UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

BEFORE THE ADMINISTRATOR

81 OCT 7 P3:47

IN THE MATTER OF	)	NOTICE OF NONCOMPLIANCE
	)	
AIRCO, INC.	)	NO. III-81-1-NA
	)	
RESPONDENT	)	

INITIAL DECISION

(1) Charging Agency found not to have sustained its burden of proof regarding alleged violations of Section 120 of the Clean Air Act. Complaint dismissed.
(2) Request for de minimus exemption by Respondent found to be moot in view of the conclusions reached in (1) above. Petition dismissed.

Margaret M. Cardamone, Robert R. Homiak, Stuart I. Silverman, and A. Alexis Varela, for Environmental Protection Agency
Susan L. Gordon and Kenneth R. Myers for respondent.
By Richard H. Beddow, Jr., Administrative Law Judge:

The Environmental Protection Agency issued a Notice of Noncompliance under §120 of the Clean Air Act 42 U.S.C. §7401, 7420 on January 9, 1981 alleging that brief excursions of visible emissions of over 20 percent "opacity" had been observed from Building 700 (the "Acheson Graphitizing Building" or "Building 700") of the Carbon Graphite Division of Airco, Inc. (Airco) at St. Mary's, PA and that such excursions constituted a violation of 25 PA. Code §123.41 of the Pennsylvania State Implementation Plan ("SIP").

On February 25, 1981, Airco timely submitted a Petition for Reconsideration and Exemption to EPA in accordance with 40 C.F.R. §66.13.

The matters were assigned to the Administrative Law Judge for hearing and initial decision. Subsequent to a prehearing conference, various procedural matters were resolved and a consolidated hearing was held in Washington, DC on June 22 through July 1, 1981. Briefs were filed by both parties and oral argument was held on September 8, 1981. Upon agreement of the parties, October 9, 1981, was established as the deadline date for issuance of the decision.

FACTUAL BACKGROUND

Section 123.41 of the State Implementation Plan prohibits a source from causing visible emissions equal to or greater than 20 percent opacity for more than 3 minutes in any one hour. The charges brought by the EPA on

January 9, 1981, were based upon alleged violations observed on June 3 and 4, and September 24, 1980.

As the approved method of measuring opacity by smoke readers, the EPA has formally adopted Method 9 (40 C.F.R., Appendix A) and it here basis its allegations of noncompliance completly upon evidence of observation made in this manner.

Method 9 contains several provisions designed to maximize reliability. The reader is to position himself with the sun at his back, and as closely perpendicular to the plume as possible. Opacity is to be read for only one plume at a time. Readings taken at 15 second intervals are to be averaged, using intervals of six minutes or longer (averaging 24 readings closely replicates the conditions under which visible emission observers are tested and certified). The observer is to make necessary inspection and tests using a wet and dry bulb thermometer as appropriate; if there is entrained water, the plume is to be read before the condensation occurs or downrange, after the water has revaporized. Only certified smoke readers may take readings for enforcement purposes. Method 9 also specifically states that the positive margin of error of smoke readings must be taken into account in evaluating results for enforcement purposes.

Observations of June 3 and 4, 1980:

On June 3, EPA smoke reader Klettner positioned himself on Theresia Road, northwest of the source. Although his location put the sun at his back, it also placed him at a broad angle to the source, 53 degrees off the perpendicular. Under these circumstances, smoke that appeared to Klettner to have a 30 percent opacity would have had actual opacity of but 24.8 percent, the higher observed opacity being attributable to the broad view angle. The wind direction also bent the plume away which would tend to increase the plume path length and apparent opacity.

On both June 3 and 4 Mr. Klettner observed the combined emissions of all four monitors. Reading several plumes cumulatively is not consistent with Method 9.

Mr. Klettner failed to specifically allow for the influence of water droplets or steam in his readings. There is water in the emissions from Building 700 as a result of both combustion and steam rising from the water-cooled furnace heads. Mr. Klettner stated on cross-examination that his reading of opacity of less than 30 percent would not be indicative of a violation of the Section 123.41 smoke standard. Application of the methodological margin of error of 7.5 percent observer error provided in Method 9 also would tend to qualify its accuracy or rehability of a specific reading. The Pennsylvania Environmental Hearing Board has determined that for purposes of enforcing a 20 percent opacity standard by Method 9, visible emission readings of less than 30 percent should be disregarded. Alan Wood Steel Company vs. Commonwealth of Pennsylvania Department of Environmental Resources, Docket No. 73-368-B (1977). Of 120 readings (for

30 minutes, 15 seconds apart) taken on June 3rd, one was 30, two were 35, and the rest were 25. Of the same number of readings taken on June 4th, one was 30, a few were 25, and most were 20 or below. The June 4 readings were taken at an observation to the source of 33° and was not within the 140° sector required by Method 9, and with the sun at a broad angle which could result in an observed opacity higher than true opacity.

Observations of September 23 and 24, 1980,

An observation taken on September 23rd resulted in a reading of zero. EPA consultant Richards returned on September 24 and took readings for two periods totaling just short of two hours (from 7:45-8:59am and from 9:14 to 9:54am). His angle of observation with respect to the source was approximately 45° from the perpendicular. At the 45° angle, a true opacity of 20 percent would be seen as an observed opacity of 28 percent.

Mr. Richards agreed that a 7.5 percent opacity error should be considered under Method 9, which error would be in addition to any error attributable to angle of observation.

During the first 15 minutes of the first 72 minutes of observation a continuous white cloud was noted, with one reading of 50, one of 45, three of 40, eight of 35, and 47 of 30 or less. The readings of 35 or more were random and were not made during a continuous period of more than 45 seconds.

During the approximately 40 minutes of observation during the second period a little later the same morning, irregular puffs of smoke were seen with sporadic high range readings, specifically: one of 60, three of 50, two of 45, eight of 40, and four of 35. Numerous readings of 0 through 15 were recorded. If a six minute averaging data reduction procedure provided for in Method 9 is applied to Mr. Richards data, there is no period in which emissions would have exceeded the significance level.

Mr. Richards grouped all four monitors in an effort to cumulate the emissions from all four monitors into a single value. He additionally is not shown to have excluded emissions related to material stockpiling, open burning, or water droplets or steam and in fact noted that the puffy emissions in his second hour of observation were related to noises of material handling equipment.

Additional observations were taken on March 18 and 19, 1981, by EPA after issuance of the notice of non-compliance.

On these dates Airco was running an experimental program where S process material was graphitized in two bays on one side of the building and only baked or rebaked material was graphitized in the other two bays. This experiment differed from normal procedure. Grouping 100 percent of the S processed material under one side of Building 700 concentrated and increased the frequency and density of emissions from monitors on that side. Emissions on those days were not representative of normal conditions.

Other observations were made after the start of the proceeding including more than 18 hours of observation between May 26 and 29, 1981. For 16 of these hours opacities of 15 percent or less were observed and were not recorded. Few readings above 20 were recorded. Readings also were made on June 3, 1981, by an observer who had visited the facility on approximately 25 other occasions without reporting violations. This observer is shown to have failed over 80 percent of her smoke reading certification runs.

In view of the ultimate conclusions reached below it is unnecessary to set forth here a detailed recitation of other factual information, however, certain additional factual findings relating to Airco's overall operations are set forth in the Appendix.

DISCUSSION AND CONCLUSION

Initially, a brief comment will be made in regard to Respondent's motion for summary judgment which was denied at the hearing. The burden was upon Respondent to show the absence of a genuine issue as to any material fact. For this purpose the material of record must be viewed in the light most favorable to the opposing party. Adickes v. S. H. Kress & Co., 398 U.S. 144, 157 (1980). Although the ultimate conclusion reached here is consistent with that requested in the summary judgment, it is considered that the General Counsel at least presented enough information to present an issue for decision on its merits. This was true, however, substantially because the matters involved those of first impression. With the resolution of the issues made below, it is considered that in the future, summary judgment will be warranted if requested under similiar circumstances.

Turning to the issues presented, I first conclude that Section 123.41 of the Pennsylvania code as adopted in the State Implementation Plan is the applicable standard to be applied in this proceeding. Although the Respondent argues that Section 123.1 regarding "fugitive" emissions should apply, I am not persuaded that the State has taken action that clearly would support Respondent's contention.

In the absence of definitive State action, the application here by the Agency of Section 123.41 (visible emissions) rather than Section 123.1 (fugitive emissions), is shown to be a reasonable interpretation of the State Implementation Plan. Although emissions from roof monitors present a somewhat unique situation in that they are not completely the same as those from a "flue" (i.e., any duct, pipe, or stack), such emissions are more similar than dissimilar and they basically are inconsistent with "fugitive" emissions which enter the outdoor atmosphere in a manner other than a flue (such as demolition of buildings, grading roads, or open burning).

Section 123.41 provided as a standard that opacity of the emission be equal to or greater than 20 percent for a period or periods aggregating more than 3 minutes in any one hour for a violation to occur. As pertinent here, Method 9 is the approved technique mandated for use by the Environmental Protection Agency.

As contended by the Charging Agency, Section 120 is a strict liability statutory provision and it argues that any noncompliance must be strictly construed, regardless of any seemingly minimal quantity of actual non-conformance. In conformance with the Agency's contention that application of the statue to the facts must be non-discretionary, I conclude that the Agency also must be held strictly accountable for compliance with Method 9 governing its own standards of measurement.

Here, the Agency has not shown that its measurements of alleged non-compliance were made in complete compliance with Method 9. To the contrary, the Respondent has indicated several discrepancies which are sufficient to invalidate the Agency's attempt to apply Method 9. Moreover, the noted discrepancies also qualify the reliability and accuracy of the Agency's measurements to such a degree that it must be concluded that the Charging Agency has not met its burden of proof to show by a preponderance of the evidence that violations have occurred.

On this record the Agency merely has shown that readings were taken that would show several minutes of non-conformance if the measurements were perfect in all respects. It has not shown that conditions were such that perfect readings were made, it has not shown that Method 9 was followed or that allowances were made for disqualifying errors, and it has not successfully rebutted the Respondent's showing that numerous underlying conditions make the reliability and accuracy of the relied upon reading highly suspect. Reliance upon evidence of suspect quality is not considered to be sufficient to meet a burden of proof which requires that the Agency prove its case by a preponderance of the evidence. Accordingly, it must be concluded that the Agency has not met its burden of proof and that the complaint must be dismissed.

Finally, in view of the conclusions reached above, it is considered to be unnecessary to rule on the Respondent's request for a de minimus exemption. It is considered to be desirable, however, to make several additional comments.

The overall record shows that Airco has been active in efforts to minimize adverse contributions to unclean air from its facilities. Its ongoing changes in procedures to reduce or eliminate its so called "S" process should alleviate must of the cause of higher range emissions. It appears, however, that so called "blowouts" will still occur and that Respondent sometimes cannot respond quickly enough to prevent higher level emissions from developing. The remedy suggested by the Agency (see the Appendix) is not considered to be practical or necessary under the involved circumstances, however, enough of a problem exist that some faster method of response should be developed by the Respondent in order to insure future compliance with the appropriate clean air standards.

Here, if the proceeding had progressed to consideration of the de minimus petition, it would have been my conclusion that any granting of an exemption would be conditional upon the development and implementation by Respondent of an alternative blowout control measure. Under the

circumstances, I will admonish Respondent to develop and implement a procedure whereby a small tractor or forklift "bucket" equipped type vehicle (capable of traversing Respondent's 7 foot spaces between furnace bays) capable of making a side discharge of "fines" over the blowhole area, will be stationed with a load of control material in position to make an immediate response to a "blowhole" condition.

As otherwise concluded above, no other sanctions are shown to be warranted in these proceedings and, accordingly, the following findings and order will be entered dismissing the proceedings.

FINDING AND ORDER

Upon consideration of the entire record it is found that 25 Pa. Code Section 123.41 is the proper applicable standard under which the matter shall be evaluated; that the Environmental Protection Agency has failed to show by a preponderance of the evidence that Respondent Airco, Inc. is in non-compliance with this standard and Section 120 of the Clean Air Act as alleged in the complaint; and that the complaint should be dismissed.

It further is found that in light of the findings made above, the petition for a de minimus exemption under section 66.32 of the Clean Air Act is moot and should be dismissed.

IT IS ORDERED, that the complaint and the petition for exemption be and they are hereby, dismissed.

Dated at Washington, DC October 8, 1981

Richard H. Beddow, Jr.
Administrative Law Judge

APPENDIX

ADDITIONAL FACTUAL FINDINGS

Airco Carbon Graphite Division operates a complex of facilities in St. Marys, PA for the manufacture of graphite. The facilities include Building 700, built in 1968, which contains 49 operating Acheson graphitizing furnaces used to manufacture graphite, which is a form of carbon that has high electricity conductivity as well as resistence to high temperatures.

The Acheson furnaces are approximately 50 feet in length and 13 feet wide. The furnaces are located in four rows of 12 or 13 and each furnace is approximately 7 feet from the furnace next to it.

Acheson graphitizing furnaces are the most commomly used furnace for graphitizing. A typical furnace is a bed of firebrick with electrodes at either end. A layer of insulating material is placed on the bed. Carbon forms to be graphitized are assembled and carbon resistors which conduct electricity are placed around the carbon products filling the space between the electrodes. Refractory sideblocks are placed to prevent spilling, insulating material is placed on the sides and top of the furnace, and bussbars are placed along the sides of the furnace to complete the electrical path.

The fully loaded Acheson furnace is heated by applying alternating current to the head electrodes. The heating is carried through two cycles; preheating power for up to one day, heating the payload to 1000°F; and thereafter, increased current for two or more days heating the payload up to 5000°F. Power is then disconnected and the furnace cools gradually over a period that can take up to two weeks. The insulating blanket used in Acheson furnaces is a mixture of sand (a source of silicon), sawdust and coke (a source of carbon). During the graphitizing, by slow reaction to the blanket material forms silicon carbide, a hard commercial abrasive with excellent heat properties. The slow reaction absorbs heat, thereby protecting the furnace structure and surroundings from exposure to the very high temperatures within the payload. The silicon carbide formed in the insulating blanket is used to produce refractory materials. As the payload cools, the insulating blanket is removed to segregate the silicon and recycle the remaining material. The resister material is removed for reprocessing and reuse. The payload of graphite parts is moved to be machined and shipped. In total, the Acheson furnace cycle typically ranges between 12 and 17 days.

Building 700 has four large furnace bays, each houses one row of furnaces. A fifth center bay houses the material laoding, unloading and storage area. Each of the four furnace bays is approximately 300 feet long and 70 feet wide and rises to a roof monitor 70 feet above the work floor. The center material loading, unloading and storage area rises to a roof monitor of a lower elevation. Each of the four roof monitors vents emissions from the 12 or 13 furnaces within its bay because of the design of the

building and the resulting thermal updraft. Each monitor has its own emission rate and outflow and each is considered by Airco to be a separate source for environmental purposes such as ambient air impact modeling.

In 1971, the Pennsylvania Department of Environmental Resources drafted the State Implementation Plan which was adopted by the Pennsylvania Environmental Quality Board in 1971 and approved by the EPA in 1972. In 1971, Airco was advised by DER officials that, under the SIP the Building 700 roof monitors were "fugitive" sources not "stack" sources and that they were regulated under 25 Pa. Code 123.1 which prohibits all fugitive emissions except for emissions from listed sources including sources whose emissions are of "minor significance." The Pennsylvania SIP contains a provision regulating visible emissions. 25 Pa. Code 123.41 prohibits visible emissions of 20 percent or greater for more than 3 minutes in any one hour. 25 Pa. Code 123.42 eliminates certain sources from the requirements of 123.41, including sources of minor significance.

In 1972, Airco submitted information to DER to establish that its emissions from Building 700 qualified to be of minor significance under 25 Pa. Code 123.1. DER did not express any disagreement with the submission. In 1977, 25 Pa. Code 123.1 was amended to require that a determination of minor significance be documented in writing by DER. The amended regulation did not require any further submission of information from Airco. In 1979, Airco negotiated a settlement of two minor smoke citations with DER which involved alleged violations of the fugitive standard (25 Pa. Code 123.1). During those negotiations, DER asked Airco to resubmit its request for minor significance on a newly developed department form. Airco resubmitted its request along with additional data. On November 29, 1980, DER staff preliminarily denied Airco's request for minor significance. Airco appealed that preliminary determination to the Pennsylvania Environmental Hearing Board at EHB Docket No. 80-213-W. That appeal is pending.

In 1968, Airco obtained professional outside evaluation of emission control methologies for Acheson graphitizing operations. The greatest source of particulate were found to be material building, (including placement and removal of the furnace load, and the handling, cleaning, sizing and recycling of the insulation and resister fine materials), followed by furnace operation (e.g. dust and fumes from the furnaces). To control dust and particulate generated in the building from material building, Airco installed a pack-screening air suction and fabric collector system ("bag house") system as well as a cycle-mix dust system. Later, Airco installed a surfactant system (which applies a chemical wetting agent to furnace pack materials prior to handling and implementation), and implemented a process whereby blanket material is removed from the furnaces by electric clams.

Airco uses two processes in Building 700 to manufacture graphite: the "R" process and the "S" process. In the R process, only baked or rebaked carbon rods are put in the furnace for graphitizing. In the S process carbon rods that have been pitch-impregnated are graphitized. The S process requires more furnace time than the R process and produces graphite of greater strength and durability.

The greatest source of smoke and volatile hydrocarbons comes from processing pitch-impregnated material (the "S" process). When S process material is preheated, the temperature of the pitch-impregnated payload is raised and hydrocarbons volatize and may emit smoke. To minimize these emissions in Building 700, in 1972 Airco instituted a procedure where two fume burners are used on each furnace running S material. The fume burners incinerate the volatile hydrocarbons and the smoke. The furnaces running S material were packed to attempt a maximum catch of gas and to prevent emissions through the insulating blanket and the sides of the furnace.

Hydrocarbons can condense within the insulating blanket and as the furnace temperature rises, revolatize creating major arching and burning, otherwise known as "blowholes," which can cause visible emissions from the roof monitors. Because of the non-uniform expansion and contraction of payload materials caused by temperature change, volatization, chemical reaction, and other factors, blowholes are not specifically predictable or preventable.

Some fraction of the volatile hydrocarbons emitted by blowhole occurrences contain known or suspected carcinogins (BaP). Concentrations of BaP experienced on the work floor of Building 700 cause no known adverse health effects. As the result of a commitment to the Occupational Safety and Health Administration, Airco is engaged in three projects to further minimize dust and particulate in the work place which will also minimize the potential for emissions from the roof monitors: an expansion of the pack-screening dust collection system expected to be completed in August 1981, modifications to the cycle mix dust system now in the design phase, and the addition of six carbottom kilns to eliminate all S process material from the graphitizing line, to be in operation by July 1982. Rebake of pitch-impregnated carbon to eliminate S process material will operate to eliminate BaP and further minimize particulate from furnace operations and is an acceptable solution to eliminate pitch fumes. This program was undertaken by Airco before the notice of non-compliance was issued.

Blowholes are a significant source of visible emissions with such emissions continuing over the length of the blowhole. Over an 18 month period, Respondent reported 505 blowhole "events" to the PA DER, an average of approximately .95 events a day. Of the 505 events reported, 47 took at least 45 minutes for Respondent to bring under control. Of these 27 took one hour or more to control, with five taking two hours or more to control. A reasonable time to control a blowhole event is 10-15 minutes.

Respondent employs only "two or perhaps three qualified crane operators at any one time." The crane operators control blowholes by placing fines over the blowhole area.

Of the 606 blowholes reported to DER, 109 occurred when Respondent was graphitizing rebaked electrodes. Because of the presence of pitch volatiles is not the only cause of blowholes, Respondent will continue to experience blowholes even if using entirely rebaked stock.

An expert witness, called by the EPA is the EPA's expert, Mr. Kenneth Noll, promoter of a plan for hooding furnaces to minimize emissions from blowholes. Airco does not consider use of the hoods to be practical or desirable in Building 700 because there is insufficient head room for the hoods, and the fact that they must be removed to take corrective action when blowholes occur delaying the process of correcting blowholes.

Airco feels that if mass emission rates are within acceptable limits, opacity of emissions is only an aesthetic concern. Opacity bears no fixed relation to the mass rate of emissions of particulate or gaseous material but is affected by a number of factors unrelated to environmental concern. Only some fraction of the particulate and the gases generated at the work level in Building 700 exit the roof monitors. The mass emission rate of particulate from Building 700 is 1/10th the amount that would be allowed under 25 Pa. Code 123.13 if the roof monitors were classified as stack sources. Worst case modeling showed that secondary National Ambient Air Quality standards are being maintained and will be maintained after Airco completes its current expansion which will increase production. DER field monitoring in St. Mary's demonstrated that the maximum particulate concentrations found were below national ambient air quality standards. There are no air quality standards for BaP and DER field monitoring revealed that levels of BaP from all local sources including vehicular exhaust were not significant.

Elimination of S process material in Building 700 requires the addition of carbottom kilns to rebake the pitch-impregnated materials. The cost of the expansion of baking capacity attributable to eliminating the S process material in Building 700 is $11 million. However, Airco has not profited by failing to earlier eliminate S process material. Installation of that portion of the expansion necessary to eliminate pitch-impregnated material in Building 700 will allow the through-put of the Acheson graphitizers to be increased and will result in gross profits to Airco of approximately $1.3 million from the Acheson graphitizing operations.

CERTIFICATE OF SERVICE

I do hereby certify that on this 6th day of October, 1981, the Original of this "Initial Decision" was filed and the Original mailed to the Reigonal Hearing Clerk, Region III and copies mailed by certified mail to the following:

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Dated: October 7, 1981