

ILLINOIS POLLUTION CONTROL BOARD

April 25, 1974

KOPPERS COMPANY, INC.)
PETITIONER)
)
)
v.) PCB 74-63
)
)
ENVIRONMENTAL PROTECTION AGENCY)
RESPONDENT)
)

NORMAN J. BARRY, ATTORNEY, in behalf of KOPPERS COMPANY, INC.
PETER E. ORLINSKY, ATTORNEY, in behalf of the ENVIRONMENTAL PROTECTION AGENCY

OPINION AND ORDER OF THE BOARD (by Mr. Marder)

This case comes to the Board on Petition of Koppers Company, Inc., filed February 8, 1974, for variance from Rules 103 (a) (5) (A) and 206 (c) of Chapter 2 of the Board's Rules and Regulations, for an enlargement of its phthalic anhydride plant in Stickney, Illinois.

Petitioner concurrently with the filing of its petition filed a motion requesting the Board order the Agency to file its recommendation by February 15, 1974. This motion was denied by an Order of the Board dated February 14, 1974.

On April 10, 1974, Petitioner filed a motion for Grant of Variance Without Hearing. The Board ordered this case to be assigned for decision on April 18, 1974.

On April 19, 1974, Petitioner filed a motion for Leave to File Additional Affidavit of T. R. Wedell. This motion is hereby granted.

The Agency filed its recommendation on April 4, 1974, recommending a grant subject to certain conditions.

No hearing was held.

Petitioner is requesting this variance for its plant in Stickney, Illinois. The plant produces phthalic anhydride, which is a basic raw material in the manufacture of plastic, vinyl, paint and varnish products. (R. 2) The plant has 150 employees and has an annual payroll of \$1,700,000. It is one of eleven suppliers of phthalic anhydride in the country and is the sole supplier of this product to eleven Illinois corporations (R. 8) (Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365).

Petitioner has a large investment in pollution control equipment

in the form of a scrubber, which removes 97% of its solid organic matter from its discharge (R. 22) (Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365).

On December 6, 1973, the Board granted Petitioner a variance from Rule 206 (c) of Chapter 2 of the Board's Rules and Regulations for its existing phthalic anhydride plant at Stickney, subject to conditions outlined in our Order of that date (Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365, December 6, 1973). In this case Petitioner is asking for basically the same relief as in its previous variance for a proposed addition to its phthalic anhydride plant.

The Board of Directors of Petitioner has directed that the phthalic anhydride plant be expanded to 172 million pounds output, a 32% increase. Koppers will begin construction of this project after the granting of this variance. The work will take 12 months to complete. Petitioner further alleges that the local economy of the area will be stimulated by the construction of the new plant by \$9,000,000. The plant payroll will also increase about \$100,000 per annum. With the new output, Petitioner hopes to alleviate a shortage of the product for the benefit of eleven Illinois companies supplied by Petitioner.

Petitioner reasserts in this action the same data on control technology as found in the previous variance case. In the previous case the Board found as follows: "Three methods that can allegedly reduce the carbon monoxide to the level required by the regulation (are): thermal incineration, thermal catalytic incineration, and cold catalytic oxidation.

"From the record it seems that thermal incineration is a method that would definitely bring the Stickney plant into compliance (R. 41). It would cost the Petitioner \$1,500,000 in capital expenditures, and another \$900,000 per annum operating costs. The major drawback in this system is that it requires large amounts of heating oil (estimated at 5,000,000 gallons per annum (Pet. Ref. 16), or enough fuel oil to heat 5,000 to 7,000 single-family homes. The Board takes notice of the heating oil shortage facing the entire country and as such will be responsive to methods and devices to control emissions with minimal fuel consumption.

"Thermal catalytic incineration is basically the same as thermal incineration, with the addition of a catalyst bed added to reduce power consumption. There are two alleged drawbacks to this system. First, to eliminate impurities from the system natural gas is the only practical fuel. Other fuels contain sulphur which would poison the catalyst. From the record (R. 17) there is un rebutted testimony that Petitioner will not be able to obtain this natural gas from its supplier. Secondly, the record shows that this method has a very low safety factor. Impurities entering the stream lead to potential explosions in the equipment (R. 50-51).

"The final method brought forth is cold catalytic oxidation. This is a method in which carbon monoxide is oxidized by metal salts at low temperatures (100° F.). This method is still in the research stage and Petitioner is unsure as to its workability but forecasts a high degree of success with low fuel requirements for its operation.

"The cold catalytic converter method was brought to the attention of Petitioner by a scholarly paper entitled "Homogeneous Catalytic Oxidation of Carbon Monoxide," by W. G. Lloyd and D. R. Rowe, appearing in Environmental Science and Technology, Vol. 5, #11, Nov. 1971, page 1133."

In the short period of time since the December 6, 1973, Order, there has been nothing to indicate that there has been any radical change of technology for carbon monoxide removal for a phthalic anhydride plant.

Hardship: Petitioner alleges that Rule 205 (c) puts an unreasonable and arbitrary hardship on it, in that Rule 205 (c) is directed more to higher temperature refinery operations, and that the technology for carbon monoxide removal is not applicable to the cold operation used by Petitioner to make the phthalic anhydride (Pet. P. 6). Petitioner further alleges that should this variance not be granted, it would continue to build the addition, using thermal incineration as a control method. In the previous case, the Board determined that thermal incineration would probably bring Petitioner's existing facility into compliance, it would be exceptionally expensive, and there would be a great problem in Petitioner's obtaining a sufficient supply of heating oil (see Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365, P. 2). Also, failure to grant the variance would cause Petitioner to duplicate control methods. The Board, in our earlier decision, allowed Petitioner to experiment with the cold catalytic oxidation method. If we now deny Petitioner a variance here, we are in fact forcing him to develop cold catalytic oxidation for its existing plant, while not allowing Petitioner to use it for its new facility. The Board finds that there is sufficient hardship to Petitioner to allow the grant of a variance in this case.

Environmental impact: The Board previously determined, "From the record it is shown that Petitioner's carbon monoxide output is not injurious to the community which surrounds it. Petitioner's plant is located in a heavily industrialized area, with residential housing no closer than 2,000 feet from its emission sources. (See Exhibits 1, 2, 3, 5.) Petitioner's uncontroverted allegation in the record (R. 14) indicates that all of the carbon monoxide dissipates from the atmosphere to an undetectable level within 450-600 feet of the emitting stacks. There is also an uncontroverted allegation in the petition that the ambient air quality for carbon monoxide is not exceeded, and in fact the Stevenson Monitoring Station, the station closest to Petitioner's plant, has the lowest carbon monoxide reading of all Chicago area monitoring stations. From the record it is the opinion of the Board that no substantive harm will be done if Petitioner is allowed to continue emissions at its present level, while carrying out its compliance program.

"Petitioner's basis for its carbon monoxide study was submitted as an appendix to its variance petition. The following are the results of carbon monoxide monitoring conducted by Petitioners:

<u>Feet from Plume</u>	<u>CO Background</u>	<u>CO Measured</u>
275'	4.0 ppm.	5.5 ppm.
360'	4.0 ppm.	Up to 5.0 ppm.
600'	4.0 ppm.	4.0 ppm.
375'	3.0 ppm.	4-5 ppm.

"Other data shows similar carbon monoxide ranges. Although high peaks (highest 18 ppm. for eight seconds) were observed, at no time were the Air Quality Criteria exceeded. The average carbon monoxide concentration of all Chicago area stations (July 1973) was 3.7 ppm. The average of the Stevenson station (July) was 1.6 ppm. The effective primary air quality standard for carbon monoxide is 9.0 ppm, maximum 8 hr. conc. not to be exceeded more than once per year." (Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365, P.2-3.)

The addition will have an emission rate calculated to be 794 lb/hr, as compared to the rate for the existing facility of 2382 lb/hr. carbon monoxide. The concentration of carbon monoxide in the stack gases for the addition will be 4000 ppm., which is the same for the existing unit. Petitioner has realleged the above environmental data in its petition in this case, indicating that the carbon monoxide level in the ambient air around the plant is the lowest in the Chicago area, and that little or no carbon monoxide is carried beyond the plant's boundaries. Petitioner further alleges that the emissions of the addition, combined with that of the existing plant, will still be within all ambient air quality standards (Pet. P. 16-17). The Agency concurs in this evaluation (Agency Rec. P. 3). The Agency has received no citizen complaints concerning Petitioner's plant.

In its original variance Petitioner proposed a compliance plan as follows: "First, Petitioner proposes to design and put out bids for the construction of a thermal incinerator. Concurrent with that program, basic research and pilot programs will be initiated by the Badger Co., a highly respected design and construction firm, to determine if the cold catalytic oxidation method will be feasible in Petitioner's situation. While this research is carried out (for a period of 17 months), Petitioner proposes to hold work on the thermal incinerator in abeyance." If after the 17-month period, it appears that cold catalytic oxidation will not prove to be feasible, the Petitioner would complete the thermal incinerator. Petitioner proposes the same compliance plan here as in the previous variance. The Board finds that this is an adequate plan, and it will be incorporated in the Order for this case.

In the December 6, 1973, Order and Opinion, the Board ordered Petitioner to carry on its work involving development of the thermal incinerator to the point where Environmental Protection Agency construct-

ion permit applications would be submitted. In the petition to this action Paragraph 18, Page 13, indicated that this program would be "held" after three months, in violation of the Board Order. The affidavit of T. R. Wedell was submitted by Petitioner to clear up this seeming inconsistency. In it, Mr. Wedell affirms that Koppers is proceeding beyond the three month cutoff date, and will continue development on the thermal incinerator, until the time it submits Environmental Protection Agency permit applications. The date for this is tentatively set for Sept. 1, 1974.

The Board will grant Petitioner variance from Rule 206 (c) and Rule 103 (a) (5) (A) of Chapter 2 of the Regulations until December 6, 1974. The reason for the short duration of this variance is so that it will come due at the same time as the variance in PCB 73-365, and in the future the existing plant and the addition can be considered together.

This Opinion constitutes the findings of fact and conclusions of law of the Board.

ORDER

IT IS THE ORDER of the Pollution Control Board that Petitioner be granted a variance from Rule 103 (a) (5) (A) and Rule 206 (c) of Chapter 2 of the Board's Rules and Regulations, until December 6, 1974, subject to the following conditions:

- 1) Petitioner shall incorporate as part of the reporting requirement in Order number 1 in Koppers Company, Inc., v. Environmental Protection Agency, PCB 73-365, any data that will relate to the increase in capacity of the phthalic anhydride plant as it affects the research on the cold catalytic oxidation research.
- 2) Petitioner shall apply for all necessary construction and operating permits from the Agency.
- 3) Within 90 days prior to the expiration of this variance, Petitioner should be preparing applications for construction permits of its thermal incinerator, and such applications shall be completed within the time of this variance.
- 4) Any request for the extension of the variance shall include a re-evaluation of the time schedule for compliance.
- 5) The bond set in PCB 73-365 shall apply to the variance in this matter, and shall guarantee performance with this Order.
- 6) Any request for the extension of this variance must be filed no later than 90 days prior to its expiration.

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion and Order was adopted by the Board on the 25th day of April, 1974, by a vote of 5 to 0.

Christan L. Moffett