Response to Public Comments

R30-03700108-2025

ROXUL USA Inc.

RAN Facility

Date: June 5, 2025

Table of Contents

BACKGROUND INFORMATION

The RAN Facility manufactures stone wool insulation (SIC - 3296) for building insulation, customized solutions for industrial applications, acoustic ceilings, and other applications. The processes at the facility with the potential to produce air emissions are as follows: Raw Material Handling Sources; Melting Furnace; Wool Spinning, Curing, Cooling, and Cutting; Binder and De-Dust Oil Application and Storage; Stacking, Packing, and Unit Load; Recycling Plant; Miscellaneous operations and activities including boilers, heaters, a fire pump engine, and fuel storage; and paved haul roads and mobile work areas.

The facility was constructed under Prevention of Significant Deterioration (PSD) permit R14-0037, issued on April 30, 2018. Operations began on May 22, 2021 and the Title V Permit Application was received on May 20, 2022. ROXUL USA Inc. submitted a modification to R14-0037 on October 3, 2022 which was deemed complete on August 8, 2023 and permit R14-0037A was issued on November 16, 2023. The changes made in the permit modification R14-0037A, when taken in aggregate, decreased the facility's potential to emit to less than the major source thresholds as defined in 45CSR14. Therefore, the facility is no longer a major source per 45CSR14. On January 17, 2024, ROXUL USA Inc. submitted an updated Title V application to incorporate the changes permitted under R14-0037A.

The West Virginia Division of Air Quality (WV DAQ) published a Class I legal notice for the Draft/Proposed Title V Permit in the *Spirit of Jefferson Advocate* on May 22, 2024, beginning concurrent Draft and Proposed Title V comment periods. During the public comment period for the Draft/Proposed Title V Permit, a request for a public hearing was received and the request was granted by the Director. Since comments were received during the public comment period, the initial Title V Permit will no longer be reviewed concurrently as a Draft/Proposed Title V Permit and will instead be reviewed sequentially with separate Draft and Proposed comment periods. WV DAQ published a Class I legal notice for the Draft Title V Permit and virtual public hearing in the *Spirit of Jefferson Advocate* on June 19, 2024. The virtual public hearing for the Draft Title V Permit was held on July 23, 2024. The written comment period for the Draft Title V Permit ended on August 2, 2024, ten (10) days after the public hearing.

The issuance of Permit No. R14-0037A was the subject of two appeals to the West Virginia Air Quality Board ("AQB"). ROXUL USA, Inc. ("Rockwool") filed Appeal No. 23-01-AQB and the Jefferson County Foundation, Inc., Karen Freer, Sharon Wilt, and Gavin Perry (collectively, "JCF") filed Appeal No. 23-02-AQB.

Rockwool filed Appeal No. 23-01-AQB on December 11, 2023. JCF participated in the proceedings as an intervenor. Rockwool specifically objected to the inclusion of Condition 4.1.11, requiring all building doors to remain closed except as necessary for people or material to enter the building; requested modification of the $PM_{2.5}$ emission limits for the wet electrostatic precipitator (WESP) in Condition 4.1.5.a from 33.60 tons per year to 50.39 tons per year and from 8 lb/hr to 12 lb/hr; and requested clarification for Condition 4.3.2 that the testing required within 12 months of the issuance of the permit would not apply and that the permittee would follow the testing schedule in Condition 4.3.3.

During the pendency of its appeal, Rockwool moved to stay the application of Condition No. 4.1.11 pending resolution of the appeal. The AQB granted Rockwool's motion as to the 31 doors in Categories 2, 3, and 4 but denied the motion as to all other exterior doors. Rockwool subsequently withdrew its challenge to Condition 4.1.11 as it applied to the eight exterior doors in the charging building; withdrew its challenge to Condition 4.3.2; and requested revision of the HCl limit for the Melting Furnace (IMF01) in Condition 4.1.4(a) which was incorrectly set at 0.62 tons per year due to a typographical error. DAQ agreed to correct the HCl limit contingent on Rockwool's submission of a Class I Administrative Update to Permit No. R14-0037A.

JCF filed Appeal No. 23-02-AQB on December 18, 2023. Rockwool participated in the proceedings as an intervenor. JCF specifically objected to the issuance of Permit No. R14-0037A as a minor new source review (NSR) permit under 45CSR13 and requested that Rockwool be required to reapply for a modified PSD permit under 45CSR14.

On February 7, 2024, the AQB held an evidentiary hearing on Rockwool’s appeal. On August 8, 2024, the AQB issued a final order and granted Rockwool’s appeal of Condition 4.1.11 as it applies to all exterior doors at the facility, except for the 8 Charging Building Doors. Rockwool’s appeal of Condition 4.1.5.a for the $PM_{2.5}$ emission limits for the WESP was denied.

The evidentiary hearing on JCF’s appeal was also held on February 7, 2024 where the AQB granted WV DAQ’s and Rockwool’s request for judgment as a matter of law, thereby allowing the issuance of the modified permit R14-0037A. On August 8, 2024, the AQB issued a final order on the appeal and granted WV DAQ’s and Rockwool’s renewed motions for judgment as a matter of law.

On August 28, 2024, ROXUL USA Inc. submitted a request for a Class I administrative update to R14-0037A to change Condition 4.1.11 based on the AQB’s final order. Included in the Class I administrative update was also a request to modify the HCl emission limit in condition 4.1.4.a from 0.15 lb/hr (0.07 kg/hr) and 0.62 tons per year (0.56 metric tons per year) to 0.29 lb/hr (0.13

kg/hr) and 1.24 tons per year (1.12 metric tons per year). R14-0037B was issued on September 5, 2024 and these changes were included in the Proposed Title V Permit.

OVERVIEW OF COMMENTS RECEIVED

WV DAQ received written comments during the public comment period (May 22, 2024 through August 2, 2024, 72 days total) and oral comments during the July 23, 2024 virtual public hearing. Comments were received by and/or on behalf of the following individuals, groups, and organizations.

- ROXUL USA Inc.
- Various Individuals via the Jefferson County Foundation
- Colin Stine
- Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter
- Ruth Hatcher
- Mary Chatham
- Christine Wimer
- Lynn Delles
- Christine Marshall
- Dennis Hatcher
- Joseph Unger (comments were in support of the permit)
- Nicola Bastian (addressed in the general response to comments section)
- Daniel Lutz (addressed in the general response to comments section)

Pursuant to §45-30-6.8.e, all comments received during the public comment period and during the public hearing have been reviewed and are addressed in this document.

ORGANIZATION OF COMMENT RESPONSE

The WV DAQ's response to comments includes both a general and specific response section. The general response defines issues over which the WV DAQ has authority and by contrast, identifies those issues that are beyond the purview of the WV DAQ. The general response also discusses the role of the Title V permitting process within the larger divisional goal of maintaining air quality in West Virginia. In addition, the general response also describes the statutory basis for the issuance/denial of a permit, DAQ Compliance/Enforcement Procedures,

and details the current status of the ambient air in Jefferson County and how that status is determined.

The specific response summarizes each relevant non-general comment that falls within the purview of the WV DAQ and provides a response to it (if a response is required). This document does not reproduce all the comments here (they are available for review in the R30-03700108-2025 application file accessible on ApplicationXtender at https://documents.dep.wv.gov/AppXtender/. Instead, each comment is summarized and key points are listed. The WV 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. The WV 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.

GENERAL RESPONSE TO COMMENTS

Statutory Authority of the WV DAQ

The statutory authority of the WV 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 45CSR30 - Requirements for Operating Permits (45CSR30 or Title V) and 45CSR13 - Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits,

Permission to Commence Construction, and Procedures for Evaluation (45CSR13 or NSR), does not take into consideration substantive non-air quality issues such as job creation, economic viability of proposed project, strategic energy issues, non-air quality environmental impacts, nuisance issues, etc.

WV DAQ Title V Program

Under the authority of 45CSR30, the WV DAQ issues Title V operating permits to major sources of emissions. A major source for Title V is defined as a facility having potential emissions of one or more criteria pollutants that are 100 tons per year or more; one or more hazardous air pollutants that are 10 tons per year or more; and/or aggregate hazardous air pollutants that are 25 tons per year or more. A Title V facility is required to submit an initial Title V application within 12 months of start-up. Under section 6.2 of 45CSR30 if a source submits a timely and complete application for permit issuance, the source's failure to have a Title V permit is not a violation of 45CSR30 until the Secretary takes final action on the permit action. The Title V application was received in a timely manner and was deemed complete upon receipt, thus granting the facility an application shield which allows them to operate until final action is taken on this Title V permit application.

The Title V program was established in the 1990s to issue operating permits that include all of a facility's applicable air requirements. Section 5.1 of 45CSR30 states that each Title V operating permit issued shall include all applicable requirements that apply to the source at the time of permit issuance. The Draft Title V operating permit for ROXUL USA Inc., Ran Facility which went out for public comment on May 22, 2024 included all the source's applicable air regulatory requirements, specifically, requirements from R14-0037A, state rules, and federal regulations. The Proposed Title V operating permit includes the changes approved under R14-0037B.

The Title V operating permit does not establish new emission or operating limitations. Emission and operating limitations are established through new source review permits, in this case under 45CSR13, state rules, and federal regulations.

WV DAQ Title V Permit Process in Context

It is important to note that the WV DAQ Title V permitting process is but one part of a system that works to meet the intent of the Air Pollution Control Act (APCA) and the Federal Clean Air Act in WV. The WV DAQ maintains a Permitting Section, a Compliance/Enforcement (C/E) Section, an Air Monitoring Section, and a Planning Section to effect this. Most pertinent to the permitting process, the C/E Section regularly inspects permitted sources to determine the

compliance status of the facility including compliance with all testing, monitoring, recordkeeping, 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.

In addition to the monitoring and reporting requirements under the NSR permit, facilities with a Title V operating permit are required to submit monitoring reports to the WV DAQ on a semi-annual basis and compliance certification reports on an annual basis. These reports are uploaded to ApplicationXtender (AX) and are available for review at https://documents.dep.wv.gov/AppXtender/.

WV DAQ Compliance/Enforcement Procedures

When inspecting a facility, the C/E inspectors will, in addition to visually inspecting the facility, generally review 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 the 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 FOIA request (for older documents) or (for new facilities) are available on ApplicationXtender (https://documents.dep.wv.gov/AppXtender/).

Ambient Air Quality Status of Jefferson County

The quality of the air of a defined local area - in this case Jefferson County - is determined by its status with respect to the National Ambient Air Quality Standards (NAAQS). The Clean Air Act, which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set

NAAQS for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called criteria pollutants. They are listed at: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

Counties that are known to be violating these standards are, for specific pollutants, designated by the EPA as in "non-attainment" with the NAAQS. Counties that are not known to be violating these standards are, for specific pollutants, designated by the EPA as in "attainment/unclassifiable" with the NAAQS. It is important to note that while some counties have no air monitoring, EPA will still designate these areas as "attainment/unclassifiable" based on a variety of submitted data. These areas are still properly called "attainment areas." However, this designation is not the same as a designation of just "unclassifiable." As stated on EPA's website: "[i]n some cases, EPA is not able to determine an area's status after evaluating the available information. Those areas are designated "unclassifiable." (https://www.epa.gov/criteria-air-pollutants/naaqs-designations-process)

The ROXUL USA Inc., RAN Facility is located in Jefferson County, WV. Jefferson County is currently designated "attainment" or "attainment/unclassifiable" for all NAAQS.

The DAQ Air Monitoring Section, with ambient air quality sampling sites located throughout West Virginia, monitors air pollutants on either a continuous or periodic basis. The location of air monitors are chosen to provide the most efficient means of assessing the ambient air quality in WV with limited resources and are based on such metrics as a location's population exposure, local emission sources, existing pollutant background levels, and other considerations. There is currently no evidence, based on available data and standard analysis procedures, to indicate that Jefferson County is not in attainment of the NAAQS or that the impacts from the air emissions at the ROXUL USA Inc., RAN Facility would cause or contribute to a violation of the NAAQS.

General Response Conclusion

In conclusion, the APCA and 45CSR30 do not grant the WV DAQ the authority to take into consideration non-air quality issues when evaluating the permit application. Additionally, the issuance of a permit is but one part of the involvement of the WV DAQ with a source. After issuance, the facility will submit semi-annual monitoring reports and annual compliance

certifications, and will receive regular inspections to determine compliance with the requirements as outlined in the Title V operating permit.

SPECIFIC RESPONSES TO COMMENTS

Written Comments - ROXUL USA Inc.

WV DAQ received comments from ROXUL USA Inc. on June 21, 2024, requesting that the final determination for the Title V Permit be put on hold until ROXUL USA Inc.'s appeal of R14-0037A reached a resolution and a final ruling issued by the Air Quality Board (AQB).

WV DAQ Response

The AQB's Memorandums of Understanding and Final Orders for Appeal Nos. 23-01-AQB and 23-02-AQB were issued on August 8, 2024. Class I Administrative Update Application R14-0037B was received on August 28, 2024 and approved on September 5, 2024. This resulted in the correction of the typo for the HCl limit in condition 4.1.4.a that was previously noted in the Draft Title V Permit, a modification of condition 4.1.11 in accordance with the AQB's final order, and the removal of the notes in the Draft Title V Permit indicating which underlying conditions of R14-0037A were under appeal.

Written Comments - Various Individuals via the Jefferson County Foundation

The following written comments were received from various individuals via the Jefferson County Foundation between the dates of July 21, 2024 and August 2, 2024.

1) Lack of Most Current Emissions Information – Rockwool's permit application, the Proposed Permit, and DAQ's Fact Sheet rely on 2022 emissions data without explaining where those figures came from. The Proposed Permit should rely on the most current emissions information from 2023 and the Fact Sheet should explain how the emissions were calculated, including all underlying data and assumptions, to confirm that the Title V Permit relies on accurate emission information and includes all relevant permit requirements.

   WV DAQ Response

   The Title V Permit Program relies on the facility's potential to emit, not its actual emissions, to determine the facility's applicable requirements. Therefore, the actual emissions provided in the Fact Sheet have no bearing on the applicable requirements included in the Title V Permit. The source of the applicable requirements included in the Title V Permit are the new source review permit R14-0037B, state rules, and federal regulations.

The source of the actual emissions included in the Title V Fact Sheet is the State & Local Emissions Inventory System (SLEIS) where the 2023 actual emissions were still being reviewed by WV DAQ Staff at the time the Draft Title V Permit was issued on May 22, 2024. The actual emissions are included in the Title V Fact Sheet for informational purposes and demonstrate the facility is operating below their potential emissions.

Given that the Facility-Wide Emissions Summary of the Title V permit application, available in ApplicationXtender (AX), contains all the data and assumptions that were used to calculate the facility's potential to emit; the Title V Fact Sheet does not include this data again. The Fact Sheet and Title V application are both considered part of the Title V permit record and the information requested by the commenters is already included in the permit record which is available for review at: https://documents.dep.wv.gov/AppXtender/.

Although the actual emissions have no bearing on the requirements included in the Title V Permit, the 2023 actual emissions were included in the Fact Sheet which accompanies the Proposed Title V Permit.

2) "Use of BACT-level" controls – WV DAQ's Fact Sheet includes many blanket assertions that Rockwool's "use of BACT-level" controls in the NSR permit means the facility's emission levels comply with various state and federal requirements. However, such assertions are inadequate to support issuance of this Title V operating permit. It is not clear that the limits in the existing NSR permit represent "BACT-level" controls because those limits were formulated when Rockwool intended to burn both coal and natural gas and do not represent the facility's actual operation based on the burning of natural gas only.

   a. WV DAQ's Fact Sheet must explain how these limits still represent "BACT-level" controls under natural gas only operating scenarios;

      WV DAQ Response

      The only sections of the Title V Fact Sheet that mention "BACT-level" controls are the Determinations and Justifications Section for 45CSR7 and the Non-Applicability Determination Section for 45CSR14.

      45CSR7

      The applicable Rule 7 requirements (45CSR§§7-3.1, 4.1. 5.1, and 5.2) that mention using "BACT-level" controls in the Fact Sheet all deal with particulate matter (PM). Although the facility changed their fuel source for the Melting Furnace from coal and natural gas to natural gas only, they are still using the same PM control devices for all PM emitting

sources that were originally determined under R14-0037, to be “BACT-level” controls. These PM control devices still have the same capture and control efficiency and would still be considered “BACT-level” controls regardless of the fuel source for the Melting Furnace. The only significant change to PM emissions at the facility is a decrease in PM emissions from the Melting Furnace due to the use of natural gas. The Melting Furnace uses a baghouse as the “BACT-level” control for PM emissions, and since natural gas fuel usage produces less PM than coal, additional PM controls would not be required for natural gas usage.

The BACT Analysis conducted for R14-0037 is outlined in the Preliminary Determination/Fact Sheet (pages 33 through 37 of 44) for the Construction of ROXUL USA, Inc.’s Ran Facility, dated March 8, 2018, and an excerpt has been included below:

WV implements the PSD program as a SIP-approved state through 45CSR14. As a SIP-approved state, WV is the sole issuing authority for PSD permits. EPA has reviewed WV Legislative Rule 45CSR14 and concluded that it incorporates all the necessary requirements to successfully meet the goals of the PSD program as discussed above. EPA retains, however, an oversight role in WV's administration of the PSD program.

As stated above, the construction of the RAN Facility is defined as construction of a "major stationary source" under 45CSR14 and PSD review is required for the pollutants of NO_x, $PM_{2.5}$, PM_{10}, PM, SO_2, VOCs, H_2SO_4, and GHGs. The substantive requirements of a PSD review include a BACT analysis, an air dispersion modeling analysis, and an additional impacts analysis - each of which will be discussed below.

BACT Analysis - 45CSR14 Section 8.2

Pursuant to 45CSR14, Section 8.2, ROXUL is required to apply BACT to each emission source that emits a PSD pollutant (NO_x, $PM_{2.5}$, PM_{10}, (filterable) PM, SO_2, VOCs, H_2SO_4, and GHGs) with a PTE in excess of the amount that is defined as "significant" for that pollutant. BACT is defined under §45-14-2.12 as:

> ". . .an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any federally enforceable emissions limitations or emissions limitations enforceable by the Secretary. If the Secretary determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment work practice, operational standard or combination thereof may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation and shall provide for compliance by means which achieve equivalent results."

Pursuant to USEPA and DAQ policy, the permit applicant determines an appropriate BACT emission limit by using a "top-down" analysis. The key steps in performing a "top-down" BACT analysis are the following: 1) Identification of all applicable control technologies; 2) Elimination of technically infeasible options; 3) ranking remaining control technologies by control effectiveness; 4) Evaluation of most effective controls and documentation of results; and 5) the selection of BACT. Also included in the BACT selection process is, where appropriate, the review of BACT determinations at similar facilities using the RACT/BACT/LAER Clearinghouse (RBLC). The RBLC is a database of RACT, BACT, and LAER determinations maintained by EPA and periodically updated by the individual permitting authorities. ROXUL included a BACT analysis in their permit application under Appendix D (pp. 477) generally using the top-down approach as described above. For a detailed review of ROXUL's BACT, see Appendix D of Permit Application R14-0037. The BACT determination is summarized below.

ROXUL's BACT Submission

ROXUL broke up their BACT determination into the following broad emission units/lines:

- Material Delivery, Handling, Storage, and Transfer Operations;
- Melting Furnace;
- Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, and Cooling Section;
- Fleece Application;
- Rockfon Line Operations;
- Coal Milling;
- Other Facility-Wide Activities; and
- Greenhouse Gas Analysis.

For each unit/line, ROXUL generally performed, on a pollutant-by-pollutant basis, a top-down analysis for either the emissions unit or further broke the line into more specific emission units/lines. Data from the RBLC was reviewed where appropriate. The following summarizes the ROXUL's BACT selections (technology selection only, for tables/requirements containing BACT emission limits, see applicable permit section as cited in the below table):

Table 8: ROXUL BACT Summary

Emission Unit/Line	Pollutant	Technology	Draft Permit Citation
Material Delivery, Handling, Storage, and Transfer Operations			
Fugitive Emissions	$PM_{2.5}$, PM_{10}, (filterable) PM	Enclosures, Good Housekeeping Practices, Subpart OOO Compliance[1]	Table 4.1.2(d)
Vent/Stack Emissions	$PM_{2.5}$, PM_{10}, (filterable) PM	Baghouses/Fabric Filters, Subpart OOO Compliance[1]	Table 4.1.2(c)
Portable Crusher	$PM_{2.5}$, PM_{10}, (filterable) PM	Hours of Operation Limit	Table 4.1.2(a) Table 4.1.2(e)
Melting Furnace			
Melting Furnace	NO_x	Integrated SNCR, Oxy-Fired Burners	Table 4.1.4(a)
	$PM_{2.5}$, PM_{10}, (filterable) PM	Baghouse	
	SO_2, H_2SO_4	Sorbent Injection	
	VOCs	Good Combustion Practices[2]	
	GHGs	Energy Efficiency[3]	

Emission Unit/Line	Pollutant	Technology	Draft Permit Citation
Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, and Cooling Section			
Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, Cooling Section	NO_x	LNB, Good Combustion Practices	Table 4.1.5(a)
	$PM_{2.5}$, PM_{10}, (filterable) PM	Wet Electrostatic Precipitator (WESP)	
	SO_2	Use of Natural Gas	
	VOCs	Afterburner/ Good Combustion Practices[4]	
	GHGs	Use of Natural Gas, Good Combustion Practices	
Fleece Application			
Fleece Application	VOCs	Low-VOC Coatings, Good Work Practices	4.1.6(a) and (b)
Rockfon Line Operations			
Use of Glue/Coatings	VOCs	Low-VOC Coatings, Good Work Practices	4.1.7(a) and (b)
IR Zone, Hot Press, and Curing	$PM_{2.5}$, PM_{10}, (filterable) PM	Low-Emitting Process[5]	Table 4.1.7(d)
De-Dusting Baghouse	$PM_{2.5}$, PM_{10}, (filterable) PM	Fabric Filter	
Drying Oven 1, Drying Ovens 2 & 3, High Oven A, High Oven B	NO_x	Good Combustion Practices	
	$PM_{2.5}$, PM_{10}, (filterable) PM	Particulate Filters[6], Use of Natural Gas, Good Combustion Practices	
	SO_2	Use of Natural Gas	
	VOCs	Good Combustion Practices	
	GHGs	Use of Natural Gas, Good Combustion Practices	
Cooling Zone	$PM_{2.5}$, PM_{10}, (filterable) PM	Low-Emitting Process[5]	
Spray Paint Cabin	VOCs	Particulate Filter	

Emission Unit/Line	Pollutant	Technology	Draft Permit Citation
Coal Milling			
Coal Milling & Drying	NO_x	LNB, Dryer Temperature Control	Table 4.1.3(d)
	$PM_{2.5}$, PM_{10}, (filterable) PM	Baghouse	
	SO_2	Use of Natural Gas	
	VOCs	Good Combustion Practices	
	GHGs	Use of Natural Gas, Good Combustion Practices	
Other Facility-Wide Activities			
Other Small Natural Gas Fired Combustion Devices	NO_x	Good Combustion Practices	Table 4.1.8(b), Table 4.1.11(c)(1)
	$PM_{2.5}$, PM_{10}, (filterable) PM	Use of Natural Gas, Good Combustion Practices	
	SO_2	Use of Natural Gas	
	VOCs	Good Combustion Practices	
	GHGs	Use of Natural Gas, Good Combustion Practices	
Emergency Fire Pump Engine	NO_x	Subpart IIII Certification, Annual Hrs (100) of Op Limit	Table 4.1.10(b)
	$PM_{2.5}$, PM_{10}, (filterable) PM		
	SO_2	ULSD Fuel, Annual Hrs (100) of Op Limit	
	VOCs	Subpart IIII Certification, Annual Hrs (100) of Op Limit	
	GHGs	Annual Hrs (100) of Op Limit	
Product Marking Ink Usage	VOCs	Good Work Practices	4.1.11(c)(3)
Cooling Towers	$PM_{2.5}$, PM_{10}, (filterable) PM	High Efficiency Drift Eliminator	Table 4.1.11(b)(2)
Dry Ice Production	GHGs	Production Efficiency	Table 4.1.11(a)

(1) ROXUL concluded that add-on controls were not warranted or appropriate for certain emission units/processes and BACT for these units will be compliance with PPH limits and Subpart OOO limits where applicable.
(2) Specific to the Melting Furnace, Good Combustion Practices includes maintaining a proper oxidizing atmosphere to control VOC emissions through the use of Good Combustion Practices. For all other applications Good Combustion Practices shall mean activities such as maintaining operating logs and record-keeping, conducting training, ensuring maintenance knowledge, performing routine and preventive maintenance, conducting burner and control adjustments, monitoring fuel quality, etc.
(3) Energy Efficiency measures listed in Table D-9-2 (pp. 554-555) of the permit application.
(4) The Afterburner only represents the BACT Technology for the Curing Ovens, all other sources listed under this section will utilize Good Combustion Practices as BACT.
(5) The emission unit/line is of such a nature that it emits only a small amount of pollutants and, therefore, add-on controls or work practice requirements are not warranted.
(6) Filters on Drying Oven 1 and Drying Oven 2 & 3 only.

DAQ Conclusion on BACT Analysis

The DAQ has concluded that ROXUL reasonably conducted a BACT analysis using, where appropriate, the top-down analysis and eliminated technologies for valid reasons. The DAQ further concludes that the selected BACT emission rates given in the draft permit are achievable, are consistent where appropriate with recent applicable BACT determinations, and are accepted as BACT. Further, the DAQ accepts the selected technologies as BACT.

Modeling Analysis - 45CSR14 Section 9 and Section 10

§45-14-9 and §45-14-10 contain requirements relating to a proposed major source's impact on air quality (Section 9) and the requirements for the air dispersion modeling used to determine the potential impact (Section 10). Specifically, §45-14-9.1 requires subject sources to demonstrate that "allowable emission increases from the proposed source or modification, in conjunction with all other applicable emission increases or reductions (including secondary emissions), would not cause or contribute to" (1) a NAAQS violation or (2) an exceedance of a maximum allowable increase over the baseline concentration in any area (exceed the increment).

Pursuant to the above, ROXUL was required to do an air dispersion modeling analysis to determine the potential impacts on Class II areas only. Class I area modeling was not performed (as explained below). The pollutants required to be modeled were NO_x, $PM_{2.5}$, PM_{10}, and SO_2. Greenhouse gases are not modeled as part of the PSD application review process and VOC emissions (as a precursor to tropospheric ozone formation) were addressed through a qualitative analysis by the applicant in the modeling protocol. The results of the modeling analyses are summarized below. More detailed descriptions of these modeling analyses and quantitative results are contained in reports attached to this evaluation as Attachment B. The reports were prepared by Mr. Jon McClung of DAQ's Planning Section.

Class I Modeling

As part of the Clean Air Act Amendments (CAA) of 1977, Congress designated a list of national parks, memorial parks, wilderness areas, and recreational areas as federal Class I air quality areas. Federal Class I areas are defined as national parks over 6,000 acres, and wilderness areas and memorial parks over 5,000 acres. As part of this designation, the CAA gives the Federal Land Managers (FLM's) an affirmative responsibility to protect the natural and cultural resources of Class I areas from the adverse impacts of air pollution. The impacts on a Class I area from an emissions source are determined through complex computer models that take into account the source's emissions, stack parameters, meteorological conditions, and terrain.

If an FLM demonstrates that emissions from a proposed source will cause or contribute to adverse impacts on the air quality related values (AQRV's) of a Class I area, and the permitting authority concurs, the permit will not be issued. The AQRVs typically reviewed, in the case of evaluating adverse impacts, are visibility (both regional and direct plume impact) and acid deposition (including both nitrogen and sulfur).

45CSR14 - Non-Applicability Determinations
This part of the Fact Sheet mentions the "BACT-level" controls in regards to the BACT analysis that was conducted when the facility was determined to be a major source subject to Prevention of Significant Deterioration (PSD) and mentions how the previously determined BACT level controls that were installed are still in use even after the reduction in the facility's potential emissions changed its status to a minor source.

b. WV DAQ's Fact Sheet must explain why use of the supposed "BACT-level" controls will result in emissions that satisfy the specific numerical requirements of the various state & federal requirements, including estimated risks to the surrounding population; and

WV DAQ Response
For a response to this comment, please refer to Comments #4 and #5 of the "Written Comments - Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter." In the Matter of CITGO Refining and Chemicals Co., L.P., West Plant, Order on Petition No. VI-2007-01 at 7–8 (May 28, 2009) (CITGO Order), EPA specified a five factor analysis to be used as a guideline for determining sufficient monitoring. The WV DAQ has listed all applicable limits in the permit and went through the EPA recommended five factor analysis to determine if the current monitoring for ROXUL is adequate.

c. Any final Title V Permit must require Rockwool to measure and then report the corresponding actual emissions information to WV DAQ in a publicly accessible form to show that the facility is meeting its permit requirements.

WV DAQ Response
Under condition 3.1.6, the Title V Permit already requires the facility to submit, on an annual basis, its actual emissions to WV DAQ for emissions inventory purposes. Annual emissions inventories for major Title V sources are available through EPA's National Emissions Inventory (NEI) which can be accessed at the following website: https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0. Emissions data reported to WV DAQ undergoes a detailed quality assurance process before being submitted to EPA. This emissions data is then subjected to further review at the federal level to ensure the public receives the most accurate, complete emissions data available. Due to this arduous and time-consuming process, the most recent emissions data EPA has released is for the 2021 calendar year. More recent emissions data, that has not undergone the complete quality assurance process, may be available through a FOIA request

submitted to WV DAQ. However, this emissions data should not be considered final and would be for informational purposes only.

3) Identify Specific NSPS and NESHAP Requirements that Apply to Rockwool: DAQ asserts that the Proposed Permit includes the many federal rules regarding criteria and toxic air pollutants (i.e., NSPS and NESHAPs) that apply to the Rockwool facility. However, many of these federal rules have multiple compliance requirements that depend, in part, on the specific source or operation at issue, and the Proposed Permit often copies conditional text from these rules without specifying whether and how it applies to the Rockwool facility.

   a. WV DAQ's Fact Sheet must identify the specific requirements applicable to Rockwool for each rule, and the Proposed Permit must include those limits and conditions as requirements so that Rockwool and the public can determine their compliance with them. For example, terms such as "For those facilities performing" (Proposed Permit at 3.1.7) should be modified to read "When Rockwool is performing," and conditional text such as "If you own or operate any affected source that is subject to the requirements" (Proposed Permit at 4.1.6) or "Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder" (Proposed Permit at 4.1.10.c) must be changed to clearly state the specific emission point at Rockwool to which this requirement applies; and

   WV DAQ Response

   The Title V Permit includes all applicable requirements for the facility with specific citations identifying the underlying State Rule, Federal Regulation, or R14-0037B condition. Also, the conditions specify which equipment is subject to the requirement. In your example, condition 3.1.7 is a Title V boilerplate condition and is in all Title V Permits so that if a facility does this action, they are subject to this condition. For all requirements that are not considered Title V boilerplate and are specific to ROXUL USA Inc., WV DAQ has reviewed the Title V Permit and if equipment IDs were not included in the condition, has added them to the Proposed Title V Permit.

   The purpose of the Determinations and Justifications Section of the Fact Sheet is not to provide a list of applicable requirements that were already included in the Title V Permit but rather to provide additional information, justifications and determinations made during review of the Title V Permit. WV DAQ has identified in the Fact Sheet all the State Rules and Federal Regulations and indicated the equipment subject to those requirements. When a rule or regulation has different compliance options, the Fact Sheet indicates which option the facility has chosen. Some examples of this included in the Fact Sheet are:

45CSR2: To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers

Pursuant to the definition of "fuel burning unit" under 45CSR2 ("producing heat or power by indirect heat transfer"), 45CSR2 applies to the PreHeat Burner (IMF24) and Natural Gas Boilers 1 and 2 (CM03 and CM04), and these units are, therefore, subject to the applicable requirements therein. However, pursuant to the exemption given under §45-2-11, as the MDHI of each of the units is less than 10 mmBtu/hr, the units are not subject to sections 4, 5, 6, 8 and 9 of 45CSR2. The only remaining substantive requirement is under Section 3.1 - Visible Emissions Standards.

45CSR2 Opacity Standard - Section 3.1

Pursuant to 45CSR2, Section 3.1, each of the above specified units (IMF24, CM03, and CM04) are subject to an opacity limit of 10%. Proper maintenance and operation of the units (and the use of piped natural gas (PNG) as fuel) should keep the opacity of the units well below 10% during normal operations.

45CSR6: To Prevent and Control Particulate Air Pollution from Combustion of Refuse

The Curing Oven Afterburner (CO-AB) is subject to 45CSR6.

Pursuant to §45-6-4.1, PM emissions from incinerators are limited to a value determined by the following formula:

Emissions (lb/hr) = F x Incinerator Capacity (tons/hr)

Where, the factor, F, is as indicated in Table I below:

Table I: Factor, F, for Determining Maximum Allowable Particulate Emissions

Incinerator Capacity	Factor F
A. Less than 15,000 lbs/hr	5.43
B. 15,000 lbs/hr or greater	2.72

ROXUL calculated the maximum capacity of the afterburner to be 24.4 tons/hour. Using this value in the above equation produces a PM emission limit of 66.37 lbs/hr. This permit will limit total PM emissions from the WESP (including emissions from sources other than the afterburner) to 8.00 pounds per hour. This is far below the 45CSR6 limit.

Pursuant to §63.1178(a), the emission limits are given under Table 2 of Subpart DDD. The final revised emission limitations for new affected sources and the subcategories applicable to ROXUL are given below.

Affected Facility	Emission Unit (Emission Point)	Limitation	Citation
Cupolas	Melting Furnace (IMF01)	0.10 lb PM(1)/ton melt	Table 2, Item 2
Open-top Cupola(2)		3.2 lb COS/ton of melt	Table 2, Item 8
Cupola using Slag(3)		0.015 lb HF/ton of melt 0.012 lb HCl/ton of melt	Table 2, Item 10
Combined Vertical(4) Collection/Curing	Gutter Exhaust, Spinning Chamber, Curing Oven, Cooling Section (HE01)	2.4 lb formaldehyde/ton of melt 0.71 lb phenol/ton of melt 0.92 lb methanol/ton of melt	Table 2, Item 24

(1) The NESHAP Subpart DDD limit for PM is for filterable PM only.
(2) The Melting Furnace design is open-top, because there is an opening at the top of the melter and air flow is unrestricted.
(3) The Melting Furnace uses slag as a feed material.
(4) NESHAP Subpart DDD does not define the various collection designs. As described by the preamble to the proposed rule, ROXUL operates a vertical collection process [76 FR 72770, November 25, 2011].

40 C.F.R. Part 63, Subpart JJJJ: National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating

40 C.F.R. 63, Subpart JJJJ is a federal MACT that establishes emission standards for web coating lines and specifies compliance procedures for a facility with web coating lines that is a major source of HAPs. The ROXUL facility is a major source of HAPs.

Only the application of fleece binder material on the mineral wool line is subject to this regulation. ROXUL complies with this regulation by using 'as-applied' compliant coatings pursuant to the procedures in §63.3370(a)(2)(iii). This limits the as-applied binder to a monthly average VOC content of 0.016 lbVOC/lb-binder by following the procedures set out in § 63.3370(c)(3).

The issue of ambiguity in some Title V Permit conditions is further addressed in depth in WV DAQ's Response to Written Comments - Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter's comment #4.

b. To the extent these rules require Rockwool to develop specific operation, maintenance, and/or monitoring plans (such as a bag leak detection system under Term 4.2.12 and the

40 C.F.R. 63 Subpart DDD plan required under Term 4.2.16), Rockwool must provide those plans now and WV DAQ must re-issue a revised permit for public comment so that WV DAQ and the public can ensure that any final Title V Permit includes the types of specific plans necessary for Rockwool to meet the associated requirements.

WV DAQ Response

The Draft Title V permit condition 4.2.13.d included the full text of 40 C.F.R. 60 Subpart OOO, §60.674(c) through (e) . The monitoring requirement 40 C.F.R. §60.674(c) requires the permittee to conduct quarterly 30-minute visible emissions inspections using EPA Method 22. As an alternative to the quarterly visible emissions inspections, the permittee may use a bag leak detection system and must operate and maintain the bag leak detection system according to an approved site-specific monitoring plan as specified in §60.674(d). The permittee has elected to conduct quarterly visible emissions inspections and the baghouses do not have a bag leak detection system. Therefore, as a response to this comment, the bag leak detection system requirements of §60.674(d) have been removed from condition 4.2.13.d. Additionally, the permittee is also not subject to the alternative monitoring requirements of §60.674(e) and these have also been removed from condition 4.2.13.

The 40 C.F.R. 63 Subpart DDD Operations, Maintenance, and Monitoring (OMM) Plan was submitted as part of the Title V application amendment received on January 30, 2025. The 40 C.F.R. 63 Subpart DDD OMM Plan was reviewed and approved by WV DAQ and has been incorporated by reference in the Proposed Title V permit condition 4.2.16.a. A copy of this plan has been included as ATTACHMENT A to this response to comments document.

4) Lack of reporting of relevant operational and emission limit information: While the Proposed Permit includes various monitoring and recordkeeping requirements, it is not clear whether Rockwool is required to report that information in its semi-annual reports. Without such information, it will be difficult for WV DAQ and the public to confirm that Rockwool is complying with its permit. Reporting of this information is especially important given that the recently revised NSR permit was issued due to Rockwool's classification as a synthetic minor source based on operational controls and other limits to lower its emissions.

   a. For example, Term 4.2.6 requires Rockwool to use continuous emission monitoring of pollutants at the melting furnace but does not require Rockwool to report that information, only to keep it on file for 3 years, so it is not clear whether that continuous

emission monitoring data is "required monitoring" that must be reported semiannually under Term 4.5.1.a; and

b. There are similar issues with VOC emissions information from the fleece operations in Term 4.2.7, and reporting of actual VOC emission information is essential for WV DAQ and the public to determine Rockwool's compliance with the Permit and synthetic minor source status.

WV DAQ Response

The NSR permit R14-0037B contains reporting requirements in Condition 4.5.1 requiring the permittee to submit reports of all required monitoring on a semi-annual basis and conditions 4.2.6 and 4.2.7 are located in the monitoring section of the permit, therefore this monitoring is required to be submitted. Additionally, the Title V permit boilerplate contains Condition 3.5.6 applicable to all facilities with an issued Title V permit, which requires semi-annual monitoring reports and clearly states "The permittee shall submit reports of any required monitoring..." This means the facility must fill out the Title V Operating Permit Semi-Annual Monitoring Report (which can be found at the following address https://dep.wv.gov/daq/permitting/Pages/TitleVGuidanceandForms.aspx) and include reporting of all monitoring, data, or analysis required by the permit and also include all deviations from terms and conditions in the Title V Permit. The Title V Permit also requires the permittee, under Condition 3.5.5, to submit an Annual Compliance Certification (also found at the following address https://dep.wv.gov/daq/permitting/Pages/TitleVGuidanceandForms.aspx) which identifies each permit term and condition, the method or means of determining the compliance status, if the source was in compliance, and if and when deviations occurred. When these reports are received they are uploaded to ApplicationXtender (where they are available to the public) and reviewed by a member of WV DAQ's Compliance and Enforcement to verify compliance with the applicable requirements specified in the Title V permit.

The comment above states that the RAN Facility is a Synthetic Minor Source. This is incorrect under the Title V Program because the RAN Facility is a Title V major source, thus requiring a Title V Permit. To be a Title V Synthetic Minor Source, a facility must be limited by federally enforceable limitations to less than the Title V applicability thresholds of 100 tpy for criteria pollutants, 10 tpy of a single HAP, and 25 tpy of aggregate HAPs.

5) Lack of adequate margin of safety – The Proposed Permit generally allows pollution emissions at the same level as the emission limits required to comply with various state and federal rules, which are intended to protect human health and the environment. To provide

an adequate margin of safety and ensure Rockwool's compliance with these requirements, any final Title V Permit should set these emission limits at a level lower than the maximum allowed under these rules (such as 90-95% of the permitted maximums, or 80% when emissions are variable).

WV DAQ Response

45CSR30 does not provide the Secretary with the authority to set or adjust emission limits derived from NSR Permits, State Rules, or Federal Regulations. 45CSR§30-5.1.a.1 states that the Title V "permit shall specify and reference the origin of and authority for each term and condition" included in the permit. In no place does 45CSR30 allow the Secretary to adjust existing emission limits to provide for an adequate margin of safety or to arbitrarily set new emission limits.

According to 40 C.F.R. §50.2, "National primary ambient air quality standards (NAAQS) define levels of air quality which the Administrator judges are necessary, with an adequate margin of safety, to protect the public health." The ROXUL USA Inc., RAN Facility is located in Jefferson County, WV which is currently designated "attainment" or "attainment/unclassifiable" for all NAAQS.

Additionally, the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) undergo a health risk review to determine whether the standards protect public health with an ample margin of safety. ROXUL is subject to four NESHAPs (40 C.F.R. 63, Subpart DDD for mineral wool production, 40 C.F.R. 63, Subpart JJJJ for paper and other web coating, 40 C.F.R. 63, Subpart ZZZZ for reciprocating internal combustion engines, and 40 C.F.R. 63, Subpart DDDDD for boilers and process heaters).

Written comments - Colin Stine

WV DAQ received the following written comment from Colin Stine via the Jefferson County Foundation on August 1, 2024.

Rockwool has two stacks that emit pollutants. Both stacks need to be monitored and the emissions from each stack need to be summed and the regulatory limits enforced on the total from both stacks. The output of each stack must be measured at the top and at every input conduit. The heat and metals in the stacks may act to catalyze reactions of compounds entering the stacks from different input conduits producing unexpected and dangerous pollutants in addition to the pollutants entering the stacks.

Every sample must be tested using liquid chromatography and mass spectrometry (LC/MS). Every peak that exceeds baseline must be identified. Aluminum and formaldehyde are known pollutants released by Rockwool, either can be released in water vapor or as a gas. The scans must be sent to the Jefferson County Department of Health and the Water Advisory Committee.

As an example, aluminum may be precipitated from water using a simple chemical reaction, however, Rockwool does not do this. I think could and should do this as it would create a salable byproduct. Another example is formaldehyde, a very volatile chemical that may combine with other chemicals to generate additional dangerous compounds. Formaldehyde, itself is a known carcinogen because it can bind to DNA and cause cancer causing mutations.

Again, we request that all the LC/MS trace files be made public and every peak above background be identified. We also request that the samples be tested by a non-industrial entity such as National Institute of Standards and Technology or EPA or University of Maryland.

WV DAQ Response

The Title V Permit already contains all the applicable requirements from the associated NSR permit, State Rules and Federal Regulations. This includes emission limits and standards for the emission units and emission points at the facility and the monitoring, testing, recordkeeping and reporting requirements that are necessary to demonstrate compliance with those limits and standards. Although not specified, WV DAQ assumes that the two stacks mentioned in the comment are emission point IMF01 for the Melting Furnace and emission point HE01 for the Curing Oven, Gutter Exhaust, and Spinning Chamber. These emission points are subject to the requirements of 40 C.F.R. 63, Subpart DDD and permit R14-0037B and these requirements are included in the Title V Permit. In addition to monitoring, recordkeeping, and reporting to demonstrate compliance with these limits, the Title V Permit already requires testing requirements for these emission points in Title V Permit conditions 4.3.2, 4.3.3, 4.3.4, and 4.3.5. EPA approved testing methods from 40 C.F.R. 60, Appendix A are specified under condition 4.3.5 for each pollutant. It is unclear if the method specified in the comment above is an EPA approved test method for the pollutants emitted from emission points IMF01 and HE01. Also, the WV DAQ only regulates air emissions. Water emissions are regulated under WV Division of Environmental Protection's Division of Water and Waste Management.

Specifically listed in the comment are aluminum and formaldehyde emissions. Formaldehyde emissions are regulated and testing is required under 40 C.F.R. 63, Subpart DDD and permit R14-0037B. Aluminum is not a primary emission from mineral wool production and a specific limit for aluminum air emissions has not been included in 40 C.F.R.

63, Subpart DDD or permit R14-0037B. Particulate matter emissions, however, are regulated and have emission limits from 40 C.F.R. 63, Subpart DDD and permit R14-0037B with associated periodic testing requirements.

The public has access to the Title V Semi-Annual Monitoring Reports and Annual Compliance Certifications which are uploaded to ApplicationXtender (available at https://documents.dep.wv.gov/AppXtender/) when they are received by WV DAQ. These reports address every monitoring condition in the Title V Permit and must contain the monitoring, data, or analysis required by the permit condition and indicate if the facility is in compliance with their requirements. Results from required stack testing are also required to be submitted to WV DAQ (Title V condition 3.3.1.d) and will be uploaded to ApplicationXtender.

Written Comments - Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter

On August 2, 2024 Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter jointly submitted the following comments on the Title V Permit for ROXUL USA Inc.'s RAN Facility:

1) WVDEP should delay issuance of any final Title V operating permit to Rockwool for the RAN facility until all administrative and judicial appeals of Permit No. R14-0037A are complete.

   WV DAQ Response
   All administrative and judicial appeals of Permit No. R14-0037A are complete. The AQB's Memorandums of Understanding and Final Orders for Appeal Nos. 23-01-AQB and 23-02-AQB were issued on August 8, 2024 and the Proposed Title V permit has been updated consistent with those decisions. Please refer to the "Background Information" section of this response to comments document for more detailed information about the appeals and changes to the minor NSR and Proposed Title V permit as a result of the AQB's final orders.

2) WVDEP must clarify which permit application forms the basis of this permitting action and re-notice a revised Draft Permit for public comment and WVDEP must undertake a completeness determination for that permit application. WVDEP must also revise the Draft Permit and accompanying Fact Sheet as necessary to align with the information provided in

the identified application. For example, the facility-wide PTEs in the fact sheet do not exactly match the facility-wide PTEs given in the most recent Title V Application.

WV DAQ Response

According to 45CSR§30-4.1.a.2, a Title V source must file a complete application within twelve (12) months after commencing operations. Operations at ROXUL USA Inc. began on May 22, 2021 and the Title V Permit Application was received on May 20, 2022, within 12 months of commencing operations. The Title V application submitted by ROXUL USA Inc. on May 20, 2022 was deemed complete as submitted and qualified for an Application Shield as indicated in a July 18, 2022 email to Mark Graves, Stacy Phillips, and Grant Morgan. According to 45CSR§30-6.2, an application shield is granted to a source which submits a timely and complete application and allows that source to operate without a Title V operating permit until the Secretary takes final action on the permit application. Subsection 4.1.b of 45CSR30 states that "if, during processing an application that has been determined or deemed to be complete, the Secretary determines that additional information is necessary to evaluate or take final action on that application, the Secretary may request such information in writing and set a reasonable deadline for a response. The source's ability to operate without a permit, as set forth in subsection 6.2, shall be in effect from the date the application is determined or deemed to be complete until the final permit is issued, provided the applicant submits any requested additional information by the deadline specified by the Secretary." Subsection 4.2 of 45CSR30 also states that "an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit." Additional information to account for the issuance of R14-0037A was provided on January 17, 2024. 45CSR30 does not require a separate completeness determination for additional or supplemental information submitted after an application is deemed complete.

Information relevant to the draft permit can be found in the revised application submitted on January 17, 2024 which was uploaded to the DAQ website (https://dep.wv.gov/daq/permitting/titlevpermits/Pages/default.aspx) when the Draft Title V Permit went out to public notice. On ApplicationXtender, the multiple entries have been combined to form one comprehensive Title V application that covers the period from May 20, 2022 when the initial application was submitted until the issuance of the Proposed Title V Permit.

In regards to the Fact Sheet's facility-wide emissions summary and the Title V Permit application's (January 17, 2024 resubmittal) facility-wide emissions summary, the only differences are related to the particulate matter (PM) emissions limits which were appealed

by ROXUL USA Inc. at the time the Title V Permit application was revised to include the changes approved under R14-0037A. Due to this conflict over what the PM potential emissions should be in the Title V Fact Sheet, WV DAQ used the PM emission limits from R14-0037A to calculate the Facility-Wide PM PTEs. The AQB's Final Order for appeal 23-01-AQB maintained the PM limits for the WESP set in R14-0037A, thus PTEs for PM in the Fact Sheet were and still are the correct PM PTEs.

Since the Title V permit application has been deemed complete and the revised Title V permit application that forms the basis of the Draft Title V Permit and Fact Sheet were made available at the time of the public comment period, there is no reason for the WV DAQ to re-notice a Draft Title V Permit for public comment.

Additional changes approved under Class I administrative update R14-0037B to address the AQB's final orders have been included in the Proposed Title V permit and included in ROXUL USA Inc.'s Title V permit application located in ApplicationXtender.

3) Any final Title V operating permit for the RAN facility issued at this time must include major source NSR PSD requirements.

WV DAQ Response

The Title V operating permit does not establish new emission or operating limitations. Emission and operating limitations are established through new source review permits, state rules, and federal regulations. The Draft Title V Permit contained all applicable requirements from the associated minor NSR Permit R14-0037A and WV DAQ does not have the authority to make changes to the existing permit requirements to incorporate PSD requirements. It is not even clear, based on the comment, how the commenters propose the current applicable requirements from R14-0037A should be revised such that they would be considered "major source NSR PSD requirements."

EPA has recently proposed updates to its Title V operating permit program regulation 40 C.F.R. 70 (*Clarifying the Scope of "Applicable Requirements" Under State Operating Permit Programs and the Federal Operating Permit Program*) to more clearly reflect the EPA's existing interpretations and policies concerning whether requirements under the New Source Review (NSR) preconstruction permitting programs will be reviewed using the EPA's Title V oversight authorities. In the proposed updates, EPA is codifying their current approach that the Title V permitting process should not be used to reevaluate the terms of a major NSR or minor NSR if that NSR permit has been issued under EPA-approved (or EPA-promulgated) title I rules, with public notice and the opportunity for comment and judicial review.

R14-0037A is a minor NSR permit issued under an EPA-approved state program (45CSR13). The minor NSR permit review of R14-0037A provided an opportunity for the public to comment. JCF filed Appeal No. 23-02-AQB on December 18, 2023 and specifically objected to the issuance of Permit No. R14-0037A as a minor NSR permit under 45CSR13 and requested that Rockwool be required to reapply for a modified PSD permit under 45CSR14. The evidentiary hearing on JCF's appeal was held on February 7, 2024 where the AQB granted WV DAQ's and Rockwool's request for judgment as a matter of law, thereby allowing the issuance of the modified permit R14-0037A. On August 8, 2024, the AQB issued a final order on the appeal and granted WV DAQ's and Rockwool's renewed motions for judgment as a matter of law. Therefore, under EPA's current and proposed approach, the applicable requirements established under R14-0037A are applicable requirements that must be included in the facility's Title V operating permit and the Title V permitting process should not be used to reevaluate these requirements, nor whether the facility should have received a minor NSR permit or a PSD permit.

4) WVDEP must revise the Draft Permit to include the specific state and federal requirements applicable to the RAN facility. While the Fact Sheet discusses these requirements and the Draft Permit contains citations to the applicable state and federal rules, the specific conditions of the Draft Permit do not set forth the specific state and federal requirements in a manner that make them applicable to the RAN facility or enforceable by the public. Also, the Draft Permit simply copies language from EPA's NSPS and NESHAP rules, but in many cases this simple recitation is insufficient to comply with Title V because these rules have multiple applicability and compliance requirements that depend, in part, on the specific source or operation at issue.

WV DAQ Response

The Title V Permit includes all the applicable requirements from the NSR permit R14-0037B, State Rules and Federal Regulations and specifies which emission units are subject to those requirements.

The Title V Permit has been reviewed for the types of ambiguity identified in the commenter's examples and resulted in minor changes to these conditions: 4.1.2.i, 4.1.2.j, 4.1.4.b, 4.1.4.c, 4.1.5.b, 4.1.6, 4.1.6.c, 4.1.8.e, 4.1.10.c, 4.1.12.d.2, 4.1.12.f.3, 4.2.7.c, 4.2.9, 4.2.13.a, 4.3.6, 4.3.7, 4.4.4, 4.4.5, 4.4.6, 4.4.7, 4.4.8, 4.5.2, 4.5.3, 4.5.4, and 4.5.5. Specifically, for the Proposed Title V permit, the equipment or emission point ID subject to that requirement was added to the permit condition; references to "owners and operators" or "you" were changed to "the permittee"; references to "subsections" were revised so that the

permit clearly referenced the applicable state rule; and where possible, emission limits from the state rules were streamlined with the more stringent R14-0037B emission limits.

Streamlining language has been added to conditions 4.1.2.i.3, 4.1.4.b.3, and 4.1.5.b.3 to clarify that compliance with the 45CSR§7-4.1 PM weight limits are met by meeting the more stringent PM limits of conditions 4.1.2.c, 4.1.2.e, 4.1.4.a, and 4.1.5.a. (see table below).

	45CSR7-4.1 Limits	NSR/Title V Permitted Limits
Material Handling Operations (IMF07, IMF08, IMF09, IMF10, IMF11, IMF12, IMF14, IMF15, IMF16, IMF17, IMF21, CE01, CE02, CM08, CM09, CM10, CM11)	31.39 lb/hr (aggregate)	2.56 lb/hr (aggregate)
Melting Furnace Portable Crusher (B170)	40 lb/hr	0.81 lb/hr
Melting Furnace (IMF01)	12.63 lb/hr	2.32 lb/hr
Gutter Exhaust (GUT-EX), Spinning Chamber (SPN), Curing Oven Hoods (CO-HD), Curing Oven (CO), and Cooling Section (CS)	31.39 lb/hr (aggregate)	8.00 lb/hr (aggregate)

Streamlining language was added to conditions 4.1.2.j.1, 4.1.2.j.2, and 4.1.2.j.4 to clarify that compliance with the 20% opacity limit of 45CSR§7-3.1 (conditions 4.1.2.i.1 and 4.1.2.i.2) would be shown by demonstrating compliance with the more stringent 7% opacity limit from 40 C.F.R. 60 Subpart OOO.

The HCl emission limits in condition 4.1.4.a were set assuming a concentration of 3.9 mg/Nm^3 which is more stringent than the 45CSR§7-4.2 limit of 210 mg/Nm^3 and the H_2SO_4 emission limits in condition 4.1.4.a are a direct conversion of the 35 mg/Nm^3 limit from 45CSR§7-4.2. Therefore, streamlining language was added to condition 4.1.4.b.4 to clarify that compliance with the HCl and H_2SO_4 limits of condition 4.1.4.a shall show compliance with the less stringent limits from 45CSR§7-4.2.

The SO_2 emission limits in condition 4.1.4.a were set assuming a concentration of 450 mg/Nm^3 (~172 parts per million) which is less than the 45CSR§10-4.1 limit of 2,000 parts per million. Therefore, streamlining language was added to condition 4.1.4.c to clarify that

compliance with the SO_2 emission limits of condition 4.1.4.a shall show compliance with the less stringent SO_2 limits from 45CSR§10-4.1.

The Curing Oven Afterburner (CO-AB) PM emission limit of 66.37 lb/hr calculated using the formula from 45CSR§6-4.1 in condition 4.1.12.f.2.i is less stringent than the PM limit in condition 4.1.5.a for HE01. Streamlining language was added to clarify that compliance with the PM limit of 8.00 lb/hr from condition 4.1.5.a shall show compliance with the less stringent PM limit of 45CSR§6-4.1 in condition 4.1.12.f.2.i.

This comment also states it is unclear whether the Emergency Fire Pump Engine (EFP1) is subject to minimum cetane and maximum aromatic content requirements of 40 C.F.R. §1090.305. This confusion may result from the fact that EFP1 is subject to two (2) different requirements pertaining to diesel fuel specifications in the Title V Permit. These are from R14-0037B (Title V condition 4.1.10.a) and 40 C.F.R. 60 Subpart IIII §60.4207(b) which refers to 40 C.F.R. §1090.305 (Title V condition 4.1.10.c.4). The maximum sulfur content of 0.0015% in 4.1.10.a and 15 ppm in 40 C.F.R. §1090.305 are the same, just in a different format. R14-0037B, however, did not include the minimum cetane and maximum aromatic content requirements of 40 C.F.R. §1090.305 and 40 C.F.R §60.4207(b), so this applicable requirement was added to the Title V Permit as condition 4.1.10.c.4. The diesel fuel used by EFP1 must meet the following fuel specifications: the maximum sulfur content of 15 ppm (0.0015%), and the minimum cetane index of 40 or the maximum aromatic content of 35 volume percent.

5) WVDEP must revise the Draft Permit to include adequate monitoring, recordkeeping, and reporting to ensure compliance with applicable federal and state requirements and their corresponding permit terms.

WV DAQ Response

In general, stationary source emissions monitoring is composed of four elements, including: 1) indicator(s) of performance, 2) measurement techniques, 3) monitoring frequency, and 4) averaging time. These elements are explained as follows:

Indicator(s) of performance - the parameter(s) measured or observed for demonstrating: (a) proper operation of the air pollution control measures, or (b) compliance with the applicable emissions limitation or standard. Indicators of performance may include direct emissions measurements, surrogate emissions measurements (including opacity), operational parametric measurements that correspond to process or control device (and capture system) efficiencies or emission rates, and recorded findings of inspection of work practice activities,

material tracking, or design characteristics. An indicator range may be expressed as a single maximum or minimum value, a function of process variables (for example, within a range of pressure drops), a particular operational or work practice status (for example, a damper position, completion of a waste recovery task, materials tracking), or an interdependency between two or more variables.

Measurement techniques - the means by which information from or about the indicators of performance is gathered and recorded. The components of a measurement technique include the detector type, location and installation specifications, inspection procedures, and quality assurance and quality control measures. Examples of measurement techniques include continuous emission monitoring systems (CEMS), continuous opacity monitoring systems (COMS), continuous parametric monitoring systems (CPMS), and manual inspections that include maintaining records of process conditions or work practices.

Monitoring frequency - the number of times monitoring data are obtained and recorded over a specified time interval. Examples of monitoring frequencies include at least four points equally spaced for each hour for CEMS or CPMS, at least every 10 seconds for COMS, or at least once per operating day (or week, month, etc.) for CPMS, work practice, or design inspections.

Averaging time - the period over which data are averaged and used to verify proper operation of the pollution control approach or compliance with the emissions limitation or standard. Examples of averaging time include a 3-hour average in units of the emissions limitation, a 30-day rolling average emissions value, a daily average of control device operational parametric range, and an instantaneous alarm.

In EPA's order on Petition No. III-2023-16, for the Union Carbide Corporation Institute Facility's Title V permit, EPA described five factors permitting authorities may consider as a starting point in determining appropriate monitoring for a particular facility. These are: (1) the variability of emissions from the unit in question; (2) the likelihood of a violation of the requirements; (3) whether add-on controls are being used for the unit to meet the emission limit; (4) the type of monitoring, process, maintenance, or control equipment data already available for the emission unit; and (5) the type and frequency of the monitoring requirements for similar emission units at other facilities.

In their own regulations, EPA has recognized other means of demonstrating compliance with hourly emission limitations and opacity limits, and seldom requires continuous emissions monitoring or continuous opacity monitoring for emission sources. Often compliance is

demonstrated as a multi-pronged approach with more than one method (i.e., monitoring, testing, recordkeeping, or reporting) being used to demonstrate compliance.

See Comments 5c - 5f for more details on the monitoring for specific emission units/pollutants.

5a-5b) These comments are related to condition 3.5.6 which requires semi-annual monitoring reports and cites a lack of clarity in the required reporting to ensure compliance.

WV DAQ Response

Condition 3.5.6 is part of the Title V permit boilerplate which is included in all Title V permits and which requires the submittal of semi-annual monitoring reports and states "The permittee shall submit reports of any required monitoring." The Title V permit is required to contain all applicable requirements from associated NSR Permits, State Rules, and Federal Regulations, and also include any "gap-filling" monitoring when applicable requirements do not contain monitoring or contain insufficient monitoring to demonstrate compliance with the applicable requirements. Since any required monitoring has been specified in the monitoring sections of the Title V Permit, the semi-annual monitoring reports should include all of these conditions. The semi-annual monitoring and deviation reports along with the annual compliance certifications are part of a multi-pronged approach for compliance monitoring and reporting. Under condition 3.5.6, ROXUL has to include all monitoring and data required by the permit and also deviations from any Title V permit conditions. This is coupled with condition 3.5.5 where ROXUL has to submit an annual compliance certification and go through each condition and say whether they were in compliance, how they determined compliance, and if they had any deviations. DAQ Compliance and Enforcement (C/E) reviews these reports when they are submitted and compares them to the Title V permit requirements. It is not solely up to ROXUL to determine their own compliance with the Title V permit and be both the "defendant and judge" as alleged by the commenters. WV DAQ reviews the semi-annual and annual reports and compares these reports with the Title V permit; WV DAQ C/E conducts inspections; and WV DAQ reviews stack test reports, CEMs reports, recordkeeping, and other reporting required by the conditions of the Title V permit. Compliance demonstration with the conditions of the permit is not reliant on a single condition (Title V permit boilerplate condition 3.5.6), nor is it reliant solely on self-reporting; there is a multi-pronged approach to compliance demonstration which consists of inspections and monitoring, testing, recordkeeping, and reporting.

All semi-annual monitoring reports, deviation reports, and annual compliance certifications are uploaded to AX and are publicly available. Example forms are provided on WV DAQ's website at: https://dep.wv.gov/daq/permitting/Pages/TitleVGuidanceandForms.aspx.

5c) This comment states that there is insufficient monitoring to ensure compliance with the limits for the Melting Furnace (IMF01) in condition 4.1.4.a.

WV DAQ Response

Compliance with the 4.1.4.a emission limits are derived from several underlying sources and compliance is monitored using several methods. In this response the individual emission limits will be separated out and the five factor monitoring analysis for each pollutant will be discussed.

Pollutant	Emission Limits	Five Factor Monitoring Analysis
CO	3.21 lb/hr 13.48 tons/yr	The CO emission limits were established based on a maximum concentration value developed using CEMS Performance Data for the furnace at maximum heat input capacity and maximum design capacity. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set using CEMs Performance Data and assuming the furnace was operating at maximum production capacity. The January 2022 RATA testing on the CEMS found average emissions of CO to be 0.72 lb/hr and the test run resulting in the highest emissions was 0.92 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 4.87 tons/yr and 5.37 tons/yr, respectively. Testing and emissions reporting indicated actual emissions have been less than half the emission limits established in condition 4.1.4.a. The Melting Furnace IMF01 has no add-on controls for

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		CO. The Melting Furnace IMF01 is equipped with a CEMS that measures CO emissions at least four (4) times per hour, equally spaced, at all times the furnace is in operation. The facility is already required to: ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limit (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Install and operate a CEMS on the furnace. The CEMS shall meet the applicable performance specifications required by 40 C.F.R. Part 60, Appendix B, the applicable quality assurance procedures required in 40 C.F.R. Part 60, Appendix F, and the requirements of 40 C.F.R. §60.13. In lieu of the requirements of 40 C.F.R. Part 60, Appendix F, 5.1.1, 5.1.3, and 5.1.4, the permittee may conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) at least once every three (3) years. The permittee shall conduct Cylinder Gas Audits (CGA) each calendar quarter during which a RAA or a RATA is not performed. (condition 4.2.6) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance testing for pollutants monitored by CEMS shall be conducted on a schedule consistent with the required RATA testing. (condition 4.3.4) ● Performance Test Methods: for CO the specified test method is Method 10 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of monitoring (condition 4.4.1)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
NO_X	37.37 lb/hr 156.95 tons/yr	The NO_X emission limits were established based on a maximum concentration value developed using CEMS Performance Data for the furnace at maximum heat input capacity and maximum design capacity. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set using CEMs Performance Data and assuming the furnace was operating at maximum production capacity. The January 2022 RATA testing on the CEMS found average emissions of NO_X to be 16.17 lb/hr and the test run resulting in the highest emissions was 18.00 lb/hr. Additionally, the actual emissions reported for 2022

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		and 2023 were 45.75 tons/yr and 56.46 tons/yr, respectively. Testing and emissions reporting indicated actual emissions have been less than half the emission limits established in condition 4.1.4.a. The Melting Furnace IMF01 is equipped with an Integrated SNCR and Oxy-Fired Burners to reduce NO_X emissions. The Melting Furnace IMF01 is equipped with a CEMS that measures NOx emissions at least four (4) times per hour, equally spaced, at all times the furnace is in operation. The facility is already required to: ● Design and operate the Melting Furnace so as to promote the inherent removal of NO_X from the exhaust gas stream. ROXUL shall maintain the proper temperature profile for NOx removal and inject aqueous ammonia as necessary to facilitate the SNCR process. (condition 4.1.12.b) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Install and operate a CEMS. The CEMS shall meet the applicable performance specifications required by 40 C.F.R. Part 60, Appendix B, the applicable quality assurance procedures required in 40 C.F.R. Part 60, Appendix F, and the requirements of 40 C.F.R. §60.13. In lieu of the requirements of 40 C.F.R. Part 60, Appendix F, 5.1.1, 5.1.3, and 5.1.4, the permittee may conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) at least once every three (3) years. The permittee shall conduct Cylinder Gas Audits (CGA) each calendar quarter during which a RAA

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		or a RATA is not performed. (condition 4.2.6) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance testing for pollutants monitored by CEMS shall be consistent with the required RATA testing. (condition 4.3.4) ● Performance Test Methods: for NO_X the specified test method is Method 7E under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
$PM_{2.5}$[1], PM_{10}[1], PM[2], Mineral Fiber	2.32 lb/hr 9.73 tons/yr	The Particulate Matter ($PM_{2.5}$, PM_{10}, PM, and Mineral Fiber) emission limits were established based on 40 C.F.R. 63 Subpart DDD emission limits and converted to hourly

<table>
<tr><th>Pollutant</th><th>Emission Limits</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td>[1] Includes condensables
[2]Filterable only</td><td>0.10 lb/ ton melt (from Subpart DDD)

0.013 gr/dscf</td><td>and annual limits based on the maximum design capacity of the furnace. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results showed emission averages less than 50% of the limits:
<table><tr><td>$PM_{2.5}$</td><td>0.72 lb/hr</td></tr><tr><td>PM_{10}</td><td>0.75 lb/hr</td></tr><tr><td>PM (filterable only)</td><td>0.75 lb/hr</td></tr></table>
Additionally, the actual emissions reported for 2022 and 2023 show emissions that are less than 10% of the annual limits:
<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.00207 tpy</td><td>0.08 tpy</td></tr><tr><td>PM_{10}</td><td>0.00207 tpy</td><td>0.15 tpy</td></tr><tr><td>PM (Filterable Only)</td><td>0.00207 tpy</td><td>0.28 tpy</td></tr><tr><td>Mineral Fiber</td><td>0.0 tpy</td><td>0.28 tpy</td></tr></table>
For the Melting Furnace IMF01, baghouse IMF01-BH is used to control emissions of $PM_{2.5}$, PM_{10}, PM, and Mineral Fiber.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.4.d. (emission limits</td></tr>
</table>

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		and bag leak detection system on the baghouse), 4.1.12.d.2 (bag leak detection system on the baghouse capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter and having a sensor on the bag leak detection system that provides output of relative PM emissions and has an alarm that will sound automatically when it detects an increase in relative PM emissions greater than a preset level), 4.2.16 (operations, maintenance, and monitoring plan), 4.3.7 (initial test and subsequent testing at least once every 5 years), 4.4.5 (records of bag leak detection system, and 4.5.3 (reporting)) ● Monitoring of the differential pressure of the baghouse with an alarm to notify the control room if the drop indicates abnormal performance based on the alarm set-point determined under 4.1.12.g (condition 4.1.12.d.1) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Recordkeeping of all significant maintenance or repair performed on the baghouse such as changing out bags, replacing filter material. (condition 4.2.4) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Control Device Parameter Monitoring of the pressure drop (condition 4.2.12) ● Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring once per calendar month is part of the multi-prong approach to monitoring PM emissions. (condition 4.2.13.) ● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit of 0.013 gr/dscf in condition 4.1.4.a (condition 4.2.14)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for particulate matter the specified test methods are Methods 201A, 202, and 5 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The melting furnace IMF01's particulate matter limits are based on 40 C.F.R. 63 Subpart DDD limits which all mineral wool facilities at a major source of HAPs are subject to and

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
SO_2	33.63 lb/hr 141.25 tons/yr	The SO_2 emission limits were established based on a maximum concentration value developed using CEMS Performance Data for the furnace at maximum heat input capacity and maximum design capacity. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set using CEMs Performance Data and assuming the furnace was operating at maximum production capacity. The January 2022 RATA testing on the CEMS found average emissions of SO_2 to be 6.27 lb/hr and the test run resulting in the highest emissions was 8.83 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 60.91 tons/yr and 72.42 tons/yr, respectively. Testing and emissions reporting indicated actual emissions have been approximately half the emission limits established in condition 4.1.4.a. The Melting Furnace IMF01 utilizes sorbent injection in the baghouse to control SO_2 emissions. The Melting Furnace IMF01 is equipped with a CEMS that measures SO_2 emissions at least four (4) times per hour, equally spaced, at all times the furnace is in operation. The facility is already required to: ● Utilize sorbent injection in conjunction with

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		Baghouse IMF01-BH to reduce the emissions of SO_2 from the melting furnace. Compliance shall be determined by showing compliance with SO_2 emission limits given under Table 4.1.4.a using CEMS as required under 4.2.6. (condition 4.1.12.c) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Install and operate a CEMS. The CEMS shall meet the applicable performance specifications required by 40 C.F.R. Part 60, Appendix B, the applicable quality assurance procedures required in 40 C.F.R. Part 60, Appendix F, and the requirements of 40 C.F.R. §60.13. In lieu of the requirements of 40 C.F.R. Part 60, Appendix F, 5.1.1, 5.1.3, and 5.1.4, the permittee may conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) at least once every three (3) years. The permittee shall conduct Cylinder Gas Audits (CGA) each calendar quarter during which a RAA or a RATA is not performed. (condition 4.2.6) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance testing for pollutants monitored by CEMS shall be conducted on a schedule consistent with the required RATA testing. (condition 4.3.4) ● Performance Test Methods: for SO_2 the specified test method is Method 6C under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
VOC	0.31 lb/hr 1.29 tons/yr	The VOC emission limits were established based on a maximum concentration value developed using stack test performance data for the furnace at maximum heat input capacity and maximum design capacity. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results show average VOC emissions of 0.12 lb/hr and 0.52 tons/yr. Additionally, the actual emissions reported for 2022 and 2023 were 0.25

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		tons/yr and 0.31 tons/yr, respectively. These are less than half the emission limits. There are no add-on VOC control devices for Melting Furnace IMF01 but good combustion practices are utilized to reduce VOC emissions. The facility is already required to: ● Utilize good combustion practices (4.1.4.a Footnote (5) outlines these practices in detail). ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for VOC the specified test methods are Method 18 and 25A under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
H_2SO_4	1.31 lb/hr 5.49 tons/yr	The H_2SO_4 emission limits were established based on a maximum concentration allowed under 45CSR§7-4.2 (35 mg/dscm). NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is extremely low. The January 2022 performance test results showed average H_2SO_4 emissions of 0.003 lb/hr, which is less than 1% of the hourly limit. The Melting Furnace IMF01 utilizes sorbent injection in the baghouse to control H_2SO_4 emissions. The facility is already required to: ● Utilize sorbent injection in conjunction with Baghouse IMF01-BH to reduce the emissions of H_2SO_4 from the melting furnace. Compliance shall be determined by showing compliance with SO_2 emission limits given under Table 4.1.4.a using CEMS as required under 4.2.6. (condition 4.1.12.c) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		• Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) • Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) • Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. • Performance Test Methods: for H_2SO_4 the specified test method is Method 8 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) • Records of Monitoring (condition 4.4.1) • Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) • Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) • The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.

Pollutant	Emission Limits	Five Factor Monitoring Analysis
HF	0.37 lb/hr 1.55 tons/yr 0.015 lb/ton melt from Subpart DDD	The HF emission limits were established based on 40 C.F.R. 63 Subpart DDD emission limits and converted to hourly and annual limits based on the maximum design capacity of the furnace. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results showed an average of 0.0012 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 0.0 tons/yr and 0.0 tons/yr, respectively. This is less than 1% of the emission limits. The Melting Furnace IMF01 utilizes sorbent injection in the baghouse to control HF. The facility is already required to: ● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.4.d (emission limits), 4.2.16 (operations, maintenance, and monitoring plan), 4.3.7 (initial test and subsequent testing at least once every 5 years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● Utilize sorbent injection in conjunction with Baghouse IMF01-BH to reduce the emissions of HF from the melting furnace. Compliance shall be determined by showing compliance with SO_2 emission limits given under Table 4.1.4.a using the CEMS required under 4.2.6. (condition 4.1.12.c) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for HF the specified test method is Method 26A under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The melting furnace IMF01 HF limits are based on 40 C.F.R. 63 Subpart

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		DDD limits which all mineral wool facilities at a major source of HAPs using slag as a raw material are subject to and compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
HCl	0.29 lb/hr 1.24 tons/yr 0.012 lb/ ton melt from Subpart DDD	The HCl emission limits were established based on 40 C.F.R. 63 Subpart DDD emission limits and converted to hourly and annual limits based on the maximum design capacity of the furnace. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results showed an average of 0.23 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 0.48 tons/yr and 0.59 tons/yr, respectively. The Melting Furnace IMF01 utilizes sorbent injection in the baghouse to control HCL. The facility is already required to: ● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.4.d (emission limits), 4.2.16 (operations, maintenance, and monitoring plan), 4.3.7 (initial test and subsequent testing at least once every 5 years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● Utilize sorbent injection in conjunction with Baghouse IMF01-BH to reduce the emissions of HCl from the melting furnace. Compliance shall be

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		determined by showing compliance with the SO_2 emission limits given under Table 4.1.4.a using the CEMS required under 4.2.6. (condition 4.1.12.c) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for HCl the specified test method is Method 26A under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The melting furnace IMF01 HCl limits are based on 40 C.F.R. 63 Subpart DDD limits which all mineral wool facilities at a major source of HAPs using slag as a raw material are subject to and compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
Carbonyl Sulfide (COS)	0.37 lb/hr 1.57 tons/yr 3.2 lb/ton melt from Subpart DDD	The COS emission limits were established based on 40 C.F.R. 63 Subpart DDD emission limits and converted to hourly and annual limits based on the maximum design capacity of the furnace. NSR permit R14-0037A established the emission limits for the furnace using these values. Emissions from IMF01 can vary depending on the production rate while the furnace is in operation, but emission limits in condition 4.1.4.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results showed an average of 0.23 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 0.48 tons/yr and 0.59 tons/yr, respectively. The Melting Furnace IMF01 does not use add-on controls for COS. The facility is already required to: ● Comply with the requirements of 40 C.F.R. 63

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		Subpart DDD (conditions: 4.1.4.d (emission limits), 4.2.16 (operations, maintenance, and monitoring plan), 4.3.7 (initial test and subsequent testing at least once every 5 years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the melting furnace IMF01 maximum hours of operation limits (8,400 hrs/yr from condition 4.1.4.e). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.4.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for COS the specified test method is Method 15 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The melting furnace IMF01 COS limits are based on 40 C.F.R. 63 Subpart DDD limits which all mineral wool facilities with open-top cupolas at a major source of HAPs are subject to and compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
Total HAPs	3.43 lb/hr 14.42 tons/yr	Total HAPs for IMF01 is the sum of the following individual HAPs: HF, HCl, COS, Formaldehyde, Fluorides, Arsenic, Lead, Mercury, Phenol, and Mineral Fiber. The Title V permit has individual emission limits for HF, HCl, COS and Mineral Fiber which have already been addressed by the five factor analyses for those pollutants and account for 14.09 tons/year of the permitted 14.42 tons/year of total HAPs. Formaldehyde and Phenol do not have individual emission limits but are classified as both VOCs and HAPs. Thus they have the same five factor analysis as VOC. Arsenic, Lead, and Mercury do not have individual permitted limits but are classified as both particulate matter (PM) and HAPs. Thus they have the same five factor analysis as PM. The likelihood of violating the Total HAP emission limits is

<table>
<tr><th>Pollutant</th><th>Emission Limits</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The actual emissions reported for 2022 and 2023 were:
<table>
<tr><th>Pollutant</th><th>2022</th><th>2023</th></tr>
<tr><td>HF</td><td>0.0 tpy</td><td>0.0 tpy</td></tr>
<tr><td>HCl</td><td>0.48 tpy</td><td>0.59 tpy</td></tr>
<tr><td>COS</td><td>0.1 tpy</td><td>0.13 tpy</td></tr>
<tr><td>Formaldhyde</td><td>0.01 tpy</td><td>0.01 tpy</td></tr>
<tr><td>Phenol</td><td>0.15 tpy</td><td>0.19 tpy</td></tr>
<tr><td>Lead</td><td>0.000077 tpy</td><td>0.000095 tpy</td></tr>
<tr><td>Arsenic</td><td>0.000185 tpy</td><td>0.00022 tpy</td></tr>
<tr><td>Mercury</td><td>0.0012 tpy</td><td>0.00148 tpy</td></tr>
<tr><td>Mineral Fiber</td><td>0 tpy</td><td>0.28 tpy</td></tr>
<tr><td>Total HAPs</td><td>0.741462 tpy</td><td>1.201795 tpy</td></tr>
</table></td></tr>
</table>

5d) This comment states that there is insufficient monitoring to ensure compliance with the limits for the Gutter Exhaust (GUT-EX), Spinning Chamber (SPN), Curing Oven Hoods (CO-HD), Curing Oven (CO), and Cooling Section (CS) collectively emitted from Stack HE01 in condition 4.1.5.a.

WV DAQ Response

Compliance with the 4.1.5.a emission limits are derived from several underlying sources and compliance is monitored using several methods. In this response the individual emission limits will be separated out and the five factor monitoring analysis for each pollutant will be discussed.

Pollutant	Emission Limits	Five Factor Monitoring Analysis
CO	9.82 lb/hr 41.24 tons/yr	The CO emission limits were established based on a maximum concentration value developed using stack test performance data for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that vent to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the furnace was operating at maximum production capacity. The January 2022 performance test results show an average of 3.72 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 6.83 tons/yr and 8.69 tons/yr, respectively. These are less than half the emission limits. There are no control devices used to control CO emissions from Stack HE01. The facility is already required to: ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of SO_2, Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for CO the specified test

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		method is Method 10 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
NO_X	1.57 lb/hr 6.60 tons/yr	The NO_X emission limits were established based on a maximum concentration value developed using stack test performance data for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that vent to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		January 2022 performance test results show an average of 1.31 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 2.41 tons/yr and 3.06 tons/yr, respectively. The emission units emitting through Stack HE01 utilize good combustion practices to reduce the NO_X emissions. They also utilize low NO_Xburners. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of SO_2, Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for NO_X the specified test method is Method 7E under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition

<table>
<tr><th>Pollutant</th><th>Emission Limits</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td>$PM_{2.5}$[1], PM_{10}[1], PM[2]

[1] Includes condensables
[2]Filterable only</td><td>8.00 lb/hr

33.60 tons/yr</td><td>The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on a maximum concentration value developed using stack test performance data for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that emit to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The January 2022 performance test results show emission averages of:
<table><tr><td>$PM_{2.5}$</td><td>4.62 lb/hr</td></tr><tr><td>PM_{10}</td><td>4.62 lb/hr</td></tr><tr><td>PM (filterable only)</td><td>4.62 lb/hr</td></tr></table>
Additionally, the actual emissions reported for 2022 and 2023 were:</td></tr>
</table>

<table>
<tr><th>Pollutant</th><th>Emission Limits</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>5.05 tpy</td><td>6.43 tpy</td></tr>
<tr><td>PM_{10}</td><td>5.05 tpy</td><td>6.43 tpy</td></tr>
<tr><td>PM (filterable only)</td><td>5.05 tpy</td><td>6.43 tpy</td></tr>
</table>

The Stack HE01 uses a Wet Electrostatic Precipitator (WESP) to control particulate matter emissions.

The facility is already required to:
● Operate the WESP to reduce particulate matter emissions; and monitor the secondary voltage and secondary amperage range of the WESP for optimum mitigation of particulate matter emissions. The WESP’s monitoring system shall include an alarm to notify the control room if the secondary voltage or amperage indicates abnormal performance of the unit. The appropriate alarm set-point(s) are determined under condition 4.1.12.g. (condition 4.1.12.e)
● Maximum design capacity compliance. (condition 4.2.1)
● Maximum design heat input compliance. (condition 4.2.2)
● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber’s maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5)
● Control Device Parameter Monitoring of the secondary voltage and secondary amperage. (condition 4.2.12)
● Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring once per calendar month is part of the multi-pronged approach to monitoring PM emissions. (condition 4.2.13.)
● Emission Point Performance Testing for all pollutants
</td></tr>
</table>

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		under Table 4.1.5.a with the exception of SO_2, Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for particulate matter the specified test methods are Methods 201A, 202, and 5 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
SO_2	0.01 lb/hr 0.05 tons/yr	The SO_2 emission limits were established based on a maximum concentration value developed using stack test performance data for emission Point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that emit to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were 0.02 tons/yr and 0.03 tons/yr, respectively. There are no add-on control devices to control the SO_2 emissions from Stack HE01. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
VOC	44.66 lb/hr 187.55 tons/yr	The VOC emission limits were established based on a maximum concentration value developed using stack test performance data for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that emit to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The January 2022 performance test results show an average of 15.7 lb/hr. Additionally, the actual emissions reported for 2022 and 2023 were 28.83 tons/yr and 36.68 tons/yr, respectively. These are less than half the emission limits. Stack HE01 utilizes afterburner CO-AB to control the emissions of VOC. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● The permittee must install and operate a curing oven

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		afterburner. (condition 4.1.12.f). The afterburner must comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.5.c.1.ii.B (maintain the operating temperature so the average operating temperature for each three-hour block period never falls below the average temperature established during the performance test), 4.1.12.f.3 (operate a device to continuously measure and record the operating temperature of the firebox), 4.2.16 (operations, maintenance, and monitoring plan for the afterburner), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Control Device Parameter Monitoring to continuously monitor and record the firebox temperature pursuant to 40 C.F.R. 63 Subpart DDD (condition 4.2.12) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for VOC the specified test methods are Methods 18 and 25A under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
Phenol	17.05 lb/hr 71.61 tons/yr 0.71 lb/ton melt from Subpart DDD	The Phenol emission limits were established based on a maximum concentration value developed using 40 C.F.R. 63 Subpart DDD limits and converted to hourly and annual limits for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that emit to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The January 2022 performance test results show an average of 10.0 lb/hr and 0.49 lb/ton melt. Additionally, the actual emissions reported for 2022 and 2023 were 16.53 tons/yr and 20.65 tons/yr, respectively.

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		Stack HE01 utilizes afterburner CO-AB to control the emissions of Phenol. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.5.c.1.ii.A (maintain the free-formaldehyde content of each resin lot and the formaldehyde content of each binder formulation at or below the specification ranges of the resin and binder used during the performance test in condition 4.3.7), 4.1.5.c.1.ii.B (maintain the operating temperature so the average operating temperature for each three-hour block period never falls below the average temperature established during the performance test), 4.1.12.f.3 (operate a device to continuously measure and record the operating temperature of the firebox; and monitor and record the free-formaldehyde content of each resin lot and the formulation of each batch of binder used, including the formaldehyde, phenol, and methanol content), 4.2.16 (operations, maintenance, and monitoring plan for the afterburner), 4.3.7 (initial test and subsequent testing at least once every 5 years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● The permittee must install and operate a curing oven afterburner. (condition 4.1.12.f) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Control Device Parameter Monitoring to continuously monitor and record the firebox

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		temperature pursuant to 40 C.F.R. 63 Subpart DDD (condition 4.2.12) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for phenol the specified test method is Method 318 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The Phenol limits for HE01 are based on 40 C.F.R. 63 Subpart DDD limits for mineral wool facilities at a major source of HAPs which have combined vertical collection/curing operations and

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
Formaldehyde	3.27 lb/hr 13.74 tons/yr 2.4 lb/ton melt from Subpart DDD	The Formaldehyde emission limits were established based on a maximum concentration value developed using 40 C.F.R. 63 Subpart DDD limits and converted to hourly and annual limits for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that emit to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The January 2022 performance test results show an average of 0.79 lb/hr and 0.04 lb/ton melt. Additionally, the actual emissions reported for 2022 and 2023 were 1.35 tons/yr and 1.69 tons/yr, respectively. Actual emissions are much lower than the limits. Stack HE01 utilizes afterburner CO-AB to control the emissions of Formaldehyde. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.5.c.1.ii.A (maintain the free-formaldehyde content of each resin lot and the formaldehyde content of each binder formulation at or below the specification ranges of the resin and

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		binder used during the performance test in condition 4.3.7), 4.1.5.c.1.ii.B (maintain the operating temperature so the average operating temperature for each three-hour block period never falls below the average temperature established during the performance test), 4.1.12.f.3 (operate a device to continuously measure and record the operating temperature of the firebox; and monitor and record the free-formaldehyde content of each resin lot and the formulation of each batch of binder used, including the formaldehyde, phenol, and methanol content), 4.2.16 (operations, maintenance, and monitoring plan for the afterburner), 4.3.7 (initial test and subsequent testing at least once every five years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● The permittee must install and operate a curing oven afterburner. (condition 4.1.12.f) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Control Device Parameter Monitoring to continuously monitor and record the firebox temperature pursuant to 40 C.F.R. 63 Subpart DDD (condition 4.2.12) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for formaldehyde the specified test method is Method 318 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The formaldehyde limits for HE01 are based on 40 C.F.R. 63 Subpart DDD limits for mineral wool facilities at a major source of HAPs which have combined vertical collection/curing operations and compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
Methanol	24.34lb/hr 102.21 tons/yr 0.92 lb/ ton melt from Subpart	The Methanol emission limits were established based on a maximum concentration value developed using 40 C.F.R. 63 Subpart DDD limits and converted to hourly and annual limits for emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the

Pollutant	Emission Limits	Five Factor Monitoring Analysis
	DDD	emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that vent to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the emission units were operating at maximum production capacity. The January 2022 performance test results show an average of 14.1 lb/hr and 0.68 lb/ton melt. Additionally, the actual emissions reported for 2022 and 2023 were 22.93 tons/yr and 28.65 tons/yr, respectively. Stack HE01 utilizes afterburner CO-AB to control the emissions of Methanol. The facility is already required to: ● Utilize good combustion practices on the emission units emitting to Stack HE01. (condition 4.1.5.a Footnote (1) outlines the practices in detail) ● Comply with the requirements of 40 C.F.R. 63 Subpart DDD (conditions: 4.1.5.c.1.ii.A (maintain the free-formaldehyde content of each resin lot and the formaldehyde content of each binder formulation at or below the specification ranges of the resin and binder used during the performance test in condition 4.3.7), 4.1.5.c.1.ii.B (maintain the operating temperature so the average operating temperature for each three-hour block period never falls below the average temperature established during the performance test), 4.1.12.f.3 (operate a device to continuously measure and record the operating temperature of the firebox; and monitor and record the free-formaldehyde content of each resin lot and the formulation of each batch of binder used, including the formaldehyde, phenol, and methanol content), 4.2.16 (operations, maintenance, and monitoring plan for the afterburner), 4.3.7 (initial test

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		and subsequent testing at least once every five years), 4.4.5 (recordkeeping), and 4.5.3 (reporting)) ● The permittee must install and operate a curing oven afterburner. (condition 4.1.12.f) ● Maximum design capacity compliance. (condition 4.2.1) ● Maximum design heat input compliance. (condition 4.2.2) ● Monitor and record the hours of operation to ensure compliance with the curing oven and spinning chamber's maximum hours of operation limits (8,400 hrs/yr from condition 4.1.5.d). (condition 4.2.5) ● Control Device Parameter Monitoring to continuously monitor and record the firebox temperature pursuant to 40 C.F.R. 63 Subpart DDD (condition 4.2.12) ● Emission Point Performance Testing for all pollutants under Table 4.1.5.a with the exception of Mineral Fiber, and Total HAPs (condition 4.3.2) ● Performance Test Schedule is based on prior testing results and is either annual or once/3 years (condition 4.3.3). Currently required to test once/3 years. ● Performance Test Methods: for methanol the specified test method is Method 318 under 40 C.F.R. 60, Appendix A. (condition 4.3.5) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6)

Pollutant	Emission Limits	Five Factor Monitoring Analysis
		There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. The methanol limits for HE01 are based on 40 C.F.R. 63 Subpart DDD limits for mineral wool facilities at a major source of HAPs which have combined vertical collection/curing operations and compliance is demonstrated through the monitoring, testing, reporting and recordkeeping requirements of 40 C.F.R. 63 Subpart DDD. The testing frequency specified in the minor NSR permit (annual or once per 3 yrs) is more stringent than the Subpart DDD testing frequency (once per 5 yrs).
Mineral Fiber	12.00 lb/hr 50.39 tons/yr	The Mineral Fiber emission limits were established based on the very conservative assumption that 100% of PM was mineral fiber for the emission units emitting to emission point HE01 at maximum heat input capacity and maximum design capacity of the associated emission units. NSR permit R14-0037A established the emission limits for HE01 using these values. Emissions from HE01 can vary depending on the production rate while the emission units that vent to HE01 are in operation, but emission limits in condition 4.1.5.a represent the emissions when operating at maximum production capacity. The Mineral Fiber emissions are conservatively assumed to be equal to filterable PM. Therefore, the likelihood of violating the emission limit for mineral fiber is extremely low because Mineral Fiber is a component of particulate matter which has more stringent limits than Mineral Fiber. See discussion about $PM_{2.5}$, PM_{10} and PM for more details on the five factor monitoring analysis.

Pollutant	Emission Limits	Five Factor Monitoring Analysis
Total HAPs	56.65 lb/hr 237.95 tons/yr	Total HAPs for HE01 is the sum of the following individual HAPs: Phenol, Formaldehyde, Methanol, and Mineral Fiber. Please see the five factor analysis for all the individual HAPs that are components of Total HAPs for HE01.

5e) This comment states that there is insufficient monitoring to ensure compliance with the limits in conditions 4.1.2.a, 4.1.2.c, 4.1.2.d, and 4.1.2.e.

WV DAQ Response

Condition 4.1.2.a specifies that the Raw Material and Portable Melting Crushing throughputs shall not exceed the stated maximum design capacities.

	Limit	Monitoring Analysis
Raw Material	716 ton/day	Raw Material throughput limits are based on the maximum design capacity of the Charging Building (B220) conveyor belt which is the choke point of the material handling operations. The likelihood of violating the ton/day raw material limit is low due to the maximum design capacity of the B220 conveyors which are 29.8 tons/hr resulting in 715.2 tons/day (29.8 tons/hr x 24 hrs/day = 715.2 tons/day) which is less than the permitted limit. The facility is already required to: ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1)

	Limit	Monitoring Analysis
		There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
Portable Melting Crushing	<150 ton/hr	Portable Melting Crusher throughputs are based on the maximum design capacity of the unit. The likelihood of violating the ton/hr throughput limit for the portable melting crusher is low due to the fact that the limit was set using the maximum design capacity of the unit. The facility is already required to: ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent

	Limit	Monitoring Analysis
		than the existing Title V Permits for the referenced facilities.

Condition 4.1.2.c specifies emission limits for the pollutants $PM_{2.5}$, PM_{10}, and PM for material handling operations. The hourly emission limits for each emission point range from 0.01 to 0.66 lb/hr, with annual emission limits ranging from 0.01 to 2.90 tons per year. For these types of material handling emission sources, continuous monitoring is not feasible and a multi-pronged approach to demonstrate compliance is being used. In some cases, these emission points are also subject to 40 C.F.R. 60 Subpart OOO which has monitoring, testing, recordkeeping, and reporting included in this permit. A breakdown of each emission unit's five factor monitoring analysis is given below:

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td rowspan="2">IMF07</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.01 tons/yr (tpy)

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for the filter fines day silo (IMF07) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF07 can vary depending on the production rate while IMF07 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the filter fines day silo was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.0028 tpy</td><td>0.0035 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.0057 tpy</td><td>0.0070 tpy</td></tr>
<tr><td>PM</td><td>0.0057 tpy</td><td>0.0070 tpy</td></tr>
</table>
</td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr

0.01 tpy

0.002 gr/dscf</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			This unit utilizes a fabric filter control device (IMF07A-FF). The facility is already required to: ● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.2.13.d (quarterly opacity testing), 4.3.6 (performance testing methods), 4.4.4 (recordkeeping), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter. ● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4) ● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5)

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF07 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metallic material handling operations are subject.</td></tr>
<tr><td rowspan="2">IMF08</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.03 tpy

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for the sorbent silo (IMF08) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF08 can vary depending on the production rate while IMF08 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the sorbent silo was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.02 tpy</td></tr>
</table></td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr

0.06 tpy

0.002 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM_{10}</td><td>0.03 tpy</td><td>0.03 tpy</td></tr>
<tr><td>PM</td><td>0.03 tpy</td><td>0.03 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (IMF08-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 opacity requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc’s Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="2">IMF09</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.03 tpy

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for spent sorbent silo (IMF09) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF09 can vary depending on the production rate while IMF09 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the spent sorbent silo was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.02 tpy</td></tr>
</table></td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr

0.06 tpy

0.002 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM_{10}</td><td>0.03 tpy</td><td>0.03tpy</td></tr>
<tr><td>PM</td><td>0.03 tpy</td><td>0.03 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (IMF09-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 opacity requirements. (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="2">IMF10</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.03 tpy

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for the filter fines receiving silo (IMF10) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF10 can vary depending on the production rate while IMF10 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the filter fines receiving silo was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.002 tpy</td></tr></table></td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr

0.06 tpy

0.002 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM_{10}</td><td>0.03 tpy</td><td>0.03 tpy</td></tr>
<tr><td>PM</td><td>0.03 tpy</td><td>0.03 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (IMF10-FF).

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.2.13.d (quarterly opacity testing), 4.3.6 (performance testing methods), 4.4.4 (recordkeeping), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF10 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.
IMF11	$PM_{2.5}$	0.01 lb/hr 0.01 tpy 0.001 gr/dscf	The $PM_{2.5}$, PM_{10}, and PM emission limits for the conveyor transfer point IMF11 were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF11 can vary depending on the production rate while IMF11 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the conveyor transfer point was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
	PM_{10}/PM	0.01 lb/hr 0.02 tpy 0.002 gr/dscf	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.004 tpy</td><td>0.005 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.008 tpy</td><td>0.010 tpy</td></tr>
<tr><td>PM</td><td>0.008 tpy</td><td>0.010 tpy</td></tr>
</table>
This unit utilizes a fabric filter control device (IMF11-FF).
The facility is already required to:

Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.2.13.d (quarterly opacity testing), 4.3.6 (performance testing methods), 4.4.4 (recordkeeping), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12)
Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
Records of Monitoring (condition 4.4.1)
Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)

</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF11 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.
IMF12	$PM_{2.5}$ /PM_{10}	0.01 lb/hr 0.02 tpy 0.001 gr/dscf	The $PM_{2.5}$, PM_{10}, and PM emission limits for conveyor transfer point IMF12 were established using transfer point emission factors taken from AP-42 Section 11.19.2 and then factoring in the full enclosure's control efficiency (80%) per application instructions and forms for General Permit G40-C by West Virginia Department of Environmental Protection. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF12 can vary depending on the production rate while IMF12 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum
	PM	0.02 lb/hr 0.06 tpy 0.002 gr/dscf	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the conveyor transfer point was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.01 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.01 tpy</td></tr>
<tr><td>PM</td><td>0.02 tpy</td><td>0.03 tpy</td></tr>
</table>
This unit utilizes a full enclosure to reduce particulate emissions, but has no add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1)</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF12 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.</td></tr>
<tr><td rowspan="2">IMF14</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.01 tpy

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for the Raw Material Reject Stockpile (IMF14) were established based on design specifications including the base area of the stockpile and type of enclosure. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF14 can vary depending on the production rate while IMF14 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the raw material reject stockpile was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.0001 tpy</td><td>0.0001 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.0008 tpy</td><td>0.0008 tpy</td></tr>
</table></td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr

0.01 tpy

0.002 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM</td><td>0.0018 tpy</td><td>0.0018 tpy</td></tr>
</table>

This unit utilizes a partial enclosure to reduce particulate emissions, but has no add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc’s Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF14 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.</td></tr>
<tr><td rowspan="2">IMF15</td><td>$PM_{2.5}$ /PM_{10}</td><td>0.01 lb/hr

0.03 tpy

0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for conveyor transfer point IMF15 were established using transfer point emission factors taken from AP-42 Section 11.19.2 and then factoring in the 4-sided enclosure with rubber drop guards’s control efficiency (75%) per application instructions and forms for General Permit G40-C by West Virginia Department of Environmental Protection. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF15 can vary depending on the production rate while IMF15 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the conveyor transfer point was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:

<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM</td><td>0.02 tpy</td><td>0.03 tpy</td></tr></table>
This unit utilizes a partial enclosure to reduce particulate emissions, but has no add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60</td></tr>
<tr><td>PM</td><td>0.02 lb/hr

0.08 tpy

0.002 gr/dscf</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter. ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF15 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.
IMF16	$PM_{2.5}$ /PM_{10}	0.01 lb/hr	The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on maximum design specifications for

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>0.02 tpy

0.001 gr/dscf</td><td rowspan="2">conveyor transfer point IMF16. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF16 can vary depending on the production rate while IMF16 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the conveyor transfer point was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM</td><td>0.02 tpy</td><td>0.03 tpy</td></tr></table>
This unit utilizes a full enclosure to reduce particulate emissions, but has no add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring</td></tr>
<tr><td></td><td>PM</td><td>0.02 lb/hr

0.06 tpy

0.002 gr/dscf</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF16 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject.
IMF17	$PM_{2.5}$	0.13 lb/hr 0.56 tpy	The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on maximum design specifications of the equipment in the B220 material handling building that emit to emission point IMF17. NSR permit R14-0037A established the emission limits for IMF17 using these design specifications. Emissions from IMF17 can vary depending on the production rate while IMF17 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the equipment in the B220 material handling building was operating at maximum production capacity. Additionally,
	PM_{10}	0.14 lb/hr 0.61 tpy	
	PM	0.34 lb/hr 1.49 tpy	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.01 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.01 tpy</td></tr>
<tr><td>PM</td><td>0.02 tpy</td><td>0.03 tpy</td></tr>
</table>
This unit utilizes a full enclosure to reduce particulate emissions, but has no add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit, 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>permit for ROXUL USA, Inc’s Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities. IMF17 is subject 40 C.F.R. 60 Subpart OOO to which all facilities with non-metalic material handling operations are subject</td></tr>
<tr><td rowspan="2">IMF21</td><td>$PM_{2.5}$</td><td>0.00 lb/hr
0.01 tpy
0.001 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on design specifications for the charging building vacuum cleaning filter (IMF21). NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from IMF21 can vary depending on the production rate while IMF21 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming that the charging building vacuum cleaning filter was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:

<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>PM</td><td>0.01 tpy</td><td>0.01 tpy</td></tr></table>
This unit utilizes a fabric filter control device (IMF21-FF).</td></tr>
<tr><td>PM_{10}/PM</td><td>0.01 lb/hr
0.01 tpy
0.002 gr/dscf</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			The facility is already required to: ● Comply with the applicable 45CSR7 opacity requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter. ● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4) ● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="3">CE01</td><td>$PM_{2.5}$/ PM_{10}</td><td>0.21 lb/hr

0.94 tpy

0.002 gr/dscf</td><td rowspan="3">The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on design specifications of the de-dusting baghouse (CE01). NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CE01 can vary depending on the production rate while CE01 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the de-dusting baghouse was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table><tr><th>Pollutant</th><th>2022</th><th>2023</th></tr><tr><td>$PM_{2.5}$</td><td>0.0057 tpy</td><td>0.007 tpy</td></tr><tr><td>PM_{10}</td><td>0.0114 tpy</td><td>0.014 tpy</td></tr><tr><td>PM</td><td>0.0114 tpy</td><td>0.014 tpy</td></tr></table>
The Mineral Fiber Emissions are conservatively assumed to be equal to PM.

This unit is a baghouse control device for de-dusting</td></tr>
<tr><td>PM</td><td>0.21 lb/hr

0.94 tpy

0.0041 gr/dscf</td></tr>
<tr><td>Mineral Fiber</td><td>0.21 lb/hr

0.94 tpy</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			operations of the dividing and splitting saws. The facility is already required to: ● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c) ● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4) ● Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring once per calendar month is part of the multi-pronged approach to monitoring. (condition 4.2.13.) ● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6)

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc’s Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025).The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="3">CE02</td><td>$PM_{2.5}$/ PM_{10}</td><td>0.22 lb/hr
0.93 tpy
0.002 gr/dscf</td><td rowspan="3">The $PM_{2.5}$, PM_{10}, and PM emission limits were established based on design specifications of the vacuum cleaning baghouse CE02. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CE02 can vary depending on the production rate while CE02 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming the vacuum cleaning baghouse was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.33 tpy</td><td>0.42 tpy</td></tr><tr><td>PM_{10}</td><td>0.33 tpy</td><td>0.42 tpy</td></tr><tr><td>PM</td><td>0.33 tpy</td><td>0.42 tpy</td></tr><tr><td>Mineral Fiber</td><td>0.33 tpy</td><td>0.42 tpy</td></tr></table></td></tr>
<tr><td>PM_{10}</td><td>0.44 lb/hr
1.85 tpy
0.0041 gr/dscf</td></tr>
<tr><td>Mineral Fiber</td><td>0.22 lb/hr
0.93 tpy</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			The Mineral Fiber Emissions are conservatively assumed to be equal to PM. This unit is a baghouse control device for vacuum cleaning of the packaging operations. The facility is already required to: ● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter. ● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4) ● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14) ● Records of Monitoring (condition 4.4.1) ● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2) ● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>submitted semi-annually (conditions 3.5.6 and 4.5.1)
● Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="2">CM08</td><td>$PM_{2.5}$</td><td>0.03 lb/hr

0.12 tpy

0.002 gr/dscf</td><td rowspan="2">The $PM_{2.5}$, PM_{10}, and PM emission limits for recycle plant building vent 3 (CM08) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CM08 can vary depending on the production rate while CM08 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.

The likelihood of violating the emission limits is low given that the emission limits were set assuming that recycle plant building vent 3 was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:

<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.06 tpy</td><td>0.07 tpy</td></tr></table></td></tr>
<tr><td>PM_{10}/PM</td><td>0.06 lb/hr

0.24 tpy

0.004 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM_{10}</td><td>0.11 tpy</td><td>0.14 tpy</td></tr>
<tr><td>PM</td><td>0.11 tpy</td><td>0.14 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (CM08-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>

Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1)
Annual emissions reporting for the facility (condition 3.1.6)

There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc’s Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
</td></tr>
<tr><td rowspan="2">CM09</td><td>$PM_{2.5}$</td><td>0.03 lb/hr
0.12 tpy
0.002 gr/dscf</td><td rowspan="2">
The $PM_{2.5}$, PM_{10}, and PM emission limits for recycle plant building vent 4 (CM09) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CM09 can vary depending on the production rate while CM09 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity.
The likelihood of violating the emission limits is low given that the emission limits were set assuming the recycle plant building vent 4 was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.06 tpy</td><td>0.07 tpy</td></tr>
</table>
</td></tr>
<tr><td>PM_{10}/PM</td><td>0.06 lb/hr
0.24 tpy
0.004 gr/dscf</td></tr>
</table>

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>PM_{10}</td><td>0.11 tpy</td><td>0.14 tpy</td></tr>
<tr><td>PM</td><td>0.11 tpy</td><td>0.14 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (CM09-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8)
● Annual compliance certifications. (condition 3.5.5)
</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
CM10	$PM_{2.5}$	0.33 lb/hr 1.45 tpy 0.002 gr/dscf	The $PM_{2.5}$, PM_{10}, and PM emission limits for recycle plant building vent 1 (CM10) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CM10 can vary depending on the production rate while CM10 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the recycle plant building vent 1 was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
	PM_{10}/PM	0.66 lb/hr 2.90 tpy 0.004 gr/dscf	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.33 tpy</td><td>0.41 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.33 tpy</td><td>0.41 tpy</td></tr>
<tr><td>PM</td><td>0.33 tpy</td><td>0.41 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (CM10-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
● The permittee is required to promptly submit supplemental reports and notices in regards to
</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
CM11	$PM_{2.5}$	0.33 lb/hr 1.45 tpy 0.002 gr/dscf	The $PM_{2.5}$, PM_{10}, and PM emission limits for recycle plant building vent 2 (CM11) were established based on design specifications of the material handling vent and fabric filter. NSR permit R14-0037A established the emission limits for the unit using these design specifications. Emissions from CM11 can vary depending on the production rate while CM11 is in operation, but emission limits in condition 4.1.2.c represent the emissions when operating at maximum production capacity. The likelihood of violating the emission limits is low given that the emission limits were set assuming the recycle plant building vent 2 was operating at maximum production capacity. Additionally, the actual emissions reported for 2022 and 2023 were:
	PM_{10}/PM	0.66 lb/hr 2.90 tpy 0.004 gr/dscf	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Pollutant</td><td>2022</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.68 tpy</td><td>0.84 tpy</td></tr>
<tr><td>PM_{10}</td><td>1.36 tpy</td><td>1.68 tpy</td></tr>
<tr><td>PM</td><td>1.36 tpy</td><td>1.68 tpy</td></tr>
</table>

This unit utilizes a fabric filter control device (CM11-FF).

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Operation and Maintenance of Air Pollution Control Equipment. (condition 4.1.12.a)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Maintain and operate the control devices according to the requirements given under 4.1.12.a. Keep a record of all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). (condition 4.2.4)
● Baghouse/Fabric Filter Compliance Demonstrations for outlet grain loading limit in condition 4.1.2.c. (condition 4.2.14)
● Records of Monitoring (condition 4.4.1)
● Record of Maintenance of Air Pollution Control Equipment (condition 4.4.2)
● Record of Malfunctions of Air Pollution Control Equipment (condition 4.4.3)
</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.

Condition 4.1.2.d specifies emission limits on fugitive emissions which were established using the maximum design capacity of the equipment. Compliance with the fugitive emission limits of 4.1.2.d is demonstrated by installing the equipment as permitted and monitoring via condition 4.2.1. which is used for Maximum Design Capacity Compliance. Also, RM_REJ is subject to the requirements of 40 C.F.R. 60 Subpart OOO which are included in the Title V permit.

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
B215	$PM_{2.5}$	0.01 lb/hr	The fugitive particulate matter emission limits for the drop

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>0.01 tpy</td><td rowspan="3">into the raw material loading hopper are based on the maximum daily loading rate of 562 ton/day with hourly emission limits determined using a 24-hour average. NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from the drop into the raw material loading hopper vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.d represent the emissions when operating at maximum material loading rate.

The likelihood of violating the emission limits is low since the limits were set using the maximum quantity of materials delivered daily and annually. Additionally, the actual emissions reported for 2022 and 2023 were:

<table><tr><td>Pollutant</td><td>2022</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0.0012 tpy</td><td>0.0017 tpy</td></tr><tr><td>PM_{10}</td><td>0.0079 tpy</td><td>0.011 tpy</td></tr><tr><td>PM</td><td>0.0166 tpy</td><td>0.023 tpy</td></tr></table>
This unit utilizes a 3-sided enclosure with a cover to reduce particulate matter emissions, but has no add-on control device.

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring emissions of particulate matter.
● Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)</td></tr>
<tr><td></td><td>PM_{10}</td><td>0.01 lb/hr

0.03 tpy</td></tr>
<tr><td></td><td>PM</td><td>0.01 lb/hr

0.06 tpy</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
RMS	$PM_{2.5}$	0.01 lb/hr 0.01 tpy	The fugitive particulate matter emission limits for raw material outdoor storage (RMS) are based on the maximum daily loading rate of 716 ton/day with hourly emissions determined using a 24-hour average. NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from raw material outdoor storage vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.d represent the emissions when operating at maximum material loading rate. The likelihood of violating the emission limits is low since the limits were set using the maximum loading rate and assuming the maximum quantity of materials delivered daily and annually. Note: RMS has not been constructed, so there are no actual emissions to report from this emission unit.
	PM_{10}	0.01 lb/hr 0.05 tpy	
	PM	0.03 lb/hr 0.11 tpy	

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			This unit utilizes a 3-sided enclosure to reduce particulate matter emissions, but does not have an add-on control device. The facility is already required to: ● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring. ● Comply with the applicable requirements for Outdoor Material Storage Areas. (condition 4.1.2.g.) ● Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td></td><td>handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.</td></tr>
<tr><td rowspan="3">RM_REJ</td><td>$PM_{2.5}$</td><td>0.01 lb/hr

0.01 tpy</td><td rowspan="3">The fugitive particulate matter emission limits for reject raw material (RM_REJ) are based on the maximum daily loading rate of 6 ton/day with hourly emissions determined using a 24-hour average. NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from reject raw material (RM_REJ) vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.d represent the emissions when operating at maximum material loading rate.

The likelihood of violating the emission limits is low since the limits were set using the maximum loading rate based on maximum quantity of materials delivered daily and annually. Additionally, the actual emissions reported for 2023 were:

<table><tr><td>Pollutant</td><td>2023</td></tr><tr><td>$PM_{2.5}$</td><td>0 tpy</td></tr><tr><td>PM_{10}</td><td>0.001 tpy</td></tr><tr><td>PM</td><td>0.001 tpy</td></tr></table>
This unit utilizes a 4-sided rubber guard to reduce particulate matter emissions, but does not have an add-on control device.

The facility is already required to:
● Comply with the requirements of 40 C.F.R. 60 Subpart OOO (conditions: 4.1.2.j (7 percent opacity limit), 4.3.6 (performance testing methods), 4.5.2 (reporting)). Opacity is considered a surrogate emissions measurement thus the requirement to</td></tr>
<tr><td>PM_{10}</td><td>0.01 lb/hr

0.01 tpy</td></tr>
<tr><td>PM</td><td>0.01 lb/hr

0.01 tpy</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			conduct visible emissions monitoring is part of the multi-pronged approach to monitoring. ● Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
B170	$PM_{2.5}$	0.01 lb/hr 0.01 tpy	The fugitive particulate matter emission limits for the portable crusher (drop to pit waste) are based on the maximum daily loading rate of 1800 ton/day with the hourly emissions determined using a 24-hour average, and the annual emissions based on the permitted maximum hours of operation (540 hrs). NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from the portable
	PM_{10}	0.01 lb/hr 0.02 tpy	
	PM	0.01 lb/hr	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>0.04 tpy</td><td>crusher (drop to pit waste) vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.d represent the emissions when operating at maximum material loading rate.

The likelihood of violating the emission limits is low since the limits were set using the maximum loading rate based on maximum design capacity of the Portable Crusher and hours of operation. Additionally, the actual emissions reported for 2023 were:

<table>
<tr><td>Pollutant</td><td>2023 (Crushing)[1]</td><td>2023 (Drop to Waste pit)</td><td>2023 (Wind Erosion)[1]</td></tr>
<tr><td>$PM_{2.5}$</td><td>0 tpy</td><td>0.003 tpy</td><td>0.02</td></tr>
<tr><td>PM_{10}</td><td>0 tpy</td><td>0.02 tpy</td><td>0.15</td></tr>
<tr><td>PM</td><td>0 tpy</td><td>0.04 tpy</td><td>0.32</td></tr>
</table>
[1]Wind erosion and crushing emissions are not included in the 4.1.2.d emission limits. Crushing emission limits are provided in condition 4.1.2.e. The NSR permit did not establish emission limits for wind erosion.

This unit utilizes a 3-sided enclosure to reduce particulate matter emissions, but does not have an add-on control device.

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring.
● Comply with the applicable requirements for Outdoor Material Storage Areas (waste pit). (condition 4.1.2.g.)</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7) • Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) • Monitor and record the hours of the portable melting crusher. (condition 4.2.3) • Records of Monitoring (condition 4.4.1) • The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.
B210/ B211	$PM_{2.5}$	0.07 lb/hr 0.02 tpy	The fugitive particulate matter emission limits for the raw material storage loading are based on the maximum daily loading rate of 716 ton/day with hourly emissions determined using a 24-hour average. NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from the
	PM_{10}	0.48 lb/hr 0.13 tpy	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td>PM</td><td>1.04 lb/hr

0.28 tpy</td><td>drop into the raw material storage loading vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.d represent the emissions when operating at maximum material loading rate.

The likelihood of violating the emission limits is low since the limits were set using the maximum loading rate based on the maximum quantity of materials delivered daily and annually. Additionally, the actual emissions reported for 2023 were:

<table>
<tr><td>Pollutant</td><td>2023</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.008 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.055 tpy</td></tr>
<tr><td>PM</td><td>0.0117 tpy</td></tr>
</table>

This unit utilizes a 3-sided enclosure with a cover to reduce particulate matter emissions, but does not have an add-on control device.

The facility is already required to:
● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring.
● Comply with the applicable requirements for Outdoor Material Storage Areas. (condition 4.1.2.g.)
● Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7)
● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1)
● Records of Monitoring (condition 4.4.1)</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			• The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) • Annual compliance certifications. (condition 3.5.5) • Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) • Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility (R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Draft Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.

Condition 4.1.2.e specifies the $PM_{2.5}$, PM_{10}, and PM limits for the Portable Melting Crusher (B170).

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
B170	$PM_{2.5}$	0.12 lb/hr 0.03 tpy	The hourly particulate matter emission limits for the portable melting crusher are based on the maximum hourly limit of 150 ton/hour and the annual emission limits are based on the permitted maximum hours of operation (540 hrs). NSR permit R14-0037A established the emission limits for the unit using these design specifications. The emissions from the portable crusher vary based on the amount of raw materials processed each day, but emission limits in condition 4.1.2.e represent the emissions when operating at maximum design capacities.
	PM_{10}	0.36 lb/hr 0.10 tpy	
	PM	0.81 lb/hr 0.22 tpy	

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			The likelihood of violating the emission limits is low since the limits were set using the maximum design capacity of the Portable Melting Crusher and the maximum hours of operation. In 2023, the facility did not conduct onsite crushing of materials, so no actual emissions were reported for the portable melting crusher. This unit utilizes a 3-sided enclosure to reduce particulate matter emissions, but does not have an add-on control device. The facility is already required to: ● Comply with the applicable 45CSR7 requirements (conditions 4.1.2.i and 4.2.13.c). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring. ● Any material stored in an enclosure (either partial or full) shall not be stored in such a manner that the height of the material stored exceeds the height of said enclosure. (condition 4.1.7) ● Monitor the maximum design capacity of the equipment at the facility. (condition 4.2.1) ● Monitor and record the hours of operation for the portable melting crusher. (condition 4.2.3) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (Conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV so the Title V permit for the RAN facility

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			(R30-03700108-2025) was compared to the Title V permit for ROXUL USA, Inc's Byhalia Mississippi facility (Permit No. 1780-00052) along with the WV Title V permit for a slag wool facility operated by Armstrong World Industries (R30-03500049-2025). The monitoring, testing, reporting and recordkeeping required in the Permit for material handling operations was found to be consistent with or more stringent than the existing Title V Permits for the referenced facilities.

5f) This comment states that there is insufficient monitoring to ensure compliance with the limits in condition 4.1.8.

WV DAQ Response

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
IMF24	CO	0.42 lb/hr 1.76 tpy 60 ppmvd @ 3% O_2	The emission limits for the pre-heat burner were established based on the unit's maximum design heat input and maximum hours of operation and natural gas emission factors from AP-42 Table 1.4-1, 1.4-2, 1.4-3, and 1.4-4 for SO_2, PM_{10}, $PM_{2.5}$, CO, and VOC and NO_X emission factors based on 60 ppmvd @ 3% O_2 per manufacturer's specifications. NSR permit R14-0037A established the emission limits for the pre-heat burner using these values. Emissions from IMF24 can vary depending on the amount of heat input being utilized while the pre-heat burner is in operation, but emission limits in condition 4.1.8. represent the emissions when operating at maximum design heat input for the permitted maximum hours of operation. The likelihood of violating the emission limits is low since the limits were set using the maximum design heat input and maximum allowable hours of operation. Additionally, the actual emissions reported for 2022 and 2023 were:
	NO_X	0.36 lb/hr 1.52 tpy	
	$PM_{2.5}/PM_{10}$ /PM	0.04 lb/hr 0.16 tpy	
	SO_2	0.01 lb/hr 0.01 tpy	
	VOC	0.03 lb/hr	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td></td><td>0.12 tpy</td><td>
<table>
<tr><th>Pollutant</th><th>2022</th><th>2023</th></tr>
<tr><td>CO</td><td>0.43 tpy</td><td>0.20 tpy</td></tr>
<tr><td>NO_X</td><td>0.37 tpy</td><td>0.17 tpy</td></tr>
<tr><td>$PM_{2.5}$</td><td>0.01 tpy</td><td>0.004 tpy</td></tr>
<tr><td>PM_{10}</td><td>0.01 tpy</td><td>0.004 tpy</td></tr>
<tr><td>PM (filterable only)</td><td>0.01 tpy</td><td>0.004 tpy</td></tr>
<tr><td>SO_2</td><td>0.003 tpy</td><td>0.001 tpy</td></tr>
<tr><td>VOC</td><td>0.03 tpy</td><td>0.013 tpy</td></tr>
</table>

This unit does not utilize an add-on control device to control emissions, but does utilize good combustion practices and low NOx burning technology to reduce emissions.

The facility is already required to:
● Utilize good combustion practices and low NOx burning technology when operating this unit. (condition 4.1.8.b, Footnote (1) details these requirements)
● Limit the maximum design heat input (condition 4.1.8.a) and maximum hours of operation (conditions 4.1.8.a and 4.1.8.c)
● Comply with the visible emission requirements of 45CSR2 (conditions 4.1.8.d and 4.2.13.a). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring. Comply with the applicable requirements of 40 C.F.R. 63 Subpart DDDDD (conditions 4.1.8.e (conduct biennial tune-ups), 4.4.7 (recordkeeping), and 4.5.5 (reporting)).
● Monitor the maximum design heat input of the</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			equipment at the facility. (condition 4.2.1) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV, but natural gas fired heaters are a common type of emission unit and the monitoring, testing, reporting and recordkeeping required in the permit is consistent with other natural gas fired heaters of similar design capacity (less than 10 MMBTU/hr).
CM03 & CM04	CO	0.42 lb/hr 1.76 tpy 30 $ppm_v d$ @ 3% O_2 (per emission unit)	The emission limits for the pre-heat burner were established based on the unit's maximum design heat input and maximum hours of operation and natural gas emission factors from AP-42 Table 1.4-1, 1.4-2, 1.4-3, and 1.4-4 for SO_2, PM_{10}, $PM_{2.5}$, CO, and VOC and NO_X emission factors based on 60 ppmvd @ 3% O_2 per manufacturer's specifications. NSR permit R14-0037A established the emission limits for the boilers using these values. Emissions from CM03 and CM04 can vary depending on the amount of heat input being utilized while the boilers are in operation, but emission limits in condition 4.1.8. represent the emissions when operating at maximum design heat input for the permitted maximum hours of operation. The likelihood of violating the emission limits is low since the limits were set using the maximum design heat input and maximum allowable hours of operation. Additionally, the actual emissions reported for 2022 and
	NO_X	0.36 lb/hr 1.52 tpy (per emission unit)	
	$PM_{2.5}/PM_{10}$	0.04 lb/hr	

<table>
<tr><th>Emission Unit</th><th>Pollutant</th><th>Limit</th><th>Five Factor Monitoring Analysis</th></tr>
<tr><td></td><td>/PM</td><td>0.16 tpy

(per emission unit)</td><td rowspan="3">2023 were:

CM03<table><tr><th>Pollutant</th><th>2022</th><th>2023</th></tr><tr><td>CO</td><td>1.49 tpy</td><td>1.49 tpy</td></tr><tr><td>NO_X</td><td>0.64 tpy</td><td>0.64 tpy</td></tr><tr><td>$PM_{2.5}$</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>PM_{10}</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>PM (filterable only)</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>SO_2</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>VOC</td><td>0.097 tpy</td><td>0.097 tpy</td></tr></table>CM04<table><tr><th>Pollutant</th><th>2022</th><th>2023</th></tr><tr><td>CO</td><td>1.44 tpy</td><td>1.44 tpy</td></tr><tr><td>NO_X</td><td>0.62 tpy</td><td>0.62 tpy</td></tr><tr><td>$PM_{2.5}$</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>PM_{10}</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>PM (filterable only)</td><td>0.033 tpy</td><td>0.033 tpy</td></tr><tr><td>SO_2</td><td>0.01 tpy</td><td>0.01 tpy</td></tr><tr><td>VOC</td><td>0.094 tpy</td><td>0.094 tpy</td></tr></table>These boilers do not utilize add-on control devices to control emissions, but do utilize good combustion</td></tr>
<tr><td></td><td>SO_2</td><td>0.01 lb/hr

0.01 tpy

(per emission unit)</td></tr>
<tr><td></td><td>VOC</td><td>0.03 lb/hr

0.12 tpy

(per emission unit)</td></tr>
</table>

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			practices and low NO_X burning technology to reduce emissions. The facility is already required to: ● Utilize good combustion practices and low NOx burning technology when operating these boilers. (condition 4.1.8.b Footnote (1) details these requirements) ● Limit the maximum design heat input (condition 4.1.8.a) and maximum hours of operation (conditions 4.1.8.a and 4.1.8.c) ● Comply with the visible emission requirements of 45CSR2 (conditions 4.1.8.d. and 4.2.13.a). Opacity is considered a surrogate emissions measurement thus the requirement to conduct visible emissions monitoring is part of the multi-pronged approach to monitoring. ● Comply with the applicable requirements of 40 C.F.R. 63 Subpart DDDDD. (conditions 4.1.8.e (conduct tune-ups every 5 years), 4.4.7 (recordkeeping), and 4.5.5(reporting)). ● Monitor the maximum design heat input of the equipment at the facility. (condition 4.2.1) ● Records of Monitoring (condition 4.4.1) ● The permittee is required to promptly submit supplemental reports and notices in regards to deviations from permitted monitoring parameters. (condition 3.5.8) ● Annual compliance certifications. (condition 3.5.5) ● Reports on monitoring are required to be submitted semi-annually (conditions 3.5.6 and 4.5.1) ● Annual emissions reporting for the facility (condition 3.1.6) There are no other mineral wool manufacturing facilities in WV, but natural gas fired boilers are a common type of emissions unit and the monitoring, testing, reporting and recordkeeping required in the permit is consistent with

Emission Unit	Pollutant	Limit	Five Factor Monitoring Analysis
			other natural gas fired boilers of similar design capacity (less than 10 MMBTU/hr).

5g) This comment states that testing requirement 4.3.2 is not included in the monitoring requirements section of the Draft Permit, does not specifically require "monitoring" and does not require Rockwool to submit information related to this condition. As such, this condition does not provide adequate monitoring, recordkeeping, and reporting as required under Title V because there is no way for WVDEP or the public to determine whether the RAN facility is complying with the emissions limits and related NSR requirements applicable to the specified emission units and numerical permit limits.

WV DAQ Response

Condition 4.3.2 has been correctly placed in section 4.3 for Testing Requirements since it prescribes performance testing for emission points IMF01, HE01, and CM01. Condition 4.3.2 requires a one-time test, and also specifies which emission units, emission points, and pollutants are required to be tested. Additional testing is required under condition 4.3.3 for these emission units at a frequency of annually or once per three years based on the results of the testing prescribed under condition 4.3.2 and subsequent testing performed under condition 4.3.3. Test methods for each pollutant are provided in condition 4.3.5. Condition 3.3.1.c states that all testing shall be conducted in accordance with a DAQ approved test protocol; test protocols for each performance test must be submitted to the Secretary in writing at least thirty (30) days before the testing; and notification must be submitted to DAQ fifteen (15) days before the actual testing date so that a member of compliance and enforcement may have an opportunity to observe the testing. Condition 3.3.1.d requires the permittee to submit a report of the results of the stack test to DAQ for review within sixty (60) days of completion of the testing. All submitted testing protocols and reports are reviewed by DAQ's compliance and enforcement personnel and available for public review. All testing is conducted by a third party which does not include the company or DAQ, however both the company and DAQ may observe these tests. Testing must meet the performance testing requirements of either 40 C.F.R. §60.8 or §63.7 which include quality assurance provisions to ensure the accuracy of the tests.

Condition 3.5.5 requires the permittee to submit annual compliance certifications. These annual compliance certifications require that for each condition in the permit, the permittee

must state whether they were in compliance, the method or means of determining compliance, and if there was a deviation must provide specific information about the deviation. Since conditions 4.3.2, 4.3.3, and 4.3.5 are permit requirements, the permittee must include information about the stack testing in the annual compliance certifications. Annual compliance certifications are also reviewed by DAQ's compliance and enforcement personnel and available for public review. Each annual compliance certification must be signed by a Responsible Official as defined in 45CSR§30-2.38 (i.e. a president, secretary, treasurer, vice-president or duly authorized representative). Falsely certifying compliance with a Title V permit can lead to a range of penalties, including both civil and criminal consequences. On the annual compliance certification form, the Responsible Official must attest the following:

a. *Based upon the specific test methods, monitoring, recordkeeping and/or reporting required under the permittee's Title V Operating Permit and any other information reasonably available, I, the undersigned, hereby certify for the reporting period stated above: a. The permittee has been in compliance with all General Conditions 2.3.2, 2.3.3, 2.5.1.a and b, 2.10, 2.11.2, 2.12, 2.13.1, 2.14, 2.15, 2.19, 2.20, and 2.25 of the permittee's Title V Operating Permit, except to the extent that the permittee's Title V Operating Permit and underlying rules explicitly provide for exception periods or where deviations have been identified in either the 1st Half Semi-annual Monitoring Report previously submitted or the 2nd Half Semi-annual Monitoring Report attached to this certification.*

b. *I have reviewed all facility-wide and source specific requirements of the permittee's Title V Operating Permit, and certify compliance of all air pollutant emitting equipment and processes subject to facility-wide and source specific requirements of the permittee's Title V Operating Permit with all such requirements including all emission limitations and standards set forth in the referenced permit, except to the extent that the permit and underlying rules explicitly provide for exception periods or where deviations have been identified in either the 1st Half Semi-Annual Monitoring Report previously submitted or the 2nd Half SemiAnnual Monitoring Report attached to this certification.*

c. *Based on information and belief formed after reasonable inquiry, the statements and information in this document and attachments are true, accurate, and complete.*

Section 64.1 of 40 C.F.R. 64 (Compliance Assurance Monitoring or CAM) defines monitoring as "any form of collecting data on a routine basis to determine or otherwise assess compliance with emission limitations or standards." This definition also states that "the conduct of compliance method tests, such as the procedures in appendix A to part 60 of this chapter, on a routine periodic basis may be considered monitoring (or as a supplement to other monitoring), provided that requirements to conduct such tests on a one-time basis or at such times as a regulatory authority may require on a non-regular basis are not considered monitoring requirements for the purposes of this paragraph." Since the testing specified under condition 4.3.5 references methods from Appendix A of 40 C.F.R. 60 and condition 4.3.3 requires ongoing performance testing on a regular basis, the testing requirements under conditions 4.3.2, 4.3.3, and 4.3.5 when evaluated collectively meet EPA's definition of monitoring.

For the reasons stated above, WV DAQ does not agree with commenters that the ongoing performance testing specified in conditions 4.3.2, 4.3.3, and 4.3.5 does not provide adequate monitoring, recordkeeping, and reporting as required under Title V to determine whether the RAN facility is complying the emissions limits and related NSR requirements applicable to the specified emission units and numerical permit limits. Since testing results are reported to WV DAQ and the permittee must submit annual compliance certifications to WV DAQ and these reports are made publicly available, WV DAQ also disagrees with commenters that there is no way for WV DAQ or the public to determine whether the facility is in compliance with the emission limits.

5h) This comment states that testing in 4.3.2 is insufficient to determine compliance with the hourly and annual emission limits in condition 4.1.4.a for emission unit IMF01 since the testing only verifies compliance while the testing is being conducted.

WV DAQ Response

Performance testing is just one aspect of a comprehensive monitoring plan to demonstrate compliance with the hourly and annual emission limits in condition 4.1.4.a for emission unit IMF01 for which the five factor monitoring analysis was discussed in depth in the response for comment 5c. The five factor monitoring analysis describes other monitoring which is included in the permit for IMF01 such as CEMs for continuously monitoring CO, NOx, and SO_2 emissions and monitoring required under 40 C.F.R. 63, Subpart DDD for PM, COS, HF, and HCl emissions. Furthermore, as discussed in the response to comment 5i, one-time performance testing requirements in condition 4.3.2 should not be considered separately because it is part of on-going testing as outlined in condition 4.3.3.

5i) This comment states that the testing frequency as specified in condition 4.3.3 is insufficient to demonstrate compliance with hourly and annual emission limits.

WV DAQ Response

Condition 4.3.3 specifies a testing frequency of annually or once per three years depending upon the results of performance testing. Only if the test results are less than 90% of the weight emission standard would testing be conducted once per three years. If there were any test results in excess of 90% of the weight emission standard, then the permittee would have to conduct performance testing annually until three successive tests indicate mass emission rates less than 90% of the weight emission standard. Therefore, the permittee is only testing at a frequency of less than once per year if they can demonstrate through performance testing that emissions remain less than 90% of the weight emission standard. Again, performance testing is just one aspect of a comprehensive monitoring plan to demonstrate compliance with the hourly and annual emission limits and commenters should review the five factor monitoring analysis in this response to comments document.

Please see Comment (3) in WV DAQ's Response to Written comments from Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter regarding EPA's existing interpretations and policies about whether requirements under the New Source Review (NSR) preconstruction permitting programs will be reviewed using the EPA's Title V oversight authorities.

5j) This comment relates to conditions 4.2.1, 4.2.2, and 4.2.14 which require emission unit design criteria be based on a clear and visible boilerplate rating or on product literature, manufacturer's data, or equivalent documentation. Commenters state that these conditions do not require "monitoring" or otherwise require the facility to submit this information so there is no way for WVDEP or the public to determine whether the facility is complying with these requirements.

WV DAQ Response

The information on emission unit design criteria has been submitted as part of the NSR permit applications for R14-0037 and R14-0037A and the Title V permit application. The intent of conditions 4.2.1, 4.2.2, and 4.2.14, which were included in the original R14-0037 permit, was to monitor the equipment installed at the facility during construction to verify that the emission unit design criteria submitted as part of the construction permit application was the design criteria of the equipment actually installed at the facility. Compliance and Enforcement Staff verify compliance with these conditions during periodic facility inspections and the permittee must determine compliance with these conditions when

submitting the annual compliance certifications (condition 3.5.5) which are reviewed by Compliance and Enforcement Staff and available to the public.

5k) This comment relates to condition 4.2.4 which requires the facility to determine continuous compliance with the filter/baghouse emission limits given under Section 4.1 of the permit by maintaining and operating the control devices according to the requirements given under condition 4.1.12.a. The permittee is required to record all significant maintenance or repair performed on these control devices (changing out bags, replacing filter material, etc.). The comment states that it is unclear which emission limits are affected by the condition and that there is no actual monitoring and therefore the facility is not required to actually report any information regarding compliance with the PM emission limits in Section 4.1.

WV DAQ Response

Condition 4.2.4 refers to condition 4.1.12.a which then refers to the pollution control equipment listed in Section 1.1. Emission units that have emissions controlled with baghouses or fabric filters are clearly indicated in Section 1.1: Emission Units. Therefore, it is not unclear which emission units are controlled by baghouses/fabric filters and which baghouse/filter emission limits are given under Section 4.1.

Condition 4.2.4 requires the permittee to maintain records of all significant maintenance and repair performed on the baghouses and fabric filters. Condition 3.4.2 requires the permittee to maintain all records for a period of five years. These records are reviewed by Compliance and Enforcement Staff. The permittee is also required to certify compliance with these recordkeeping requirements in the annual compliance certification specified under 3.5.5. The PM emission limits for the material handling emission units with baghouses/fabric filters (IMF07, IMF08, IMF09, IMF10, IMF11, IMF21, CE01-BH, CE02-BH, CM08-FF, CM09-FF, CM10-FF, and CM11-FF) were established based on the design specifications of the material handling vents and fabric filters. These filter outlet concentrations are included in condition 4.1.2.c along with the lb/hr and ton/year PM limits. To demonstrate compliance with the PM limits for the material handling emission units, the Draft Permit specifies a multi-pronged approach. Condition 4.2.4 requires the permittee to maintain the baghouses/fabric filters and keep records of maintenance and repair which demonstrates the control devices are being maintained. When used in conjunction with condition 4.2.14 which requires using vendor information or vendor guarantees that show the maximum outlet grain loading emissions, this ensures compliance with the PM limits for material handling emission units controlled with baghouses/fabric filters. See Comment 5e above for more information on the stationary source emissions monitoring for the material handling operations.

The permittee also has to keep maintenance and repair records for the baghouse (IMF01-BH) on the Melting Furnace (IMF01) in accordance with 4.2.4. However, these records are just one of several requirements for this baghouse which also has a bag leak detection system required under 40 C.F.R. 63 Subpart DDD and must monitor the pressure drop (condition 4.1.12.d).

5l) This comment is requesting changes to the underlying R14-0037B language for condition 4.2.6. Commenters state that on its face, Draft Permit condition 4.2.6 only appears to require Rockwool to "install and operate" a CEMs to show compliance with the CO, NOx, and SO_2 emission limits for the melting furnace. To avoid any confusion and clearly require reporting of this information, the commenters requested WV DAQ revise Draft Permit condition 4.2.6 as follows (suggested changes shown in strikethrough/underline):

Melting Furnace CEMS (IMF01)

In order to show continuous compliance with the CO, NOx, and SO_2 emission limits as given under Table 4.1.4.a., the permittee is required to install and operate a Continuous Emissions Monitoring System (CEMS) ~~for monitoring~~ and use that CEMS to monitor and record the emissions of CO, NOx, and SO_2 from IMF01. The CEMS shall be installed, maintained and operated according to the manufacturer's design, specifications, and recommendations, of which a protocol shall be developed by the permittee and approved by the Director prior to operation. The CEMS shall meet the applicable performance specifications required by 40 Part 60, Appendix B, the applicable quality assurance procedures required in 40 C.F.R. Part 60, Appendix F, and the requirements of 40 C.F.R. §60.13. In lieu of the requirements of 40 C.F.R. Part 60, Appendix F, 5.1.1, 5.1.3, and 5.1.4, the permittee may conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) on the CEMS at least once every three (3) years. The permittee shall conduct Cylinder Gas Audits (CGA) each calendar quarter during which a RAA or a RATA is not performed. Data recorded by the CEMS shall be kept for a period not less than three (3) years and shall be made available to the Director or his/her representative upon request.
[45CSR13; R14-0037, Condition 4.2.6]

WV DAQ Response

After reviewing condition 4.2.6, WV DAQ agrees to revise the first sentence as follows for clarity (changes in underline):

In order to show continuous compliance with the CO, NO_X, and SO_2 emission limits as given under Table 4.1.4.a., the permittee shall install and operate a Continuous Emissions Monitoring System (CEMS) for monitoring the emissions of CO, NO_X, and SO_2 from IMF01.

WV DAQ does not agree with commenters that it is necessary to add language requiring the permittee to maintain records of the CEMS data. The last sentence of condition 4.2.6 states that "Data recorded by the CEMs shall be kept for a period of not less than three (3) years and shall be made available to the Director or his/her representative upon request." Additionally, condition 3.4.2 of the Draft Permit requires the permittee to retain records of all required monitoring data and support information for a period of at least five (5) years. Support information includes all strip-chart recordings for continuous monitoring instrumentation.

5m) This comment is requesting changes to the underlying R14-0037B language for condition 4.2.9. Commenters state that condition 4.2.9 purports to demonstrate continued compliance with the maximum sulfur content limit in condition 4.1.10.a, but since it only requires Rockwool to obtain a certification of the sulfur content at least once per year from the fuel oil supplier and does not require Rockwool to report this information to WVDAQ, it cannot be considered monitoring. Commenters suggest that WVDAQ revise the Draft Permit to require fuel certification each time it receives new fuel at the engine and report that information to WV DAQ in the semi-annual reports.

WV DAQ Response

Condition 4.1.10.a from R14-0037B requires the permittee to demonstrate compliance with the maximum sulfur content limit (0.0015%) by obtaining a certification from the fuel oil supplier, at least once per calendar year, of the sulfur content of the diesel fuel combusted in the Emergency Fire Pump Engine (EFP1). EFP1 is also subject to the Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, 40 C.F.R. 60 Subpart IIII; and the origin of the sulfur content limit in condition 4.1.10.a is from 40 C.F.R. §60.4207(b) which requires use of ultra-low sulfur diesel fuel (USLD) that meets the requirements of 40 C.F.R. §1090.305 which specifies the maximum 15 ppm sulfur content limit (or 0.0015%). Neither 40 C.F.R. 60, Subpart IIII or 40 C.F.R. §1090.305 requires the permittee to conduct monitoring or recordkeeping to demonstrate compliance with the sulfur content limit used in diesel engines. Diesel fuel manufacturers are required to demonstrate compliance with these standards by measuring the fuel parameters in accordance with 40 C.F.R. 1090, Subpart N. Including a requirement in the Title V permit for fuel certifications each time new fuel is received is more stringent than already required by the NSR permit and

Federal Regulations and is unnecessary since use of USLD has been mandatory nationwide since December 1, 2010 (well before this facility commenced operation) and diesel fuel manufacturers are required to demonstrate compliance with the USLD standards in 40 C.F.R. §1090.305. Additionally, EFP1 is an emergency engine limited to 100 hours per year for non-emergency operations, and is an insignificant source of emissions with permitted SO_2 limits of 0.01 lb/hr and 0.01 TPY. Also, the permittee is required to maintain all records for a period of five years (condition 3.4.2), certify compliance with all conditions of the permit (conditions 3.5.5 and 4.5.1), and submit semi-annual monitoring reports (conditions 3.5.6 and 4.5.1).

5n) This comment states that the visible emissions requirements in condition 4.2.13 do not provide the information necessary to confirm compliance with the continuous visible emission limits in the Draft Permit.

WV DAQ Response

Condition 4.2.13.a Monitoring for 45CSR2 Visible Emissions

The Emission Units subject to these requirements are the Preheat Burner (IMF24) and Natural Gas Boilers 1 and 2 (CM03 and CM04) all of which use natural gas as fuel. EPA's AP-42 emission factors for Natural Gas Combustion (Section 1.4, July 1998) states that because natural gas is a gaseous fuel, filterable PM emissions are typically low. Since these are small boilers (less than 10 MMBTU/hr), combusting pipeline quality natural gas, using good combustion practices, with particulate matter emission limits of 0.04 lb/hr, visible emissions are not anticipated from these emission units. WV DAQ considers the current monitoring (upon request of the Secretary) and testing (using 40 C.F.R. Part 60, Appendix A, Method 9) specified under 45CSR§2-3.2 sufficient to ensure compliance with the 45CSR2 visible emissions limits for the Preheat Burner and Natural Gas Boilers given that the source of the particulate matter emissions is the by-product of combustion of pipeline quality natural gas in emission units that utilize good combustion practices.

Condition 4.2.13.c Monitoring to Demonstrate Compliance with Condition 4.1.2.i for 45CSR7 Visible Emissions from Material Handling Operations

The Material Handling Operations IMF07, IMF10, IMF11, IMF12, IMF14, IMF15, IMF17, and RM_REJ have visible emissions limits under both 45CSR§7-3.1 and 40 C.F.R. 60 Subpart OOO with the Subpart OOO opacity limits being more stringent. Given that 40 C.F.R. 60 Subpart OOO specifies its own testing methods and testing frequency to show

compliance with its more stringent opacity limits it is reasonable to only determine compliance with the 45CSR7 opacity limits for these emission units "At such reasonable time(s) as the Secretary may designate." Conditions 4.2.13.d and 4.3.6 contain the visible emissions testing required under 40 C.F.R. 60 Subpart OOO for these emission units.

For the other material handling emission units not subject to 40 C.F.R. 60 Subpart OOO, all but one have emissions controlled by a fabric filter or baghouse. These emission units are IMF08, IMF09, IMF21, CE01, CE02, CM08, CM09, CM10, and CM11. For the baghouses/fabric filters on these emission units, the permittee must keep maintenance records as specified in condition 4.2.4. Since these emission units each emit 0.66 lb/hr or less of particulate matter (based on vender information or guarantees, condition 4.2.14), visible emission checks at a specified frequency were not required under R14-0037B since the likelihood of visible emissions exceeding 20% opacity was low. Unlike the other material handling emission units with baghouses or fabric filters, CE01 has additional requirements to conduct visible emission checks on a monthly basis as required in 4.2.13.e.

IMF16 is unlike the other material handling emission units because it is not subject to 40 C.F.R. 60 Subpart OOO and it does not have a baghouse or fabric filter. Emissions from this unit are controlled by a full enclosure and particulate matter emission limits are less than 0.02 lb/hr. Because of the low particulate matter emission rate from this emission unit, R14-0037B did not specify visible emission checks at a specified frequency because the likelihood of visible emissions exceeding 20% opacity was low.

<u>45CSR7 Visible Emissions from the Melting Furnace (IMF01) and the Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, and Cooling Section (HE01)</u>

The Melting Furnace (IMF01) is subject to the 45CSR7 opacity limits in condition 4.1.4.b and the visible emissions monitoring requirements in condition 4.2.13.e which specifies visible emissions checks once per calendar month using EPA approved testing methods. Since the melting furnace is subject to the requirements of 40 C.F.R. 63 Subpart DDD, the permittee must also continuously operate a bag leak detection system on the baghouse with an alarm installed on the bag leak detection system (condition 4.1.12.d.2). The permittee is also required to demonstrate compliance with particulate matter emissions by monitoring the differential pressure drop of the baghouse with an alarm installed which indicates if abnormal performance is detected (condition 4.1.12.d.1). Additionally, compliance with particulate matter visible emissions will be demonstrated through proper operation of and monitoring of the baghouse used to control particulate matter emissions from the melting furnace. For this baghouse, the permittee is also required to keep baghouse maintenance records (condition

4.2.4). Therefore, proper operation of the baghouse (including bag leak detection system and pressure drop monitoring with alarms) along with monthly visible emission checks should adequately demonstrate compliance with the 45CSR§7-3.1 opacity limits.

The Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, and Cooling Section (HE01) are subject to the 45CSR7 opacity limits in condition 4.1.5.b and the visible emissions monitoring requirements in condition 4.2.13.e which specifies visible emissions checks once per calendar month using EPA approved testing methods. Compliance with particulate matter visible emissions will also be demonstrated through proper operation of and monitoring of the WESP used to control particulate matter emissions from these emission units. The permittee is required to monitor the secondary voltage and secondary amperage of the WESP with an alarm installed which indicates if abnormal performance is detected (condition 4.1.12.e). Proper operation of the WESP along with monthly visible emission checks should adequately demonstrate compliance with the 45CSR§7-3.1 opacity limits.

For all emission units at the ROXUL facility, the permittee is required to maintain all records for a period of five years (condition 3.4.2), certify compliance with all conditions of the permit (conditions 3.5.5 and 4.5.1), and submit semi-annual monitoring reports (conditions 3.5.6 and 4.5.1).

Comments Regarding Condition 4.2.13.e

Commenters requested that WV DAQ revise the language in condition 4.2.13.e from “visible emission checks and/or opacity monitoring” to “opacity monitoring (including visible emission checks)” to avoid any confusion regarding whether “visible emission checks” are required monitoring that must be reported and used to determine compliance with the applicable requirements. WV DAQ has reviewed the comment and determined that changing the condition as requested, would change the intent of the underlying R14-0037B condition. The condition as written requires the permittee to first conduct visible emission checks using 40 C.F.R. 60, Appendix A, Method 22 to determine whether visible emissions are observed. Then, if visible emissions are present, the permittee must perform opacity monitoring using 40 C.F.R. 60, Appendix A, Method 9. Records of all visible emission checks and opacity monitoring are required to be maintained in accordance with condition 4.2.13.e.1, 4.2.13.f, 3.4.1, and 3.4.2. Also, the permittee is required to certify compliance with all conditions of the permit (conditions 3.5.5 and 4.5.1), and submit semi-annual monitoring reports (conditions 3.5.6 and 4.5.1).

Commenters state that to the extent additional requirements of 4.2.13.e require the use of EPA Method 9, WV DAQ should revise the condition to specify that such readings must be performed by a person certified in EPA Method 9. After reviewing this comment, WV DAQ has determined that addition of the requested language is unnecessary since 4.2.13.e.1.iii says that Method 9 shall be used to determine if opacity meets the limits under conditions 4.1.2.i, 4.1.4.b, and 4.1.5.b, and 40 C.F.R. 60, Appendix A, Method 9 clearly states in Section 1 that "The opacity of emissions from stationary sources is determined visually by a qualified observer." and Section 3 outlines how to receive certification as a qualified observer.

5o) This comment states that the 40 C.F.R. 63 Subpart DDD monitoring plan was not submitted as part of the Title V Permit application nor was it included in the Draft Title V Permit. Commenters requested that the permittee amend the application to include the monitoring plan, the WV DAQ include the monitoring plan in the Title V Permit, and WV DAQ re-notice the revised Draft Permit to allow for public comments on the monitoring plan.

WV DAQ Response

The 40 C.F.R. 63 Subpart DDD monitoring plan was submitted as part of the Title V application amendment dated January 30, 2025 and reviewed and approved by WV DAQ. The monitoring plan is included in the application and is available to the public. The monitoring plan has also been included in this response to comments document as ATTACHMENT A. 40 C.F.R. §63.1187 states that "An operations, maintenance, and monitoring plan must be submitted to the Administrator for review and approval as part of your application for the title V permit." Subpart DDD does not specify that the monitoring plan must be included in the Title V permit and as such has only been incorporated by reference. Since WV DAQ must review and approve the monitoring plan, and this plan will be incorporated by reference in the Title V permit, the revised Title V permit will not be re-noticed.

5p) This comment states that the 40 C.F.R. 60 Subpart OOO Monitoring Plan for bag leak detection systems that may be used to demonstrate compliance with the visible emission requirements was not submitted as part of the Title V Permit application nor was it included in the Draft Title V Permit.

WV DAQ Response

R14-0037A Condition 4.2.13.d. incorporated the monitoring requirements of 40 C.F.R. 60 Subpart OOO by reference. The Draft Title V permit included the full text of 40 C.F.R. 60 Subpart OOO, specifically Sections §60.674(c) through §60.674(e) as condition 4.2.13.d.1. 40 C.F.R. §§60.674(d) and (e) specify alternative monitoring methods which may be used

instead of the visible emissions inspection requirements in 40 C.F.R. §60.674(c). Neither of these alternative monitoring methods are utilized at the facility, therefore a 40 C.F.R. 60 Subpart OOO Monitoring Plan for bag leak detection systems required under 40 C.F.R. §60.674(d) is not needed and was not submitted to WV DAQ. To reduce confusion, the alternative monitoring methods (conditions 4.2.13.d.1.ii and 4.2.13.d.1.iii) have been removed from the permit.

5q) This comment states that the test protocols referenced in conditions 3.3.1 and 4.3.2 must be included in the Draft Permit and the Draft Permit must be re-noticed for public comment.

WV DAQ Response

The test methods the facility are required to use during performance testing are already specified in condition 4.3.5. Commenters should review the test methods in Appendix A to Part 60 for detailed information on each specific test method listed in condition 4.3.5. The test protocols required to be submitted as part of condition 3.3.1.c are developed for each performance test on a case by case basis and include information such as testing dates and the testing firm conducting the test which cannot reasonably be known for all performance tests conducted during the 5 year term of the Title V permit.

5r) This comment states that the Draft Permit fails to identify the specific monitoring requirements that are used to demonstrate compliance with the NSPS and NESHAP requirements applicable to the RAN Facility. Related to that deficiency, many of the federal rules included in the Draft Permit contain multiple methods for showing compliance with the applicable requirements. Commenters claim that the Title V permit must clearly indicate the specific method that will be used to determine compliance with each term.

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WV DAQ Response

Every condition in the Title V permit includes a citation at the end to indicate which underlying State Rule, Federal Regulation, and/or NSR permit condition is associated with that condition. Also, the monitoring requirements reference the condition number of the applicable emission limit or standard, and/or the emission unit or point, and/or will have a heading that indicates the applicable NSPS or NESHAP for which that monitoring requirement demonstrates compliance.

Related to the inclusion of multiple approaches to demonstrating compliance, the comment does not cite any instance of this in the Draft Permit. WV DAQ has reviewed the Draft Permit and attempted to eliminate any instances where multiple compliance demonstration methods have been included.

5s) This comment states that WV DAQ must ensure the Title V Permit contains specific monitoring, recordkeeping and reporting requirements for each emission limit and other applicable requirements for the RAN facility. It also requests Condition 3.5.6. be revised to list each applicable requirement for the facility and the specific monitoring required to ensure compliance.

WV DAQ Response

The facility's NSR permit and applicable state rules and federal regulations were thoroughly reviewed and the Draft Title V permit already includes the specific monitoring, testing, recordkeeping, and reporting requirements necessary to demonstrate compliance with the limits and standards for this facility.

Condition 3.5.6 states "The permittee shall submit reports of **any** required monitoring..." Given that all applicable monitoring is already included and identified in the Title V Permit, it is unnecessary to include all of these monitoring requirements again as a list in condition 3.5.6. Additionally, this facility is required to submit reports of any deviations from their applicable requirements in the semi-annual monitoring report specified in condition 3.5.6 and to certify compliance with each Title V condition in their annual compliance certification required under condition 3.5.5.

6) WVDEP must revise the Draft Permit to address potential fugitive emissions from the RAN facility.

a) Commenters mentioned that the Draft Permit does not include 45CSR§7-5.1 fugitive particulate matter emissions requirements which apply to the facility during outdoor cooling and storage and requests that WV DAQ revise the Draft Permit to include more specific requirements to minimize fugitive particulate matter emissions from outdoor cooling and storage, such as maximum hours that such materials can be stored outside or routine temperature checks of products stored outdoors to avoid potential combustion.

Commenters also requested that if the AQB grants the permittee's request to remove the prohibition on open doors contained in NSR permit R14-0037A, any action WV DAQ takes to modify the Title V permit should include additional provisions to ensure any emissions from those doors will not cause noncompliance with any state and federal laws, including 45CSR§7-5.1.

WV DAQ Response

The comments cite 45CSR§7-5.1 which states that "No person shall cause, suffer, allow or permit any manufacturing process or storage structure generating fugitive particulate matter to operate that is not equipped with a system to minimize the emissions of fugitive particulate matter. " The equipment subject to 45CSR7 at the facility already have systems in place to minimize the fugitive PM emissions as indicated in the "Control Device" column of the Emission Units Table (Section 1.1 of the Title V Permit).

This specific comment primarily discusses the outside storage of the final product and appears to be referring to a case of "punking" that previously occurred at the facility. Punking is a term used in the mineral wool industry that describes a rare product quality issue where a piece of molten material is carried through the process and becomes embedded in the final product. When punking occurs, the molten material continues to give off heat even when packaged as a final product. Although the mineral wool itself is fire retardant, the packaging material and pallets the product is stored on is not. Punking is a rare event and is not a part of the ordinary facility manufacturing processes, thus not subject to 45CSR7. ROXUL is required to notify WV DAQ when "punking" occurs per condition 4.2.8.

For the comment about the prohibition on open doors, the Title V permit contains the current requirements from R14-0037B which was issued after the AQB's final decision. Condition 4.1.11 requires the eight (8) Charging Building doors to remain closed except as necessary for people or material to enter or exit the building. A prohibition on open doors in the Charging Building will likely demonstrate compliance with the 45CSR§7-5.1 limits on fugitive particulate matter emissions. There is no indication that the other facility doors are a source of fugitive particulate matter.

b) State law prohibits any visible emission from storage structures required to be fully enclosed and equipped with a PM control device. There is no such prohibition contained in the Draft Permit. WV DAQ must revise the permit to include this prohibition and clearly state the portions of the RAN facility to which it applies.

WV DAQ Response

Commenters are referring to 45CSR§7-3.7 which states "No person shall cause, suffer, allow or permit visible emissions from any storage structure(s) associated with any manufacturing process(es) that pursuant to subsection 5.1 is required to have a full enclosure and be equipped with a particulate matter control device."

45CSR§7-3.7 is only applicable to storage structure(s) that are required by 45CSR§7-5.1 to utilize a full enclosure and a particulate matter control device to minimize the emissions of fugitive particulate matter and 45CSR§7-5.1 applies to any manufacturing process or storage structure generating fugitive particulate matter. The only storage structures generating fugitive particulate matter subject to 45CSR§7-5.1 and potentially subject to 45CSR§7-3.7 are listed in condition 4.1.2.d. None of the fugitive generating emission units that store material utilize a full enclosure and a particulate matter control device to minimize fugitive particulate emissions, therefore, none of the storage structures are subject to 45CSR§7-3.7 and that is why it was not included in R14-0037B or the Draft Title V Permit.

7) WVDEP should revise emission limits in the Draft Permit to provide an adequate margin of compliance with state and federal applicable requirements.

WV DAQ Response

The Title V Permit does not have the authority to set or adjust emission limits; it only incorporates emission limits from State Rules, Federal Regulations and NSR Permits.

8) WVDEP must explain how emission controls required in the RAN facility's NSR permit satisfy the specific numerical requirements of West Virginia 45CSR7 PM requirements.

WV DAQ Response

This comment has already been addressed. Comment #2a of the "Written Comments - Various Individuals via the Jefferson County Foundation" addresses the question about "BACT-level" controls and 45CSR7; and Comments #4 and #5c through e of the "Written Comments - Jefferson County Foundation, Inc. ("JCF"), the Jefferson County WV Chapter of the NAACP, and the Sierra Club West Virginia Chapter discuss streamlining of the 45CSR§7-4.1 PM emission limits with the more stringent R14-0037B PM emission limits and applies the five factor analysis to the R14-0037B PM emission limits.

9) WVDEP should provide and rely on the most recent emissions data to support any final operating permit for the RAN facility.

WV DAQ Response

The source of the actual emissions included in the Title V Fact Sheet is the State & Local Emissions Inventory System (SLEIS) where the 2023 actual emissions were still being reviewed by WV DAQ Staff at the time the Draft Title V Permit was issued on May 22, 2024. The Title V Permit relies on the facility's potential to emit, not its actual emissions, to determine the facility's applicable requirements. Therefore, the actual emissions provided in

the Fact Sheet have no bearing on the applicable requirements included in the Title V Permit. The source of the applicable requirements included in the Title V Permit are the new source review permit R14-0037B, state rules, and federal regulations.

Although the actual emissions have no bearing on the requirements included in the Title V permit, the 2023 actual emissions were included in the Fact Sheet which accompanies the Proposed Title V Permit.

Oral Comments from Ruth Hatcher

Ruth Hatcher stated that WVDEP should be transparent while protecting human health and the environment while holding Rockwool to the emission limits required by the State Rules and Federal Regulations. Also stated was that any final Title V Permit must require Rockwool to measure and then report the corresponding actual emissions information to the WV DAQ in a publicly accessible form to show that the facility is meeting its permitting requirements.

WV DAQ Response

WV DAQ has provided public access to all the documents that were used to determine the facility's applicability to State Rules and Federal Regulations along with the Title V Permit and Fact Sheet. A notice of the draft permit was published in the *Spirit of Jefferson Advocate* on May 22, 2024; the application, permit, and fact sheet have been available for review on our website since May 22, 2024; the comment period was open from May 22, 2024 through August 2, 2024; and WV DAQ held a public hearing and announced the hearing more than thirty days prior through notice in the *Spirit of Jefferson Advocate* on June 19, 2024.

The Title V Permit contains all the applicable requirements from R14-0037B, and any State Rules and Federal Regulations. Additionally, the Title V Permit requires the submittal of semi-annual monitoring reports and annual compliance certifications which are publicly available in ApplicationXtender (AX).

The Title V Permit already requires the facility to submit its actual emission to WV DAQ for emissions inventory purposes under condition 3.1.6. Annual emissions inventories for major Title V sources are available through EPA's National Emissions Inventory (NEI) which can be accessed at the following website: https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0. Emissions data reported to WV DAQ undergoes a detailed quality assurance process before being submitted to EPA. This emissions data is then subjected to further review at the federal level to ensure the public receives the most accurate, complete emissions data available. Due to this arduous

and time-consuming process, the most recent emissions data EPA has released is for the 2021 calendar year. More recent emissions data, that has not undergone the complete quality assurance process, may be available through a FOIA request submitted to WV DAQ. However, this emissions data should not be considered final and would be for informational purposes only.

Oral Comments from Mary Chatham

My family lives on a farm next to the Rockwool plant and it has been farmed for many years. We see the present cloud of emissions from the chimneys that billow over the fields. We cannot analyze the safety of living next to this constant exhaust but can read what's in the exhaust and are very concerned and that's why we want to know that the proposed permit requires regular record keeping, and clear guidelines for sharing those records in semi-annual reports and that these guidelines would be enforceable. It's very concerning. This hasn't happened. Even though the plant has been running 24/7 since it opened, what good are government regulations to protect the air quality of our area if records are not required and then reviewed regularly by independent scientists in the EPA. I'd like to connect myself with all of the other speakers tonight and I'd say how concerning it is for all of us who live nearby but the air goes everywhere and we're not even talking about the water. So it's really important for everyone that we have strong adequate guidelines for monitoring compliance and enforcement with this large corporation that knows how to maneuver the law and get around anything they want. Thank you.

WV DAQ Response

The Title V Permit contains all the emission limitations, monitoring, testing, recordkeeping, and reporting requirements from R14-0037B, and the applicable state rules and federal regulations. R14-0037B already requires a semi-annual report for all monitoring requirements under R14-0037B condition 4.5.1.a and an annual compliance certification report under R14-0037B condition 4.5.1.b. Additionally, the Title V Permit includes requirements for semi-annual monitoring reports in condition 3.5.6, annual compliance certifications in condition 3.5.5, and submission of annual emissions inventories in condition 3.1.6. Semi-annual monitoring reports and annual compliance certifications are available to the public through Application Xtender.

Annual emissions inventories for major Title V sources are available through EPA's National Emissions Inventory (NEI) which can be accessed at the following website: https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0. Emissions data reported to WV DAQ undergoes a detailed quality assurance process before being submitted to EPA. This emissions data is then subjected to further review at the federal level to ensure

the public receives the most accurate, complete emissions data available. Due to this arduous and time-consuming process, the most recent emissions data EPA has released is for the 2021 calendar year. More recent emissions data, that has not undergone the complete quality assurance process, may be available through a FOIA request submitted to WV DAQ. However, this emissions data should not be considered final and would be for informational purposes only.

Oral Comments from Christine Wimer

I'm a resident of Jefferson County and I represent the Jefferson County Foundation. The following are concerns with the Rockwell Title V Permit application. First, the NSR permit continues to be under appeal which could impact some of their requirements that apply to this facility. Second, the permit should be reviewed with an environmental justice lens. The EJ screen report for one mile from the site denotes the facility has among the highest proportion of people of color, people lacking a high school education and children under the age of five in West Virginia and ranks about the 50th percentile Statewide for all air pollution related environmental indicators. Three, the lack of the most current emissions information.

The rest of Christine Wimer's comments are a restatement of written comments received via the Jefferson County Foundation under the section titled "Written Comments - Various Individuals via the Jefferson County Foundation."

WV DAQ Response

Christine Wimer was correct that the resolution of the ROXUL USA Inc. appeal may result in the need to amend or modify permit R14-0037A. See WV DAQ's Response to the section titled "Written Comments - ROXUL USA Inc." for more information.

The WV DAQ has engaged in the fair treatment and meaningful involvement of all people affected by this permitting action. A notice of the draft permit was published in the *Spirit of Jefferson Advocate* on May 22, 2024; the application, permit, and fact sheet have been available for review on our website since May 22, 2024; the comment period was open from May 22, 2024 through August 2, 2024; and WV DAQ held a public hearing and announced the hearing more than thirty days prior through notice in the *Spirit of Jefferson Advocate* on June 19, 2024. Additionally, WV DAQ held an in-person public meeting in Jefferson County during the public comment period for R14-0037A.

Although not relevant to the applicable requirements contained in the Title V Permit, the Fact Sheet that accompanies the Proposed Title V Permit will be updated to include the 2023 facility-wide actual emissions.

Oral Comments from Lynn Delles

Lynn Delles's comment is a restatement of written comments received via the Jefferson County Foundation.

WV DAQ Response

See WV DAQ response to "Written Comments - Various Individuals via the Jefferson County Foundation"

Oral Comments from Christine Marshall

Her comments are about the use of the 2022 actual emissions in the fact sheet and why the 2023 actual emissions data wasn't used to formulate the permit. Requests that punking require air control and be performed in an enclosed area.

WV DAQ Response

See WV DAQ response to Comment #1 in the section entitled "Written Comments - Various Individuals via the Jefferson County Foundation" for why the 2022 actual emissions were used in the Fact Sheet. The Fact Sheet that accompanies the Proposed Title V Permit includes 2023 facility-wide actual emissions.

Punking is a term used in the mineral wool industry that describes a rare product quality issue where a piece of molten material is carried through the process and becomes embedded in the final product. When punking occurs, the molten material continues to give off heat even when packaged as a final product. Although the mineral wool itself is fire retardant, the packaging material and pallets the product is stored on is not. Punking is a rare event and is not a part of the ordinary facility manufacturing processes. ROXUL is required to notify WV DAQ when "punking" occurs per the recordkeeping requirements in condition 4.2.8.

Oral Comments from Dennis Hatcher

How can we be assured that even if they are using the best available control technology these controls are actually calibrated and precise. It would seem to me that if everything is so controlled and precise they wouldn't have an issue with creating the reports so that they would be available to the public.

WV DAQ Response

There are several requirements in the Title V Permit that deal with maintenance, operation, and testing of the various control devices to ensure compliance. Control devices are operated during the performance testing and not only are emissions tested, but also the parameters of these control devices are monitored and compared with the monitoring parameters specified in the Title V permit. The control device monitoring parameters specified in the Title V permit are used to demonstrate compliance with the emission limits during periods when performance testing is not being conducted.

Semi-annual monitoring reports and annual compliance certification reports are required by Title V conditions 3.5.5 and 3.5.6. These reports are uploaded to ApplicationXtender (AX) where they are available to the public. Since a Title V Permit has not been issued for this facility, the Title V semi-annual monitoring reports and annual compliance certification reports are not required to be submitted yet. However, semi-annual reports and annual compliance certifications are also required under R14-0037 (and subsequent versions R14-0037A and B) since the facility started operating and these reports are available for public review.

ATTACHMENT A - 40 C.F.R. 63 Subpart DDD OMM Plan

west virginia department of environmental protection

Division of Air Quality
601 57th Street, SE
Charleston, WV 25304
(304) 926-0475

Harold D. Ward, Cabinet Secretary
dep.wv.gov

MEMORANDUM

To: File

From: Robert Mullins

Date: April 28, 2025

Robert A Mullins

Digitally signed by: Robert A Mullins
DN: CN = Robert A Mullins email = Robert.A.Mullins@wv.gov C = US O = WV Department of Environmental Protection OU = Division of Air Quality
Date: 2025.04.28 14:11:36 -04'00'

Subject: ROXUL USA Inc.
RAN Facility
Facility ID No. 037-000108

ROXUL USA Inc.'s RAN Facility (ROXUL) is subject to the requirements of 40 C.F.R. 63, Subpart DDD – "National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production." Under 40 C.F.R. §63.1187, the permittee must submit an operations, maintenance, and monitoring (OMM) plan to the Administrator for review and approval as part of the application for the Title V permit. ROXUL finalized their OMM plan in May 2022. This plan was submitted to WV DAQ on January 30, 2025 as part of the Title V application amendment.

40 C.F.R. §63.1187(b) outlines the elements that must be included in the OMM plan. These are as follows:

1. Process and control device parameters you will monitor to determine compliance, along with established operating levels or ranges for each process or control device.

2. A monitoring schedule.

3. Procedures for properly operating and maintaining control devices used to meet the standards in §§ 63.1178 and 63.1179 of this subpart. These procedures must include an inspection of each incinerator at least once per year. At a minimum, you must do the following as part of an incinerator inspection:

   i. Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation. Clean pilot sensor if necessary.

   ii. Ensure proper adjustment of combustion air, and adjust if necessary.

   iii. Inspect, when possible, all internal structures (such as baffles) to ensure structural integrity per the design specifications.

iv. Inspect dampers, fans, and blowers for proper operation.

v. Inspect motors for proper operation.

vi. Inspect, when possible, combustion chamber refractory lining. Clean, and repair or replace lining if necessary.

vii. Inspect incinerator shell for proper sealing, corrosion, and/or hot spots.

viii. For the burn cycle that follows the inspection, document that the incinerator is operating properly and make any necessary adjustments.

xi. Generally observe whether the equipment is maintained in good operating condition.

x. Complete all necessary repairs as soon as practicable.

4. Procedures for keeping records to document compliance.

5. Corrective actions you will take if process or control device parameters vary from the levels established during performance testing. For bag leak detection system alarms, example corrective actions that may be included in the operations, maintenance, and monitoring plan include:

   i. Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

   ii. Sealing off defective bags or filter media.

   iii. Replacing defective bags or filter media, or otherwise repairing the control device.

   iv. Sealing off a defective fabric filter compartment.

   v. Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

   vi. Shutting down the process producing the particulate emissions.

A review of ROXUL's OMM plan has been conducted, and it has been determined that the plan contains the elements outlined in 40 C.F.R. §63.1187(b) for the Melting Furnace (IMF01) and the Curing Oven, Curing Oven Hoods, Gutter Exhaust, Spinning Chamber, and Cooling Screen (HE01) subject to the requirements of 40 C.F.R. 63, Subpart DDD. As such, this plan has been approved in accordance with 40 C.F.R. §63.1187(a). The OMM plan has been incorporated by reference in condition 4.2.16.a of R30-03700108-2025. The OMM plan review checklist is included as an attachment to this memo.

Attachment - 40 C.F.R. 63 Subpart DDD OMM Plan Review Checklist for ROXUL

40 C.F.R. §63.1187(b) specifies five criteria that must be included in the Operations, Maintenance, and Monitoring (OMM) Plan for 40 C.F.R. 63 Subpart DDD.

Melting Furnace (IMF01)

1. **Process and Control Device Parameters Monitored**

   IMF01 parameter - Under Title V Condition 4.1.4.d.1.ii.C.II ROXUL must monitor percent O_2 established by the most recent performance test.

   Note: The OMM plan does not specify the actual percentage since this has the potential to change with each performance test, but does specify that the percent O_2 is monitored and gives the methods used to do so in Section 2.1.

   IMF01-BH parameters - Title V Condition 4.1.12.d.2 specifies the baghouse and bag leak detection parameters. Section 2.2 and Table 2-3 specify ROXUL's method of monitoring compliance with these parameters.

2. **Monitoring Schedule**

   IMF01 (% O_2) - Monitored continuously as stated in OMM Plan Section 2.1 and Table 2-5.

   IMF01-BH (0.0044 grains per actual cubic foot = signal range: 4mA - 20mA) - monitored continuously as stated in Section 2.2 and Tables 2-3 and 2-5.

3. **Procedures for properly operating and maintaining control devices used to meet the standards in §§ 63.1178 and 63.1179**

   IMF01 (% O_2) - Procedures for meeting % O_2 requirements of §63.1178(b)(3) are specified in OMM Plan Section 2.1.

   IMF01-BH parameters - Title V Condition 4.1.12.d.2 specifies the baghouse and bag leak detection parameters. OMM Plan Section 2.2 and Tables 2-3 and 2-5 specify ROXUL's method of monitoring and maintaining compliance with these parameters.

4. **Procedures for keeping records**

   Sections 2.4 and 3.1 specify the procedures for recordkeeping for all units subject to 40 C.F.R. 63 Subpart DDD.

5. **Corrective actions due to variances in control device parameters**

   IMF01 (% O_2) - The OMM Plan Section 2.5.1 specifies the corrective actions that will be taken if excess O_2 falls below the level established in the last performance test.

   IMF01-BH -The OMM Plan Section 2.5.3 specifies the corrective actions that will be taken if the baghouse leak detection system alarm sounds.

Stack HE01 - Gutter Exhaust, Spinning Chamber, Curing Oven Hoods, Curing Oven, and Cooling Section

1. **Process and Control Device Parameters Monitored**

   CO-AB - maintain average operating temperature of the firebox above that established in the latest performance test (Title V condition 4.1.12.f.3 and OMM Plan Section 2.3 and Table 2-4).

   Note: Temperature not specified since it is established by the latest performance test.

2. **Monitoring Schedule**

   CO-AB - Firebox temperature is continuously monitored as stated in OMM Plan Section 2.3 and Tables 2-4 and 2-5.

3. **Procedures for properly operating and maintaining control devices used to meet the standards in §§ 63.1178 and 63.1179. These procedures must include an inspection of each incinerator at least once per year. At a minimum, you must do the following as part of an incinerator inspection:**

   OMM Plan Section 2.3 and Tables 2-4 and 2-5 specify the procedures that are performed to demonstrate compliance with §63.1179 and the incinerator inspection.

4. **Procedures for keeping records**

   Sections 2.4 and 3.1 specify the procedures for recordkeeping for all units subject to 40 C.F.R. 63 Subpart DDD.

5. **Corrective actions due to variances in control device parameters**

   CO-AB - OMM Plan Section 2.5.2 specifies the corrective actions taken when the 3-hr average temperature drops below the minimum temperature established in the last performance test.

Mineral Wool MACT OPERATIONS, MAINTENANCE, AND MONITORING (OMM) PLAN

Environmental – RAN

January 2025

Project No.: 0724830

CONTENTS

List of Appendices

List of Tables

1. INTRODUCTION

1.1 PURPOSE

The Roxul USA, Inc. d/b/a ROCKWOOL (ROCKWOOL) RAN facility is a mineral wool manufacturing facility located at 665 Northport Avenue in Jefferson County, Kearneysville, West Virginia. The ROCKWOOL facility is a major source for Hazardous Air Pollutants (HAPs) under Title III of the Clean Air Act (CAA); and as such, is subject to the Maximum Achievable Control Technology (MACT) requirements of 40 CFR Part 63, Subpart DDD, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Mineral Wool Production (Mineral Wool MACT). ROCKWOOL was issued a Permit for Construction and Major Modification of Major Stationary Sources for the Prevention of Significant Deterioration (PSD) of Air Quality (R14-0037) on April 30, 2018, that incorporates the June 1, 1999 (updated July 29, 2015) Mineral Wool MACT requirements by reference. ROCKWOOL currently operates under R14-0037B, which was issued as a Class I Administrative Update on September 5, 2024.

Revisions to the Mineral Wool MACT were promulgated in the Federal Register as a result of the residual risk and technology review required per the CAA and made effective on July 29, 2015. The revisions added emissions limits for carbonyl sulfide (COS) for open-top and closed-top cupolas; hydrogen fluoride (HF) and hydrogen chloride (HCl) limits for cupolas with and without slag; and combined collection (spinning) and curing oven emission limits for formaldehyde, methanol, and phenol. In addition, the revisions require compliance with the provisions of the rule at all times (including steady-state operation and periods of start-up and shutdown).

The purpose of this plan is to satisfy the requirements in 40 CFR §63.1187 to prepare an Operations, Maintenance, and Monitoring (OMM) Plan that specifies how ROCKWOOL will operate and maintain equipment used to demonstrate compliance with the Mineral Wool MACT. An OMM Plan must be submitted to the Administrator for review and approval as part of the application for a Title V Operating permit. It should be noted that any sudden, infrequent, not reasonably preventable failure of the control device and monitoring system to provide valid data is considered a malfunction. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. Any period for which the control device or monitoring system is out of control and data are not available for required compliance demonstration is a deviation from monitoring requirements.

1.1.1 Overview of the OMM Plan

This OMM Plan is comprised of the following sections.

- Section 1 describes the purpose of and affected sources covered by the OMM Plan.
- Section 2 includes OMM requirements and compliance methods.
- Section 3 summarizes the recordkeeping and reporting associated with OMM and the OMM Plan at the facility.
- Appendix A contains a revision log for the OMM Plan.
- Appendix B contains a list of Mineral Wool MACT definitions for terms used in this OMM Plan.

1.2 IDENTIFICATION OF AFFECTED SOURCES

The affected sources governed by this plan are the sources subject to the Mineral Wool MACT that require monitoring of process and control device parameters used to demonstrate

compliance. The ROCKWOOL facility control devices and monitoring systems subject to the requirements of this plan are identified below.

- COS, HF, HCl - Melting Furnace Continuous Fuel, Oxygen, and Air Input Monitoring (for 3-hr Block Average Percent Excess Oxygen calculations)
- PM - Melting Furnace Baghouse with Sorbent Injection (LUEHR FILTER WURZ GMBH) and Leak Detection System Monitoring (Durag: SN1283890)
- Formaldehyde, Phenol, Methanol - Curing Oven Afterburner and Temperature Monitoring

As discussed in Section 2.2, the Melting Furnace baghouse with sorbent and its bag leak detection system are the ultimate control and monitoring devices for compliance with the Mineral Wool MACT PM limit and are the affected controls addressed by this OMM Plan.

The July 29, 2015 revisions to the Mineral Wool MACT combine emission limits from collection (i.e., Spinning Chamber) and curing. The Curing Oven Afterburner controls emissions of organic HAP from curing. The Spinning Chamber is not equipped with a control device for organic HAP and the revised Mineral Wool MACT does not include OMM requirements for collection operations.

1.3 DEFINITION OF TERMS

Relevant Mineral Wool MACT definitions for terms used in this OMM Plan can be found in Appendix B.

2. OMM REQUIREMENTS AND ROCKWOOL COMPLIANCE METHODS

This section summarizes the OMM Plan requirements of the Mineral Wool MACT, which are provided in §63.1187(b)(1)-(5). The following tables are also provided which summarize the OMM requirements and ROCKWOOL compliance information.

- Table 2-1 provides a summary of general OMM Plan requirements.
- Table 2-2 provides OMM guidance documents and instructions that are referenced outside of this OMM Plan.
- Tables 2-3 & 2-4 provides a summary of Mineral Wool MACT OMM requirements for the Melting Furnace Baghouse and Curing Oven Afterburner, and the corresponding monitoring devices, respectively.
- Table 2-5 includes an overview of ROCKWOOL's Mineral Wool MACT control device and monitoring systems operation and maintenance information.

Table 2-1: General OMM Plan Requirements

General OMM Plan Requirements	ROCKWOOL OMM Plan Reference
The OMM plan must include process and control device parameters to monitor to determine compliance, along with established operating levels or ranges for each process or control device. [§63.1187(b)(1)]	Section 2.1, 2.2, 2.3 and Table 2-5
The OMM plan must include a monitoring schedule. [§63.1187(b)(2)]	Section 2.1, 2.2, 2.3 and Table 2-5

The OMM plan must include procedures for properly operating and maintaining control devices used to meet the standards in §§63.1178 and 63.1179 of this subpart. These procedures must include an inspection of each incinerator at least once per year. [§63.1187(b)(3)]	Section 2.1, 2.2, 2.3 and Table 2-5
The OMM plan must include procedures for keeping records to document compliance. [§63.1187(b)(4)]	Section 2.4, 3.0
The OMM plan must include corrective actions to take if process or control device parameters vary from the levels established during performance testing. [§63.1187(b)(5)]	Section 2.5

In general, operation, maintenance, and monitoring activities, in addition to corrective actions are implemented according to ROCKWOOL's standard procedures and manufacturer guidance (as applicable), which are outlined in Table 2-2 below for the sources addressed by this OMM Plan.

Table 2-2: Documents and Instructions

Affected Source	Guidance Document/Instruction	Storage Location
Melting Furnace Natural Gas Input Monitoring Device	-Instrumentation is inspected if alarms are present - Endress & Hauser Operating Instructions Proline Promass F 300	ROCKWOOL Server
Melting Furnace Oxygen Input Monitoring Device	- Instrumentation is inspected if alarms are present - Endress & Hauser Operating Instructions Proline Promass F 300	ROCKWOOL Server
Melting Furnace Air Input Monitoring Device	-Instrumentation is inspected if alarms are present - Endress & Hauser Operating Instructions Prowirl 200 (7F2C80) -Endress & Hauser Operating Instructions Deltabar S PMD75 (PMD75)	ROCKWOOL Server
Melting Furnace Baghouse & Bag Leak Detection System	-LUEHR FILTER WÜRZ GMBH Operation Instruction manual (Rev.2.0) -LUEHR FILTER WÜRZ GMBH General Technical Data (Rev2.0) - DS-TA1 Filter controller; DF filter 2 D-FW 231-M-C-XX FI-TA1 Filter controller; DF filter 1 D-FW 231-M-C-XX Monitor Manual	ROCKWOOL Server

Affected Source	Guidance Document/Instruction	Storage Location
Curing Oven Afterburner & Temperature Monitoring Device	-Endress & Hauser Technical information manual (Type K Thermocouple TAF16-15XJX03MR0)	ROCKWOOL Server
Melting Furnace Operation	-RAN5_10_General melting_Operating instruction_Aquila_GB -RAN5_10_General melting_Users manual_GB -RAN5_10_Flue gas system_Operating instructions_GB -RAN5_10_Flue gas system_Work instructions_GB	ROCKWOOL Server
Curing Oven Operation	-RAN5_35_Curing oven Heating plant_operating instruction_GB -RAN5_35_Curing_Users manual_GB	ROCKWOOL Server

2.1 OMM REQUIREMENTS AND PROCEDURES FOR MELTING FURNACE MONITORING

The ROCKWOOL Melting furnace is open to ambient building air with unrestricted air flow (i.e., there is no cover on the furnace) and as such meets the rule definition of “Open-top Cupola” subject to a carbonyl sulfide (COS) (a VOC) limit of 3.2 pounds per short ton melt. Since slag is used as a raw material, the Melting Furnace is subject to an HF and HCl limit of 0.015 and 0.012 lb per short ton melt, respectively.

Melting Furnace exhaust gases are directed to a baghouse to collect raw material fines and to control emissions of filterable PM/PM_{10}/$PM_{2.5}$. A second baghouse with dry sorbent and semi-dry recycle sorbent injection is designed to control (SO_2) and thereby inherently also controls sulfuric acid mist (H_2SO_4 mist), HF, and HCl emissions in addition to emissions of filterable PM/PM_{10}/$PM_{2.5}$. A control device is not used for compliance with the revised Mineral Wool MACT standard for COS. Rather, the ROCKWOOL Melting Furnace operates as described in the final revised Mineral Wool MACT preamble, “operating the cupola with excess oxygen prevents the formation of pollutants that would otherwise be routed to existing controls.”

Other than the bag leak detection requirements (for PM controls), the Mineral Wool MACT establishes two options for operating limits established during performance testing, 1) maintaining the operating temperature of an incinerator or 2) maintaining the percent excess oxygen in the cupola [§63.1178(b)(3)(i),(ii)]. ROCKWOOL maintains the average percent excess oxygen at or above the level established during performance testing to demonstrate compliance with the requirements of the Mineral Wool MACT. The percent excess oxygen is determined by the following equation in §63.1178(b)(3)(ii),

$$\text{Percent Excess Oxygen}\,(\%) = \left(\left(\frac{Oxygen\ Available}{Fuel\ demand\ for\ Oxygen}\right) - 1.00\right) \times 100$$

Where:
Percent excess oxygen = Percentage of excess oxygen present above the stoichiometric balance of 1.00, (%).
1.00 = Ratio of oxygen in a cupola combustion chamber divided by the stoichiometric quantity of oxygen required to obtain complete combustion of fuel.
Oxygen available = Quantity of oxygen introduced into the cupola combustion zone.
Fuel demand for oxygen = Required quantity of oxygen for stoichiometric combustion of the quantity of fuel present.

Note that Mineral Wool MACT omits details regarding how to monitor the percent excess oxygen that is established during performance testing, including an averaging period for the monitored parameter. ROCKWOOL continuously monitors fuel and oxygen input (as pure oxygen and oxygen in air) to the furnace in order to determine percent excess oxygen. The quantity of oxygen and air input to the Melting Furnace is continuously measured and used to calculate the oxygen available in the above equation; the quantity of natural gas to the Melting Furnace is continuously measured and used to determine the fuel demand for oxygen in the above equation. The resulting percent excess oxygen is calculated as an average for each three-hour block period, which is determined in a similar manner to that specified for incinerator operating temperature in §63.1185. The average percent excess oxygen for each three-hour block period is compared against the minimum percent excess oxygen established during performance testing[1].

The Melting Furnace fuel, oxygen, and air input monitoring devices are operated and maintained according to ROCKWOOL's standard procedures and according to manufacturer guidance (as applicable), which are identified in Table 2-2.

In addition, ROCKWOOL will comply with §63.1197 [Startups and Shutdowns] described below,

- Do not shut down items of equipment that are utilized for compliance with this subpart during times when emissions are being, or are otherwise required to be, routed to such items of equipment. [§63.1197(b)] , and
- During periods of startups and shutdowns you must operate your cupola according to one of the following methods [§63.1197(e)]:
    - Keep records showing that your emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard; or
    - Keep records showing that only clean fuels during startup and shutdown and that you operate the cupola during startup and shutdown with three percent oxygen over the fuel demand for oxygen.

2.2 OMM REQUIREMENTS AND PROCEDURES FOR MELTING FURNACE BAGHOUSE WITH LEAK DETECTION SYSTEM

As discussed in Section 2.1, Melting Furnace exhaust gases are directed to a series of two baghouses to collect raw material fines and to control emissions of filterable PM/PM_{10}/$PM_{2.5}$. The first baghouse primarily collects raw material fines and is not intended for compliance purposes. The second baghouse (LUEHR FILTER WÜRZ GMBH) is equipped with a Durag D-FW 231 Filter Monitor bag leak detection system as required by §63.1181 for compliance with the Total PM standard of 0.1 pounds per short ton melt (0.05 kg PM/megagram (MG) melt). Thus, only the bag leak detection system on the 2nd LUEHR FILTER WÜRZ GMBH

[1] The revised Mineral Wool MACT omitted requirements for establishing percent excess oxygen during performance testing, so the methods specified for incinerator operating temperature were used.

baghouse is subject to the requirements of the Mineral Wool MACT because it is ultimately the control device for PM emissions from the furnace stack.

ROCKWOOL continuously records signals from the LUEHR FILTER WÜRZ GMBH baghouse leak detection system to demonstrate compliance with the requirements of the Mineral Wool MACT.

ROCKWOOL will follow manufacturer guidance (as applicable) for operating and maintaining the baghouse and leak detection system (see Table 2-2). Table 2-3 below summarized the Mineral Wool MACT baghouse and bag leak detection system OMM requirements and the ROCKWOOL compliance method.

Table 2-3: Baghouse and Bag Leak Detection System OMM Plan Requirements

Baghouse and Bag Leak Detection System OMM Plan Requirements	ROCKWOOL Compliance
Install, adjust, maintain, and continuously operate a bag leak detection system for each fabric filter. [§63.1181(a), Permit Condition 4.1.12(d)(2)(i)]	The Baghouse IMF01-BH is installed, adjusted, maintained, and continuously operated in conjunction with the LUEHR FILTER WÜRZ GMBH fabric filter (while the process is in operation).
Do a performance test as specified in §63.1188 of this subpart and show compliance with the PM emission limits while the bag leak detection system is installed, operational, and properly adjusted. [§63.1181(b), Permit Condition 4.1.12(d)(2)(ii)]]	A performance test was completed that demonstrated compliance with the PM emission limits while the IMF01-BH Filter Monitor was installed, operational, and properly adjusted. Future performance tests will comply with §63.1181(b).
The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less. [§63.1184(a)]	The IMF01-BH Filter Monitor is certified as capable of detecting PM emissions 0-35 mg/m^3, which meets the requirement of ≤10 mg/acm (0.0044 gr/acf).
The sensor on the bag leak detection system must provide output of relative PM emissions. [§63.1184(b)]	The sensors on the IMF01-BH Filter Monitor provide an output percentage of relative PM emissions.
The bag leak detection system must have an alarm that will sound automatically when it detects an increase in relative PM emissions greater than a preset level. [§63.1184(c)]	The Durag D-FW 231 Filter Monitor is equipped with an alarm that sounds a prewarning at 10% increase, which activates a warning. The alarm will sound again at 80%.
The alarm must be located in an area where appropriate plant personnel will be able to hear it. [§63.1184(d)] Begin corrective actions specified in your operations, maintenance, and monitoring plan required by §63.1178 of this subpart within one hour after the alarm on a bag leak detection system sounds. Complete the	Alarms appear in the New alarms page of the WinCC, and a trend graph will show the value. The operator will receive a text alarm on the New Alarms page. If alarm appears, the operator is to notify the process manager. A Corrective action will be implemented. Corrective actions will include, but not limited to • Inspection of the dust probe for cleaning

Baghouse and Bag Leak Detection System OMM Plan Requirements	ROCKWOOL Compliance
corrective actions in a timely manner. [§63.1181(c), §63.1178(b)(1), Permit Condition 4.1.4(d)(1)(ii)(A), Permit Condition 4.1.12(d)(2)(iII)]] Develop and implement a written QIP consistent with compliance assurance monitoring requirements of 40 CFR 64.8(b) through (d) when the alarm on a bag leak detection system sounds for more than five percent of the total operating time in a six-month reporting period. [§63.1181(d), §63.1178(b)(2), Permit Condition 4.1.4(d)(1)(ii)(B), Permit Condition 4.1.12(d)(2)(iv)]]	• Eliminate the pulse cleaning for the specific valve and monitor to determine if the dust measurement is back in range. ○ If values are greater than 70% but less than 80% (pre-alarm status), then schedule work permit to go into the filter house at the next maintenance stop. Continue to monitor signals for changes or an increase in %. Permit to go into the filter house at the next maintenance stop. Continue to monitor signals for changes or an increase in %. If values are 80% or greater, shutdown and go into the filter house for inspection and repair. ○
For a positive-pressure fabric filter, each compartment or cell must have a bag leak detector. For a negative-pressure or induced-air fabric filter, the bag leak detector must be installed downstream of the fabric filter. If multiple bag leak detectors are required (for either type of fabric filter), detectors may share the system instrumentation and alarm. [§63.1184(e)]	The LUEHR FILTER WÜRZ GMBH baghouse is a negative-pressure fabric filter. The bag leak detector is located downstream of the fabric filter.
Each triboelectric bag leak detection system must be installed, operated, adjusted, and maintained so that it follows EPA's "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015, September 1997). Other bag leak detection systems must be installed, operated, adjusted, and maintained so that they follow the manufacturer's written specifications and recommendations. [§63.1184(f)]	The DURAG D-FW 231 Filter Monitor operates according to the principle of triboelectric measurement and therefore has been installed and is operated, adjusted, and maintained to follow EPA's "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015, September 1997).
At a minimum, initial adjustment of the system must consist of establishing the baseline output in both of the following ways: Adjust the range and the averaging period of the device. Establish the alarm set points and the alarm delay time. [§63.1184(g)(1) – (g)(2)]	The following initial adjustments have been made to the Durag D-FW 231 Filter Monitor on the LUEHR FILTER WÜRZ GMBH baghouse, -Range: 4 mA (0%) – 20 mA (100%) -Averaging period: Continuous (recordkeeping once per 3 seconds) -Alarm set points: 70% (high); 80% (high-high) -Alarm delay time: 10 seconds
After initial adjustment, the range, averaging period, alarm set points, or alarm delay time may not be adjusted except as specified in the	ROCKWOOL will not make range adjustments by more than 100 percent or decreased by more

Baghouse and Bag Leak Detection System OMM Plan Requirements	ROCKWOOL Compliance
operations, maintenance, and monitoring plan required by §63.1187 of this subpart. In no event may the range be increased by more than 100 percent or decreased by more than 50 percent over a 365 day period unless a responsible official as defined in §63.2 of the general provisions in subpart A of this part certifies in writing to the Administrator that the fabric filter has been inspected and found to be in good operating condition. [§63.1184(h)]	than 50 percent over a 365 day period unless the proper notifications are made per §63.1184(h).
Do not shut down items of equipment that are utilized for compliance with this subpart during times when emissions are being, or are otherwise required to be, routed to such items of equipment. [§63.1197(b)]	The Melting Furnace Baghouse will not be shut down during times when emissions are being (or are otherwise required to be) routed to it.
During periods of startups and shutdowns you must operate your cupola according to one of the following methods: (1) You must keep records showing that your emissions were controlled using air pollution control devices operated at the parameters established by the most recent performance test that showed compliance with the standard; or (2) You must keep records showing the following: (i) You used only clean fuels during startup and shutdown; and (ii) You operate the cupola during startup and shutdown with three percent oxygen over the fuel demand for oxygen. [§63.1197(e)]	ROCKWOOL will comply with §63.1197(e) during periods of startups and shutdowns.

2.3 OMM REQUIREMENTS FOR CURING OVEN AFTERBURNER AND TEMPERATURE MONITORING

The Curing Oven exhaust is equipped with a natural-gas fired afterburner for the control of the regulated organic HAPs formaldehyde, phenol, and methanol. The firebox temperature of the Curing Oven Afterburner is continuously monitored to comply with the requirements of the Mineral Wool MACT.

The Curing Oven Afterburner and temperature monitoring device are operated and maintained according to ROCKWOOL's standard procedures and according to manufacturer guidance (as applicable), which are identified in Table 2-2. Table 2-4 below summarizes the Mineral Wool MACT Curing Oven Afterburner and temperature monitoring OMM requirements and the ROCKWOOL compliance method.

Table 2-4: Curing Oven Afterburner OMM Requirements

Mineral Wool MACT "Incinerator" OMM Requirements	ROCKWOOL Compliance
Install, calibrate, maintain, and operate a device that continuously measures the operating temperature in the firebox of each thermal incinerator. [§63.1183(a), Permit Condition 4.1.12(f)(3)(i)(A)]]	The Endress & Hauser TAF16 Type K temperature monitor is installed, calibrated, maintained, and continuously operated in while the process is in operation.
Conduct a performance test as specified in §63.1188 and show compliance with the emission limits while the device for measuring incinerator operating temperature is installed, operational, and properly calibrated. Establish the average operating temperature as specified in §63.1185(a). [§63.1183(b), Permit Condition 4.1.12(f)(3)(i)(B)]	Performance testing was conducted per §63.1188 and demonstrated compliance with the formaldehyde, phenol, and methanol emission standards. The performance test established an average operating temperature set point and is documented in the test report. Future performance testing will comply with §63.1183(b).
During the performance test that uses the binder formulation made with the resin containing the highest free-formaldehyde content specification range, record the free-formaldehyde content specification range of the resin used, and the formulation of the binder used, including the formaldehyde content and binder specification. [§63.1183(c)]	Performance testing was conducted per §63.1188 and resin and binder content and specifications were noted in the RAN Notification of Compliance Status (NOCS) submitted to WVDEP on 12/30/2021. Future performance testing will comply with §63.1183(b).
Following the performance test, monitor and record the free-formaldehyde content of each resin lot and the formulation of each batch of binder used, including the formaldehyde, phenol, and methanol content. [§63.1183(d)]	Information tabulated in a spreadsheet and kept on SharePoint.
Maintain the free-formaldehyde content of each resin lot and the formaldehyde content of each binder formulation at or below the specification ranges established during the performance test. [§63.1183(e)]	Maintain copies of Certificate of Analysis for each delivery on SharePoint. Tabulated information for each resin delivery. The supplier, Arclin was advised to the agreement that resin with free Formaldehyde exceeding 0.18% will be blended and delivered to site. This is evident in the COA's received with each load.
Following the performance test, measure and record the average operating temperature of the incinerator. The average operating temperature of the incinerator is based on the arithmetic average of the one-hour average temperatures for each consecutive three-hour period and is determined in the same manner described in paragraphs §63.1185(a)(1)-(4). [§63.1183(f), §63.1185(b), Permit Condition 4.1.12(f)(3)(i)(F)].	The average operating temperature of the afterburner is measured and recorded as required.
Maintain the operating temperature of the incinerator so that the average operating temperature for each three-hour block period	ROCKWOOL maintains the operating temperature of the afterburner so that the average operating temperature for each 3-hr

Mineral Wool MACT "Incinerator" OMM Requirements	ROCKWOOL Compliance
never falls below the average temperature established during the performance test. [§63.1183(g), Permit Condition 4.1.12(f)(3)(i)(G)]	block period does not fall below the level established in the most recent, valid performance test.
Conduct inspection of each incinerator at least once per year, including the following minimum requirements [§63.1187(b)(3)]: (i) Inspect all burners, pilot assemblies, and pilot sensing devices for proper operation. Clean pilot sensor if necessary. (ii) Ensure proper adjustment of combustion air, and adjust if necessary. (iii) Inspect, when possible, all internal structures (such as baffles) to ensure structural integrity per the design specifications. (iv) Inspect dampers, fans, and blowers for proper operation. (v) Inspect motors for proper operation. (vi) Inspect, when possible, combustion chamber refractory lining. Clean, and repair or replace lining if necessary. (vii) Inspect incinerator shell for proper sealing, corrosion, and/ or hot spots. (viii) For the burn cycle that follows the inspection, document that the incinerator is operating properly and make any necessary adjustments. (ix) Generally observe whether the equipment is maintained in good operating condition. (x) Complete all necessary repairs as soon as practicable.	At a minimum, the afterburner is inspected at least 1/yr according to §63.1187(b)(3). Refer to ROCKWOOL PM No. 5028714.
Operate and maintain the incinerator as specified in your operations, maintenance, and monitoring plan required by §63.1187. [§63.1183(h), Permit Condition 4.1.12(f)(3)(i)(H)]	ROCKWOOL will adhere to this OMM Plan.
Do not shut down items of equipment that are utilized for compliance with this subpart during times when emissions are being, or are otherwise required to be, routed to such items of equipment. [§63.1197(b)]	The Curing Oven Afterburner will not be shut down during times when emissions are being (or are otherwise required to be) routed to it.

2.4 PROCEDURES FOR KEEPING RECORDS TO DOCUMENT COMPLIANCE

The following parameters are continuously measured in the WinCC system and recorded in the POP system.

- Fuel natural gas, oxygen, and air input to the Melting Furnace,
- Firebox temperature of the Curing Oven Afterburner, and
- Leak Detection System Signal of the Melting Furnace Baghouse.

Percent excess oxygen calculations are conducted in and recorded by the POP system.

All Melting Furnace percent excess oxygen deviations, Curing Oven afterburner temperature deviations, bag leak detection system alarms, corrective actions, and maintenance are recorded in accordance with §63.1192 and 40 CFR §63.10 (as applicable).

Records that equipment utilized for compliance were operating during times when emissions are being (or otherwise required to be) routed to such equipment are maintained in the ROCKWOOL Production Files.

For cupolas, records pertaining to startup and shutdowns are maintained by either 1) or 2) below, [§63.1197(e)]

1) Records that air pollution control devices operated at the parameters established by the most recent performance test are maintained in the same manner as during normal operation (i.e., WinCC measurements/POP recording, etc.); or
2) Records that clean fuels were used are maintained in the ROCKWOOL Production Files and in WinCC/POP (as described above) for the requirement to maintain three percent oxygen over the fuel demand for oxygen during cupola startup and shutdown.

Preventative Maintenance orders (PMs) are initiated on a regular schedule and are recorded electronically via SAP on the ROCKWOOL server. These include the results of inspections of the Melting Furnace Baghouse and Curing Oven Afterburner.

For all periods when 1) the average temperature in any 3-hr block period falls below the average temperature established for the Curing Oven Afterburner, 2) the inspection identified Curing Oven Afterburner components in need of repair or maintenance, 3) the leak detection system goes into alarm, and 4) the Melting Furnace average percent excess oxygen in any 3-hr block period falls below the average percent excess oxygen established, the following will be recorded in the Production files/Environmental Files [§63.1192(b)(2),(4)]:

- The date and time of the problem;
- When corrective actions were initiated;
- The cause of the problem;
- An explanation of the corrective actions taken; and
- When the cause of the problem was corrected.

2.5 CORRECTIVE ACTIONS

2.5.1 Melting Furnace Monitoring Corrective Actions

Corrective actions will be taken during periods when the average excess oxygen in any 3-hr block period falls below the average excess oxygen established for the Melting Furnace. Corrective actions will be implemented according to ROCKWOOL's standard procedures and manufacturer guidance (as applicable), which are identified in Table 2-2. Corrective actions may include, but are not limited to:

- The Melting Furnace cannot operate unless an excess of oxygen is present (i.e., the proper ratio of fuel, air, and oxygen is maintained). If excess oxygen falls below the level established in the most recent performance test for a period of three-hours, the measurement/recording system will be checked for accuracy. Should the measurement/recording system be determined to be accurate, then the process will be investigated (e.g., fuel burners, air and oxygen dosing).

2.5.2 Curing Oven Afterburner Corrective Actions

Corrective actions will be taken during periods when the average temperature in any 3-hr block period falls below the average temperature established for the Curing Oven Afterburner. Corrective actions will be implemented according to ROCKWOOL's standard procedures and manufacturer guidance (as applicable), which are identified in Table 2-2. Corrective actions may include, but are not limited to:

- If the Curing Oven afterburner temperature falls below the level established in the most recent performance test for a period of three-hours, the measurement/recording system will be checked for accuracy. Should the measurement/recording system be determined to be accurate, the operation itself will be investigated (e.g., fuel burners, structural integrity, system fans/dampers, combustion air controllers, etc.)

2.5.3 Melting Furnace Baghouse and Leak Detection System Corrective Actions

An alarm will be triggered if process or control device parameters vary from levels established during performance testing of the Melting Furnace, which triggers a corrective action. Corrective actions will be implemented according to ROCKWOOL's standard procedures and manufacturer guidance (as applicable; see Table 2-2) within one hour after the alarm on a bag leak detection system sounds and completed in a timely manner [§63.1181(c), §63.1178(b)(1)]. §63.1187(b)(5) provides the following example corrective actions for bag leak detection system alarms:

- Inspecting the fabric filter for air leaks, torn or broken bags, or filter media, or any other condition that may increase emissions;
- Sealing off defective bags or filter media;
- Replacing defective bags or filter media, or otherwise repairing the control device;
- Sealing off a defective fabric filter compartment;
- Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; and
- Shutting down the process producing the particulate emissions.

Corrective actions will include, but are not limited to:

- Inspection of the dust probe for cleaning
- Eliminate the pulse cleaning for the specific valve and monitor to determine if the dust measurement is back in range.
    - If values are greater than 70%, but less than 80% (pre-alarm status), then schedule work permit to go into the filter house at the next maintenance stop. Continue to monitor signals for changes or an increase in %.

- If values are 80% or greater, shutdown and go into the filter house for inspection and repair.

2.6 SUMMARY OF MINERAL WOOL MACT OMM

A summary of the control device and monitoring system OMM that are monitored to demonstrate compliance are included in the following table.

Table 2-5: Summary of ROCKWOOL Control Device and Monitoring Systems Mineral Wool MACT OMM

Process or Control Equipment	Parameter to be Measured or Monitored	Established Monitored Parameter & Basis	Monitoring & Schedule	Monitoring & Recording Summary	Procedures for Properly Operating & Maintaining Control Device
Melting Furnace (ROCKWOOL International design)	Natural gas input (Endress & Hauser Endress & Hauser Operating Instructions Proline Promass F 300 _____ Endress & Hauser Operating Instructions Proline Promass F 300 Endress & Hauser Operating Instructions Deltabar S PMD75 (PMD75) Endress & Hauser Operating Instructions Prowirl 200 (7F2C80) Endress & Hauser Operating Instructions	Percent excess oxygen (3-hr block avg.) Value established through most recent valid performance test or 3% during startups/shutdowns if utilizing §63.1197(e)(2) for compliance.	Continuous[2] (per §63.1182(a))	-Each 3-hr block average excess oxygen (WinCC/POP/Env. e-logs) -Excess oxygen deviations, corrective actions, & maintenance (e-logs, SAP)	-Parameter monitoring -ROCKWOOL SOPs & manufacturer guidelines - Instrumentation is checked for proper operation via WinCC. (reading values and no alarms) If alarms on instrument is present then an inspection will take place.

[2] Continuous is defined as monitoring conducted on an interval of 15 minutes or less.

Process or Control Equipment	Parameter to be Measured or Monitored	Established Monitored Parameter & Basis	Monitoring & Schedule	Monitoring & Recording Summary	Procedures for Properly Operating & Maintaining Control Device
	Proline Promass F 300 Endress & Hauser Operating Instructions Deltabar S PMD75 (PMD75) Endress & Hauser Operating Instructions Prowirl 200 (7F2C80)				
Melting Furnace Baghouse w/ Sorbent Injection (LUEHR FILTER WÜRZ GMBH)	Leak detection signals (DURAG GmbH D-FW 231 Filter Monitor)	Range: 4 mA (0%) – 20 mA (100%) Alarm set point: high-70%; high-high-80% Established by manufacturer's recommendation and per §63.1184.	Continuous (per §63.1181(a))	-Continuous (WinCC), signal output recorded once/3 sec. (POP/ Env. e-logs) -Inspection results of probe/insulator (SAP) -Bag leak detection alarms and duration, corrective actions, & maintenance recorded per §63.1192(b)(2) (WinCC/POP, e-logs, SAP)	-Parameter monitoring -EPA's ''Fabric Filter Bag Leak Detection Guidance'' -ROCKWOOL SOPs & manufacturer guidelines -Regular PMs
Curing Oven Afterburner (ROCKWOOL International design, Manufactured by WURZ)	-ROCKWOOL PM - Endress & Hauser Technical information manual (Type K Thermocouple TAF16-15XJX03MR0)	3-hr block avg. temperature established through most recent valid performance test per §63.1185.	Continuous (per §63.1183(a))	-Each 3-hr block average temperature (WinCC/POP/Env. e-logs) -Incinerator inspection results (SAP) -Temperature deviations, corrective actions, & maintenance recorded per §63.1192(b)(4) (e-logs, SAP)	-Parameter monitoring -ROCKWOOL SOPs & manufacturer guidelines -Regular PMs & Afterburner inspection at least 1/yr per §63.1187(b)(3)

3. RECORDKEEPING AND REPORTING PROCEDURES

3.1 RECORDKEEPING

The Mineral Wool MACT recordkeeping requirements are listed at §63.1192, §63.1197, and in the NESHAP Subpart A General Provisions (per Mineral Wool MACT Table 1); however, a summary of the elements to be recorded regarding OMM is listed below.

- Maintain files of all information required by § 63.10(b) of the general provisions in subpart A of this part, including all notifications and reports. [§63.1192(a]
- Maintain records of the following information also: Cupola production (melt) rate (Mg/hr (tons/hr) of melt). [§63.1192(b)(1)]
- All bag leak detection system alarms must be recorded (including the date and time of the alarm, when corrective actions were initiated, the cause of the alarm, an explanation of the corrective actions taken, and when the cause of the alarm was corrected). [§63.1192(b)(2)]
- The free-formaldehyde content of each resin lot and the binder formulation, including formaldehyde content, of each binder batch used in the manufacture of bonded products. [§63.1192(b)(3)]
- Incinerator operating temperature and results of incinerator inspections must be recorded. For all periods when the average temperature in any 3-hr block period fell below the average temperature established during the performance test and all periods when the inspection identified incinerator components in need of repair or maintenance (include the date and time of the problem, when corrective actions were initiated, the cause of the problem, an explanation of the corrective actions taken, and when the cause of the problem was corrected). [§63.1192(b)(4)]
- All required measurements needed to demonstrate compliance with a relevant standard [§63.10(b)(2)(vii)];
- Records that equipment utilized for compliance were operating during times when emissions are being, or are otherwise required to be, routed to such equipment. [§63.1197(b)]
- For cupola startup and shutdowns, keep records showing that 1) air pollution control devices operated at the parameters established by the most recent performance test, or 2) clean fuels were used and that the cupola operated during startup and shutdown at three percent oxygen over the fuel demand for oxygen. [§63.1197(e)]
- Retain each record for at least 5 years following the date of each occurrence, measurement, corrective action, maintenance, record, or report (the most recent two years of records must be retained at the facility, the remaining 3 years of records may be retained off site). [§63.1192(c)]
- Records must be maintained in a form suitable and readily available for expeditious review (microfilm, on a computer, on computer disks, on magnetic tape disks, or on microfiche). Electronic recordkeeping is encouraged. [§63.1192(d)]
- Report the required information on paper or on a labelled computer disk using commonly available and compatible computer software. [§63.1192(e)]
- Maintain relevant records for each occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment. [§63.10(b)(2)(ii), (b)(2)(vi)]

- Maintain relevant records related to all required maintenance performed on the air pollution control and monitoring equipment (including calibration checks and adjustments). [§63.10(b)(2)(iii), (b)(2)(x), (b)(2)(xi)]
- Revisions to the OMM Plan are documented in Appendix A.

3.2 REPORTING REQUIREMENTS

The Mineral Wool MACT reporting requirements are listed at §63.1193 and in the NESHAP Subpart A General Provisions (per Mineral Wool MACT Table 1); however, a summary of the elements to be reported regarding OMM is listed below.

- Per §63.1187(a) an OMM Plan must be submitted to the Administrator for review and approval as part of the facility's Title V Permit application. [§63.1193(d)]
- A semi-annual report as required by §63.10(e)(3) if measured emissions exceed the applicable standard or a monitored parameter varies from the level established during performance testing, including [§63.1193(e)]
- Information specified in §63.10(c) (e.g., continuous monitoring systems (CMS) measurements, periods of CMS downtime, periods when the CMS was out of control, periods of excess emissions and parameter monitoring exceedances, the nature and cause of malfunctions, corrective actions taken, the nature of repairs, total process operating time during the reporting period, and procedures that are part of quality control for CMS), and
- Relevant records required by §63.1192(b).
- Within 60 days after the date of completing each performance test (as defined in § 63.2) required by this subpart, you must submit the results of the performance tests, including any associated fuel analyses, following the procedure specified in either paragraph (a)(1) or (2) of this section. [§63.1193(a)]
- A report of each event as required by § 63.10(b) of the general provisions in subpart A of this part, including a report if an action taken during a startup, shutdown, or malfunction is inconsistent with the procedures in the plan as described in § 63.6(e)(3) of the general provisions in subpart A of this part. [§63.1193(b)]
- A semi-annual report stating that no excess emissions or deviations of monitored parameters occurred during the reporting period as required by §63.10(e)(3)(v) if no deviations have occurred. [§63.1193(f)]
- All reports required by this subpart not subject to the requirements in paragraph (a) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. If acceptable to both the Administrator and the owner or operator of a source, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to paragraph (a) of this section in paper format. [§63.1193(g)]

APPENDIX A OMM PLAN REVISION LOG

OMM Plan Revision Log

Revision Number	DATE	Description of Revision
00	December 2021	Initial Draft Plan
01	May 2022	Final Plan
02	January 2025	Plan Submittal to WVDEP

APPENDIX B OMM PLAN DEFINITIONS

Per 40 CFR §63.1196 What Definitions Should I Be Aware Of?

Bag leak detection system means a monitoring device for a fabric filter that identifies an increase in particulate matter emissions resulting from a broken filter bag or other malfunction and sounds an alarm.

Bonded product means mineral wool to which a hazardous air pollutant-based binder (containing such hazardous air pollutants as phenol or formaldehyde) has been applied.

Closed-top cupola means a cupola that operates as a closed (process) system and has a restricted air flow rate.

Combined collection/curing operations means the combination of fiber collection operations and curing ovens used to make bonded products.

Cupola means a large, water-cooled metal vessel to which is charged a mixture of fuel, rock and/or slag, and additives. As the fuel is burned, the charged mixture is heated to a molten state for later processing to form mineral wool.

Curing oven means a chamber in which heat is used to thermoset a binder on the mineral wool fiber used to make bonded products.

Fabric filter means an air pollution control device used to capture particulate matter by filtering gas streams through fabric bags. It also is known as a baghouse.

Formaldehyde means, for the purposes of this subpart, emissions of formaldehyde that, in addition to being a HAP itself, serve as a surrogate for organic compounds included on the list of hazardous air pollutants in section 112 of the Act, including but not limited to phenol.

Hazardous air pollutant means any air pollutant listed in or pursuant to section 112(b) of the Act.

Incinerator means an enclosed air pollution control device that uses controlled flame combustion to convert combustible materials to noncombustible gases.

Melt means raw materials, excluding coke, that are charged into the cupola, heated to a molten state, and discharged to the fiber forming and collection process.

Melt rate means the mass of molten material discharged from a single cupola over a specified time period.

Mineral wool means a fibrous glassy substance made from natural rock (such as basalt), blast furnace slag or other slag, or a mixture of rock and slag. It may be used as a thermal or acoustical insulation material or in the making of other products to provide structural strength, sound absorbency, fire resistance, or other required properties.

New Source means any affected source that commences construction or reconstruction after May 8, 1997 for purposes of determining the applicability of the emissions limits in Rows 1-4 of Table 2. For all other emission limits new source means any affected source that commences construction or reconstruction after November 25, 2011.

Open-top cupola means a cupola that is open to the outside air and operates with an air flow rate that is unrestricted and at low pressure.

PM means, for the purposes of this subpart, emissions of particulate matter that serve as a surrogate for metals (in particulate or volatile form) on the list of hazardous air pollutants in section 112 of the Act, including but not limited to: antimony, arsenic, beryllium, cadmium, chromium, lead, manganese, nickel, and selenium.

Slag means the by-product materials separated from metals during smelting and refining of raw ore.

Per 40 CFR §63.1197 Startups and Shutdowns

Startup begins when fuels are ignited in the cupola. Startup ends when the cupola produces molten material. [§63.1197(c)]

Shutdown begins when the cupola has reached the end of the melting campaign and is empty. No molten material continues to flow from the cupola during shutdown. [§63.1197(d)]