

ILLINOIS POLLUTION CONTROL BOARD
October 27, 1982

THE B F GOODRICH COMPANY,)
)
) Petitioner,)
)
) v.) PCB 82-88
)
) ILLINOIS ENVIRONMENTAL PROTECTION)
) AGENCY,)
)
) Respondent.)

MR. THOMAS F. HARRISON, ASSISTANT CORPORATE COUNSEL, APPEARED ON BEHALF OF PETITIONER.

MS. MARY V. REHMAN, STAFF ATTORNEY, APPEARED ON BEHALF OF RESPONDENT.

OPINION AND ORDER OF THE BOARD (by I. G. Goodman):

This matter is before the Board upon the petition of B F Goodrich Company (Goodrich) for variance from Rule 206(a) of Chapter 2: Air Pollution for its General Chemical Plant located in Henry, Marshall County, Illinois. Hearing was held on September 17, 1982 in this matter. In addition to the parties, one interested citizen took part.

Goodrich proposes to design, build and operate a circulating Fluidized Bed Combustion (FBC) boiler, an innovative technology which allows the burning of a high-sulfur Illinois coal while meeting the Board's sulfur dioxide standards without use of flue gas desulfurization. The proposed installation would be the first industrial application of FBC technology in the United States. Goodrich's facility currently utilizes two dual fuel-fired boilers burning both gas and oil with a total generating capacity of 200,000 lb/hr of steam. The proposed FBC boiler would replace both existing boilers which would be retained for stand-by and emergency use only. Goodrich proposes to install the FBC boiler to allow the use of less expensive coal and to decrease dependence on the more expensive gas and oil.

In the FBC process, coal is burned in the presence of limestone in a bed of small particles fluidized (suspended) by air. Sulfur dioxide, produced by the combustion of the sulfur in the coal, reacts with calcium oxide produced from the limestone to form calcium sulfate (gypsum). The gypsum, along with coal ash and unreacted limestone, comes off as a dry particulate residue. This dry residue is much more readily disposed of than the sludge which characterizes the residue from most flue gas desulfurization

units. The resultant flue gas from the FBC process meets environmental standards for sulfur dioxide and nitrogen oxide as well as standards for Total Suspended Particulates when placed in tandem with appropriate dust collection equipment. However, actual operating experience indicates that the inherent design characteristics of the FBC boiler are such that the requirements of Rule 206(a), carbon monoxide, may not be achieved.

Rule 206(a) sets a 200 ppm limit on emission of carbon monoxide, corrected to 50% excess air, from any fuel combustion source with actual heat input of greater than 10 million btu/hr. Actual plant operation in Finland indicates that Goodrich can expect a CO emission from the proposed boiler of approximately 400 ppm. On September 15, 1982 Goodrich and the Illinois Environmental Protection Agency (Agency) filed a Stipulation of Facts before the Board. The Stipulation indicates that Goodrich conducted an air quality impact analysis of emissions from the proposed new boiler, the results of which show the resulting CO level to be at a range considered de minimus by the U.S. Environmental Protection Agency for purposes of the Prevention of Significant Deterioration program. Based on this analysis, it appears that although the FBC boiler will emit CO in concentrations greater than allowed by Rule 206(a), there will be no interference with the attainment and maintenance of the National Ambient Air Quality Standard for CO and no adverse impact on community health or on plant or animal life may be expected from the proposed operation of the FBC boiler at the Goodrich facility. It is the opinion of the Agency that the proposed variance will be fully consistent with all applicable provisions of the Clean Air Act and federal regulations. It further stated that the proposed variance will be acceptable as a formal revision of the Illinois State Implementation Plan (SIP) since it has been demonstrated that the CO emissions from the proposed boiler will not interfere with the attainment and maintenance of the Ambient Air Quality Standard and will be consistent with the Prevention of Significant Deterioration provisions of the Clean Air Act.

Although the hardship claimed by Goodrich if the proposed variance is not granted is primarily economic, the Board notes a number of environmental and economic benefits which will accrue to the State should the variance be granted. Sludge generated from the current, most widely utilized flue gas desulfurization technology poses a significant environmental problem in its disposal. The proposed FBC system produces a product which is significantly less difficult to handle from the standpoint of disposal. Since the control of the sulfur and nitrogen oxides are inherent in the combustion process itself, there is little possibility of excursion in emissions of these pollutants due to breakdown of auxiliary equipment such as a flue gas desulfurization unit. The process creates a market for both Illinois coal and Illinois limestone, both in very great supply in the State. In addition, the process conserves oil and gas.

The Agency recommends granting of the variance subject to certain conditions. Considering the lack of apparent environmental harm, the great potential benefit accruing to the State from this innovative process, and the economic hardship on Goodrich if the variance were not granted, the Board agrees with the Agency's evaluation and shall grant the variance requested. The question of the future of the FBC process and its relationship with the limitations of Rule 206(a) will need to be addressed after data from the proposed facility is available. The Board shall therefore impose certain conditions on the variance recognizing the need to evaluate the carbon monoxide situation as it develops.

The concerned citizen who attended the hearing, Bev Loser, indicated concern with respect to the effect of carbon monoxide on her small children since their home is located in close proximity to the Goodrich facility. After listening to the testimony presented at the hearing and asking questions, Ms. Loser indicated that she believed she understood the situation and was "fairly satisfied."

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

ORDER

The B F Goodrich Company is hereby granted variance from Rule 206(a) of Chapter 2: Air Pollution for its General Chemical Plant located in Henry, Marshall County, Illinois subject to the following conditions:

1. Carbon monoxide emissions from the Fluidized Bed Combustion boiler shall not exceed 400 ppm.
2. Variance is granted until October 1, 1987 or until the facility is no longer subject to Rule 206(a), whichever first occurs.
3. The B F Goodrich Company shall, within two years of completion of the facility, submit a report to the Illinois Environmental Protection Agency addressing carbon monoxide emissions with respect to minimizing carbon monoxide emissions and optimizing combustion efficiency and shall recommend a carbon monoxide emission limitation which represents best available control technology for Circulating Fluidized Bed Combustion boilers.
4. The B F Goodrich Company shall develop a program to study the control of carbon monoxide in Circulating Fluidized Bed Combustion boilers and shall report the status of the program to the Illinois Environmental Protection Agency annually.

5. Within forty-five days of the date of this Order, Petitioner shall execute and forward to the Illinois Environmental Protection Agency, 2200 Churchill Road, Springfield, Illinois 62706, a Certificate of Acceptance and Agreement to be bound to all terms and conditions of this variance. This forty-five day period shall be held in abeyance for any period this matter is being appealed. The form of the certificate shall be as follows:

CERTIFICATE

I, (We), _____, having read the Order of the Illinois Pollution Control Board in PCB 82-88, dated _____, understand and accept the said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

Petitioner

By: Authorized Agent

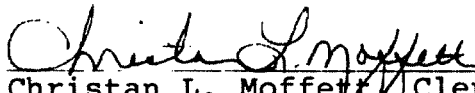
Title

Date

IT IS SO ORDERED.

Board Member Werner concurred.

I, Christan L. Moffet, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 27th day of October, 1982 by a vote of 5-0.



Christan L. Moffet, Clerk
Illinois Pollution Control Board