

ILLINOIS POLLUTION CONTROL BOARD

February 21, 1974

JOHN DEERE & COMPANY, EAST	)	
MOLINE WORKS,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 73-497
	)	
ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

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

Petitioner Deere & Company filed Petition for Variance on November 26, 1973 seeking variance from Rule 3-3.112 of the Rules and Regulations Governing the Control of Air Pollution. Specifically, Petitioner seeks approval of its plan to burn coal in boiler #7 or #8 at its East Moline Works in the event oil and gas are unavailable in sufficient quantities to meet plant demand in excess of the capacity of boiler #9, a controlled boiler.

Deere's East Moline Works employs about 5,000 people for the assembly of combines. Seven boilers are utilized at the facility for process requirements and heat. Two of the boilers are gas or oil-fired, three are gas or coal fired and two operate on coal alone. This variance concerns the operation of boilers #7, #8 and #9, all of which are gas or coal fired boilers. Boilers #7 and #8 are uncontrolled travelling grate boilers with a steam capacity of 80,000 lb./hr. each. Boiler #9 is a multiclone equipped spreader stoker type boiler with a steam capacity of 130,000 lb./hr.

Fuels used at the facility vary on a daily basis according to the availability of natural gas and the weather. As an example, Petitioner states that fuel used during December 1972, a maximum demand month, was:

<u>Fuel</u>	<u>Amount used</u>	<u>Percentage</u>
Coal	60,301 x 10 <sup>6</sup> Btu	36.5
Gas	96,706 x 10 <sup>6</sup> Btu	58.6
Oil	4,255 x 10 <sup>6</sup> Btu	2.6
Propane	3,823 x 10 <sup>6</sup> Btu	2.3
Total	165,085 x 10 <sup>6</sup> Btu	100.0

Propane is not actually burned in the boilers but is used interchangeably with natural gas in the forge shop. Petitioner states that any curtailment in propane availability will result in a requirement to divert additional natural gas from the boilers to the forge shop thus causing a fuel shortage for the boilers.

Petitioner is unable to determine the extent to which coal will have to be burned since the burning is dependent upon the weather and possible gas curtailment, neither of which Petitioner can control or predict. However, based on 1972 records, Petitioner states that the coal equivalent for the maximum monthly oil usage was 205 tons. The 1972 records also reveal that 234 tons of coal per month will be required for each 5% curtailment in natural gas supplies or diversion of natural gas to forge shop use. Based on Public Health Service Publication AP-42, Petitioner estimates the expected particulate matter and sulfur dioxide emissions from boilers #7 and #8 as follows:

	<u>Calculations for 10,350 BTU Coal</u>	<u>Lbs./Ton</u>	<u>Lbs./10<sup>6</sup> BTU</u>
Particulates	(13 x 7.5% Ash)	97.5	4.7
SO <sub>2</sub>	(38 x 2.35% sulfur)	89.3	4.3

Petitioner estimates that maximum emission rates of 516 lbs./hr. particulates and 474 lbs./hr. sulfur dioxide would occur when either boiler #7 or #8 is operating full capacity on coal. If the boiler is operated at less than full capacity, the emissions will of course be lower. Petitioner contends that any injury to the public from the grant of this variance would vary according to the capacity at which the boiler would be operating, and that this operating level depends on weather conditions and gas availability, factors which cannot be estimated.

The possibility of injury to the public from the increased emissions must be weighed against the consequences of a variance denial. Petitioner states that a variance denial would result in employee layoffs (no figures cited) and an inability to satisfy the pressing demand for products needed in the food production industry.

Coal burned at Petitioner's boilers has an average ash content of 7.5% and an average sulfur content of 2.35%. The following Table is the Agency's estimate of Petitioner's particulate matter and sulfur dioxide emissions:

Boiler	Particulates lb/10 <sup>6</sup> BTU	SO <sub>2</sub> <sup>6</sup> lb/10 <sup>6</sup> BTU	Allowable SO <sub>2</sub> lb/10 <sup>6</sup> BTU	Rule 3-3.112	Rule 203(g)
				Allowable Particulates lb/10 <sup>6</sup> BTU	Allowable Particulates lb/10 <sup>6</sup> BTU
1	Operates on gas or oil				
2	Operates on gas or oil				
5*	4.68	4.38	6.0	.6	0.32
6*	4.68	4.38	6.0	.6	0.32
7	4.68	4.38	6.0	.6	0.176
8	4.68	4.38	6.0	.6	0.176
9	.51	4.38	6.0	.6	0.141

\* Emergency stand-by only

Particulate emissions from the boilerhouse are currently regulated under Rule 3-3.112. After May 30, 1975 Petitioner must comply with the particulate emission limitations of Rule 203(g) of the Air Pollution Control Regulations. As noted above, Petitioner's sulfur dioxide emissions are presently within the regulatory constraints of Rule 204.

Deere has proposed and partially implemented a comprehensive compliance plan which encompasses not only boilers #7, #8, and #9 but the entire scope of energy requirements for its East Moline Works. The compliance plan shows the installation of electrostatic precipitators on boilers #7, #8 and #9 by November 1, 1975. Since the date of installation will not place Deere in compliance by the May 30, 1975 effective date of Rule 203(g), Deere plans to curtail coal burning at the facility from May 30, 1975 until November 1, 1975 or such date as the electrostatic precipitators may be placed in operation. The electrostatic precipitator program is on schedule, but Petitioner states that the schedule is already so tight that it cannot be significantly accelerated.

The second phase of Deere's compliance program was officially initiated on May 16, 1973. In view of the many commendable aspects of this program, the Board feels that the program should be here repeated as an example and informative aid to other companies experiencing similar fuel allocation problems. The first program called for:

1. A conscientious attitude on the part of Deere employees arising at least in part from a Company presentation showing the need for fuel conservation.
2. Reduced preheat of forge furnaces 1/2 hour, saving 61.4 x 10<sup>6</sup> BTU/day.
3. All unnecessary machines and lights are turned off. Discovery of failure to do this results in notification to the department supervisors.

4. All light switches have been identified and labelled to facilitate more selective use of lighting.
5. The power house efficiency has improved as it approaches its design capacity.

Having realized a 6.5% reduction in fuel usage from the above program, Deere embarked on additional fuel saving measures for fiscal year 1974 that are designed to reduce fuel usage by an additional 5.5%. These additional measures are:

<u>Action</u>	<u>Status</u>
1. Lower factory building temperatures from 70° to 65° F.	50% complete
2. Reduce office temperatures to 68° F.	100% complete
3. Shut down heat and vent unit in the work-in-process area of Building V.	100% complete
4. Install automatic controls on Dept. 902 paint conveyors so that wash system pumps and burners will automatically shut down when there are no parts going through the system.	Investigation Started
5. Develop alternate methods of heating forging billets and eliminating various hot processes.	Investigation Started
6. Continue employees awareness program, including posters and letters to employees describing energy situation and methods for conservation at home and on the job.	Continuing Process
7. Recycle weld fume exhausts in Bldg. R-9 through approved air cleaning devices reducing heated makeup air requirements by 16 February 1974.	Contract Let
8. Install 1-1/2" of urethane insulation on walls of Bldg. V and V-2 by 22 December 1973.	Material Delivered

Because of these measures, Deere is hopeful that there will be no need to use the coal burning variance even if granted. Deere also states that it does not plan to burn any coal unless absolutely

necessary nor does it plan to burn any more coal than necessary to sustain minimum working conditions.

The Agency commended Deere's fuel savings program and recommended the variance be granted subject to certain conditions. The Board joins the Agency in commending Deere for its comprehensive fuel savings program. The corporate attitude thus shown convinces this Board that Deere is sincere in its commitment to minimize any coal burning in boilers #7 or #8. Deere is committed to installing electrostatic precipitators on the coal burning boilers on a time schedule that is acceptable to the Agency. The fuel savings program represents an excellent example of what can be accomplished through corporate foresight and determination. We believe Deere has satisfied the prerequisite for a variance and we shall grant the variance requested subject to certain conditions.

Finally, the Agency recommends that the Board require a stack test to insure compliance with Rule 203(g). However, very high collection efficiencies are ordinarily achieved with electrostatic precipitators, and we have not been presented any information showing that Petitioner's program might fail to provide the degree of control required to meet the emission limitations. The electrostatic precipitators will not be operational during the one year term of this variance. If Deere petitions for an extension of this variance, or if the Agency can reasonably question the efficiency of Deere's control program, then we would like to hear arguments as to whether such testing should be required. However, we shall not at this time require a stack test.

#### ORDER

It is the Order of the Board that Deere & Company be granted a variance from Rule 3-3.112 of the Rules and Regulations Governing the Control of Air Pollution for its East Moline Works until February 14, 1975 for the purpose of burning coal in boiler #7 or #8 in the event that oil and gas are unavailable in sufficient quantities to meet the plant demand in excess of the capacity of boiler #9. This variance is subject to the following conditions:

1. Petitioner shall utilize boiler #9 on coal and available gas prior to operating boiler #7 or #8. Petitioner shall make quarterly reports of all operations involving boiler #7 or #8, demands required during the operations of boiler #7 or #8, and available gas during the period of operation. These reports shall be submitted to: The Illinois Environmental Protection Agency, Division of Air Pollution Control, Region 1 Office, 4302 North Main Street, Rockford, Illinois 61103.

2. Petitioner shall include in its quarterly report, progress made toward completing its anticipated reduction of energy demand.
3. Petitioner shall apply for all necessary construction and operating permits for the electrostatic precipitator control units for boilers #7, #8, and #9.
4. Petitioner shall, by March 29, 1974 post a bond in the amount of \$100,000 in a form acceptable to the Environmental Protection Agency, such bond to be forfeited in the event Petitioner fails to install the pollution control on boilers #7, #8 and #9 as specified in its Compliance Plan or any amendments thereto. Bond shall be mailed to: Fiscal Services Division, Illinois EPA, 2200 Churchill Road, Springfield, Illinois 62706.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order was adopted this 21<sup>st</sup> day of February, 1974 by a vote of 5 to 0.

Christan L. Moffett