

ILLINOIS POLLUTION CONTROL BOARD

March 6, 1975

WOODRUFF AND EDWARDS, INC.,)
 Petitioner,)
)
 v.) PCB 74-444
)
ENVIRONMENTAL PROTECTION AGENCY,)
 Respondent.)

OPINION AND ORDER OF THE BOARD (by Dr. Odell)

On November 25, 1974, Woodruff and Edwards, Inc. filed its Petition for Variance with the Pollution Control Board (Board). The Petitioner sought a variance from the carbon monoxide limitations in Rule 206(e) of the Air Pollution Regulations (Chapter Two) from December 1, 1974, until July 15, 1975. Rule 206(e) requires that no cupola with a manufacturer's rated melt rate in excess of 5 tons/hour emit more than 200 ppm CO corrected to 50% excess air. In Woodruff and Edwards, Inc. v. Environmental Protection Agency PCB 74-112, 13 PCB 247 (August 1, 1974), the Board granted this Petitioner a Variance from December 2, 1973, until December 1, 1974, to enable it to operate its cupola while installing control equipment to comply with Rule 206(e) of Chapter Two. The Board made the grant of that Variance subject to certain conditions, including:

- "2. Petitioner shall submit monthly progress reports to the Environmental Protection Agency.
- "3. Within thirty days after completion of the experimental modification Petitioner shall perform a stack test. Results of the stack test shall be submitted to the Environmental Protection Agency.
- "4. If the stack test does not show compliance with Rule 206(e), Woodruff and Edwards Company shall proceed to install an afterburner for control of carbon monoxide emissions. Appropriate permit procedures shall be followed."

In its Interim Order of December 5, 1974, the Board requested that Woodruff and Edwards agree to include the record of PCB 74-112 into this cause. Petitioner's consent was received by the Board on December 16, 1974, the date from which the 90-day decision period began to run.

Petitioner operates a grey and ductile iron foundry containing one cupola with a process rate weight of 12 tons/hour. The facility is located along the west bank of the Fox River in Elgin, Illinois. There are other commercial operations north and south of the plant. The central downtown shopping area is immediately across the Fox River to the east. On Petitioner's west, across railroad tracks and a highway, is a residential area.

Tests performed by BEC of Moline, Illinois on October 5, 1973, showed Petitioner's cupola to be emitting at the charge door an average of 219,823 ppm CO corrected to 50% excess air. The concentration at the stack was 65,615 ppm. Additional calculations were made by Petitioner to show the impact of these emissions on nearby areas. The calculations indicate that Petitioner's CO emissions increase the ground level concentrations of CO by 1.2 ppm.

To carry out the Board's Order of August 1, 1974, Woodruff and Edwards decided to use the top portion of the cupola stack as a combustion chamber to convert the CO to CO₂. The cooling nozzles were removed from the upper cupola. This permitted the hot exhaust gases to ignite when they mixed with the excess air entering through the charge door located on the side of the cupola. This method was intended to conserve energy by eliminating the need for an afterburner. Petitioner alleged that the test results sent to the Environmental Protection Agency (Agency) establish that CO emissions were controlled well within permissible limits during much of the variance term granted in PCB 74-112. The Agency in its Recommendation did not dispute this conclusion of the Petitioner. Woodruff and Edwards alleged, however, that since November 7, 1974, the system has been experiencing difficulty with combustion in the cupola. The reasons for the problems were that:

"(a) There is a shortage of coke, so that we have been unable to obtain a consistent quality or size of coke from our suppliers. As a consequence, we have been forced in recent weeks to use coke of a different size than we would normally accept. With the smaller size coke, there is substantially more compaction of the melt, which reduces the amount of air we are able to pull through the melt. With the reduced air flow, we have greater difficulty controlling the operating temperatures, resulting in occasional reductions of the temperatures below what we require. This not only creates tremendous operating problems, but from time to time can result in incomplete combustion of carbon monoxide at the top of the cupola.

"(b) At the same time we have been having problems with our coke, we have also been experiencing difficulties with the new fan we installed at the end of the bag house last spring. Because the new fan has not been producing the capacity the seller promised (30,000 cfm), it could not overcome the shortage of air resulting from the compaction of the coke. To meet the problem, we have temporarily re-installed an old fan, until a second new fan can be installed to deliver the capacity we require. Until a new fan is installed, we expect to continue to have occasional failures in the burnover process, resulting in some emission of carbon monoxide."

A seven and one-half month variance was sought to enable Petitioner to install a new fan and conduct tests. The Petitioner did not indicate whether the new fan has been ordered, but based on its allegation that delivery takes 26 weeks from the time of order, it would seem that Petitioner has ordered the equipment.

The Agency filed its Recommendation on February 4, 1975. The Agency recommended that the variance be granted, subject to certain conditions. The Agency noted that coke of the desired size should be more plentiful now that the coal strike is over. It considered the July date for completion reasonable and stated that Petitioner should be allowed to continue its proposed system, because a successful system will control CO and conserve energy. It was not stated whether any citizens were opposed to the grant of this variance. Several potential problems with Petitioner's proposed system were noted:

"10. The Agency does not know whether Petitioner's proposed system will work. That determination must await the stack test which should be made after the new equipment is installed and adjusted. Petitioner's previous experiments were performed on production equipment which is no longer in use, so the earlier test information is out of date. . . .

"11. The Agency believes that Petitioner also has a problem with fugitive emissions from the charge door of its cupola. On December 4, 1974, an Agency investigator observed emission levels from the charge door of the cupola . . . in possible violation of Rule 203(f)(1). This problem may be solved when Petitioner restricts the area of the charge door which is opened to the atmosphere. This is part of Petitioner's control program, so both the carbon monoxide and particulate problems may be solved at the same time.

"13. There is a potential problem with the safety valve cap on the top of the cupola. . . . This cap on top of the furnace will open if insufficient cooling occurs as the gases pass from the cupola through the quench system into the bag house. When the cap is open, particulates escape to the ambient air, rather than being captured in the bag house. There is the danger that the high temperatures needed to incinerate carbon

monoxide will make the existing particulate control system ineffective. After the carbon monoxide control system is completed, stack tests should be performed for both carbon monoxide and particulate emissions."

We agree with the Agency that although problems exist, Petitioner should be given the opportunity to install its proposed control system. Petitioner has made good faith efforts in the past to achieve compliance. Also, we encourage methods of compliance which involve energy conservation. Based on the facts in this case, it would be an unreasonable hardship to deny Petitioner's request here.

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 the carbon monoxide limitations of Rule 206(e) of Chapter Two from December 1, 1974, until July 15, 1975, subject to the following conditions:

(a) By March 15, 1974, Petitioner shall submit proof to the Agency at its office listed in (b) below of having ordered the fan needed for its compliance program.

(b) Petitioner shall continue to send written reports to the Agency on or before the tenth of each month beginning April 10, 1975, detailing all progress made toward compliance during the reporting period. The reports shall include any purchase orders and notices of delays. The reports shall also state how much time the cap on top of the furnace is open during the reporting period. Reports shall be sent to: Environmental Protection Agency, Control Program Coordinator, 2200 Churchill Road, Springfield, Illinois 62706.

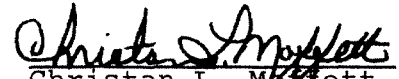
(c) Petitioner shall apply to the Agency for all necessary construction permits.

(d) Within twenty-eight (28) days of the adoption of this Order, Petitioner shall execute a performance bond in the amount of \$10,000 and in a form acceptable to the Agency. The purpose of said bond is to assure timely compliance. Said bond shall be sent to: Environmental Protection Agency, Fiscal Services, 2200 Churchill Road, Springfield, Illinois 62706.

(e) Within thirty-five (35) days after completion of the modifications, Petitioner shall perform a stack test for carbon monoxide and particulates. Within seven (7) days after they are available to Petitioner, results of the stack test shall be submitted to: Environmental Protection Agency, Control Program Coordinator, 2200 Churchill Road, Springfield, Illinois 62706. Petitioner shall provide written notification to

the Agency seven (7) days prior to the stack test, indicating the time and place of said test and shall allow Agency personnel to observe said test if they so desire. Notification of the test shall be submitted to: Environmental Protection Agency, Illinois Naval Armory, East Randolph and the Lake, Chicago, Illinois 60601.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 6th day of March, 1975, by a vote of 4 to 0.


Christan L. Moffett