

ILLINOIS POLLUTION CONTROL BOARD

February 6, 1975

CITIZENS FOR A BETTER ENVIRONMENT )  
an Illinois Not-for-Profit Corp., )  
Complainant, )  
v. ) PCB 74-245  
WOODRUFF AND EDWARDS COMPANY, )  
an Illinois corporation, )  
Respondent. )

Mr. Sherwood L. Levin, attorney for Complainant.  
Mr. Edward J. Griffin, attorney for Respondent.

OPINION AND ORDER OF THE BOARD (by Dr. Odell)

On June 28, 1974, Citizens For A Better Environment (CBE) filed with the Pollution Control Board (Board) a Complaint against the Woodruff and Edwards Company. The Complaint alleged that Respondent:

1. Operated its foundry cupola without a permit from December 1, 1972, until June 28, 1974, in violation of Rule 103 (b) (2) of the Air Pollution Regulations (Chapter Two).

2. Caused or allowed the emission of metal particulates, carbon monoxide, and odor-bearing materials into the atmosphere causing air pollution from December 1, 1972, until June 28, 1974, in violation of Section 9(a) of the Environmental Protection Act (Act).

3. Operated its cupola allowing metal fugitive particulate matter larger than 40 microns (mean diameter) to escape beyond its property line from December 1, 1972, until June 28, 1974, in violation of Rule 203(f) (2) of Chapter Two.

4. Failed to file any Project Completion Schedule with the Environmental Protection Agency (Agency) since December 1, 1972, in violation of Rule 104(a) of Chapter Two.

During the hearing (R.287), the Complaint was amended to include the allegation that:

5. Respondent violated the opacity limits of 60% for a period aggregating 8 minutes on April 26, 1974, contrary to Rule 202(b) of Chapter Two.

Respondent filed a Motion To Dismiss on July 18, 1974. On July 25, the Board denied this motion. Complainant's Motion For Inspection of Premises, filed on October 31, 1974, was denied by the Board on November 7, 1974. A Motion to Quash was filed by the Agency against Complainant on October 17, 1974. Procedures at hearing made moot a Board ruling on this Motion.

Hearings were held on October 17, 1974, in Elgin, Illinois, and on October 25 in Chicago, Illinois.

The Woodruff and Edwards facility is located near downtown Elgin, Illinois, on the west bank of the Fox River across from the Elgin Public Library (R.185). It is a manufacturing area (R.291). One half mile north of Woodruff and Edwards, on the same side of the Fox River is Chicago Rawhide, which makes metal seals (R.339). A food processing plant is south of Woodruff and Edwards, and further south is Elgin Metal and Casting Company, a stamping company which does painting and finishing. West of Respondent there is a foundry which makes aluminum castings (R.338). Railroad tracks run parallel to Woodruff and Edwards, approximately one block west of the facility; another block west is a grade school. On the east bank of the Fox River is a lumber company, an iron and steel salvaging company, and W.R. Meadows which produces asphalt and asphalt products (R.334). These three facilities are all located north of Kimball Street which runs east and west north of the Elgin Public Library.

The Woodruff and Edwards foundry is engaged in producing gray and ductile castings. The facility operates from 7:00 a.m. to 3:30 p.m. five days a week (R.292) and employs 325 people. A single cupola operates at the foundry and is the subject of this enforcement action. The cupola [pictured on the left in Compl. Ex. 3(f)] is tubular in shape; it is approximately 60 feet high and has an inner diameter of 54 inches (R.250).

The cupola is charged through an open "charge door" near its top, by means of a bucket with a drop bottom. The charge consists of coke, limestone, some alloy, iron and steel scrap, and pig iron (R.305). Coke provides the primary source of heat, but auxiliary heat is supplied by "tuyeres" at the bottom of the cupola (R.306). The "melt" is at the bottom of the cupola, where both the molten slag and molten metal are drawn off (R.306). To control emissions, pollution control equipment is used in connection with the cupola. An employee of Respondent testified that:

"The pollution control system is comprised of the cross-over from the cupola itself, which has a cap that seals it off at the top.. The cross-over, which is a 48-inch pipe, takes the exhaust from the cupola across above the charging door (opening) over into the cooling tower where it is quenched, and the temperature is brought down to a degree that it can enter the bag house which must be below 600 degrees F. to be safe. It goes through the bag house, and the bags -- there are six bag houses with 96 bags in each bag house. There is one continually being

cleaned. There is one at all times. In other words, there are five in operation. There is one being cleaned continually by an air impulse on the bags which knocks the dust and particulate off the bags, down into a conveyor which is brought off and discharged down below. We pack it up in plastic bags and carry it away. The exhaust comes off the top of the bags and into a duct that pulls it down into a fan, a 30,000-cubic-foot-per-minute fan and then exhausts that into the air. . . . The way to describe it (the particulates from the bags) is it is almost like a talc. It is the product of combustion. It is an ash" (R.296, 297).

"This is a water-cooled cupola. There is a continual flow of water down the side of the cupola. On the inside, the temperature is around twenty-six, twenty-seven hundred degrees Fahrenheit. We run a continuous supply of water around the side. We get a lot of steam. We get a lot of steam around the cupola area because we put -- as we are drawing iron off, we also draw slag off which is the impurities and the lime and so forth that are in the process. That goes into a quenching tank which produces steam" (R.274).

The operation of the cupola has remained basically the same over the years except that in the 1950's the Respondent stopped its daily alternation use of two cupolas. The Respondent installed the present water-cooled cupola which is lined and also has a continual water flow over the outside. (R.294).

The bag house was installed in the summer of 1970 at a cost of \$200,000 (R.297). Yearly operating expenses for 1973 and 1974 have each been in excess of \$70,000 (R.299, 300). It is 99% efficient, which is the standard in the industry (R.254). The top of the cupola stack was covered in 1970 (R.306), although it was not completely sealed until July, 1974 (R.252). A fan is located at the end of the bag house and operates like a suction to pull the air through the entire system (R.307). Work was done on this system in 1973 to seal air leaks which were adversely affecting the air flow (R.301). Emissions from the charge door are prevented from escaping out of the cupola by air flow created by the bag house fan (R.253).

Based on the evidence at the hearing, we find that Respondent has violated Rule 103(b)(2) of Chapter Two from December 1, 1972, until June 28, 1974, by operating its facility without a permit. The alleged violations of Rule 104(a), 202(b), and 203(f)(2) of Chapter Two have not been established. The alleged violation of Section 9(a) of the Act was not proven.

We find that Rule 103(b)(2) of Chapter Two has been violated. Respondent admitted that no permit had yet been received from the Agency (R.329). The permit application was initially made prior to December, 1972, but the Agency has requested additional information five or six times, which has delayed the issuance of the permit (R.329). This undisputed testimony of efforts to obtain a permit mitigates the penalty for this violation.

The evidence fails to establish a violation of Section 9(a) of the Act. First, the citizen testimony does not show any unreasonable interference from carbon monoxide. CO is a tasteless, odorless gas which does not cause the kinds of effects, i.e. burning eyes and coughing discussed in the record. Second, there was no evidence in the record of citizens suffering unreasonable interference from particulate matter. Third, the testimony on odor is in conflict, but we believe that Complainant has not established his case. The odor was described by Respondent's expert witness as a "foundry smell", which he described as follows:

"You heat a piece of metal. You heat a spoon or heat a knife. Smell it. It has a very definite smell to it. There is nothing coming off of it, but it is an odor. That is the general odor that you get around any iron melting place" (R.373).

The witness stated that the foundry odor doesn't get out of the plant very much (R.374). A witness for the Complainant stated that he noticed a "foundry odor" at the plant when he visited the facility on several occasions (R.83). Within the foundry the odors were very noticeable; outside the foundry, they were not very noticeable (R.89). One citizen complained of a "sulfuric odor" (R.145) that made her eyes smart. She noticed the odor at night at a distance of 3 miles from the facility. The fact that Respondent's plant did not operate at night (R.292) weakens the testimony of this witness. Another citizen witness characterized the odor as similar to hydrogen sulfide (R.157). He smelled it at various areas in the city, primarily on Kimball Street north of Woodruff and Edwards (R.156). He has smelled it for many years while a child and as an adult on his way to work (R.155, 156). He testified that Woodruff and Edwards was the cause of the smell (R.173). This evidence was contradicted by Respondent's witness. Because of the nature of the Respondent's plant and the inconclusive nature of the testimony given by Complainant's witnesses, we find that Complainant has not shown that a strong, pungent H<sub>2</sub>S smell originates from Respondent's foundry. Other citizens complained of the "terrible smell" (R.180). However, strong "asphalt odors" were found in the area by Respondent's witness (R.371) which were not traceable to the foundry of Woodruff and Edwards. The strong odor which smelled like "something was burning" (R.188) may be traceable to the asphalt operation. This citizen also noticed the odor in the evening (R.192, 193) when the evidence established that Woodruff and Edwards is not operating (R.292). The odor seemed to be the worst during the afternoon and evening (R.193). Another witness, who complained of the odor and noticed the haze around Woodruff and Edwards, described the discomfort to herself and her child (R.202-206). She also noticed the smell in the evening (R.208).

In conclusion, while we realize that some residents are suffering "an unreasonable interference" from one or more sources, we are not able on the record to trace it to Woodruff and Edwards. We base this conclusion on (1) the lack of consistent descriptions of the nature of the odor, (2) the fact that most witnesses noticed the same odor in the evening when Woodruff and Edwards was not operating, (3) the imprecise methods by which witnesses traced the alleged source, and (4) the testimony of Respondent's expert witness who, after visiting the facility numerous times since June, 1973 (R.372), stated that Woodruff and Edwards was not the source of the odor.

The evidence fails to establish that Rule 203(f)(2) was violated. The strongest evidence put forth by the Complainant's witness is that he observed particulates, approximately 50 microns in diameter (R. 236), flying by him in a 15 miles-an-hour wind. No evidence of particle analysis was introduced. The witness did not indicate that he had captured particulates in his hand or that he had felt them strike his face. Other evidence of particulates on another date did not indicate that they left Respondent's property (R.36). The evidence is insufficient to establish a violation.

The evidence does not establish a violation of Rule 104(a) of Chapter Two. No evidence was offered by Complainant on whether Respondent has submitted a Project Completion Schedule to the Agency.

Evidence was entered indicating that opacity readings of greater than 60% were observed at the foundry, in violation of Rule 202(b) of Chapter Two. Emissions were observed leaving the cupola cap (safety valve) in February, 1974 (R.31, 38) before it was sealed. Photographs taken in June, 1974 (Compl. Ex. 3) show emissions of some kind. Readings were made on March 26, 1974, indicating violations of the 60% opacity standard in Rule 202(b) (R. 105). Some evidence of violations on June 25, 1974, was also testified to (R. 228). The Rule 202(c), however, provides several defenses to the 60% opacity limit in Rule 202(b). Rule 202(c) states:

(c) Exceptions to Rules 202(a) and 202(b).

(1) Startup

Rules 202(a) and 202(b) shall apply during times of startup except as provided in the Operating Permit in Rules 103 and 105.

(2) Emissions of Water and Water Vapor

Rules 202(a) and 202(b) shall not apply to emissions of water or water vapor from an emission source.

(3) Compliance with Rule 203 a Defense

Rules 202(a) and 202(b) shall not apply if it is shown that the emission source was,

at the time of such emission, in compliance with the applicable mass emission limitations of Rule 203.

First, evidence was offered by Respondent that the emissions were water vapor. The testimony was undisputed that a white plume can be water vapor (R.366) and that particulates from a foundry cupola are almost any other color except white; they are usually brownish (R.366). It has already been noted that the water-cooled cupola gives off large amounts of steam (R.367). Also, the slag coming off of the cupola (at 2,600°F) drops into water and produces steam (R.367). However, this evidence is not enough to establish a defense to Rule 202(b) in that Respondent has the burden of proof to show that the opacity is due to the steam. This evidence was not introduced by Respondent.

Second, the evidence does establish that Respondent has complied with Rule 202(c)(3) of Chapter Two in that it is in compliance with the allowable emission rates under Rule 203(b), Table 2.2. Respondent's facility is a fairly typical foundry (R.349) but is using the best feasible method to control particulates (R.350). Table 7-10 (rated B) in AP-42 (Resp. Ex.3), indicates that 0.2 lb/ton of particulates for each ton of metal charged would be emitted into the environment from a foundry using Respondent's control methods (R.357). An average of 8.565 tons of metal is charged per hour at the facility (Resp. Ex.1; R.314). According to Table 7-10 in AP-42, this would produce approximately 1.7 lbs/hour of particulates. The standard for allowable emissions under Rule 203(b) is 20.6 lbs/hour based on Respondent's 21,600 lbs/hour process rate weight (R.356). Some evidence to substantiate these figures was introduced when Respondent showed the large amount of particulates captured by the bag house. According to Table 7-10 in AP-42, 17 lbs/ton would be emitted from the cupola from an uncontrolled emission source. Since Respondent's cupola produced an average of 8.565 tons of iron per hour, the average total particulate emission measures 145.61 lbs/hour. Respondent's bag house captured an average 113.02 lbs/hour of particulates (R.363). The remaining particulate emissions, 32.59 lbs/hour, are sufficient amounts to constitute a violation of the emission rates in Rule 203(b) of Chapter Two; however, Respondent offered evidence to show that these amounts were not escaping from the facility. First, Table 7-10 in AP-42 indicates that an average gray iron facility would capture over 50% of the emissions with a wet cap. Woodruff and Edwards uses a water quench (R.296) which is equivalent to a wet cap (R.364). Second, Respondent devised a method to capture the particulates in the quench system and carried out a test on October 16, 1974 (R.364), which resulted in the removal of 26 pounds of particulates in 15 minutes. Although this sample clearly cannot be considered representative, it shows that the quench system does remove some particulates from the system in addition to amounts trapped by the bag house.

We find that the testimony concerning AP-42, in conjunction with the other evidence, brings the Respondent within the Rule 202(c)(3) defense to Rule 202(b) of Chapter Two.

This constitutes the finding of fact and conclusions of law of the Board.

ORDER

IT IS THE ORDER of the Pollution Control Board that:

1. Respondent shall supply the Agency with all data necessary to complete its permit application within 45 days of the adoption of this Opinion and Order.

2. Respondent pay a penalty of \$300.00 for operating its facility without a permit. Payment shall be by certified check or money order payable to the State of Illinois, Fiscal Services Division, Environmental Protection Agency, 2200 Churchill Road, Springfield, Illinois 62706. Payment shall be made within 35 days of the adoption of this Order.

3. All other allegations against the Respondent are dismissed.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 6<sup>th</sup> day of February, 1975, by a vote of 4 to 0.

  
Christan L. Moffett