

ILLINOIS POLLUTION CONTROL BOARD
September 21, 1995

THE DOW CHEMICAL COMPANY,)
)
 Petitioner,)
)
 v.) PCB 94-370
) (Variance-Air)
ILLINOIS ENVIRONMENTAL)
PROTECTION AGENCY,)
)
 Respondent.)

OPINION AND ORDER OF THE BOARD (by M. McFawn):

On December 2, 1994, The Dow Chemical Company (Dow) filed a petition for an air variance regarding its manufacturing facility, located in Channahon, Will County (the site). Dow seeks a variance from the requirements of 35 Ill. Adm. Code 218.120, 218.127, 218.128, and 218.129 as they apply to a fixed-roof storage tank containing trichloroethylene (TCE).

The Illinois Environmental Protection Agency (Agency) filed its recommendation in this matter on February 1, 1995, recommending that the variance be granted, subject to certain conditions. A hearing was held in Springfield, Illinois before Chief Hearing Officer Michael Wallace on June 1, 1995. No post-hearing briefs were filed.

Because we find that immediate compliance with these regulations would impose an arbitrary and unreasonable hardship upon Dow, we grant the requested variance.

BACKGROUND

Dow is a Delaware corporation, registered to do business in Illinois. Dow owns and operates a manufacturing facility, located on an 860-acre site on the Des Plaines River, near the intersection of Arsenal Road and Interstate 55, in the town of Channahon, Will County, approximately 10 miles south of Joliet. There are four plants at the site: 1) a polystyrene production plant; 2) an extruded polystyrene foam production plant; 3) a vinyl ester resin production plant; and 4) a marine distribution terminal. (Pet. at 2.)

The site employs 130 full time Dow employees as well as numerous contract personnel. (Pet. at 2.) It has been in operation since the mid-1970s, and has undergone several expansions since that time. The site is located in the Chicago Ozone Non-Attainment Area, and emissions from certain storage tanks at its facility are therefore subject to the requirements

of 35 Ill. Adm. Code Subpart B, Organic Emissions from Storage and Loading Operations, which became effective November 15, 1994.

STATUTORY FRAMEWORK

In determining whether any variance is to be granted, the Act requires the Board to determine whether a petitioner has presented adequate proof that immediate compliance with the Board regulation at issue would pose an arbitrary or unreasonable hardship. (415 ILCS 5/35(a) (1994).) Furthermore, the burden is on petitioner to show that its claimed hardship outweighs the public interest in attaining compliance with regulations designed to protect the public. (Willowbrook Motel v. Pollution Control Board (1st Dist. 1977), 135 Ill.App.3d 343, 481 N.E.2d 1032). Only with such showing can the claimed hardship rise to the level of arbitrary or unreasonable hardship. (We Shred It, Inc. v. Illinois Environmental Protection Agency (November 18, 1993) PCB 92-180 at 3.)

A further feature of a variance is that it is, by its nature, a temporary reprieve from compliance with the Board's regulations, and compliance is to be sought regardless of the hardship which the task of eventual compliance presents an individual polluter. (Monsanto Co. v. Pollution Control Board (1977), 67 Ill.2d 276, 367 N.E.2d 684.) Accordingly, except in certain special circumstances, a variance petitioner is required as a condition to the grant of a variance, to commit to a plan which is reasonably calculated to achieve compliance within the term of the variance.

REGULATION OF GENERAL APPLICABILITY

The regulations from which Dow seeks relief were adopted by the Board in docket R94-16, entitled "In the Matter of: 15% ROP Plan Control Measures for VOM Emissions - Part III: Air Oxidation and Organic Emissions from Storage and Loading Operations: Amendments to 35 Ill. Adm. Code 211, 218, and 219." These regulations implement part of the State's plan to achieve a 15% reduction from 1990 levels in VOM emissions in the Chicago and Metro-East ozone non-attainment areas as mandated by the Clean Air Act (CAA) (42 U.S.C. 7401 et seq.), known as the 15% Rate of Progress (ROP) Plan. The regulations adopted to implement the ROP must be submitted to the United States Environmental Protection Agency (USEPA) as modifications to the State Implementation Plan (SIP).

Dow filed its variance application within 20 days of the effective date of these regulations. Therefore, pursuant to Section 38 of the Act, the effect of these rules is stayed as to Dow pending the Board's disposition of this variance petition. (35 ILCS 5/38 (1994).)

Section 218.120 of the adopted regulations establishes control requirements for storage containers with a capacity of 40,000 gallons or greater which store volatile organic liquids (VOL) with a maximum vapor pressure equal to 0.75 pounds per square inch absolute (psia) but less than 11.1 psia. (35 Ill. Adm. Code 218.120(a).) In order to comply with the requirements of Section 218.120, Dow would be required to equip tank V-510, which currently contains the TCE, with an internal floating roof that meets certain specified requirements, or a closed vent system and control device that meets certain specified requirements. The remaining regulations from which Dow seeks relief establish additional requirements for subject tanks: Section 218.127 establishes testing requirements; Section 218.128 establishes monitoring requirements; and Section 218.129 establishes recordkeeping and reporting requirements.

REQUESTED RELIEF AND HARDSHIP

Relief Sought.

Dow seeks relief from the requirements of Sections 218.120, 218.127, 218.128. and 218.129 as they apply to an atmospheric fixed-roof storage tank currently in use at its manufacturing facility, identified in its air operating permit as storage tank V-510. (Pet. at 3.) Dow currently uses this tank, which has a capacity of more than 40,000 gallons, to store trichloroethylene (TCE), a volatile organic liquid with a true vapor pressure of 1.2 psia. Storage of TCE in this tank is thus subject to the requirements of Part 218 Subpart B.

Dow currently unloads railcars of TCE into storage tank V-510. The TCE is then loaded out of this tank into tank trucks for delivery to the point of use of the chemical. The tank truck loading operation is equipped with a vapor balance system, which recovers displaced vapors from the tank truck and returns them to the vapor space of the storage tank. VOM emissions from the tank and loading system are estimated to be approximately 2,400 pounds per year (lbs/yr.). (Pet. at 7.)

Dow has three other tanks at the site, identified in its air permit as storage tanks V-420, V-425, and V-440, in which it stores 1,1,1-trichloroethane, a chlorinated solvent. Emissions from these three tanks are vented to a condenser designed to reduce emissions by 90 percent or greater. Pursuant to the Montreal Protocol on Substances That Deplete the Ozone Layer, Section 604 of the CAA (42 U.S.C. 7671c), and implementing regulations found at 40 C.F.R. Part 82, 1,1,1-trichloroethane may not be manufactured after 1995. (Pet. at 4.) Therefore, these three tanks will no longer be used to store 1,1,1-trichloroethane after early to mid-1996. (Pet. at 4.)

Storage tanks V-420, V-425, and V-440 meet the control requirements specified in 35 Ill. Adm. Code 218.120(c), which requires the implementation of a closed-vent system which will collect all VOM vapors discharged from the tank and a control device designed to reduce inlet VOM emissions by 90 percent or greater. (35 Ill. Adm. Code 218.120(c).) Because these tanks will no longer be used to store 1,1,1-trichloroethane, Dow proposes to use one of these tanks to store the TCE. At hearing, Dow specified that it has identified tank V-440 as the tank to which it will transfer the TCE. (Tr. at 14.)

Dow states that transferring the TCE to a compliant tank would reduce annual emissions to approximately 240 lbs/yr., at minimal cost. Because the compliant tanks are equipped with a closed-vent system which collects all VOM vapors discharged from the tank, and a control device designed and operated to reduce inlet VOM emissions by 90 percent or greater, working and breathing emissions would be reduced by approximately ninety percent. Additionally, the vapor balance system on the tank truck loading system could be maintained. Overall, emissions from the storage and loading of TCE would be reduced from 2,400 to 240 lbs/yr. Dow asserts that this is the most cost effective compliance option. Dow also emphasizes that this option will not have the effect of transferring pollution from one medium to another.

Dow states that it will be necessary to take the compliant storage tank V-440 out of service for a brief period of time after removing the 1,1,1-trichloroethane in order to clean the tank and prepare it for storing the TCE. In its petition, Dow states that it cannot complete the process of transferring the TCE to one of the controlled tanks by the March 15, 1996 deadline for compliance with the Subpart B requirements.

Therefore, Dow seeks relief from the requirements of Subpart B until such time as it ceases management of the 1,1,1-trichloroethane, completes the cleaning of one of the controlled tanks, and accomplishes the transfer of the TCE to one of the controlled tanks. (Pet. at 5.) In its variance petition, Dow originally requested that the variance extend until March 15, 1997, or until it has completed the transfer of the TCE, whichever comes first. However, at hearing, Dow stated that it now only seeks a variance until December 31, 1996, or until Dow has completed the transfer of TCE, whichever comes first. This plan is in accordance with the recommendation of the Agency. (Tr. at 8, 15.)

Compliance Options.

Dow investigated three types of measures as alternative means of achieving compliance with the requirements of 218.120. These measures can be grouped into three categories: 1)

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installation of a floating roof; 2) installation of an emissions control device; and 3) installation of control measures on its railcar loading operations.

Dow estimates that installing an internal floating roof on storage tank V-510 would cost between \$60,000 and \$100,000. However, while the floating roof would control the breathing and working losses from the storage tank, Dow asserts that it could not continue operating the vapor balance line which controls emissions from the truck loading operation in conjunction with the floating roof, because vapor balance does not work with floating roofs. Loss of the vapor balance system would result in emissions of approximately 800 lbs/yr. Thus, there would therefore only be a net decrease in emissions of sixty-seven percent for the overall system. (Pet. at 8.)

Dow investigated the installation of four different types of emissions control devices on tank V-510. First, Dow investigated installation of a "pressure swing" adsorption unit known as a Sorbathene unit, which is manufactured by another division of Dow. Installation of this unit would cost approximately \$500,000.

Second, Dow investigated the installation of a "temperature swing" unit called a Purus A2000, which is capable of controlling TCE emissions. Dow states that this unit would cost approximately \$130,000. However, Dow asserts that it is questionable whether this device would work on its tank, since the concentrations of TCE at its tank would be much greater than the 80 ppm described in the company literature concerning this control device.

Third, Dow investigated the installation of an incinerator as a control device. Dow states that the incinerator would have to be a thermal oxidizer with heat recovery, followed by a series of scrubbers for recovery of hydrogen chloride emissions. This would produce an aqueous acid waste. Dow characterizes this as a transference of pollution to a medium more difficult and expensive to treat. The site is not currently equipped to handle such a wastestream, and would therefore be required to construct a wastewater treatment facility to handle this waste. Dow has not estimated the actual cost of constructing such a facility, although it states it would be very expensive. (Pet. at 9.)

Fourth, Dow investigated installing a flare as a control device. However, operation of a flare would result in the formation of hydrogen chloride gas, and Dow states that it considers this an unacceptable transference of pollution.

Finally, Dow investigated the option of installing a vapor balance system on its railcar loading activity as an alternative to transferring the TCE to a compliant tank. Dow states that

this would cost approximately \$20,000. However, Dow states that the emissions reduction would only amount to 1,200 to 1,300 lbs/yr., which would be far fewer than those gained by transferring the TCE to a compliant tank. (Pet. at 9.) Additionally, the installation of these controls would not satisfy the requirements of the regulations, and Dow would therefore still need to obtain an adjusted standard from the Board in order to be in compliance.

Hardship.

Dow asserts that immediate compliance with the regulations at issues would impose an arbitrary and unreasonable hardship on Dow. Dow asserts that requiring it to spend \$60,000 to \$100,000 on an internal floating roof or \$130,000 to \$500,000 on a pressure swing or temperature swing adsorption device, or requiring the installation of vapor controls on the railcar loading activity would result in an arbitrary and unreasonable hardship which outweighs the public interest in attaining immediate compliance with the applicable regulations. Dow emphasizes that there will be no increase in emissions during the life of the variance, and that it will achieve compliance by the onset of the 1997 ozone season. Furthermore, Dow emphasizes that under its proposed option, the voluntary emissions control on the loading operations can remain in place. Dow states that its proposed compliance option will result in the greatest permanent overall reduction in VOM emissions.

CONSISTENCY WITH FEDERAL LAW

Dow asserts that the proposed variance can be granted consistent with federal law. The requirements of Section 110(a) of the CAA and 40 C.F.R. 51 have been satisfied by the hearing held in this matter. Furthermore, Dow is requesting that Agency submit the variance to the USEPA as a SIP revision after the SIP is approved.

ENVIRONMENTAL IMPACT

Dow states that emissions from tank V-510, where it is currently storing TCE, are estimated to be 1.2 tons per year. Dow asserts that these emissions will not be increased during the term of the variance, and that the environmental impact will therefore be no different from its current status. Dow has agreed to accomplish the transfer of the TCE to a compliant tank before the end of 1996, so the reductions achieved can be credited towards the 15 percent ROP Plan.

Dow also asserts that it has voluntarily instituted measures to reduce emissions at the site. Dow cites as examples its installation of controls at its marine distribution terminal, including vapor recovery systems for tank truck loading, in the

early 1980's, and its conversion from a blowing agent containing chlorofluorocarbons to one containing hydrochlorofluorocarbons at the polystyrene foam production plant. Dow asserts that these measures significantly reduced the emission levels of contaminants. (Pet. at 7.)

AGENCY RECOMMENDATION

The Agency filed its recommendation in this matter on February 1, 1995, recommending that the variance be granted, subject to certain conditions. The Agency states that granting the requested variance will not increase the likelihood of an air quality exceedence, and agrees that transferring the TCE to a complying tank is the preferred compliance option, since it will achieve the greatest reduction in emissions, with the least transference of pollution, at the lowest cost. (Ag. Rec. at 4.) The Agency also believes that the variance would be approvable as a SIP revision, if the underlying regulations are approved by USEPA prior to the expiration of the variance.

As a condition to grant of the variance, the Agency recommends limiting the term of the variance until December 31, 1996. Pursuant to Section 182(b) of the CAA (42 U.S.C. 7511a(b)), Illinois must demonstrate to USEPA that it has achieved a 15 percent reduction in VOM by the end of 1996. The reductions in VOM emissions which will be achieved by Dow's compliance can only be credited toward the mandated 15 percent reduction if they are achieved within this timeframe. The Agency also recommends that Dow be required to notify the Agency when any of tanks V-420, V-425, or V-440 has been emptied of 1,1,1-trichloroethane and cleaned, and again notify the Agency when the transfer of TCE has been completed, and the number of the tank in which the TCE is stored.

We find that the conditions recommended by the Agency are reasonable, and we therefore will include them as terms of the variance.

CONCLUSION

The Board finds that Dow has demonstrated that immediate compliance with the requirements of 35 Ill. Adm. Code 218.120, 218.127, 218.128, and 218.129 would constitute an arbitrary and unreasonable hardship. Both Dow and the Agency agree that granting of the requested variance will not increase the likelihood of an air quality exceedence. Furthermore, the State will be able to include the emission reductions achieved by Dow's compliance at the expiration of the variance for purposes of the 15 Percent ROP Plan. Dow has demonstrated that transferring the TCE to one of its compliant tanks will achieve the greatest reduction in emissions, with the least transference of pollution, at the lowest cost. The Board therefore grants the requested

variance, as recommended by the Agency, subject to the conditions contained in the order below.

ORDER

Dow Chemical Company is hereby granted a variance from the requirements of 35 Ill. Adm. Code 218.120, 218.127, 218.128, and 218.129 as they apply to the storage of trichloroethylene (TCE) in storage tank V-510 at its facility located near the intersection of Arsenal Road and Interstate 55 in the town of Channahon, Will County, Illinois, subject to the following conditions:

1. The variance expires on December 31, 1996, or when Dow has completed the transfer of TCE from storage tank V-510 into tank V-440, V-420, or V-425, whichever occurs first;
2. Dow shall notify the Agency when tank V-440 has been emptied of 1,1,1-trichloroethane and cleaned, or, if either tank V-420 or V-425 is designated to receive the TCE, when such tank has been emptied and cleaned;
3. Dow shall also notify the Agency when the transfer of TCE to the tank specified in number 2 above has been completed, and shall provide the Agency with the number of such tank. Such notice shall be sent to:

Mr. Dan Punzak
Permit Section
Division of Air Pollution Control
P.O. Box 19276
Springfield, Illinois 62794-9276

IT IS SO ORDERED.

If Dow chooses to accept this variance subject to the above order, within 45 days of the date of this order, an officer of Dow properly authorized to bind Dow to all the terms and conditions of the variance, shall execute and forward the attached Certificate of Acceptance and Agreement to:

Rachel L. Doctors
Division of Legal Counsel
Illinois Environmental Protection Agency
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

Once executed and received, the Certificate of Acceptance and Agreement shall bind petitioner to all the terms and conditions of this variance. The 45-day period shall be held in abeyance during any period that this matter is being appealed.

Failure to execute and forward the Certificate within the 45 days renders this variance void. The form of said Certification shall be as follows:

CERTIFICATION

I (We), _____, hereby accept and agree to be bound by all terms and conditions of the order of the Pollution Control Board in PCB 94-370, September 21, 1995.

Petitioner

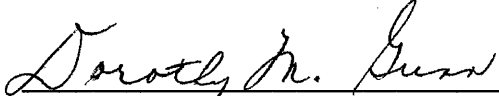
Authorized Agent

Title

Date

Section 41 of the Environmental Protection Act (415 ILCS 5/41 (1994) provides for the appeal of final Board orders within 35 days of the date of service of this order. The Rules of the Supreme Court of Illinois establish filing requirements. (See also 35 Ill. Adm. Code 101.246, Motions for Reconsideration.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 21st day of September, 1995, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board