

ILLINOIS POLLUTION CONTROL BOARD
July 19, 1984

JEFFERSON ELECTRIC DIVISION,)	
LITTON SYSTEMS, INC.,)	
)	
Petitioner,)	PCB 84-30
)	
v.)	
)	
ILLINOIS ENVIRONMENTAL)	
PROTECTION AGENCY,)	
)	
Respondent.)	

OPINION AND ORDER OF THE BOARD (by W. J. Nega):

This matter comes before the Board on the petition for variance of the Jefferson Electric Division, Litton Systems, Inc. (Jefferson Electric) filed on March 7, 1984. The Petitioner has requested a one-year variance from the volatile organic compound (VOC) emission limitations of 35 Ill. Adm. Code 215.211 (formerly Rule 205(j)(1) of Chapter 2: Air Pollution Regulations) and 35 Ill. Adm. Code 215.204(j) (formerly Rule 205(n)(J) of Chapter 2: Air Pollution Regulations) in order to complete the development and testing of a 100% solid impregnation material which will be used in place of its presently utilized impregnation varnish.

On March 8, 1984, the Board entered an Order requesting additional information on ozone ambient air quality and on the levels of volatile organic compound emissions. On April 11, 1984, the Petitioner filed an Amended Variance Petition in response to the Board's Order. On June 11, 1984, the Illinois Environmental Protection Agency (Agency) filed its Recommendation which recommended that the Petitioner be granted a variance until December 31, 1984, subject to certain conditions. A hearing was held on June 12, 1984.

Jefferson Electric owns and operates a plant in Bellwood, Illinois which employs about 300 people and has annual sales of approximately \$40,000,000.00. (Pet. 2). This facility has been producing dry-type transformers since 1932. The company also operates two similar plants in Athens, Alabama and Williamstown, Kentucky. During transformer production operations, the Petitioner impregnates transformers with an insulating varnish and coats the metal surfaces of transformer hardware and case housing with enamel paint. VOCs produced during these operations are emitted through exhaust ducts in the Petitioner's roof. (Pet. 2-3; R. 11).

To insulate the transformers with an impregnating varnish, the company first submerges the transformers in the varnish. These transformers are then raised and allowed to drain. Subsequently, the transformers are placed in an oven for curing. The Petitioner has two varnish dip tanks which are used alternately and six bake ovens for varnish curing operations. (R. 6; Rec. 2; Pet. 2). During the assembly of hardware and case housings for the transformers, metal steel plates are stamped and formed. These steel plates are cleaned either by alkali cleaning or vapor degreasing (using 1,1,1-trichloroethylene) and then coated with enamel paint in either the spraybooths or on a conveyORIZED paint dip line using a degreaser, dip tank and bake ovens. (R. 6; Rec. 2; Pet. 2). The Petitioner has two dry-type spraybooths controlled with special filters (one used daily and the other used occasionally) and three spraybooths for water washing. In addition to the conveyORIZED paint line which uses a dip tank for dip painting, two batch-type bake ovens are used with the spraybooth during the painting and enamel coating processes. (Pet. 2-3; Rec. 2).

Section 215.211 establishes a compliance date of December 31, 1983 and Section 215.204(j) requires that (upon its effective date of December 31, 1983) the VOC emission levels from the exterior coatings used by the Petitioner shall be limited to 3.5 pounds per gallon (lb/gal). Jefferson Electric's yearly consumption of impregnating varnish (used to insulate transformers) and enamel paint (used to coat transformer hardware and case housings) is as follows:

	1980 ¹	1981	1982	1983
*Varnish (3.9 #VOC/gal)	2734	3787	5169	6794
Varnish thinner	3256	4230	5364	7115
Paint enamel	4508	6535	6379	7459
Paint thinner	1978	2044	2647	3542
Total Gallons	<u>12476</u>	<u>16596</u>	<u>19559</u>	<u>24910</u>

*Thinned impregnating varnish contains 5.6 #VOC/gal

¹Data for 1980 was given for 6 months and extrapolated for one year. (Rec. 3).

According to the Agency's calculations, Jefferson Electric's transformer processing operations resulted in actual VOC emissions from the application of thinned varnish (with an average VOC content of 5.6 pounds per gallon) of 42.36 lb/hr or 38.97 tons per year in 1983. (Rec. 3; R. 6). Similarly, the company had actual VOC emissions from thinned colored coatings (with an average VOC content 5.23 lb/gal) of 31.26 lb/hr or 28.76 tons per year in 1983. (Rec. 3; R. 7).

Thus, applying the 1983 usage figures previously mentioned, the currently allowable VOC emission limit for thinned varnish

coatings would be 18.65 lb/hr or 17.17 tons per year, while the allowable VOC emission limit for thinned colored coatings would be 11.55 lb/hr or 10.63 tons per year according to Agency calculations. (Rec. 3). Therefore, it is necessary that VOC emissions from surface coating operations be reduced by about 58.95% in order to achieve the requisite compliance.

Jefferson Electric has proposed that it be allowed sufficient time to accomplish the conversion to a 100% solids (i.e., resin) replacement for the impregnating varnish and reformulation of 81% of its colored coatings to less than 25 tons per year (thereby coming under the 25 ton exemption level set forth in Rule 205(n)(3)(A) of Chapter 2: Air Pollution Regulations which is now delineated in 35 Ill. Adm. Code 215.206). (Rec. 3).

The Agency has indicated that the Petitioner has been engaged in good faith efforts to come into compliance with applicable VOC regulations. The company again consulted with three of its varnish suppliers in November of 1983 in order to acquire acceptable substitute materials for its present varnish. These varnish suppliers stated that they have already investigated the use of 100% solids and are now in the final development stage of substituting such resins for impregnating varnish. (Rec. 3). Additionally, during December, 1983, the Petitioner contacted the Federated Paint Manufacturing Company in order to develop complying paints for its colored coatings. Although this paint supplier has not yet furnished the necessary coatings for production use which are able to meet current VOC emission standards, it is hoped that a suitable coating will be formulated in the near future. (Rec. 4). Thus, the Petitioner anticipates that, although there have been some technical problems encountered in its developmental efforts, the requisite varnish and coatings which can meet applicable standards will be developed and available sometime after December 31, 1984. (R. 11-17).

Jefferson Electric has also examined the possibility of installing various controls to reduce the VOC emission levels. (R. 7-9). However, the installation of such controls at its colored coating operations is not technically or economically feasible because of several emission points to be controlled such as spraybooths, dip tank, bake ovens, and curing ovens. (Rec. 4). On the other hand, the installation of an afterburner at the impregnating varnish operation might be both technically and economically feasible. Nonetheless, the Agency points out that utilization of an afterburner would not put the Petitioner's facility in total compliance "because overcompliance with the use of the afterburner at the varnish line will not be sufficient to offset the excess emissions from the colored coating operation". (Rec. 4). Moreover, the Petitioner's plant is still required to reformulate the colored coatings by about 38% and it would be

"economically unsound to install an afterburner as a temporary relief when compliant varnish and coatings would be available in less than one (1) year". (Rec. 4).

The company's plant is located in an industrial area of Bellwood and the closest residences are located about 1200 feet northeast of the Petitioner's facility. The Agency has received no complaints from the area residents pertaining to Jefferson Electric's variance request or the past operation of the Petitioner's plant. (Rec. 5).

The Petitioner's plant is located in an area which is classified as nonattainment for ozone and the closest ozone monitoring station is located about five miles to the south in North Riverside, Illinois. Ozone levels in excess of the ambient air quality standard of 0.12 parts per million were not exceeded at that monitor during 1983. (Rec. 6).

The Agency has indicated that, in its opinion, the Petitioner's compliance program is a reasonable, cost effective plan that is intended to result in "more than the necessary VOC reductions". (Rec. 5). The Agency has noted that the only means of achieving immediate compliance involves the installation of afterburners. Such afterburners, in addition to being extremely expensive to install, operate, and maintain, also consume vast amounts of sometimes scarce natural gas. (Rec. 5). Additionally, the provisions of Section 215.106 would limit the operation of these afterburners to only seven months a year, so that annual VOC emissions are likely to be greater if afterburners are used to achieve compliance rather than the proposed reformulation, development, and testing program. (Rec. 5). The Board points out that, regarding only ozone caused health effects, it is immaterial if VOC emissions are greater on an annual basis so long as they are reduced during the ozone season. Thus, the Agency believes that the Petitioner's efforts to develop low solvent or no solvent coating technology should be encouraged and feels that Jefferson Electric's variance request is reasonable and provides the necessary time for product testing. (Rec. 5).

The Agency has indicated that it agrees with the Petitioner that a denial of the requested variance would constitute an arbitrary and unreasonable hardship because: (1) Jefferson Electric has been diligently working with its suppliers to reduce its VOC emissions for several years; (2) the company is presently engaging in good faith, diligent efforts to achieve compliance; (3) Jefferson Electric is continually working to increase the transfer efficiencies of its coatings (i.e., the greater the coating transfer efficiency, the lesser the volume of coatings used, thereby resulting in a reduction of VOC emissions); (4) installation of afterburners may not be the most environmentally sound solution in the long run, and would be extremely expensive and wasteful of natural gas; (5) during periods of high ambient ozone levels, the Petitioner's plant would still be subject to

the applicable episode regulations, and (6) when the Board initially adopted the VOC emission limitations in R80-5, it was realized that the regulations were "technology forcing" and it was anticipated that variances for some facilities would be needed. (Rec. 4-5).

Accordingly, the Board finds that denial of variance would impose an arbitrary or unreasonable hardship upon the Petitioner and will grant the requested relief, subject to the conditions delineated in the Order.

Although the Agency recommended that the Board only grant the variance until December 31, 1984, the Board feels that the particular circumstances of this case, especially the technical problems encountered by the company as indicated in the testimony of their engineer at the hearing (see: R. 10-17), sufficiently justify the one year variance period requested by the Petitioner. Additionally, the necessity for obtaining the requisite approvals from various testing agencies (such as Underwriters Laboratories) also may result in unavoidable delays during the development of the solid impregnation material which will replace the presently utilized varnish. Thus, the Board will allow Jefferson Electric until July 19, 1985 to come into compliance. (See: Meyer Steel Drum Inc. v. IEPA, PCB 84-28, Opinion and Order of June 29, 1984).

This Opinion constitutes the Board's findings of fact and conclusions of law in this matter.

ORDER

The Petitioner, the Jefferson Electric Division of Litton Systems, Inc., is hereby granted a variance for its transformer production facility in Bellwood, Illinois until July 19, 1985 from the volatile organic compound emission limitations delineated in 35 Ill. Adm. Code 215.211 and 35 Ill. Adm. Code 215.204(j), subject to the following conditions:

1. The Petitioner shall submit written reports to the Agency by August 24, 1984, and every third month thereafter, detailing all progress made in achieving compliance with Section 215.204(j). Said reports shall include information on the names of replacement coatings and the manufacturer's specifications including per cent solids by volume and weight, per cent VOC by volume and weight, per cent water by volume and weight, density of coating, and recommended operating parameters; detailed description of each test conducted including test protocol, number of runs, and complete original test results; the quantities and VOC content of all coatings utilized during the reporting period; the quantity of VOC reduction during the reporting period; and any other information which may be requested by the Agency. The reports shall be sent to the following addresses:

Environmental Protection Agency
Division of Air Pollution Control
Manager, Permit Section
2200 Churchill Road
Springfield, Illinois 62706

Environmental Protection Agency
Division of Air Pollution Control
Region 1, Field Operations Section
1701 South First Avenue
Suite 600
Maywood, Illinois 60153

2. The Petitioner shall apply to the Agency for any required operating permits by August 24, 1984 pursuant to Section 201.160(a).

3. Within 45 days of the date of this Order, the Petitioner shall execute and forward to the Illinois Environmental Protection Agency, Division of Air Pollution Control, Compliance Assurance Section, 2200 Churchill Road, Springfield, Illinois 62706, a Certificate of Acceptance and Agreement to be bound to all terms and conditions of this variance. This 45-day period shall be held in abeyance for any period this matter is being appealed. The form of the certificate shall be as follows:

CERTIFICATE

I, (We), _____, having read the Order of the Illinois Pollution Control Board in PCB 84-30 dated July 19, 1984, understand and accept the said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

Jefferson Electric Division,
Litton Systems, Inc.

By: Authorized Agent

Title

Date

IT IS SO ORDERED.

B. Forcade concurred.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 19th day of July, 1984 by a vote of 6-0.

Dorothy M. Gunn
Dorothy M. Gunn, Clerk
Illinois Pollution Control Board