ILLINOIS POLLUTION CONTROL BOARD
November 18, 1993

IN THE MATTER OF:	)	
	)	
PETITION OF UNO-VEN	)	R93-8
TO AMEND REGULATIONS,	)	(Rulemaking)
PERTAINING TO WATER POLLUTION	)	

Proposed Rule. Second Notice.

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

On January 28, 1993, UNO-VEN Company (UNO-VEN) filed a petition requesting amendments to the site-specific regulation found at Section 304.213. A hearing was held on April 28, 1993, in Bolingbrook, Illinois. Members of the public attended the hearing.

On August 26, 1993, the Board sent this proposal to first notice. The proposed rule was published in the September 24, 1993 Illinois Register at 17 Ill. Reg. 15523. The publication in the Illinois Register started a 45 day comment period. The comment period for this proposed rule ended on November 8, 1993. The Board received three comments during the first notice comment period. The Illinois Department of Commerce and Community Affairs noted that the proposed rule will not significantly impact small business. The Administrative Code Unit notes a correction to the source note of the rule. The Board will correct the source note as indicated by the Code Unit. UNO-VEN also submitted a first notice comment in support of adoption of the site-specific rule. As the comments submitted to the Board do not raise any objection to the rule as proposed at first notice, the Board will submit the rule for second notice with no substantive changes.

UNO-VEN proposed the following changes to Section 304.213: (1) change Union Oil of California to UNO-VEN to reflect a change in ownership; (2) add a concentration-based limitation for ammonia nitrogen on a monthly basis; (3) require a report on nitrogen in feedstock within 60 days after the end of the calendar year; and (4) to extend the expiration date of the rule. (Pet. at 3.) The Board granted the site-specific rule found in Section 304.213 to Union Oil of California on March 19, 1987 in Docket R84-13.

UNO-VEN operates a petroleum refinery located in Will County near Lemont, Illinois. (Pet. at 5.) The refinery produces approximately 25 different products of which ninety-five percent of the output goes into making automobile gasoline, diesel fuels, home heating oils and turbine fuels used in the Midwest. (Pet. at 6.) The refinery has a current rated capacity of 153,000 barrels per day and employs approximately 750 people. (Pet. at 6.)

UNO-VEN currently discharges to the Chicago Sanitary and Ship Canal (Canal) which is a tributary to the Illinois River. (Pet. at 4.) UNO-VEN currently takes approximately 4.4 million gallons of water from the Canal daily and discharges approximately 3.8 million gallons of water to the Canal. (Pet. at 6.) The difference is due to cooling tower evaporation and steam losses. (Pet. at 6.) UNO-VEN reports that the 3.0 mg/l NH_3-N effluent level limit in 35 Ill. Adm. Code 304.122(b) has not been attainable on a consistent basis. (Pet. at 7.)

The site-specific rule granted in 1987 required the refinery to continue its efforts to reduce the concentration of ammonia nitrogen in its wastewaters. (Pet. at 10.) UNO-VEN has continuously upgraded its wastewater treatment plant to comply with this requirement. (Pet. at 10.) UNO-VEN has spent in excess of $4.2 million on improvements to the wastewater treatment plant. (Pet. at 11.)

UNO-VEN has improved the plant's performance of ammonia removal despite higher nitrogen content in the crude oil, a higher crude throughput, and a decrease in wastewater volume. (Pet. at 13.) From 1986 to 1991, the annual average ammonia concentration declined from 22.2 to 2.4 mg/l, a 89% reduction. (Pet. at 13.)

A consultant's report concludes that the following technologies have the greatest potential for meeting the standard:

- activated sludge with powdered activated carbon treatment,
- activated sludge with fluidized bed reactor; and
- activated sludge with granular media filtration and ion exchange.

(Pet. at 14.)

The costs of implementing these technologies range from $7,094,000 to $18,382,000 with operating and maintenance costs from $1,444,000 per year to $1,913,000 per year. (Pet. at 14.) It is anticipated that the fluidized bed reactor would have a unit cost of $240 per pound of ammonia removed. (Pet. at 16.) The consultant does not recommend that UNO-VEN pursue any of these alternatives. (Pet. at 14.) The consultant concluded that ongoing improvements to the wastewater treatment facility have at least as great a prospect of reducing ammonia nitrogen levels as the alternate technologies. (Pet. at 14.)

Studies performed for UNO-VEN show that the discharge has no substantial impact upon dissolved oxygen levels. (Pet. at 19.) UNO-VEN further maintains that requiring compliance with the ammonia nitrogen standard would not result in a measurable

improvement of the Illinois River System. (Pet. at 19.)

At hearing UNO-VEN presented testimony from William Busse, Lee Erchull, James Huff and Robert M. Stein. Mr. Busse is the supervisor of environmental services at UNO-VEN. He testified on the status of the UNO-VEN refinery in relation to the requested site-specific rule. Mr. Erchull is the senior environmental specialist for UNO-VEN. He testified on UNO-VEN's progress in removing ammonia from its wastewater in an effort to comply with the ammonia standards. In particular, he explained changes to the wastewater treatment plant and changes in the sour water stripper.

Mr. Stein is an environmental consultant with AWARE Environmental Inc. He testified on an evaluation performed on UNO-VEN's waste water treatment program. This evaluation found that UNO-VEN has a state-of-the-art wastewater treatment system which exceeds Best Available Technology criteria. However, the data shows that UNO-VEN is unable to consistently and reliably attain the ammonia nitrogen limitation of 3.0 mg/l. The study also included an evaluation of additional technologies for the removal of ammonia. However, additional studies are needed before any decision could be made concerning additional treatment plant controls.

Mr. Huff of Huff & Huff Inc., an environmental consultant, testified on a 1992 study on ammonia discharge at UNO-VEN. The study shows a reduction in the ammonia discharge since the 1984 site specific rule was adopted. The study also found no localized impacts from the discharge during a stream investigation. He also notes that UNO-VEN is continuing to pursue means of further decreasing the ammonia discharge.

On June 21, 1993, the Agency and UNO-VEN filed a joint comment recommending changes to the site-specific rule as proposed. The proposed changes included using a daily maximum limit for ammonia nitrogen of 26 milligrams/liter (m/l) and a 30 day monthly average limitation of 9.4 m/l. The comment also changes the date of termination of the site specific rule to December 31, 1999. Included with the comment were exhibits in support of the recommended changes.

CONCLUSION

The Board agrees that site-specific relief is appropriate, based on the record of this proceeding. UNO-VEN has attempted to achieve compliance by modifying its wastewater treatment system and studying alternate technologies. While these efforts have substantially reduced the ammonia nitrogen discharges, compliance with the effluent limitation is still not obtainable on a consistent or reliable basis. The rule the Board today proposes

for second notice is the rule proposed by UNO-VEN in its petition with the modifications agreed to between the Agency and UNO-VEN.

ORDER

The Board directs the Clerk to cause the filing of the following proposal for Second Notice with the Joint Committee on Administrative Rules.

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 Nitrogen (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

SUBPART C: TEMPORARY EFFLUENT STANDARDS

AUTHORITY: Implementing Section 13 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111 1/2, pars. 1013 and 1027).

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 R86-17(B) 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 R88-21(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 _____ Ill. Reg. _____, effective _____.

Section 304.213 UNO-VEN Refinery Ammonia Discharge

a) This Section applies to discharges ~~from Union Oil Company of California's~~ UNO-VEN's ~~Chicago~~ Refinery, located in Lemont into the Chicago Sanitary and Ship Canal.

b) The requirements of Section 304.122(b) shall not apply to the discharge. Instead ~~Union~~ UNO-VEN must meet applicable Best Available Technology Economically Achievable (BAT) limitations pursuant to 40 CFR 419.23 ~~(1985)~~ (1992) incorporated by reference in subsection (c). UNO-VEN shall also meet a monthly average limitation for ammonia nitrogen of 9.4 mg/l and a daily maximum limitation of 26.0 mg/l.

c) The Board incorporates by reference 40 CFR 419.23 ~~(1985)~~ (1992) only as it relates to ammonia nitrogen as N. This incorporation includes no subsequent amendments or editions.

d) ~~Union~~ UNO-VEN shall continue its efforts to reduce the concentration of ammonia nitrogen in its wastewaters.

e) ~~Union~~ UNO-VEN shall monitor the nitrogen concentration of its oil feedstocks and report on an annual basis such concentrations to the Agency.

f) ~~Union~~ UNO-VEN shall submit the reports described in subsection (e) no later than ~~30~~ 60 days after the end of a calendar year.

g) The provisions of this Section shall terminate on ~~December 31, 1993~~ December 31, 1999.

(Source: Amende at _____ Ill. Reg. _____, effective _____.)

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 18th day of November, 1993, by a vote of 5-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board