

COMMONWEALTH OF PENNSYLVANIA
Department of Environmental Protection
Southwest Regional Office

MEMO

RE Comment and Response Document
MarkWest Liberty Midstream & Resources, L.L.C.
Harmon Creek Gas Plant
Smith Township, Washington County
Permit Decision: Approved
Public Comment Period: December 3, 2022 – January 3, 2023
APS 1066962 Auth 1402339 PF 819388

DATE **April 11, 2023**

TO Air Quality Permit File PA-63-01011

FROM Laura S. Dickson, P.E./LSD
Environmental Engineer
Air Quality Program

THROUGH Sheri Guerrieri, P.E./SLG
Environmental Engineer Manager
Air Quality Program

Mark R. Gorog, P.E./MRG
Regional Manager
Air Quality Program

Background

On June 29, 2022, the Department received a plan approval application from MarkWest Liberty Midstream & Resources, L.L.C (MPLX) for installing and operating new air contamination sources and air cleaning devices as well as modifying existing air contamination sources and air cleaning devices. The facility is located in Smith Township, Washington County. Review of the submitted application has been completed by the Department and the public comment period has expired. This memo responds to public comments and documents activity that has taken place since the Department’s review memo was finalized.

Notice of intent to issue the plan approval was published in the *Pennsylvania Bulletin* on December 3, 2022.

On November 23, 2022, the Department provided a copy of the final review memo and draft Plan Approval to the applicant.

On November 23, 2022, a copy of the review memorandum and draft plan approval were sent to the Department’s Air Quality (AQ) Operations Staff (Elizabeth Speicher, Anna Hensel, and Daniel Kline).

List of Commentors

1. Environmental Integrity Project (EIP), Clean Air Council (CAC), Citizens for Pennsylvania’s Future (PennFuture), and local area residents within a group format self-described as “Commenters”.

2. Alexandra Juarez, MarkWest Liberty Midstream & Resources, Environmental Engineer
3. Trina Tokarski, Local Resident
4. Sweat Law Offices on behalf of the Board of Supervisors of Smith Township, Washington County

Comments from Commentor 1 from December 14, 2022

Comment 1: On December 14, 2022, the written letter was submitted, via email, to the Department, that included a request for a 60-day extension of the public comment period for this Plan Approval with the reasoning that the current public comment period reduces the available days to comment due to the holiday season. It also asserted that the public comment period would end on January 3, 2023 instead of January 2, 2023 because January 2, 2023 is a Commonwealth of Pennsylvania observed holiday. The letter also requested a public hearing, after the first week of January, pursuant to 25 Pa. Code §127.48. Additionally, the letter stated, *“The proposed expansion of the Harmon Creek Gas Plant will double the pollution and other adverse impacts that residents near the plant are already experiencing. In addition, as you are aware, MarkWest has a history of noncompliance at the existing plant. For example, MarkWest reported illegal flaring events at the facility on at least eleven occasions and Emergency Shutdowns (ESDs) on at least seven occasions in 2020 and 2021. MarkWest was penalized by DEP with multiple notices of violations (NOVs) at the existing Harmon Creek plant in 2021.”* Finally, the Commentors mentioned that documents were requested from the Department and were not yet received.

Response 1: The public comment period begins once the Department has enough information to write a technical review memo and create a draft Plan Approval. In this review, the Department was not able to initiate the public comment period until MPLX provided proof that the proposed regen heater (Source ID 031) met BAT. With the proof of BAT, a revised potential to emit (PTE) estimate was required to have an accurate facility-wide PTE. This information was received on November 17, 2022. Per standard practice, the Department submitted the notice of intent to issue for the next Pennsylvania Bulletin publication date once the required information was received. In this case, the next available publication date was December 3, 2022. Pursuant to 25 Pa. Code Section 127.44, the public comment period ran for 30 days from publication. The public comment period would have typically completed on January 2, 2023; however, the Department’s counsel notified the commenters counsel, on December 22, 2022, that the deadline for submitting comments would be January 3, 2023, which was the first business day of 2023. *See* 1 Pa.C.S. Sect. 1908. The Department took the request for a public hearing into consideration. After consideration, under 25 Pa. Code §127.48, it was ultimately decided that a public hearing would not be held. However, the Department considered all comments received before final action would be accepted and considered, per 25 Pa. Code §127.47(b).

Regarding the facility-wide increase in emissions and other adverse impacts, the facility remains a minor facility and appropriate facility-wide emission limitations have been incorporated into the plan approval. Additionally, the increase in facility-wide potential to emit from this project is equal to or less than 1.0 ton of NOx, 4.0 tons of CO, 7.0 tons of VOC, 1.0 ton of SOx, 2.0 tons of PM₁₀, 2.0 tons of PM_{2.5}, 1.0 ton of total HAP, 0.5 single HAP, and 22,400 tons of CO_{2e}. The existing flare will control emissions resulting from proposed sources, but it is important to note

that the maximum potential gas throughput to the flare remains unchanged and a VOC emission restriction of 14.0 tpy on a 12-month rolling basis has been included for the flare. This is because the flare was originally permitted at sufficient capacity to control the potential emissions from both Harmon Creek I and Harmon Creek II (in 2018 under GP5-53-1011A). However, a lapse in construction occurred for Harmon Creek II. With this Plan Approval once again proposing a second cryo unit, the flare maximum potential throughput is unchanged. Regarding adverse impacts, the comment does not delineate the specific adverse impacts that the Commenters are referring to. Harmon Creek II has gone through a case-by-case technical review by the Department and site-specific conditions to ensure proper operation and oversight of the facility have been included. Emission restrictions, monitoring requirements, record keeping requirements, reporting requirements, work practice standards, and additional specific requirements have all been included. The Department also notes that the published 22,400 tons of CO₂e increase is a conservative estimate that likely overstates the “increase”. As described on page 14 of the review memo, the Department corrected methane emission estimates from the flare. Because potential emissions from the flare remain unchanged since the authorization of GP5-63-01011B, the CO₂e emissions from the flare within the Plan Approval appear as an increase but are actually a more accurate estimate. The actual CO₂e emission increase from this project is estimated to be 15,000 tpy.

Regarding the documents requested by the commenter, the document request was received on December 12, 2022. The Department attempted to provide the requested documents to the Commenters on December 14, 2022; however, it was discovered that the Commenter recipients did not receive the documents due to the size of the attachments. The documents were resent on December 15, 2022, with a link to the requested documents so that all recipients were able to obtain them. Additionally, the Department’s Community Page on its website was updated to include all technical information and emails related to this Plan Approval from the administrative completeness and technical review periods.

See also response to Comment No. 3 below.

Comments from “Commenters” from January 3, 2023

Comment 2: Commenters assert that the denial of the public comment period extension request is inconsistent with public participation requirements stating that the comment period occurred during multiple major holidays as well as the evacuation on Christmas morning during the Energy Transfer Revolution Gas Plant malfunction.

Commenters also note that draft plan approvals and review memos are not available to the public on the same date as the Pennsylvania Bulletin Notice. Commenters believe that, in summary, interested parties did not have a full thirty (30) days for the public comment period, the Department did not give rationale regarding why the public comment period was not extended, and thirty (30) days was an insufficient for the public comment period.

Response 2: Please see Response 1 regarding the public comment period and extension request.

Commenters are correct that it is standard practice for the Department to provide requested documents. Regarding the turnaround time to the December 5, 2022 and December 12, 2022 information requests, a response to the December 5, 2022, request was completed within two (2) business days. A response to the December 12, 2022, information request was attempted on December 14, 2022 (two (2) business days); however, due to the size of attachments, the response was not delivered. The Department provided a OneDrive link containing the attachments on December 15, 2022, within three (3) business days. Additionally, during the public comment period, information was published on the Department's Community page on its website for public access.

Comment 3: Commenters note that MPLX has violated the law, regularly, since Harmon Creek began operating and that noted "illegal flaring events at the facility and emergency shutdowns (ESDs) almost monthly in 2020 and 2021." The commenters also note that the Department has issued multiple notices of violation (NOVs) in 2021.

Response 3: The Commenters provided an attachment identifying the "*illegal flaring events at the facility and emergency shutdowns.*" The attachment contained 17 notifications from MPLX indicating situations such as emergency shutdowns, planned turnarounds, and larger than normal flaring events. One of these notifications (dated April 21, 2021) did result in an NOV which has since been resolved with a civil penalty assessment. The Department notes that the notifications do not necessarily equate to illegal or noncompliant operations. Larger than normal flaring events and emergency shutdowns do not necessarily equate to noncompliant operations as the purpose of the flare is to destruct gas rather than release raw gas directly to the atmosphere. Additionally, consistent with all permitted facilities, MPLX is required to report all malfunctions that occur at the facility and include detailed information regarding the malfunctions.

The Department considers and investigates each compliant, suspected deviation from permit conditions, and suspected regulatory requirement on a case-by-case basis. The issues noted by the commenters have been addressed.

Comment 4: "The Department should complete a full investigation of the Revolution Gas Plant explosion and fire before issuing a final Plan Approval." Within this comment, concerns are raised related to the Department's emergency line and timeline of dispatching personnel to the scene.

Response 4: Issues at the Energy Transfer Revolution Cryogenic facility are outside of the scope of this review.

Comment 5: "*MarkWest has not demonstrated that the facility is a minor source of volatile organic compounds.*"

Response 5: The plan approval contains a facility-wide emission limitation of 39.0 tpy for VOCs.

See also, Responses to Comment 5, 6, 7, 8, 9, 10, and 11.

Comment 6: *“MarkWest’s Potential to Emit Calculations Underestimate VOC Emissions from the Process Flare Because They Incorrectly Assume the Flare Will Always Achieve 98% Destruction Efficiency.”* The commentors raise the concern that, although the flare PTE for VOC is 13.46 tpy, VOCs are likely significantly higher since open flares don’t consistently achieve 98% destruction efficiency. The commentors also raise the concern that the application and other materials demonstrate that the flare will always achieve 98% construction efficiency. The commentors provided an excerpt from Dr. Ranajit (Ron) Sahu, which asserts that VOC destruction efficiencies from manufacturer’s guarantees are not reliable for determining PTE.

On January 10, 2023, MPLX provided further commentary regarding the flare’s expected destruction efficiency. MPLX asserts that US EPA guidelines, along with industry standards, references a destruction efficiency of $\geq 98\%$ for flares that are operated properly. MPLX also notes that the Department performed an inspection on April 20, 2022, and the inspection report states that the flare manufacture was contracted to perform an evaluation on the flare. MPLX asserts that the manufacturer confirmed that the flare operates per design and that there have been no opacity issues since April 23, 2021. Finally, MPLX responds to the excerpt attributed to Dr. Sahu by stating that the Enforcement Alert referenced by Dr. Sahu doesn’t state that a flare cannot achieve 98% destruction efficiency but that less destruction efficiency may occur depending on visible emissions, if a pilot flame is not present, excess exit velocity, or a low-BTU gas stream. MPLX states that the facility is required to monitor for the presence of a pilot and visible emissions and to meet the minimum BTU content of the flare gas stream as well as the maximum exit velocity of the flare.

Response 6: The existing flare was first authorized for installation and operation under GP5-63-01011A, and at that time, documentation was provided by the manufacturer stating that the flare is, “designed to provide an expected DRE of greater than 98%.” Please see Attachment 1 which contains this manufacturer statement.

Additionally, the flare manufacturer was subsequently contracted to evaluate the flare and provide recommendations for any fixes to prevent issues. Below is an excerpt from an April 20, 2022, Department inspection report, written by DEP Air Quality Specialist Steven Mieszkowski, which provides details regarding the manufacturer evaluation and results:

There have been no NOV’s since my previous FCE. However, as part of the NOV sent to MarkWest on 5/3/2021 a Request for Control Plan (RCP) was also sent. In the before mentioned RCP the Department requested a detailed description of the reason for the recurring visible emissions from the Harmon Creek Gas Plant main plant flare as well as a description of any planned corrective action(s) to address these recurring visible emissions.

The Department received the requested control plan on 5/10/2021. As part of that control plan MarkWest was to contract John Zink, manufacturer of the main plant flare to evaluate the flare and recommend any fixes to prevent any further issues. The Department received an initial report from John Zink on 6/15/2021. As part of that initial report John Zink stated that they needed to further evaluate the flare and would conduct a more thorough evaluation and report.

As part of an FCE I conducted on 9/16/2021 at MarkWest Harmon Creek I requested that Philip update me on the status of the more comprehensive John Zink report so I could conduct a follow up after its completion to verify any changes made to the equipment.

The Follow up report was received by the Department on 4/14/2022. John Zink has confirmed that the flare is operating per design. The only recommendation they had was to install an on/off valve in the header with a small back pressure control bypass valve. This would allow the system to slowly relieve to additionally prevent smoking. MarkWest reviewed the possibilities of installing this and concluded that it was just not feasible due to safety issues. There have been no opacity issues with the flare since the 4/23/2021 incident.

The facility is required to perform visible stack emission inspections at least once per operating day. Additionally, the facility is not permitted to emit visible air contaminants that equal or exceed 10% at any time and are required to record results of their visible emission observations.

Within the Plan Approval, the flare is required to meet 40 CFR Sect. 60.18 requirements such as the ones listed below. The Department notes that these requirements include restrictions on visible emissions, a requirement for flame to be present at all times, a minimum BTU content requirement, and exit velocity requirement.

- **40 CFR 60.18(c)(1):** Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- **40 CFR 60.18(c)(2):** Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).
- **40 CFR 60.18(c)(3)(ii):** Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f)(3) of this section.

- **40 CFR 60.18(c)(5):** Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified in paragraph (f)(6).
- **40 CFR 60.18(f)(6):** The maximum permitted velocity, V_{max} , for air-assisted flares shall be determined by the following equation.

$$V_{max} = 8.706 + 0.7084 (HT)$$

V_{max} = Maximum permitted velocity, m/sec

8.706 = Constant

0.7084 = Constant

HT = The net heating value as determined in paragraph (f)(3).

The commentors note that an enclosed flare at oil and gas facilities may fall below expected efficiencies and that, while using remote sensing technology, an EPA study showed a control efficiency of 60% at a well pad. The Department evaluated the site on a case-by-case basis and evaluated the flare for BAT as further explained in the technical review memo. The site-specific evaluation for this gas processing facility is more appropriate than basing the control device on an EPA study for well pads.

The Commenters assert that there have been, “numerous instances where the Process Flare has not been operating properly” and refer to Attachment A, provided within their comments, which includes notices from MPLX to the Department. The Department notes that the notices provided in Attachment A are not necessarily malfunctions or violations and that the flare may operate with a larger than normal flame and still operate at a 98% DRE or greater. Further details regarding these notifications may be seen under Response 3.

The Commentors note that a small decrease in the control efficiency would increase emissions and make the facility a major facility and that the Department should require the applicant to revise the emission estimates for maximum potential VOC emissions. In light of other information, specifically the manufacturer’s statement, review by the flare manufacturer, and required operating practices (i.e. daily opacity check), the flare is expected to meet the 98% efficiency, and there is no basis to increase VOC PTE as commenters suggest. Additionally, the Plan Approval includes requirements for the flare related to gas heating value, flare gas velocity, presence of the pilot, opacity (less than 10% opacity at any time), operation with good operating practices, and proper maintenance. Finally, daily gas throughput and heat content monitoring and recordkeeping requirements are to be implemented under the plan approval.

Regarding Dr. Sahu’s reference to “EPA Enforcement Targets Flaring Efficiency Violations” (August 2012)¹, from the Department’s understanding, this Alert does not state that it is impossible to continuously achieve 98% DRE. Instead, it explains that lower efficiency can

¹ EPA Enforcement Targets Flaring Efficiency Violations” (August 2012)

<https://www.epa.gov/sites/default/files/documents/flaringviolations.pdf> Accessed 8 Feb. 2023.

result from improper monitoring and operation. As described above, the flare is required to be operated in compliance with stringent federal regulations and site-specific requirements in addition to being required to be operated with good operating practices and in accordance with manufacturer's specifications and recommended maintenance schedules. Additionally, the Alert provides two factors affecting flare performance regarding low heat value in vent gas and flame quenching in the combustion zone. As stated above, the flare manufacturer recently analyzed the flare operations and concluded that the flare is operating per design.

Comment 7: *“MarkWest Failed to Estimate Potential VOC Emissions from Emergency Shutdowns, Uncontrolled Venting, and Unplanned Blowdowns.”* Commenters cite a 2006 letter from EPA Region II to the New Jersey DEP regarding startups, shutdowns, and malfunctions in PTE calculations as it related to New Source Performance Standards (NSPS) for Stationary Compression Ignition Internal Combustion Engines (ICE) (40 CFR Part 60 Subpart III).²

Commenters note that the draft Plan Approval identifies Emergency/Uncontrolled Venting/Blowdowns as sources of emissions, but emissions related to these sources are not found within the review memo. Commenters assert that VOC emissions from Emergency/Uncontrolled Venting/Blowdowns would not be zero and that the existing facility has had multiple emergency shutdowns or unplanned maintenance events since initial operation.

Commenters also note that: *“[T]he Draft Plan Approval does not clearly prohibit excess emissions associated with emergency shutdowns, uncontrolled venting, and unplanned blowdowns.”* Commenters assert that the Department identified emergency, uncontrolled venting, and blowdowns as an emission source but that emission restrictions are not proposed and that it's not clearly identified that excess emissions from emergency, uncontrolled venting, and blowdowns is prohibited. The Commenters request a revised draft Plan Approval that more clearly identifies that there are no exemptions from compliance with emission limits related to uncontrolled venting, emergency shutdowns, and unplanned blowdowns.

Response 7: “Emergency/Uncontrolled Venting/Blowdowns” (Source ID 602) was for unplanned malfunctions at the facility and the purpose is to provide stringent procedures in case an unplanned malfunction occurs. One purpose of the record keeping, reporting, and work practice requirements is to minimize the likelihood of unplanned malfunctions as well as providing specific and efficient requirements for data retrieval in the event that an unplanned event occurs. Malfunctions are not required to be accounted for in potential-to-emit calculations as they are not predictable events. After further review, the Department has determined that it is not correct to identify malfunctions as a source in Section D of the Plan Approval since they are not a planned air emission source. As such, these conditions have been moved to Section C of the Plan Approval and Source ID 602 has been removed.

Venting and blowdowns are expected to be routed to the flare, and these planned events are accounted for within the 14.0 tpy VOC limit for the existing flare. Planned volumes to the

² Letter from Steven Riva, Chief Permitting Section, Air Programs Branch, EPA Region 2, to William O'Sullivan, Dir. Div. of Air Qual., N.J. Dept. Env'tl Protection, at 1 (Feb. 14, 2006), <https://www.epa.gov/sites/default/files/2015-07/documents/generator.pdf>.

flare include compressors, filters, one annual planned plant shutdown, process safety valve reliefs, and pigging, all of which were included within the emission estimates. Uncontrolled blowdown of a source routed to the flare would be considered a malfunction as it is not an expected or planned-for event. Emissions for sources that do not route to the flare are also already included in the review (e.g. fugitives, rod-packing).

MPLX is required to report all malfunction events (e.g. emergency/uncontrolled venting/blowdowns) that occur to the Department and include the estimated volume of natural gas released and associated emissions with each event. MPLX must also track *actual* emissions on a 12-month rolling basis, including any emissions resulting from malfunction events. Any emissions resulting from malfunction events are to be included in annual emission inventory reports (AES reports). For the history of the facility, actual emissions from the facility for each reporting year were included in annual AES emission inventory reports and did not indicate violation of any permitted emission limitations. In addition, the Department evaluates each reported malfunction event on a case-by-case basis for possible enforcement action.

The Department has included the following requirement for malfunction notifications in Section C Condition #017 of the proposed plan approval. It states, in relevant part:

[The (malfunction) report shall describe the] (vii) the 12-month rolling sum of emissions at the time of the malfunction event (including but not limited to: criteria pollutants, VOCs, benzene, methanol, formaldehyde, n-hexane, greenhouse gases, and total HAPs), including any emission increases that occurred as a result of the reportable malfunction event.

This condition clarifies the reporting of emissions from malfunctions and requires an evaluation of the facility's actual emissions after each reportable malfunction event in relation to facility-wide emission limitations.

Furthermore, this approach of not including malfunction related emissions in PTE is consistent with the Department's approach to calculating baseline actual emissions in the Nonattainment New Source Review (NANSR) regulations. 25 Pa. Code §127.203a(A)(4)(i) states in relevant part:

The following procedures apply in determining the baseline actual emissions for an existing emissions unit:

(i) For an existing emissions unit, baseline actual emissions are the average rate, in TPY,

*(A) The average rate includes fugitive emissions to the extent quantifiable and emissions associated with startups and shutdowns; **the average rate does not include excess emissions including emissions associated with upsets or malfunctions [emphasis added].***

Comment 8: *“MarkWest’s Potential to Emit Calculations Do Not Quantify VOC Emissions from Planned Blowdowns”* The commenters express concern that number of planned blowdowns and associated emissions are not quantified.

Response 8: Planned blowdowns and associated emissions are accounted for within the plant flare emission estimates. The estimates are based on a maximum throughput of 100 MMscf per year which equates to an estimate of 13.46 tpy of VOC. The Plan Approval includes an emission limit of the plant flare “not to exceed 14.0 tons during any consecutive 12-month period, updated monthly.” This emission limitation includes the proposed pressure relief devices where technically feasible, the planned shutdowns, maintenance blowdowns, safety valves from Harmon Creek Cryo II, and some existing sources.

On January 10, 2023, MPLX provided commentary related to planned blowdowns. MPLX states, *“The plant flare (C601), currently authorized under GP5-63-01011A, will control the proposed compressor maintenance blowdowns and emissions from pressure relief valves, where feasible. The potential-to-emit from the flare in the applications submitted on 6/12/2017 and 12/10/2020 included Cryo II and is not being increased under this application. However, the construction period for Cryo II has lapsed and requires authorization to construct. The basis for the potential emission estimates in the two previous applications will remain unchanged in this plan approval application.”*

Comment 9: *“MarkWest Underestimates Fugitive VOC Emissions”*

The commenters expressed concern that fugitive VOC emissions are based on the gas VOC content as well as average emission factors for oil and gas facilities. They note that the VOC content used in the calculations is not maximum VOC content and that the Department doesn’t justify how the June 3, 2021 gas analysis with the 10% increase factor represents maximum VOC.

Commenters expressed concern about the leak emission factor utilized for the fugitive VOC emission estimate and assert that the emission factor used is an average emission factor.

Commenters assert that MPLX applied a reduction factor of 75%, incorrectly, for fugitive emissions from connectors and assert that 30% should have been used. The Commenters request for MPLX to produce its Leak Detection and Repair (LDAR) program and to demonstrate how 75% is justified. They also assert, *“neither MarkWest nor the Department has explained why a Texas Commission on Environmental Quality (TCEQ) guidance memo is legally or technically appropriate to calculate PTE for this facility.”*

Finally, commenters express concern that, *“gas analysis or AP-42 or other emission factors have been used to estimate VOC emissions from other sources, the PTE for these sources is likely also underestimated.”*

Response 9: Utilizing a representative gas analysis is sufficient for emission estimates. The analysis provided includes a theoretical 10% increase factor for VOCs (23.62 weight-percent). This factor utilized in the estimates is higher than actual highest daily average VOC content from data submitted by MPLX.

The emission factors utilized for the fugitive emission estimates are not specifically “AP-42” factors but are from an EPA guidance document titled “Protocol for Equipment Leak Emission Estimates” EPA-453/R-95-017 (November 1995) (“EPA guidance document”). By identifying the emission factors as “AP-42” within the application is not an accurate label.

The Enforcement Alert published by EPA, “U.S. Environmental Protection Agency, Enforcement Alert, EPA Reminder About Inappropriate Use of AP-42 Emission Factors” (Nov. 2020), is specific to AP-42 emission factors and does not identify the “Protocol for Equipment Leak Emission Estimates” within it. Also, it is the Department’s understanding of this document that utilizing AP-42 emission factors is not prohibited. Instead, AP-42 should be used when a more representative source-specific emission value is not available.

The emission factors within Table 2-4 contained in EPA’ guidance document are for Total Organic Compounds (TOC). TOC is a conservative estimate of VOCs since TOCs include non-VOC organic compounds. Using the average measured TOC is an accepted approach according to the EPA guidance document.

From Section 2.3.1 of that document, “One accepted approach for estimating emissions allows use of average emission factors developed by the EPA in combination with unit-specific data” and cites variables such as the number of each type of component in a unit (valve, connector, etc.) and the TOC concentration of the stream, among others.

Continuing in that section, the document states:

It is important to note that these factors are most valid for estimating emissions from a population of equipment. The average factors are not intended to be used for estimating emissions from an individual piece of equipment over a short time period (i.e., 1 hour)...When using the Average Emission Factor Approach, equipment should be grouped into “streams” where all the equipment within the stream have approximately the same TOC weight fraction...

Consequently, using the average emission factor methodology to calculate potential-to-emit from the collective source of fugitive emission components is appropriate.

Regarding the use of guidance from the Texas Commission on Environmental Quality (TCEQ), it is acceptable for the Department to review and determine if another state agency’s guidance document is appropriate on a case-by-case basis if the Department does not have specific guidance published. In this instance, the Department does not have published guidance regarding control efficiencies for LDAR. The Department has reviewed the TCEQ guidance document and determined that it is acceptable for this facility for the following reasons:

1. The TCEQ guidance document is based on the generally accepted EPA guidance document “Protocol for Equipment Leak Emission Estimates” (June 1993 and November 1995 versions) document and

2. In order to utilize the control efficiencies for LDAR published by TCEQ, MPLX will be required to follow more stringent construction and monitoring requirements.

By implementing the LDAR program published by TCEQ, Harmon Creek has numerous stringent LDAR-related conditions. The Commenters requested for MPLX to produce its LDAR program plan. The TCEQ requirements and how MPLX complies with them are within the plan approval application under the “Supporting Documentation” section. Additionally, the Plan Approval is conditioned to include the program proposed as well as frequency of monitoring. Please see Response 24 to see the updated LDAR condition. The Commenters are correct that a 75% reduction was utilized and not a 30% reduction. The source of the 75% reduction is the “Air Permit Technical Guidance for Chemical Sources Fugitive Guidance” (June 2018)³ document. Per page 8 of this document:

Annual instrument monitoring of connectors/flanges at a 500 ppmv leak detection limit may receive a 75% reduction credit at petroleum refineries and SOCFI facilities. This determination is based on information contained in the 1993 EPA document “Protocol for Equipment Leak Fugitives” and the results from monitoring data. The control effectiveness percentages given in the protocol document are based on the type of facility, monitored data, and the corresponding reduction in the percentage of leaking flanges. The lowest percent reduction was used to establish the appropriate reduction credit as it is preferable to allow a single reduction credit for both chemical facilities and refineries. Thus, the 75% reduction credit is suitable for use at both petroleum refineries and SOCFI facilities where the connectors/flanges are monitored annually at 500 ppmv. The 28CNTA LDAR program specifies the monitoring and recordkeeping necessary to receive the 75% reduction credit. This program may be used in conjunction with any of the other 28 series LDAR programs, except 28LAER, which already includes connector monitoring.

During review of this comment, the Department noted that the first sentence does reference petroleum refineries and SOCFI facilities, both of which Harmon Creek does not fall under. The Department requested MPLX to provide further justification as to why Harmon Creek is applicable to the 75% reduction. As a preface, it’s important that the 75% reduction specifically references the 28CNTA LDAR program, which can be used in tandem with any other LDAR program, except for the 28LAER program. Harmon Creek implements the 28VHP program which is eligible. MPLX referenced pages 12, 23, and 28 of the guidance document, all of which are referenced below.

Page 12: *“The following connector monitoring can be applied in order to reduce emissions: ...For annual instrument monitoring of connectors under the 28CNTA LDAR program, a 75% credit may be taken.”* This does not specifically reference petroleum refineries or SOCFIs.

³ “Air Permit Technical Guidance for Chemical Sources Fugitive Guidance” (June 2018) [TCEQ-Fugitive Guidance \(texas.gov\)](https://www.tceq.texas.gov/air-quality/chemical-sources-fugitive-guidance) Accessed 7 Feb. 2023.

Page 23: This page states that flanges/connectors within gas/vapor and light liquid service have an efficiency of 75% when utilizing 28CNTA. For heavy liquid, a 30% reduction may be used; however, MPLX did not propose any efficiency for heavy liquid flanges/connectors which is more conservative. This does not specifically reference petroleum refineries or SOCMIs.

Page 28: “28CNTA-...A reduction credit of 75% was determined to be appropriate. The LDAR program was developed to allow other facilities to use the credit.” This does not specifically reference petroleum refineries or SOCMIs.

MPLX noted that pages 12, 23, and 28 do not appear to limit the 75% reduction to petroleum refineries or SOCMi facilities. MPLX inquired with TCEQ regarding if other facility-types may use the 75% reduction if the 28CNTA LDAR program is used with other 28 series LDAR programs. TCEQ provided a response to MPLX’s assertions by stating, *“Based on the wording as presented in the guidance document, I agree that 28CNTA is not limited to just SOCMi and Petroleum facilities. As you pointed out, the definition provided for 28CNTA is “The LDAR program was developed to allow other facilities to use the credit.” There is no language I could find that explicitly excludes other facilities from the reduction credit from this program.”*

After reviewing pages 12, 23, 28, and reevaluation the above-quote, *“The 28CNTA LDAR program specifies the monitoring and recordkeeping necessary to receive the 75% reduction credit. This program may be used in conjunction with any of the other 28 series LDAR programs, except 28LAER, which already includes connector monitoring.”*, the Department agrees that 75% reduction credit is appropriate to use with the annual 500 ppm monitoring. The Department notes that quarterly monitoring is required to be conducted; however, MPLX proposes to use OGI monitoring quarterly and Method 21 monitoring annually.

To clarify, the monitoring proposed by MPLX within this Plan Approval is shown below. It is of the Department’s understanding that OGI monitoring and Method 21 monitoring are equivalent BAT. Please see Response 24 which states how the proposed monitoring frequency will be implemented into the Plan Approval.

Component Type	Monitoring Frequency	Detection Level (PPMV)
Compressor	Quarterly/Annually	10,000 (OGI) ¹ / 500
Connector	Quarterly/Annually	10,000 (OGI) ¹ / 500
Pressure Relief	Quarterly	500
Valve	Quarterly	500
Pump	Monthly	500

1. On November 2, 2022, MPLX confirmed that the OGI monitoring devices have OOOOa compliance certification which includes calibration of sensitivity level of 60 grams/hour. One of the definitions of a leak per GP-5 is “an optical gas imaging (OGI) camera calibrated according to 40 CFR § 60.18 and a detection sensitivity level of 60 grams/hour.” As seen in in Response 24, quarterly OGI monitoring is required to be conducted so that it meets this definition.

Comment 10: *“MarkWest’s Potential to Emit Calculations Underestimate Benzene Emissions”* and *“PTE calculations must account for the maximum capacity of the source to emit VOCs like benzene. The Department should require MarkWest to revise its PTE for benzene and VOCs, continue the fence line monitoring project, document why benzene concentrations were alarmingly high during this time period and put in place protections to ensure benzene concentrations stay below protective levels in the future.”*

Response 10: The Department has evaluated the potential benzene emissions from the facility, and facility-wide benzene PTE is 0.10 tpy. With a 0.10 tpy potential for benzene, the facility-wide PTE for total HAPs is 3.20 tpy. Regarding maximum capacity of a source to emit VOCs, basing the emission estimates using the gas analysis, and AP-42 when a more site-specific factor was not available, is an acceptable form of emission estimation.

The June 2021 representative gas analysis reported a benzene content at 0.04 mol% (calculated to be 0.14 wt %). Based upon this, facility wide potential to emit benzene is estimated at 0.10 tpy. Additionally, the Plan Approval requires MPLX to perform a quarterly gas analysis.

Benzene Emission Estimates

Source	Benzene
	tpy
Cryo Plant 1 Regen Heater (Source ID 031)	1.07E-04
Cryo Plant 2 Regen Heater (Source ID 037)	1.61E-04
Cryo Plant 1 De-Ethanizer HMO Heater (Source ID 033)	4.34E-04
Cryo Plant 2 De-Ethanizer HMO Heater (Source ID 034)	4.34E-04
Stabilization HMO Heater (Source ID 036)	1.08E-04
De-Ethanizer Regen Heater (Source ID 035)	5.95E-05
Process Flare (Source ID C601)	8.24E-02
Generac SD015 (Source ID 102)	8.78E-05
Generac SD150 (Source ID 102)	4.33E-04
Fugitives Emissions (Source ID 701)	1.79E-02
Pigging (Source ID 801)	-
Rod Packing (Source ID 601)	-
Truck Loading (Source ID 702)	-
Methanol Tanks (Source ID 301 and 302)	-
Measurement Devices (Source ID 703)	1.45E-03
Total	0.10

1. Values may be off due to rounding.

As stated in the consent decree (Case 2:18-cv-00520-LPL):

MarkWest shall install and operate, for a period of at least seven hundred twenty

(720) days, one (1) meteorological station and three (3) VOC air sampling stations located around the proposed Harmon Creek Gas Processing Plant (“Harmon Creek”) in Smith Township, Washington County, Pennsylvania...Following EPA approval (in consultation with PADEP) of the Harmon Creek Monitoring Plan, MarkWest shall install and operate the meteorological and air sampling stations in accordance with the approved Harmon Creek Monitoring Plan and Appendix 8. MarkWest shall submit quarterly information reports and annual reports to EPA and PADEP as required by the approved Harmon Creek Monitoring Plan and Appendix 8.

After further investigation of the Downwind Station #2 (DW #2), it appears that the data from March 19, 2020 – May 5, 2020 is invalid due to a malfunction of a blown FID nozzle which resulted in unusable data. The Department understands that the malfunction of the Station was repaired during the spring of 2020. The validity of the data, along with the final fence line monitoring report as a whole, will be further investigated with the Environmental Protection Agency and will be documented on a separate path.

Comment 11: *“MarkWest’s Potential to Emit Calculations Underestimate VOC Emissions from the Methanol Storage Tank”*

Response 11: MPLX is required to maintain records of total throughput through the proposed methanol storage tank on a 12-month rolling basis. Regarding basing estimates on maximum capacity, it is a generally accepted practice to base tank emission estimates on maximum annual throughput. In this situation, the estimates were based on a throughput 10 times higher than the proposed 5 gallons/year maximum. Thus, the calculation is conservative. Because of this, the methanol estimates are very conservative. Also, the plan approval is being stringent by requiring a throughput recordkeeping condition as this source’s emissions are below levels that may be exempted from permitting per 25 Pa. Code Section 127.14(a)(8).

Additionally, as discussed within the technical review memo, best available technology (BAT) for the proposed 500 gallon methanol tank was further reviewed during the public comment period. The facility currently operates one existing 500 gallon methanol tank. The one (1) existing 500 gallon tank and one (1) proposed 500 gallon tank have a combined VOC estimate of 0.4 tpy. Because both tanks are of identical capacity, the Department estimates 0.2 tpy of VOC from the proposed tank. MPLX explained, via email, that the proposed tank is an atmospheric tank and that BAT requirements under 25 Pa. Code § 129.57 and the GP-5 conditions do not pertain since the tank is less than 2,000 gallons. The Department agrees that the tank does not meet the criteria to trigger GP-5 BAT or 25 Pa. Code § 129.57 requirements. Because the source potential emissions are below 2.7 tpy VOC exemptible levels, and because each tank capacity is less than 2,000 gallons, good operating practices are BAT for this source. In addition, the Plan Approval includes a condition requiring MPLX to maintain records of total throughput of the methanol tanks on a 12-month rolling basis.

Comment 12: *“The open process flare does not meet BAT requirements because BAT is an enclosed flare.”* Commenters express concern that the open flare is not BAT and that the BAT analysis conducted by MPLX is flawed because it undercounts VOC emissions from the Flare as described in Comment 6.

Response 12: The existing flare was initially installed under the 2015 version of the GP-5. Because this review was for a Plan Approval and not a General Permit, a case-by-case BAT analysis was performed on the proposed project including the flare. That analysis is detailed in the plan approval technical review memo under the “Best Available Technology” Section.

See also Response 6.

Comment 13: *“MarkWest’s application is incomplete because MarkWest failed to disclose numerous instances of noncompliance at several facilities.”* The Commentors assert that the Compliance Review Form was inadequately filled out due to not including all NOV’s as well as stating “no changes” in response to listing “No changes” under Section B and Section C.

Response 13: On January 10, 2023, MPLX provided an updated Compliance Review Form to include NOV’s. MPLX verbally explained that some dates of the NOV’s differ from eFACTS, but that they are more specific to when documents were received, submitted, closed, etc. The Department finds this to be acceptable as each of the NOV’s listed in the Commenters comments is represented. On March 13, 2023, MPLX provided a revised version of the Compliance Review Form to also include an updated Section B and Section C.

Comment 14: *“DEP should consider cumulative impacts of oil and gas operations in Washington County.”* The Commenters note that Harmon Creek is located in an area of heavy presence of oil and gas operations and noted concerns of impact on safety, health, and wellbeing of residents. The Commenters noted nearby stations and provided a birds-eye-view diagram of nearby facilities. The Commenters assert that each of the facilities are large and dangerous in relation to air pollution and that the MPLX Smith Compressor Station and the ETC Revolution Cryogenic Plant have both received multiple NOV’S, as well as, the December 25, 2022 Revolution Cryogenic Plant malfunction. Finally, the Commenters note that MPLX operates numerous facility’s within Washington County. Due to the above-referenced reasons, the Commentors believe that the Department should consider the proximity of the facilities, the air pollution that is emitted by them, and the emission levels that they emit compared to major status and regulation under the Clean Air Act. The Commenters assert that the Department should, *“assess the cumulative impacts of nearby facilities, and impose the most stringent emissions controls and limitations as possible on the Harmon Creek Gas Plant to protect public health and safety.”*

Response 14: Collectively, Harmon Creek and these other locations identified by commenters do not meet the 25 Pa. Code §121.1 definition of a *facility* nor the Title V aggregation guidance from EPA regarding sources within the same industrial grouping, located under common control, and located within one-quarter mile. The facilities listed by the Commenters are located farther than one-quarter mile from Harmon Creek and therefore would not meet the EPA Title V aggregation criteria. Per the Department’s review, there is an unconventional well within one-quarter mile; however, it is operated by Range Resources Appalachia, LLC which is a separate entity and not under common control. Additionally, on August 18, 2022, MPLX verbally

confirmed that no equipment or personnel will be shared between Harmon Creek and the Range Resources Appalachia, LLC facility. Therefore, it does not meet the 25 Pa. Code §121.1 definition of a facility nor the Title V aggregation guidance from EPA regarding sources within the same industrial grouping, located under common control, and located within one-quarter mile.

The NOV's and malfunctions at the other facilities are outside the scope of this review.

Air permitting for an individual facility is based upon a complex set of factors and this authorization has followed proper regulatory requirements as detailed in the plan approval review memo.

EPA has developed standards for many of the criteria pollutants listed under the national ambient air quality standards (NAAQS), which are health-based standards. In addition, modeling is not required by EPA or DEP for minor facility permitting regulations. Per the Department's website, "The DEP operates the Commonwealth of Pennsylvania Air Monitoring System (COPAMS) to continuously monitor pollutant levels... The goals of the ambient air monitoring program are to evaluate compliance with national and state ambient air quality standards, provide real-time monitoring of air pollution episodes, develop data for trend analysis, develop and implement air quality regulations and provide information to the public on daily air quality conditions in their area."⁴ When it becomes available, comments on the 2023 Annual Air Quality Ambient Air Monitoring Network Plan can be directed to appropriate Air Quality staff at the following link:

<http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4094>

Additionally, a July 18, 2018 evaluation was conducted by the Pennsylvania Department of Health, in cooperation with the U.S. Department of Health and Human Services.⁵ The health consultation document evaluated DEP's 2012-13 long term monitoring study of oil and gas facility emission air quality impacts in southwestern Pennsylvania. The document states in relevant part:

As a follow-up to a 2010 short-term air sampling event near natural gas operations in Pennsylvania, in 2012-2013 the Pennsylvania Department of Environmental Protection (PADEP) conducted long-term ambient air monitoring near natural gas production and operations at four locations in Washington County, Pennsylvania. The air monitoring locations were selected due to the density of natural gas drilling operations including compressor plants, gas production wells, associated truck traffic, and other infrastructure associated with drilling operations. PADEP also collected background air

⁴ "Principal Pollutants Monitoring Sites". Pennsylvania Department of Environmental Protection.

<https://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/copams.htm>. Accessed 1 Feb. 2023.

⁵ "Public Health Evaluation of Long-Term Air Sampling Data Collected in the Vicinity of Natural Gas Operations Washington County, Pennsylvania" Pennsylvania Department of Health. July 18, 2018.

https://www.atsdr.cdc.gov/HAC/pha/marcellusShale/Air_Marcellus_Shale_HC-508.pdf. Accessed 17 Feb. 2023.

samples from locations removed from natural gas production or operation facilities but within the southwestern Pennsylvania regional airshed.

The analysis concluded the following:

Based on the air sampling data collected from July 2012 to July 2013, exposure to the contaminant levels found in ambient air are not expected to harm healthy individuals. However, 24-hour or less exposures to intermittently high concentrations of hydrogen sulfide and ozone could irritate sensitive individuals, and intermittently high concentrations of particulate matter less than 2.5 microns in diameter (PM2.5) could irritate unusually sensitive individuals.

Additionally, the monitoring system temporarily utilized near Harmon Creek monitored ambient air for the nearby area starting in November 2019 and ending in July 2022. Comments concerning this monitoring has been explored in Response Number 10.

Comments from Commentor 2 from December 22, 2022

Comment 15: Page 1 – Please update the RO and Contact Person to the following:

Responsible Official:
Robert W. Shough
Operations Director
rwshough@marathonpetroleum.com
(304) 840-5681

AND

Permit Contact:
Alexandra M. Juarez
Environmental Engineer
ajuarez@marathonpetroleum.com
(412) 815-8886

Response 15: The Department requested an official Administrative Amendment form for this request which was received on January 12, 2023. The Department has made the requested changes.

Comment 16: *“Page 5 – Please remove the word “Plan Approval” from the Measurement Device source name.”*

Response 16: The Department has made the requested change.

Comment 17: *“Page 14 – MPLX requests the removal of Section C, Condition #13, (4) and (5), as these conditions are duplicative of Section C, Condition #13, (8) and (9).”*

Response 17: The Department agrees that (4) and (5) and (8) and (9) are very similar but not exact duplicates. The Department has determined that it is more appropriate to remove (8) and (9) because (4) and (5) are more encompassing of the sources. This change can be seen, below, under Comment #18. Please note that numbering has changed (8) and (9) have been removed. Specifically, (10) is now (8).

Comment 18: *“Page 14 – MPLX request the removal of the requirement to indicate if blowdowns and ESDs are directed to the flare or atmosphere in Section C, Condition #13, (10). Additionally, MPLX requests the requirement to keep records of the volume of natural gas released to the atmosphere.*

MPLX tracks volumes routed to the flare via the meter at the flare header. The volumes through the flare header meter cannot be separated by source/event. Blowdown and ESD emissions routed to flare are captured via the emissions reported under the plant flare source but cannot be separated on an as-event basis. However, blowdown and ESD emissions routed to the atmosphere are tracked on an as-event basis and are reported as required.

MPLX tracks volumes routed to the flare via the meter at the flare header. The volumes are not separated by source. Blowdown and ESD emissions routed to flare are captured via the flare emissions reported. Blowdowns and ESD emissions routed to atmosphere are tracked and reported as required.”

Response 18: The Department agrees to this change because it will serve the same purpose. In the event of a blowdown, records will be kept stating what was uncontrolled. In addition, the condition has been modified to include daily volumes routed to the flare via the flare header meter. The condition has been changed as follows (additions are in bolded red text). The Department notes that, due to Comment 17, (10) is no reflected as (8) as seen below.

Condition Type	Source	Condition	Basis of Condition
Record Keeping	Section C – Facility Wide	<p>The permittee shall maintain the following comprehensive and accurate records:</p> <ol style="list-style-type: none"> (1) Facility-wide emissions for NO_x, CO, SO₂, VOC, PM, PM₁₀, PM_{2.5}, any single HAP, total HAPs, and CO_{2e} per consecutive 12-month rolling period. (2) Results of facility-wide inspections including the date, time, name, and title of the observer, along with any corrective action taken as a result. (3) Results of any visible emissions observations to demonstrate compliance with the 10% opacity limit. (4) Copies of the manufacturers' specifications and recommended maintenance schedule (or site-specific developed maintenance schedule) for each air contamination source and air cleaning device. (5) All maintenance performed on each air contamination source and air cleaning device. (6) Records of a fractional gas analysis performed on the inlet gas to the facility at a minimum of once per quarter of each calendar year. (7) Hours of operation, kept on both a monthly and previous 12-month basis, for each air contamination source and air cleaning device; (8) Copies of the manufacturer's recommended maintenance schedule for all air contamination sources and air cleaning devices including, but not limited to, the regenerative heater and flare. (9) Records of any maintenance conducted on each air contamination source and air cleaning device including, but not limited to, the regenerative heater and flare. (8) <i>Records of the date, time, duration, volume of natural gas released to atmosphere, and emissions from each blowdown and emergency shutdown at the facility. These records shall also indicate if the blowdowns and emergency shutdowns were directed to the flare or blown to the atmosphere.</i> (9) <i>Records of daily volumes routed to the flare, via the header meter, shall be maintained.</i> <p>[Material throughput and emission records shall be updated each month, using monthly records.]</p>	25 Pa. Code § 127.12b

Comment 19: Page 30 – Condition #11 – MPLX believes the formula should say “equal to or greater than” rather than “equal to.”

Response 19: The Department agrees with this correction and thanks MPLX for this comment. The review memo (page 33) correctly states “ \geq ”; however, due to a glitch, this was incorrectly copied into the draft Plan Approval. The condition has been changed as follows (modification is in bold red text).

Condition Type	Source	Condition	Basis of Condition
Additional	Fugitives: Source ID 701	<p>Within ten (10) days of when the most recent leaking component is added to the delay of repair list, the cumulative daily emission calculations, which include every component listed on the delay of repair list shall be updated. If the equation, below, occurs, the Owner/Operator shall notify the department within fifteen (15) days of this determination. Depending on the severity or number of tagged leaks, early shutdown, or other appropriate responses may result:</p> <p>(Cumulative daily emission rate of all components on the delay of repair list)*(days until the next scheduled unit shutdown) \geq (total emissions from a unit shutdown)</p>	25 Pa. Code § 127.12b

Comment 20: *“Page 34 – Please remove the requirement to monitor and record the daily fuel consumption for the plant flare. The daily gas throughput is monitored and recorded. However, the pilot gas is based on manufacturer-provided information and the daily fuel consumption by the flare pilot cannot be monitored separately.”*

Response 20: This has been removed; however, a requirement to monitor and record daily gas throughput and heat content remains in place for the flare.

Comment 21: *“Page 40 – Group G02 - NSPS OOOOa is only applicable to the reciprocating compressors and collection of fugitive components. To avoid confusion, MPLX requests the removal of non-subject sources from this section, including the regen heater, the methanol tank, the cryo plant, venting and blowdowns, truck loadout, measurement devices, and the plant flare.”*

Response 21: The Department has removed the regen heater, methanol tank, cryo plant, venting and blowdowns, truck loadout, measurement devices, and plant flare from Group G02. The Department notes that, although the above-reference air contamination sources and air cleaning devices are not subject to NSPS Subpart OOOOa, all fugitive components that are attached to any of the air contamination sources or air cleaning devices are part of a Process Unit which is subject to OOOOa and are part of Source ID 701.

Comment 22: *“Page 59 – Group G03 – There are no sources at the facility subject to VVa. However, the Harmon Creek 2 sources will be subject to OOOOa, which references VVa requirements. Those requirements are addressed in the OOOOa section. Thus, MPLX is requesting the removal of the VVa section.”*

Response 22: The Department agrees that all applicable NSPS Subpart VVa requirements are referenced within Subpart OOOOa conditions. Group G03 “Sources Subject with Potential Requirement

under Subpart VVa”, and all VVa-specific conditions have been removed from the Plan Approval. However, sources will be required to meet all Subpart VVa requirements referenced elsewhere within the Plan Approval (i.e. the Subpart VVa requirements under Subpart OOOOa).

Review Memo

Comment 23: *“There are references to four (4) measurement devices instead of eight (8) measurement devices on pages 3 and 18. The PTE provided in the application included two (2) analyzers and six (6) GC vents associated with Harmon Creek 2.”*

Response 23: The Department agrees with this correction. Reference to four (4) measurement devices is also found in the draft Plan Approval and the bulletin notice. All references have been changed to “eight- (8)”. Because all measurement devices emission estimates were accounted for within the bulletin notice, the notice does not need to be republished.

Comment 24: *“Under BAT for fugitives, MPLX requests a correction to the monitoring schedule on page 8. The requested language is as follows: “MarkWest also proposes to perform daily AVO inspections, weekly pump visuals, monthly pump Method 21 monitoring, and quarterly monitoring...”*

Response 24: The Department agrees with this correction. In addition, PA-63-01011, Section D, Source ID 701, Condition #001 has been modified as follows to better reflect the proposed monitoring schedule and TCEQ LDAR program conditions (changes are in bold red). The Department notes that the modification references 40 CFR § 60.5397a(b) through (d) which is for fugitive emissions components at well sites and compressor stations. However, per BAT from GP-5, the Department has determined that this facility shall also be required to comply with 40 CFR § 60.5397a(b) through (d). The condition has also been modified to clarify site-specific requirements from what was proposed by MPLX.

The Department notes that MPLX’s “Operations” team proposes to conduct daily AVO inspections, including pumps; and MPLX’s “LDAR” team will also conduct weekly AVO inspections on the pumps. Both of these are included within this condition with a reference to the Misc. Section of the Plan Approval to explain the AVO inspection frequency.

Regarding (iii)(B) in the condition below, the Department notes that the modification references 40 CFR § 60.5397a(b) through (d) which is for fugitive emissions components at well sites and compressor stations. However, per BAT from GP-5, the Department has determined that this facility shall also be required to comply 40 CFR § 60.5397a(b) through (d).

Condition Type	Source	Condition	Basis of Condition
Monitoring	Fugitives: Source ID 701	<p>For each fugitive emissions component constructed and authorized to operate at this facility, the following applies:</p> <p>(i) No later than thirty (30) days after an emission source commences operation, and at least monthly thereafter, the owner or operator of a facility shall conduct an AVO inspection. An AVO inspection of the connectors shall be performed, at a minimum, on a weekly basis. The owner/operator shall conduct daily AVO inspections on all component types. Additionally, the owner/operator shall conduct weekly AVO inspections on pump components. Please see Section H. "Miscellaneous" regarding this frequency.</p> <p>(ii) For compressor and connector component types, no later than sixty (60) days after initial startup, and at least quarterly thereafter, the owner or operator shall conduct an LDAR program using either an (optical gas imaging) OGI camera. Additionally, a gas leak detector that meets the requirements of 40 CFR Part 60, Appendix A-7, Method 21, shall be conducted at least annually. or other leak detection methods approved by the Division of Source Testing and Monitoring.</p> <p>(iii) For pressure relief and valve components types, no later than sixty (60) days after initial startup, and at least quarterly thereafter, the owner or operator shall conduct an LDAR program using a gas leak detector that meets the requirements of 40 CFR Part 60, Appendix A-7, Method 21.</p> <p>(iv) For pump component types, no later than 60 days after initial startup, and at least monthly thereafter, the owner or operator shall conduct an LDAR program using a gas leak detector that meets the requirements of 40 CFR Part 60, Appendix A-7, Method 21.</p> <p>(A) The owner or operator may request, in writing, an extension of the LDAR inspection interval from the Air Program Manager of the Southwest Regional Office. appropriate DEP Regional Office.</p> <p>(B) Any fugitive emissions components that are difficult-to-monitor or unsafe-to-monitor must be identified in the monitoring plan described in 40 CFR § 60.5397a(b) through (d). Condition 2(a) below.</p> <p>(iii) The detection devices must be operated and maintained in accordance with manufacturer-recommended procedures, as required by the test method, or a Department-approved method.</p> <p>(iv) A leak is defined as:</p> <p>(A) Any positive indication, whether audible, visual, or odorous, determined during an AVO inspection;</p> <p>(B) Any visible emissions detected by an OGI camera calibrated according to 40 CFR §60.18 and a detection sensitivity level of 60 grams/hour; or</p> <p>(C) A concentration of 500 ppm calibrated as methane or greater detected by an instrument reading. In addition, the response factor of the instrument for a specific VOC of interest shall be determined and meet the requirements of Section 8 of Method 21. If a mixture of VOCs is being monitored, the response factor shall be calculated for the average composition of the process fluid. A calculated average is not required when all of the compounds in the mixture have a response factor less than ten (10) using methane. If a response factor less than ten (10) cannot be achieved using methane, then the instrument may be calibrated with one of the VOC to be measured or any other VOC so long as the instrument has a response factor of less than ten (10) for each of the VOC to be measured.</p> <p>(v) For inspections using a gas leak detector in accordance with 40 CFR Part 60, Appendix A-7, Method 21, the owner or operator may choose to adjust the detection instrument readings to account for the background organic concentration level as determined according to the procedures in Section 8.3.2.</p> <p>(vi) Any leak detected from a fugitive emission component shall be repaired by the owner or operator of the facility as expeditiously as practicable. A first attempt at repair must be attempted within five (5) calendar days of detection,</p>	25 Pa. Code § 127.12b

Monitoring-Cont.	Fugitives: Source ID 701	<p>and repair must be completed no later than fifteen (15) calendar days after the leak is detected unless:</p> <p>(A) The owner or operator must purchase parts, in which case the repair must be completed no later than ten (10) calendar days after the receipt of the purchased parts; or</p> <p>(B) The repair or replacement is technically infeasible, would require a vent blowdown, a compressor station, processing plant or transmission station shutdown, or would be unsafe to repair during operation of the unit, in which case the repair or replacement must be completed during the next scheduled compressor station, processing plant or transmission station shutdown, after a planned vent blowdown or within two (2) years, whichever is earlier.</p> <p>(C) If the repair of a component would require a unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled shutdown. All leaking components which cannot be repaired until a scheduled shutdown shall be identified for such repair by tagging within fifteen (15) days of the detection of the leak. A listing of all components that qualify for delay of repair shall be maintained on a delay of repair list.</p> <p>(vii) Once a fugitive emission component has been repaired or replaced, the owner or operator must resurvey the component as soon as practicable, but no later than fifteen (15) 30 calendar days after the leak is repaired.</p> <p>(A) For repairs that cannot be made during the monitoring survey when the leak is initially found, either a digital photograph must be taken of the component or the component must be tagged for identification purposes.</p> <p>(B) A leak is considered repaired if:</p> <p>(1) There are no detectable emissions consistent with Section 8.3.2 of 40 CFR Part 60, Appendix A-7, Method 21;</p> <p>(2) A leak concentration of less than 500 ppm as methane is detected when the gas leak detector probe inlet is placed at the surface of the component;</p> <p>(3) There is no visible leak image when using an OGI camera calibrated at a detection sensitivity level of 60 grams/hour;</p> <p>or</p> <p>(4) There is no bubbling at the leak interface using a soap solution bubble test specified in Section 8.3.3 of 40 CFR Part 60, Appendix A-7, Method 21.</p>	25 Pa. Code § 127.12b
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The following note has been added to Section H. Miscellaneous: The MPLX Operations team will conduct daily AVO inspections of all component types, including pump components. Additionally, the MPLX LDAR team will conduct weekly AVO inspections on pump components.

Comment from Commentor 3, from December 28, 2022

Comment 25: “My family and I are residents that live on Point Pleasant Road. We have been greatly impacted by the construction of the Mark West Harmon Creek plant. Air quality, constant noise, increased traffic and the fear of accidents that occur are among the concerns that we have. Our quiet, rural lifestyle, is no more. The expansion means even more concerns.

Incidents happen at these plants, as you are aware. Most recently at the Energy Transfer plant where an explosion and fire had occurred on Christmas morning. In addition, there have also been many unexpected flaring events. What is disturbing is that we, the residents, were never notified of this event. Finding out from someone that observed it on Face Book, is not how we should learn of these events.

I'm asking that you please consider extending the comment period, until the end of January. These past couple of weeks have been very busy for all of us, with the holidays and family obligations.”

Response 25: The Department acknowledges the changes you and your family have observed in your area and appreciates that malfunctions can be disruptive and disturbing to persons in the vicinity of plants. Though not germane to this plan approval review, the Department is investigating the December 25, 2022 malfunction at ETC's Revolution Cryo plant.

Regarding the extension request, please see response to Comment 1, above.

Comment from Commentor 4 from December 28, 2022 and January 5, 2023

Comment 26: On December 28, 2022, the Board of Supervisors of Smith Township, Washington County requested the Department to consider a hearing for this Plan Approval and attached pictures of a malfunctioning gas processing facility provided by Township residents. On January 5, 2023, a second letter was received by the Department with clarification that the images provided in the December 28, 2022, letter were not of Harmon Creek but maintained the request for a public hearing request.

Response 26: On February 3, 2023, the Department provided a response to the Board explaining that the images presented appeared to be of the unrelated ETC Northeast Pipeline, LLC Revolution Cryo facility during its December 25, 2022, malfunction. The response further explained that the Department is not aware of any December 25, 2022, malfunction at the Harmon Creek facility. The Department expressed appreciation of the Boards' engagement and invited the Board to schedule a virtual meeting or conference call with the Department by February 17, 2023, if they wished to have any additional information on the matter.

Regarding the Boards' request for a public hearing, please see response to Comment 1, above.

Other Changes Made

During review of comments received during the public comment period, the Department determined that the following changes and additions should be made to the Plan Approval.

1. The following condition will be included in Section C to ensure that the most stringent procedures are taken in the event that one condition is more stringent than another.

Condition Type	Source	Condition	Basis of Condition
Additional	Section C	This Plan Approval is based on site-specific and Federal requirements. In the event of an inconsistency or any conflicting requirements, the most stringent provision, term, condition, method or rule shall be used by default.	25 Pa. Code § 127.12b

2. During review of the comments, the Department determined that the following conditions, proposed in the application, should be included in the Plan Approval.

Condition Type	Source	Condition	Basis of Condition
Monitoring	Section D Fugitives (Source ID 701)	If an unsafe to monitor component is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times. A difficult to monitor component for which quarterly monitoring is specified may instead be monitored annually.	25 Pa. Code § 127.12b
Record keeping	Section D Fugitives (Source ID 701)	Records of instrument monitoring shall indicate dates and times, test methods, and instrument readings. The instrument monitoring record shall include the time that monitoring took place for no less than 95% of the instrument readings recorded. Records of physical inspections shall be noted in the operator’s log or equivalent.	25 Pa. Code § 127.12b
Additional	Section D Fugitives (Source ID 701)	To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak checking during plant operation.	25 Pa. Code § 127.12b

3. During review of the comments, the Department determined that the following conditions required modification. Changes are in red bolded font.

Condition Type	Source	Condition	Basis of Condition
Recordkeeping	Fugitives: Source ID 701	<p>For fugitive emissions components, the owner or operator shall maintain the following records, including information on:</p> <p>(a) The fugitive emissions monitoring plan in accordance with 40 CFR §60.5397a(b) through (d).</p> <p>(b) Records of each monitoring survey which must include:</p> <p>(i) The facility name and location;</p> <p>(ii) The state-only operating permit number;</p> <p>(iii) The date, start time, and end time of the survey;</p> <p>(iv) The name of the operator(s) performing the survey;</p> <p>(v) The monitoring instrument used;</p> <p>(vi) The ambient temperature, sky conditions, and maximum wind speed at the time of the survey;</p> <p>(vii) Any deviations from the monitoring plan or a statement that there were none; and</p> <p>(viii) Documentation of each fugitive emission including:</p> <p>(A) The identification of each component from which fugitive emissions leaks were detected;</p> <p>(B) The instrument reading of each fugitive emissions component that meets the leak definition:</p> <p>(1) A concentration of 500 ppm calibrated as methane detected by an instrument reading in Condition 1(b)(iv)(C) of this section;</p> <p>(C) The status of repair of each component including:</p> <p>(1) The repair methods applied in each attempt to repair the component;</p> <p>(2) The tagging or digital photographing of each component not repaired during the monitoring survey in which the fugitive emissions were discovered;</p> <p>(3) The reasons a component was placed on delay of repair;</p> <p>(4) The date of successful repair of the component; and</p> <p>(5) The information on the instrumentation or method used to resurvey the component after repair, if it was not completed during the monitoring survey in which the fugitive emissions were discovered.</p>	25 Pa. Code § 127.12b
Additional	Section D Fugitives (Source ID 701)	<p>New and reworked piping connections shall be welded or flanged. Screwed connections are permissible only on piping smaller than two-inch diameter. Gas or hydraulic testing of the new and reworked piping connections at no less than operating pressure shall be performed prior to returning the components to service or they shall be monitored for leaks using an approved gas analyzer within 15 days of the components being returned to service. Adjustments shall be made as necessary to obtain leak-free performance. Connectors shall be inspected by visual, audible, and/or olfactory means at least weekly daily by operating personnel walk-through.</p> <p>Each open-ended valve or line shall be equipped with an appropriately sized cap, blind flange, plug, or a second valve to seal the line. Except during sampling, both valves shall be closed. If the isolation of equipment for hot work or the removal of a component for repair or replacement results in an open ended line or valve, it is exempt from the requirement to install a cap, blind flange, plug, or second valve for 72 hours. If the repair or replacement is not completed within 72 hours, the permit holder must complete either of the following actions within that time period;</p> <p>(1) a cap, blind flange, plug, or second valve must be installed on the line or valve;</p> <p>Or</p> <p>(2) the open-ended valve or line shall be monitored once for leaks above background for a plant or unit turnaround lasting up to 45 days with an approved gas analyzer and the results recorded. For all other situations, the open-ended valve or line shall be monitored once within the 72 hour period following the creation of the open ended line and monthly thereafter with an approved gas analyzer and the results recorded. For turnarounds and all other situations, leaks are indicated by readings of 500 ppmv and must be repaired within 24 hours or a cap, blind flange, plug, or second valve must be installed on the line or valve..</p>	25 Pa. Code § 127.12b

After further review, the Department has determined that the following condition should be removed because more site-specific stringent conditions are included.

Condition Type	Source	Condition	Basis of Condition
Additional	Fugitives: Source ID 701	<p>Acceptable leak detection methods include any of the following:</p> <p>a. Optical gas imaging instrument. Use an optical gas imaging instrument for equipment leak detection in accordance with 40 CFR Part 60, Subpart A, §60.18 of the Alternative work practice for monitoring equipment leaks, §60.18(i)(1)(i); §60.18(i)(2)(i) except that the monitoring frequency shall be annual using the detection sensitivity level of 60 grams per hour as stated in 40 CFR Part 60, Subpart A, Table 1: Detection Sensitivity Levels; § 60.18(i)(2)(ii) and (iii) except the gas chosen shall be methane, and §60.18(i)(2)(iv) and (v); §60.18(i)(3); §60.18(i)(4)(i) and (v); including the requirements for daily instrument checks and distances, and excluding requirements for video records. Any emissions detected by the optical gas imaging instrument is a leak unless screened with Method 21 (40 CFR part 60, appendix A-7) monitoring, in which case 10,000 ppm or greater is designated a leak. In addition, you must operate the optical gas imaging instrument to image the source types required by this subpart in accordance with the instrument manufacturer's operating parameters. Unless using methods in paragraph (b) of this condition, an optical gas imaging instrument must be used for all source types that are inaccessible and cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.</p> <p>b. Method 21. Use the equipment leak detection methods in 40 CFR part 60, appendix A-7, Method 21. If using Method 21 monitoring, if an instrument reading of 10,000 ppm or greater is measured, a leak is detected. Inaccessible emissions sources, as defined in 40 CFR Part 60, are not exempt from this subpart. Owners or operators must use alternative leak detection devices as described in paragraph (a) or (b) of this condition to monitor inaccessible equipment leaks or vented emissions.</p> <p>c. Infrared laser beam illuminated instrument. Use an infrared laser beam illuminated instrument for equipment leak detection. Any emissions detected by the infrared laser beam illuminated instrument is a leak unless screened with Method 21 monitoring, in which case 10,000 ppm or greater is designated a leak. In addition, you must operate the infrared laser beam illuminated instrument to detect the source types required by this subpart in accordance with the instrument manufacturer's operating parameters.</p> <p>d. Acoustic leak detection device. Use the acoustic leak detection device to detect through-valve leakage. When using the acoustic leak detection device to quantify the through-valve leakage, you must use the instrument manufacturer's calculation methods to quantify the through-valve leak. When using the acoustic leak detection device, if a leak of 3.1 scf per hour or greater is calculated, a leak is detected. In addition, you must operate the acoustic leak detection device to monitor the source valves required by 40 CFR Part 60 Subpart W in accordance with the instrument manufacturer's operating parameters. Acoustic stethoscope type devices designed to detect through valve leakage when put in contact with the valve body and that provide an audible leak signal but do not calculate a leak rate can be used to identify non-leakers with subsequent measurement required to calculate the rate if through-valve leakage is identified. Leaks are reported if a leak rate of 3.1 scf per hour or greater is measured.</p>	25 Pa. Code § 127.12b

Attachment 1 – Flare Manufacturer Statement for 98%

JOHN ZINK HAMWORTHY COMBUSTION

August 29, 2017

MarkWest Liberty Midstream and Resources, LLC
1515 Arapahoe St
Tower 1, Suite 1600
Denver, CO 80202



Attention: Mr. David Krantz / Chris Strahler

Re: Expected Destruction Removal Efficiency for Harmon Creek Plant Air Assisted Flare.
John Zink Shop Order: 9186383
MarkWest PO: 1130000/LBTY140027F

Dear Sirs,

Per MarkWest's request, please find here below John Zink's statement in regards with the expected DRE on the Air Assisted Flare for Harmon Creek Plant:

Elevated Flares by their nature do not lend themselves to direct measurement of the products of combustion using conventional techniques. The EPA published regulations for flares (40CFR60.18) that establish guidelines for exit velocity and minimum heating value for steam assisted, air assisted and non-assisted flares to ensure proper flame stability / destruction efficiency of flares. Flares designed within these guidelines are assumed to provide minimum DRE of 98%. See attached process conditions table for a summary of the flow cases for which this flare is designed to comply with 40CFR60.18 gas exit velocity limitation for the following cases.

Recent studies have concluded that there are other factors that should be considered to ensure that a flare is operating at high destruction efficiency including over-steaming of steam assisted flares and over-aeration of air assisted flares. These studies also showed that operation of air assisted flares with air blower rates at or below the "incipient smoke point" produced a DRE of 98% or better. Studies have shown that if the flare is operated with a stable flame the expected DRE should be 98% or better.

The Air Assisted Flare provided for Harmon Creek Plant is provided with two 250 hp air blowers to provide smokeless flaring for the cases as listed in the process conditions table. The blower motors are designed to be fitted with variable frequency drives to allow control of the air flow rate near the incipient smoke point for all the process conditions given. We confirm that all cases listed in the process conditions are designed to produce a stable flame for all the smokeless cases and non-smokeless cases listed.

We therefore confirm that the Harmon Creek Plant air assisted flare is designed to provide an expected DRE of greater than 98%.

Regards,

A handwritten signature in black ink, appearing to read "Kevin Leary".

Kevin Leary
Applications Engineering Director
John Zink Company, LLC