

ILLINOIS POLLUTION CONTROL BOARD  
August 22, 1984

STAUFFER CHEMICAL COMPANY, )  
 )  
 Petitioner, )  
 )  
 v. ) PCB 84-36  
 )  
 ILLINOIS ENVIRONMENTAL )  
 PROTECTION AGENCY, )  
 )  
 Respondent. )

MR. RICHARD H. SANDERS AND MR. STEVEN M. HARTMAN OF VEDDER,  
PRICE, KAUFMAN & KAMM HOLZ APPEARED ON BEHALF OF STAUFFER CHEMICAL  
COMPANY.

MR. PETER E. ORLINSKY, ATTORNEY-AT-LAW, APPEARED ON BEHALF OF THE  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by J.D. Dumelle):

This matter comes before the Board upon a March 23, 1984,  
petition for a site-specific sulfur dioxide limitation applicable  
to Stauffer Chemical Company's (Stauffer's) Chicago Heights  
Plant. On May 29, 1984, the Illinois Environmental Protection  
Agency (Agency) filed a recommendation that the request be granted.  
Hearing was held on July 6, 1984, in Chicago Heights.

The Facility

Stauffer Chemical owns and operates a plant at 11th and  
Arnold Streets in Chicago Heights, which is located within the  
Chicago Major Metropolitan Area as defined in 35 Ill. Adm.  
Code 211.122. The plant is a major producer of calcium, sodium  
and ammonium phosphates, phosphoric acid, and sodium bicarbonate.  
The phosphates are produced from burning elemental phosphorus in  
a furnace and hydrating the combustion product to phosphoric  
acid. The acid is then reacted with the corresponding alkali to  
produce calcium, sodium or ammonium phosphates. The sodium  
bicarbonate is produced from very pure soda ash, water and carbon  
dioxide. The products are used in the food and drug, detergent,  
fertilizer, paper, petroleum and plastics industries.

The process includes the use of a coal-fired boiler with a  
stack diameter of over 13 feet and a height of 180 feet. The

exit gas has a volume of about 50,000 actual cubic feet per minute at an average velocity of 5.0 feet per second and a temperature of 350° F. The facility controls its particulate emissions by use of a Zurn Type 5-MBSA-144-8-300 baghouse with an area of 37,700 square feet of fiberglass cloth, divided into 5 compartments. The unit was installed in 1979 at a cost of \$750,000 and was guaranteed by Zurn to operate at an emission rate of 2.0 pounds per hour of particulates and was measured at 1.4 pounds per hour in the acceptance test, at a peak load of 80,000 pounds per hour of steam.

#### Regulatory Framework

Emissions from Stauffer's facility are presently governed by 35 Ill. Adm. Code 214.141, which limits SO<sub>2</sub> emissions to 1.8 lbs./mBtu. Pursuant to Section 214.201, facility owners or operators may petition the Board for alternate emission limitations of up to 6.8 lbs./mBtu, provided they can demonstrate that the proposed emission rate will not, under predictable worst case conditions, cause or contribute to a violation of any applicable primary or secondary SO<sub>2</sub> ambient air standard or applicable PSD increment.

#### The Environmental Impact

Stauffer has requested a sulfur dioxide emission limitation of 6.8 lbs./mBtu and has presented modeling results to support its claims that if its current sulfur dioxide emission limitation of 1.8 lbs./mBtu is raised to 6.8 lbs./mBtu, there would be no resulting violations of the National Ambient Air Quality Standards (NAAQS), nor would there be any significant impact on the Agency's February, 1982 sulfur dioxide model of the Chicago area. The Agency has analyzed the data presented by Stauffer and concluded "that the allegations ... have been substantiated ... [and] that a 6.8 lb./million Btu standard for the boiler in question would not cause an ambient air quality violation" (Rec. p.3).

In its modelling Stauffer relied upon 1975 meteorological data identified by the Agency as the "worst case" year and utilized the MPTER and RAM dispersion models recommended by the United States Environmental Protection Agency for use in urban areas. Ninety-six receptors were used in the air quality assessment, located 1 kilometer apart in a grid pattern covering approximately 144 square kilometers around the Chicago Heights plant, and nine additional receptors were included to ensure that the maximum impact of the plant's emissions would be detected.

The site-specific SO<sub>2</sub> emission rate requested for the Chicago Heights plant will have no significant adverse impact on air quality in the vicinity of the plant. The modeling verifies that the incremental sulfur dioxide increase from the plant will

not result in concentrations exceeding 80% of the NAAQS. Even when increases in SO<sub>2</sub> concentrations attributable to an emission limitation to 6.8 lbs/mBtu are added to the contributions from other sources within a 15 kilometer radius and Agency determined baseline concentrations, the aggregate receptor concentrations at the second highest concentration level are only 390.3 ug/m<sup>3</sup> and 225.3 ug/m<sup>3</sup>, respectively, which are substantially below 1040 ug/m<sup>3</sup> and 292 ug/m<sup>3</sup> (80% of the 3 and 24-hour maximum NAAQS). In fact, the report by ETA Engineering, Inc. (which is attached to the petition for site-specific regulatory relief as Appendix A and which documents the modeling) concludes that the proposed emission limitation increase "would not cause the concentration of any receptor analyzed to be within 65% of the NAAQS for sulphur dioxide" (App. A, p. 24), and that "the Stauffer-Chicago Heights facility will not cause any PSD [Prevention of Significant Deterioration] air increments to be exceeded" (App. A, pp. 14, 17-18). The applicable allowable limits\* (3 and 24-hour) are 512 ug/m<sup>3</sup> and 91 ug/m<sup>3</sup>, respectively, while the maximum increases for the "worst case" conditions modeled are 193.3 ug/m<sup>3</sup> and 56.8 ug/m<sup>3</sup>, respectively (App. A, pp. 14, 17).

Based on the record before it, the Board finds that the requested emission rates for Stauffer's facility will not cause or contribute to violations of ambient air quality standards nor exceed any PSD increments that might otherwise apply, and that granting a relaxed SO<sub>2</sub> emission limitation will not have an adverse environmental<sup>2</sup> effect.

Based on those findings, the Board concludes that Stauffer has made a sufficient demonstration pursuant to Section 214.201 to justify a relaxed sulfur dioxide emission standard. However, the Board cannot conclude that an emission level of 6.8 lbs./mBtu has been justified. In its recommendation, the Agency notes that Stauffer's "description of the coal it is planning to burn specifies that the sulfur content will not exceed 3.6% and the heating value will be 12,500 Btu/lb. The Agency has calculated that coal with such characteristics will yield emissions of 5.47 lb/million btu of actual heat input. The Agency believes, therefore, that Petitioner should clarify its purpose in seeking a 6.8 lb/million Btu limitation" (Rec. p. 3).

Stauffer's only response to this was presented through the testimony of Howard Perrault, a Technical Manager for Stauffer,

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\* Stauffer correctly contends that PSD analysis is inapplicable to its petition since its boiler was equipped prior to 1975 to burn Illinois coal, and in fact did so. A switch between coals of differing coal content is exempt from the definition of "major modification" under the PSD rules, and thus these rules do not apply. 40 C.F.R. 51.25 (b)(2)(iii)(e).

who stated that "the standard is the state standard. And by having that standard set for us, it will allow us to search for the most -- the best coal for our purposes and also allow for the possible variation in the sulfur content of the coal" (R. 12). The only other relevant information concerning the necessary emission standard is that when Mr. Perrault was asked what sort of coal was currently being tested for use, he responded that Stauffer recently concluded tests on coals with "a sulfur content of 5.9 pounds of SO<sub>2</sub> per million Btu" (R. 11).

Based upon this limited evidence, the Board can not find that Stauffer has justified an emission standard of greater than 6.0 lbs./mBtu. Illinois coal which will meet that standard is clearly available, there is no showing that variability requires a higher standard, and it is in the public interest to limit emissions of sulfur dioxide as much as is reasonable. The Board notes in this regard that culpability modeling shows a potential "hot spot" at one receptor assuming maximum emissions from the American Brick facility in Dolton (which is not currently in operation and which there is no reason to believe will operate in the near future). While it is alleged that Stauffer's contribution to the modeled violation is below the level of significance,\* that modeling serves to demonstrate that care should be taken in allowing relaxed limitations to minimize the potential for such "hot spots" and that the Board should not grant relaxations beyond levels which have been justified.

Section 9.2 of the Illinois Environmental Protection Act allows for the relaxation of sulfur dioxide limitations in order to encourage the use of Illinois coal where such use is consistent with achievement of the ambient air quality standards. This action is consistent with the legislative intent expressed therein.

The Board, therefore, will grant an alternative limitation of 6.0 lbs. SO<sub>2</sub>/mBtu, with compliance to be measured by 35 Ill. Adm. Code 214.101(c). This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

#### ORDER

Stauffer Chemical Company is hereby granted an alternative emission limitation for sulfur dioxide emissions applicable to its boiler at its Chicago Heights facility of 6.0 pounds per million British Thermal Units of heat input pursuant to 35 Ill. Adm. Code 214.201, subject to the following condition:

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\* Data supporting this allegation is lacking, but there is no evidence to rebut it. See App. A, p. 23.

Within 30 days of the date of this Order, Stauffer Chemical Company shall apply to the Illinois Environmental Protection Agency for a revision of its operating permit for its Chicago Heights facility's boiler consistent with this Opinion and Order.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 22<sup>nd</sup> day of August, 1984 by a vote of 0-0.

Dorothy M. Gunn  
Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board