

ILLINOIS POLLUTION CONTROL BOARD
September 4, 1975

DEERE AND COMPANY,)
Petitioner,)
)
v.) PCB 74-469
)
ENVIRONMENTAL PROTECTION AGENCY,)
Respondent.)

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

This matter comes before the Pollution Control Board (Board) on Deere and Company's (Deere) Petition for variance from Rule 203(a) of the Air Pollution Control Regulations (Regulations) for their Vermilion Foundry located at Hoopeston, Vermilion County, Illinois.

Deere operates a malleable iron foundry utilizing two air furnaces to produce hot metal. One heat per day is processed in a furnace, the furnaces operating on alternate weeks. The furnaces are heated with number 2 fuel oil with an afterburner utilized the first four hours of the cycle when the temperatures are insufficient to oxidize CO and hydrocarbons. The two air furnaces, which are the subject of this variance, have been the subject of two previous variances, PCB 73-88 and PCB 74-119. During the time span of the previous variances, Deere attempted to achieve compliance by switching its fuel from coal to number 2 fuel oil and installing a baffle system on the air furnaces in an attempt to reduce emissions. Although the switch to fuel oil proved to be successful in reducing emissions, the installation of baffles appeared to increase the emissions from the furnaces. Deere now proposes to make further studies concerning improvements to its basic firing process and existing control hardware and the feasibility of additional controls. Pursuant to this proposal, Deere has retained a firm of consultants, A. T. Kearney Inc. of Chicago, Illinois, and has conducted initial discussions with its consultant in the matter.

There have been no citizen complaints concerning the Deere installation; in fact, included in the record is a petition in favor of the variance signed by over 3000 persons and some 350 letters from residents of Hoopeston supporting the petition for variance. The petition is also supported by numerous town officials, other industries located in Hoopeston, and by the local State Representative and Senator.

The arbitrary and unreasonable hardship faced by Deere in this case revolves around the Company's use of air furnaces to produce the malleable iron used in their foundry. Although used extensively to produce malleable iron in the past, an air furnace today is a relatively rare hot metal producing piece of equipment, and, as such, there is very little abatement technology which can be directly applied to the air furnace's rather unusual operating characteristics. The obvious abatement equipment choice for a melting furnace is a cyclone or bag house type collector utilizing air flow from the furnace to carry the pollutants to the abatement equipment. Unfortunately, the metallurgical control of an air furnace is dependent upon control of the air flow within the furnace, which makes a direct connection to the normal furnace abatement equipment very difficult.

Considering the cost and the probable metallurgical problems involved with development of conventional furnace abatement equipment at Deere, the Board finds merit in Petitioner's proposal that they first investigate variations in air flow rate, effectiveness of baffles relative to positioning and size, changes in basic firing process, and modification of existing control hardware. In addition, Petitioner agrees to have its consultant begin evaluation of additional control devices immediately, working on this approach along with modifications to Petitioner's current process.

Deere believes that this two pronged research and development program has the best chance of producing an environmentally and economically feasible means of compliance. Deere also feels, however, that it must address the alternatives it would face in the event that a feasible means to comply with Rule 203(a) is not imminent or at least discovered through this program, including proposing a change in the regulations applicable to small air furnaces.

Deere's proposed program includes making those expenditures which are necessary for its consultant to perform its investigation and furnishing full cooperation to its consultant. Petitioner will contract with its consultant for a bi-monthly progress report to be filed concurrently with the Agency. Deere also proposes, in the event it has not achieved compliance by the end of 1975, that it file for additional variance relief including investigation of the alternatives developed by its consultant.

The Agency, although recommending that variance be granted, proposes a somewhat more structured compliance schedule for the Deere facility. Included in the Agency's recommendation is a requirement for a final report from the consultant and Deere to complete the program and develop the alternatives available, including a proposal for a change in the rules concerning small air furnaces. The Agency also recommends that Deere make a commitment of \$50,000 for the consultant, and a performance bond to insure said commitment. Also included in the Agency proposal is a requirement for the Petitioner to study alternative methods of melting iron, a detailed analysis of both capital and operating cost of such system or process, and a study of Deere's ability to use other castings or to obtain the castings from other sources.

Following a Board Order of May 29, 1975, requesting air quality information pursuant to the United States Supreme Court decision of April 16, 1975, entitled Train v. NRDC et al 43 LW 4467, Deere, on July 11, 1975, submitted its verified response to the Interim Order. In this response, Deere presented its showing as to whether the ambient air affected by the variance meets the National Ambient Air Quality Standards. Since there is no air quality monitoring data for the Hoopeston area, Deere made various calculations comparing Hoopeston with nearby cities (Bloomington and Champaign) in Air Quality Region 66 for which air quality monitoring data is available. Deere utilized a novel approach, using emission inventories of particulate sources in the three cities, plotting the Hoopeston area projected air quality in relation to that of Bloomington and Champaign. In addition, Deere modeled the four worst case situations to check the interactive effect of the Hoopeston industries on one another. These calculations were based upon Turner's model from his Workbook of Atmospheric Dispersion Estimates. These worst case assumptions included modeling the four most unfavorable wind directions with no plume rise, the assumption that all industries discharged from one stack, and included the background concentration of 35 micrograms/cubic meter in all calculated concentrations. The result of the study indicated that Hoopeston area had an annual geometric mean for particulate matter of approximately 48 micrograms/cubic meter, well within the national ambient air quality standard of 75 micrograms/cubic meter. The method used by Deere, although somewhat crude, appears to be sufficient as a Train showing in this case, especially considering the lack of problems in air Quality Region 66.

Considering the record in this case and the two proposals for compliance presented by Deere and the Agency, the Board finds that it would be an arbitrary and unreasonable

hardship upon Deere if the variance were not granted. The evidence indicates that there exists, for Deere's air furnaces, no directly applicable technology for abatement and that Petitioner's program of investigation by the consultant concerning their melting process, etc., is reasonable in the face of the expensive and questionable use of existing furnace type abatement equipment. In addition the Board finds that certain parts of the compliance plans of both parties have merit, a combination of which programs enables the Board to present a reasonable and yet effective compliance plan for the Deere facility at Hoopeston.

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

ORDER

It is the Order of the Pollution Control Board that Deere and Company be granted variance from Rule 203(a) of the Air Pollution Control Regulations for their Vermilion Foundry operation at Hoopeston, Illinois, from January 1, 1975, until December 31, 1975, subject to the following conditions:

1. Deere shall retain an outside consulting firm to commence a research and development program for control of Deere's air furnaces on or before April 15, 1975, to be completed on or before November 15, 1975. Furthermore, said program shall include but not be limited to the following:

a. Analyzation of the furnace operation characteristics including but not limited to: reasons for variation in air flow, methods of operations, time periods of melt cycles, effects of baffles and other relevant factors; and

b. Determination of whether the air furnace can achieve compliance with Rule 203(a) without installation of control equipment; and

c. Development and analyzation of methods of control of Petitioner's air furnace which would achieve compliance with Rule 203(a), said methods of control to include but not be limited to: fabric filtration, scrubbers, multi-clones, and precipitator and cyclone; and

d. Analyzation of the technical feasibility of induction melting and economic feasibility of other melting methods and procedures; and

e. Development of information both for capital costs and for operations costs for the items set forth in subparagraphs a, b, c, and d in this section.

2. On or before August 15 and October 15, 1975, Deere shall submit to the Agency, to the Board, and to the City of Hoopeston (Intervenor), interim progress reports detailing the progress and conclusions, or lack thereof, of the research and development program.

3. On or before December 1, 1975, Deere shall submit to the Agency, to the Board, and to the Intervenor, a final report of the consulting firm.

4. On or before December 31, 1975, Deere shall submit a complete detailed report to the Agency, to the Board, and to the Intervenor, setting forth Petitioner's decisions and plans for the Hoopeston facility including its future operation of the facility, replacement of the malleable iron castings by some other kind of casting or castings produced at other facilities, plans with regard to seeking further variances or rule change for the facility, decisions with regard to constructing or purchasing replacement facilities and/or pollution control abatement equipment, etc.

5. Deere shall submit the following certification to the Agency within 30 days of the date of this order:

CERTIFICATION

I (we), _____, having read and fully understanding the Order of the Illinois Pollution Control Board, in PCB 74-469, hereby accept such order and agree to be bound by all of the terms and conditions thereof.

Signed by _____

Title _____

Date _____

Mr. Henss took no part in the consideration of this case and abstains from voting herein.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 4th day of September 1975 by a vote of 3-0.

Christan L. Moffett
Christan L. Moffett, Clerk
Illinois Pollution Control Board