsylvania communities and our workforce in the Philadelphia region and beyond.”

Comment H.: “Critical projects like Marcus Hook provide not only direct jobs, but vital opportunity for the energy supply chain and auxiliary businesses which sustain local investments in our schools, hospitals and neighborhoods. From a macro-perspective for Pennsylvania’s families and small businesses, approving these permits means ensuring greater supplies of our homegrown energy that will keep prices down which is critically important in these uncertain times for many budgets with the on-going impact of COVID-19 on our economy.”

Response: DEP appreciates the comments, though must note that they have no bearing on DEP’s review of the Plan Approval applications.

2. The facility and Mariner East pipeline are critical to supporting the Commonwealth’s energy industry.

Comment A.: “Throughout its operation Marcus Hook has been a huge draw for the energy industry, giving confidence to companies interested in building wells out West or midstream operations across the state. Marcus Hook is the final piece of commercializing and getting product to market, making Pennsylvania a full service energy hub with the combination of production, midstream, and market delivery.”

Comment B.: “These upgrades are the next steps in the continued revitalization of the Marcus Hook. These permits will allow for smooth and safe support of the energy transportation network that supports Pennsylvania’s growing energy industry.”

Comment C.: “Pennsylvania is now the nation’s second leading natural gas producing state – and our hope with these two new permit approvals is that our state’s energy industry can continue to be a leader.”

Comment D.: “Expanding Marcus Hook’s operations is a straightforward way to continue to build the [energy] industry based on infrastructure already in place. Western Pennsylvanian wells and pipelines have created methods for safe delivery of natural gas, and we must focus on enabling the product to reach viable markets.”

Comment E.: “Marcus Hook ... [and] the Mariner East pipeline system ... are essential for the functioning of energy delivery in Pennsylvania.”

Response: DEP appreciates the comments, though must note that they have no bearing on DEP’s review of the Plan Approval applications.

3. The operation and expansion of the facility provides safety and environmental benefits.

Comment A.: CO₂ emissions from the facility are about 50% of what they were a decade ago due to conversion to natural gas.

Comment B.: [SPMT] ... has been working diligently and efficiently to ensure safety and environmental awareness regarding all upgrades.”

Comment C.: “This project will meet all applicable federal and state air quality requirements, while utilizing best available control technology to minimize and reduce air emissions. These plan approvals are important for ... ensuring that the quality of Pennsylvania’s air resources is protected and continues to meet applicable public health standards.”

Comment D.: “[T]he project ... is constructed to the highest industry safety standards with the most state of the art technology.”

Response: DEP appreciates the comments.

**Comments on Draft Plan Approval No. 23-0119E (Revised) from Clean Air Council,
Environmental Integrity Project, and Sierra Club [153–155]**

1. “[DEP] should not act on the Revised Application until a public hearing can be held.”

Comment: Clean Air Council, Environmental Integrity Project, and Sierra Club (hereinafter referred to as “Joint Commenters”) contend that DEP made the correct decision to schedule a public hearing on the proposed Plan Approval, as well as to not hold the public hearing as originally scheduled due to the COVID-19 pandemic. However, Joint Commenters assert that, by canceling the public hearing, DEP has shortchanged public process while leaving the permitting process otherwise as-is. Therefore, Joint Commenters request that DEP postpone rather than cancel the public hearing, extend the public comment period, and take action on the Revised Application only after a safe public hearing can be held.

Response: See DEP’s response to General Concern 2, above.

2. “[DEP] is correct in evaluating LAER as applied to all the emissions units under the [single a]ggregated [p]roject.”

Comment: Joint Commenters contend that, as construction of the single aggregated project has not yet been completed, DEP is correct in applying LAER to all the sources and equipment of the single aggregated project that are new or modified.

Response: DEP appreciates the comment. However, DEP must clarify that LAER has been applied to those sources and equipment determined to be new based on not having commenced operation 2 years or more prior to the date that construction commenced under the original issuance of Plan Approval No. 23-0119E (i.e., after April 1, 2014), or modified under any of the authorizations comprising the single aggregated project. This would be the case even if SPMT had already completed construction/commenced operation of all the sources and equipment of the single aggregated project.

3. “[DEP] errs in excluding [Request for Determination (RFD) No.] 5597 from the [single a]ggregated [p]roject.”

Comment: Joint Commenters contend that the installation of two pumps on the 15-2B cooling tower to increase its cooling water capacity, as authorized under RFD No. 5597, constitutes a modification. Furthermore, despite SPMT stating in its application for RFD No. 5597 that the increase in cooling water capacity was intended to serve instrument air compressors (IACs), Joint Commenters contend that it was primarily intended to serve the sources and equipment of the single aggregated project. Lastly, Joint Commenters contend that DEP mistakenly states in (the previous draft of) its technical review memo for revised Plan Approval No. 23-0119E, dated February 28, 2020, that the IACs “do not relate to the NGLs processing, storage, and distribution operations at the facility,” citing language in SPMT’s application for Plan Approval No. 23-0119J that “Project Phoenix will utilize

the available capacity of existing utilities at the site including ... instrument air.” Therefore, Joint Commenters asserts that RFD No. 5597 is part of the single aggregated project, and should be treated as such.

Response: Based on what SPMT has represented to DEP in and since its application for RFD No. 5597, and the fact that it did not request to increase the VOC emission rate restriction for the 15-2B cooling tower as part of RFD No. 5597, DEP does not concur that the increase in cooling water capacity was primarily intended to serve the sources and equipment of the single aggregated project directly (instead of the IACs). Indeed, DEP’s statement in the technical review memo seeks to convey that the increase in cooling water capacity does not directly serve the sources and equipment of the single aggregated project. As such, DEP does not concur that RFD No. 5597 should be part of the single aggregated project. Therefore, though DEP concurs that the installation of the two pumps on the 15-2B cooling tower constitutes a modification, as the term is defined in 25 Pa. Code § 121.1 (i.e., “a physical change ... which would increase the amount of an air contaminant emitted”), for calculation purposes, DEP has evaluated the 15-2B cooling tower as if the physical change did not occur (i.e., DEP has determined the associated incremental emissions increases of PM, PM₁₀, and PM_{2.5} rather than evaluating the 15-2B cooling tower as an existing emissions unit).

It bears mention that this approach results in the determination of greater emissions increases of PM, PM₁₀, PM_{2.5}, and VOCs for the 15-2B cooling tower than if RFD No. 5597 is considered part of the single aggregated project. This is due to the difference in how DEP would be required to determine the emissions increases for the 15-2B cooling tower. Without considering the modification, DEP has determined the incremental emissions increases of PM, PM₁₀, PM_{2.5}, and VOCs previously authorized under Plan Approval Nos. 23-0119B and (the original) 23-0119E as part of the single aggregated project, and the incremental emissions increases and decreases of PM, PM₁₀, PM_{2.5} previously authorized under RFD No. 5597, as part of the netting analysis. Since the incremental emissions increases are based on the total cooling water demand, they effectively amount to potentials to emit (PTEs) for the pollutants. However, if DEP considered the modification, while the emissions increases of PM, PM₁₀, PM_{2.5} previously authorized under RFD No. 5597 would also be part of the single aggregated project, pursuant to 40 CFR § 52.21(a)(2)(iv)(f) and 25 Pa. Code § 127.203a(a)(1)(i)(A), DEP would be required to determine the emissions increases of PM, PM₁₀, PM_{2.5}, and VOCs by taking the respective differences between the projected actual emissions (PAEs) and baseline actual emissions (BAEs). Since the PAEs for each of these pollutants would be equal to the PTEs, even after considering the emissions increases of PM, PM₁₀, PM_{2.5} previously authorized under RFD No. 5597 as part of the single aggregated project, the reduction by the BAEs would result in lower emissions increases if DEP considered the modification.

4. “[DEP] should require [SPMT] to source its [ERCs] locally, to the extent they are available.”

Comment: Joint Commenters contend that SPMT’s previous use of ERCs from Maryland, as surrendered to offset the net emissions increase of VOCs authorized under Plan Approval No. 23-0119H, does not comply with 25 Pa. Code § 127.208(3)–(4) because no modeling was done to show their ambient impact equivalence of those ERCs, and the emission points of those ERCs have different spatial, temporal, and compositional properties than an elevated flare. Moreover, Joint Commenters contend that, pursuant to 25 Pa. Code § 127.208(8), unless ERCs are unavailable in the nonattainment area where the facility is located, they must be sourced from that area. Therefore, Joint Commenters state that DEP should require SPMT to surrender ERCs from the five-county Philadelphia area.

Response: See DEP’s response to General Concern 5, above.

5. “The potential to emit and net emissions are miscalculated.”

Comment: Joint Commenters contend that SPMT’s indication of zero emergency release emissions from the cold flares of the single aggregated project is incorrect for purposes of calculating PTE. To this point, Joint Commenters contend that emergency releases from cold flares are no different than releases from emergency generators, referring to an EPA memorandum in which EPA “determined that a reasonable and realistic ‘worst-case’ estimate of the number of hours that power would be expected to be unavailable from the local utility may be considered in identifying the ‘maximum capacity’ of such generators for the purpose of estimating their PTE.”

Moreover, Joint Commenters assert that SPMT (and likely DEP as well) has records of historical releases and associated emissions from the cold flares at the facility, from which average emergency release flows and emissions can be estimated. Therefore, Joint Commenters state that the PTE calculations for the cold flares should be corrected to include some estimate of emergency release emissions.

Response: DEP does not concur with Joint Commenters' comparison of the cold flares of the single aggregated project to emergency generators. While SPMT has stated in its applications for Plan Approval Nos. 23-0119E (revised) & 23-0119J that “[a] primary purpose of the ... [c]old [f]lares is to provide safe and reliable control and destruction of process gases during emergency situations,” the cold flares also control operational and maintenance flows on a regular, routine, or continuous basis as part of normal operations. Conversely, outside of readiness testing, emergency generators are typically intended to be operated for emergency purposes only.

More significantly, pursuant to 25 Pa. Code §§ 127.203a(a)(5)(i)(B) and (a)(4)(i)(A), respectively, PAEs and BAEs “[i]nclude fugitive emissions to the extent quantifiable, and emissions associated with startups and shutdowns” only, but “[do] not include excess emissions including emissions associated with upsets or malfunctions.” Therefore, DEP does not include emissions associated with upsets or malfunctions, such as emergency release emissions from cold flares, in PTEs either.

Nonetheless, DEP has obtained information from SPMT on historical incidents of malfunctions for the West Cold Flare (i.e., the only cold flare with such incidents) from 2016–2020, including corresponding emergency release flows and CO, nitrogen dioxide [NO₂]/nitrogen oxides [NO_x], particulate matter [PM], and VOC emissions (see *Attachment A*). DEP has compiled these and has calculated the average annual emergency release emissions of CO, NO₂/NO_x, PM, and VOCs. It is worth noting that, even if DEP included the average annual emergency release emissions in the PTE calculation for the West Cold Flare, DEP’s determination that the single aggregated project is not subject to PSD requirements would not change.

6. “The proposed [P]lan [A]pproval does not encompass all equipment that was modified by the [single a]ggregated [p]roject, causing it to evade applicable requirements.”

Comment: Joint Commenters contend that, in (the previous draft of) its technical review memo for revised Plan Approval No. 23-0119E, dated February 28, 2020, DEP incorrectly identifies which sources and equipment of the single aggregated project were modified. Specifically, Joint Commenters state that the 15-2B cooling tower and auxiliary boilers were modified. Regarding this, Joint Commenters claim that DEP:

- “First, ... denies there is a modification of the cooling tower despite the fact that the [single aggregated] project changed the flow of the cooling water.”
- “Then, ... asserts there is no modification of the cooling tower because the emissions units still perform the same functions as before, despite the fact that the [single aggregated] project causes an increase in demands for new steam (and therefore, emissions from the [auxiliary] boilers) and an increase in demand for the cooling water.”
- “[Makes] this assertion despite admitting that [SPMT] made a ‘physical change’ leading to a change in emissions and an increase in demand on the [auxiliary] boilers and cooling tower, reasoning in a circular manner that there was no physical change because it asserted that the [IACs] did not relate to the [NGLs] operations.”
- “Finally, ... contradicts itself again when it states that the 15-2B cooling tower was modified by the [single aggregated] project.”
- “[C]oncludes that the [single a]ggregated [p]roject modified the 15-2B cooling tower ... based on an admitted physical change to the cooling tower that results in an increase in demand for steam and cooling water ..., but pretends that this physical change does not exist, justifying it leaping to the legal conclusion that the 15-2B cooling tower ‘did not experience a physical change or a change in the method of operation related to’ the [single a]ggregated [p]roject.”

- “[F]ails to apply LAER to the cooling tower.”

In addition, Joint Commenters assert that:

- “Under the federal PSD [Prevention of Significant Deterioration of Air Quality] regulations, ... a physical change ... that results in a decrease in emissions is as much ‘construction’ as one that increases emissions.”
- “[W]hether the [IACs] are in VOC service is an unreasonable basis for [DEP] ignoring the intermediate conclusion that there is a physical change to the cooling tower that results in an increase in emissions.”
- “[DEP] was correct the first time when it concluded that the auxiliary boilers were physically and operationally modified by Project E,” and that “[t]he validity of this conclusion is underscored,” as follows:
 - “[I]n a previous review of an earlier plan approval application [No. 23-0119A] by [SPMT], where [DEP] had adopted the position that an increase in steam demand constituted a change in method of operation, sufficient to qualify as a ‘modification.’”
 - “EPA also agreed there was a modification when it provided comment on the proposed plan approval for another project — Project B.”
- “[T]hese [previous] determinations [from DEP and EPA] were consistent with guidance letters from EPA, which require that incremental emissions from utilities attributable to a project are to be considered in the determination of whether there is a significant increase at Step 1 of the [PSD] analysis. ... If the boilers were not a part of the modification, ... the EPA guidance ... would not make any sense.”
- “The EHB [Environmental Hearing Board] has rejected ... [DEP’s] earlier litigation position that the boilers are only modified by an increase in air emissions to the extent that it exceeds existing permit levels. ... Its earlier arguments having been rejected by the [EHB], [DEP] states that its previous technical review memoranda from Plan Approvals 23-0119A, B, and E, spanning 2013 through 2016, ‘were in error,’ and that the auxiliary boilers were not, in fact, modified.”
- “In addition, [DEP] now suggests that because the boilers still boil and the cooling tower still cools, there has been no modification. This suggestion is wrong because the definition of modification does not require a source to change its fundamental purpose in order to be modified.”

Therefore, Joint Commenters state that “[DEP] should revise its analysis and draft [P]lan [A]pproval to reflect the modification of these emissions units.”

Response: DEP does not concur with Joint Commenters’ claims and assertions. DEP’s first mention of the 15-2B cooling tower in the *PSD Analysis* section of the technical review memo makes clear that it considers the 15-2B cooling tower to have undergone construction. DEP’s subsequent discussion of the 15-2B cooling tower does not contradict or ignore this position, as it states that “the physical change [under RFD No. 5597] resulted in emissions increases of PM, PM₁₀, and PM_{2.5} for the 15-2B cooling tower.” However, DEP seeks to convey the following three points to support its decision to, for calculation purposes only, evaluate the 15-2B cooling tower as if the physical change did not occur (i.e., and determine the associated incremental emissions increases of PM, PM₁₀, PM_{2.5}, and VOCs rather than evaluating the 15-2B cooling tower as an existing emissions unit):

- The addition of new cooling water lines does not constitute a physical change to the cooling tower itself, and the new cooling water demands previously authorized under (the original) Plan Approval No. 23-0119E and RFD No. 5597 do not affect the function of the cooling tower (i.e., it still circulates cooling water) or the VOC (only) emission restriction (unchanged from TVOP No. 23-00001).
- As discussed in DEP’s response to Comment 3 on Draft Plan Approval No. 23-0119E (revised), above, the increase in cooling water capacity authorized under RFD No. 5597 was primarily intended to serve the IACs, and does not directly serve the sources and equipment of the single aggregated project.

- The IACs are not in VOC service and do not directly relate to the NGLs processing, storage, and distribution operations at the facility.

As noted in DEP’s technical review memo and its response to Comment 3 on Draft Plan Approval No. 23-0119E (revised), above, this approach results in the determination of greater emissions increases of PM, PM₁₀, PM_{2.5}, and VOCs for the 15-2B cooling tower than if RFD No. 5597 is considered part of the single aggregated project.

Additionally, Sub-section A.5. (*Cooling towers*) of the *NSR [New Source Review] Requirements* section of the technical review memo discusses LAER requirements for the cooling towers of the single aggregated project, including the 15-2B cooling tower. [Note: See DEP’s responses to Comments 8 and 10 on Draft Plan Approval No. 23-0119E (revised), below, for further discussion of applicable requirements for the cooling towers.]

DEP concurs that the increase in demand for new steam from the auxiliary boilers is tangentially related to that for cooling water from the 15-2B cooling tower. However, as with the 15-2B cooling tower, the addition of new steam lines does not constitute a physical change to the auxiliary boilers themselves, and the new steam demands do not affect the function of the auxiliary boilers (i.e., they still produce steam) or the emission restrictions (either reduced or unchanged from TVOP No. 23-00001). Suffice it to say, the fact that the functions of the 15-2B cooling tower and auxiliary boilers are unchanged is not the only basis for determining whether these sources have undergone construction/were modified.

To the extent that DEP’s position regarding the 15-2B cooling tower and auxiliary boilers, as reflected above and in the technical review memo, conflicts with previous technical review memoranda or DEP’s litigation position in Clean Air Council’s appeal of (the original) Plan Approval No. 23-0119E, the present reviewer was not involved with these and is unable to provide further insight. Regardless, and particularly in this case where (the original) Plan Approval No. 23-0119E has been remanded and SPMT’s entire permitting history at the MHIC is being reconsidered, DEP is obligated to address and correct any errors observed in its previous determinations.

As a point of clarification, DEP does not concur with Joint Commenters’ assertion that a physical change that results in a decrease in emissions constitutes construction for PSD purposes. The EPA applicability determination included in the technical review memo as *Attachment #4* states that “a project ... would not be a modification under PSD ... if there were not an associated emissions increase.” This position is consistent with how a modification is considered or defined in other regulations, including, but not limited to, 40 CFR § 60.14 and 25 Pa. Code § 121.1.

Lastly, DEP does not concur with Joint Commenters’ assertion that, “[i]f the boilers were not a part of the modification, ... the EPA guidance [requiring that incremental emissions attributable to a project be considered at Step 1 of the PSD analysis] ... would not make any sense.” The EPA guidance letter referenced by Joint Commenters, which is also included in the technical review memo as *Attachment #1c*, states that “[t]he total increase in emissions that will result from the proposed changes at the source includes: ... other increases at existing emissions units not being modified which could experience emissions increases as a result of the change.” Additional EPA guidance cited in the letter, which is also included in the technical review memo as *Attachments #1a–1b*, essentially discusses the exact situation at hand (i.e., where the auxiliary boilers are not modified, but emissions from them are affected by the single aggregated project due to an increase in utilization). Indeed, this scenario is what DEP refers to in the technical review memo as incremental emissions increases, which DEP considers for the auxiliary boilers in Step 1 of the PSD analysis.

7. “The netting calculations have improper time periods and inputs.”

Comment: Joint Commenters contend that DEP “err[ed] in considering the reference point for the change in emissions to be the date of the issuance of the original Plan Approval [No.] 23-0119E, [and that, f]or any application for a plan approval, the date when ‘construction on the particular change commences’ necessarily must occur in the future, rather than in the past.” To this end, Joint Commenters assert that the appropriate reference point is the date of issuance of revised Plan Approval No. 23-0119E, and that “[DEP’s] netting of increases and decreases from 2012 is impermissible.”

In addition, Joint Commenters assert that, because “[t]he installation of controls for CO [carbon monoxide] emissions [on pumps for wastewater treatment under Plan Approval No. 23-0001AD] is required under the NESHAP standard found in 40 CFR 63, Subpart ZZZZ for existing CI Engines,” “[t]he emissions decrease associated with the CO controls is not creditable and its inclusion in the netting calculations [(i.e., Step 2 of the PSD analysis)] is an error that [DEP] should correct.”

Response: DEP concurs in part. Regarding the reference point for the PSD and NSR analyses, DEP does not concur with Joint Commenters’ contention that “[f]or any application for a plan approval, the date when ‘construction on the particular change commences’ necessarily must occur in the future, rather than in the past.” Though not the ideal situation, DEP has issued numerous Plan Approvals to companies for the after-the-fact installation or modification of sources (i.e., those for which the companies did not obtain the required Plan Approvals prior to the installation or modification). In these cases, the look-back period for determining the net emissions increase under the PSD and/or NSR analyses is correctly based on the actual (past) date that construction commenced. Therefore, as DEP states in (the previous draft of) its technical review memo for revised Plan Approval No. 23-0119E, dated February 28, 2020, “[s]ince the original Plan Approval No. 23-0119E has been remanded, DEP has chosen to establish the timeframes for the single aggregated project based on the actual dates that DEP received the complete application for, construction commenced under, and operation commenced under the original issuance of Plan Approval No. 23-0119E.”

Regarding the emissions decrease of CO associated with controls installed under Plan Approval No. 23-0001AD, DEP concurs that, pursuant to 25 Pa. Code § 127.207(1)(i), emissions decrease of CO is not creditable. Therefore, DEP has removed it from the netting calculations.

8. “The LAER analysis is flawed.”

Comment: First, Joint Commenters contend that SPMT’s “[LAER] analysis [for the piping and components] is flawed because the [LDAR] provisions in 40 CFR 60 Subpart VVa are less stringent than LAER requirements found in the RACT/BACT/LAER Clearinghouse [(RBLC)] and used traditionally in SOCOMI [the Synthetic Organic Chemical Manufacturing Industry].” To this end, Joint Commenters state that “[DEP] should require [SPMT] to adopt the technologies required by TCEQ’s 28LAER, which is actually LAER for fugitive components, and comply with 40 CFR Subpart VVa to the extent it is more stringent or a component is not covered by 28LAER.”

Next, Joint Commenters contend that “[t]he only LAER requirements identified by [SPMT] for cooling towers relate to inspection and maintenance. But a search of the RBLC shows that ‘Indirect Design,’ is considered LAER for VOCs at several facilities, including the Equistar Chemicals Channelview Complex, RBLC ID TX-0865. Indirect system (or closed-loop/closed-circuit) cooling towers are designed such that there is no contact between the cooling fluid and the air.” Therefore, Joint Commenters state that “[DEP] should consider indirect design as LAER for the cooling towers in the present application.”

Lastly, while Joint Commenters commend [DEP] for using 99% DRE for the Project Phoenix flare in Project J, which is LAER for flares burning flows of methane, ethane, and propane (molecules with 3 or fewer carbon atoms (C3-)),” Joint Commenters contend the following:

- “With respect to cold flares discussed in the [single a]ggregated [p]roject (i.e. the West and East Cold Flares), it is inappropriate for the facility to use a [DRE] of 98% for sweep, purge, and pilot C3-.”
- “[SPMT’s] assertion that the cold flares cannot achieve a [DRE] greater than 98% because ‘the flows to the Project Phoenix Cold Flare will always contain trace amounts of hydrocarbons with three carbons or more,’ ... is flawed because flares at other facilities with comparable streams and compositions consistently use a [DRE] of 99%. ... This is now also the case for the Project Phoenix cold flare.”

Therefore, Joint Commenters state that “[DEP] should perform the same analysis for these cold flares as was done for the Project Phoenix Cold Flare[and, i]f the trace amounts of heavier hydrocarbons are similar in the East and

West Cold Flares to the trace amounts found in the Project Phoenix Cold Flare, a 99% DRE should apply provided that the calculated weighted VOC DRE is approximately 99%.”

Response: Regarding the piping and components of the single aggregated project, Sub-section A.2. (*Piping and components*) of the *NSR Requirements* section of (the previous draft of) DEP’s technical review memo for Plan Approval No. 23-0119E (revised), dated February 28, 2020, made clear that, beyond the provisions of 40 CFR Part 60, Subpart VVa, DEP has incorporated certain “more stringent LDAR requirements indicated in ... TCEQ’s 28LAER program as LAER, and has incorporated them into SPMT’s existing LDAR program for the facility.”

While the RBLC indicates indirect design under RBLC ID TX-0865 (permit issued September 9, 2019) as LAER for VOCs from cooling towers, the RBLC also indicates a VOC leak detection system under RBLC ID TX-0823 (permit issued June 7, 2017) and monthly monitoring of the cooling water under RBLC IDs TX-0863 and TX-0886 (permits issued September 3, 2019, and March 31, 2020, respectively) as such. By and large, SPMT’s heat exchanger LDAR program for the cooling towers of the single aggregated project meets these latter LAER determinations. Therefore, DEP does not concur with considering indirect design as LAER. However, Condition # 003(e)(2), Section D (under Source ID 112), of TVOP No. 23-00119 (and the draft Plan Approval), currently permits a reduction of the monitoring frequency for VOC leaks from monthly to quarterly after 6 months with no leaks detected. As this proviso does not comport with LAER, DEP has removed it from the condition in the draft Plan Approval. In addition, the requirements in the draft Plan Approval for the “new” cooling towers (i.e., Source ID 112) have been extended to the 15-2B cooling tower (i.e., Source ID 139). [Note: See DEP’s response to Comment 10 on draft Plan Approval No. 23-0119E (revised), below, for further discussion regarding this last point.]

Regarding the cold flares of the single aggregated project, DEP concurs that the appropriate VOC DRE restriction for the pilot, purge, and sweep gas flows would be 99% if these were the only flows. However, DEP has not indicated a separate VOC DRE restriction for the pilot, purge, and sweep gas flows because the operational flows to the cold flares are assumed to occur on regular, routine, or continuous basis. As such, the appropriate VOC DRE restriction for the respective cold flares is dictated mainly by the percentage of VOCs containing more than three carbons in the operational (and maintenance) flows. Specifically, based on correspondence between DEP and Ms. Anne Inman, P.E., Air Permits Division, TCEQ, a VOC DRE restriction of 99% is appropriate for flares processing flows where the portion of VOCs containing more than three carbon atoms is less than or equal to 1%.

DEP has analyzed the flows to each of the cold flares of the single aggregated project, and has calculated the total percentages of hydrocarbons and VOCs containing more than three carbon atoms for each cold flare tip (see *Attachment B*). Based on the total percentages of VOCs containing more than three carbon atoms, the VOC DRE restrictions for the cold flares will remain as is, except that, based on the flows to the West Cold Flare, DEP has changed the language of Condition # 002, Section D (under Source ID C01), of the Plan Approval No. 23-0119E (revised), such that the associated VOC DRE restriction is 99.0% whenever flows are being sent to the low-pressure (LP) cold flare tip only (and 98% otherwise).

9. “The estimated greenhouse gas emissions should be adjusted upward based on the use of an updated global warming potential factor for methane.”

Comment: Joint Commenters contend that “[DEP] should use the latest and best data for calculating emissions of all air pollutants. In calculating emissions for the present application and other projects in the future, [DEP] should use the GWPs [for methane and nitrous oxide (N₂O)] as set forth in the latest IPCC report, ... AR5,” instead of AR4.

Response: See DEP’s response to General Concern 6, above.

Additional Comment on Draft Plan Approval No. 23-0119E (Revised) from EPA

10. “[PM] Emissions – Existing Cooling Towers (Source ID 139).”

Comment: EPA requests that DEP “discuss whether the PM emission restrictions and associated MRR [monitoring, recordkeeping, and reporting] conditions currently in the draft plan approval for the New Cooling Towers should also apply to the Existing Cooling Towers.”

Response: As indicated in Sub-section A.5. (*Cooling towers*) of the *NSR Requirements* section of (the previous draft of) DEP’s technical review memo for Plan Approval No. 23-0119E (revised), dated February 28, 2020, the heat exchanger LDAR program for the ‘new’ cooling towers has been extended to the 15-2B cooling tower as well. However, DEP failed to likewise extend the requirements for the “new” cooling towers in TVOP No. 23-00119 (and the draft Plan Approval) to the 15-2B cooling tower. DEP has corrected this error, and has added these requirements to the Plan Approval for the 15-2B cooling tower.

Comments on Draft Plan Approval No. 23-0119J from Clean Air Council, Environmental Integrity Project, and Sierra Club

1. “[DEP] should not act on the [r]evised [a]pplication until a public hearing can be held.”

Comment: Joint Commenters contend that DEP made the correct decision to schedule a public hearing on the proposed Plan Approval, as well as to not hold the public hearing as originally scheduled due to the COVID-19 pandemic. However, Joint Commenters assert that, by canceling the public hearing, DEP has shortchanged public process while leaving the permitting process otherwise as is. Therefore, Joint Commenters request that DEP postpone rather than cancel the public hearing, extend the public comment period, and take action on the revised application only after a safe public hearing can be held.

Response: See DEP’s response to General Concern 2, above.

2. “[DEP] should provide clarification regarding the amount of emissions from the demethanizers.”

Comment: Joint Commenters assert that “[DEP] should clarify the amount of emissions related to the demethanizers. Neither the Application nor the [technical r]eview [m]emo [for Plan Approval No. 23-0119J] discusses whether the demethanizers would generate emissions. In contrast, [SPMT] made it clear that the deethanizer installed as part of Project A required steam generated by the auxiliary boilers, and it calculated the associated emissions. ... [Therefore, DEP] should calculate any associated emissions and relevant offsets, adjusting regulatory analyses as needed.”

Response: DEP does not concur with Joint Commenters’ contention that “[n]either the [a]pplication nor the [technical r]eview [m]emo discusses whether the demethanizers would generate emissions.” First, both indicate that the demethanizers are proposed to have maintenance and emergency connections to the Project Phoenix Cold Flare, and emissions from these connections are accounted for in the overall emissions indicated for the Project Phoenix Cold Flare in both. Moreover, the application specifies fugitive VOC and CO_{2e} emissions from “methane/ethane system components” (i.e., piping and components associated with the demethanizers) of 0 tons/yr and 2,141.36 tons/yr, respectively, and these are accounted for in the overall fugitive VOC and CO_{2e} emissions indicated for piping and components in the technical review memo.

DEP has confirmed with SPMT that while the deethanizer (subsequently permitted as a demethanizer, as discussed in DEP’s response to General Concern 4, above) uses steam from the auxiliary boilers, the demethanizers proposed under Plan Approval No. 23-0119J are not proposed to do so. Finally, as specified in the newspaper notice regarding DEP’s intent to issue Plan Approval No. 23-0119A, as published by SPMT in the *Delaware County Daily Times* on July 13–15, 2013, “[p]otential VOC emissions will not exceed 3.04 tons and will be fugitive from valves, flanges, and fittings.”

Therefore, DEP has accounted for all emissions from the demethanizers in its review of Plan Approval No. 23-0119J.

3. “[DEP] should require [SPMT] to provide more information regarding the components of the proposed amine treatment system, and revise the project to reflect a modification of the existing amine treatment system, if appropriate.”

Comment: Joint Commenters contend that the amine treatment system proposed under Plan Approval No. 23-0119J “appears to be identical [to that proposed under the withdrawn application for Plan Approval No. 23-0119I] except for one thing—[SPMT] does not disclose the emissions units of the Project Phoenix Amine Treatment System. This is a material omission, because [DEP] cannot do a full regulatory analysis of emissions without knowing what are the emissions units and components. [DEP] should require [SPMT] to disclose the emissions units and components of the Project Phoenix Amine Treatment System.”

Moreover, Joint Commenters assert the following:

- “[T]he appropriate analysis for Project I was that the existing amine treatment system installed as part of Project A was being augmented with a new amine contactor and flash drum, which constitutes a modification of the existing system.”
- “Evidence provided by [SPMT] suggests that this really is a modification of the pre-existing amine treatment system that was a part of Project A. [SPMT] acknowledges that it will ‘have the ability to connect to existing amine equipment.’”
- “Most likely, the proposed change (including the connection to the old system) would pass the ‘wrench test’ and render this a modification of the existing amine treatment system, rather than as [*sic*] new emission unit.

Therefore, Joint Commenters assert that, “[b]ecause the [single a]ggregated [p]roject is a major modification under [NSR], [DEP] should apply LAER to the amine treatment system.”

Response: DEP does not concur with Joint Commenters’ contention that “[SPMT] does not disclose the emissions units of the Project Phoenix Amine Treatment System.” In the narrative accompanying its application for Plan Approval No. 23-0119J, SPMT discloses the emissions units of the Project Phoenix Amine Treatment System, as follows:

- Section 2: SPMT indicates “an incremental increase in steam used in the Project Phoenix Amine Treatment System [from the auxiliary boilers by the] amine stripper tower reboiler,” as well as maintenance and emergency connections for exchanger and filter source categories of the Project Phoenix Amine Treatment System to the Project Phoenix Cold Flare and West Warm Flare.
- Section 3: SPMT indicates component counts and fugitive VOC emissions from valves, pump seals, pressure relief valves, and flanges/connectors associated with the Project Phoenix Amine Treatment System.
- Appendix C: SPMT lists connections from pumps, filters, exchangers; the amine stripper tower reboiler, and other equipment associated with the Project Phoenix Amine Treatment System to the Project Phoenix Cold Flare.

As compared with the amine treatment system proposed under the withdrawn application for Plan Approval No. 23-0119I, that proposed under Plan Approval No. 23-0119J includes equipment to regenerate the amine, and uses significantly more steam from the auxiliary boilers. Regarding the proposed connection to existing amine equipment originally installed under Plan Approval No. 23-0119A, SPMT has stated that this is for reliability (i.e., emergency backup) purposes only and is not expected to result in an increase in the capacity of or incremental emissions from the existing amine equipment. Therefore, the proposed connection would not constitute a modification.

4. “[DEP] should require proper accounting of emissions from the utilities.”

Comment: Joint Commenters contend that, while “[SPMT] states that “Project Phoenix will utilize the available capacity of existing utilities at the site including ... instrument air, ... [DEP] does not describe or count the emissions associated with the instrument air system. ... The instrument air system involves compressors that require the use of cooling water (see RFD 5597) and some source of energy, which is not described but which may generate incremental emissions.” Furthermore, Joint Commenters contend that, “because [SPMT] does not identify any incremental emissions from the instrument air system, ... [DEP] states that the [IACs] ‘do not relate to the NGLs processing, storage, and distribution operations at the facility.’ But that conclusion is wrong because the Application admits that Project J uses instrument air.” Therefore, Joint Commenters assert that “[DEP] should properly account for [the] incremental emissions from [IACs] in its [NSR] analysis.”

Response: DEP concurs that “Project Phoenix will utilize the available capacity of existing utilities at the site including ... instrument air.” However, SPMT has confirmed that this statement means that the current instrument air capacity/cooling water demand at the facility is sufficient to handle the instrument air needs of the sources and equipment proposed under Plan Approval No. 23-0119J.

5. “[DEP] should require a proper accounting for sulfur dioxide [SO₂] and [GHG] emissions from the amine treatment system.”

Comment: Joint Commenters assert that “[f]or [SO₂], [DEP] should apply the same methodology it used for the review for Project A,” in which it “quantified the expected emissions from the amine treatment system, explaining that the acid gas would be directed to the fuel supply line for the existing permitted auxiliary boilers, and relying on the control efficiency of boiler combustion to quantify the ultimate emissions.” While Joint Commenters state that, for “Project A, it is not clear that [DEP] accounted for the additional [SO₂] emitted from the [auxiliary] boilers that will result from the combustion of hydrogen sulfide [H₂S] from the amine treatment system,” they assert that “[f]or Project J, [DEP] should calculate the incremental [SO₂] emissions (and other emissions) generated by the amine treatment system through the additional [acid] gas to the [auxiliary] boilers.”

Moreover, Joint Commenters contend that, “[i]n [DEP’s technical r]eview [m]emo [for Plan Approval No. 23-0119J], the [GHG] emissions appear to not have been counted at all. This does not sound right because the purpose of the amine treatment system is to remove [CO₂]. That [CO₂] must be directed somewhere, but [SPMT’s a]pplication does not explain where it is directed. [DEP] should clarify what is happening to it and ... adjust the emissions calculations to include emissions from the amine treatment system.”

Response: DEP concurs that the emissions calculations for the auxiliary boilers do not reflect the additional SO₂ and GHG emissions from the amine treatment systems installed under Plan Approval No. 23-0119A and proposed under Plan Approval No. 23-0119J. To this end, DEP has obtained the following information from SPMT:

- Updated short-term emission rates and factors for the auxiliary boilers (as previously discussed in DEP’s response to General Concern 6, above).
- Estimates of the maximum SO₂ and CO₂ emissions from the auxiliary boilers associated with the amine treatment system proposed under Plan Approval No. 23-0119J (based on maximum H₂S and CO₂ concentrations in the ethane feedstock).

Since the updated short-term emission rates and factors are based on 2018–2019 auxiliary boiler performance, they provide for the best representation of the emissions from the auxiliary boilers, including connections from the amine treatment system installed under Plan Approval No. 23-0119A. Therefore, DEP has applied the updated emission factors in its calculations of the emissions increases due to the single aggregated project.

In addition, SPMT has indicated that “the amine treatment system [proposed under Plan Approval No. 23-0119J] will be connected to the fuel gas drum which provides fuel to the auxiliary boilers.” Based on maximum H₂S and CO₂ concentrations of 10 ppm and 1,000 ppm, respectively, in the ethane feedstock proposed to be processed by the amine treatment system under Plan Approval No. 23-0119J, SPMT has determined the maximum associated

SO₂ and CO₂/GHG emissions from the auxiliary boilers to be 3.0 *lbs/hr* and 740 *lbs/hr*, respectively. While SPMT has indicated that “those [H₂S concentration] levels are not normal or expected,” and “[e]thane feedstock which meets the product specification for CO₂ (<100 *ppm*) prior to treatment may bypass the ... [a]mine [t]reatment [s]ystem,” DEP has nonetheless calculated the corresponding annual SO₂ and CO₂ emissions (i.e., 13.14 *tons/yr* and 3,240 *tons/yr*, respectively) and included them in its calculations of the emissions increases due to the single aggregated project.

6. “[DEP] should clarify the amount of fugitive VOC emissions from the natural gas and methane / ethane system components, which are unlikely to be zero.”

Comment: Joint Commenters assert/contend that “[DEP] should clarify the amount of certain emissions from the natural gas and methane/ethane system components. [SPMT] provides insufficient or inaccurate information in its application [for Plan Approval No. 23-0119J], ... [while] [DEP] makes no reference to those systems in its [associated technical r]eview [m]emo. [SPMT] estimates the total VOC emissions from these two systems to be zero, based on a claimed ‘0%’ by weight VOC content. ... This appears to be an error because the gas used at the facility has a VOC content greater than 0%. Furthermore, it is unclear what the “Methane / Ethane System” is, but it is highly unlikely that the methane and ethane presumably flowing through it also has a VOC content of 0%. [Therefore,] [DEP] should require [SPMT] to provide a realistic non-zero estimate of those emissions, and [DEP] should update its emissions calculations based on the information provided.”

Response: [Note: General Concern 7, above, is largely similar to this comment, except that it expresses a concern that “neither [system] generates any air pollution.” Therefore, DEP’s response discusses all pollutants proposed to be emitted from the natural gas system and methane/ethane systems (i.e., VOCs and GHGs).] In Tables D-4 and D-5 of its application for Plan Approval No. 23-0119J, SPMT includes calculations of fugitive VOC and GHG emissions from various piping and component systems, including the natural gas system and methane/ethane system. While the VOC emissions from the natural gas system and methane/ethane system are indicated as 0 *tons/yr*, (non-zero) GHG emissions from each of these systems are specified. These calculations are based in part on the gas speciation information presented in Table D-6. DEP does not have any specific objections to the gas speciation information presented for the methane/ethane system, for which SPMT has stated the following:

“[T]he demethanizer consists of a methane stripping tower which removes methane from dry ethane feed. At a high level, the feed to the demethanizer consists of methane rich off-gases. Components which are part of the piping which transports this feed were labeled ‘methane/ethane system’ when summarizing counts used for fugitive emissions calculations. The engineering contractor has confirmed that these streams are not expected to have a VOC component.”

However, DEP does not concur with the gas speciation information presented for the natural gas system (and flare system). As part of its review of the application for Plan Approval No. 23-0119J, DEP requested gas speciation information from SPMT for the natural gas used at the facility. To this end, SPMT provided daily average gas chromatograph (GC) data for 2019 (included in the associated technical review memo as *Attachment #5*). Specifically, the average methane/GHG and VOC contents from the GC data are 97.43% and 0.08%, respectively (versus 90% and 0%, respectively, from the gas speciation information in Table D-6). The differences between these GHG and VOC contents amount to increases in total emissions from the natural gas system and flare system of less than 2.7 *tons/yr* CO₂e and less than 0.0012 *tons/yr* VOCs, respectively.

West Cold Flare Emergency Flows/Emissions

Date(s)	Emergency Flow Information			Total Emissions (lbs)				
	Constituents	Total scf	Total mmBtu	CO	NOx	PM (orig)	PM (2020 method)	VOCs
2/12/2016	Methane, Ethane, Propane, Butane	674,130	1,585	491.29	107.77	7.44	190.20	903.33
3/2/2016	Methane, Ethane, Propane, Butane	372,772	835	258.94	56.8	4.11	100.20	476.11
3/25/2016	Methane, Ethane, Propane, Butane	72,575	162	50.34	11.04	0.80	19.44	92.55
4/18/2016	Methane, Ethane	2,556	11	3.41	0.75	0.03	1.32	6.27
5/20/2016	Methane, Ethane	103,683	135	42.00	9.21	1.14	16.20	77.23
5/27/2016	Methane, Propane	25,629	63	19.64	4.31	0.28	7.56	36.11
6/10/2016	Methane, Ethane	3,684	6	1.77	0.39	0.04	0.72	3.26
10/13–14/2016	Methane, Ethane	3,800,349	5,981	1854.05	406.7	0	717.72	0
10/14/2016	Methane, Ethane	64,882	1,051	325.73	71.45	1.22	126.12	0
6/16/2018	Methane, Ethane	388,339	634	196.54	43.11	4.28	76.08	0
10/22/2018	Methane, Ethane	133,590	207	64.24	14.09	1.47	24.84	0
11/7/2018	Methane, Ethane	104,439	147	45.57	10.00	1.15	17.64	0
7/26/2019	Methane, Ethane, Propane	339,608	561	173.91	38.15	3.75	67.32	46.65
8/15/2019	Methane, Ethane, Propane	184,710	322	99.82	21.90	2.04	38.64	33.71
2/4/2020	Methane, Ethane, Propane		181	56.04	12.29	21.72	21.72	0.65
5/15/2020	Methane, Ethane, Propane		413	127.99	28.07	49.56	49.56	31.60

Attachment A

Year	Total Emissions (lbs/yr)				
	CO	NOx	PM (orig)	PM (2020 method)	VOCs
2016	3047.17	668.42	15.06	1179.48	1594.86
2017	0	0	0	0	0
2018	306.35	67.20	6.90	118.56	0
2019	273.73	60.05	5.79	105.96	80.36
2020	184.03	40.36	71.28	71.28	32.25
Average	762.26	167.21	19.81	295.06	341.49

Note

PM (orig) reflects the PM/soot emissions originally submitted by SPMT, whereas PM (2020 method) reflects the PM/soot emissions calculated by DEP using the same methodology used by SPMT in its 2020 submittals (i.e., applying a PM emission factor for average smoking flares of 0.12 lbs/mmBtu from EPA's Emission Estimation Protocol for Petroleum Refineries).

Cold Flare Percent Hydrocarbon and Percent VOC Calculations

Cold Flare Name	Cold Flare Tip Type	Flow Composition/Quantity (lbs/yr)							Totals		
		Natural Gas	Methane	Ethane	Propane	Butanes	Pentanes	Hexane	Flow (lbs/yr)	% HCs >C3	% VOCs >C3
West Cold Flare	HP	23,322	27,767	250,480	433,061	145,363	5873	0.0262	862,544	17.534%	25.883%
	LP	0	2,733	988,319	424,111	0	47	0	1,415,210	0.00332%	0.0111%
	Totals	23,322	30,500	1,238,799	857,172	145,363	5,920	0.0262	2,277,755	6.642%	15.002%
East Cold Flare	LP	0	29	815,470	1,166,235	826,325	24902	0	2,832,961	30.047%	42.193%
Project Phoenix Cold Flare	HP	2,838,241	2,816,396	183,322	127,481	1,466	8.398	3.188	3,128,677	0.0472%	1.146%
	LP	798,912	785,679	3,702,530	194,533	48.920	2.364	0.897	4,682,795	0.00111%	0.0268%
	Totals	3,637,153	3,602,075	3,885,852	322,014	1,515	10.76	4.086	7,811,472	0.020%	0.473%

Notes

- 1) Natural gas composition is assumed to be 97.430% methane, 2.200% ethane, 0.0736% propane, 0.00612% butanes, 0.000296% pentanes, and 0.000112% hexane based on 2019 daily average gas chromatograph data from SPMT's natural gas provider, and the associated flows are already considered under these pollutants.
- 2) Based on Table D-6 in SPMT's application for Plan Approval No. 23-0119J (for the propane refrigeration system), propane for the HP flare tip for the Project Phoenix Cold Flare is conservatively assumed to be 1/98th isobutane.