

ILLINOIS POLLUTION CONTROL BOARD
January 22, 1998

IN THE MATTER OF:)
)
SITE SPECIFIC PETITION OF MOBIL OIL) R97-28
CORPORATION FOR RELIEF FROM) (Rulemaking - Water)
35 ILL. ADM. CODE 304.122, AMMONIA)
NITROGEN EFFLUENT STANDARDS)

Adopted Rule. Final Order.

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

This matter comes before the Board upon a petition for rulemaking filed by Mobil Oil Corporation (Mobil) on April 24, 1997. Mobil requests that the Board's effluent regulations, as applicable to Mobil's refinery near Joliet, be amended to provide site-specific ammonia nitrogen effluent standards for Mobil's discharge to the Des Plaines River. By today's action the Board adopts the amendments.

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 *et seq.* (1996)). The Board is charged therein to "determine, define and implement the environmental control standards applicable in the State of Illinois." 415 ILCS 5/5(b). More generally, the Board's rulemaking charge is based on the system of checks and balances integral to Illinois environmental governance: the Board bears responsibility for the rulemaking and principal adjudicatory functions; the Illinois Environmental Protection Agency (Agency) has primary responsibility for administration of the Act and the Board's regulations, including the regulations amended today. The Agency indicates that it supports adoption of the amendments. Tr. at 12.

By today's action the Board adopts the amendments. They will become effective upon filing with the Secretary of State.

BACKGROUND

Mobil owns and operates a petroleum refinery (Joliet Refinery) located near the Des Plaines River in western Will County, approximately 10 miles southwest of Joliet. The refinery, which began operations in 1973, is Mobil's newest domestic refining facility. Pet. at 4. It has a rated capacity of 200,000 barrels of crude oil throughput per operating day and employs 575 persons. Pet. at 4. Products include motor gasolines and distillate fuel oil, kerosene jet fuel, propane, petroleum coke, sulfur, and some heavy fuel oil. Pet. at 4.

Water is used for various processes within the refinery. Waste process water, plus contaminated surface run-off, is processed through an on-site waste water treatment plant (WWTP) at an average rate of approximately 1900 gallons per minute. Pet. at 5. Discharge is to the Des Plaines River via an outfall nominated Outfall 001. Mobil holds a National

Pollution Discharge Elimination System (NPDES) permit for this discharge. The ammonia nitrogen concentration of this discharge is the subject matter of the instant proceeding.

REGULATORY BACKGROUND

The Board has promulgated various regulatory provisions that govern effluent discharges. Among these are provisions related to the discharge of ammonia nitrogen to the Illinois River, the Calumet River System, and parts of the Des Plaines River, as found at 35 Ill. Adm. Code 304.122. Subsection 304.122(b) contains the provision applicable to the Joliet Refinery. In pertinent part, Subsection 304.122(b) provides that:

Sources . . . whose untreated waste load cannot be computed on a population equivalent basis comparable to that used for municipal waste treatment plants and whose ammonia nitrogen discharge exceeds 45.4 kg/day (100 pounds per day) shall not discharge an effluent of more than 3.0 mg/l of ammonia nitrogen.

The 3.0 mg/L standard of Section 304.122(b) applies to monthly average samples, as specified at 35 Ill. Adm. Code. 304.104(a)(1).

In 1988 the Board granted Mobil a site-specific rule to supersede temporarily the Section 304.122(b) rule.¹ This site-specific rule, found at 35 Ill. Adm. Code 304.214, provided ammonia nitrogen discharge limits for Mobil's Joliet Refinery of 20 mg/L measured as a monthly average and 35 mg/L measured as a daily composite. Section 304.214 expired by its own terms on December 31, 1993. However, Section 304.214 has not been repealed, and thus still remains within the corpus of the Board's regulations.

Prior to the expiration of Section 304.214, Mobil petitioned the Board for a variance from the underlying regulation at Section 304.122. The Board granted the variance on March 3, 1994.² This variance was scheduled to terminate on March 3, 1998, and, among other matters, required that if Mobil were to seek new and permanent site-specific relief, it do so by May 3, 1996. During the period of this variance, ammonia nitrogen discharges were capped at a maximum of 13 mg/L measured as a monthly average and 26 mg/L measured as a daily maximum.

On August 15, 1996, the Board granted Mobil a variance modification that extended the end date of the variance until March 3, 1999, and extended the date for filing for standards

¹ In the matter of: Proposal of Mobil Oil Corporation to Amend the Water Pollution Regulations (January 7, 1988), R84-16.

² Mobil Oil Corporation v. Illinois Environmental Protection Agency (March 3, 1994), PCB 93-151.

alternative to those at Section 304.122(b) until May 3, 1997.³ With the filing of the instant petition, Mobile has complied with the filing date requirement.

In the instant proposal Mobil requests that ammonia nitrogen effluent limits applicable to the Joliet Refinery be permanently set at 9.0 mg/L measured as a monthly average and 23.0 mg/L measured as a daily maximum. Mobil further requests that this proposal be effectuated by reactivation of Section 304.214, with the new effluent limits replacing the old, and with the old expiration date deleted.

PROCEDURAL HISTORY

A public hearing in this matter was held before hearing officer Audrey Lozuk-Lawless in Bolingbrook, Illinois, on July 2, 1997. Mobil presented three witnesses: Lilliana Gachich, Environmental Advisor employed by Mobil; James E. Huff of Huff & Huff, Inc.; and John H. Koon of Parsons Engineering Science, Inc.

Mobil filed a post-hearing brief on July 28, 1997. The record in this matter was scheduled to close on July 28, 1997. On August 6, 1997, the Environmental Bureau of the Illinois Attorney General's office filed a motion for leave to file comments instanter and accompanying comments. PC 1. On August 11, 1997, the hearing officer issued an order granting the motion instanter and accepting the comments. Given the technical nature of the comments, and to allow response from the Agency and Mobil, the hearing officer extended the time the record would remain open until August 25, 1997.

By order of September 18, 1997, the Board adopted Mobil's proposal for first notice. First notice publication occurred in the *Illinois Register*, Vol. 21, Issue 41, October 10, 1997, at p. 13500 et seq.

The first notice rule as adopted by the Board was substantially identical to that proposed by Mobil, with the exception of proposed termination (sunsetting) of the rule on December 21, 2007. The Board declined at first notice to require that Mobil install breakpoint chlorination, as urged by the Attorney General but opposed by the Agency.⁴

Two public comments were filed during the first notice comment period, one each by Mobil (PC 4) and the Agency (PC 5). Both urged adoption of the amendments as proposed for first notice, including adoption of the ten-year sunset provision.

By order of December 4, 1997, the Board adopted the proposed amendments for second notice and forwarded them to the Joint Committee on Administrative Rules (JCAR) for

³ Mobil Oil Corporation v. Illinois Environmental Protection Agency (August 15, 1996), PCB 96-218.

⁴ See pages 5-6 of the Board's September 18, 1997 opinion and order.

its consideration. On January 14, 1998, JCAR voted “no objection” to the Board taking final action on this matter.

The Board has considered whether Public Act. 90-489, which became effective on January 1, 1998, applies to this particular rulemaking.⁵ The Board concludes that it does not. This matter had already proceeded to second notice prior to the effective date of Public Act 90-489. Moreover, the Board cannot make substantive changes to a proposed rule after proceeding to second notice except in response to specific objections or suggestions made by JCAR. 5 ILCS 100/5-40 (1996). Consequently, the only remaining step that can be taken by the Board in this matter is the adoption of its final order and the filing of the adopted rules with the Secretary of State. Under these circumstances, the Board believes that requesting an EcIS now would serve no practical purpose and be contrary to the intent of Public Act 90-489.

JUSTIFICATION

Environmental Considerations

Mobil believes that the environmental impact of the proposed ammonia nitrogen load in the Des Plaines River will be insignificant. Pet. at 12. Mobil presented a study conducted by Huff & Huff, Inc. indicating that at the proposed standards, continued discharge of ammonia nitrogen would not significantly change the levels of ammonia nitrogen in the Des Plaines or Illinois Rivers, nor would it threaten water quality or the aquatic community in those rivers.

Mobil’s contention is based principally on the relatively large amount of dilution that is available in the receiving waterway, the relatively small size of the discharge plume, and speed with which mixing occurs. Exh. 5. On this basis, Mobil concludes that discharge under the terms of the proposed site-specific standards will not cause violation of the in-stream water quality standards either at the point of discharge or downstream. Pet. at 12-13.

It is noteworthy that at the point at which discharge to the Des Plaines River occurs, the river is classified as a secondary contact waterway. 35 Ill. Adm. Code 303.441(i). The applicable water quality standard for secondary contact waters is 0.1 mg/L of un-ionized ammonia nitrogen. 35 Ill. Adm. Code 302.407. Mobil contends that it could discharge total ammonia nitrogen at concentrations as high as 70 mg/L in the summer and 243 mg/L during the winter, and still maintain compliance with the water quality standard at the edge of a mixing zone. Exh. 5 at 17-18.

The secondary contact portion of the Des Plaines River extends downstream as far as the I-55 bridge (35 Ill. Adm. Code 303.441(i)), which is approximately 1,000 feet downstream from Mobil’s 001 outfall (Tr. at 53). Mobil contends that its proposed discharges would not cause violation of the ammonia general use water quality standards applicable downstream from the I-55 bridge. Tr. at 52.

⁵ Public Act 90-489, which amended Section 27 of the Act, requires the Board to request that the Department of Commerce and Community Affairs (DCCA) conduct an economic impact study (EcIS) on certain proposed rules prior to adoption of those rules. If DCCA chooses to conduct the EcIS, DCCA has 30 to 45 days after such request to conduct the EcIS.

Ms. Lilliana Gachich also testified that the water conservation efforts at the Joliet refinery inevitably result in a more concentrated effluent. Exh. 1. Mobil lessens the water discharge to the sewer by increasing in-plant water reuse and increasing cooling tower recycling. Exh 1. This highly concentrated effluent may impede the treatment because there is less dilution in the discharge water than is typical for similar plants. Tr. at 15. Nevertheless, Mobil contends that from an environmental perspective, it is behooved to practice water concentration. Tr. at 15.

The Agency did not comment specifically on the environmental aspects of Mobil's proposed standard.

Economic Considerations and Alternative Technologies

Mobil has not been able to consistently comply with the Board's effluent standards due to an unstable nitrification process. Pet. at 2. However, Mobil has not found a technologically reasonable and economically feasible ammonia nitrogen treatment system to meet the required standard consistently.

Mobil evaluated alternative technologies to meet the Board's ammonia nitrogen standard, and found that each has significant capital and operating costs. Mobil has already expended \$7.78 million on an Ammonia Optimization Study and related equipment upgrades to its treatment facility to meet the Board's effluent standards. Pet. at 13. Those expenditures have cost Mobil an average of \$16/lb of ammonia removed. However, the incremental cost to remove ammonia beyond the upgraded BAT system would be disproportionate, costing \$421/lb. Mobil estimates that this would increase capital costs \$920,000, and increase operating costs \$1.4 million. Pet. at 14. Furthermore, Mobil claims that "the other technologies will not be effective since the inhibition appears to arise also within the wastewater treatment system itself and not as a result of other waste streams." Pet. at 13.

Sunset Provision

At first notice the Board proposed that the instant site-specific rule terminate by its own terms after ten years. The Board noted that Mobil has been able to comply with progressively lower ammonia discharge limits over the roughly ten-year history of this matter (e.g., 20 mg/L in the 1988 site-specific rule, 13 mg/L in the variance currently applicable, and 9 mg/L in the instant proposal). On this basis the Board proposed that this matter be revisited in another ten years to see whether today's requested discharge limits continue to be appropriate at that future time. Further, the Board requested that the participants address this issue of sunseting of the proposed rule in first notice comments. See September 19, 1997, opinion and order at p. 6-7. Mobil and the Agency commented.

Mobil observed that although it "believes that it has amply proved its case for permanent relief and believes the record before the Board and the Board's opinion reflect that

level of proof, Mobil does not object to the proposed sunset provision.” PC 4 at 1. On this basis, Mobil urged that the first notice regulation be adopted as proposed.

The Agency also supported addition of the sunset provision, observing:

. . . the Illinois EPA notes that the termination date of December 31, 2007 would allow the passage of two five-year permitting cycles. During this time frame it is possible that new technology to treat ammonia nitrogen may become available, so revisiting the ammonia nitrogen issue in ten years would be beneficial. PC 5 at 1.

Federal Consistency

According to Mobil, the “Joliet Refinery’s WWTP effluent parameters meet or are well below all federal effluent guidelines and standards for the appropriate petroleum refinery point source subcategory (40 CFR 419, Subpart B - Cracking Subcategory).” Pet. at 14. The flow rate used to derive the Best Available Technology (BAT) effluent values for a refinery the size and configuration of Joliet’s is 5200 gallons per minute (gpm), where the Refinery’s current flow rate is 1900 gpm, with a maximum hydraulic flow rate of 2500 gpm. The calculated BAT ammonia limit is 956 lbs/day monthly average and 2104 lbs/day daily maximum, where the Refinery’s current is 205 - 270 lbs/day. Pet. at 14.

CONCLUSION

Based on the record developed in this matter, the Board believes that adoption of the amendments to 35 Ill. Adm. Code 304.214 as proposed is warranted.

ORDER

The Board directs that the following amendments be submitted to the Secretary of State for final notice pursuant to Section 5-40 of the Illinois Administrative Procedure Act.

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE C: WATER POLLUTION
CHAPTER I: POLLUTION CONTROL BOARD

PART 304
EFFLUENT STANDARDS

SUBPART A: GENERAL EFFLUENT STANDARDS

Section	
304.101	Preamble
304.102	Dilution
304.103	Background Concentrations
304.104	Averaging

304.105	Violation of Water Quality Standards
304.106	Offensive Discharges
304.120	Deoxygenating Wastes
304.121	Bacteria
304.122	Total Ammonia Nitrogen (as N: STORET number 00610)
304.123	Phosphorus (STORET number 00665)
304.124	Additional Contaminants
304.125	pH
304.126	Mercury
304.140	Delays in Upgrading (Repealed)
304.141	NPDES Effluent Standards
304.142	New Source Performance Standards (Repealed)

SUBPART B: SITE SPECIFIC RULES AND EXCEPTIONS NOT OF GENERAL APPLICABILITY

Section	
304.201	Wastewater Treatment Plant Discharges of the Metropolitan Sanitary District of Greater Chicago
304.202	Chlor-alkali Mercury Discharges in St. Clair County
304.203	Copper Discharges by Olin Corporation
304.204	Schoenberger Creek: Groundwater Discharges
304.205	John Deere Foundry Discharges
304.206	Alton Water Company Treatment Plant Discharges
304.207	Galesburg Sanitary District Deoxygenating Wastes Discharges
304.208	City of Lockport Treatment Plant Discharges
304.209	Wood River Station Total Suspended Solids Discharges
304.210	Alton Wastewater Treatment Plant Discharges
304.211	Discharges From Borden Chemicals and Plastics Operating Limited Partnership Into an Unnamed Tributary of Long Point Slough
304.212	Sanitary District of Decatur Discharges
304.213	UNO-VEN Refinery Ammonia Discharge
304.214	Mobil Oil Refinery Ammonia Discharge
304.215	City of Tuscola Wastewater Treatment Facility Discharges
304.216	Newton Station Suspended Solids Discharges
304.218	City of Pana Phosphorus Discharge
304.219	North Shore Sanitary District Phosphorus Discharges
304.220	East St. Louis Treatment Facility, Illinois-American Water Company
304.221	Ringwood Drive Manufacturing Facility in McHenry County
304.222	Intermittent Discharge of TRC

SUBPART C: TEMPORARY EFFLUENT STANDARDS

Section	
304.301	Exception for Ammonia Nitrogen Water Quality Violations (Repealed)

304.302 City of Joliet East Side Wastewater Treatment Plant
 304.303 Amerock Corporation, Rockford Facility

Appendix A References to Previous Rules

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act [415 ILCS 5/13 and 27].

SOURCE: Filed with the Secretary of State January 1, 1978; amended at 2 Ill. Reg. 30, p. 343, effective July 27, 1978; amended at 2 Ill. Reg. 44, p. 151, effective November 2, 1978; amended at 3 Ill. Reg. 20, p. 95, effective May 17, 1979; amended at 3 Ill. Reg. 25, p. 190, effective June 21, 1979; amended at 4 Ill. Reg. 20, p. 53 effective May 7, 1980; amended at 6 Ill. Reg. 563, effective December 24, 1981; codified at 6 Ill. Reg. 7818; amended at 6 Ill. Reg. 11161, effective September 7, 1982; amended at 6 Ill. Reg. 13750, effective October 26, 1982; amended at 7 Ill. Reg. 3020, effective March 4, 1983; amended at 7 Ill. Reg. 8111, effective June 23, 1983; amended at 7 Ill. Reg. 14515, effective October 14, 1983; amended at 7 Ill. Reg. 14910, effective November 14, 1983; amended at 8 Ill. Reg. 1600, effective January 18, 1984; amended at 8 Ill. Reg. 3687, effective March 14, 1984; amended at 8 Ill. Reg. 8237, effective June 8, 1984; amended at 9 Ill. Reg. 1379, effective January 21, 1985; amended at 9 Ill. Reg. 4510, effective March 22, 1985; peremptory amendment at 10 Ill. Reg. 456, effective December 23, 1985; amended at 11 Ill. Reg. 3117, effective January 28, 1987; amended in R84-13 at 11 Ill. Reg. 7291 effective April 3, 1987; amended in R86-17(A) at 11 Ill. Reg. 14748, effective August 24, 1987; amended in R84-16 at 12 Ill. Reg. 2445, effective January 15, 1988; amended in R83-23 at 12 Ill. Reg. 8658, effective May 10, 1988; amended in R87-27 at 12 Ill. Reg. 9905, effective May 27, 1988; amended in R82-7 at 12 Ill. Reg. 10712, effective June 9, 1988; amended in R85-29 at 12 Ill. Reg. 12064, effective July 12, 1988; amended in R87-22 at 12 Ill. Reg. 13966, effective August 23, 1988; amended in R86-3 at 12 Ill. Reg. 20126, effective November 16, 1988; amended in R84-20 at 13 Ill. Reg. 851, effective January 9, 1989; amended in R85-11 at 13 Ill. Reg. 2060, effective February 6, 1989; amended in R88-1 at 13 Ill. Reg. 5976, effective April 18, 1989; amended in R86-17B at 13 Ill. Reg. 7754, effective May 4, 1989; amended in R88-22 at 13 Ill. Reg. 8880, effective May 26, 1989; amended in R87-6 at 14 Ill. Reg. 6777, effective April 24, 1990; amended in R87-36 at 14 Ill. Reg. 9437, effective May 31, 1990; amended in R 88-21(B) at 14 Ill. Reg. 12538, effective July 18, 1990; amended in R84-44 at 14 Ill. Reg. 20719, effective December 11, 1990; amended in R86-14 at 15 Ill. Reg. 241, effective December 18, 1990; amended in R93-8 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R87-33 at 18 Ill. Reg. 11574, effective July 7, 1994; amended in R95-14 at 20 Ill. Reg. 3528, effective February 8, 1996; amended in R94-1(B) at 21 Ill. Reg. 364, effective December 23, 1996; expedited correction in R94-1(B) at 21 Ill. Reg. 6269, effective December 23, 1996; amended in R97-28 at 21 Ill. Reg. _____, effective _____.

BOARD NOTE: This Part implements the Illinois Environmental Protection Act as of July 1, 1994.

EFFLUENT STANDARDS

SUBPART B: SITE SPECIFIC RULES AND EXCEPTIONS
NOT OF GENERAL APPLICABILITY

Section 304.214 Mobil Oil Refinery Ammonia Discharge

- a) This Section applies to discharges from Mobil Oil Corporation’s Refinery, located near Joliet, into the Des Plaines River.
- b) The requirements of Section 304.122(b) ~~shall~~ do not apply to Mobil’s discharge. Instead Mobil’s discharge ~~shall~~ may not exceed the following limitations:

CONSTITUENT	CONCENTRATION (mg/l)
Ammonia Nitrogen	
Monthly Average	20 <u>9.0</u>
Daily Composite <u>Maximum</u>	35 <u>23.0</u>

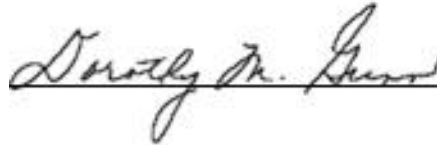
- c) Section 304.104(a) ~~shall~~ does not apply to this Section. Monthly average and daily composites are as defined in Section 304.104(b).
- d) Mobil shall monitor the nitrogen concentration of its oil feedstocks and report on an annual basis such concentrations to the Agency. The report shall be filed with the Agency by January 31 of each year.
- e) The provisions of this Section shall terminate on December 31, ~~1993~~ 2007.

(Source: Amended at 21 Ill. Reg. _____, effective _____)

IT IS SO ORDERED.

Board Member K.M. Hennessey abstained.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above opinion and order was adopted on the 22nd day of January 1998, by a vote of 6-0.

A handwritten signature in cursive script, reading "Dorothy M. Gunn", written over a horizontal line.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board