

ILLINOIS POLLUTION CONTROL BOARD
August 26, 1993

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

Proposed Rule. First Notice.

OPINION AND ORDER OF THE BOARD (by B. Forcade):

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 17, 1993, UNO-VEN filed a motion for decision. The motion requests the Board to propose the rulemaking for first notice. UNO-VEN indicates that the existing site-specific rule will expire at the end of the year. UNO-VEN claims that if the Board does not proceed to adopt the proposed rule, UNO-VEN would need to pursue other relief. The Board grants UNO-VEN's motion and proceeds to send this rule to first notice.

UNO-VEN is proposing four changes to the site-specific rule change granted in 1987 found in 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 until December 31, 2001. (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 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 NH₃-N state

effluent level limit has not been attainable on a consistent basis. (Pet. at 7.)

The site-specific rule making 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 at 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.) This decrease was achieved despite a higher nitrogen content in crude oil, a higher crude throughput, and a decrease in wastewater volume. (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 first 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 First Notice in the Illinois Register.

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

PART 304
 EFFLUENT STANDARDS

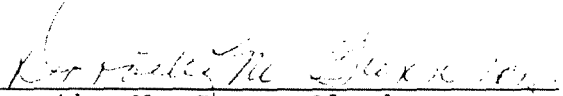
SUBPART B: SITE SPECIFIC RULES AND EXCEPTIONS
 NOT OF GENERAL APPLICABILITY

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~~ 1999.

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 24 day of September, 1993, by a vote of 6-1.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board