ILLINOIS POLLUTION CONTROL BOARD
May 29, 1984

MODINE MANUFACTURING COMPANY, Petitioner,	)	
v.	)	PCB 82-111
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	

MR. ROY HARSCH OF MARTIN, CRAIG, CHESTER & SONNENSCHEIN APPEARED ON BEHALF OF PETITIONER;

MR. DAVID RIESER APPEARED ON BEHALF OF THE RESPONDENT.

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

This matter comes before the Board upon a September 13, 1982 petition for variance filed by Modine Manufacturing Company (Modine) requesting relief from 35 Ill. Adm. Code 302.212 and 304.105 ammonia nitrogen and un-ionized ammonia water quality standards (WQS); Section 304.120(c) biochemical oxygen demand (BOD_5) and total suspended solids (TSS) effluent standards. Additionally; Modine requests a three lagoon exemption from the deoxygenating waste standards pursuant to Section 304.120(c). The Illinois Environmental Protection Agency (Agency) filed its recommendation to deny the requested variance. Hearings were held in Cary, Illinois on July 6, 7 and October 20, 1983.

HISTORY

The subject matter of this proceeding is one decade old. Modine originally wanted to model its wastewater treatment system after its sister plant in Clinton, Tennessee. The proposed recirculation system would meet neither the primary nor the secondary WQS for total dissolved solids (TDS) (R 54, 55).[1] Modine needed relief to meet the secondary WQS and a variance from the TDS standard.[2] If the recirculation system were used,

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[1] Transcripts of the record in PCB 82-111 are denoted as R. Reference to "Chapter 2 Effluent Standard" should be secondary WQS.

[2] Zinc and fluoride discussion will be limited as the standards are currently being met.

Modine would meet the effluent standards for zinc, BOD_5 and ammonia nitrogen (R 57).

The first proceeding that will be mentioned is PCB 74-14, (13 PCB 15, 1974). A variance was granted from the zinc effluent limitations. The unnamed ditch was reclassified from primary to secondary contact water. The Agency filed a motion for rehearing which was granted. Upon reconsideration the Board modified the variance to include fluoride and TDS but reversed its prior reclassification. 14 PCB 169 (1974).[3] Meanwhile, because of the less than 1 year variance, Modine began to construct the recirculation system and applied to the Agency for the construction permit concurrently (R55). Based on the Board's reversal of the reclassification of the stream, the Agency denied the construction permit. Modine had already finished construction of the system (R 130). Modine appealed the Board's Order and the appellate court upheld the Order. Modine Manufacturing Co. v. Pollution Control Board, 40 Ill. App. 3d 498, 351 N.E. 2d 875 (2d Dist. 1976).

During the above appeals, Modine added improvements to the present wastewater treatment system, all without the benefit of the recirculation system (R57). R79-8 was filed to have the Board redesignate the stream as secondary contact waster and PCB 79-112 was filed to obtain a variance from the BOD_5 effluent standard (R62). After filing, a corporate decision was made not to expend funds for pollution control (R42). Modine withdrew from the R79-8 proceeding (R70). 46 PCB 247 (1982). After four hearings were cancelled in PCB 79-112 and after numerious motions to dismiss by the Agency, the Board finally dismissed the proceeding, stating that Modine had misused the variance process and that compliance plans were to be ready before filing the variance petition. 47 PCB 519, 520 (1982). The variance proceeding herein, PCB 82-111, was filed approximately 1 month later.

FACTS

The Modine plant is in Ringwood, Illinois where air conditioning condensers and evaporators are fabricated. There is only one similar plant in the United States that uses this type of manufacturing process--a sister plant in Clinton, Tennessee (R52). Modine's manufacturing process is patented (Petition at 2). Its own well water is used and recycled in this process which results in a dicharge of 229,000 gallons per day (R51). Discharge is to a 3-stage lagoon treatment system. The wastewater is chlorinated and discharged from the final lagoon into an unmaned ditch which flows into Dutch Creek, a tributary of the Fox River. Orders for Modine's products declined drastically during the recession and the company considered closing the Ringwood plant.

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[3]Note: mistake in order at 14 PCB 183; zinc variance until July 15, 1975, not 1974.

PRELIMINARY ISSUES

Three preliminary issues will be disposed of initially. They relate to the following: a 3-lagoon exemption, petitioner's request that the Board regulations be made inapplicable to its discharge, and that these regulations are arbitrary, capricious and unreasonable as applied to petitioner.

Modine requests relief from the deoxygenating waste standards of 35 Ill. Adm. Code 304.120(c) and requests a 3-lagoon exemption under that Section. The Agency states that petitioner has not submitted a request for a 3-lagoon exemption to the Agency as required by Technical Policy WPC-1, Rules 404(C) and (F) of Chapter 3 (Agency Brief at 17). Therefore, Modine's request for a 3-lagoon exemption is denied. Even with an exemption, Modine would not have been in compliance with BOD_5 (See Modine Exh. 19. Table 12).

Modine also requests in this variance proceeding that the Board declare the regulations in question not applicable to its discharge. The Agency argues that this would result in a permanent variance.

The Environmental Protection Act sets up a dual system of either variance or site-specific relief. A temporary reprieve from compliance may be allowed in a variance proceeding, but no longer than 5 years. Ill. Rev. Stat. 1983, ch. 111½, par. 1036. When the temporary reprieve would not help meet compliance and permanent relief is desired, the proper proceeding is a site-specific proceedings. Id. at pars. 1027, 1028. There is no need to mix and match these separate systems. Petitioner cites Monsanto Co. v. PCB, 67 Ill. 2d 276, 367 N.E. 2d 684 (1977) in support of its supposition. In fact, the Illinois Supreme Court stated otherwise:

> The concept of a variance which permanently liberates a polluter from the dictates of a board regulation is wholly inconsistent with the purposes of the Environmental Protection Act. Id. at 688.

Additonally, petitioner would like the Board to construe its regulations as arbitrary, capricious and unreasonable as to its plant (Modine Reply Brief at 17), citing Village of Cary v. PCB, 82 Ill. App. 3d 793, 403 N.E. 2d 83 (2d Dist. 1980). The Cary court held that this issue when raised in a variance proceeding is to be considered by the Board in that proceeding. The evidence supporting the regulation should be made a part of the record. Id. at 15. This issue was neither raised in the pleadings nor at the hearing as claimed (Modine Reply Brief at 17). The issues that have been raised throughout are whether the regulations are applicable to Modine's discharge (Modine Reply Brief at 16; 540-5) and whether the Board can grant site-specific relief in a variance proceeding. These latter two issues have

been discussed above. The issue of the Board regulations being arbitrary, capricious and unreasonable as to Modine in the Cary context is not before the Board.

DISCUSSION

As in any variance proceeding the burden of proof is on the petitioner to show that compliance with the Board's rules and regulations would impose an arbitrary or unreasonable hardship Ill. Rev. Stat. 1983, ch. 111½, par. 1035. As part of this burden, the petitioner must assess the economic and technical feasibility of its proposal and other available options, as well as the environmental impact if the variance would be granted. 35 Ill. Adm. Code 104.121.

During the past decade Modine has looked at several wastewater treatment systems for the Ringwood plant. The first option, the recirculation system that worked in the larger Clinton plant, would violate at least the TDS and ammonia nitrogen general use WQS (R54) as well as the BOD_5 effluent standard (R200). It is difficult to tell what other parameters would be violated. Language in the appellate opinion and in the record wherein secondary contact WQS are equated with effluent standards have only confused matters (Modine, 351 N.E. 2d 875, slip op. at 2, 3, 7; R54-5). There is no evidence in the instant record whether this system could be started up and at what cost.

The second option, which Modine prefers, is to retain its present wastewater treatment system. The effluent concentrations are described in Table 12 of Modine's Exhibit 19 and at pages 443-4 in the record. This system is exceeding the effluent limitations for BOD_5 and TSS. The WQS being exceeded are ammonia nitrogen and un-ionized ammonia. The stated pH range of 8-10 in the clarifier will cause an un-ionized ammonia WQS violation at the upper pH range.

Modine has not overly addressed the issue of whether its effluent would violate the un-ionized ammonia WQS. Substituting the appropriate information into the equation of section 302.212, the summer un-ionized ammonia values can be computed as shown in the Table below:*

NH_3-N mg/l	pH 8	9	10
1.5	0.06	0.44	1.21
5	0.20	1.48	4.04
10	0.40	4.12	8.07
15	0.61	4.45	12.1

* Un-ionized Ammonia values for Modine discharge in mg/1 at 20°C. Data used to calculate these values were taken from Modine Exh. 19 Table 10, Table 12, Modine Exh. 22, and transcripts at 443-5.

Referring to the above Table the more probable un-ionized ammonia values are under the pH 9 column. The pH and ammonia nitrogen concentrations of the effluent have been consistently lower since plant improvements were added (discussed below). Within the 12 months ending September 30, 1983, effluent pH levels have been 9 or less (Modine Exh. 19, 22). The third column of pH 10 values is included for comparison. Because un-ionized ammonia concentrations are temperature and pH dependent, there are 2 worst case scenarios.

The highest expected un-ionized value in the summer is calculated from a pH of 9, 20°C, and 5 mg/1 ammonia nitrogen. Summer ammonia nitrogen readings closely approximated 5 mg/1 during the 12 month period above. The calculated value is 1.483 mg/1 un-ionized ammonia.

The highest expected un-ionized ammonia value in the winter is calculated from a pH of 9, 5°C, and 10 mg/1 ammonia nitrogen. The highest ammonia nitrogen value in the same 12 month period was a winter reading of 7.8 mg.1. The calculated value is 1.31 mg/1 un-ionized ammonia.

The existing system has been recently improved. Following recommendations by consultants, Modine began reusing slurry instead of dumping it into the system. The slurry caused elevated chemical levels in the system and interfered with other parameters (Modine Exh. 5 at 7). Another recommendation was to increase the pH of the clarifier, which was done (R425). This decreased levels of ammonia nitrogen, fluoride and zinc (R426).

Some lingering problems with the system have been identified. The first is that a seasonal pond pattern exists (Modine Exh. 5 at 17). Algal growth in the summer increases suspended solids discharge and chemical oxygen demand while decreasing ammonia nitrogen and zinc levels. The obverse occurs in the winter, when biological activity declines because of lower pond temperature (R466) and ammonia nitrogen discharge increases. A second problem is that this biological pond system is only operated 5 days a week instead of the desirable 7 days. The consultant recommended a flow equalization device (R434) with a capital cost of between $50,000 and $100,000 (R434). A third problem was measuring BOD_5 by the standard method when another method should have been used because of either inhibition (R200, 222) or recalcitrant organics (R442). An acclimated seed was used to correct the BOD_5 readings (R272).

A third option for a wastewater treatment system is a retrofit system which includes the use of 2 rotating biological contactor units and is further described in Modine Exh. 20. The retrofit system will not meet the following: BOD_5; TSS unless a 3-lagoon exemption is granted; and ammonia nitrogen WQS in the winter (Modine Exh. 20 at 7).

ENVIRONMENTAL IMPACT

As stated avove, petitioner must assess the environmental impact on the stream before a variance can be granted. Modine contracted for a study.

Sampling locations 1 through 9 are noted in Modine Exhibit 11, p. 3, where the Modine discharge is between stations 1 and 2 while another corporation, Morton Chemical, discharges above station 5 in another ditch. Both ditches join each other before their confluence with Dutch Creek (See also Modine Exh. 17).

Modine asserts through its consultant that there is balanced indigenous aquatic life present both above and below the Modine discharge (R252, 375). This conclusion is based on two biological studies, one in 1973, the other in 1979; the results of the latter in Modine Exhibit 11. The aquatic life included fish, shellfish, benthos and others. A chlorine malfunction and high zinc concentration during sampling in 1979 may explain the low number of macroinvertebrates at stations 2 and 3 and the absence of fish at station 2 (R230). Sampling was done both quantitatively and qualitatively (R228).

The Agency argues that environmental harm is occurring because of Modine's discharge (Agency Brief at 20). The Agency study was a qualitative one where the diversity of organisms was assessed (Modine Exh. 17, R324).

The Agency concludes that there is no balanced indigenous population of aquatic life. It states that a quantitative study is not enough--that quality is also important (R323). It asserts that oligochaetes are pollution tolerant organisms and that they dominate station 2 (R324). The Agency and one of Modine's witnesses disagreed on whether to expect oligochaete in organic detritus (R 364, 377). The Agency witness argued that the silt organic detritus bottom should contain no oligochaetes and that their presence at the station below the Modine discharge denoted a semi-polluted stream. The difference appears to be one of definition of organic detritus (R382-4).

The un-ionized ammonia concentrations calculated above are high. Concentrations above 0.04 mg/1 may be toxic to sensitive fish species (In the Matter of Amendment of Ch. 3: Rule 203(f) Water Pollution, Ammonia nitrogen Water Quality Standard, 45 PCB 357,363 [Proposed Opinion and Order, 1982]). The highest expected values of 1.483 and 1.31 mg/1 likewise would be toxic to sensitive fish species.

The Board does not accept the petitioner's argument that the discharge from the Ringwood Plant does not cause adverse environmental impact. The Board is cognizant of the fact that continuation of the status quo will probably not cause further deterioration of the stream. However, the Act does not accept "status quo" as equivalent to no adverse impact.

Modine's motion to strike the testimony of the Agency witness is denied and the Board affirms the ruling of the hearing officer. This motion involves credibility, the weight afforded the testimony of a witness. As is true in any endeavor, education can be gained through experience. The testimony of the Agency witness is admissible.

HARDSHIP

As stated above, petitioner must demonstrate an arbitrary or unreasonable hardship for a variance to be granted.

Modine asserts that there is no technical means to comply with the standards and limitations and would like to retain the present wastewater treatment system. Modine states that they have demonstrated that there will be no adverse environmental impact with this system. Additionally, Modine argues that there would be no environmental benefit if the retrofit system was installed (Modine Reply Brief at 13, 15).

When the Board denied stream reclassification and the Agency then denied issuance of a construction permit for Modine's recirculation system, Modine appealed to the appellate court. The court affirmed the Board Order. 351 N.E. 2d 875, supra. The Agency argues that the Board, not the appellate court, was the proper forum. The Agency further argues that this failure to appeal to the Board for additonal relief coupled with Modine's claims of technical and economic infeasibility are self-imposed hardships (Agency Brief at 14).

Modine counters that no appeal was made to the Board because there was no basis on which to do so. Only half the requested relief was granted and without stream reclassification the recirculation system would not have operated in compliance (Modine Reply Brief at 3).

The Agency asserts that Modine's prior corporate decision not to expend funds for pollution control and its failure to prosecute its actions before the Board contributed to any hardship (Agency Brief at 15).

Modine's decision to terminate expenditures for environmental control at Ringwood has delayed a resolution to this long-standing controversy. This decision is probably also related to the poor internal controls at the plant which allowed resumption of practices which adversely impacted the plant's treatment system. While the Board will stop short of ruling that Modine's hardship is solely self-imposed, it will accept nothing less than good faith efforts on the part of the petitioner to bring this matter to resolution.

The Agency argues that Modine should have identified the recalcitrant organics in the wastewater which necessitated the use of an acclimated seed procedure for measuring BOD_5 (Agency Brief at 19). Modine states that this would be extremely expensive and, in the opinion of Modine's consultant, not necessary (Modine Reply Brief at 5).

Modine has shown that there is presently no technically feasible alternative to treat its unique waste stream so as to come into full compliance.

As to economics, the cost of the retrofit system would be $408,000 plus $9,500 for construction of a road to reach the system. The operation and maintenance costs would be increased from $32,000 to $90,725 annually (Modine Exh. 21).

The Board finds that to deny the variance or impose construction of the retrofit system and its attendant cost on Modine with neither a noticeable environmental benefit nor compliance with the Board rules and regulations would impose an arbitrary or unreasonable hardship.

The Board will grant the petitioner a variance for nine months, during which it shall develop some additional information about various means of bringing the plant's effluent into compliance. If appropriate, this information might be used in a petition for a site-specific rule.

Prior to the expiration of this variance and prior to seeking additional relief from the Board the petitioner shall provide the Agency with additional technical and economic information regarding the following:

1) use of the recirculating system,
2) separating some of the waste streams at the plant,
3) making immediate changes to the existing processes or equipment at the plant,
4) making changes to processes or equipment as it is replaced over time,
5) controlling wastewater flow so that it enters the waste treatment system continuously rather than being concentrated over only 5 days per week.

Also the Board would expect Modine to address the economic health of the Ringwood plant and the Company overall.

Modine is granted a variance for a period of 9 months from 35 Ill. Adm. Code 302.212 and 304.105 as it relates to ammonia nitrogen and un-ionized ammonia; Section 304.120(c) as it relates to BOD_5 and TSS, all subject to the conditons set out in the Order below. The request for a 3-lagoon exemption under 35 Ill. Adm. Code 304.120(c) is denied.

This constitures the Board's findings of fact and conclusions of law.

ORDER

Modine Manufacturing Company is hereby granted a variance for its plant in Ringwood, McHenry County, Illinois, until March 1, 1985 from the terms of 35 Ill. Adm. Code 302.212 and 304.105 as it relates to ammonia nitrogen and un-ionized ammonia; Section 304.120(c) as it relates to BOD_5 and TSS; all subject to the following conditions:

1. That, prior to the expiration of this variance and no later than December 1, 1984, Modine shall provide the Agency with information on the following with emphasis on technical and economic feasibility and impact on effluent quality:

   a) use of the recirculating system

   b) separating some of the waste streams at the plant

   c) making immediate changes to the existing processes or equipment at the plant

   d) making changes to processes or equipment as it is replaced over time

   e) controlling wastewater flow so that it enters the waste treatment system continuously rather than being concentrated over only 5 days per week.

   f) list all un-ionized ammonia values

   g) any other reasonable means of improving effluent quality.

2. That Modine shall not exceed the floowing effluent limitations and water quality standards (mg/1):

	BOD_5	TSS	NH_3-N	Un-ionized NH_3
Summer	60	35	5	1.48
Winter	120	20	15	1.31

3. Within forty-five days of the date of this Order, Petitioner shall execute and forward to the Illinois Environmental Protection Agency, Compliance Assurance Unit, Water Pollution Control Division, 2200 Churchill Road, Springfield, IL 62706, a Certificate of

Acceptance and Agreement to be bound to all terms and conditions of this variance. This forty-five day period shall be held in abeyance for any period during which this matter is being appealed. The form of this certificate shall be as follows:

CERTIFICATE

I, (We) _____, having read the Order of the Illinois Pollution Control Board in PCB 82-111, dated _____, understand and accept the said Order, realizing that such acceptance renders all terms and conditions thereto binding and enforceable.

_____
Petitioner

_____
By: Authorized Agent

_____
Title

_____
Date

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order were adopted on the 29th day of May, 1984 by a vote of 6-0.

Christan L. Moffett

Christan L. Moffett, Clerk
Illinois Pollution Control Board