west virginia department of environmental protection

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Harold D. Ward, Cabinet Secretary
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Pursuant to 45 CSR §13-8.8, the Division of Air Quality presents the

RESPONSE TO COMMENTS

for the

Construction Permit

for

Thunder Mountain Environmental Services LLC

West Virginia Plant

located near

Ravenswood, Jackson County, West Virginia

Permit Application Number: R13-3563

Facility Identification Number 035-00082

Date: September 12, 2023

BACKGROUND INFORMATION

On May 26, 2023, the West Virginia Division of Air Quality (DAQ) provided notice to the public of a preliminary determination to issue Permit Number R13-3563 to Thunder Mountain Environmental Services LLC (TMES) for the construction of a waste to energy facility proposed to be located at 5334B Point Pleasant Rd. near Ravenswood, Jackson County, WV at latitude 39.923499 and longitude -81.795688. At that time, the DRAFT permit and Engineering Evaluation/Fact Sheet (EE/FS) were made available to the public for review. The permit application had previously been made available for public review and remained so during the public comment period.

The first public notice was followed by a 30-day public comment period that was scheduled to end at 5:00 P.M. on June 26, 2023. However, after receiving a request for a public meeting and the Director's subsequent determination that, pursuant to §45-13-9.1, a public meeting was warranted, a second public notice was run on July 7, 2023 notifying the public that the DAQ was going to conduct a virtual public meeting on July 20, 2023. This advertisement also stated that the public comment period was being extended until 5pm on July 27, 2023. Both public advertisements were Class I Legal Advertisements that ran in the Jackson Herald/Jackson Star News, a newspaper of general circulation in Mason County.

OVERVIEW OF COMMENTS RECEIVED

From the date of the DAQ's first public notice until the conclusion of the extended public comment period of July 27, 2023. The DAQ received over 250 comments from various individuals and organizations concerning the proposed permit for TMES. Due to the number of comments received, a single response document (this document) was developed

Most public comments were non-technical and non-regulatory in nature against this application. These comments did not provide specific reasons why the DAQ should not approve the permit or which regulation/emission standard that the facility was not going to be capable of complying with and why. 223 identical comments noted that the DRAFT permit did not protect the health of local communities based on insufficiencies in the dispersion modeling, waste management protocols, and dioxin emissions limits. None of these 223 identical comments provided specifics about these deficiencies.

The issues raised by these commenters are requirements outlined in Subpart Ec - Standards of Performance for New Stationary Sources: Hospital/Medical/Infectious Waste Incinerators. This subpart required the applicant to prepare an analysis of the associated impact due to the emissions from the proposed source. The DAQ elected to require TMES to perform dispersion modeling in accordance with Appendix W of 40CFR51 - Guideline on Air Quality Models to demonstrate that the emissions from the gasifier does not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS). The subpart specifically allowed the applicant to do this under 40CFR60.54c(b). DRAFT permit Conditions

4.1.3.a.viii. and 4.1.9. established the dioxin and furans standards; and waste management plan requirements from Subpart Ec.

None of the 223 comments identified specific issues from the modeling report or errors in adopting these standards into the DRAFT permit.

However, specific questions/comments were also submitted, including a large number in a package submitted by Mr. James Kotcon on behalf of the West Virginia Chapter of the Sierra Club, Ms. Lea Harper on behalf of the Freshwater Accountability Project, Mr. Frank Rocchio on behalf of the Ohio Valley Advocates, Mr. Duane Nichols, Mr. Rick Buckly, and Additional questions were asked during the virtual public meeting and were answered at that time. The video recording of the virtual public meeting can be found on the DAQ web page under NSR Permit Applications, Popular Searches, TMES. https://dep.wv.gov/daq/Pages/NSRPermitsforReviewCurrent.aspx

Pursuant to §45-13-8.8, all submitted comments received during the public comment period have been reviewed and are addressed in this document.

ORGANIZATION OF COMMENT RESPONSE

The DAQ's response to the submitted comments includes both a general and specific response section. The general response defines issues over which the DAQ has authority and by contrast, identifies those issues that are beyond the purview of the DAQ. The general response also describes the statutory basis for the issuance/denial of a permit, DAQ Compliance/Enforcement Procedures, and The specific response summarizes each relevant non-general comment/question that falls within the purview of the DAQ and provides a response to it (if it requires a response). Due to the size and number of the comments, this document may not reproduce all the comments here verbatim and instead each comment may, where appropriate, be summarized. The DAQ makes no claim that the summaries are complete; they are provided only to place the responses in a proper context. For a complete understanding of submitted comments, please see the original documents in the file. All written comments are part of the public record and can be found on the same webpage location provided above.The DAQ responses, however, are directed to the entire comments and not just to what is summarized. Comments that are not directly identified and responded to in the specific response section of this document are assumed to be answered under the general response section (or not relevant to the Thunder Mountain permit application or an air quality-related issue).

Statutory Authority of the DAQ

The statutory authority of the DAQ is given under the Air Pollution Control Act (APCA) - West Virginia Code §22-5-1, et. seq. - which states, under §22-5-1 ("Declaration of policy and purpose"), that:

"It is hereby declared the public policy of this state and the purpose of this article to achieve and maintain such levels of air quality **as will** [underlining and emphasis added] protect human health and safety, and to the greatest degree practicable, prevent injury to plant and animal life and property, foster the comfort and convenience of the people, promote the economic and social development of this state and facilitate the enjoyment of the natural attractions of this state."

Therefore, while the code states that the intent of the rule includes the criteria outlined in the latter part of the above sentence, it is clear by the underlined and bolded section of the above sentence that the scope of the delegated authority does not extend beyond the impact of air quality on these criteria. Based on the language under §22-5-1, et. seq., the DAQ, in making determinations on issuance or denial of permits under WV Legislative Rule 45CSR13 (Rule 13), does not take into consideration substantive non-air quality issues such as job creation, economic viability of proposed projects, strategic energy issues, non-air quality environmental impacts, nuisance issues, etc.

Statutory Basis for Permit Denial

The basis for issuance or denial of an air quality permit is given under 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation." Pursuant to §45-13-5.7, the DAQ shall issue a permit unless:

> "a determination is made that the proposed construction, modification, registration or relocation will violate applicable emission standards, will interfere with attainment or maintenance of an applicable ambient air quality standard, cause or contribute to a violation of an applicable air quality increment, or be inconsistent with the intent and purpose of this rule or W. Va. Code §22-5-1 et seq., in which case an order denying such construction, modification, relocation and operation shall be issued. The Secretary shall, to the extent possible, give priority to the issuance of any such permit so as to avoid undue delay and hardship."

It is clear under 45CSR13 that denial of a permit must be based on one of the above explicitly stated criteria or, as noted, is inconsistent with the intent of 45CSR13 or §22-5-1, et. seq. As is stated above, it is the DAQ's position that the intent of both the APCA and 45CSR13 is to circumscribe the authority of the DAQ to air quality issues as outlined in the APCA and in West Virginia's State Implementation Plan (SIP).

The air quality issues evaluated relating to TMES's proposed construction are outlined in the DAQ's Engineering Evaluation and made public on May 26, 2023. The issues

covered under that document represent the extent of the substantive air quality issues over which the DAQ believes it has authority to evaluate under 45CSR13 and the APCA as relating to TMES's Permit Application R13-3563.

The DAQ does not pick winners or losers. Further, the agency does not endorse or engage in activities to encourage any industries to locate within West Virginia. This applies to petitions as well. The DAQ does not recognize petitions or make final decisions on applications based on popular vote.

DAQ Compliance/Enforcement Procedures

It is important to note here that the DAQ permitting process is but one part of a system that works to meet the intent of the APCA in WV. The DAQ maintains a Compliance and Enforcement (C/E) Section, a Monitoring Section, a Planning Section, etc. to accomplish this. Most pertinent to the permitting process, the C/E Section inspects permitted sources to determine the compliance status of the facility including compliance with all testing, parametric monitoring, record-keeping, and reporting requirements. These inspections are scheduled by the C/E Section taking into consideration such issues as the size and compliance history of the source, resource management and inspector workloads, and program applicability.

When inspecting a facility, the inspectors will, in addition to visually inspecting the facility, generally review all required certified record-keeping to determine compliance with required monitoring. When violations are discovered, the C/E Section has the authority to issue a Notice of Violation (NOV) and a Cease and Desist Order (C&D) to compel facilities to stop operating the equipment/process responsible for the violation. Finally, a negotiated Consent Order (CO) may be entered into between the DAQ and the violator that lays out a finding of facts, a path back into compliance for the violator, and often includes a monetary penalty as determined on a case-by-case basis.

Additionally, the C/E Section investigates citizen complaints directed against a facility (including odor complaints), reviews monitoring reports submitted to the DAQ (again with the authority to issue violations based on the submitted reports), reviews performance test protocols submitted to the DAQ, and will often observe performance tests at the facility site. All records and documents submitted to the DAQ for compliance purposes must be certified as accurate (and subject to criminal penalties if knowingly inaccurate) by a properly designated "responsible official." All of these documents - including C/E documents such as NOVs, C&Ds, and COs - when in final form, and minus any confidential information, are available to the public via a Freedom of Information Act (FOIA) request (for older documents) or (for new facilities) are available on the DAQ (AX) database. These documents also include compliance inspection reports and performance testing review memos, which are generated by the agency.

Greenhouse Gas Emissions

There are no state or federal requirements for greenhouse gasses (GHGs) applicable to minor sources. Pursuant to §45-30-2.24(b), 45CSR13 even specifically excludes GHGs from the emission thresholds that are used to define a minor "stationary source." However, as noted above, the proposed gasifier facility has been reasonably determined to meet the definition of a minor stationary source based on the PTE of the criteria pollutants. Therefore, without a state or federal statutory basis or any relevant standards, the DAQ does not require minor stationary sources to propose or implement a GHG control strategy. It is also important to note that on June 23, 2014, in *Utility Air Regulatory Group v. Environmental Protection Agency*, the Supreme Court of the United States (SCOTUS) ruled that GHGs alone could not define a source as a "major stationary source" for the purposes of triggering Prevention of Significant Deterioration (PSD) review. This ruling effectively removed the requirement for the applicant to quantify the PTE of GHGs in minor source permit applications.

Multi-Source Air Impacts Analysis (Cumulative Analysis)

The complex task of conducting a multi-source air impact analysis is a time and resource-intensive computer modeling operation and is, therefore, only required for certain (but not all) major stationary sources on a pollutant-by-pollutant basis. Beyond just exceeding the major source threshold, the source must meet the additional applicability threshold of first having modeled only the source's impacts over a specific value known as the "significant impact level" (SIL) before a multi-source air impact analysis is then required. Again, these screening methods are used to limit the unnecessary burdens of conducting multi-source modeling when the likelihood of adverse impacts is low. Therefore, even for a new major source, a multi-source air impact analysis is only required for specific pollutants that meet this additional threshold.

It is also important to note that for most source types, the major source threshold for each individual pollutant is 250 TPY, much higher than the 100 TPY major source threshold for the proposed gasifier facility. The listed sources with the lower major source threshold is due to a regulatory artifact and does not necessarily mean that a listed source is more likely to cause or contribute to a NAAQS violation.

The proposed gasifier is subject to the "Siting Requirements" of Subpart Ec, which require a determination of the associated impacts from the affected source (gasifier). As noted above, the proposed gasifier facility was reviewed pursuant to the requirements of 45CSR13 - the permitting rule that contains the requirements for the review of minor sources. This rule does not require a cumulative air impact analysis that includes other sources in the determination to issue or deny the permit in question. Further, the DAQ does not believe that if such modeling was conducted, it would show that the proposed source would cause or contribute to a NAAQS violation, which is based on the analysis conducted by TMES.

The main purpose of the modeling with respect to the "Siting Requirements" is to determine the difference in impacts of the selected control technologies versus feasible alternative control technologies. Given that no feasible alternative control technology was identified, no additional modeling was required by Subpart Ec.

Public Opposition

Public opinion either in favor or against a proposed application does not provide the DAQ with any justification or factor into the DAQ's decision making process in making a final determination on any permit application. The DAQ's decision making process does not consider the popularity, or lack of, of a proposed source. The WV Legislature has made it clear that the DAQ shall not approve any application that might violate an applicable standard or requirement promulgated under the APCA or the Clean Air Act.

General Points

This permit will only allow TMES to install and operate a waste to energy facility that will process medical waste which will be converted into a synthetic gas and combusted to generate electricity for the facility. Any change to the gasification process or feedstock (i.e., a switch from medical waste to plastic waste) will require TMES to seek a permit modification from the DAQ in accordance with Rule 13. In that case, the DAQ would re-evaluate the facility to determine if other state rules or federal regulations would apply to the facility.

General Response Summary

In summary:

- In response to all comments that referenced substantive non-air quality issues, the APCA and 45CSR13 does not grant the DAQ the authority to take into consideration such issues in determining whether to issue or deny the permit;

- The requirements of 45CSR13 require the DAQ to, when denying a permit, explicitly state the reason pursuant to §45-13-5.7.;

- An issued permit is but the beginning of the involvement of the DAQ with a source. After issuance, a facility will receive inspections to determine compliance with the requirements as outlined in the applicable permit;

- The DAQ has determined that the proposed facility is properly defined as a minor stationary source of air pollution. Due to applicable regulation, TMES is required to obtain a Title V Operating Permit;

- As a proposed minor source, there are no state or federal requirements for greenhouse gasses (GHGs) applicable to the proposed facility; and

- No cumulative modeling assessment is required. The gasifier is subject to the Siting Requirement of Subpart Ec, which requires that the associated impacts from the gasifier be determined. The DAQ believe that a cumulative modeling assessment, if conducted, would show that the gasifier would cause or contribute to an exceedance of the National Ambient Air Quality Standard. TMES did identify their potential impacts by conducting dispersion modeling as required under the Siting Requirements of Subpart Ec.

Performing an experiment

Several comments expressed concerns that the applicant characterized or summarized the proposed facility as performing an experiment. The DAQ did not review this application as experimental or part of a research and development facility under any rule or regulation within the DAQ's authority.

Air Quality Regulations

One commenter claims that the permit should contain the emission standards from EPA Emission Guidelines outlined in Subpart Ce of 40CFR60. EPA developed these Emission Guidelines for States to develop individual state rules to regulate emissions from existing medical waste incinerators that were constructed before December 1, 2008. West Virginia's rule for regulating existing medical waste incinerators was established in WV Legislative 45CSR18 (Rule 18). Section 7 of Rule 18 specifically pertains to existing medical waste incinerators.

Section 6 of Rule 18 adopts requirements of Subpart Ec of 40CFR60 for NEW medical waste incinerators. Also, Section 6 defines units that commence construction after December 1, 2008, as new units and therefore is subject to Section 6 of Rule 18 and Subpart Ec of 40CFR60.

The DAQ has determined that the TMES proposed gasifier does not meet any of the exclusions under 40 CFR 60.50c(b) through (h). TMES proposed gasifier will be constructed after December 1, 2008, and is classified as a new unit.

The commenter noted that Emission Guidelines were more stringent than the limits established in the DRAFT permit. The following table was developed and presented here.

Table 1 - Comparison of the Emission Guidelines with regards to the Emission Limits in the Permit

Pollutant	Units	EG for Large Units Standard*	Emission Limits in the Permit	Percent Difference from the EG (%)
Particulate matter	Milligrams (mg) per dry standard cubic meter (dscm)	25	18	28%
Carbon monoxide	ppmdv	11	11	0%
Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans	9.3	9.3	0%
Hydrogen chloride	ppmdv	6.6	5.1	22%
Sulfur dioxide	ppmdv	9.0	8.1	10%
Nitrogen oxides	ppmdv	140	140	0%
Lead	mg/dscm	0.036	0.00069	98%
Cadmium	mg/dscm	0.0092	0.00013	99%
Mercury	mg/dscm	0.018	0.0013	92%

* EG (Emission Guidelines) were taken from Table 45-18B of Rule 18.

The emission limits in the DRAFT permit are either equal to or more stringent than the EG set forth in Subpart Ec.

It should be noted that as a result of developing this response, an error in the Dioxins and Furans limit stated in the permit was discovered. The toxic equivalency standard from Subpart Ec was not included when incorporating the standard into the permit for the dioxins and furans limits. The toxic equivalency of 0.035 nanograms per dry standard cubic meter toxic equivalency (TEC) from Table 1B to Subpart Ec of Part 60 will be incorporated into Condition 4.1.3.viii.

The permit includes NO_x, CO, SO_2, and PM mass rate limits as well. TMES must comply with both mass rate emission limits and concentration basis limits for each pollutant. Most likely the concentration basis will be the more stringent limit to comply with. However, there

is always a possibility that the mass limit might be more stringent than the concentration basis limit, and therefore both limits have been incorporated into the permit.

Several other comments note or imply that medical waste incinerators are illegal in West Virginia. No state rule developed under the Air Pollution Control Act specifically prohibits the construction and operation of a medical waste incinerator within West Virginia. Action by other agencies for similar or identical facilities does not mean that all similar or identical applications should automatically be denied under our air quality rules and regulations. The DAQ is not aware that any gasifier processing medical waste has been denied air quality anywhere else in the nation.

SPECIFIC RESPONSES TO COMMENTS

The following section provides responses to the specific comments that were not considered to be answered under the General Response section above. The section is split into three parts, (1) those comments that were received during the initial public comment period, (2) those received during the extend public comment, and (3) those comments that were received orally (and were not just summaries of comments also submitted in written form) at the public meeting.

Comments Received during the Initial Public Comment period

Prior to the public meeting notice date, the DAQ received two comments: (1) one comment that included a request for a public meeting and a 45 day extension of the public comment period, which was received by the DAQ within the initial public comment period.

(Comment 1) *This facility is classified as a medical waste facility which is estimated to contain 20-25% plastic. The waste to be incinerated needs to be sorted correctly and fully characterized to know what contaminants will be emitted, including dioxins and furans. It is too late to wait for a stack test to know what the actual emissions will be. We have searched for actual emissions from similar facilities, but cannot find much on-line. That is why we need an experienced air toxics specialist to fully characterize the emissions from this facility.*

DAQ RESPONSE

The applicant has the responsibility to best characterize the potential emissions from the proposed emission unit.. TMES used emission factors published by EPA in AP-42, which is publicly available, to determine the potential emissions before controls and applied control efficiencies based on manufacturer recommendations or using good engineering judgment.

It is the DAQ's understanding of the TMES gasifier that dioxins and furans (d/f) will be generated. TMES must install and operate the activated carbon injection system to reduce the d/f emissions down to or below the d/f standard established in Subpart Ec, which is adopted into the DRAFT permit.

The DAQ is required to make available to the public the application, DRAFT permit, evaluation, and other pertaining documents used doing the review. It is not the DAQ responsibility to either provide independent experts or funding to hire independent experts.

The purpose of the public comment period is to allow the public an opportunity to provide comments/remarks/suggestions on a proposed application and recommend action or changes to the DAQ.

(Comment 2) *According to USEPA guidance issued over 10 years ago, air emissions from hospital/medical/mixed medical waste facilities, we quote: "After the EG is implemented, either through the revised/new state plans or the amended federal plan, emissions from HMIWI units will drop significantly. Key emissions reductions will include: mercury by 89 percent hydrogen chloride by 85 percent lead by 74 percent, and dioxin/furans by 68 percent. These limits should be incorporated into any air permit given for such facilities: https://www.epa.gov/sites/default/files/2015-12/documents/hmiwi_fact_sheet_040413.pdf This DRAFT permit needs to include ways to obtain compliance with future USEPA standards, which is readily available on-line for review.*

DAQ RESPONSE

The commenter referenced a fact sheet where EPA promulgated amendments to the federal plan implementing the emission guidelines (EG) for existing hospital, medical and infectious waste incinerators (HMIWI). The Clean Air Act requires the EPA to review these standards for the nine pollutants from HMIWI units every five (5) years and adjust the standards if deemed necessary to protect the public.

The reference fact sheet showed reduction in EGs for existing units and not reduction in the standards for new units. In WV Legislative Series 45 Rule 18, 45-18-6.2.a and 45-18-7.2.a.2. that TMES proposed gasifier is classified as a new HMIWI, and therefore, subject to the requirements of Subpart Ec of 40 CFR 60, and Section 6 of WV Legislative Rule 18; and is not subject to the Emission Guidelines under Subpart Ce of 40 CFR 60 and WV Legislative Rule 18 Section 7.

In the reference fact sheet, EPA clearly noted that the EGs pertain to existing units. In the same fact sheet, EPA was eliminating a startup, shutdown and

malfunction exemption in Subpart Ec, which the fact sheet specifically noted for new units.

For the nine pollutants regulated under Subpart Ec, the DRAFT permit incorporated the emission standard of Large HMIWI from Table 1B to Subpart Ec of Part 60, which is only applicable to new units.

(Comment 3) *Because dioxin and furans are persistent and extremely toxic, cumulative pollution from this facility must be weighed over time; therefore, we assert that zero emissions are allowable for those toxics that will accumulate and travel by particulate matter, posing a public health threat. Reference: https://www.who.int/news-room/fact-sheets/detail/dioxins-and-their-effects-on-human-health#:~:text=Short%2Dterm%20exposure%20of%20humans,endocrine%20system%20and%2 0reproductive%20functions.*

DAQ RESPONSE

EPA has established an applicable emission standard for dioxins and furans for new HMIWI under Subpart Ec, which the DAQ has accepted delegation of under WV Legislative Rule 18. The WV Code prohibits the DAQ from establishing a more stringent standard than otherwise established by the federal government (i.e., EPA).

As noted in the link by the commenter, the World Health Organization (WHO) noted that 2,3,7,8-tetrachlorodibenzo para dioxin (TCDD) being the most toxic dioxin. EPA had identified TCDD as being the most toxic as well, which has been noted a "1" in the toxic equivalency factor column in Table 2 to Subpart Ec of Part 60 - Toxic Equivalency Factors.

The dioxins and furans standard of Subpart Ec has two standards: 1) mass based concentration standard, or 2) toxic equivalency standard. The mass based concentration is the sum of the measured d/f. While the toxic equivalency standard adjusts the measured concentration of each d/f based on the respective toxic equivalency factor in Table 2 to Subpart Ec of Part 60 - Toxic Equivalency Factors before being summed together to show compliance with the standard.

As noted earlier in this document, the toxic equivalency standard was not incorporated into the DRAFT permit. The toxic equivalency standard of "0.035 nanograms per dry standard cubic meter TEC" has been added to the permit in Condition 4.1.3.a.viii, as a direct response to this comment.

(Comment 4) *Should the word, "not," be inserted here?: b. The permittee shall cause to be discharged into the atmosphere visible emissions of combustion ash or char from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as*

determined by EPA Reference Method 22 of appendix A-1 of this part, except as provided in following paragraphs. [40CFR60.52c(c)]

DAQ RESPONSE

Condition 4.1.3.b. was incorporated from 40CFR60.52c(c) which as follows:

"On and after the date on which the initial performance test is completed or is required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility as defined in § 60.50c(a)(1) and (2) and utilizing a large HMIWI, and in § 60.50c(a)(3) and (4), shall cause to be discharged into the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (*i.e.,* 9 minutes per 3-hour period), as determined by EPA Reference Method 22 of appendix A–1 of this part, except as provided in paragraphs (d) and (e) of this section."

The key words that the commenter may have overlooked is "in excess". The DAQ agrees with the commenter that this condition may be confusing. The condition will be rephrased as the following:

"The permittee shall not discharge to the atmosphere visible emissions from the ash conveying system(s) (including conveyor transfer points) greater than 5 percent of the observation period (*i.e.,* 9 minutes per 3-hour period), as determined by EPA Reference Method 22 of appendix A-1 of this part, except as provided in following paragraphs."

(Comment 5) *Six what? "4.2.8. The permittee shall conduct a visible emission check during one loading event per calendar year to verify compliance with the emission limitation in Condition 4.1.10. using U.S. EPA Method 22. The duration of this observation shall be no less than six."*

DAQ RESPONSE

The DAQ agrees with the commenter that the term "minutes" was missing at the end of 2nd sentence of Condition 4.2.8. Condition 4.2.8. was corrected.

(Comment 6) We don't have the app to open all the related documents for this facility that are on-line, so additional time is needed to try to find experts to open and review all files.

DAQ RESPONSE

All of the documents made available to the public were either in pdf format or text format files except for modeling support files. Due to the large size of

these files, modeling support files are compressed. TMES 1-hour SO_2 output file requires the use of third party file software to unpack this file. There are several open source software programs (e.g., 7-zip) that are publicly available. The public comment period was originally scheduled to end on June 26, 2023, and was extended to July 27, 2023.

(Comment 7) *The modeling done is only for criteria pollutants as far as we can tell from the records reviewed. This is inadequate for facilities that will be manufacturing syngas using medical waste. The most toxic, persistent chemicals such as dioxins and furans must be modeled to know what is produced, what will be captured by bag houses, and what could be released and where the chemical-laden particulates will travel. More realistic and applicable modeling is required to compare to potential public health impacts as well as air inversion concentrations that are characteristic of valley topography.*

DAQ RESPONSE

The dispersion modeling that TMES performed was to satisfy the siting requirements of Subpart Ec. The siting requirements specifically notes that such a determination of the impacts from the HMIWI that demonstrates compliance with local, state and federal regulatory requirements can be used to satisfy the siting requirements of Subpart Ec. The analysis that TMES conducted and submitted was conducted in accordance with Appendix W to 40 CFR 51 - Guideline on Air Quality Models.

TMES' analysis predicted that the potential impact should not cause or contribute to any exceedance of any of the National Ambient Air Quality Standards.

(Comment 8) *A study of existing, cumulative pollutant load is needed for the region before another source of toxic air emissions is permitted to ensure public health protection. This study should examine the potential release of PFAS chemicals from the proposed incineration and other discharges.*

DAQ RESPONSE

The DRAFT permit does not permit TMES to release any PFAS into the atmosphere. PFAS is not a product of complete or incomplete combustion.

(Comment 9) *The carbon footprint of this facility as well as the impact of burning the resultant syngas needs to be calculated to assess greenhouse gas emissions that this facility would create along with the emissions from the subsequent combustion of the syngas. The burning of this waste and creation of syngas is likely at odds with carbon neutrality:*
https://www.chemistryworld.com/news/burning-plastic-waste-for-energy-at-odds-with-carbon-neutrality/4017584.article

DAQ RESPONSE

Carbon neutrality is not an applicable requirement under the APCA or Clean Air Act for HMIWI units.

(Comment 10) *As pointed out in the attached US Briefing on Chemical Recycling, "Technical challenges remain unsolved at each stage of the process: sorting and cleaning highly contaminated plastic waste feedstock (pre-treatment), optimizing the temperature during the conversion processes by large energy inputs, removing impurities from the products in order to meet the standards necessary for use (post-processing), and managing toxins present in solid and liquid residues." No final air permit can be issued without a full characterization of actual emissions, perhaps by gathering actual information from the few similar facilities that have operating air emissions data.*

DAQ RESPONSE

TMES did not propose a chemical recycling facility. The issues raised in the cited article related to a chemical recycling facility's ability to separate desirable products/feedstocks from the gasifying plastic materials are not applicable to this application.

(Comment 11)*The site location and description in the DRAFT air permit does not include necessary Environmental Justice considerations for a region with a history of industrial pollution, resource extraction and with low-income and poor public health indicators. It is important to determine if the region is already overburdened before allowing additional toxic pollution to be permitted.*

DAQ RESPONSE

Environmental Justice is not a permitting requirement under WV Legislative 45CSR13 (Rule 13). Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

This commenter did not identify what action or lack of action taken by the DAQ that resulted in unfair treatment or limited the public's right to provide meaningful comments/remarks before making a final decision on TMES application.

In addition, the DAQ specifically asked the two commenters their preference on the type of public meeting to be held (in-person or virtual) prior to making a final decision on what type of public meeting to hold.

(Comment 12)*Conducting an analysis of the waste stream to determine if it is hazardous only once per year is inadequate for input material that can vary considerably along with processing parameters such as temperature. Reference "4.2.7. The permittee shall conduct a hazardous determination per 40 CFR 262.11 of the streams leaving the gasifier process (e.g., ash, char, wastewater), to include re-injected adsorbent, at least once every 12 months. Should a determination yield that any stream is hazardous, the permittee shall notify the Director within 10 days of the determination in accordance with Condition 3.5.3. of this permit. Records of each determination shall be maintained in accordance with Condition 3.4.1. of this permit."*

DAQ RESPONSE

It is TMES responsibility to ensure that the waste streams exiting the process are being properly disposed of and the organization accepting and/or treating the waste. The Division of Water and Waste Management of the WVDEP requires the Charleston Area Medical Center to conduct a hazardous determination of the ash from the HMIWI unit at the General Hospital once per year. The DAQ believe this is a reasonable requirement and incorporated this requirement into the DRAFT permit for TMES.

This does not mean that the DAQ suspects or believes that the ash would be hazardous as defined 40CFR262.11.

The commenter did not provide any information to suggest that the ash could be hazardous which would justify an increase in the frequency of conducting these hazardous determinations.

(Comment 13)*Please enter into the record that Brightmark is a Plastic to Fuel (PTF) facility with failures that have affected the community's air quality due to a fire and uncontrolled flaring: "'There's just basically a jet fire coming out, so I run as fast as I can screaming for my operator up in the control room to shut the pump off, open everything to the (emergency) flare so we can release dangerous vapor safely and prevent the build-up of pressure....An earlier fire in July 2020 threatened the lives of at least three plant workers, according to Kistler and his former supervisor, Roy Bisnett. And an oil spill at the plant in August 2022 took weeks to clean up, public records show.'" https://insideclimatenews.org/news/16062023/indiana-advanced-plastics-recycling-vapors-spills-fires/. So many problems have occurred at the Indiana facility that the company has cancelled plans to build another facility in Macon-Bibb county, GA: https://wgxa.tv/news/local/it-draws-a-red-flag-mayor-millers-explains-his-reasoning-for-pulling-out-of-brightmark*

Since this has already happened, it is important that the air permit contains provisions that will require the capture and measurement of actual toxic releases from flaring events.

DAQ RESPONSE

Malfunctions or equipment failures are not covered by the permit issued under Rule 13 and would be investigated as violations. TMES proposed a by-pass vent in the application. In this permit, TMES is not allowed to release vapors or open the by-pass vent (See Condition 4.1.2.j.).

(Comment 14) *Continuous particulate matter monitoring is required for these facilities, inside and at fenceline, for the production of microplastics and harmful dust: "Another former worker complaining of clouds of plastic dust has sued the company in federal court, claiming lung damage."* ***https://insideclimatenews.org/news/16062023/indiana-advanced-plastics-recycling-vapors-spills-fires/***

DAQ RESPONSE

Just because a court orders continuous emission monitoring does not mean it is applicable to all similar sources. TMES proposed, which has been incorporated into the DRAFT permit, a continuous bag leak detection system (BLDS), which has been incorporated into Subpart Ec as an acceptable means for continously monitoring the operation of fabric filter baghouses for HMIWI units.

The Brightmark facility that the commenter mentioned is engaged in sorting and processing 13,230 pounds of plastic material per hour, which is nearly 8 times more than what TMES has proposed in processing medical waste. Also, TMES did not propose to sort the received medical waste at the West Virginia Plant. The Brightmark facility is also permitted to operate two fluidized bed dryers and a pelletizer at the Indiana facility. TMES will not have this equipment.

The DAQ would not characterize or consider that TMES and the Brightmark facilities as similar facilities or processes, which was implied by the commenter. Brightmark's process is to convert plastic materials into acceptable feedstocks for refineries. The scale and type of process equipment at the Brightmark Indiana facility is vastly different from TMES.

The DAQ is not aware of any fence line monitors for PM for regulatory purposes and looked into the reference article. The reference article by the commenter only noted that the lawsuit claimed poor indoor air quality at the Brightmark facility and did not specifically note what monitoring was being

required as a result of the lawsuit against Brightmark. In WV, the DAQ does not have the authority to regulate indoor air quality.

Also, the sources of fugitive PM from the TMES process (excluding haul roads) are to be located within the main building. Without any other information, the DAQ must conclude the monitoring requirements of fugitive sources outlined in Subpart Ec is adequate for TMES proposed facility.

Comments Received During the Extended Public Comment Period.

After June 26, 2023, the DAQ received over 250 letters submitted via e-mail. Sixteen were submitted after the close of the comment on July 27, 2023. Of these comments, all but the following are considered fully responded to in the General Response to Comments section.

(Comment 15) *According to the air dispersion modeling report posted on the DEP website (Application page 603 on ApplicationXtender, submitted Dec. 14, 2022), the air modeling uses weather data from the Parkersburg, WV Airport. That site seems highly inappropriate as it is a hilltop location, whereas the TMES site is in a valley. The TMES smokestack is listed (Table 1) as 60 feet tall, but surrounding ridges are well over 100 feet above the facility. We disagree with the conclusion in the Engineering Evaluation (page 14) that the TMES evaluation of control technologies and dispersion modeling was "sufficient" with respect to siting requirements.* ***WV-DAQ must require at least one year of on-site meteorological data for dispersion modeling before considering a permit.***

DAQ RESPONSE

TMES provided an assessment (compression) between the Parkersburg Mid-Ohio Valley Airport and the proposed site, which was used to justify the use of the meteorological data collected at the Parkersburg Mid-Ohio Valley Airport.

TMES used the Adj_U* option when processing the meteorological data for this dispersion modeling demonstration. ADJ_U* is now a regulatory option in the AERMOD modeling system that adjusts the surface friction velocity parameter in the surface file (*.sfc) to improve model performance for sources that have peak concentrations under low wind, stable atmospheric conditions.

(Comment 16) *West Virginia frequently experiences temperature inversions which trap pollutants close to the ground. That is especially true in valleys such as occur at the TMES site. Under those conditions, wind speed drops to zero for extended periods, and negligible pollutant dispersion occurs.* ***WV-DAQ must***

require air dispersion modeling protocols that account for extended periods of zero wind speed.

DAQ RESPONSE

Appendix W of 40CFR51 states "Treatment of calm or light and variable wind poses a special problem in modeling applications since steady-state Gaussian plume models assume that concentration is inversely proportional to wind speed, depending on model formulations. Procedures have been developed to prevent the occurrence of overly conservative concentration estimates during periods of calms. These procedures acknowledge that a steady-state Gaussian plume model does not apply during calm conditions, and that our knowledge of wind patterns and plume behavior during these conditions does not, at present, permit the development of a better technique. Therefore, the procedures disregard hours that are identified as calm. The hour is treated as missing and a convention for handling missing hours is recommended. With the advent of the AERMINUTE processor, when processing NWS ASOS data, the inclusion of hourly averaged winds from AERMINUTE will, in some instances, dramatically reduce the number of calm and missing hours, especially when the ASOS wind are derived from a sonic anemometer. To alleviate concerns about these issues, especially those introduced with AERMINUTE, the EPA implemented a wind speed threshold in AERMET for use with ASOS derived winds. Winds below the threshold will be treated as calms."

The submitted modeling is appropriate and meets the rule requirements.

(Comment 17)*The BACT Analysis refers to a "BACT Mythology" on the title page. While that appears to be a typo and apparently should refer to BACT Methodology, inadequate proofreading on the title page does not convey confidence that more substantive errors occur. Indeed, other examples of typographical errors occur throughout the BACT Analysis report, in some cases, to the point that the meaning is unintelligible. Before issuing a permit, WV-DAQ should independently and carefully evaluate the BACT analysis and should not accept this analysis as valid without such an independent review.*

DAQ RESPONSE

The requirement for this applicant to justify the selection of the proposed control devices comes from the Siting Requirements of Subpart Ec of 40CFR60. The intent of this requirement is to ensure that sources consider and evaluate alternative control devices to reduce or minimize the emissions of the nine pollutants regulated under Subpart Ec from HMIWI units.

The applicant proposed to use the top-down approach from the major source permitting program, which is referred to as a BACT analysis. The DAQ agreed to this methodology.

In the permitting record, the DAQ requested either changes or revisions to the applicant's BACT analysis on numerous occasions to address issues or the DAQ's concerns with the BACT analysis.

The DAQ did review and concur with the outcome of the applicant's BACT analysis. Two other separate permitting authorities made nearly the same decisions for two similarly configured HMIWI units using a gasification technology to convert medical waste into a synthetic gas using the same control technologies to control the emissions of the nine pollutants to concentrations less than the emissions standards for new large HMIWI.

The commenter did not identify any overlooked control technologies or incorrect justifications in ruling a technology was not feasible.

(Comment 18) *The BACT Analysis does not consider process changes, but no rationale is offered for rejecting process changes. Analyses of cost and pollution control efficacy may identify cost-effective alternatives to the proposed gasification process. That is especially true for Hazardous Air Pollutants such as heavy metals and dioxins.* ***Since gasification of medical waste is novel and therefore uncommon, and since medical waste is a highly heterogenous fuel, an evaluation of alternative processes must be required.***

DAQ RESPONSE

The DAQ disagrees with the commenter. TMES did not propose a typical incinerator where medical waste is reduced in an oxidizing atmosphere once the waste is introduced (charged) into the furnace of the incinerator.

TMES proposed an alternative to process and treat medical waste through the use of a gasification process. The solid medical waste is converted into a synthetic gas in an oxygen limited atmosphere. By reducing the solid waste to a synthetic gas first, the amount of oxygen or exhaust flow exiting the unit/process is significantly reduced.

The average actual exhaust flow for Charleston Area Medical Center's HMIWI unit was 6,800 cfm for the three test runs, which was on June 2, 2016. This unit was fed 995.7 pounds per hour of medical waste. In the application, TMES gasifier will exhaust 6,000 cfm at actual conditions with a maximum feed rate of 1,666 pounds per hour.

This difference in exhaust flow should be taken into account when evaluating alternative technologies as alternative process/process improvements to satisfy the siting requirements of 40CFR60.54.c.

Subpart Ec establishes emission standards on a concentration basis. Therefore, a reduced exhaust flow rate from the process can be related to reduced emissions.

(Comment 19) *The BACT Analysis concludes that Selective Non-Catalytic Reduction for NOx was technically feasible, but not cost-effective. However, the report identifies a cost of only $7,246 per ton, which seems to be in the range of cost-effectiveness for such a facility. Given that the gasification process is relatively novel and that the estimates of NOx emissions are highly uncertain, the use of "Good Combustion Practices" alone does not seem to be adequate.* ***WV-DAQ should require SNCR for NOx control in this permit.***

DAQ RESPONSE

The DAQ disagrees with the commenter for this particular application. TMES's gasifier is converting the solid medical waste into a synthetic gas prior to combusting the synthetic gas in the firetube. Comparing wood fired and gas-fired boiler NO_x emissions, there is nearly a 60% reduction in potential emissions due to firing natural gas without applying combustion controls such as low-NOx burners and/or flue gas recirculation. TMES applied an 80% control efficiency for their process and the use of good combustion controls, which the DAQ believes is appropriate for the proposed process with respect to using the uncontrolled emission factor for medical waste incineration.

In a conventional solid medical waste incinerator, the incinerator is reducing the solid waste through the use of an oxidizing atmosphere, which requires an excessive amount of excess combustion air. Thus generating a significant amount of NO_x emissions. The proposed gasifier with a fire tube should not require an excessive amount of excess combustion air for combustion of the synthetic gas. Therefore, the excess amount of thermal NO_x will not be generated.

The DAQ's Engineering Evaluation noted two other similar gasifier units permitted in the U.S. Both of these units used combustion controls to minimize the formation of NO_x like TMES has proposed. Aemerge Redpak conducted emission testing on September 19-21 and October 1, 2018, which yielded a NO_x emission average concentration rate of 81.6 ppmvd.

On May 20, 2020, EPA Region 6 issued Monarch Waste Technologies a Title V Operating Permit for the Pyromed 550 HMIWI unit, which did not require the use of SNCR to achieve compliance with the NOx standard of Subpart Ec

of 140 ppmvd. The average NOx emissions during the unit's initial performance testing (IPT) was 60.1 ppmvd.

The commenter did not provide any additional information to suggest that the use of combustion controls for a gasifier unit classified as HMIWI would not be capable of achieving the NOx standard under Subpart Ec.

(Comment 20) *The BACT Analysis concludes that Co-oxidation Catalysis and a Thermal Oxidizer are not cost-effective for VOCs, however, no cost analysis was provided.* ***WV-DAQ should require a more complete BACT analysis before ruling out these technologies.***

DAQ RESPONSE

VOC is not a pollutant regulated under Subpart Ec. Thus, the siting requirements of Subpart Ec does not apply to emissions of VOCs from HMIWI. Therefore, TMES is not required to evaluate alternative controls for VOC emissions with respect to their proposed gasifier unit.

(Comment 21) *The BACT Analysis concluded that the Dry FGD scrubber was BACT for this site, in part because "water is a precious commodity for this particular site". That makes little sense as the site is less than 0.3 mile from the Ohio River, and several other facilities operate nearby. While the CFB Dry FGD proposed by TMES projects a control efficiency of 98 %,* ***WV-DAQ should require a more complete BACT Analysis***

DAQ RESPONSE

The applicant notes several reasons why the dry sorbent injection system was selected over a wet scrubber system. Both systems can provide nearly the same removal efficiency in low sulfur concentrated exhaust streams. Beside the water and wastewater treatment requirements, TMES noted that a wet scrubber would generate H_2SO_4 emissions (other environmental impacts) and required additional electricity to operate the necessary circulation pumps for the wet scrubber.

There are other requirements which TMES did not identify that would need to be considered as well in selecting a wet scrubber such as the energy required to pump the water to the facility and equipment needed to treat the river water prior to utilization.

DAQ concurs with TMES selection of the dry sorbent injection control technology for controlling SO_2 and HCl emissions from the proposed gasifier.

(Comment 22) *The BACT Analysis for greenhouse gasses rejects Carbon Capture and Sequestration, and concludes that energy efficiency measures are the only*

feasible option. We note that the application claims the energy produced is "renewable" however most comes from various plastics and other materials derived from fossil fuels, and is therefore not "renewable" energy. The potential for greenhouse gas offsets (tree planting and similar practices) or use of renewable energy sources was not discussed. The DRAFT permit does not include any requirements for such efficiency measures, and merely requires monitoring for select greenhouse gasses. ***We recommend that GHG limits be included, and that requirements for energy efficiency practices be required. We also recommend that greenhouse gas offsets be required.***

DAQ RESPONSE

None of the six greenhouse gasses are a pollutant regulated under Subpart Ec. Thus, the siting requirements of Subpart Ec does not apply to emissions of GHGs . TMES is not required to evaluate alternative controls for GHG emissions with respect to their proposed gasifier unit.

(Comment 23) *Section 4.1.1.a. specifies wastes that shall not be accepted, however, there do not appear to be adequate monitoring protocols to enforce those provisions. How will WV-DAQ or TMES assure that radioactive waste or Prion infected wastes are not included? As written, these provisions are unenforceable.* ***The permit should include monitoring requirements prior to a shipment reaching the unloading dock, enforceable provisions to require that loads be rejected and returned to their source, and reporting requirements to document each instance where this occurs.***

DAQ RESPONSE

It is TMES responsibility to comply with Condition 4.1.1.a. by identifying these measures in the waste management plan as required in Condition 4.1.9.

(Comment 24) *Dioxins. Section 4.1.3.a. viii establishes an emissions limit for dioxins of 9.3 ng/cubic meter. That limit appears to be based on levels allowed for waste incinerators, but a gasifier should have much lower emissions. The analysis submitted by the applicant (Report to Nathaniel Energy Corporation) showed levels of 0.0046 to 0.0123 ng/cubic meter. The European Union established limits for incineration of 0.1 ng/cubic meter (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019D2010&from=EN). It is not clear why such high dioxin levels are permitted for TMES.* ***We recommend that the permit be revised to lower the allowable dioxin levels to 0.1 ng/cubic meter and lower if lower limits are feasible.***

DAQ RESPONSE

The EU standard for PCDD/F is a range of 0.01 to 0.04 ng 1-TEQ/Nm^3. Subpart Ec has established a toxic equivalent standard for dioxin and furan of

0.035 ng/Nm^3 TEQ. The Subpart Ec TEQ standard was overlooked and will be incorporated into the permit. The dioxins/furans standard on TEQ basis is within the range established by the EU.

The report that was referenced by the commenter was a gasifier processing refuse derived fuel (RDF).

(Comment 25) *Visible emissions. Permit condition 4.1.3.b states that "The permittee shall cause to be discharged into the atmosphere visible emissions of combustion ash or char from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period ..."(emphasis added). This does not appear to limit emissions, and appears to mandate excessive emissions. Is this a typographical error? It appears to contradict the preceding provision (4.1.3.a.xiv.) that visible emissions shall not exceed 6 % opacity.* ***The sentence must be clarified to require limits to emissions and that they be reduced to the maximum extent feasible.***

DAQ RESPONSE

See DAQ RESPONSE to Comment 4.

(Comment 26) *Section 4.2.4. Typographical. Should the word "in" be inserted after the words "free carbon is" in the first sentence?*

DAQ RESPONSE

Yes. The condition will be revised as suggested.

(Comment 27) *The application indicates that bottom residuals (ash) would be washed out and solids sent to an approved disposal facility. It is not clear how that would work.* ***We recommend that language be added to make the air permit conditional on obtaining an NPDES permit, and approval of a Ground Water Protection Plan, as appropriate.***

DAQ RESPONSE

These suggested requirements are programs covered under Division of Water and Waste Manager. The DAQ has no authority or jurisdiction over these programs.

(Comment 28) *We also recommend that language be added to make the air permit conditional on approval of a permit from the WV Dept. of Health and Human Resources as a Commercial Infectious Medical Waste Facility.*

DAQ RESPONSE

The DAQ has no authority to require TMES to obtain a permit or any other approval from the Department of Health and Human Resources or any other government agency whose rules and regulations were not developed and promulgated either under the APCA or CAA.

(Comment 29) *Finally, the disposal of the incineration/gasification solid waste has the potential to contain significant amounts of heavy metals, products of incomplete combustion (organic and inorganic) and other hazardous materials. While the TCLP test has been commonly used, it is insufficient.* ***We recommend adding language making the permit conditional on residuals meeting criteria for methods such as EPA Methods 1311, 1312, and 1320, and, if needed, the appropriate Hazardous Waste permitting.***

DAQ RESPONSE

The permit requires TMES to conduct a hazardous determination of all streams exiting the process per 40CFR§262.11 in Condition 4.2.7. It is TMES responsibility to make this determination of the streams exiting the process in accordance with methods and procedures outlined in 40CFR§262.11 regardless of this condition.

(Comment 30) *Will the records and monitoring data related to the emergency generator be publicly available, and how frequently will the WVDEP conduct audits to ensure compliance with record-keeping requirements?*

The generator is allowed to operate up to 100 hours annually for non-emergency purposes. However, what checks are in place to ensure that these operation limits are strictly adhered to?

DAQ RESPONSE

Monitoring data information on emergency generators is not reported to the agency on any set frequency. These records are reviewed by the agency during routine compliance inspection of the facility. For the TMES West Virginia Plant, the routine compliance inspection will be at least once every two years since this facility is required to obtain a Title V Operating Permit.

The actual hours of operation may or may not be noted in the DAQ's inspection report. Nevertheless, TMES will be required to certify compliance with all applicable emission standards and limitations twice a year in their semi-annual and annual compliance reports, which are required under the Title V Operating Permit Program.

The permit requires TMES to install and maintain a non-resettable hour meter on the generator and record the purpose of the operation of the emergency generator.

(Comment 31) *How will the WVDEP monitor Thunder Mountain's emissions of non-criteria regulated pollutants, including known or potential carcinogens, to ensure compliance with standards? Will there be ongoing health risk assessments for the surrounding communities?*

DAQ RESPONSE

The permit requires a combination of compliance testing/monitoring operating parameters/continuous emission monitoring systems. During the compliance testing, the operating parameters will be monitored and recorded. The operating parameter data during the compliance testing that demonstrated compliance with the standard/limit will be used to establish operating parameters limits. Subpart Ec outlines specific procedures for how these operating parameters will be established, which were incorporated into the permit in Condition 4.1.4.

(Comment 32) *It appears that Thunder Mountain did not propose specifics for deploying combustion controls or what combustion-related parameters would be monitored. Why is there no specific proposal for these critical points? Shouldn't the permit require Thunder Mountain to provide a detailed plan for these controls?*

DAQ RESPONSE

TMES proposed to install a continuous CO monitor as allowed under Subpart Ec. The DAQ believed additional monitoring was required for TMES proposed gasifier and opted to require direct and continuous monitoring of NO_x emissions in lieu of other parameters.

(Comment 33) *Is the proposed temperature monitoring and regulation sufficient to minimize the formation of dioxins and furans, considering their high toxicity within the temperature range of the proposed operation?*

DAQ RESPONSE

The formation of dioxins and furans needs chlorine, oxygen, and formation temperature. Because medical waste will contain some amount of plastic, chlorine or chlorinated compounds will be present in the synthetic gas. Gasifiers require a reducing agent to be injected into the gasifier to improve the efficiency of the unit in reducing the solid medical waste into a synthetic gas. TMES proposes to use air, which contains oxygen, to aid in the gasification process. Thus, the DAQ is requiring TMES to monitor the oxygen content in the gasifier.

Temperature is another important factor in the formation of dioxins and furans. The temperatures in the gasifier will be within that range that formation of dioxins and furans can occur at, which is 600-1200ºC. Thus, the permit will require TMES to monitor the gasifier operating temperature.

To minimize the formation of dioxins and furans, one needs to minimize the duration at which the temperature of the exhaust is within the formation temperature range. The boiler should cool the exhaust of combusted synthetic gas below the formation temperature range. Thus, the permit will require monitoring the temperature of the exhaust at the exit of the boiler.

Subpart Ec relies on the dioxins and furans testing and establishing operating parameter limits of the injection rate of activated carbon for demonstration of on-going compliance with the dioxins and furans standard. Monitoring of these parameters should aid in optimizing the gasifier to minimize the formation of dioxins and furans and also provide an indication that another dioxins and furans demonstration is warranted.

(Comment 34) *How was the annual heat input limit of 48 MMBtu per year from natural gas determined for the gasifier's startup events? Is this limit adequately protective of the environ*ment?

DAQ RESPONSE

The applicant is required to measure gas flow (gas usage) and either obtain heating value from their gas supplier, determine the heating value of their natural gas, or use default values. The heating value of natural gas varies from 1,000 Btu/ft to 1,150 Btu/ft. The heating value of 1,150 Btu/ft is a hard limit set by natural gas transmission pipeline operators in their tariff filed with the Federal Energy Regulatory Commission (FERC).

(Comment 35) *The evaluation briefly touches upon the toxicity of various pollutants, several of which are known or potential carcinogens. How will the WVDEP monitor*

Thunder Mountain's emissions of these pollutants to ensure compliance with the standards, and will there be an ongoing health risk assessment for the surrounding communities?

DAQ RESPONSE

Subpart Ec of 40CFR60 establishes emission standards for nine pollutants, which includes cadmium, lead, mercury, and dioxins and furans, from new medical waste incinerators. TMES proposed gasifier is subject to this federal regulation. Also, this regulation requires compliance testing, which is also used to establish operating parameter limits.

Section 129 (a) (5) of the CAA requires the EPA Administrator to evaluate the and revise the performance standards and other requirements promulgated to a category of solid waste incineration units at 5 year intervals, which includes HHIWI units. This required review applies to the new source performance standards (i.e. Subpart Ec) as well as the emission guidelines (EGs).

(Comment 36) *What is the proposed sorting or verification process for ensuring RCRA materials are not included at the feedstock source location?*

DAQ RESPONSE

TMES is required to develop and implement a waste management plan, which includes practices for preventing RCRA materials from being introduced into the gasifier. TMES will have to work with its clients, which are classified as the generators under RCRA.

The DAQ might be limited in enforcing the waste management plan requirements, which will entail routine inspections of the facility, review of the waste management plan, and discussions with TMES about how they are implementing the plan.

However, the Environmental Enforcement - Hazardous Waste Section of the DEP has jurisdiction over generators and processors of RCRA classified waste, which includes a focus on ensuring any materials classified as hazardous waste is properly treated by a facility that has a hazardous waste permit. If the material originated/generated out of state, the same RCRA requirements apply to that out of state generator, the hazardous waste must be manifested and shipped to a facility that is properly permitted to accept such waste.

There are similar state/local regulators that inspect generators of hazardous waste that are enforcing the same RCRA provisions throughout the country.

(Comment 37) *Is there a detailed description of how the wastewater from cleaning the equipment will be treated and/or disposed of?*

DAQ RESPONSE

The DAQ has no authority to regulate wastewater treatment.

(Comment 38) *Continuous Emission Monitoring Systems can provide real-time data about the quantity and types of pollutants being released from the plant. This data can be used to respond rapidly to exceedances and to fine-tune the operation of the gasification process and its emission controls.*

Frequent and Transparent Communication should be held with the local community about the facility's operations, including any incidents or breaches. This simple act can build trust and allow residents to make informed decisions about their health. This could include community meetings, newsletters, or a dedicated website.

A robust, well-communicated emergency response plan should be implemented to protect both the facility and the surrounding community in the event of an accident. This plan should be developed in cooperation with local emergency services and should be communicated to the local community.

It would be crucial to ensure that the impacts of the plant do not disproportionately fall on disadvantaged or minority communities. An environmental justice analysis should be conducted, and if necessary, additional measures should be implemented to protect these communities.

Noise can also be a form of pollution. Effective noise control measures should be in place to prevent disturbance to the local community.

Before fully operationalizing the project, consider running pilot-scale studies to test and optimize the safety features, emissions controls, and operational procedures.

DAQ RESPONSE

The DRAFT permit requires TMES to install and operate a continuous emission monitoring system for the purpose of measuring actual air emissions from the gasifier on a real-time basis.

The rules and regulations for the use of CEMS require data to be reported either semi-annual or quarterly. Before submitting this data, the facility must

validate this data prior to submitting it for compliance purposes, which takes time.

The DAQ will set the reporting of the CEM data for the first three years to be reported quarterly and thereafter semi-annual. Deviations of the emission exceedances based on CEMs data; exceedances of the operating parameter limits; and control device malfunctions will be required to be reported within 24 hours.

Emergency Response planning is not under the jurisdiction of the DAQ.

Environmental Justice analysis only identifies areas of potential communities that might be at a disadvantage to participate in the permit process. Environmental Justice analysis does not provide any additional protection than is required for all other areas (e.g., the same degree of protection from environmental and health hazards is applied to all areas). Under our permit program, the public is notified twice (at submission of an application and at the end of the DAQ review of the application) in their local newspaper for every construction/modification application before any final decision is made. A public meeting was held and the public was given nearly 30 additional days to provide comment on the application and DRAFT permit.

Noise is not the jurisdiction of the DAQ.

Requiring pilot studies be conducted or other demonstrations is not a reasonable requirement. As noted in the evaluation, there have been two other similar facilities constructed and operated in the United States. Both of these facilities were issued permits by their respective agencies without requirements to conduct pilot studies prior to commencing initial startup of the respective units.

(Comment 39) *I am very concerned with the potential for medical waste materials being delivered and incinerated at the plant that do not meet the limitation requirements of the permit due to those evaluations occurring at the facilities generating the medical waste. This becomes a greater concern because of the less than robust WVDEP inspection process for these type facilities.*

It is my understanding that this may be the only operation of this type (receiving medical waste from a multitude of locations for incineration) to be constructed and operated in WV. For that reason, I would like to see the permit have requirements that include a more rigorous inspection process by WVDEP rather than just once every 2 years and a review of air quality reports weekly for the 1st year of operations rather than once every 6 months. Also, to include monitoring systems that record every 60 seconds that have

automatic shut down in the event of excursions. (including a monitor on any bypass vents). Further, there should be a limitation on the tonnage of medical waste the facility receives for the first years after the plant is operating, in order to evaluate the operations ability to process these materials without causing pollution problems.

DAQ RESPONSE

The DAQ follows EPA's inspection guidelines which are based on whether a facility is a major source of air pollution/synthetic minor source or minor/area source of air pollution.

Requiring TMES to submit weekly reporting of emissions or other parameters for compliance purposes is not reasonable. The DRAFT permit requires TMES to submit monthly reports of operating parameters and identify any exceedance of the specific requirements in Section 4.0 of the permit.

The permit requires TMES to use a continuous emission monitoring system to measure concentrations of four of the criteria pollutants and 19 hazardous air pollutants. The collected emission data must be validated and certified to be accurate by TMES prior to being submitted to the DAQ, which takes a considerable amount of time.

Subpart Ec requires compliance reports to be submitted on six (6) months periods (semi-annually). Under 40CFR§60.7(c), the EPA Administrator can require more frequent reporting. For the Monarch Waste Technologies Title V Permit in New Mexico, which is another similar gasifier unit processing medical waste, the EPA required quarterly reporting for the first two years of the effective date of their Title V Permit. Quarterly Reporting is reasonable and the permit was changed to require reporting on a quarterly basis for the first two years after the effective date of their Title V permit.

The DRAFT permit contains requirements for the permittee to continuously monitor the position or status of the bypass vent, which was incorporated from the Monitoring Requirements Section of Subpart Ec. The requirement requires the date, time and duration that the bypass stack (vent) was used. Use of the bypass vent will be considered a violation.

EPA has established performance specifications for continuous emission monitor systems that are to be used for compliance purposes, which specify the minimum cycle time for the type of instrument being employed. Requiring a specific cycle time in the permit may interfere or conflict with the EPA's performance specifications.

To address concerns of lack of reporting, the permit will require an initial notification to the DAQ of exceedance or deviation within 24 hours of the exceedance or deviation. All such records are public and are posted on the DAQ AX database.

(Comment 40)*The hours of operation/incineration should be limited to daylight hours – NO AFTER DARK EMISSIONS.*

DAQ RESPONSE

The process needs a steady flow of medical waste in maintaining the process. Shutdown and restarting on a daily basis will result in equipment failures and/or degradation of equipment which may result in excess emissions.

The permit, as well as Subpart Ec, requires continuous monitoring of the emissions and process/controls operating parameters. These monitoring requirements do not allow the permittee to turn these monitoring systems off at night. These systems must continue to be operated at all times.

(Comment 41) *Facility should be required to have a back-up emergency generator capable of running the plant at full capacity.*

DAQ RESPONSE

The agency does not permit malfunctions or require applicants to develop a plan of action for every situation. It is the permittee's responsibility to evaluate the necessity and size of equipment at their facility to ensure a safe operating manner at all times. Depending on the permittee's evaluation and selection of equipment, the additional equipment may require an air permit.

TMES did propose an emergency generator to provide electric power in the event of an interruption of electrical service to the facility, which is covered under the permit. According to the application, TMES plans on using this generator to provide electric power to shutdown the gasifier in a safe manner if electric service is interrupted.

(Comment 42) *If WVDEP Division of Air Quality proceeds with this permit, I strongly urge DEP to conduct further community engagement around this proposed facility, reduce permitted dioxin emissions and enforce aggressive greenhouse gas limits. Ongoing health, soil, and water monitoring must be required to ensure health impacts from emissions are minimized. The health of Ohio Valley residents is worth protecting.*

DAQ RESPONSE

The DAQ has no authority to require health, soil, and water monitoring on TMES.

(Comment 43) *There was no adequate process flowsheet accessible for this project. The by-pass feature is a risk to the environment. This needs to be removed or equipped with a natural gas fired flare.*

DAQ RESPONSE

The applicant provided a process flow diagram which indicated that the by-pass vent from the boiler was going to the atmosphere. These diagrams are contained in the application file.

Subpart Ec clearly notes that opening the by-pass is an emission exceedance.

The use of a flare would not necessarily eliminate all risk to the environment or allow TMES the ability to comply with the emission standards. The reason for the by-pass vent is to avoid conditions that might damage or cause a fire in the downstream control devices.

(Comment 44) *Please decompose the Application Document and designate one component (separate document) as The Application Document. Then, the other supporting documents or separate appendices will be supplements. Please forward these ASAP to the participants and any others that may be considered party this matter.*

DAQ RESPONSE

The DAQ has made the application and all other documents related to this application available on our webpage under popular searches and in ApplicationXtender at https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx

In the application and IPR files, the applicant provided the process flow diagrams of the proposed process.

At the https://dep.wv.gov/daq/permitting/Pages/NSR-Permit-Applications.aspx the IPR file was posted into three sections.

(Comment 45) *The public literature on the Vista gasification process indicates a necessary shutdown every 3 to 6 months for a maintenance turnaround. Such activities*

need to be made public so residents will be aware when the process is in start up and transient modes! Residents will be able to stay indoors or go on vacation at those times.

DAQ RESPONSE

The commenter did not identify the relationship of the necessity to shutdown and transient modes with regards to how these activities or actions affect the air quality that pertains to the proposed facility.

(Comment 46) *Leaks need to be corrected in 24:hours or less. Additional justification for the above requests is the unusually complex if not complicated nature of the process, of the control system and of the DRAFT Air Quality Permit itself. Most commentors noted this as well the complex data stream that will result. Generally, it was noted that the DRAFT Permit is far too lenient in its time periods and deadlines, given the toxic substances that can escape to the local environment. Providing the operators 15 days to fix any specific leak, is just one example.*

DAQ RESPONSE

The proposed facility will have a very minimal amount of process equipment and piping. Most of the equipment will not be in VOC service or being in contact with a liquid or gas that contains VOCs greater than 10% by volume. Therefore, the DAQ believes that the requirement to repair leaks within 15 days is reasonable.

(Comment 47) *And, strict emergency shut procedures established to prevent weeks of transient operation!*

DAQ RESPONSE

The DRAFT permit already required the applicant to develop and implement a written procedure for startup and shutdown operations.

(Comment 48) *Please consider holding a Public Event in Jackson County in mid-September on this Application. The hot months of the vacation season are to be avoided. The local residents there deserve to become informed of this proposed 20 ton per day facility involving unusually noxious materials. Such a Public Meeting was held in Follansbee, WV, regarding a similar size waste incinerator. (Have you estimated the TPD of GHG?)*

DAQ RESPONSE

The DAQ has to schedule and conduct public meetings as needed to meet the timing requirements of Rule 13, which is to make timely decisions on complete applications within 90 days.

Determining the GHG emissions is not a requirement for this proposed facility.

(Comment 49) *From the review of the referenced materials, there is a common theme that points out that there is not enough actual data to enable permit parameters to be determined to be adequately protective of public health. Actual emissions from a similar medical waste incineration facility should be included in a permit review, especially start-up emissions.*

DAQ RESPONSE

The applicant based the uncontrolled emissions from emission factors published by the EPA, which were from measured emissions of uncontrolled medical waste incinerators. Then, the applicant applied an appropriate control efficiency for the selected control devices based on the pollutant being controlled. Startup emissions were presented in the evaluation, which should be noted that medical waste will not be processed or introduced until the unit is properly preheated for the gasification reaction to occur.

(Comment 50) *In a review of emissions from existing medical waste facilities, it was found that both wet and dry scrubbers are required for these facilities: "Based on the data examined, it appears that control of dioxins/furans by wet scrubber systems is, on the average, twice as good as that by dry scrubber/baghouse combinations. However, control of metals by dry scrubber/ baghouse combinations appears to be far superior to that of wet scrubber systems." We were unable to discern from the permitting documents reviewed if both scrubber systems are used, and if not, what additional measurements/controls would be needed (https://www.tandfonline.com/doi/pdf/10.1080/10473289.1992.10467030). It is also stated in this article that furnace temperature needs to be approximately 1700 degrees F to control for dioxin/furan emissions. The permit should outline requirements to ensure that the input material is fully combusted to lower toxic air emissions.*

DAQ RESPONSE

This report was published in 1992, which was just after EPA had promulgated Subparts Ea and Ca of 40CFR60. The data in the reference report is from existing medical waste incinerators in compliance with or trying to comply with the new standards under Subpart Ea and Ca. The 1990 Amendments to the CAA require the EPA to review these emission standards and guidelines and determine if they are fully consistent with the requirements of section 129 of CAA.

The units identified in the report are incinerators with a primary and secondary combustion chambers without heat recovery steam generators. These incinerators would be operated above the dioxins and furans formation temperature. The idea for this is to allow the free chlorine that is released from the plastic material to be converted to HCl.

HCl has a very strong affinity for water and therefore the control device of choice was a wet (water) scrubber, which also controlled PM emissions as well. A wet scrubber using just water will not achieve compliance with the HCl standard in today's EG or Subpart Ec.

One of the problems with this approach in controlling dioxins and furans is that not all of the free chlorine is being reacted into HCl in the secondary combustion chamber. Once the exhaust exits the secondary chamber and the exhaust temperature drops within the temperature range that is needed for formation of dioxins and furans then that free chlorine has the potential to generate dioxins and furans. This cited report indirectly indicates that.

The units noted in the report were most likely located at or next to a hospital which was either in or next to a large population center. EPA must review and revise/update (if necessary) the emission guidelines and emission standards for medical waste incinerators once every five years.

Under today's EG and emission standards, the controls listed in the cited report would not provide sufficient level of control to either meet the EGs or the emission standards. A fabric filter baghouse with either a wet or dry scrubber using one or more absorbent materials with activated carbon injection is needed to meet the stringent emission standards that EPA has established for incinerators operating today.

Fabric filter control technology is ideal for removing large to fine particulate matter from exhaust streams. Also, this applies to metals except for mercury. Mercury is one of the most difficult pollutants to control. The activated carbon

injection with fabric filter baghouse is currently the most effective control technology in removing mercury from exhaust streams.

Because TMES is gasifying the medical waste first, the char or un-gasified material will drop out of the synthetic gas into the water bath before exiting the gasifier. Gaseous fuel or waste streams can easily be mixed and introduced into the actual burner, which allows operators to regulate the amount of air actually necessary for complete combustion. TMES exhaust flow rate is less than a typical incinerator. This allows TMES to be able to use a multi-pass boiler to extract the usable heat from the exhaust. The multi-pass will reduce the exhaust temperature to allow a cyclone to be used downstream of the boiler. This cyclone will remove large particulate matter. TMES has incorporated temperature control features in their design by mixing a slip stream of cleaned exhaust just downstream of the induced DRAFT fan to be injected into the cyclone with the dirt exhaust stream. TMES incorporated this temperature control feature to ensure that the exhaust temperature is at the desired temperature for sorbent to effectively react with the acid gasses in the exhaust. If the exhaust is too hot, the exhaust causes sorbent material to ne sintered once injected in the scrubber, which will hinder the necessary adsorbent reaction with the acid gasses.

A wet scrubber could be used but it would have to be located downstream of the fabric filter baghouse to prevent the fabric filter from being plugged due to the carry over from the wet scrubber. The effectiveness of a wet scrubber is an issue of concern due to maximum temperature limitations of the upstream fabric filter baghouse.

The main advantage of a dry scrubber or dry sorbent injection (DSI) over a wet scrubber other than its operating cost is that a dry scrubber or DSI can be used in conjunction with a fabric filter baghouse.

The report does not really identify the types of scrubber being deployed by these existing incinerators other than wet or dry scrubbers. There are a few venturi scrubbers identified in the list. The DAQ considered venturi scrubbers with regards to controlling filterable PM emissions for medical waste incinerators back then.

A venturi type of scrubber would not provide enough gas to liquid contact ratio for a sorbent material to efficiently react with SO_2 or HCl emissions.

Packbed and wet scrubbers have to get the sorbent material to react with the pollutant (SO_2 and/or HCl) and drop to the bottom of the device before the entrained pollutant exits the scrubber (residence time). Depending on the required residence time for the scrubber, these scrubbers can be quite large.

Another important parameter of scrubber selection is temperature.

EPA has the duty to review and revise the EGs and Subpart Ec as needed to ensure the public and environment is protected from the emissions from medical waste incinerators. Most of the units identified in the report have had to make changes to achieve compliance when EPA has revised the EGs and emission standards in Subpart Ec.

(Comment 51) *No mention of sorting to control for chlorinated plastics and other hazardous materials such as heavy metals was made from the documents reviewed. The permit should include specifications for the examination and sorting of incoming material to ensure a full characterization of the input material for output air pollution control.*

DAQ RESPONSE

Subpart Ec requires a waste management plan be developed. This waste management plan shall identify both the feasibility and the approach to separate certain components of solid waste from the health care waste stream in order to reduce the amount of toxic emissions from incinerated waste. This requirement was incorporated into the DRAFT permit.

TMES is not a generator of medical waste and will provide a service to medical treatment facilities to properly treat and dispose of their generated medical waste. TMES will have to work with these facilities in identifying which of the waste streams needs to be best sorted in an effort to reduce the amount of toxic emissions generated by the gasifier.

Condition 4.1.9. will be revised to require the permittee to identify the procedures and methods to verify the medical waste received has been properly separated in accordance with the waste management plan.

(Comment 52) *Temperature control at baghouse inlet is important for the control of dioxin/furan laden particulate matter discharges.*

DAQ RESPONSE

Condition 4.2.1. of the DRAFT permit requires continuous monitoring of the temperature of the exhaust at the inlet to the fabric filter baghouse.

(Comment 53) *Incineration must be well controlled, so important operating parameters should be included in an air permit such as, "temperature, residence time, and excess oxygen levels, (which) will have a dioxin emission that can be compatible with the limit value.*

https://www.tandfonline.com/doi/epdf/10.1080/10473289.2000.10463989?needAccess=true&role=button. This paper points out the need for atmospheric pollution control systems and a well-designed stack: A well-designed stack is sized to (1) avoid the downflow effects of adjacent buildings, (2) have a mini-mum efflux velocity, and (3) ensure that, under adverse climatic conditions, the computer-modeled dispersed ground-level concentrations of the constituent pollutants are lower than the public health–based guidelines. This paper also points out that actual air emissions must be measured: "In order to install appropriate control equipment, it is essential to implement programs to measure emitted pollutant concentrations. Air quality networks should also be installed to measure the pollutant concentrations in the air breathed," before a final air permit is issued.

DAQ RESPONSE

TMES modeled their proposed facility in accordance with Appendix W of 40CFR51, which required the evaluation of the potential downwash effects due to nearby structures. TMES applied the results of this downwash analysis (BPIP) to the dispersion model, which was used to determine the potential impacts from the facility.

The DRAFT permit has outlined a comprehensive plan to require TMES to measure emissions from the gasifier through continuous emissions monitoring systems (CEMS) and compliance testing.

The cited paper outlines the lack of meaningful regulation of medical waste incinerators in Portugal.

(Comment 54) *In the book cited below, "Waste Incineration and Public Health," please note the two chapters attached. "Off-Normal Operations of Six Facilities," discusses the hazardous emissions related to start-up and shut-down operations and the effects of temperature on dioxin emissions, as well as the correlation with CO emissions to dioxin. For this reason, CO emissions have a strong correlation with dioxin emissions, ("The best prediction model showed that CO, NOx, moisture in the flue gas at the spray dryer inlet, and furnace temperature explained 93% of the variation in uncontrolled dioxin emissions, with CO explaining 79% by itself") and should be set below a well-researched standard continuously in the air permit without averaging. The permit application states, "ii. Carbon monoxide (CO) emissions no greater than 11 ppmdv corrected to 7% oxygen on a 24- hour average basis nor 0.29 pounds per hour on a 24-hour average basis. [40CFR60.52c(a)(2) Table 1B to Subpart Ec of Part 60]."*

DAQ RESPONSE

The DAQ does not understand the commenter's point to the reference book. The DRAFT permit requires continuous emission monitoring of CO and NO_x at all times to include startup and shutdown events. The applicable CO and NO_x concentration limits with the appropriate averaging period for monitoring emissions continuously from Subpart Ec was incorporated into the DRAFT permit. If the emissions and/or operating parameters are not within the stated/established emission limitations or operating parameter limits, then the gasifier is not operating in compliance with the permit. The DAQ does not consider if the exceedance occurred in normal operations or off-normal operations. Any exceedance regardless of the operation of the gasifier will result in action by the DAQ.

(Comment 55) *"Uncertainty and Variability," states: Incinerator risk assessments should include the following components of uncertainty and variability analyses: — An estimate of the variability and uncertainty distributions of all input values and their effect on final estimates. — A sensitivity analysis to assess how model predictions are related to variations in input data. — Variance-propagation models that show how the variability and uncertainty of final results are tied to the uncertainties and variabilities associated with various models, their inputs, and assumptions used throughout the risk assessment."*

How will these variations be addressed in the final permit?

DAQ RESPONSE

Risk assessments are not part of DAQs minor source permitting rule.

(Comment 56) *Incineration permits should include the continuous emission measurements of dioxins/furans because of their extreme toxicity. It is suggested in this paper, https://www.sciencedirect.com/science/article/abs/pii/S0956053X14005285, "Since conventional PCDD/Fs measurement in incinerators is complicated and costly, many researchers are seeking for PCDD/Fs indicators (Pandelova et al., 2006), i.e. to find a simple method to measure PCDD/Fs emissions during incineration process. Therefore, the last part of this paper reviews the possibility of CBz and PAHs and other compounds as PCDD/Fs indicators." It is necessary to develop some measurement of airborne particulates, especially for dioxin/furan emissions and to set limits for these extremely toxic contaminants.*

DAQ RESPONSE

The DAQ is a regulatory agency. The cited paper suggested that there may be possible indicators of dioxins and furans with a focus on the fly ash from incinerators. The paper did not identify any specific compounds or indicators that could be used to correlate to dioxins and furans emissions.

EPA is required to review and revise the requirements of the EGs and Subpart Ec once every 5 years. This review includes monitoring and testing requirements for incinerators as well.

The testing in the DRAFT permit requires measuring polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) as well as dioxins and furans using EPA's reference method 23, which was revised on March 23, 2023.

EPA developed the monitoring of dioxins and furans emissions in Subpart Ec for establishing "operating parameter limits" through initial performance testing with on-going monitoring conducted by continuous monitoring of these operating parameters. TMES is required to demonstrate compliance with the dioxins and furans emission standards using the initial testing and operating parameter limits as outlined in Subpart Ec.

(Comment 57) *Odors and indoor air quality – even though the DEP says it does not regulate this, there must be a mechanism to protect employees and neighbors of this facility with what is projected to be very foul and noxious odors and harmful particulate matter from the input material and processes.*

DAQ RESPONSE

The DAQ has the authority to regulate odors, which it does through our Compliance and Enforcement Section. Stationary sources are not allowed to emit objectionable odors in West Virginia.

However, the DAQ has no authority to regulate indoor air quality. Indoor air quality and actual working conditions would be matters that should be addressed by OSHA.

(Comment 58) *The USEPA is looking at EJ and cumulative pollution problems, so there needs to be consideration of the needed nationwide efforts to do so in state permitting processes. For instance, startup and equipment malfunction issues are also shown to be very detrimental to the environment and public health, and stronger nationwide regulations are needed, which are also being weighed. The DEP should be proactive to add in the necessary regulations*

that will take the USEPA's efforts in these regards into consideration: Unexpected Emission Spikes From Facilities Face EPA's Long Game https://news.bloomberglaw.com/environment-and-energy/unexpected-emission-spikes-from-facilities-face-epas-long-game. The DEP has too much of an allowance for startup and equipment malfunction releases into the air of toxins that can be extremely harmful for this facility, and those allowable discharges need to be reduced to be protective of public health.

DAQ RESPONSE

TMES must meet the requirements of the permit during all times it is in operation, including startup and shutdown.

(Comment 59) "Oregon becomes first state to require continuous emissions monitoring at incinerators". The bill became law without the governor's signature. Covanta previously said the bill threatens the West Coast's last incinerator accepting regulated medical waste.

As WVDEP considers permitting the Thunder Mountain project in Jackson County, it may be useful to obtain a copy of Oregon's SB 488 and any preamble language relating to the Bill's passage (comments, discussion, rationale). One of the Bill's sponsors (Oregon State Senator Deb Patterson) emphasized that " We need to do all we can to be sure that the air we are breathing is safe," she said in a statement following the bill becoming law.

DAQ RESPONSE

The Draft Permit required continuous emissions monitoring for four of the nine pollutants regulated under Subpart Ec. In addition, the Draft Permit required continuous monitoring of several other individual pollutants not regulated under Subpart Ec which are classified as HAPs and VOCs.

Subpart Ec requires TMES to continuously monitor PM either using PM CEMS or a bag leak detector. TMES elected to use a bag leak detector to monitor for PM.

There are technological challenges that need to be addressed in monitoring all of the nine regulated pollutants that Oregon rule does not really address.

RESPONSES TO ORAL COMMENTS

The DAQ conducted a public meeting to allow the public to make oral comments for the record concern TMES application on July 20, 2023. Six individuals made oral comments during this meeting. The following is the DAQ response to these

comments. The following is the DAQ response to these comments that has not been responded to in the above section.

(Comment 60) *A robust, communicated emergency response plan should be developed and implemented to both protect the facility and the surrounding community in the event of an incident. This plan should be developed in cooperation with local emergency services and should be communicated to the local community.*

DAQ RESPONSE

The DAQ has no authority or jurisdiction to require any organization to develop an emergency response plan for their facility.

(Comment 61) *It sounds like apply much discretion, even if the agency does you see a science-based or public health?*

Rationale for some kind of special conditions or protections that's concerning and I know that that's probably more of a legislative conversation but it is in the agency's purview to bring that before the public and legislature when there are maybe ways we need to catch up our rules to meet the moment. So that's it for now. Always appreciate the DEP staff and DAQ staff, or being open, and accessible and providing this information. I do think it's a great idea to do more community outreach and Jackson County and utilize local media, contacts there to help get the word out and be as transparent and open as possible with community members that stand to be most impacted by this type of development.

DAQ RESPONSE

TMES' proposed gasifier is subject to Subpart Ec of 40CFR60. This regulation was promulgated under a unique section of CAA that required that the EPA to review and if necessary revised the regulation once every five years. The Clean Air Act requires that an air quality program be no less stringent than Federal Regulations. The WV State Code of Regulations states that DAQ may not be more stringent than Federal Regulations. In this case there is a specific Federal Regulation that applies.