

ILLINOIS POLLUTION CONTROL BOARD  
March 22, 1973

ENVIRONMENTAL PROTECTION AGENCY )  
 )  
 ) #72-52  
 v. )  
 )  
 FORTY-EIGHT INSULATIONS, INC., )  
 a Delaware corporation )

RICHARD W. COSBY, ASSISTANT ATTORNEY GENERAL, APPEARED ON BEHALF  
OF ENVIRONMENTAL PROTECTION AGENCY  
WILSON D. BURNELL OF O'BRIEN, BURNELL, PUCKETT & BARNETT, ON BEHALF  
OF RESPONDENT

OPINION AND ORDER OF THE BOARD (BY SAMUEL T. LAWTON, JR.):

Complaint was filed against Forty-Eight Insulations, Inc., the owner and operator of a mineral wool manufacturing facility located in the Village of North Aurora. The facility includes two slag melting cupolas, two wool collection chambers, two curing ovens and two cooling sections. The complaint alleges that since March 15, 1971, Respondent, in the operation of the foregoing facility, emitted contaminants into the air so as to cause air pollution, in violation of Section 9(a) of the Environmental Protection Act and in violation of Rules 2-2.11, 3-3.000 and 3-3.111 of the Rules and Regulations Governing the Control of Air Pollution. The entry of a cease and desist order and penalties in the maximum statutory amount are sought.

An answer was filed by Respondent in which it denies the material allegations of the complaint with respect to the causing of air pollution and violation of the Rules. By way of affirmative defense, Respondent specifies the installation of air pollution abatement equipment made by it during 1969 and subsequent thereto, which, according to Respondent, have reduced the emission of air contaminants so as to bring its operation into compliance with the relevant regulations.

Hearing was held on the complaint and answer. Briefs were filed by both parties. In its brief (page 2), the Agency concedes that it has offered no evidence in support of a 9(a) air pollution violation, nor has it proved violation of the Rules with respect to emissions from Respondent's cupolas or curing ovens. The only area of contention relates to particulate emissions from Respondent's wool blowing chambers Nos. 1 and 2. We find on the basis of the evidence that Respondent has violated Rule 3-3.111 in respect to emissions from the No. 1 wool blowing chamber. The evidence does not establish a violation with respect to the No. 2 wool blowing chamber.

Respondent's operation, located in North Aurora, manufactures mineral wool insulation used in the construction industry. The Respondent's operation consists of two separate production lines, each composed of a cupola, wool collection chamber (being the wool blower or wool room), curing oven, cooler and cutting and packaging equipment, in series. The process vent stacks through which contaminants are emitted to the atmosphere are connected to the specific process, as follows: For both production lines No. 1 and No. 2, each cupola exhausts through a multiclone into a common stack. The wool blower and cure oven for production line No. 1 exhausts through a common stack and the cooler exhausts through a third and separate stack. With respect to production line No. 2 the wool blower and cooler exhausts to separate stacks and two stacks serve the cure oven. Hearings were delayed until an Agency stack test could be performed and the results evaluated. The issue becomes solely that of determining whether emissions from the wool rooms and cure ovens for each production line, respectively, were in violation of Rules 2-2.11, 3-3.000 and 3-3.111.

The Agency test of the #1 wool room plus oven stack (Compl. Ex. 5) was performed using a 1/4-inch diameter sampling probe. Testimony (R. 100 and Compl. Ex. 6) show that tufts of mineral wool were emitted out the wool room stack. The tufts are too large to be collected by the probe used so that the results of this test would be conservative. An inspection of the test data indicates that the second result obtained, 65.7 lb/hr, is unreasonable. The first result obtained, 17.1 lb/hr, however, can be accepted as the total emissions measured from the #1 wool blower and cure oven. Both results would indicate a violation, as will be shown later.

The mesh bag test performed by Respondent (Resp. Ex. 9) cannot be given serious weight. The method involved capturing particulate emissions emitted from the #1 wool room and cure oven. The size of the openings in the bag (1/6 inch x 1/11 inch) indicate that initially much of the emissions would not be captured since the mineral wool fibers individually are microscopic (R. 328) and only become visible after the application of binder and subsequent agglomeration as they enter the blow chamber. The efficiency of the bag in collecting emissions increases with time so that the results are highly dependent on the duration of sampling. The result obtained, 1.7 lb/hr, should be discounted, especially since information to determine the allowable emissions was not known.

Forty-Eight's high volume sampler test (Resp. Ex. 10) solves the problem of measuring emissions composed partly of large clumps. The sample probe was two inch in diameter and large volumes of the #1 wool room plus oven stack gas were sampled. One would expect the results of this test, 8.8 to 22.3 lb/hr, to be greater than the Agency's test (Compl. Ex. 5) since large particles were captured. This was the case for only one of the four results obtained. There was some question,

during the hearing, of the quality and accuracy of the equipment used and test procedures followed during this test. Examination of the equipment and test material (Compl. Ex. 8, Joint Ex. 1) does not indicate any serious errors in performing the test.

The stack test performed by Forty-Eight Insulations, Inc. on the #1 oven (Resp. Ex. 13, 14) contained errors admitted by the Respondent (R. 445). The errors found from an examination of the exhibits include not correcting volumes for pressure and not preparing the collection thimble properly for weighing. The result obtained, however, 3 lb/hr, is probably accurate within 20% considering these errors.

Finally, tests of the #2 wool room mentioned by Forty-Eight Insulations, Inc. but not included as an exhibit, had emission results of 4.94 lb/hr for the #2 wool room and 0.28 lb/hr for the #2 cure oven (R. 419). The test data is given in answer No. 12b to the Interrogatories of the Complainant and, based on the process weight, shows compliance for both the #2 wool room and #2 cure oven. The results also show that about 95% of the emissions, if totalled, would originate in the wool room.

Much testimony concerned the use of emission factors in estimating the particulate emissions from the wool blowing chambers. Table 8-16 of AP-42 sets emissions for wool rooms at 17 lb/ton of charge weight and this value was used originally by the Agency (Compl. Ex. 3). The respondent produced evidence that showed that the emission factor was based on test results from AP-40 "Air Pollution Engineering Manual" and that the test results included one unrealistic test result which would be dropped from future editions of the Manual (Resp. Ex. 8, 8a). The Agency then calculated a new emission factor for wool blowers of 4.4 lb/ton by omitting the bad test result (Compl. Ex. 9) and used it to calculate revised estimates of emissions for use in its case. The estimated emissions and the allowable emissions for the wool blowers are the following:

<u>Unit</u>	<u>Particulate Emissions Original Estimate</u>	<u>Revised Estimate</u>	<u>Allowable Emissions</u>
#1 wool room	70.6 lb/hr	18.3 lb/hr	8.6 lb/hr
#2 wool room	59.0 lb/hr	15.3 lb/hr	7.6 lb/hr

The significance of these estimates is lessened by the existence of the stack test data which we will use as the basis of our decision.

One area of controversy concerned the determination of emissions allowed by Rule 3-3.111. The Rule sets limits for processes based on the process weight rate and applies directly to single sources.

At Forty-Eight Insulations, Inc. the #1 wool room and #1 cure oven vent through a common stack. The respondent argued that the allowable emissions are calculated separately for the wool room and the oven and then added to get the allowable emission for the stack (R. 416, Resp. Ex. 10). It would then compare the actual stack emission with this value. We agree with the Agency that each source must be treated individually as to both actual and allowable emissions, which for the #1 wool room and #1 cure oven means that the allowable emissions are calculated separately and compared individually with the actual emissions from each of the two sources. To do as Respondent suggests would encourage manifolding dirty sources with clean sources to achieve compliance by averaging, that is, compliance by dilution.

In view of the foregoing, it is necessary to determine the relative contributions to the measured stack emissions from the #1 wool room and #1 cure oven. From all indications, most of the emissions originate in the wool room. Testimony (R. 416) indicated that 90% of the stack volume flow came from the wool room, 10% from the cure oven, which, if the particle concentrations were equally distributed, would mean 90% of the particulate emissions are charged to the wool room. Respondent's stack test of the #1 oven showed particulate emissions of approximately 3 lb/hr which, if compared to total #1 wool room plus #1 cure oven stack emissions in the range of 9 to 22 lb/hr measured by other tests (Compl. Ex. 5, Resp. Ex. 10), would mean a #1 wool room contribution of from 66% to 86%. In addition, the test of the #2 line referred to previously showed 95% of the emissions from the wool blower and cure oven came from the wool room. The conclusion drawn is, that at the very minimum, based on the record, 66% of the particulate emissions from the #1 wool room plus #1 oven stack are emitted by the #1 wool room.

Using the above analysis, the emissions measured by the stack tests can be compared to the allowable emissions according to Rule 3-3.111 with the following results:

<u>Party</u>	<u>Reference</u>	<u>Measured Stack Emissions</u>		<u>#1 Wool Room Emissions Measured*</u>		<u>Emissions Allowed</u>		<u>#1 cure oven emissions Measured*</u>		<u>Allowed</u>	
Agency	EPA Ex.5	17.1 lb/hr		11.3 lb/hr		7.8 lb/hr		5.8 lb/hr		7.8 lb/hr	
		65.7 "		43.4 "		7.8 "		22.3 "		7.8 "	
Forty-Eight	Resp. Ex. 10	8.8 "		5.8 "		7.8 "		3.0 "		7.8 "	
		22.3 "		14.7 "		7.6 "		7.6 "		7.6 "	
		11.2 "		7.4 "		7.4 "		3.8 "		7.4 "	
		12.2 "		8.1 "		6.2 "		4.1 "		6.2 "	

\*Based on 66% for wool room, 34% for cure oven.

The conclusion is that the #1 wool room is in violation of Rule 3-3.111 but that the #1 cure oven is not.

Documentation of emissions from the #2 production line was not as extensive. The Agency's case is based on the emission factors and shows (Compl. Ex. 9) estimated emissions of 15.3 lb/hr compared to allowable emissions of 7.6 lb/hr for the #2 wool room. The Agency also concedes that based on the record, the #2 cure oven is probably in compliance. In rebuttal, Forty-Eight Insulations, Inc. referenced (R. 418-419) a test which showed particulate emissions of 4.9 lb/hr compared to allowable emissions of 5.9 lb/hr from the #2 wool room. This test was performed at a low average process rate but the data was not challenged by the Agency. The Agency's claim in their Brief that no evidence was introduced to support the test is not accurate since the test data is contained in answer 12b to their interrogatories. We therefore find that the emission test for the #2 wool room shows compliance.

It is our conclusion, therefore, that the #1 wool room is in violation of Rule 3-3.111, but that the other process equipment is not. The #1 wool room emits up to twice the allowable emissions based on valid stack test results.

Respondent had submitted an Acerp to the Air Pollution Control Board on April 15, 1968, which identified twelve sources of emission on the two production lines (Resp. Ex. 15). A revised plan called for control of emission from six sources, namely, cupolas 1 and 2, wool rooms 1 and 2, cure ovens 1 and 2 (R. 511). The specific control equipment included multiclones on the cupolas, fine mesh belts on the wool rooms and double pass cure ovens (R. 512). All equipment had been installed and was in operation by July of 1971 (Resp. Ex. 15). \$291,000 had been expended for purchase of equipment and its installation (Resp. Ex. 16, 17). We believe that Respondent has made a reasonable effort to abate its pollutional discharges. However, more must be done to bring its #1 wool room into compliance. This undoubtedly will call for the development of a program to abate the emissions from this particular source. We will give Respondent 60 days in which to develop such a program and an additional 60 days to bring its operation in this respect into compliance. A penalty of \$500.00 is imposed for violation of Rules 2-2.11, 3-3.000 and 3-3.111 of the Rules and Regulations Governing the Control of Air Pollution.

This opinion constitutes the findings of fact and conclusions of law of the Board.

IT IS THE ORDER of the Pollution Control Board that:

1. Respondent submit a program for abatement of the pollutional discharge from its #1 wool room within 60 days from the date hereof and cease and desist violation of the particulate regulations with respect thereto within 120 days after receipt of this order.

2. Penalty in the amount of \$500 is assessed against Respondent for violation of Rules 2-2.11, 3-3.000 and 3-3.111 of the Rules and Regulations Governing the Control of Air Pollution, as a result of particulate emissions from its #1 wool room. Penalty shall be paid by certified check or money order to the State of Illinois addressed to: Fiscal Services Division, Environmental Protection Agency, 2200 Churchill Drive, Springfield, Illinois 62706. Payment shall be made no later than April 27, 1973.

I, Christan Moffett, Clerk of the Illinois Pollution Control Board certify that the above Opinion and Order was adopted on the 24<sup>th</sup> day of March, 1973, by a vote of 4 to 0.

Christan Moffett