

ILLINOIS POLLUTION CONTROL BOARD
March 3, 1994

MOBIL OIL CORPORATION,)
)
 Petitioner,)
)
 v.) PCB 93-151
) (Variance)
 ILLINOIS ENVIRONMENTAL)
 PROTECTION AGENCY,)
)
 Respondent.)

DAVID L. RIESER, of ROSS & HARDIES, APPEARED ON BEHALF OF PETITIONER; and

ROBB H. LAYMAN APPEARED ON BEHALF OF RESPONDENT.

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

This matter is before the Board on petitioner Mobil Oil Corporation's August 18, 1993 petition for variance from 35 Ill. Adm. Code 304.122, as that section relates to ammonia nitrogen effluent limitations. Mobil seeks a five-year variance for its Joliet refinery. The Illinois Environmental Protection Agency (Agency) filed its recommendation on October 27, 1993, and Mobil filed a response to that recommendation, and a request for hearing, on November 2, 1993. Hearing was held on December 29, 1993, in Joliet. No members of the public attended.

As set forth below, the Board finds that Mobil would suffer an arbitrary or unreasonable hardship if variance were not granted. Therefore, variance will be granted, subject to conditions.

BACKGROUND

Mobil owns and operates a petroleum refinery on Arsenal Road in Will County, Illinois, approximately 10 miles southwest of Joliet. This refinery began operation in 1973, and is Mobil's newest domestic refining facility. The Joliet facility has a rated capacity of 190,000 barrels of crude oil throughput per operating day, and employs approximately 675 people. The refinery processes high sulfur and high nitrogen North American crudes, which comprise 70% of total throughput. Its principal products are motor gasolines and distillate fuel oil. The refinery also produces kerosene jet fuel, propane, petroleum coke, sulfur, and some heavy fuel oil. The refinery's products are primarily marketed in Illinois and other midwestern states. (Pet. at 2.)

The Joliet refinery uses water from the Des Plaines River

for boiler feed, cooling tower make-up, and non-contact cooling. Well water is used for drinking, sanitary purposes, and general services. Separate sewer systems segregate the various types of water discharged into the Des Plaines. These include stormwater (Outfall 003), non-contact cooling water (Outfall 002), and process water which is treated at the refinery's wastewater treatment facility before release to the river (Outfall 001). The refinery design includes advanced water conservation practices, so that only 14 gallons of water are used per barrel of crude refined. This compares with an average of 39 gallons per barrel for the calculated best available technology (BAT) flow for a refinery of Joliet's size. However, these conservation efforts result in a more concentrated effluent. (Pet. at 3.)

The refinery process wastewater treatment facility consists of two parallel channels. Each consists of an API oil separator and an air floatation unit equipped with a mixer for flocculation and chemical addition, as well as the ability to add acid and/or caustic for pH adjustment. From the air floatation unit, flow can be pumped to either a 1½ acre aerated east equalization basin, or to two 900,000 gallon aeration basins. The aeration basins flow to two final clarifiers which in turn flow to a 1½ acre guard basin. The guard basin effluent is split to a cascade aerator and a stair cascade for additional aeration. These two streams, along with non-contact cooling water and stormwater, flow to a recessed basin and then discharge, via an underwater discharge line, to the Des Plaines River. (Pet. at 3-4; Agency Rec. at 3.)

RELIEF REQUESTED

Mobil seeks a five-year variance from the ammonia nitrogen effluent standard established at 35 Ill. Adm. Code 304.122(b). That subsection limits discharge of ammonia nitrogen to no more than 3.0 mg/l. Between 1988 and 1993 Mobil operated under a site-specific ammonia nitrogen rule (35 Ill. Adm. Code 304.214) that established limitations of 20 mg/l on a monthly average and 35 mg/l as a daily composite. That site-specific rule expired on December 31, 1988. From 1989 to 1991, however, Mobil was able to comply with the more stringent general limits of Section 304.122(b), with only one exceedance of those general limits. In 1990 and 1991 Mobil made modifications to its wastewater pretreatment system in order to comply with federal RCRA requirements. Mobil states that those modifications adversely affected the refinery's ability to reduce ammonia loading, and that conventional adjustments were not sufficient to restore the necessary level of performance. Thus, Mobil seeks a five-year variance, with three years to investigate compliance options, and the remaining two years to either implement a reduction strategy, or pursue site-specific relief. (Pet. at 1, 5.)

The Agency recommends that Mobil be granted a variance. However, the Agency recommends that the study period be shortened to 1½ years (instead of 3 years), which could be extended if Mobil can provide more data on the progress of the research and design program. (Agency Rec. at 6-7.) Additionally, the Agency recommends that the variance terminate earlier if the Joliet facility shows compliance with the general effluent standard of Section 304.122(b) for four consecutive quarters. (Agency Rec. at 7.) Mobil objects to both of these recommendations. (Response to Rec. at 1-3.) These issues were the focus of the hearing in this matter.

ENVIRONMENTAL IMPACT

Mobil contends that the impact of the requested variance on the ammonia nitrogen load in the Des Plaines River would be insignificant. Mobil has provided a table which summarizes calculated increases in river ammonia concentrations attributable to Mobil's discharge at actual past average performance, conditions under the now-expired site-specific rule, requested variance conditions, and conditions permissible under BAT. (Pet., Table VII.) Mobil concludes that in all cases, Mobil's impact is negligible, with a maximum change in ammonia concentration of 0.198 mg/l at BAT conditions. (Pet. at 6, Table VII.) Mobil has also included a summary of dissolved oxygen and ammonia water quality data from 1989 to 1992, and states that existing water quality in the vicinity of Mobil's discharge is well within applicable standards. (Pet. at 6, Table VIII.) Therefore, Mobil concludes that its requested discharge of ammonia nitrogen will not threaten water quality standards, and that there will be no negative effect on the aquatic community in the Des Plaines or Illinois Rivers. (Pet. at 6.)

The Agency agrees with Mobil's conclusion that there should be no long-term impairment of the water's uses or aquatic life. (Agency Rec. at 5.)

HARDSHIP

Mobil states that it has evaluated three alternate technologies, and associated costs for those options. Mobil lists those technologies as activated sludge with PAC, granular media filtration/selective ion exchange, and breakpoint chlorination. Mobil states that the capital investment for these options would range from \$1.9 to \$13.8 million, with annual operating costs between \$0.7 to \$1.7 million. (Pet., Table IX.) Mobil concludes that these costs are disproportionately high, because the average cost to remove an incremental pound of ammonia above the existing system's current capability would be \$40 per pound. Mobil states this figure is \$32 over the cost incurred to remove a pound of ammonia using its existing BAT technology. (Pet. at 6.) Mobil contends that denying a variance

would result in an arbitrary and unreasonable hardship, because proven and cost-effective technology has not been identified, while its ammonia discharge has an insignificant effect on the ammonia concentration of the Des Plaines. (Pet. at 8.)

COMPLIANCE PLAN

Mobil proposes that it perform an investigation to determine the sources of nitrification inhibition and methods to bring the facility into compliance. This investigation would study pollutant source survey/control, removal of inhibitors of biological nitrification, microtox studies, biological nutrient addition, and respiration studies. (Pet. at 7, Table VI.) Mobil believes that this study period should continue for three years from the grant of variance. Mobil states that because nitrification is a dynamic chemical and biological process, it is difficult and time-consuming to evaluate problems. At the end of that three year period, Mobil proposes to file a report with the Agency indicating its intent to either bring the facility into compliance or seek site-specific relief. The remaining two years requested by Mobil would be used to either make the necessary modifications to achieve compliance, or to pursue site-specific relief. (Pet. Exh. 3, Table IV; Pet. at 1, 7.)

CONSISTENCY WITH FEDERAL LAW

Mobil states, and the Agency agrees, that the Board may grant Mobil's requested variance consistent with federal law. The Agency notes that Mobil's requested variance limits are still more restrictive than federally allowable under 40 CFR 419 (1989). (Pet. at 8; Agency Rec. at 6.)

CONCLUSIONS

After reviewing the record and the parties' arguments, the Board finds that immediate compliance with 35 Ill. Adm. Code 304.122(b) would impose an arbitrary or unreasonable hardship. The record demonstrates that Mobil's current discharges of ammonia have a minimal impact, while the proper control technology has not yet been identified. Therefore, the Board will grant a variance from Section 304.122(b) for Mobil's Joliet refinery, subject to conditions.

As noted above, however, the dispute in this case is over the proper term of the variance. Mobil requests three years to research the problem, while the Agency recommends an eighteen month study period. Mobil contends that it presented un rebutted testimony at hearing in support of its contention that a three year study period is necessary. Mobil states that its witness, Ms. Lillian Gachich, testified to the steps necessary to identify and control the current nitrification inhibition, and notes that Ms. Gachich testified that utilizing outside

consultants would not shorten the time frame for study of the problem (Tr. at 78-79), and that the time frame cannot be shortened without compromising the quality of the work (Tr. at 42-43). Mobil also points to the testimony of Dr. William Patterson that the scope of work proposed by Mobil will require a full three years. (Tr. at 66.) Mobil argues that the Agency did not present any evidence in support of its position that the work be performed within 18 months. Thus, Mobil contends that imposing the 18 month study period would be unreasonable, arbitrary, and capricious.

In response, the Agency maintains that it is not convinced that Mobil has exhausted all of the available steps to keep its research timeframe within a "reasonable" time period. The Agency points out that Mobil became aware of the ammonia problem in early 1992, and thus has had almost two years to study, explore, and investigate compliance alternatives. The Agency continues to recommend an 18-month study period, with Mobil having an option to ask the Board to modify the variance to extend the investigation phase by the additional 18 months.

The Board will grant Mobil two years for the study of the problem, and two years to make necessary modifications or seek permanent relief. We recognize that nitrification inhibition is a complicated problem, and that the necessary studies and investigations are time consuming. However, as the Agency points out, Mobil has been aware of the current problems since early 1992. Additionally, prior to the January 1988 grant of the now-expired site-specific rule, Mobil's Joliet facility had operated under five prior variances for ammonia nitrogen. (Mobil Oil Corporation v. Illinois Environmental Protection Agency (September 20, 1984), PCB 84-37; (June 10, 1982), PCB 82-36; (July 10, 1980), PCB 80-54; (June 8, 1978), PCB 78-97; (June 9, 1977), PCB 77-22.) The first of those variances was granted on June 9, 1977. Thus, the Joliet facility has been operating under variance or site-specific rule for the majority of the past 17 years. We will not, at this time, extend that period for five additional years. We believe that the record does support a shortened study period. Mobil's timetable shows that the bulk of the study steps are to be completed by the end of 1995. (Pet. Exh. 3, Table IV.) Granting a two-year study period, until March 3, 1996, will give Mobil some additional time to complete those steps. Mobil will then have an additional two years, as it has requested, to make modifications or seek site-specific relief.¹

Additionally, the Agency recommends that the variance expire if the Joliet facility shows compliance with Section 304.122(b)

¹ Mobil, like any other variance petitioner, can move for modification of variance during the pendency of the variance.

for four consecutive quarters. The Agency makes this recommendation based upon its general view that variance relief should be based upon need. In response, Mobil contends that, as its witnesses testified, 12 months of compliance may not indicate that the source of the problem has been identified, or that Mobil can be assured of continued compliance. (Tr. at 21-22, 67.)

The Board shares the Agency's general view that variance relief should be limited to those situations where the petitioner cannot demonstrate compliance over four consecutive quarters. However, given the situation presented by this case, where the ammonia nitrogen standard has presented problems for 17 years, the Board believes that it is necessary to allow the variance to run the full four-year term.

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

ORDER

Mobil Oil Corporation, Joliet facility, is hereby granted a variance from the ammonia nitrogen effluent standard in 35 Ill. Adm. Code 304.122(b), subject to the following conditions:

1. This variance expires on March 3, 1998.
2. Mobil shall not exceed ammonia limits of 13 mg/l on a monthly average basis and 26 mg/l on a daily maximum basis.
3. Mobil shall submit progress reports every six months to the Illinois Environmental Protection Agency (Agency), c/o Mark Books, Compliance Assurance Section, Bureau of Water, Illinois Environmental Protection Agency, 2200 Churchill Road, P.O. Box 19276, Springfield, IL 62794-9276. The progress reports shall describe completed and anticipated events in the optimization study, and any process changes made to reduce ammonia nitrogen discharges.
4. By March 3, 1996, Mobil shall submit a report to the Agency, at the above address, stating whether it has identified a means for compliance with the general effluent standard of 35 Ill. Adm. Code 304.122(b). If so, Mobil shall include a specific plan for achieving compliance, including preliminary engineering designs for any necessary construction. If Mobil chooses to seek an alternative standard, it shall include a draft petition for that alternative relief.
5. In the event that Mobil chooses to seek an alternative standard, it shall file its petition with the Board by May 3, 1996.

6. Mobil shall continue to operate its wastewater treatment plant so as to produce the best effluent practicable and to achieve compliance with 35 Ill. Adm. Code 304.122(b) as soon as possible.

7. Within 45 days of the date of the final Board order in this case, Mobil shall execute and forward to Robb Layman, Division of Legal Counsel, Illinois Environmental Protection Agency, 2200 Churchill Road, P.O. Box 19276, Springfield, IL 62794-9276, a certificate of acceptance and agreement to be bound to all terms and conditions of this variance. The 45-day period will be held in abeyance during any period that this matter is appealed. Failure to execute and forward this certificate within 45 days shall render this variance null and void. The form of the certificate shall be as follows:

CERTIFICATION

I (We), _____, hereby accept and agree to be bound by all terms and conditions of the Pollution Control Board's March 3, 1994 order in PCB 93-151.

Petitioner

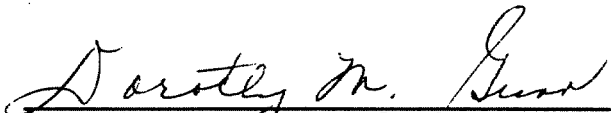
Authorized Agent

Title

Date

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 3rd day of March, 1994, by a vote of 6-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board