

ILLINOIS POLLUTION CONTROL BOARD
December 6, 1973

KOPPERS COMPANY, INC.)
PETITIONER)
)
)
v.) PCB 73-365
)
)
ENVIRONMENTAL PROTECTION AGENCY)
RESPONDENT)
)

MR. JOSEPH DELLA MARIA, JR., ATTORNEY, in behalf of KOPPERS COMPANY, INC.

MR. MICHAEL A. BENEDETTO, JR., ASSISTANT ATTORNEY GENERAL, in behalf of the ENVIRONMENTAL PROTECTION AGENCY

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

This action involves a request for a variance filed on August 27, 1973, by Koppers Company, Petitioner. Relief is sought from Rule 206 (c) of the Air Pollution Regulations. The Agency recommends a grant subject to conditions discussed below.

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).

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). (The problem that brings Petitioner before the Board is that each of its two stacks is emitting approximately 4,000 ppm. of carbon monoxide, whereas the regulated standard will be 200 ppm. as of December 31, 1973.)

Petitioner brought forth at a hearing held on October 29, 1973, three methods that can allegedly reduce the carbon monoxide to the level required by the regulation: 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 unrebutted 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.

One of the preconditions for a variance grant is that compliance with a rule or regulation of the Board would impose an arbitrary or unreasonable hardship on the Petitioner (Sect. 35 Environmental Protection Act). This, of course, must be balanced against the harm that Petitioner's discharges bring to the environment and the community surrounding its plant (Roesch Enamel & Manufacturing Co. v. Environmental Protection Agency, PCB 71-62). Demonstration of economic difficulty alone in the face of alternatives does not justify variance relief (Swords v. Environmental Protection Agency PCB 70-6). There must be more. Hardships to persons other than Petitioner, such as employees or customers, may be the basis for granting a variance (Merle K. Buerkett v. Environmental Protection Agency PCB 71-303). It is alleged that if this variance is not granted, Petitioner would have to shut down its operation in Stickney (R. 31). This would necessitate laying off 150 employees and leave ten to eleven Illinois corporations without their sole supply of phthalic anhydride. It is the opinion of the Board that Petitioner meets the criteria for a variance based on unreasonable hardship.

From the record it is shown that Petitioner's carbon monoxide out-

put 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.

A variance is not granted just to allow a petitioner to violate the regulations of the Board. It is the duty of a variance petitioner to bring his facility into compliance with the law (Swords v. Environmental Protection Agency PCB 70-6). Petitioner has presented such a compliance program. The basic drive of this program is two-pronged. 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.

The Board appreciates and takes notice of Petitioner's investment in basic research for the solution of its carbon monoxide problem, which, if successful, will aid similarly situated industries. The Board feels that the development of the thermal incinerator can be taken past the bid stage of development, without undue hardship to the Petitioner. Thusly the Board will, as a condition to a variance grant, require that

development of the thermal incinerator proceed through the stage where an Environmental Protection Agency permit application for construction would be submitted. This would reduce the maximum time necessary to bring Petitioner's plant into compliance from 36 months to 27 months if the cold catalytic process proves to be unworkable.

Rule 206 (G) sets the effective date of Rule 206 (C) at December 31, 1973, for emission sources existing as of the time the Regulations were enacted. Koppers Company, Inc., is such a source. Noting this fact, the Board interprets Petitioner's request to be a variance from Rule 206 (C) starting December 31, 1973.

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 a variance be granted to Koppers Company, Inc., from Rule 206 (C) of the Air Pollution Control Regulations until December 6, 1974, subject to the following conditions:

1. Commencing 30 days from the date of this Order, Petitioner shall submit quarterly reports to the Agency, detailing the results of all tests and studies undertaken and a complete description of all progress made toward development of its cold catalytic oxidation system, and/or installation of a thermal incinerator system.
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. Respondent shall, within thirty days from the date of this Order, post a performance bond in a form satisfactory to the Agency in the amount of \$100,000, guaranteeing installation of a proper pollution abatement system.

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 6th day of December, 1973, by a vote of 4 to 0.

Christan L. Moffett