



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

AIR AND RADIATION DIVISION
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DATE:

NOV 09 1992

SUBJECT: Proposal for Resolving the Part D Sulfur Dioxide
State Implementation Plan Revision for
Rhineland, Wisconsin

FROM: Gary Gulezian, Chief *Barth T. Nash for*
Air Toxics and Radiation Branch (AT-18J)

TO: Joseph A. Tikvart, Chief
Source Receptor Analysis Branch
Technical Support Division (MD-14)

On October 8, 1992, the United States Environmental Protection Agency (USEPA) Region 5 staff met with Wisconsin Department of Natural Resources (WDNR) staff to examine the issue of the sulfur dioxide (SO₂) State Implementation Plan (SIP) for the Rhineland, Wisconsin (Oneida County) nonattainment area. Representatives of Rhineland Paper Company (RPC) and Wisconsin Public Service Corporation (WPSC), a northeastern Wisconsin electric utility, were present at this meeting. The affected facility, RPC, noted its desire to resolve the SO₂ SIP issue for the Rhineland nonattainment area. As you may recall, USEPA has not approved a Part D SIP for the Rhineland nonattainment area due to complications surrounding this attainment demonstration. Due to this factor, a construction ban is in effect for sulfur emitting sources.

Region 5, WDNR, and RPC are working towards an acceptable Part D SIP for the existing RPC facility. Thus, as a result of this meeting, Region 5 would like to present another possible solution to this issue and we would like to have the concurrence of the Source Receptor Analysis Branch (SRAB) on the suitability of this approach before proceeding with the State and the affected company regarding this matter. This solution originates from RPC's need, on occasion, to operate the cyclone with more than 2 stoker boilers, and supplements our position as identified in our previous memorandum to you dated March 12, 1992. We ask that you refer to the attached memoranda dated March 12, 1992, and April 6, 1992, for background information on the Rhineland SIP revision issue.

In Region 5's March 12, 1992, memorandum, attachment B demonstrated that the majority of the SO₂ emissions are contributed by the cyclone boiler. On the exceedance day of September 17, 1985, it was calculated that 93.7 percent of the RPC's total emissions were attributed to the cyclone. Each of the 2 stoker boilers only contributed about 2.9 percent, with the other operations contributing to a total of less than 0.5 percent.

(2)

Therefore, by reducing the emissions from the cyclone in conjunction with increasing the number of operating stokers, one could assume that the total emissions would still be lower.

At our request, RPC has provided additional technical support which details two alternative case scenarios that satisfies their need to operate the cyclone with 3 or 4 stokers at a given time. These scenarios are based on the premise that the total emissions will not exceed the base case (2 stokers, 1 cyclone) emissions of 26,948 lbs SO₂/day and that ambient concentrations resulting from these scenarios are acceptable because the cases result in lower SO₂ emissions. Please refer to the Proposal 2 attachment.

In Alternative Case 1, with 3 stoker boilers in operation, the emission limit for the cyclone boiler would be 3.4 lbs SO₂/mm BTU and thereby emitting a total of 26,391 lbs SO₂/day. In Alternative Case 2 with 4 stoker boilers in operation, an emission limit of 3.3 lb SO₂/mm BTU is set for the cyclone boiler. Alternative Case 2 scenario would emit a total of 26,726 lbs SO₂/day. Region 5 believes these alternative scenarios are acceptable because the cases result in lower total SO₂ emissions. Please refer to the Proposal 2 attachment.

To further strengthen this argument, a dispersion model analysis of the SO₂ emissions from RPC was performed using the Industrial Source Complex Short Term model (ISCST2) in the screening mode. Although this model is known to underpredict in this situation, the analysis presented here is only to show the relative decrease in ambient concentrations from the different operating scenarios. Model runs were conducted for this base case scenario, as well as two alternative cases. Both alternative cases used the same emission limit for the stokers as the base case, which was 1.25 lbs SO₂/mm BTU. The cyclone emission limit for Alternative 1, which assumes the operation of the cyclone and the 3 stokers, reflected a limit of 3.4 lbs SO₂/mm BTU. In addition, Alternative 2, with the cyclone and 4 stokers in operation, reflected an emission limit for the cyclone of 3.3 lbs SO₂/mm BTU. The following table demonstrates the concentrations predicted by the ISCST2 dispersion model for the three scenarios stated above.

(3)

Table I: MAXIMUM PREDICTED 24 HOUR IMPACT FOR EACH CASE AS MODELED USING USEPA GUIDELINE MODEL (ISCST2)

Case Scenario (Stokers all @ 1.25 lbs SO ₂ /mm BTU)	Maximum Predicted 24 Hour Impact (μg/m ³)
Base Case: Cyclone (@ 3.63 lbs SO ₂ /mm BTU) & 2 Stokers	82
Alternative 1: Cyclone (@ 3.4 lbs SO ₂ /mm BTU) & 3 Stokers	65
Alternative 2: Cyclone (@ 3.3 lbs SO ₂ /mm BTU) & 4 Stokers	63

Region 5 is interested in pursuing the two proposed alternatives as possible solutions for attaining the SO₂ standards in the Rhinelander area. As exhibited in the Proposal 2 Attachment, Alternative Cases' 1 and 2 cyclone emission limits of 3.4 and 3.3 lbs SO₂/mm BTU, respectively, demonstrate a reduction in total daily emissions as compared to the 26,948 lbs SO₂/day rollback emissions total. Table I also demonstrates that the modeled alternative cases show a reduction in the SO₂ ambient air concentrations as compared to the modeled base case. Region 5 finds these limits acceptable and would like the concurrence of SRAB.

We appreciate all of your assistance in the past, and would like to proceed with this solution to this longstanding issue expeditiously so that the SO₂ SIP for the Rhinelander area could be approved. If you have any questions or need additional information on this subject, please contact me at (312) 353-8559 or Sheila Breen at (312) 886-6053.

Attachments