west virginia department of environmental protection

Division of Air Quality
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Austin Caperton, Cabinet Secretary
dep.wv.gov

July 20, 2018

Ms. Regina Hendrix
Eastern Panhandle Sierra Club
65 Bradford Court
Charles Town, WV 25414

RE: ROXUL USA, Inc.
RAN Facility
Permit No. R14-0037
Plant ID No. 037-00108

Dear Ms. Hendrix:

This letter acknowledges that the WV Department of Environmental Protection, Division of Air Quality (DAQ), received from the Eastern Panhandle Sierra Club (EPSC) on July 2, 2018 a comment letter regarding the ROXUL RAN stone wool manufacturing facility. Construction and operation of this facility was authorized pursuant to Permit Number R14-0037, issued on April 30, 2018. On March 28, 2018, a Class I legal advertisement ran in the *Spirit of Jefferson* stating the DAQ's preliminary determination to approve R14-0037 and the start of the 30-day public comment period. At that time, the draft permit, DAQ's Modeling Report, and Preliminary Determination (Engineering Evaluation/Fact Sheet) were made publicly available, including posting on the DAQ website. Although the formal comment period ended on April 27, 2018 and the permit was issued over two months ago, the DAQ is providing the following response to your recent comments (as briefly summarized in italics).

Comment 1: 1992 Demographic Data
EPSC commented that use of 1992 demographic data in the air dispersion modeling was inappropriate based on new growth around the facility since that time.

DAQ Response: Section 7.2.1.1(b)(i) of 40 CFR 51, Appendix W governs the determination of the urban or rural classification for dispersion parameterization in the AERMOD model. Appendix W states that land use of 50% or more of specific urban uses within a 3 km radius surrounding the source classifies the area within the modeling domain as "urban." Otherwise, if land use is less than 50% urban, then rural dispersion coefficients are used (i.e., there is no difference in coefficients if the land is 1% or 49% urban). Although the population of Jefferson County has increased since 1992, the current land use surrounding the plant within a 3 km radius clearly remains primarily rural in nature in accordance with metric Appendix W. A site inspection of the plant site was conducted

prior to permit issuance that visually confirmed that classifying the area as rural in the modeling was appropriate.

Comment 2: Air Dispersion Modeling Results
EPSC commented that ROXUL did not include the air dispersion modeling results within the permit application.

DAQ Response: The results of the ROXUL's air dispersion modeling were submitted under separate cover on December 21, 2017 and have been available (both hard copy and an electronic copy) upon request since that time. The electronic copy of that report was also placed at that time on the DAQ website and is still available at:

https://dep.wv.gov/daq/Documents/December%202017%20Applications/ROXUL%20Air%20Quality%20Modeling%20Report%2012-18-2017.pdf

Comment 3: Air Dispersion Modeling of Hazardous Air Pollutants (HAPs)
EPSC commented that ROXUL did not include HAPs in its air dispersion modeling.

DAQ Response: There are no state or federal requirements to conduct air dispersion modeling for HAPs and there are no state or federal air quality standards for HAPs (such as there are for criteria pollutants). Therefore, while concentrations of some HAPs may be modeled, there does not exist an objective and enforceable standard with which to compare the results. HAPS are, however, regulated through applicability under the National Emission Standards of Hazardous Air Pollutants (NESHAPs) and Maximum Achievable Control Standard (MACT) programs. This group of federal regulations - including 40 CFR 63, Subparts DDD, JJJJ, ZZZZ, and DDDDD which apply to portions of the RAN Facility - are designed to identify and mitigate HAP emissions from certain source categories and contain extensive emission limits, work practice standards, monitoring, recording, and record-keeping requirements.

Comment 4: Transient Emissions
EPSC commented that ROXUL did not separately evaluate or model transient emissions.

DAQ Response: The permit contains emission limits for all modeled sources that, along with the associated compliance determinations, monitoring, record-keeping, etc., provide practical enforceability for the emission data entered into the air dispersion model. These permit limits are inclusive of any transient emissions that may occur. It is also important to note that the only emission unit that may have any substantive transient emission deviation - of, in particular, CO, NO_x or SO_2 - is the Melting Furnace. The emissions of these pollutants from the Melting Furnace are continuously monitored and recorded using a Continuous Emissions Monitoring System (CEMS). Therefore, there is a direct link from the emissions data entered into the air dispersion models and the practically enforceable emission limits in the permit. These emission limits are applicable at all times the emission units are in operation including periods of startup, shutdown, scheduled maintenance, etc. (with the exception of events defined as "emergencies" under 2.12 of the permit).

Comment 5: Q/D Calculation
EPSC commented Q/D should be recalculated including transient emissions.

DAQ Response: A Q/D analysis is a screening methodology developed by the Federal Land Managers (FLMs) - who are tasked with an affirmative responsibility to protect Air Quality Related Values (AQRVs) at Class I Areas - to determine when it is appropriate to require an AQRV analysis during a major source/modification permitting process. The calculation of Q/D is based on the methodology as given in the Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report. The Q/D calculated by ROXUL was done according to this methodology. After providing the FLMs with the relevant information concerning the Q/D calculation and the permit application they, on January 18, 2018, notified the DAQ that an AQRV analysis was not required for the RAN Facility.

Comment 6: Curing Oven BACT

EPSC commented that the Best Available Control Technology (BACT) Determination did not adequately consider or eliminate the use of Catalytic Combustion technology on the Curing Oven.

DAQ Response: ROXUL, in its BACT analysis, lists the afterburner's estimated VOC control efficiency range as 98-99% (pp 508 of 597 of the revised permit application) and states "[a]n afterburner is the top ranked control device and best option for achieving high VOC destruction efficiency [pp 510 of 597] . . ." The catalytic oxidizer is listed as the fourth option with an estimated control efficiency range of 90-99%. There is no evidence that a catalytic oxidizer would achieve in practice a higher destruction efficiency of the specific gas stream than use of an afterburner with a properly monitored firebox temperature (pursuant to 40 CFR 63, Subpart DDD, §63.1182). As the top-ranked control option, the DAQ believes the choice of an afterburner on the Curing Oven is appropriate.

Comment 7: PM-HAPs

EPSC commented emissions of PM-HAPs such as mercury, arsenic, cadmium, and chromium were not evaluated as a potential result of use of such fuels as coal and pet coke.

DAQ Response: It is noted that ROXUL identified that the Melting Furnace is a potential source of mercury and arsenic emissions (pps 65, 66 of 597). Controlled emissions (the Melting Furnace is controlled by a baghouse) of these pollutants were estimated at amounts of 5.83×10^{-4} and 8.97×10^{-5} lbs/hour, respectively. The emission rates were based on performance testing from a facility in Denmark with a similarly designed furnace, as appropriately scaled to the RAN process. ROXUL, based on these performance tests, did not identify other PM-HAPs as potentially present at detectable levels in the exhaust gas of the Melting Furnace. It is also important to note that 40 CFR 63, Subpart DDD is designed to mitigate the emissions of PM-HAPs through the use of a surrogate particulate matter emission limit that is applicable to the Melting Furnace (0.10 lb PM per ton of melt - 4.1.4(d)(1)(i) of the permit):

> *PM means, for the purposes of [40 CFR 63, Subpart DDD], 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.*

Further, in the required residual risk and technology review of Subpart DDD, USEPA stated that *"[w]e retained the surrogacy of PM for non-mercury HAP metals because control of PM achieves the same level of control for non-mercury HAP metals, regardless of the concentration of those*

metals in the PM or whether the concentration of those metals varies in the PM." (July 29, 2015 Federal Register - pp 45290)

Additionally, the mechanical transfer and handling of fuels and raw feedstock materials - which are also subject to BACT and well controlled using multiple enclosures and particulate matter filters - do not produce regulated emissions of PM-HAPs. While constituent PM-HAPs may be present in some of these materials, they are bound within the matrix of the material and are not defined as HAPs until freed and released as finite particles during the combustion process. Particulate matter emissions from material handling are, however, subject BACT and are contributory sources in the air dispersion modeling used to show compliance with the National Ambient Air Quality Standards (NAAQS).

Comment 8: Odors
EPSC commented that DAQ did not consider the potential for odors at the RAN Facility.

DAQ Response: West Virginia Legislative Rule 45CSR4 (it is unclear what rule you are citing as "State Rule 5.2") is "designed to prevent and control the discharge of pollutants into the open air which causes or contributes to an objectionable odor or odors." The rule, however, does not contain any quantified odor thresholds which define the threshold of an "objectionable odor" and, instead, §45-4-2.6 defines an objectionable odor in the following qualitative manner:

> [I]n addition to odors generally recognized as being objectionable, an odor shall be deemed objectionable when in the opinion of a duly authorized representative of the Director, based upon his investigations or his investigations and complaints, such odor is objectionable.

Therefore, an objectionable odor must be determined by the DAQ in the course of an inspection or investigation of an actual odor, and it is not possible to prove quantitatively, pursuant to 45CSR4, that an objectionable odor will be present before a facility is in operation. Further, there is no qualitative indication that the facility - which is well controlled and contains extensive compliance demonstrations, monitoring, record-keeping, etc. - will produce any persistent off-site objectionable odors. If, consistent with DAQ policy, in the course of an inspection or compliant investigation, the DAQ determines that the operating facility is causing or contributing to an objectionable odor, the DAQ will take the actions as required under 45CSR4.

Comment 9: Missing Information on APCD Sheets
EPSC commented that ROXUL did not fully fill out all the information on the Air Pollution Control Device (APCD) sheets including information that would indicate potential ammonia slip from the SNCR.

DAQ Response: The Selective Non-Catalytic Reduction (SNCR) of NO_x emissions from the Melting Furnace is, as described in the process description (pp 13 of 597), an integrated system that uses the basic design of the furnace itself, along with as-needed injections of aqueous ammonia, to control NO_x emissions from the unit. The unit is not a "bolt-on" SNCR and, therefore, much of the requested information on the APCD is not applicable. Additionally, the APCD sheet filled out for the SNCR is general in nature and non-specific to de-NO_x systems so that many of the boxes on the form are not applicable to a de-NO_x system. And finally, due to the very long lead times required

for air permitting within a pre-construction program, often design/engineering is on-going with permit application review. The DAQ understands that all the information specific to some equipment may not yet be available and is yet to be determined. This is acceptable as final emission rates can be analyzed and permitted with reasonable practical enforcability written into the permit. Specific to NO_x emissions from the Melting Furnace, the permit requires the installation of a Continuous Emissions Monitoring System (CEMS) which will allow the real time monitoring of NO_x emissions from the Melting Furnace to show compliance with the associated emission limit. Concerning the potential for ammonia slip from the Melting Furnace, it is noted that ammonia is not defined as a regulated pollutant under 45CSR13 or 45CSR14 and is generally not required to be monitored unless, on a case-by-case basis, as a performance indicator of the specific de-NO_x system. This, however, is not required for the Melting Furnace as it is required to use a CEMS as noted above.

Comment 10: Formaldehyde Monitoring

EPSC commented that a formaldehyde monitor should have been required.

DAQ Response: Substantive emissions of formaldehyde occur from two sources - volatilization from the melt during the collection/curing process (originating from the formaldehyde contained in the binder) and volatilization from the application of fleece (originating from the formaldehyde contained in the fleece binder). The emissions of the former are controlled, when emitted in the Curing Oven, by the afterburner. It is also expected that almost all formaldehyde in the fleece binder will be emitted in the Curing Oven and therefore destroyed in the afterburner. To be conservative ROXUL took no credit for control of the afterburner, which inflates the potential emissions from the fleece application.

Each process is covered by a federal MACT intended to identify and mitigate HAP emissions from certain source categories. The collection/curing process is applicable to 40 CFR 63, Subpart DDD: National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production. Specifically, the process is subject to a limit (§63.1178(a)) of 2.4 lb formaldehyde/ton of melt. The requirements of Subpart DDD include monitoring requirements for combined collection/curing operations [§63.1179, §63.1183], performance testing [§63.1188], notifications [§63.1191], recordkeeping [§63.1192], reporting [§63.1193], and General Provisions (NESHAP Subpart A).

The fleece application process is applicable to 40 CFR 63, Subpart JJJJ: National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating. ROXUL will be subject to the requirements for new affected facilities under the standard, which include organic HAP (OHAP) emission limitations for web coating lines. ROXUL has chosen to comply with the emission standards by using "as-applied" compliant coatings pursuant to the procedures given under §63.3370(a)(2). This will limit the as-applied binder to a VOC content (VOCs are allowed for use as a surrogate for OHAP per §63.3370(c)(1) and (2)) of 0.016 lb-VOC/lb-binder. ROXUL's proposed binder will meet this requirement. Additionally, once constructed, ROXUL will be required to submit a notification for the startup of the Fleece Application line. ROXUL will also be required to submit a Notification of Compliance Status (NOCS) report for the Fleece Application (CM12, CM13) line in accordance with §63.3400.

Beyond the requirements in the MACT, pursuant to 4.3.2 of the permit, ROXUL will be required to conduct a performance test on emission point HE01 to determine the compliance with the emission limit for formaldehyde given under 4.1.5(a). Additionally, pursuant to 4.2.7, ROXUL will

be required to calculate and record on a monthly basis the actual amount of VOCs/HAPs emitted from the fleece application process. The amount shall be based on actual material properties and no control from the afterburner applied.

Based on the above reasons, the DAQ does not believe a formaldehyde CEMS is needed at the facility. It is also noted that ROXUL has stated their intent to use varying binder formulations as technology advances to produce formaldehyde-free resins.

Again, thank you for your comments. If you have any questions, please feel free to contact Mr. Joseph Kessler, the permitting engineer on this project, at (304) 926-0499 ext. 1219.

Sincerely,

William F. Durham
Director

cc: Ed Maguire, DEP Environmental Advocate