

ILLINOIS POLLUTION CONTROL BOARD  
November 29, 1990

IN THE MATTER OF: )  
 )  
THE PETITION OF BORDEN CHEMICALS )  
AND PLASTICS OPERATING LIMITED ) R86-14  
PARTNERSHIP (FORMERLY BORDEN ) (Rulemaking)  
CHEMICAL COMPANY) FOR A SITE- )  
SPECIFIC RULE CHANGE REGARDING )  
WASTEWATER DISCHARGES INTO AN )  
UNNAMED TRIBUTARY OF LONG )  
POINT SLOUGH )

ADOPTED RULE            FINAL ORDER

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

This matter comes before the Board on a petition filed March 31, 1986 by Borden Chemicals Company, now before the Board as Borden Chemicals and Plastics Operating Limited Partnership ("Borden"). (See Order of August 4, 1988.) Borden seeks site-specific relief from the Board's effluent limitations for total dissolved solids ("TDS") and for chloride and from the requirement that no effluent shall cause a violation of applicable water quality standards. 35 Ill. Adm. Code 302.208 and 304.105. Borden's discharges originate at its Illiopolis, Illinois plant and are primarily attributable to wastewater from the air pollution control equipment which Borden began operating in 1978.

Procedural History

The merit hearing was held on December 10, 1986 in Springfield, Illinois. The Economic Impact Study ("EcIS") was filed by the Department of Energy and Natural Resources ("DENR") on October 17, 1988. The hearing on the EcIS was held on January 10, 1989. On February 22, 1989, the Illinois Environmental Protection Agency ("Agency") filed its comments and Borden filed its Response to Hearing Officer's Request for Information.

The Board's First Notice Opinion and Order was issued on February 8, 1990. Notice was published in the Illinois Register as Part 304.211 at Ill. Reg. 2999 on March 2, 1990. On April 12, 1990, the Agency submitted comments to the Board's First Notice Opinion and Order. On April 18, 1990, Borden filed its Response to the Agency Comments to First Notice.

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The Board wishes to acknowledge the contributions of Margaret A. Dolan Fliss, who acted as hearing officer and participated in drafting these site-specific rules, and Elizabeth Schroer Harvey and Lorilyn Chamberlin, who acted as hearing officers.

As a result of First Notice Comments, the Board deemed it appropriate to issue a second First Notice Opinion and Order on June 7, 1990. Notice was published in the Illinois Register as Part 303.431 at 14 Ill. Reg. 9784, effective June 22, 1990 and Part 304.211 at 14 Ill. Reg. 9700, also effective June 22, 1990. The 45-day comment period ended on August 6, 1990. The Board received comments from both the Agency ("Agency") and Borden on August 6, 1990. On August 8, 1990, comments were also received from the Administrative Code Unit of the Office of the Secretary of State suggesting minor language changes.

The Board issued its Second Notice Proposed Rule, Opinion and Order on August 30, 1990. The Second Notice period began on October 9, 1990 and ended November 26, 1990. The Joint Committee on Administrative ("JCAR") issued its Letter of No Objection on November 20, 1990.

### Background

The present petition relates to Borden's Illiopolis, Illinois plant, which is one of more than 50 plants operated by Borden. The facility is located in a rural area one mile west of Illiopolis. The plant primarily produces polyvinyl chloride resins, polyvinyl acetate emulsions, and polyvinyl chloride plastic film. The plant presently employs in the range of 300 people.

The wastewater effluent from Borden's plant contains elevated levels of total dissolved solids ("TDS") and chloride. This is largely due to wastewater from the air pollution control equipment which Borden installed to comply with the National Emission Standards for Hazardous Air Pollutants ("NESHAPS") promulgated for vinyl chloride pursuant to Section 301(a) of the Clean Air Act. The emission control system became operational on October 21, 1978, and was installed at a cost of \$15 million. This wastewater is commingled with other sources of plant wastewater prior to discharge. The plant discharges approximately 800,000 gallons of effluent per day. The maximum TDS concentration has been as high as 2720 mg/l during the period from June, 1989 through June, 1990, during which time the average peaked at 2380 mg/l in November of 1989. During the same months, the chloride concentration reached a maximum of 760 mg/l, and the average chloride concentration peaked at 676 mg/l in November of 1989. See Borden's Comments, August 6, 1990. These concentrations do not violate any technology-based effluent limitations, but the discharge may cause water quality violations for TDS and chlorides in the receiving waters.

Borden discharges its effluent into a unnamed tributary which drains into Long Point Slough about one and one-half miles downstream of the discharge. Long Point Slough flows into the west branch of the Old River less than a mile from the confluence with the unnamed tributary. The east branch of Old River is blocked by a levee, but the west branch carries flows downstream to its confluence with the Sangamon River.

The unnamed tributary is approximately four feet wide. It has been channelized in the past, and no meandering or natural movement has occurred in recent years. For the most part, the ditch is overgrown with grasses, trees, and other vegetation. During dry weather, Borden's 800,000 gallons per day of effluent constitute 90-95% of the tributary flow. During wet weather, flows increase substantially due to agricultural runoff from pastures adjacent to the tributary.

Like the unnamed tributary, Long Point Slough receives a majority of its dry weather flow from industrial wastewater. The Illiopolis sewage treatment plant also discharges into the Slough several kilometers upstream of its confluence with the unnamed tributary. The Slough ranges from 3 to 5 meters wide and varies in depth from a few centimeters to several meters. The banks along the Slough are heavily vegetated.

Borden's effluent discharge is governed by both TDS and chloride water quality standards in the unnamed tributary downstream of Borden's discharge or in Long Point Slough downstream of the confluence with the unnamed tributary (Petition, Exhibit A, Table 1). The applicable regulation provides that concentrations of total dissolved solids ("TDS") and of chloride shall not exceed 1000 mg/l and 500 mg/l, respectively. 35 Ill. Adm. Code 302.208. Additionally, Borden's discharge is also regulated under 35 Ill. Adm. Code 304.105, which provides that no effluent, alone or in combination with other sources, shall cause a violation of any water quality standard.

#### Statutory Authority

Proposals for site-specific regulations are governed by the provisions of Title VII of the Act, specifically, Section 27 (Ill. Rev. Stat. 1987 ch. 111-1/2, par. 1027). Subsection (a), in relevant part, states as follows:

- a. The Board may adopt substantive regulations as described in this Act. Any such regulations may make different provisions as required by circumstances for different contaminant sources and for different geographical areas...and may include regulations specific to individual persons or sites. In promulgating regulations under this Act, the Board shall take into account the existing physical conditions, the character of the area involved...the nature of the...receiving body of water...and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution.

Section 27 (a) of the Act. (emphasis added)

## Technical Feasibility and Economic Reasonableness

As more fully described in the Board's First Notice Opinion and Order of February 8, 1990, Borden's compliance with existing standards may be technically feasible, but compliance would not be economically reasonable in this case. The EcIS reports compliance costs ranging from \$877,483 to \$1,486,568. Borden's estimation of the cost to comply was much greater, ranging from \$17,733,000 to \$80,838,000 for the same compliance alternatives evaluated by DENR. The Board found that Borden's cost estimates more accurately depicted the costs to comply. The Agency's comments also concluded that Borden's figure appeared more realistic.

## Environmental Impact

The environmental benefit from compliance would be minimal according to reliable information from both Borden and the Agency. The Board concluded in its First Notice Opinion and Order of February 8, 1990 that under these circumstances, the costs of compliance outweigh any environmental benefit presented in the record. This same conclusion was also reached by Borden, the Agency, and DENR. The Board found that based on the record before it, site-specific regulatory relief should be granted.

The Board's First Notice Opinion and Order summarized the environmental impact as follows:

....Much of the information on environmental effects comes from the following sources; the "1984 Survey of Unnamed Ditch and Long Point Slough for the Borden Chemical Company" by the Academy of Natural Sciences of Philadelphia (Petition; Attachment A); the "Water Quality Assessment of a Major Portion of the Sangamon River Basin" Volume II, March 31, 1983 by the Agency (Ex. 2); various effluent and water quality sampling done by Borden (Petition; Attachments C and D); two stream assessment surveys by the Agency (Exs. 5 & 6) and hearing testimony concerning these documents.

The above materials support, and the participants agree, that the impacted areas of concern extend, at most, from the point of discharge at the unnamed tributary to the point of confluence with the Sangamon River. Further, the stretch of the Old River included in this segment is so distant as to receive only minimal impact and then only during very low flow conditions. Clearly the primary areas of concern for the elevated TDS and chloride levels are the unnamed tributary and Long Point Slough.

The Academy of Natural Sciences of Philadelphia conducted a study of the impacted area in July and September of 1984. That study evaluated the chemical, physical and biological factors of significance at six sampling stations. The study evaluated the impact of

more than just TDS and chlorides. The results of the Academy of Natural Sciences were cogently summarized as follows:

Results of the studies indicate that the chemical composition and physical characteristics of the water of the unnamed ditch and Lont [sic] Point slough are altered by the discharged effluent. Biological impacts, however, were most evident immediately downstream of the Borden plant outfall on the unnamed ditch, especially during the low-flow survey conducted in September. The low diversity of available habitat and the seasonal (intermittent) nature of the flow of water in the ditch strongly influenced the chemical, physical and biological character of the receiving bodies. The only demonstrable impacts on the biota of Long Point Slough were subtle changes in algal species composition and increased algal growth downstream of the unnamed ditch. The impacts observed during this study appear to result primarily from nutrient enrichment and toxicity of un-ionized ammonia. There is no indication that the concentrations of chlorides and total dissolved solids observed at the time of the study would alter the biota of the receiving streams.

(Pet., Attachment A, p.i)

The Agency's 1985 Streams Assessment Survey reached similar conclusions:

The data from the present survey compared well with the results reported by ANSP. There was a definite shift in macroinvertebrate populations downstream of the Borden discharge toward the more pollution tolerant Chironomidae and Oligochata. From the Agency data it also appeared that the major impact upon the stream occurred in the vicinity of Station C-2, approximately 1.0 mile downstream. The ANSP did not collect a sample in this area. At Station C-3, approximately 2.8 miles downstream, the stream had almost returned to upstream conditions. There appeared to be little or no impact on Long Point Slough. (Ex. 5, p. 2)

The EcIS evaluated several environmental impacts. First, the report estimated that the levels of chloride and TDS would impact 25% of the spawning fish each year, killing a total of 128 fish for each of 30 years. The report stated that contamination from the waterways would enter underground water and contaminate six private wells associated with homesteads near the unnamed tributary and Long Point Slough. The report calculated 87.6 person-hours per year of discomfort from drinking contaminated water. The report also calculated that contamination of the Illiopolis public water supply with dissolved solids would result in \$37,278 of corrosion to metallic surfaces due to dissolved solids levels. The connection of chlorides in the drinking water to high blood pressure and cardiac disease was considered too tenuous to evaluate.

There was substantial testimony at hearing that the ditch would be a discharge point for the groundwater rather than the other way around. (January 10, 1989 Hearing, p. 17-21, 73-91). Woodward-Clyde Consultants prepared a short geology and hydrogeology report which concluded that Borden effluent is not entering local groundwater wells. (Ex. 13, pp. 23-27). The Agency did not embrace the concept of groundwater contamination from Borden's effluent.

R86-14, Opinion and Order, Feb. 8, 1990 pp.5-7.

#### First Notice Proposed Rule

In its First Notice Opinion and Order, the Board proposed site-specific relief in the form of an amendment to 35 Ill. Adm. Code, Subtitle C: Water Pollution, Chapter I, Pollution Control Board, Part 304, Effluent Standards. At First Notice, the Board proposed to add a new section to Subpart B: Site-Specific Rules and Exceptions Not of General Applicability. The proposed new section, 35 Ill. Adm. Code 304.211, would be entitled: Discharges from Borden Chemicals and Plastics Operating Limited Partnership Into An Unnamed Tributary of Long Point Slough. The language of the new section limited relief to Borden's Illiopolis Plant and provided relief from Section 304.105 as it applies to water quality standards for total dissolved solids and chlorides limitations of Section 302.208. The relief would be effective so long as total dissolved solids and chloride concentrations do not exceed 2,500 mg/l and 800 mg/l, respectively.

The new section as initially proposed stated:

Section 304.211	Discharges From Borden Chemicals and Plastics Operating Limited Partnership Into an Unnamed Tributary of Long Point Slough 116-348
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- a) This Section applies to effluent from Borden Chemicals and Plastics Operating Limited Partnership's Illiopolis Plant which is discharged to an unnamed tributary of Long Point Slough in Sangamon County, Illinois.
- b) Such discharges shall not be subject to Section 304.105 as it applies to the water quality standards for total dissolved solids and chlorides of Section 302.208 in the unnamed tributary and Long Point Slough to the confluence with the Sangamon River so long as the concentration of total dissolved solids does not exceed 2,500 mg/l and so long as the concentration of chloride does not exceed 800 mg/l in those waters.

#### First Notice Comments

Although the First Notice Opinion and Order provided for regulatory relief for Borden by the addition of a new Section 304.211, in response to the Agency's comments filed April 12, 1990, the Board proposed to restructure the relief to be granted. The Agency's comments highlighted two issues: (1) the need to fashion relief in Part 303, rather than in Part 304 as had been proposed at First Notice; and (2) the need for numeric limits for total dissolved solids and chloride concentrations which specify monthly average effluent limitations, as well as the maximum daily concentrations designated by the Board at First Notice.

The Agency referred the Board to USEPA's position in reviewing the John Deere site-specific rulemaking in R81-26, that USEPA considered that the kind of relief proposed at First Notice amounted to de facto revision of the water quality standards for the receiving stream. According to the Agency, to be approvable under federal law, the relief for Borden should be included in Part 303, Water Use Designations and Site-Specific Water Quality Standards, Subpart C: Site-Specific Designations and Site-Specific Water Quality Standards.

#### Second First Notice Proposed Rule

The second First Notice proposal specifically incorporated the Agency's suggestions in First Notice Comments filed April 12, 1990 that: (1) relief should be structured in the form of amendments to both Part 303 and Part 304; and (2) monthly average effluent limitations should be established in addition to the specified maximum daily concentrations. (See R86-14, Second First Notice Opinion and Order, pp. 2-4, May 24, 1990.) The second First Notice proposal provided new Section 303.431 and 304.211 as follows:

Section 303.431 Long Point Slough and Its Unnamed  
Tributary

The general use water quality standards for total dissolved solids and for chloride contained in Section 302.208 shall not apply to Long Point Slough and its unnamed tributary, which receive discharges from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership, from the outfall of that facility to the point of the confluence of the unnamed tributary downstream with the Sangamon River. Instead this water shall comply with a total dissolved solids standard of 2,500 mg/l and a chloride standard of 800 mg/l.

Section 304.211 Discharges From Borden Chemicals and  
Plastics Operating Limited  
Partnership Into an Unnamed  
Tributary of Long Point Slough

The effluent standards for total dissolved solids and chloride discharged from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership into an unnamed tributary of Long Point Slough shall comply with the following effluent limitations as measured at the point of discharge to the unnamed tributary:

Total Dissolved Solids	2,500 mg/l daily maximum
	2,200 mg/l monthly average
Chloride	800 mg/l daily maximum
	700 mg/l monthly average

Second First Notice Comments

In separate comments filed on August 6, 1990, the Agency and Borden remained in agreement that site-specific relief should be granted. Three principal issues were raised in the second First Notice comments: (1) the particular sections(s) of the Board's regulations which should be amended to provide site-specific relief; (2) the specific numeric limitations for chloride and total dissolved solids ("TDS"); and (3) the use of average monthly limitations for these discharges.

1. Form of Regulatory Relief

In the second First Notice Opinion and Order dated May 24, 1990, the Board proposed amendments to the water quality provisions of 35 Ill. Adm. Code 303 and to the effluent standards of 35 Ill. Adm. Code 304. This represented a change from the Board's First Notice Opinion and Order of February 8, 1990, which provided regulatory relief by amending only Part 304 Effluent Standards.



In comments filed on August 6, 1990, the Agency suggested that, in lieu of new Sections 303.431 and 304.211 above, amendment of Part 303 alone "adequately addresses the changes in both water quality and effluent standards applicable to Borden's Illiopolis facility." Agency Recommendation, p. 3. The Agency recommended structuring the requested relief in Section 303.431 alone, as follows:

Section 303.431 \* Long Point Slough and Its  
Unnamed Tributary

- a. This second applies only to Long Point Slough and its unnamed tributary from the point of Borden Chemicals and Plastics Operating Limited Partnership's Illiopolis Plant's discharge to the confluence of Long Point Slough and Old River.
- b. The General Use water quality standards for total dissolved solids and for chloride contained in Section 302.208 shall not apply to Long Point Slough and its unnamed tributary as described above in subsection (a). Instead, this water shall comply with a total dissolved solids standard of 3000 mg/l and a chloride standard of 900 mg/l.
- c. Section 304.105 shall not apply to total dissolved solids and chloride discharge by Borden Chemicals and Plastics Operating Limited Partnership as described in subsection (a), so long as effluent discharged from the facility complies with the following effluent limitations as measured at the point of discharge to the unnamed tributary:

Daily Maximum

Total Dissolved Solids	3000 mg/l
Chloride	900 mg/l

The Agency's proposed Section 303.431(c) would impact the regulatory provision found in Section 304.105 that effluent discharges shall not cause a violation of an applicable water quality standard. The Agency's proposed subparagraph (c) would provide relief for Borden from this requirement governing effluent discharges as an amendment to Part 303, Water Use Designations and Site-Specific Water Quality Standards, rather than within Part 304, Effluent Standards.

The Board noted that the regulatory structure proposed by the Agency was used in the past in the case of Marathon Petroleum Company, R87-2 Opinion and Order, Sept. 13, 1989. However, the

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The Agency's August 6, 1990 filing referred to Section 303.341 which the Board concluded was a typographical error.

Board was persuaded that the format used in the second First Notice proposal would be more appropriate, and it would be consistent with the relief fashioned in the Board's more recent rulemaking, Site-Specific Limitation for the Modine Manufacturing Company Facility, Ringwood, Illinois, R87-36, Opinion and Order, May 24, 1990. The Board noted that to restructure the relief might require a third First Notice and consequent delays for procedural objectives only. As stated in the Board's May 24, 1990 Opinion and Order (p. 3) in this matter, the Agency had also indicated that USEPA might also find acceptable the regulatory structure proposed at second First Notice, and, therefore, further language revisions appeared unnecessary.

## 2. Numeric Limitations on Effluent Discharges

The separate comments received from both the Agency and Borden supported a modest increase in the numeric limitations for TDS and chloride concentrations. Rather than the initially proposed daily maximums of 2,500 mg/l and 800 mg/l for TDS and chloride, respectively, the participants strongly recommended that the limitations be set at 3,000 mg/l for TDS and 900 mg/l for chloride. The Board previously found that absence of significant environmental harm and the extreme costs of compliance supported the permanent relief requested. Furthermore, Borden provided historical data showing that the initially proposed numeric limitations would be exceeded periodically, resulting in violations of the newly established standards. The Board thus found that the numeric limitations should be increased as requested by the participants.

## 3. Monthly Average Limitations

At second First Notice, the Board imposed monthly average effluent limitations in direct response to the Agency's comments filed on April 12, 1990. The Board stated in its second First Notice Opinion and Order that "some level of monthly average limitations are ordinarily appropriate in conjunction with daily maximum limitations to regulate the total effluents received into waters of the State." Opinion and Order, May 24, 1990 (p. 4). However, the participants later agreed that the lack of environmental harm supported a finding that monthly average limitations should not be required. Since the Agency asserted that the daily maximum discharge "does not impair the water quality of the receiving stream," the Board concurred with the Agency's revised position in this limited factual setting, and the Board eliminated the monthly average limitations in the Second Notice Proposed Rule. (See Agency Comments, August 6, 1990, p.2)

## Second Notice Proposed Rule

As a result of second First Notice Comments discussed above, the Board found that the Agency and Borden provided sufficient support for increasing the numeric limitations for TDS and chloride discharges and for deleting the monthly average limitations. The Board therefore proposed for Second Notice

the following amendments to Parts 303 and 304:

Section 303.431 Long Point Slough and Its Unnamed  
Tributary

The general use water quality standards for total dissolved solids and for chloride contained in Section 302.208 shall not apply to Long Point Slough and its unnamed tributary, which receive discharges from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership, from the outfall of that facility to the point of the confluence of the unnamed tributary downstream with the Sangamon River. Instead this water shall comply with a total dissolved solids standard of 3,000 mg/l and a chloride standard of 900 mg/l.

Section 304.211 Discharges From Borden Chemicals and  
Plastics Operating Limited Partnership  
Into an Unnamed Tributary of Long  
Point Slough

The effluent standards for total dissolved solids and chloride discharged from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership into an unnamed tributary of Long Point Slough shall comply with the following effluent limitations as measured at the point of discharge to the unnamed tributary:

Total Dissolved Solids	3,000 mg/l daily maximum
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Chloride	900 mg/l daily maximum
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Final Adopted Rule

Having received from JCAR its Letter of No Objection based on the above rule proposed for Second Notice, the Board finds that no other changes are necessary to the proposed rule.

ORDER

The Board hereby adopts the following amendments to 35 Ill. Adm. Code 303 and 304 and directs the Clerk to file these amendments with the Secretary of State.

Part 303

Water Use Designations and Site Specific Water Quality Standards

Section 303.431 Long Point Slough and Its Unnamed Tributary

The general use water quality standards for total dissolved solids and for chloride contained in Section 302.208 shall not apply to Long Point Slough and its unnamed tributary, which receive discharges from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership, from the outfall of that facility to the point of the confluence of the unnamed tributary downstream with the Sangamon River. Instead this water shall comply with a total dissolved solids standard of 3,000 mg/l and a chloride standard of 900 mg/l.

Part 304

Effluent Standards

Section 304.211 Discharges From Borden Chemicals and Plastics Operating Limited Partnership Into an Unnamed Tributary of Long Point Slough

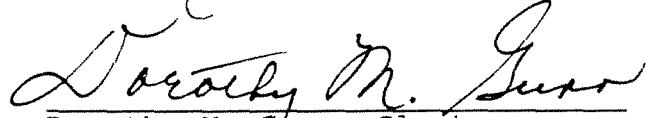
The effluent standards for total dissolved solids and chloride discharged from the Illiopolis, Illinois facility of Borden Chemicals and Plastics Operating Limited Partnership into an unnamed tributary of Long Point Slough shall comply with the following effluent limitations as measured at the point of discharge to the unnamed tributary:

Total Dissolved Solids                    3,000 mg/l daily maximum

Chloride                                    900 mg/l daily maximum

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 29<sup>th</sup> day of November, 1990, by a vote of 7-0.



Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board