ILLINOIS POLLUTION CONTROL BOARD
July 26, 1973

BORG-WARNER CORPORATION,	)	
	)	
Petitioner,	)	
	)	
vs.	)	PCB 73-156
	)	
ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

Joseph S. Wright, Jr., Attorney for Borg-Warner Corporation
Fredric J. Entin, Assistant Attorney General for the EPA

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

Borg-Warner filed its petition on April 13, 1973 asking for variance from Rules 103(b)(2), 103(b)(6)(E) and 104 (operating permit requirements) of Chapter 2 of the Illinois Air Pollution Control Regulations for certain equipment at its Marbon Chemical Division plant near Ottawa in LaSalle County, Illinois.

Petitioner's manufacturing facility is located in a rural area about 5 miles east of Ottawa. The plant currently produces about 220 million lbs. of ABS (acrylonitrile-butadiene-styrene) resin per year. Borg-Warner plans to boost the plant output to 270 million lbs. per year. ABS is a thermal plastic material used in the manufacture of a wide range of commercial and domestic appliances which require a light but durable material. The facility, also known as the Linmar plant, produces the ABS resin by a polymerization and resin drying process.

Two rotary resin drying units designated as dryers "A" and "B" are currently in operation. Construction on dryer "C", a larger dryer capable of doubling Petitioner's production capability, commenced sometime prior to April 14, 1972, the effective date of Air Pollution Regulations. All three dryers will emit styrene and acrylonitrile in a monomeric form in addition to particulate matter. The particulate matter is controlled by a bag filter system rated at nearly 100% efficiency and is not an issue in this proceeding. Each of the two smaller dryers discharge about 47,000 cubic feet of air per minute while the larger dryer will discharge about 50,000 cubic feet of air per minute. The discharged air allegedly contains approximately 100 ppm of the unreacted acrylonitrile and styrene monomers, which Petitioner estimates results in organic material emissions of 47 lbs. per hour from each of the two smaller dryers and 56 lbs. per hour from the larger dryer. The plant discharge with concentration of that level

would be considered toxic.

In the original petition, Petitioner said it needed a variance for all three dryers as a result of the Agency's refusal to grant operating permits. The EPA denied operating permits because of Petitioner's failure to include a compliance plan detailing the date and method proposed to bring the organic emissions into compliance with Rule 205(f). Rule 205(f) limits Petitioner's organic emissions to 8 lbs. per hour with compliance required by December 31, 1973.

Five days before the public hearing on June 26, 1973, Petitioner filed without leave an Amended Petition for Variance requesting relief from Rule 205(f) in addition to those Rules cited in the original petition. The Agency immediately filed a Motion to Dismiss the Amended Petition claiming that in asking for variance from Rule 205(f), Petitioner had substantially altered the nature of the original petition and that such alteration prevented the Agency from conducting any investigation, making any recommendation, or engaging in discovery into the issues of the Amended Petition.

In Part V of the original petition, we note Petitioner's allegation that the Agency had returned an operating permit application for one of the small dryers because it was not accompanied by a compliance plan showing modifications Petitioner would make in order to comply with Rule 205(f) by December 31, 1973. In Part VII of the original petition, Petitioner specifically states that compliance with Rule 205(f) by the date required was "neither technically feasible nor economically reasonable". Another reference to Rule 205(f) is found in Part IX of the original petition. In view of Petitioner's three specific references to Rule 205(f) and the Agency's use of said Rule in denying at least one operating permit, we do not believe the Agency can claim surprise due to the inclusion of Rule 205(f) in the Amended Petition. Accordingly, the Agency's Motion to Dismiss is denied.

During 1970, Borg-Warner began studies to develop techniques for more efficient use of raw materials by increasing the degree of polymerization, thereby reducing unreacted monomers in plant emissions. The monomer, when emitted to the atmosphere reacts with other substances to cause air pollution. A Connecticut firm was commissioned to recommend abatement techniques for the Linmar plant. The consulting firm submitted 13 proposals involving 10 different techniques. Borg-Warner rejected 9 of the schemes outright for lack of commercial feasibility, fouling of equipment due to polymerization, creation of other waste disposal problems

and excessively high energy requirements. The remaining 4 ideas also entail the consumption of large amounts of energy and are in the "doubtful" category. Petitioner filed an affidavit which appears to verify its claim that the proposals called for undue fuel and energy consumption.

Marbon technical personnel developed two major approaches to solving the emission problem:

1. Using mass transfer techniques to remove free hydrocarbons for recycling to the reaction step.

2. Adjusting the reaction to achieve a more complete conversion of monomer to polymer.

After extensive testing involving as many as ten technical people and over $250,000, method 1 was found to lack the efficiency required to comply with Rule 205(f). Research and technical studies have now focused on method 2 as the only feasible and economically reasonable method of compliance. Expenses of about $60,000 have been incurred thus far with another $40,000 projected to the end of 1973. Technical manpower consumption for method 2 will reportedly total 4 manyears.

In the Amended Petition, Borg-Warner stated that the Environmental Protection Agency had granted operating permits for dryers B and C. The Agency acknowledged granting a permit for dryer A without the submission of a compliance plan. Such permit issuance is contrary to the provisions of Rule 103(b)(6)(E) and we have not been told by the Agency why the permit was issued. Petitioner's Exhibit 3, an operating permit issued on June 7, 1973 for "Source #1 Drying and Screening", is the only document in the record which shows the granting of a permit. To add to the confusion on this matter, Petitioner testified that the relief sought for dryer C was moot since the Agency had issued a permit for operation of that particular dryer. Then, the Agency contended that it had issued permits for two of the dryers in question but failed to state which two. The record is confusing as to which dryers now have permits and whether compliance plans were submitted as required for whatever permits have been issued.

Petitioner estimates that compliance with Rule 205(f) will be achieved by October 1, 1974. Equipment designed for the control of emissions from dryer C is scheduled to be installed and operating by October 15, 1973. Technical personnel will then evaluate the new equipment for about 45 days in order to provide engineering

data required to design control equipment for dryers A and B. Petitioner states that in its effort to achieve compliance in the shortest possible time, a decision was made to eliminate pilot scale testing and to install the new equipment on the basis of successful bench scale testing only. This move is said to have speeded compliance by about 9 months.

Petitioner claims that denial of a variance may mean a large layoff of personnel at both the Linmar plant and several consumer plants who rely on the Linmar plant for a significant portion of their ABS supply. Supporting affidavits from each of the consumer plants confirmed the imminence of a layoff. Petitioner also claims that current production is running 75 days behind purchase requests.

The Environmental Protection Agency recommended denial of the original petition for variance. A recommendation on the Amended Petition has not been filed. The Agency refers to the highly toxic nature of acrylonitrile in concentrations greater than 20 ppm (40 hour industrial standard) and states that Petitioner failed to report the acrylonitrile concentration in its emissions.

Petitioner introduced partial results of a dispersion analysis performed by Air Resource, Inc. (Petitioner Exhibit #8). The Exhibit purports to show that the nearest house to the plant could expect to enounter 1.04 ppm acrylonitrile when the wind carries plant emissions in that direction and could expect an annual average concentration of 0.00092 ppm acrylonitrile. The dispersion analysis also revealed that there was a 50% possibility that there would be a sufficient concentration of styrene to enable odor detection over a 1 hour period once a year under the worst wind conditions. Neither Petitioner nor the Agency reported receiving odor complaints from neighbors of the Linmar plant.

The Agency argues that at least three alternatives have not been fully analyzed and shown to be unfeasible. These are:

1. Freeze-out
2. Liquid scrubbing
3. Activated carbon absorption

(Fluidized bed absorption on activated carbon was one of the methods recommended by the Connecticut firm and listed by Petitioner as "recommended for further study".) The Agency further argues that process control methods other than those cited by Petitioner are possibly available but have not been thoroughly investigated. The Agency is concerned that the modifications contemplated by Petitioner might fail to provide a feasible control scheme thus delaying compliance beyond October 1, 1974.

Although the evidence indicates that Petitioner's emissions will probably not constitute a toxic hazard or odor nuisance to its neighbors, the emissions must nevertheless be controlled because of the photochemically reactive nature of the styrene and acrylonitrile. Petitioner clearly requires a variance if it is to continue to operate and supply its customers with a chemical said to be in short supply.

We need more information before we can grant a variance for one year. The record will support a short term variance while the parties prepare additional information for us. We grant a variance from the operating permit requirements until October 15, 1973. Since compliance with Rule 205(f) is not required until December 31, 1973 no variance will be granted from that Rule at this time. Petitioner shall by September 20, 1973 provide the Board and the EPA with information pertinent to the control methods suggested in the EPA Recommendation. The Agency shall have 15 days following the receipt of that information to file its final recommendation. The parties shall cooperate in informing the Board which dryers have permits and the duration of such permits.

ORDER

It is the Order of the Board that:

1. Borg-Warner Corporation is granted variance from Rules 103(b)(2), 103(B)(6)(E) and 104 of Chapter 2 of the Illinois Air Pollution Control Regulations until October 15, 1973 for the operation of dryers A, B and C at Petitioner's Marbon Division plant near Ottawa, Illinois.

2. Petitioner shall review all emission control methods listed in paragraphs 9(b) and 9(c) of the Environmental Protection Agency's Recommendation and shall report to the Board and the EPA regarding the Recommendation. Such report shall contain pertinent information sufficient to determine the feasibility and reasonableness of each method and shall be submitted no later than September 20, 1973. Petitioner also in the report shall submit a survey of literature relating to health effects of acrylonitrile in concentrations established by the dispersion analysis, and a statement of the photochemical effects expected from discharges of Petitioner's plant.

3. The Agency shall submit its final Recommendation within 15 days after receiving the Borg-Warner report.

4. The Board retains jurisdiction of this matter for such other and further Orders as may be appropriate.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order was adopted this 26th day of July, 1973 by a vote of 4 to 0.

Christan L. Moffett