

ILLINOIS POLLUTION CONTROL BOARD

August 22, 1984

MOBIL CHEMICAL COMPANY,)
)
 Petitioner,)
)
 v.) PCB 83-166
)
 ENVIRONMENTAL PROTECTION AGENCY,)
)
 Respondent.)

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

On November 15, 1983, Mobil Chemical Company ("Mobil") filed a Petition for Variance from various water pollution regulations applicable to its De Pue facility until November 15, 1988. In response to Board Orders, Mobil filed an amended petition on February 3, 1984 and a second amended petition on March 26, 1984. The Illinois Environmental Protection Agency ("Agency") filed a recommendation on May 21, 1984 that variance be granted but for a shorter term and with more stringent limitations than requested by Mobil. On June 7, 1984, the Agency and Mobil met and, after discussion, agreed on appropriate interim limitations should the variance be granted. No hearing was held, no comments were received.

Mobil requests a five-year variance for water quality standards for 35 Ill. Adm. Code 302.212 (ammonia nitrogen and unionized ammonia) and 302.208 (fluoride, total dissolved solids, and sulfate) for its Outfall 002.¹ Mobil was previously granted a one-year variance for certain water quality standards applicable to Outfall 002 on November 12, 1982 in Mobil Chemical Co., v. Illinois Environmental Protection Agency, PCB 82-18, 49 PCB 275, Mobil provided a copy of the Opinion and Order in that case, as attachment "A" to the Petition, to provide general background information on the facility, outfall and receiving waters; that information will be repeated here:

Mobil's phosphate fertilizer manufacturing operation employs 117 employees to produce 250,00 tons of fertilizer per year from the raw materials phosphate rock, sulfur, and ammonia. The facility consists of a sulfuric acid manufacturing plant, a phosphoric acid manufacturing plant, and a diammonium phosphate (DAP) plant.

¹. To the extent Mobil requests a variance for Outfall 001, the issue is discussed infra at p. 5.

Outfall 001 discharges non-contact cooling water and boiler feedwater treatment effluent. Mobil currently draws 15 million gallons per day (mgd) of water from the Illinois River for use in its operation, but has the capacity to draw 20.3 mgd. 98% of this water, 14.6 mgd, is used "as is" for non-contact cooling of sulfuric and phosphoric acids. An additional 94,500 gallons are used "as is" for dilution water in the sulfuric acid plant.

What has been called Outfall 002 consists of groundwater seepage from gypsum storage area and clearwater pond used in Mobil's phosphoric acid manufacturing process. The gypsum/clearwater pond treatment system operates on closed-loop basis. In this recycling system, water serves as the transport medium for gypsum produced during acid manufacture and filtered out of the acid. Gypsum is slurried with pond water and pumped to the gypsum disposal area. The gypsum is settled in the gypsum pond, and most of the clear water is recycled to the acid plant. However, seepage from the gypsum pond flows into an unnamed ditch running along the perimeter of the gypsum/clearwater pond system. This ditch is tributary to Negro Creek, which is tributary to the Illinois River. Seepage to the unnamed ditch ranges from 10,000 to 28,000 gpd. The ditch fails to comply with the state's water quality standards for fluoride, ammonia nitrogen, TDS and pH, and with the federal phosphorus standard. Stream samples taken 1,200 feet downstream of the process wastewater treatment system in the period November, 1981 through January, 1982 showed levels for these parameters in the following ranges:

Fluoride	5.64 - 36.0 mg/l	Phosphorus	131. - 402.mg/l
Ammonia	63.4 - 230.0 mg/l	pH	6.54 - 7.27
TDS	1,224.0 - 4,556.0 mg/l		

Mobil has had a long history of problems with the pond system, which received its first operating permit in 1972. Mobil states that when the ponds were first constructed, state-of-the-art industry design recommendations were for installation of separate leak and seepage containment systems along the ponds' base. Mobil felt that an improved design eliminated the need for such containment systems, particularly since a natural clay layer between 5 and 25 feet thick underlays the ponds. The same design system was employed

in a 1976 expansion of the gypsum pond, at which time a 12 inch clay liner was put inside the expanded earthen dam.

Leaks formed in the pond walls. In 1977 the Agency issued supplemental permit allowing for construction of a collection pond (swale) to contain seepage from the gypsum pond prior to its being pumped back into a clearwater pond. An experimental permit was also issued to allow construction and installation of two pilot test collection trenches, one 45 and the other 125 feet along, and appurtenant pipes, pumps, and to allow re-routing of the unnamed ditch. The system was permitted to test the feasibility of intercepting seepage from the gypsum pond before its entry into the ditch. The Agency reports that only the 45 foot trench was built, and that its use was discontinued by Mobil in 1981 since the company felt it had no significant effect. Finally, in October 1981 the Agency issued Mobil a permit to operate a collection sump and pump back system. This involved the above described re-routing of a portion of the ditch and use of another portion to collect the seepage. The sump is used to dewater the general area upstream of the location where the existing ditch joins the bypass. Water is pumped back to the swale.

Mobil states that it expended \$90,000 in 1978 to install the swale and pump system along the base of the affected pond. As this took care of only 90% of the seepage, Mobil began further investigation as to the problem's source. Some 4 years and \$95,000 later, Mobil states that it believes that an opening has developed along the base of the pond's earthen dam allowing small quantities of water to seep out and flow below ground level along the top of the area's underlying clay layer, to emerge in the unnamed ditch.

The Board granted Mobil a one-year variance in that case subject to specific limitations and a requirement that Mobil design and construct additional control mechanisms. Mobil completed all required activities in March of 1983, ahead of the Board's ordered schedule (Pet., ¶6). Despite completion of the required improvements Mobil still did not comply with the regulatory limits. In early October, 1983, Mobil augmented the system with the addition of a 1,500 foot collection system extension. The original system and extension was completed at a cost of \$135,000 (Am. Pet., p. 4). Although concentrations of fluoride, ammonia nitrogen and total dissolved solids ("TDS") have decreased significantly, Mobil is still unable to achieve full compliance (Am. Pet., ¶B6). Mass flow graphs indicate a trend towards decrease

of total pollutant discharge on an average basis even though concentrations fluctuate significantly based on weather-related factors (Am. Pet., ¶B7(a)).

Mobil is not aware of any way to achieve immediate compliance with applicable standards or any effective way to eliminate seepage. Neither plant shutdown nor production curtailment would affect the seepage (Am. Pet., ¶E). The Agency agrees that compliance would be technically difficult here and that the present approach may be the best available even though it has not provided a complete cure (Rec., ¶11).

Mobil retained an environmental consultant to evaluate the impact of the seepage on the receiving waters. The consultant concluded that natural factors limiting the development of the stream are as significant as, if not greater than, the seepage influence (Am. Pet., ¶B8). Specific natural factors limiting development included:

1. The size distribution of channel bottom material,
2. Availability of sunlight or shading,
3. Depth is shallow and impermanent,
4. Channelization caused loss of large stable rock substrates,
5. Sedimentation from upstream tributary, and
6. Recurring high volume, high velocity flooding.

Essentially the same types of organisms occur upstream and within the seepage zone.

Mobil and the Agency have made the following recommendation for conditions of the Variance:

Ammonia Nitrogen	
Monthly Average	27
Maximum	45
Un-Ionized Ammonia	No limitation
Fluoride	
Monthly Average	4.5
Maximum	10
TDS	
Monthly Average	1300
Maximum	2000

Sulfate

Monthly Average	500
Maximum	685

The Agency recommends a three-year variance to allow more rapid review of the impact and possible future improvements, Mobil requests five years.

Based on the record in this case the Board finds there is no reasonable technology available for compliance and that to require immediate compliance would impose an arbitrary and unreasonable hardship in view of the limited evidence of environmental harm. The Board will grant a variance from the applicable regulations. This variance will be for the shorter period to allow rapid re-evaluation, should any additional restrictions prove necessary.

In its February 3, 1984 Amended Petition for Variance, Mobil requests relief from "sulfate limitations applicable to Outfalls 001 and 002..." (Am. Pet., ¶A3). Outfall 001 is never addressed in the remainder of the petitions, supporting documentation or Agency recommendation. The Board presumes that inclusion of Outfall 001 in that one sentence was a typographical error. This Opinion and Order in no way addresses or grants relief for Outfall 001.

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

ORDER

Mobil Chemical Company is hereby granted a variance, as of November 15, 1983, applicable to Outfall 002 only, from 35 Ill. Adm. Code 302.212 and 302.208 (fluoride, total dissolved solids, and sulfate only), subject to the following conditions:

1. This variance shall expire July 1, 1987.
2. Water quality at Outfall 002 shall not exceed the following limitations (in mg/l):

	<u>Monthly Average</u>	<u>Maximum</u>
Ammonia Nitrogen	27	45
Un-ionized Ammonia	No limitation	No limitation
Fluoride	4.5	10
Total Dissolved Solids	1300	2000
Sulfate	500	685

3. Mobil Chemical Company shall at all times maintain and operate its existing bypass/sump/collection system in such a manner as to achieve optimal performance. This shall include measures to prevent or alleviate the buildup of silt in the pumping station.

4. Mobil Chemical Company shall perform sampling and analyses in accordance with NPDES permit IL 0032182. In addition, un-ionized ammonia shall be monitored or calculated at the same frequency as total ammonia nitrogen.
5. Mobil Chemical Company shall thoroughly investigate any and all possible technologies for achieving compliance, and shall file a report of its findings with the Agency's Compliance Assurance Section on July 1, 1985. This report shall also detail the steps to be taken to achieve compliance by July 1, 1987.
6. Within 45 days of the date of this Order, Mobil Chemical Company shall execute a Certification of Acceptance and Agreement to be bound to all terms and conditions of this variance. Said Certification shall be submitted to the Agency at 2200 Churchill Road, Springfield, Illinois 62706. The 45-day period shall be held in abeyance during any period that this matter is being appealed. The form of said Certification shall be as follows:

CERTIFICATION

I, (We) _____, hereby accept and agree to be bound by all terms and conditions of the Order of the Pollution Control Board in PCB 83-166, August 22, 1984.

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 22nd day of August, 1984 by a vote of 6-0.

Dorothy M. Gunn
Dorothy M. Gunn, Clerk
Illinois Pollution Control Board