

ILLINOIS POLLUTION CONTROL BOARD  
September 15, 1976

ENVIRONMENTAL PROTECTION AGENCY,     )  
                                          )  
                  Complainant,         )  
                                          )  
                                          )  
                  v.                     )     PCB 76-124  
                                          )  
                                          )  
GRANITE CITY STEEL, a division of     )  
NATIONAL STEEL CORPORATION,            )  
                                          )  
                  Respondent.         )

Messrs. John Palincsar and Roger Zehntner, appeared on behalf of Complainant.

Messrs. Randall Robertson and Edmund S. Ruffin, III, appeared on behalf of Respondent.

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

This matter comes before the Board upon the May 4, 1976 Complaint filed by the Illinois Environmental Protection Agency (Agency) against Granite City Steel, a division of National Steel Corporation, (Granite City). Hearing was held in this matter on June 25, 1976 and a proposed Settlement Stipulation was filed herein on July 6, 1976.

The Complaint

In its Complaint the Agency alleges that Granite City owns and operates a steel mill in Granite City, Illinois including a basic oxygen furnace (BOF) shop with facilities including two BOF vessels, an electrostatic precipitator (ESP), a hot metal reladling station, a roof monitor (an exhauster on the roof of the BOF enclosure), and an ESP stack. It is alleged that in the operation of this equipment Granite City has violated certain provisions of the Environmental Protection Act (Act) and of Chapter 2: Air Pollution Control Regulations (Regulations).

In particular Granite City is alleged in Count I of the Complaint to have caused or threatened to allow emission of contaminants into the environment so as to cause or intend to cause air pollution in the state, in violation of 9(a) of the Act and Rule 102 of the Regulations, since May 3, 1972 until the date of filing of the Complaint. In addition the Complaint alleges violation of Rule 202(b) of the Regulations including but not limited to certain dates, with respect to the aforementioned roof monitor and ESP stack. The Complaint also alleges that Granite City violated Rule 203(a) of the Regulations in that it caused or allowed the emission of particulate matter into the atmosphere in the operation of the BOF shop and violation of Rule 104(a) of the Regulations in that the BOF shop is without a compliance program and project completion schedule approved by the Agency.

Count II of the Complaint alleges that Granite City owns and operates a coke plant which includes three batteries of coke ovens (referred to as Battery A, B, and C respectively) each of which is equipped, inter alia, with a battery stack and associated facilities and equipment for charging the ovens with coal, pushing coke from the ovens, and transporting and quenching the coke. The Agency alleges that in the operation of this coke plant Granite City has been in violation of Rule 104(a) of the Regulations in that they failed to have a compliance program and project completion schedule approved by the Agency, and that they caused or allowed the emission of smoke from the coke batteries in violation of Rule 202(b) of the Regulations. In addition, Granite City is charged with violation of Rule 203(d)(6)(B)(i)(bb) of the Regulations concerning requirements in the charging of the coke ovens and with violation of the same Rule with regard to the pushing and quenching systems associated with the said ovens. Granite City denies the violations as alleged by the Agency.

#### Proposed Settlement

Hearing was held in this matter on June 25, 1976 at which a proposed Settlement Stipulation was presented under Rule 333 of the Board's Procedural Rules. The proposed stipulation recites the situation much as indicated in the pleadings herein. It is noted that Granite City has had variances from the substantive rules applicable to the coke ovens in PCB 70-34, PCB 73-26, and PCB 74-34. Granite City contends that the Agency wrongfully denied an operating permit but it agrees to institute and complete a program as set forth in the Exhibits attached to the Proposed Stipulation. The Proposed Stipulation and the Exhibits attached thereto are hereby incorporated by reference as if fully set forth herein.

The proposed program includes a number of equipment modifications and procedures which the Agency feels will result in Granite City's eventual compliance with the appropriate Board Regulations. The program is divided generally into two basic areas; the coke ovens and the basic oxygen furnace (BOF) operation.

#### Coke Ovens

The coke oven proposal is further divided into the charging operation, the pushing operation, and the coke battery stacks.

A. Charging. The Charging Operation entails loading the coke oven with coal utilizing a hopper car and charging ports with lids which are part of the oven itself. Particulate matter generated by the heating of the coal in the ovens may escape through the charge ports during the actual charging operation or through incomplete sealing of the charge port and lid after the lid has been repositioned. This situation precipitated the alleged violation of Rule 203(d)(6)(B)(i)(bb) of the Regulations. Granite City has heretofore installed a specially designed charging car known as the AISI/EPA Charging Car and has agreed to undertake a program to modify its existing charging cars and to install such additional equipment as is necessary to utilize what is known as a stage charging method of charging coal into its coke ovens. It is the opinion of the Agency that completion of such a program for Granite City's charging operation and the proper application of the stage charging method will result in compliance with the current charging rule.

B. Pushing. At the end of the coking period, the oven doors are removed and the coke is pushed out of the oven (exiting the oven at a temperature of approximately 2000 degrees Fahrenheit) into a car (quench car) which travels on tracks along the side of the coke batteries. The hot coke is carried to a chimney-like quenching tower equipped with overhead sprays and grit-arresting baffles. The coke is cooled with water and dumped on a coke wharf for further cooling prior to screening.

During this pushing operation emissions are generated as the hot coke is dumped into the quench car. These emissions continue as the car travels to the quenching tower for cooling. These particulate emissions are the basis for the allegation of violation of Rule 203(d)(6)(B)(i)(bb). The company has agreed to install two complete pushing emission control systems in accordance with Agency construction permit No. C 4 12 031 which the Agency believes will result in a controlled system that will bring Granite City into compliance with the current

pushing rule. The Agency notes however that this control system is not an enclosed system as envisioned as one method to control pushing emissions under the current Regulations.

C. Battery Stacks. As the coal is reduced to coke within the oven, products of combustion of the gas, used for heating are ducted to a single stack on each battery. If there are defects in the refractory of the coke oven walls, particulate matter being generated within the oven may leak through the oven walls into the flues and be discharged from the battery stack. The Agency contends that these leaks cause particulate emissions in the battery stack that violate the opacity limitations of Rule 202(b). Granite City has agreed to undertake a program of repair and replacement of the interior lining of its coke ovens in an attempt to prevent leaking through the walls. Should this program of repair and replacement be inadequate, the Company agrees to take corrective actions as indicated in Exhibit I to the Proposed Stipulation under the sub-title Coke Ovens starting at page 3. This final solution of the problem, if necessary, includes generally a particulate control device or permanent shutdown of the battery, whichever appears appropriate to the Company. It is the opinion of the Agency that completion of the program for battery stacks will result in Granite City's compliance with the current opacity limitations.

#### BOF SHOP

The BOF shop facilities include two BOF vessels and a hot metal reladling station, all of which are housed in the BOF building enclosure. Hot metal from the Company's blast furnaces is transported by means of torpedo ladle railway cars into the BOF shop. The hot metal is transferred from the torpedo car to the hot metal charging ladle at the hot metal reladling station. The hot metal is then dumped or charged into the BOF vessel by means of an overhead crane along with scrap steel which is charged into the vessel by means of a scrap charging car. After charging is completed an oxygen lance is lowered into the vessel and the contents or "heat" is then "blown" by injecting oxygen into the surface of the hot metal. At this time, additives, including fluxing agents, are introduced into the vessel by means of an additive chute. The purpose of the oxygen blow is to oxidize the excess carbon and impurities which results in the refining of the contents of the vessel into steel. In addition, this oxidation creates an exothermic reaction which melts the scrap within the vessel and brings the heat to the correct temperature for pouring. At the end of the refining period the metallurgy and temperature are checked and the heat is tapped by tipping the vessel and pouring the contents into a teeming ladle. The vessel is then prepared for another charge and the beginning of a new cycle or heat.

Particulate emissions are generated during the hot metal re-ladling operation, charging of the hot metal, oxygen blowing, and during tapping, resulting in emissions which escape into the atmosphere and may cause violations of Rule 202(b) and 203(a) of the Regulations. These violations occur with respect to emissions from the apparently inadequate electrostatic precipitator (ESP) connected to the BOF building enclosure and from the roof monitor exhauster located at the top of the BOF enclosure. In addition, the Agency has never issued an operating permit for the BOF facility and therefore alleges a continuing violation of Rule 103(b) of Chapter 2 of the Regulations and Section 9(b) of the Act. The Company has agreed to implement a program to control the aforementioned emissions. This program is divided into a number of subsections.

- A. Reladling. Emissions generated at the reladling station presently are controlled by a centrifugal collector. This collector being deemed inadequate, Granite City proposes to install a new system of fume and dust control including an improved fume collection hood, improvements to the collecting system, a new final gas cleaning installation and other appropriate fans, motors, pumps and controls.
- B. Charging. Granite City has proposed to provide a maximum draft through the ESP hood during the charging operation in order to improve the capture of particulate emissions resulting from hot metal charging which are vented to the existing hood. Granite City also proposes to utilize a steam injection system to condition the gas so that the particulate so captured will be collected adequately by the existing ESP.
- C. Oxygen Blow. During the oxygen blow, large amounts of particulate matter escape the ESP hood through the lance hole and additive chute. To eliminate this problem the Company has proposed to install a lance hole closure device and additive chute closure and to increase the draft through the ESP hood during the oxygen blows.
- D. Tapping. Granite City proposes to install a tapside partial enclosure and utilize increased draft through the ESP hood to capture emissions that otherwise would go to the ambient atmosphere during the tapping operation.

- E. ESP Dust Handling. Granite City has proposed an ESP dust collection program to control fugitive emissions generated by equipment associated with the collection of ESP dust from the BOF electrostatic precipitator site.

#### Considerations

It is the belief of the Agency and Granite City that the public interest will be best served by the resolution of this enforcement action under the terms and conditions of the Proposed Stipulation. The Stipulation provides for the improvement of the Company's emission control facilities and the quality of the ambient air in the vicinity of the company's facilities while at the same time providing for the saving of a substantial amount of time, effort and expense that could be expended in litigating the issues in dispute. During the period of the Proposed Stipulation the Agency, as outlined in paragraph 8 of the Proposed Stipulation, shall have the authority to enter the plant at all reasonable times for the purpose of inspection and examination of papers and documents pertaining to the implementation of the plan. The right of appeal of each party is outlined in paragraph 9 and the Agency agrees not to cause any other enforcement action to be brought or initiated pursuant to Section 31(a) and (c) of the Act on any element of the program so long as Granite City is in compliance with that particular element. In addition, the Agency agrees to withhold enforcement action pertaining to the operating permits in the coke ovens and the BOF until all portions of the program related to each facility separately shall have been completed.

The Agency agrees to look favorably upon any petition for variance by Granite City to the Board provided that such a favorable recommendation is consistent with the objectives contained in the program. The Company agrees to supply quarterly reports on its progress to the Agency until the program is completed, advising the Agency of any delays or advancement in this schedule. The Company shall apply for and obtain construction permits necessary to implement the provisions of the program, and the Agency agrees to promptly process such applications.

Granite City agrees in the Proposed Stipulation to pay in two installments to the State of Illinois a total of \$75,000.00 in settlement of this action. In addition, Granite City will post personal bonds of the Company as set forth in Exhibits 2 A through 2 G of the Proposed Stipulation guaranteeing the faithful performance of certain parts of the program. In consideration of the Company's agreement to pursue the program, the Agency agrees that the pending enforcement complaint in this case will be dismissed with prejudice

for the period of time covered by the complaint to the date of any Order of the Board herein approving the Proposed Stipulation.

The foregoing is a general review of the Proposed Settlement and Stipulation as filed by the parties herein. It is estimated that the total cost of the program proposed is seventeen and one-half million dollars. The Agency agrees that upon completion of this program Granite City should be in compliance with the Board's Rules and Regulations. The time span of the longest construction period in the proposed program is two years which appears reasonable considering the amount of engineering and construction required. On the other hand there have been complaints registered with the Board concerning Granite City both at the hearing and by letters received at the Board offices. Some of the complaints were not appropriate for this action, concerning themselves with vibration problems and with personal damage actions. In general, however, the stated complaints revolve around the lack of response from Granite City with regard to control of its alleged pollution (R.107-127).

The Board finds that the Proposed Program with its enforceable provisions and its \$550,000.00 in bonding requirements is a reasonable resolution of Granite City's pollution problems. It is the opinion of the Board that an end of litigation at this time and beginning of the construction of abatement facilities is the correct method with which to alleviate the burden of the people of the State of Illinois with respect to the alleged pollution caused by Granite City. The Board will therefore accept the Proposed Settlement and Stipulation as presented by the parties herein and will order them to carryout the provisions of the Proposed Abatement Program as set forth by them in the Stipulation.

This Opinion represents 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:

1. The parties herein pursue their duties as set forth in the Stipulation filed with the Board July 6, 1976 with regard to the BOF emission and coke oven emission control program as set forth in Exhibit 1 of the said Stipulation.

2. Within 60 days of the date of this Order Granite City shall execute the personal bonds as indicated in Exhibits 2 A through 2 G of the aforesaid Stipulation.

3. Granite City shall, in consideration of the settlement of this action, pay to the State of Illinois a total of \$75,000.00, said amount to be paid in two installments as follows:

1. \$37,500.00 within 30 days of the receipt of this Order.

2. \$37,500.00 ten months after the date of receipt of this Order.

4. The Complaint in PCB 76-124 is hereby dismissed with prejudice.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 15<sup>th</sup> day of September, 1976 by a vote of 5-0.

  
Christan L. Moffett, Clerk  
Illinois Pollution Control Board