

ILLINOIS POLLUTION CONTROL BOARD  
March 28, 1974

ABEX CORPORATION, AMSCO DIV.,	)	
	)	
Petitioner,	)	
	)	
vs.	)	
	)	PCB 74-1
ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

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

This is a Petition for Variance filed with the Environmental Protection Agency (hereinafter "Agency") on January 2, 1974. The Petition was filed by the Abex Corporation, Amsco Division (hereinafter "Petitioner") which is located in Chicago Heights, County of Cook, Illinois.

This Petition for Variance was originally filed with the Agency on January 2, 1974. Petitioner submitted a new petition on January 22, 1974, proposing an alternate compliance program.

Petitioner requests a variance from Rule 203(b) and (c) of Chapter 2, Part II of the State of Illinois Air Pollution Control Regulations.

Petitioner operates a welding rod manufacturing facility which includes melting furnaces, tube forming and flux coating machinery, sand molds, crushers, and finish grinders. Two types of welding rod are manufactured at this facility: cast and tube type. Both types are used specifically for hard facing applications requiring application of wear resistant surfaces. The two types of welding rods are manufactured utilizing completely different processes.

The tungsten carbide arc furnace is the only source of excessive emissions in the tube type welding rod manufacturing process. Here an electric arc furnace is used to produce tungsten carbide ingots which are subsequently quenched and then crushed and screened to size.

The cast type welding rods are manufactured in another area of the plant utilizing two melting furnaces and sand casting techniques to produce solid tungsten electrodes of various lengths and diameters. Petitioner utilizes two types of furnaces to melt the tungsten alloys. One is an induction type furnace and the other is an electric arc

furnace. Emissions from both of these furnaces presently exhaust through a roof ventilator uncontrolled. Molten metal is subsequently poured into sand molds where, after the metal solidifies, the rod ends are cut off and the rods are shaken out of the sand molds. The castings subsequently go to finishing operations for grinding to size. Emissions from the pouring and shake-out operations are presently uncontrolled.

Petitioner requests time, until May 31, 1974, to complete installation of control equipment to bring emissions from the electric arc furnaces into compliance with the appropriate rules. Petitioner states that emissions from the shake-out area will be eliminated by July 15, 1974, through substitution of an alternate molding technique. Therefore, the total length of time requested by the Petitioner is approximately 6 months or until July 15, 1974.

Petitioner acknowledges that particulate emissions from the tungsten carbide arc furnace, electric arc furnace, metal pouring, and shake-out are in excess of that allowed. Total emissions are presently 5.72 lbs/hr, with a total allowable of 3.48 lbs/hr. Particulates consisting of metallic oxides, primarily tungsten, cobalt, and chromium emanate from the melting furnaces. Particulates consisting of sand dust emanate from the shake-out operation. Stated emissions are based on tests conducted on 9/11 through 9/15/72 by George D. Clayton Associates, 25711 Southfield Road, Southfield, Michigan. The following emission data was obtained:

Tungsten carbide arc furnace	1.9 lbs/hr
Metal pouring	0.22 lbs/hr
Electric arc furnace	1.3 lbs/hr
Shake-out	2.3 lbs/hr

Emissions from the pouring and shake-out operations will be essentially eliminated by substitution of new process equipment. Total emissions from the furnaces is 3.2 lbs/hr compared with an allowable 1.4 lbs/hr. Although a collection efficiency of only 56% is required to achieve compliance, Petitioner proposes to install a baghouse with a collection efficiency exceeding 99%.

Petitioner's facility is located in an area of heavy industry, and the Agency has received no citizen complaints or objection to the grant of this Variance.

The Recommendation of the Environmental Protection Agency states, in pertinent part, as follows:

The Agency recommends that the Variance be denied, or in the alternative, that it be granted subject to the following conditions:

2. Petitioner should exert maximum effort to obtain an outside supply of tungsten carbide to eliminate usage of the tungsten carbide electric furnace during the term of the requested variance.

3. Petitioner should be required to discontinue use of the electric furnace in the cast rod production area until control equipment is installed.

Paragraph 15 (p.5) of the Agency Recommendation is as follows:

15. Petitioner could purchase tungsten carbide for use in the manufacture of tube-type welding electrodes instead of producing it on-site. This would eliminate emissions from the tungsten carbide electric furnace. The availability of tungsten carbide, and the cost penalty to the company is unknown. As both the induction furnace and electric arc furnace are used in the manufacture of cast-type rod, it is possible the Petitioner could refrain from using the electric arc furnace until control equipment is installed. There is no known short term alternative to eliminate emissions from the pouring and shake-out operations. (Emphasis added).

In an Order dated March 7, 1974, we stated:

In order to reach a reasoned decision, the Board will require additional information regarding the availability of tungsten carbide and the cost penalty and/or feasibility of its use in Petitioner's operation. Further, the Board will require an analysis of the effect of discontinuing the use of the subject electric furnace, since, from what little information we have before us, Petitioner's operation appears to be highly integrated.

Petitioner has supplied the information requested. As regards the subject electric arc furnace, Petitioner states:

Although this specific electric arc furnace is a component of a highly integrated process used for the production of cast welding electrodes, its use can be discontinued for the term of time involved in the Petition for Variance.

Petitioner states that it knows of no producer of cast tungsten carbide supplying, on the open market, the specific type of tungsten carbide required.

Therefore, Petitioner contacted its direct competitors in the hardsurfacing electrode market to determine their capability to supply Petitioner's needs. Two competitors have that capacity.

Petitioner has supplied data regarding the cost penalty of tungsten carbide purchases from competitors. However, Petitioner emphasizes that the proffered costs and production volumes are confidential and proprietary in nature and requests that we treat the information accordingly. We see no reason, in this particular situation, why Petitioner's request should not be respected.

From the data submitted by Petitioner, we are satisfied that the substantial increased expense resulting from purchases from competitors is not justified by the magnitude of emission reduction. The Agency indicated agreement.

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

IT IS THE ORDER of the Pollution Control Board that Petitioner be granted a variance from the provisions of Rule 203(b) and (c) of Chapter 2, Part II of the Air Pollution Control Regulations until July 15, 1974, provided: that Petitioner shall discontinue use of the electric arc furnace used in the reclamation of metallics from the centerless grinding operation until control equipment is installed thereon, bringing its emissions into compliance. The data contained in Petitioner's report of additional information, dated March 14, 1974, is, hereby, deemed confidential and not subject to disclosure by the Agency or this Board.

I, Christian L. Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion and Order was adopted on this 28<sup>th</sup> day of March, 1974 by a vote of 5-0.

