ILLINOIS POLLUTION CONTROL BOARD
June 8, 1989

AKZO CHEMICALS, INC.,	)	
	)	
Petitioner,	)	
	)	
v.	)	PCB 89-34
	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
	)	
Respondent.	)	

MESSRS. DANIEL F. O'CONNELL AND BRIAN A. BOSCH OF GARDNER, CARTON & DOUGLAS, APPEARED ON BEHALF OF PETITIONER;

MR. JOSEPH R. PODLEWSKI, JR., APPEARED ON BEHALF OF RESPONDENT.

OPINION AND ORDER OF THE BOARD (by R. C. Flemal):

This matter comes before the Board upon a Petition for Variance filed February 16, 1989 by Akzo Chemicals, Inc. ("Akzo"). Akzo requests variance until March 15, 1990 from the requirements of 35 Ill. Adm. Code 215 Subpart RR (35 Ill. Adm. Code 215.960-215.966), the Miscellaneous Organic Chemical Manufacturing Rules ("Generic Rules"). In general, Section 215.966 of the Generic Rules requires affected sources to achieve an overall reduction in uncontrolled volatile organic material ("VOM") emissions of at least 81%, and that such reduction be achieved by April 1, 1989.

On March 30, 1989 the Illinois Environmental Protection Agency ("Agency") filed a recommendation that the requested relief be granted subject to conditions. On April 6, 1989 Akzo filed a response to the recommendation[1]. Hearing was held on April 25, 1989 in Chicago. No members of the public were present.

BACKGROUND

Akzo operates a chemical manufacturing plant located in McCook, Cook County, Illinois; the facility employs approximately 130 people. Among the many chemical products manufactured at this facility is Arquad, a trade name for Akzo's long chain

[1] In its response, Azko objected to one of the Agency's recommended conditions. This objection was later withdrawn at hearing (R. at 14).

quaternary ammonium salts[2], which is an active ingredient in liquid fabric softeners and other related products (R. at 22). Akzo operates two reactors for the manufacture of Arquad. In general, the production of Arquad consists of placing amines in a reactor with a solvent (usually either isopropyl alcohol or ethanol, collectively, "IPA"), then adding bicarbonated soda, heat, and methyl chloride. When the amines are converted to the quaternary salt, the reactor is cooled and the material is transferred to a storage tank where nitrogen gas is passed through the product to strip methyl chloride. Gas collects in the head space of the storage tank and is vented to the atmosphere. During this stripping process (called sparging), IPA, also attaches itself to the nitrogen and is ultimately vented to the atmosphere as a VOM. The product is then filtered and prepared for shipment. For certain types of quads, IPA is again added to the product according to customer specifications (R. at 33-41).

Akzo estimates that its production of Arquad results in the emission of approximately 350 tons of IPA per year. Akzo states that production and emissions levels are steady throughout the year and Akzo does not anticipate any significant future changes in production (Pet. at 4, R. at 42).

Prior to April 7, 1988, Akzo's VOM emissions generated by the production of Arquad were not regulated under any specific RACT rules. However, on April 7, 1988 the Board adopted regulations governing VOM emissions from miscellaneous organic chemical manufacturing processes located in ozone non-attainment areas (In re: Organic Emission Generic Rule 35 Ill. Adm. Code 215, Subpart RR, R86-16). Under Subpart RR, miscellaneous organic chemical manufacturing processes (as defined in Section 211.122) which are located in ozone non-attainment areas and emit 100 tons or more of VOM annually are required to achieve compliance with RACT by April 1, 1989 (35 Ill. Adm. Code 215.966(b)). For sources subject to Subpart RR, RACT is either an emission capture and control technique which achieves an overall reduction in uncontrolled VOM emissions of 81% (35 Ill. Adm. Code 215.966(a)(1)), or an adjusted RACT standard under Subpart I. The Subpart RR regulations became effective April 8, 1988.

Akzo's production of Arquad is classified as a miscellaneous chemical manufacturing process under Section 211.122. Since the Akzo facility is located in an ozone non-attainment area and emits more than 100 tons of VOM anually, Akzo is subject to the VOM emissions limitations and compliance date of 35 Ill. Adm. Code 215.966.

[2] The quaternary ammonium salts are also referred to in the record as "quads".

COMPLIANCE PLAN

Akzo states that it will not be able to comply with Section 215.966 by April 1, 1989 and requests variance through March 15, 1990 to allow it time to install and test its proposed recovery system, described below.

Akzo proposes to comply with Section 215.966 by installing an IPA recovery system which will achieve approximately 84% reduction of emissions (R. at 87-8, 100). The system consists of installation of condensers on each of the two reactors. Vent gasses would be piped through the condensers where cooling water will be used to condense IPA. Recovered IPA will be recycled for use in the final product. Any uncondensed IPA and methyl chloride will be vented to the atmosphere (R. at 83-87).

Akzo plans to achieve compliance according to the following compliance schedule which was revised (regarding certain internal dates only) at hearing:

1.	Generic Rules Approved by the Board.	April 7, 1988
2.	On-going discussions re: Scope of Recovery System.	May-September 1988
3.	Meeting re: Scope of Recovery System, Alternative Designs and Economic Concern.	October 19, 1988
4.	Contacted Illinois Environmental Protection Agency re: procedure for requesting a variance.	October 21, 1988
5.	Meeting re: Revise project design.	November 22, 1988
6.	Completed preliminary projects schedule.	December 8, 1988
7.	Completed equipment specifications.	December 12, 1988
8.	Received approval for preliminary funding.	December 23, 1988
9.	Considered modifications to proposed Recovery System.	January-February, 1989
10.	Decision on final modification of Recovery System.	March 15, 1989
11.	Issued purchase orders for Camp Monel condensors.	Mid-March, 1989
12.	Submitted Appropriation Request to Akzo Executive Committee.	March 31, 1989

13. Executive Committee approval of Appropriation Request.	April 18, 1989
14. Filed application for Construction Permit.	May 1, 1989
15. Complete detailed Engineering Design.	May 26, 1989
16. Award Construction Contracts.	June 5, 1989[3]
17. Begin on-site delivery of equipment.	July 15, 1989
18. Receive IEPA Construction Permit.	August 1, 1989
19. Begin on-site construction.	August 1, 1989
20. Construction and installation of Recovery System.	August-November, 1989
21. Complete construction and begin Initial Test Prints.	December 1, 1989
22. Complete debugging and production shakedown.	December 30, 1989
23. Release system for production.	December 31, 1989

(Pet. Exh. 4)

Although the schedule states that the system would be released for production by December 31, 1989, Akzo contends that it needs until March 31, 1990 to account for "possible delays, equipment manufacture and delivery, installation and debugging problems, and complications due to weather or other unforeseen circumstances" beyond Akzo's control (Pet. Exh. 4, Pet. at 9).

As stated in its recommendation, the Agency finds Akzo's schedule acceptable. The Agency explains that:

> because Akzo's variance will not expire until March 15, 1990, Akzo has sufficient time in which to make a compliance demonstration and to obtain an operating permit from the [Agency] for the IPA recovery system prior to the expiration of the variance. (Rec. at 11).

[3] For dates that are now in the past, Akzo did not indicate that these dates were not in fact met.

HARDSHIP

Akzo claims that immediate compliance or compliance at a time sooner than March 15, 1990 would impose an arbitrary and unreasonable hardship upon Akzo. Akzo has presented a number of other compliance options which it has considered and rejected due to either economic or technical difficulties which would result through use of any of these options. Briefly, these include:

1) Catalytic or thermal incineration. Akzo states that these options would be more expensive to install and less expensive to operate than the proposed system. Additionally, these options would not allow for any recovery of IPA for reuse.

2) Carbon absorption. Akzo states that a carbon absorption system would be efficient for more dilute gasses. Here, the initial concentration of IPA would be greater than a carbon absorption system would efficiently handle.

3) Water scrubber. Akzo states that this type of system has two disadvantages in that it would allow for no recovery of IPA and would trade an air pollution problem for a water pollution problem. (R. at 96-97)

In addition to the options outlined above, Akzo considered moving production, altering the production process, or shutting down the Arquad production lines pending installation of the recovery system. Akzo claims these options would result in increased costs or other economic hardship including loss of customers and layoff of as many as seventeen employees. Mr. Robert Brandolino, plant manager, testified that any shut down of the Arquad production lines at McCook could have a similar negative effect on Akzo's Morris, Illinois plant, since that plant provides feed stock for the McCook plant production. Mr. Brandolino also stated that Arquad cannot be stored in high volume due to product shelf life and customer specifications including delivery dates (R. at 55-61).

In its recommendation, the Agency states that:

> The Agency agrees with Akzo that compliance with the VOM emission limitation of section 215.966(a) by April 1, 1989 will create an unreasonable hardship. Akzo, despite its diligent efforts, cannot realistically install and operate a VOM control system by April 1, 1989. (Rec. at 8)

The Agency further states that the requested relief can be granted consistent with federal law (Rec. at 7).

ENVIRONMENTAL IMPACT

As noted earlier, Akzo is located in a non-attainment area for ozone. The two ozone monitors located closest to the Akzo facility are in Cicero and Lemont. At least one ozone exceedence was reported at each monitor in 1987 and two ozone exceedences were reported at the Cicero monitor in 1988 (Rec. at 6).

Akzo claims that the VOM emissions from its Arquad production processes will have no significant adverse impact on human, plant, or animal life during the term of the variance. Akzo estimates that its plant contributes .058 percent of the total VOM load of 600,000 tons per year in the Chicago area (Pet. at 10).

However, the Agency believes that "Akzo's contribution to the ozone non-attainment status of the Chicago metropolitan area cannot be so easily quantified." The Agency states that Akzo, as a major source of VOM, does contribute to an unquantified degree to violations of the ozone AAQS in northern Illinois (Rec. at 4).

Nevertheless, the Agency does note that by the end of the requested variance period, Akzo's annual VOM emissions from the Arquad production processes should be in the vicinity of 66.5 tons reduced from 350 tons annually. The Agency further notes that during the course of the variance, as stated in its petition, Akzo will employ reasonable efforts to minimize VOM emissions to the greatest extent possible (Rec. at 6, Pet. at 15).

CONCLUSION

Based on the facts in this record, the Board finds that Akzo has presented adequate proof that immediate compliance or compliance at a time sooner than March 15, 1990 would impose an arbitrary or unreasonable hardship upon Akzo. The Board finds that Akzo is committed to achieve compliance by the installation of an IPA recovery system, and further finds the schedule to achieve compliance is acceptable. However, should Akzo be able to achieve compliance sooner than March 15, 1990, the variance will expire at that time. The Board also agrees with the parties that minimal environmental impact will occur, given that compliance is timely forthcoming. Accordingly, the variance will be granted subject to conditions consistent with this Opinion and the Illinois Environmental Protection Act.

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

ORDER

Akzo Chemicals, Inc. is hereby granted variance from 35 Ill. Adm. Code 215, Subpart RR (35 Ill. Adm. Code 215.960-215.966) for its facility located in McCook, Illinois, subject to the following conditions:

1. Variance expires on March 15, 1990, or when compliance with 35 Ill. Adm. Code 215, Subpart RR is achieved, whichever occurs first.

2. During the term of this variance, Akzo shall submit quarterly written reports to the Agency detailing all progress made in achieving compliance with 35 Ill. Adm. Code 215, Subpart RR at its plant located at 8401 W. 47th St., McCook, Illinois. The first quarterly report will be due thirty (30) days from the date of the Board order granting the variance. These quarterly reports shall include monthly VOM emission data from Arquad production. All of the above information shall be submitted to the Agency at the following addresses:

   1) Manager, Permit Section
   Division of Air Pollution Control
   1340 N. Ninth Street
   Springfield, Illinois 62701

   2) Manager, Field Operations Section
   Division of Air Pollution Control
   Illinois Environmental Protection Agency
   1701 S. First Avenue, Suite 600
   Maywood, Illinois 60153

3. Petitioner shall give thirty (30) days notice prior to the expected date of any compliance demonstration to the Agency's regional office and Emission Source Specialist at the address provided in Condition 2(2). The Agency's Emission Source Specialist shall be further notified within a minimum of five (5) working days of the exact date, time, and place of these compliance demonstrations, to enble the Agency to witness these compliance demonstrations.

4. Within 45 days of the date of this Order, Petitioner shall execute and forward to Mr. Joseph R. Podlewski, Jr., Enforcement Attorney, Illinois Environmental Protection Agency, 1701 S. First Avenue, Suite 600, Maywood, Illinois 60153, a Certification of Acceptance and Agreement to be bound to all 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 45 days renders this variance void and of no force and effect as a shield against enforcement of rules from which variance was granted. 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 Opinion and Order of the Pollution Control Board in PCB 89-34, June 8, 1989.

_____
Petitioner

_____
Authorized Agent

_____
Title

_____
Date

Section 41 of the Environmental Protection Act, Ill. Rev. Stat. 1987 ch. 111½ par. 1041, provides for appeal of final Orders of the Board within 35 days. The Rules of the Supreme Court of Illinois establish filing requirements.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 8th day of June, 1989, by a vote of 6-0.

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