

ILLINOIS POLLUTION CONTROL BOARD  
October 5, 1982

UNION OIL COMPANY )  
OF CALIFORNIA, )  
 )  
Petitioner, )  
 )  
v. ) PCB 82-87  
 )  
ILLINOIS ENVIRONMENTAL )  
PROTECTION AGENCY, )  
 )  
Respondent. )

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

This matter comes before the Board upon a June 28, 1982 petition for variance filed by Union Oil Company of California requesting a two-year renewal of its current variance from Rule 406 of Chapter 3 (now §304.122(b) of 35 Ill. Admin. Code, Subtitle C: Water Pollution), as it relates to the 3.0 mg/l ammonia nitrogen effluent standard applicable to Union's Chicago Refinery discharge into the Chicago Sanitary and Ship Canal.

On August 27, 1982 the Illinois Environmental Protection Agency (Agency) filed a recommendation that variance be granted subject to certain conditions. Union filed a response to that recommendation on September 9, 1982. Hearing was properly waived and none was held. While the Village of Romeoville filed an objection to the variance on July 23, 1982, that objection was later withdrawn.

Union owns and operates a petroleum refinery located in Lemont in Will County with a rated capacity of 150,000 barrels of crude oil per day, almost all of which is sour crude which is high in nitrogen content and contributes to the high ammonia nitrogen levels in its wastewater discharge. Approximately 3.46 million gallons per day (MGD) of process wastewater and contaminated surface runoff are treated in Union's wastewater treatment plant which consists of flow equalization and storm basin, two API separators, a primary clarifier, activated sludge basin and a polishing pond.

Union has been granted three previous variances from the ammonia nitrogen effluent limitation of §304.122(b) (PCB 77-163, PCB 78-168 and PCB 80-124). In PCB 80-12 (39 PCB 438, September 4, 1980) variance was granted until September 29, 1982, subject to certain conditions including a daily average ammonia nitrogen effluent limitation of 570 pounds and a daily maximum of 1,010 pounds.

During the most recent variance period Union's daily average discharge of ammonia nitrogen has varied from 146 pounds (October, 1981) to 547 pounds (February, 1982) while the minimum has been 24 pounds (November, 1981) and the maximum has been 1,001 pounds (January, 1981). During this time period an average reduction of 4.6 mg/l (23%) from the influent levels was achieved. However, the lowest average monthly discharge concentration was 6.0 mg/l, considerably in excess of the §304.122(b) standard.

Union has expended considerable time and effort in a good faith attempt to reach ultimate compliance with the ammonia nitrogen standard. Its wastewater plant is currently valued at over 32 million dollars and the present operating cost is 1.8 million dollars per year. It has achieved a 72% reduction in the ammonia nitrogen concentration of its treated effluent water since 1973 through source control, upgrading facilities and applied research on treatment techniques. Three sour water strippers (worth 4.4 million dollars) constitute the primary means of ammonia control, but also result in excursions during periods of malfunction. However, Union indicates that projects to improve their efficiency have been ongoing during the present variance period as have other projects including the use of mutant nitrifying bacteria, and alkalinity and temperature control at a cost of \$588,000.

Union intends to continue work on these projects which show promise during the extended variance period at a cost of approximately \$250,000, but alleges that present technology does not exist to enable it to project a compliance schedule.

Union alleges, and the Agency does not disagree, that the environmental impact of a variance extension will be minimal in that ammonia nitrogen concentration in the Chicago Sanitary and Ship Canal will be increased by less than 2% due to its discharges. However, a sampling station five miles downstream of Union's discharge point shows numerous dissolved oxygen violations and other downstream monitoring points have also shown some violations, such that Union may contribute to an increase in such violations. This contribution could be offset by the implementation of aeration.

Given that the environmental impact of the requested discharge is small, and can be offset by aeration, and that the technology does not appear to exist to reach compliance, the Board finds that denial of variance would constitute an arbitrary and unreasonable hardship, and an extension of the variance will be granted, subject to certain conditions.

The only condition to which Union seriously objects is that which imposes interim ammonia nitrogen effluent limitations tighter than those imposed upon the previous variance. The

Agency recommends that these be set at a monthly average of 550 pounds per day and a daily maximum of 900 in order to avoid backsliding. Based upon the data available for the last two years, and taking into consideration the substantial variability demonstrated by those data, the Board will impose limitations of 550 pounds per day as a monthly average and 1,010 pounds per day maximum.

The Board notes that Union will have been operating under four variances for more than a five-year period without having presented a compliance plan. The reason is that the technology does not presently exist to reasonably reach compliance. However, seriatim variances are not intended to act as substitutes for a site-specific regulation. Therefore, the Board will require that a compliance plan be submitted by May 1, 1984. If no such plan is feasible by then, Union should consider the proposal of a site-specific regulatory change.

This Opinion constitutes the Board's findings of facts and conclusions of law in this matter.

#### ORDER

Union Oil Corporation is hereby granted a variance from Section 304.122(b) of 35 Ill. Admin. Code, Subtitle C: Water Pollution, until September 29, 1984 subject to the following conditions:

1. Union's ammonia nitrogen effluent discharge shall not exceed a monthly average of 550 pounds per day or a daily maximum of 1,010 pounds during the period of this variance;
2. Union shall continue efforts to develop a program which will result in compliance with Section 304.122(b) of Subtitle C;
3. Union shall continue to submit quarterly reports to the Agency outlining its efforts to achieve compliance with Section 304.122(b) of Subtitle C;
4. Union shall, by May 1, 1984, provide the Agency with a written technical proposal and time schedule for compliance with Section 304.122(b) of Subtitle C;
5. Within 60 days of the date of this Order, Union shall submit an analysis of the level of dissolved oxygen depletion caused by its ammonia nitrogen discharge to the Chicago Sanitary and Ship Canal and a plan to replace the amount depleted through aeration of its discharge or in-stream aeration and shall implement such plan within 270 days of the date of this Order; and

- 6. Within 45 days of the date of this Order, Union shall execute and forward to the Board and to the Illinois Environmental Protection Agency, Compliance Assurance Unit, Water Pollution Control Division, 2200 Churchill Road, Springfield, Illinois 62706, a Certification of Acceptance and Agreement to be bound to all terms and conditions set forth in the Order. The 45-day period shall be held in abeyance during any period in which this matter is being appealed. The form shall be as shown below:

CERTIFICATION

I (We), \_\_\_\_\_, hereby accept(s) and agree(s) to be bound by all terms and conditions of the order of the Pollution Control Board in PCB 82-87, dated October 5, 1982.

\_\_\_\_\_  
Petitioner

\_\_\_\_\_  
By: Authorized Agent

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

IT IS SO ORDERED.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order were adopted on the 5th day of October, 1982 by a vote of 5-0.

Christan L. Moffett  
Christan L. Moffett, Clerk  
Illinois Pollution Control Board