UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Joseph R. Kessler, PE
Engineer
WV Department of Environmental Protection
Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

APR 25 2018

RE: Draft Permit to Construct for ROXUL USA, Inc., RAN Facility
Ranson, Jefferson County
Permit Number R14-0037-00108

Dear Mr. Kessler:

Thank you for the opportunity to review and provide comments on the West Virginia Department of Environmental Protection's draft preconstruction permit for the startup and operation of a new mineral wool manufacturing facility to be operated by ROXUL USA, Inc (Roxul) in the city of Ranson, Jefferson County.

We provide these comments to help ensure that the project meets federal requirements, that the permit provides necessary information readily accessible to the public, and that the record provides adequate support for the permit decision. We look forward to working with you in addressing all the issues raised.

If you have questions, please do not hesitate to contact me at 215-814-2084 or Mr. Himanshu Vyas of my staff at 215-814-2112.

Sincerely yours,

Gerallyn Duke

Gerallyn Duke
Acting Associate Director,
Office of Permits and State Programs (3AP10)

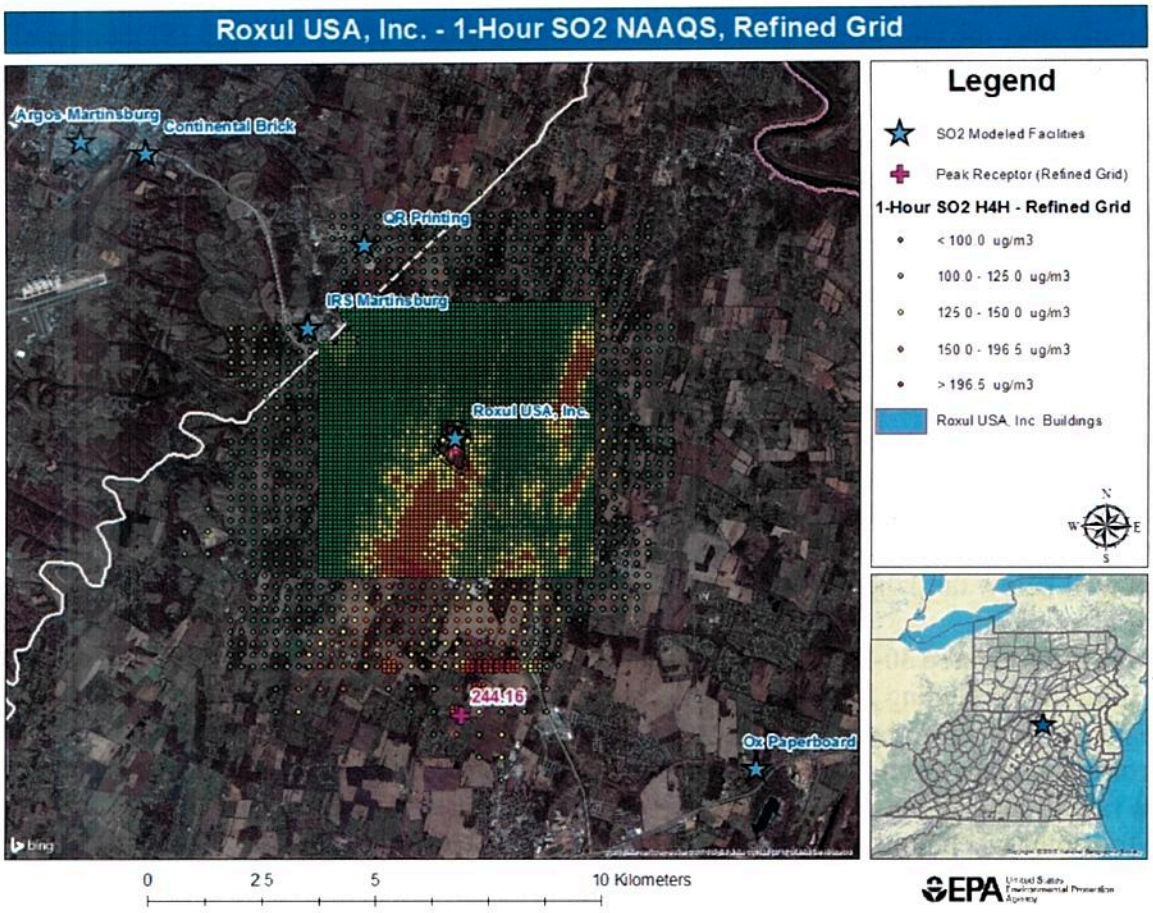
ec: Beverley McKeone, WVDAQ

Enclosure

EPA Comments on
Draft Permit Number R14-0037-00108
ROXUL USA, Inc

Comments on the Prevention of Significant Deterioration (PSD) Modeling Report:

Modeled 1-Hour SO_2 Violations: The modeling analysis provided as part of the application contains modeled violations of the 1-hour SO_2 NAAQS. Additional modeling indicates that the primary source contributing to these modeled violations is a coal-fired boiler that is operated by Ox Paperboard near Ranson, WV. Roxul is located approximately 10 km northwest of Ox Paperboard and the modeled violations occur approximately 6-9 km west-northwest of Ox Paperboard; the peak model receptor's high fourth-high values occur during hours when winds are from the east-southeast direction.



WV DEP's modeling analysis demonstrates that Roxul does not significantly contribute to any of the modeled 1-hour SO_2 NAAQS violations and can proceed through the permitting process. EPA Region 3 highly recommends changes be made to the modeling analysis to determine the validity of the modeled 1-hour SO_2 NAAQS violations. Along this line we recommend the following refinements to potentially lower the final modeled 1-hour SO_2 concentrations:

Use a more refined background concentration: Instead of using a three (3) year design value, WV DEP should consider using an hour of day or a seasonal hour of day background

concentration as described in EPA's March 1, 2011 Clarification Memo[1]. Using the 99% average by hour of day versus a design value will reduce the background concentration by 6-9 ppb. These values are available upon request from EPA Region 3. WV DEP should also consider using the most recent 2015-17 values for the background monitor if they are available.

Refine the hourly emission rate for Ox Paperboard's coal-fired boiler: Ox Paperboard's Title V permit lists the maximum hourly emission rate for this unit as 277.78 lbs/hr. The unit is permitted to operate using a Dry Sorbent Injection or DSI system to control SO_2 emissions. Additional limits include SO_2 emissions not to exceed 484.50 tons per year, hourly coal consumption not to exceed 4.3 tons nor more than 15,000 tons per year and coal sulfur content limits that cannot exceed 1.7% by weight[2]. The NAQS modeling analysis used 35 g/s as Ox Paperboard's hourly SO_2 emission rate, which is 277.7825 lbs/hr using the National Institute of Standards and Technology or NIST conversion rate[3].

WV DEP should determine if Ox Paperboard's modeled emission rate can be lowered to reflect actual operations or limits in its Title V permit. For example, an average hourly SO_2 emission rate based on the unit's annual SO_2 limit of 484.50 tons would yield an hourly emission rate of approximately 110.62 lbs/hr. Using this annual limit and assuming the maximum permitted hourly rate, the unit would need to cease operations after a little over eight (8) months of continuous operations. If Ox Paperboard continuously operates this unit and complies with its Title V permit then the unit most likely emits well under its maximum hourly permitted rate. EPA estimates the hourly emission rate based on the unit's coal sulfur content restrictions is approximately 146.2 lbs/hr; at this hourly rate the unit would need to cease after nine (9) months of continuous operations.

In accordance with Table 8-2 of EPA's Appendix W, off-site emission rates (for sources such as Ox Paperboard) can be based on the most recent two (2) years of operations. EPA has estimated some of the possible hourly emission rates based on Ox Paperboard's Title V permit. WV DEP should determine if Ox Paperboard's coal-fired boiler emission rate can be further refined based on its most recent two (2) years of operations, its current Title V permit limits or possibly using recent stack testing information. In reality, Ox Paperboard's coal-fired boiler's hourly emission rate is probably less than 150 lbs/hr or 18.9 g/s. Using this value instead of 35 g/s would reduce the final modeled 1-hour SO_2 concentration from 244 $\mu g/m^3$ to approximately 150 $\mu g/m^3$, which is well below the 1-hour SO_2 NAAQS.

Roxul Melting Furnace 30-Day SO_2 Emission Limit: Table 4.1.4(a) of Roxul's proposed permit lists the SO_2 limit for its melting furnace as 33.63 lbs/hr based on a 30-day rolling average. The 1-hr SO_2 modeling analysis used an hourly emission rate of 4.24 g/s (33.6275 lbs/hr using NIST conversion). A 30-day rolling average would allow the Melting Furnace to occasionally emit above the modeled hourly emission rate so long as the unit's 30-day average hourly emission rates are below 33.63 lbs/hr. To account for times when hourly emissions could exceed the stated permit limit, the modeling analysis included runs with this unit running at 30 percent over its emission limit (33.63 lbs/hr). While this approach is somewhat unorthodox, it is similar to the scaling factors contained in Appendix D of EPA's

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[1] See discussion in *COMBINING MODELED RESULTS AND MONITORED BACKGROUND TO DETERMINE COMPLIANCE* section of Clarification memo:
https://www3.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf

[2] https://dep.wv.gov/daq/permitting/titlevpermits/Documents/May%202017/Ox%20Paperboard%205-9%20FP.pdf

[3] 1 lb = 453.592673 g

1-Hour SO_2 Nonattainment Guidance[4]. The modeling analysis using this increased hourly emission rate showed no change in the final 1-hour SO_2 model concentration indicating hourly emissions 30 percent above the hourly permitted emission rate would have no impact on the analysis' conclusions.
The Melting Furnace's 30-day rolling average is similar to limits placed on a Roxul facility currently operating near Byhalia, MS. Typically, longer-term limits are granted for sources known to have significantly varying hourly emission rates. This provides the source with flexibility to average out fluctuations in the hourly emission rates for compliance purposes. As noted previously, this approach is being used for State Implementation Plans as outlined in EPA's 1-hour SO_2 nonattainment guidance. Given the 30-day rolling limit proposed for the melting shop source, does WV DEP know or has Roxul established how variable hourly SO_2 emission rates are expected to be from the Melting Furnace?

PM-2.5 Increment Modeling/Source Trigger Dates: The PM-2.5 increment analysis appears to include a number of off-site PM-2.5 sources. It's not clear if these sources are truly PM-2.5 increment consuming sources. Also, there is a significant difference in the off-site 24 hour and annual emission rates included in the modeling analysis.

While including additional off-site sources in the increment analyses would be conservative as far as the increment analyses are concerned, it is probably inappropriate since Roxul most likely marks Jefferson County, WV's major source baseline date since it is probably the first complete major source application received. If this is correct, only new sources at Roxul should be included in the increment modeling analyses (for 24 hour and annual PM-2.5 increments). Increment modeling should only consider contributions from sources after the baseline dates are established or contributions from sources that have changed their emission rates since the established baseline dates. WV DEP should include a discussion regarding when the increment trigger dates were established and what areas have been triggered within the state. This will provide modeling information for other future sources in Jefferson County, WV when they prepare their modeling analyses.

Comments on the Preliminary Determination/Fact Sheet and the Draft Permit:

1) **Phased permitting:** Roxul has proposed to construct an Oxygen Plant on site at a later date in order to supplement combustion air in the furnace with pure oxygen. Using oxygen will lead to a higher temperature flame and possibly more thermal NOx, or increased production. WVDEP should either include increased emissions of NOx and other pollutants in the current permit, or provide more information in the Final Determination that shows that this approach of project staging will not lead to phased permitting and circumvention of PSD requirements.

2) **BACT limit for NOx, CO, and SO2:** The proposed permit sets BACT limits for melting furnace on a 30-day rolling average basis. Since this is a batch operation, the BACT limits should be based on the operational time of the furnace batches. The 30-day rolling average is the longest period of time acceptable for a limit to be federally enforceable per EPA guidance[5]. WVDEP should provide reasons for setting the BACT limit on a 30-day rolling average basis.

3) **BACT determination:** The Preliminary Determination (PD) on page 33 states that, "Pursuant to USEPA and DAQ policy, the permit applicant determines an appropriate BACT

[4] https://www.epa.gov/sites/production/files/2016-06/documents/20140423guidance_nonattainment_sip.pdf
[5] https://www3.epa.gov/airtoxics/pte/june13_89.pdf

emission limit by using a "top-down" analysis." It is EPA's understanding that a PD or permit Fact Sheet should lay out the permitting authority's own analysis of the applicant's top-down BACT determination for public review and comment. Federal PSD rules, incorporated into its State Implementation Plan by WVDEP, define BACT, in part, as (emphasis added)[6]:

a. an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification **which the Administrator**, 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.
b. **If the Administrator 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.

4) **Portable crusher BACT limit:** On page 34 of the PD, the table titled ROXUL BACT Summary, for portable crusher, the BACT Technology is stated to be an "Hours of operation limit." It is EPA's understanding that limiting hours or operation, or limiting throughput is generally not considered BACT. A source may take such limits on operations or throughput in order to avoid being a major source under PSD and therefore avoid BACT—such limits are called PSD avoidance or BACT avoidance limits, but are not considered themselves to be BACT. Additionally, a PSD permit may have other limits that are not BACT, and such may be the case for the portable crusher. Please consider revising this limit by not calling it a BACT limit. Alternatively, please provide a top-down BACT analysis for this source.

[6] Definition of Best available control technology (BACT) in PSD: https://www.ecfr.gov/cgi-bin/text-idx?SID=1f6b1b02a95d8f59728c395fb9f829e6&mc=true&node=se40.3.52_121&rgn=div8