

November 12, 2024

VIA EMAIL (AJuarez@marathonpetroleum.com)

Alexandra M. Juarez – Environmental Engineer
MarkWest Liberty Midstream & Resources, LLC
4600 J Barry Court, Suite 500
Canonsburg, PA 15317

Re: Identification of Additional Technical Deficiencies/Pre-Denial Notification
MarkWest Liberty Midstream & Resources, LLC
Harmon Creek Gas Plant – Harmon Creek 3 Project
Application for Plan Approval PA-63-01011B
APS No. 1066962, AUTH No. 1471222
Smith Township, Washington County

Dear Alexandra Juarez:

The Department of Environmental Protection (“Department”) has conducted further review of the above referenced application for Plan Approval received from MarkWest Liberty Midstream & Resources, LLC (“MarkWest”) on January 19, 2024. The Department has also reviewed documentation received from MarkWest on June 27, July 26, and August 15, 2024, in response to the Department’s technical deficiency letter dated May 28, 2024. Please be aware that responses to the technical deficiency letter were received twenty-seven (27) business days beyond the timeframe specified therein and some items were not addressed. MarkWest also provided additional information in support of its Best Available Technology (“BAT”) analysis to the Department on October 2, 2024.

After further review of the application and supplemental information, the Department has determined that the application remains technically deficient. The specific technical deficiencies are based on similar applicable laws and regulations specified in the Department’s technical deficiency letter dated May 28, 2024, including 25 Pa. Code §127.12(a)(2, 3, 4, 5, and 10), which state that an application for plan approval shall:

- (2) Contain information that is requested by the Department and is necessary to perform a thorough evaluation of the air contamination aspects of the source.
- (3) Show that the source will be equipped with reasonable and adequate facilities to monitor and record the emissions of air contaminants and operating conditions which may affect the emissions of air contaminants and that the records are being and will continue to be maintained and that the records will be submitted to the Department at specified intervals or upon request.
- (4) Show that the source will comply with applicable requirements of this article and requirements promulgated by the Administrator of the EPA under the Clean Air Act (42 U.S.C.A. §§7401 – 7706).
- (5) Show that the emissions from a new source will be the minimum attainable through the use of the best available technology.
- (10) Show that the source and the air cleaning devices are capable of being and will be operated and maintained in accordance with good air pollution control practices.

Technical Deficiencies

1. An application for Plan Approval must demonstrate that emissions from a new or modified source will be the minimum attainable through the use of the best available technology (“BAT”). Per 25 Pa. Code §121.1, BAT is defined as the “[e]quipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available.” The information provided in the subject application for Plan Approval, in responses to technical deficiencies, and in other supplemental information provided by MarkWest, does not demonstrate that the proposed project meets BAT for the source category or similar source categories from which control technologies could feasibly be transferred. [25 Pa. Code §127.12(a)(5)]
2. Per the Department’s *General Plan Approval and/or General Operating Permit for Natural Gas Compression and/or Processing Facilities* (“GP-5”) (2700-PM-BAQ0267; 6/2018), open flares may only be approved for control of new and modified sources at remote locations and for infrequent operations. Further, the Department’s *General Plan Approval and/or General Operating Permit for Coal-Mine Methane Flares* (“GP-21”) authorizes the use of enclosed flares to reduce atmospheric emissions of methane from mine ventilation systems. Lastly, the Department’s *Best Available Technology and Other Permitting Criteria* (275-2101-007; February 23, 1996) (“BAT-TGD”) specifies in Section 7.10 (*Best Available Technology Criteria for Municipal Residue Landfills*) that landfill gas from an active landfill gas collection system shall be processed by combustion an enclosed ground type flare or other enclosed combustion device or system. Given the similarity of the controlled emissions streams in the referenced scenarios, the use of an enclosed flare to control at Harmon Creek is available or may be made available. Therefore, it is Department’s position that the venting of gas from the proposed sources to the previously installed open flare does not constitute BAT.
 - a. In its application and responses to technical deficiencies, MarkWest has not demonstrated that the proposed gas venting controls meet BAT and has failed to evaluate other available control alternatives like gas recompression. On April 28, 2022, the Department issued a plan approval for a project at the Texas Eastern Transmission, LP Holbrook Station (a major source of VOC emissions) that required the installation of a centrifugal compressor blowdown gas recompression system that reduces blowdown emissions by 95% and eliminates combustion emissions associated with flaring. Please provide a BAT analysis that evaluates all available alternatives for control of emissions from equipment blowdown operations. [25 Pa. Code §127.12(a)(5)]
 - b. On August 7, 2018, the Department authorized the use of GP-5 (2700-PM-BAQ0205; January 2015) at the Energy Transfer Corporation Revolution Cryogenic Gas Processing Facility which utilizes an open flare for infrequent operations and an enclosed combustion devices to control processes that emit continuously and for controlling emissions from pigging operations, which demonstrates that the use of enclosed combustion devices in the gas processing

segment is technically feasible and which is already available as BAT for the source category.

[25 Pa. Code §127.12(a)(5)]

3. In its application and responses to technical deficiencies, MarkWest has failed to include a complete evaluation of project and project emissions aggregation and/or circumvention (25 Pa. Code §127.216) for the process equipment and controls proposed in the subject application with those proposed and/or authorized in GP5-63-01011A, GP1-63-01011A, GP5-63-01011B, and Plan Approval PA-63-01011. Please fully evaluate all factors identified in 25 Pa. Code §127.216 and *Clean Air Council v. DEP* (2019 EHB 56 available at <https://ehb.pa.gov/docket-search>, Case No. 2016073). [25 Pa. Code §127.12(a)(2, 4, and 5)]
4. Since the proposed project will result in the Harmon Creek Gas Plant becoming a *major facility* (for VOC emissions) as this term is defined in 25 Pa. Code §121.1, please provide an evaluation of the applicable Nonattainment New Source Review requirements of 25 Pa. Code Chapter 127 Subchapter E pursuant to §127.203(e)(2). [25 Pa. Code §127.12(a)(4)]
5. Please evaluate and revise the BAT analysis as necessary for the one (1) proposed cryogenic plant regenerative heater rated at 21.75 MMBtu/hr to include natural gas burners with heat input ratings between approximately 10 MMBtu/hr and 42 MMBtu/hr and capable of achieving <5ppm NO_x with flue gas recirculation (FGR) and without selective catalytic reduction (SCR), which are available. [25 Pa. Code §127.12(a)(5)]
6. Please provide manufacturer's specifications for the existing plant flare including the minimum and maximum heat inputs (MMBtu/hr) and minimum and maximum gas flow rates (scfm). [25 Pa. Code §127.12(a)(2)]
7. Please include columns in the "Estimated Potential Blowdown (Controlled by Flare)" table for the total elapsed time for each equipment blowdown and the associated mass emissions rates (pounds per minute) and volumetric flow rates (scfm) for the blowdown. Please also provide the standard operating procedures and any supporting documentation from the equipment manufacturers which demonstrate that blowdown operations are conducted in accordance with good air pollution control practices. [25 Pa. Code §127.12(a)(2 and 10)]
8. Please add the following information to the provided Process Flow Diagram (June 2024):
 - a. Each reciprocating compressor and its location within the process and whether rod packing vent and blowdown emissions are vented to atmosphere or captured and controlled.
 - b. Each centrifugal compressor and its location within the process and whether dry seal vent and blowdown emissions and are vented to atmosphere or captured and controlled.
 - c. Each screw compressor and its location within the process and whether blowdown emissions and are vented to atmosphere or captured and controlled.

If drawing space is limited, a block element identifying the number and type of compressors, differentiating between existing and proposed, may be utilized. The type of process gas (residue gas, ethane, etc.) handled by each compressor shall also be clearly identified. [25 Pa. Code §127.12(a)(2)]

9. In the Department's technical deficiency later dated May 28, 2024, the Department requested a complete PDF copy of *American Petroleum Institute (API) Standard 537 – Flare Details for Natural Gas Industries*. In response on June 27, 2024, MarkWest indicated that this "...is a copyrighted document and cannot be distributed." Since flare siting requirements were discussed in the initially submitted BAT analysis and supplements thereto, please provide a summary of all applicable flare siting standards to which the proposed project is subject. [25 Pa. Code §127.12(a)(2)]
10. In the Department's technical deficiency later dated May 28, 2024, the Department noted per publicly available data (Washington County, PA Parcel & GIS Viewer - <https://wcpagis-washcodps.hub.arcgis.com/>) that the two (2) land parcels on which the MarkWest Harmon Creek Gas Plant is located are approximately 110 acres, combined, of which only 34.7 acres appear to be currently utilized for plant surface equipment. After further review, the Department has found that MarkWest owns a total of 532.52 acres of land including that on which the MarkWest Harmon Creek Gas Plant is located and two (2) adjacent parcels. In light of this information, please review MarkWest's assertion of the need to purchase additional property to accommodate the installation of an enclosed flare and provide a written update. [25 Pa. Code §127.12(a)(5)]
11. Please provide tables that present estimates of VOC, HAP, and GHG emissions from the closed drain tank and amine closed drain tank. The estimates shall include all supporting data and assumptions, models and calculation methodology; include tank liquids composition and the method(s) of determination; and annual liquids production rates. [25 Pa. Code §127.12(a)(2)]
12. Per 40 CFR 60.5365b, the owner or operator of one or more of the onshore affected facilities listed in §60.5365b(a-i) (which includes *reciprocating compressors*), located within the Crude Oil and Natural Gas source category, as defined in §60.5430b, for which construction, modification, or reconstruction commenced after December 6, 2022, is an affected facility under 40 CFR Part 60 Subpart OOOOb. Per 40 CFR §60.5430b, a *reciprocating compressor* is defined as "...a piece of equipment that increases the pressure of a process gas by positive displacement, employing linear movement of the driveshaft." Each proposed reciprocating compressor at Harmon Creek meets the referenced definition and is therefore an affected facility under Subpart OOOOb, regardless of the VOC or methane content of the gas handled by the compressor. For affected reciprocating compressors, the volumetric rod packing flow rate standard specified in 40 CFR §60.5385b is not 480 scfh as referenced in the application, but, per 40 CFR §60.5385b(a), "...must not exceed 2 scfm per individual cylinder." Please specify the number of cylinders per compressor and whether the rod packing vent for each is manifolded together such that the Department can determine the applicable requirements of Subpart OOOOb. [25 Pa. Code §127.12(a)(2, 3, 4, 5, and 10)]

13. In the Department's technical deficiency later dated May 28, 2024, the Department noted that the subject application does not consistently identify the proposed sources. Specifically, the BAT analysis included with the application submitted on January 17, 2024, referred to three (3) proposed reciprocating compressors and did not address centrifugal compressors, where other sections of the application refer to three (3) proposed centrifugal compressors and one (1) reciprocating compressor. Please address as this deficiency was not addressed in any of the written responses to technical deficiencies received from MarkWest to date. [25 Pa. Code §127.12(a)(2)]
14. After further review of the application and additional submittals, it appears that multiple previously installed and proposed screw compressors have been and will be constructed at the facility but were only identified in the "Estimated Potential Blowdowns" table in the application. Although the proposed screw compressors are not affected facilities under 40 CFR Part 60 Subparts OOOOa, OOOOb, and OOOOc, since they "are not centrifugal compressors" as defined in 40 CFR §§ 60.5430a, 60.5430b, and 60.5430c, each screw compressor that commenced or will have commenced construction, modification, or reconstruction before or after December 6, 2022, is an affected *fugitive emissions component* as defined in 40 CFR §§ 60.5430a, 60.5430b, and 60.5430c. Each screw compressor is a source of emissions from fugitive leaks and blowdowns and should be identified and evaluated in the BAT analysis for the project. [25 Pa. Code §127.12(a)(2, 3, 4, 5, and 10)]
15. Please provide calculations which demonstrate that the existing plant flare has sufficient capacity to handle gas releases from all previously installed equipment and the equipment proposed with the Harmon Creek Cryogenic Plant 3 and Deethanizer 2 projects. [25 Pa. Code §127.12(a)(4)].
16. Pursuant to 40 CFR Part 60 Subpart A, §60.14(a) states that:

"Except as provided under [§60.14(e and f)], any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere."

Per §60.14(e), "[a]n increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility" shall not be considered a modification under Part 60. However, since a capital expenditure is necessary to increase the production rate of the Harmon Creek Gas Plant, the proposed activity constitutes a modification. Please evaluate whether a modifications of Subpart OOOOa-affected facilities will occur with the proposed project. [25 Pa. Code §127.12(a)(4 and 5)]
17. For the purposes of the greenhouse gas (GHG) and volatile organic compound (VOC) standards for *storage vessel affected facilities* specified in 40 CFR §60.5395b, pursuant to §60.5365b(e)(3), for tank batteries not located at a well site or centralized production facility, including each tank battery at an onshore natural gas processing plant, a modification of a tank battery occurs when an existing tank battery receives additional fluids which cumulatively exceed the throughput used in the most recent determination of

the potential for VOC or methane emissions. Please determine the change in the volume of fluids received by and the resulting potential for VOC or methane emissions from the closed drain tank in comparison to that of the most recent Subpart OOOOa determinations. [25 Pa. Code §127.12(a)(4)]

Please be aware that per the *Policy for Implementing the Department of Environmental Protection (Department) Permit Review Process and Permit Decision Guarantee* (021-2100-001, November 2, 2012) (“PRP/PDG Policy”), a Permit Decision Guarantee is provided for certain Air Quality authorization applications, where the Department’s guarantee timeframe for this application type is 150 business days. However, it is the applicant’s responsibility for submitting a complete and technically adequate application which meets all applicable regulatory and statutory requirements and contains all information needed by the Department to make a final permit decision. Pursuant to Section B(6) of the PRP/PDG Policy, the Department’s technical deficiency later dated May 28, 2024, voided the Permit Decision Guarantee for this application. The deficiencies included herein have again for the subject application stopped the PAYBack program review clock established under Executive Order 2023-07, which provides a review timeframe for this application type of 160 business days.

You must submit a response fully addressing each of the technical deficiencies set forth above within ten (10) business days of receipt of this correspondence or the Department may deny the application. Please be aware that per §127.12(b), “[t]he Department will not approve an application which fails to meet the requirements of [§127.12(a) relating to content of applications].” Failure to provide complete and technically adequate responses to all identified technical deficiencies may result in denial of your application. Additionally, the Department requests that all deficiencies identified above and those identified in the Department’s letter dated May 28, 2024, are incorporated and submitted in a single revised and complete application.

Please visit eFACTS on the Web at: <https://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx> to follow your application through the review process. If you have questions about your application or would like to discuss any of the above items, please contact me at 412.442.5231 or via email at dtomko@pa.gov.

Sincerely,

Devin P. Tomko, P.E./DPT
Air Quality Engineer

CC: PA-63-01011B
Operations (Valerie Shaffer)
New Source Review (Sheri Guerrieri)
OCC (Mike Heilman, Brian Greenert)
Bureau of Air Quality (Viren Trivedi)
OnBase