

ILLINOIS POLLUTION CONTROL BOARD  
April 5, 1984

OLIN CORPORATION, )  
 )  
 ) Petitioner, )  
 )  
 ) v. ) PCB 83-46  
 )  
 ) ILLINOIS ENVIRONMENTAL PROTECTION )  
 ) AGENCY, )  
 )  
 ) Respondent. )

MR. JEFFREY C. FORT, MARTIN CRAIG, CHESTER & SONNENSCHNEIN, AND  
MR. GEORGE H. PAIN, OLIN CORPORATION, APPEARED FOR THE  
PETITIONER;

MR. PETER E. ORLINSKY, ATTORNEY AT LAW, APPEARED FOR THE RESPONDENT.

OPINION AND ORDER OF THE BOARD (by B. Forcade):

On March 31, 1983, Olin Corporation ("Olin") initiated this proceeding with a petition seeking an alternative sulfur dioxide ("SO<sub>2</sub>") emission limitation for its Joliet Plant. At the same time, Olin filed a variance request, PCB 83-44, seeking a temporary alternative SO<sub>2</sub> emission limitation until this proceeding is decided. On August 18, 1983 the Board denied Olin's variance petition. On June 8, 1983, the Illinois Environmental Protection Agency ("Agency") filed a recommendation supporting the alternative emission limitation requested by Olin in this proceeding. On June 16, 1983, a hearing was held in Joliet, covering both the variance proceeding and this proceeding. In addition to witnesses for Olin and the Agency, six members of the public testified.

On August 18, 1983, in an Interim Order, the Board required an additional hearing to obtain information concerning maximum ground level concentrations of SO<sub>2</sub>, prevention of significant deterioration ("PSD") increments, and to allow Dr. Herman Sievering the opportunity to testify. On January 20, 1984, the additional hearing was held. Olin filed a memorandum supporting the alternative limitations on February 15, 1984. On February 8, 1984, the Agency waived additional filings.

The Facility

Olin's Joliet Plant produces sodium phosphates, fertilizer, and sodium fluorides. Olin produces sodium phosphate by the wet

acid process. This requires ev. ... or approximately 600 gallons of water per minute (R #1 p. 28). \*/

Approximately one half of the water is evaporated by direct contact with heated air, and one half is evaporated by indirect contact with steam. The steam needed for this process (225,000 pounds per hour) is generated by 3 coal-fired boilers. Boiler No. 1 has its own stack. Boilers No. 2 and No. 3 have a common stack. Relevant information is presented below:

	Boiler #1	Boiler #2	Boiler #3
TYPE	Babcock and Wilcox Chain Gate Stoker with 4 drum sterling design		
Max. Steam Load lbs./hr.	80,000	100,000	100,000
Max. Heat Input BTU/hr.	104.0	141.7	141.7
	Common Stack		
Stack Diameter	6.0 ft.	9.0 ft.	
Stack Height	125 ft.	150 ft.	

The three coal-fired boilers were designed to burn Illinois coal containing approximately 3.5% sulfur. Illinois coal was burned until 1972 (R #1 p. 32). At that time, the boilers were converted to burn low-sulfur coal, and presently burn coal from Kentucky and Indiana which has a 1% maximum sulfur content (Pet. p. 5). Olin has requested an alternative SO<sub>2</sub> emission limitation so that they may return to burning Illinois coal. Olin has stated that the switch to Illinois coal will not increase particulate emissions (R #1 p. 33).

#### Regulatory Framework

Emissions from Olin's facility are presently governed by 35 Ill. Adm. Code 214.141, which limits SO<sub>2</sub> emissions to 1.8 lbs./MM

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\*/ The record and transcript of the variance petition (PCB 83-44) were admitted by stipulation into the record of this proceeding at the June 16, 1983, hearing. Thus, there are three transcripts with no consecutive pagination. For clarity the transcripts will be cited as follows: (1) R #1 - June 16, 1983 variance hearing, PCB 83-44; (2) R #2 - June 16, 1983 site-specific hearing, PCB 83-46; (3) R #3 - January 20, 1984 site specific hearing, PCB 83-46.

Btu. Pursuant to Section 214.201, facility owners or operators may petition the Board for alternate emission limitations of up to 6.8 lbs./MM Btu, 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 regulations of concern in this proceeding are as follows:

<u>35 Ill. Adm. Code</u> <u>Section</u>	<u>Substance</u>
106.301 et seq.	Procedures for obtaining relaxed SO <sub>2</sub> emission limitations
214.141	1.8 lbs. SO <sub>2</sub> /mm btu emission limitation
214.201	Standards for obtaining relaxed SO <sub>2</sub> emission limitations
243.122	Ambient SO <sub>2</sub> standards

Olin has requested an emission limitation of 6.0 lbs SO<sub>2</sub>/MM Btu. Since this is below the 6.8 limitation of Section 214.201 and would enhance the use of Illinois coal, the emphasis shifts to the impact of the requested emissions.

#### ENVIRONMENTAL IMPACT

In March, 1983, an air quality assessment was prepared for Olin to determine the impact of burning coal with a higher sulfur content. The model in this assessment was based on an Agency model which was approved by USEPA to demonstrate attainment for SO<sub>2</sub> in the Joliet area. The Agency used a worst case model meteorological year (1975), and an Olin emission rate of 1.8 lbs. SO<sub>2</sub>/MM Btu including background concentrations. The Olin model used this data as a basis to determine the additive effects of incremental emission increases from the boilers using higher sulfur coal. Operating parameters were obtained from the permits on file with IEPA (Pet. Ex. A, p. 3).

The Agency testified that Olin's model was "more conservative than would normally be required" (R. #1 p. 117), and that the air quality study adequately demonstrates that the boilers operating at a 6.0 lbs SO<sub>2</sub>/MM Btu emission rate would not cause a violation of either the 24 hour primary or the 3 hour secondary National Ambient Air Quality Standards ("NAAQS") established by Section 243.122 (Rec., p. 2).

The model predicted, for a worst case situation, maximum 3-hour and 24-hour concentrations of 1091.82 and 316.94 ug/m<sup>3</sup> SO<sub>2</sub>, respectively. Olin made no contribution to those levels (EX. 25, Table 1), since they occur upwind of Olin's facility.

Prior to 1975, the Olin boilers were equipped to burn and did burn Illinois coal (R #1, p. 32). Pursuant to 40 C.F.R. par. 51.24 (b)(2)(iii)(e), Olin's switch between coals with different sulfur contents is not a major modification, and is exempt from the PSD regulations. However, Olin's maximum 3-hour and 24-hour incremental increases (232 ug/m<sup>3</sup> and 75 ug/m<sup>3</sup>, respectively) are well below the standards that otherwise might apply (512 ug/m<sup>3</sup> and 91 ug/m<sup>3</sup>, respectively (Ex. 23)).

The Board finds that the requested emission rates for Olin's facility will not cause or contribute to violations of ambient air quality nor exceed any PSD increments that might otherwise apply.

Prior to the August 18, 1983 Order, the Board received a public comment from Dr. Herman Sievering concerning severe adverse environmental consequences of relaxed emission limits. At the January 20, 1984 hearing Dr. Sievering testified and was cross-examined. At hearing, Dr. Sievering admitted that he had assumed several facts to be true, and that given these were incorrect, he would change his opinion (R. 48-50, 55-57, 61). A key assumption was the degree of exposure. His original statements were based on an exposure of 220 ug/m<sup>3</sup> SO<sub>2</sub> to 300,000 people for a time period of one year (R. #3, 21, 235). This exposure is far in excess of actual. The maximum single 24-hour SO<sub>2</sub> level resulting from Olin's increased emissions is estimated at 232 ug/m<sup>3</sup> SO<sub>2</sub>. The affected population is approximately 2000 (R. 84).

After revising the assumptions Dr. Sievering testified that any increase in the probability of premature death would be so small as to be masked by the level of uncertainty in the calculations (R #3, p. 60).

The Board finds that granting Olin a relaxed SO<sub>2</sub> emission limitation will not have an adverse environmental effect. The Board notes that the maximum predicted 24-hour concentration to which Olin contributes (232 ug/m<sup>3</sup>) is well below the maximum predicted SO<sub>2</sub> concentration (316 ug/m<sup>3</sup>) to which Olin does not contribute (Ex. 25, Table 1).

Section 9.2 of the Act allows relaxed SO<sub>2</sub> emission limitations to encourage the use of Illinois Coal. Olin has repeatedly stated its intention to purchase Illinois Coal if this petition is granted (Pet. ¶ 2(a)(2); R #1, p. 13; R #2, p. 24; Pet. Br., p. 1), usage is expected to be about 100,000 tons per year (R #1, p. 55). Mr. Gerald Hawkins of the United Mine Workers testified that granting Olin a higher emission limitation for SO<sub>2</sub> would result in approximately 30 laid-off coal miners being re-employed, 30 new supporting jobs and over \$3,500,000 contributed to the Illinois economy (R #1, p. 51).

The Board will grant Olin the requested emission limitation of 6.0 lbs. SO<sub>2</sub>/MM Btu. The Board intends 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.

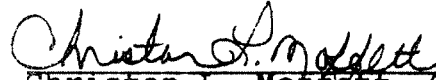
ORDER

Olin Corporation is hereby granted an alternative limitation for sulfur dioxide emissions from its three coal-fired boilers at the Joliet, Illinois 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:

Within 30 days of the date of this Order, Olin Corporation shall apply to the Illinois Environmental Protection Agency for a revision of its operating permit for its Joliet facility's boilers consistent with this Opinion and Order.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 5<sup>th</sup> day of April, 1984 by a vote of 6-0.



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Christan L. Moffett, Clerk  
Illinois Pollution Control Board