Original Do Not Remove

STATE OF ILLINOIS)
)
COUNTY OF GRUNDY)

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

AKZO Chemicals Inc.	)	PCB 94- 76
	)	(Variance)
Petitioner,	)	
	)	
v.	)	
	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
	)	
Respondent.	)	

NOTICE OF FILING

TO: Ms. Lisa Moreno
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62794

PLEASE TAKE NOTICE that on February 25, 1994, I have filed with the Office of the Clerk of the Pollution Control Board the Petition for Variance, a copy of which is attached hereto and herewith served upon you.

BY: Mark Latham

Roy M. Harsch
Mark Latham
GARDNER, CARTON & DOUGLAS
321 N. Clark Street
Suite 3400
Chicago IL 60610
(312) 644-3000

THIS FILING IS SUBMITTED ON REYCLED PAPER

STATE OF ILLINOIS)
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	)	
Respondent.	)	

PETITION FOR VARIANCE

AKZO Chemicals Inc. ("AKZO"), through its attorneys, Gardner, Carton & Douglas, hereby submits this petition for variance. AKZO respectfully requests a variance from 35 Ill. Adm. Code 304.105 as it applies to the discharge of total dissolved solids ("TDS"), chloride, sulfate and boron from AKZO's Morris, Illinois facility. AKZO further requests a variance from 35 Ill. Adm. Code 302.208 as it applies to those discharges. AKZO requests that this variance be retroactive to October 27, 1993, and terminate the earliest of: (1) three years from the date the variance is granted or (2) modification of AKZO's NPDES permit to include the adjusted standard relief sought in AS 93-8.

I. BACKGROUND

On August 20, 1993, AKZO filed a petition with the Board seeking adjusted standard relief from the sections previously cited and for the same constituents noted above. Pursuant to a Board Order dated September 9, 1993, AKZO filed an amended adjusted standard petition on November 12, 1993, to address the four factors set forth in Section 28.1(c) of the Illinois Environmental Protection Act ("Act"). AKZO filed a second amendment to the adjusted

standard petition on February 2, 1994. This second amendment solely revised the language of the proposed adjusted standard sought in AS 93-8.

AKZO's NPDES permit required AKZO to achieve compliance with TDS and boron by October 27, 1993. A copy of AKZO's NPDES permit is attached as Exhibit 1. Because compliance was economically unreasonable, AKZO consulted the Illinois Environmental Protection Agency ("Agency") to determine whether the Agency could recommend a course of action. Following consultation with the Agency, AKZO pursued adjusted standard relief as suggested by the Agency. AKZO requested modification of the compliance deadline in its NPDES permit on August 3, 1992, to allow sufficient time to obtain adjusted standard relief. On August 13, 1993, AKZO again requested modification of the compliance deadline to allow sufficient time for Board action on the amended adjusted standard. The United States Environmental Protection Agency ("U.S. EPA") objected to the second request on ground that the Agency may only grant one modification of a compliance deadline set forth in a NPDES permit. Accordingly, AKZO now seeks a variance from the Board pursuant to 35 Ill. Adm. Code 104.121 and Sections 35 to 38 of the Act.

II. SECTION 104.121 INFORMATIONAL REQUIREMENTS

A. Section 104.121(a): Relief Sought

AKZO seeks a variance from 35 Ill. Adm. Code 302.208 and 304.105 as they apply to the discharge of TDS, chloride, sulfate and boron from AKZO's Morris, Illinois facility.

B. Section 104.121(b): Description of Activity

AKZO owns and operates a plant in Morris, Illinois. At that facility, AKZO produces fatty acid nitrogen derivatives that are used primarily as surfactants in agricultural products, personal care products and detergents. In addition, the fatty acid nitrogen derivatives are used as surfactants in a wide variety of other industrial processes including the food, chemical, highway paving, metal processing, mining, petroleum, paint, ink, paper, pharmaceutical, rubber and polymer processing industries.

C. Section 104.121(c): Materials Used

The major raw materials used to produce fatty acid nitrogen derivatives at the AKZO Morris facility include water, tallow, coconut oil, soybean oil, ammonia, hydrogen, methyl chloride, acrylonitrile, isopropyl alcohol, ethanol and formaldehyde. Finished products include glycerine, fatty acid, nitrile, amines and quaternary amines.

D. Section 104.121(d): Discharge Description

The production of surfactants results in the generation of several wastewater streams which AKZO treats by differing means prior to discharge. Main process wastewater is collected, biologically treated and stored in a concrete reservoir. The reservoir water is then used for crop irrigation. Through an underdrain system lying beneath the spray field, excess water from crop irrigation is collected and discharged through outfall 001 to Aux Sable Creek.

Wastewater from steam generating boilers, water softener regeneration operations and stormwater runoff from the facility is discharged through outfall 002 to Aux Sable Creek. A pH adjustment station was installed on the discharge line from the boiler house to outfall 002 in 1984 to adjust the pH to within the 6 to 9 limit imposed by AKZO's NPDES permit. Aux Sable Creek discharges to the Illinois River approximately 1 to 2 miles downstream of outfall 002. A map showing the locations of outfalls 001 and 002 and the receiving stream is presented in Exhibit 2.

The primary sources of TDS, chloride, sulfate and boron in the discharge from outfall 002 are boiler blowdown and a water softener regenerant stream. As part of the renewal of AKZO's NPDES permit in 1990, the Agency imposed discharge limitations on outfall 002 equivalent to the water quality standards for TDS and boron. The Agency also included a compliance schedule for those constituents as a Special Condition of AKZO's NPDES permit. After consultation with the Agency regarding the need for an adjusted standard, the permit was modified on November 24, 1992, to provide AKZO additional time to comply with the TDS and boron limitations.

E. Section 104.121(e): Non-Compliance With Standards

The boron contained in AKZO's discharge is naturally occurring, and no boron is added by AKZO's processes. However, the boron is concentrated as a result of those processes. The well water supplied to the Morris facility, which is used for all potable uses, process uses, cooling water make-up and boiler feed, contains on the order of 0.5 mg/l of boron. No boron-containing compounds are utilized in the boiler pretreatment softening, corrosion control or blowdown pH adjustment. The boron is concentrated in the boiler through steam losses and consumptive steam uses. No treatment is provided for boron. The average daily level of boron discharged over the last 28 months has been 0.78 mg/l, with a maximum of 1.4 mg/l, and eight readings of 1.0 mg/l or more. Thus, periodically the wastewater discharged through outfall 002 exceeds the 1.0 mg/l limit for boron contained in the Morris facility's NPDES permit.

Boiler water treatment, blowdown pH adjustment and water softening, which are all necessary for proper boiler operation and compliance with permitted pH limits for direct discharge, add TDS, chloride and sulfate to that naturally present in the well water. Similar to boron, the TDS, chloride and sulfate ions present in the boiler feed water are concentrated as a result of steam losses and consumptive steam uses.

The average daily TDS discharge concentration over the last 28 months was approximately 3,000 mg/l, with a maximum of 6,180 mg/l, and 15 readings of greater than 3,000 mg/l. The average TDS discharge concentration, however, is less than 3,000 mg/l.

According to recent sample results chloride levels averaged 1,566 mg/l and sulfate levels averaged 286 mg/l at the 002 flume, with a maximum of 2,960 mg/l and 574 mg/l, respectively. In four sets of instream samples which were taken, the stream levels for chloride upstream and downstream of outfall 002 are well below the 500 mg/l stream standard. Additionally, the instream sampling demonstrated that sulfate levels upstream and downstream of outfall 002 were also well below the 500 mg/l stream standard. A detailed analysis of the boron and TDS

concentrations in the wastewater discharged through outfall 002 is presented in Exhibit 3. Sample results obtained for chloride and sulfate are presented in Exhibit 4.

F. Section 104.121(f): Control Methods

As discussed below, AKZO has instituted certain measures to reduce the TDS, boron, chloride and sulfate in its discharge. In addition, as required by Special Condition 9 of its NPDES permit, AKZO has investigated several compliance alternatives discussed below in Sections II.I.

G. Section 104.121(g): Environmental Impact

AKZO has made no formal assessment of the effect of this requested variance upon the environment. In 1986, however, the Agency conducted a stream survey in the vicinity of AKZO's discharge. This study (Exhibit 5) concluded that there was "no apparent adverse impact in the vicinity of AKZO" within Aux Sable Creek as a result of AKZO's wastewater discharge. AKZO agrees with the conclusion of the Agency's study and believes that it is valid today since AKZO's operations and processes at its Morris facility have not changed significantly since the Agency's 1986 study.

Further, AKZO incorporates by reference the result of the literature search conducted by it in AS 93-8. Based on the results of that literature search, AKZO believes that sufficient data exists to support the conclusion that the requested variance for TDS, chloride and sulfate will not harm aquatic life. The literature search revealed data demonstrating that fresh water fish survived for several days to several weeks in levels of chloride, sulfate and TDS at levels much higher than those discharged by AKZO. The Agency study and the results of the literature search in AS 93-8 demonstrate that a grant of this variance will have little, if any, adverse environmental impact.

AKZO is requesting this variance to continue its present discharge to Aux Sable Creek while it pursues an adjusted standard that the Agency has recommended be granted. The Agency did raise some concerns in its recommendation. To address those concerns, AKZO filed a second amended adjusted standard in which it agreed to perform toxicity testing and agreed to conduct a stream survey within six months of the granting of the adjusted standard relief. The stream survey will be

repeated in 5 years. AKZO is confident that the toxicity testing and stream survey will show that AKZO's discharge will have no adverse environmental impact.

H. Section 104.121(h): Past Compliance Efforts

AKZO's NPDES permit did not contain any limits for TDS, boron, chloride or sulfate until reissued on September 20, 1990. As discussed below, however, AKZO has explored a number of compliance alternatives in an attempt to comply with the permit limits.

I. Section 104.121(i): Compliance Alternatives

As required by Special Condition 9 of its NPDES permit, AKZO has reviewed the Morris facility's processes to determine whether any feasible compliance alternatives exist. AKZO has evaluated a number of compliance alternatives. Based upon that evaluation, AKZO has concluded that compliance is not technically feasible nor economically reasonable. Therefore, AKZO is pursuing an adjusted standard to obtain relief. The compliance alternatives evaluated by AKZO are set forth below.

1. Operation of the Boiler at an Abnormally High Blowdown Rate

Operation of the boiler at an abnormally high blowdown rate was determined to be an unreasonable compliance alternative because it would greatly increase the consumption of natural gas by the rate of 0.14 million cubic feet per day or 51 million cubic feet per year in order to compensate for the heat lost in the excessive blowdown water. Such an increase in fuel consumption would not only waste a non-replenishable natural resource but also result in significantly higher operating costs. In addition, increased operation of the boiler in such a manner would contribute to boiler wear requiring additional maintenance and also result in the increased use and discharge of boiler water treatment chemicals. The increased maintenance and chemical usage would further increase the cost of this compliance alternative. The costs of additional maintenance and boiler wear are unknown at this time. This alternative, however, would increase boiler operating costs in the magnitude of $155,000 annually.

2. Installation of a Reverse Osmosis Treatment System with Offsite Disposal of Brine

The installed cost of a reverse osmosis treatment system, including multimedia filters, would be approximately $140,000 for boiler blowdown alone and would be an additional $500,000 to $700,000 for softening of the larger boiler feed water stream. Installation of such a system would result in a treated discharge comprising approximately 67% to 75% of the influent to the system. The remaining 25% to 33% of the discharge would be a wastewater containing concentrated dissolved solids which would require offsite disposal since the TDS, chloride, sulfate and boron levels would be even more elevated than the levels in the existing blowdown. Based on daily boiler blowdown flows of approximately 48,700 gallons per day ("gpd") and daily boiler water feed of approximately 180,000 gpd, this 25% to 33% concentrated brine discharge would range from 12,000 to 16,000 gpd (4.4 to 5.8 million gallons per year) for boiler blowdown and 45,000 to 59,000 gpd (16.4 to 21.5 million gallons per year) for boiler feed water.

Using offsite disposal costs on the order of $1.00 per gallon, the offsite disposal of the reverse osmosis concentrated brines from the treatment of boiler blowdown and boiler feed water would range from $4.4 to $5.8 million per year and $16.4 to $21.5 million per year, respectively. The current boiler water softener generates approximately 2,000 gpd of high TDS wastewater. Disposal offsite, rather than discharge into Aux Sable Creek, would cost $2,000 per day or $0.73 million per year. Thus, softening is much more cost effective than treating the boiler feed water by reverse osmosis. The total offsite disposal costs for the softener regenerant stream and the brine stream from reverse osmosis of the blowdown could, however, still reach $5.1 to $6.5 million per year. Consequently, offsite disposal of such a large volume of wastewater is prohibitively expensive.

3. Reverse Osmosis System with Evaporation

Evaporation, instead of offsite disposal, of the boiler softener water and reverse osmosis concentrate was also considered as a compliance alternative. An evaporator would cost approximately $500,000 to $1.0 million installed, assuming that installation is only a 1.25 to 1.5

multiplier of capital cost. Therefore, the purchase and installation of an evaporator is not an economically reasonable compliance option.

4. Combination of Outfalls 001 and 002

AKZO also evaluated combining the wastewaters which discharge to outfall 001 and outfall 002 and ultimately discharging the combined stream to the concrete reservoir. Once in the reservoir, the wastewater would be discharged through the existing irrigation system onto the spray field. The additional wastewater, however, could hydraulically overload the system. Further, such a system would threaten the long term viability of the spray field as a result of the addition of approximately 2,400 pounds of salt to the field daily, based on an average of 96,000 gpd containing 3,000 mg/l of TDS. Application of that amount of salt could result in the inhibition of biological activity in the soil. Therefore, combining the discharges from outfall 001 and outfall 002 and discharging the combined stream onto the spray field is not a feasible compliance alternative on a long-term basis.

Diversion of outfall 001 to outfall 002 for combination downstream of the spray field was also considered. Unfortunately, outfall 001 does not provide a continuous discharge of water with which to combine the outfall 002 discharge.

Outfall 001 discharges an estimated 154 days per year, when the groundwater table under the spray field is high. During the summer, there is little discharge from the field to outfall 001, even during spraying. During the winter, there is no spraying of treated process wastewater to the spray field, and there is no discharge from the spray field to outfall 001 except during a sustained thaw. These are typically periods of high TDS discharge from outfall 002, since there is little runoff contribution to outfall 002. There is usually a more consistent discharge from the spray field to outfall 001 during the spring and autumn seasons when there is frequent rainfall. These latter periods, however, coincide with periods of high stormwater runoff flow from outfall 002, when TDS levels would be expected to be relatively low. Combination of outfalls 001 and 002 would not, therefore, allow consistent compliance with discharge standards.

AKZO also considered diverting several wastewater streams from outfall 001 to outfall 002. Among the streams that were considered were cooling water and condensate streams.

Although neither stream directly contacts process materials, the current discharge to outfall 001 provides attenuation and treatment in the event that a leak in a heat exchanger would contaminate these sources with process material. AKZO believes that it is important to maintain the extra safety factor that is built into the current system rather than to allow even a remote possibility of process contamination of the outfall 002 discharge. This alternative was, therefore, not pursued further.

5. Optimization of Existing Sodium Zeolite System and Recycle of the Most Concentrated Rinse Streams

The brine and slow rinse (regeneration) streams from the sodium zeolite system are the most concentrated TDS streams generated at the Morris plant. The existing softener regeneration system could be modified to allow isolation of these streams for one of two options. The first option is AKZO's preferred alternative for achieving compliance with the proposed TDS limit at outfall 002. This option involves optimization of the existing sodium zeolite system and pollution prevention through recycling a portion of the brine rinse and slow rinse streams to reduce the salt usage and the quantity of wastewater for disposal, followed by trucking of the remainder of the brine and slow rinse streams offsite to the Morris POTW. This option will not achieve compliance with the existing standards for TSD, boron, chloride or sulfate. It will, however, allow AKZO to comply with the standards proposed in the pending adjusted standard petition.

The existing regeneration procedures have been fine-tuned to increase the salt concentration and reduce the volume of water introduced into the zeolite bed. The amount of salt introduced during each regeneration cycle is being more carefully controlled to minimize the excess salt which must be disposed following regeneration.

Piping changes have been made to allow isolation and collection of the brine rinse and slow rinse wastewater streams (approximately 2,000 gallons per day) which follow the

regeneration cycle. AKZO has determined that, after evaluation and consultation with water treatment experts, the last third of the brine rinse and first two-thirds of the slow rinse stream can be effectively recycled for use in regeneration of the sodium zeolite, resulting in the recycle of approximately 900 pounds per day of TDS. The system has been tested for the last four months and was fully implemented earlier this month.

The first two-thirds of the brine rinse stream would contain high concentrations of magnesium and calcium hardness, which the sodium zeolite system was designed to remove from boiler feed water. It would not, therefore, be feasible to recycle this stream. The last third of the slow rinse stream would contain a relatively dilute salt concentration and, as a result, would not be feasible to recycle. These streams contain approximately 900 pounds of TDS, and AKZO is now transporting these streams offsite for treatment at the Morris POTW.

The remaining flow to outfall 002 after segregating, recycling and disposing of these two streams is expected to contain approximately 3,000 mg/l of TDS. On occasion, however, even after initiating the above steps, the level of TDS might exceed the 3,000 mg/l limit which was proposed in AKZO's adjusted standard petition. In order to insure compliance with this limit, a small volume of well water would be used for dilution. This well water would be added automatically based on continuous measurement of the specific conductance, which is directly proportional to the TDS concentration, in the wastewater upstream of outfall 002.

6. Isolation and Evaporation of High TDS Streams

The second alternative involving isolation of the softener regenerant brine and slow rinse streams is isolation followed by evaporation. This alternative would utilize an evaporator to evaporate approximately 1,800 gpd of water, leaving approximately 1,800 pounds of salt and 200 gallons of water per day for offsite disposal.

The capital cost for the evaporator, although substantially lower than that required for reverse osmosis with evaporation, would be approximately $300,000, plus $115,000 in annual operating costs, which is still a significant amount.

This option, moreover, would result in the same TDS concentration at outfall 002 as optimization of the existing sodium zeolite system but at a substantially greater cost and without any recycling of the salt. Further, this option would still require some portion of dilution with well water to assure consistent compliance with the 3,000 mg/l TDS limit which is proposed in AKZO's pending adjusted standard.

7. Discharge to Chemical Plant's 16" or 10" Pipe

AKZO investigated possible discharge into one of two discharge pipes from the neighboring chemical plant to the Illinois River. The Illinois River could accept the current discharge from outfall 002 and stay within the regulated stream standards for TDS, boron, chloride and sulfate due to its large flow and its non-zero 7-day, 10-year low flow value. The estimated cost for this alternative was on the order of $100,000, plus $5,000 to $10,000 per year for pipe maintenance. In response to AKZO's proposal to use one of the two available discharge pipes, the neighboring chemical plant has made a policy decision not to allow any outside facilities to use its discharge pipes. Accordingly, this alternative is not a feasible option.

8. Pipeline to the Illinois River

This alternative is similar to discharging to the neighboring chemical plant's discharge pipe, but AKZO would install its own discharge line over a much longer distance. The capital cost for this alternative was estimated at $400,000 with $35,000 annual operating costs. It is also worth noting that this solution does not incorporate any of the pollution prevention measures that would be instituted by optimizing the existing sodium zeolite system and is much more costly.

9. Reverse Osmosis of Boiler Feed Water Followed by Direct Discharge

This alternative is similar to reverse osmosis treatment of the boiler feed water stream with offsite disposal of the reverse osmosis concentrate. With this alternative, however, the reverse osmosis concentrate stream, which comprises 25 to 33% of the feed stream and contains all of the concentrated dissolved solids, would be discharged to outfall 002.

The concentration of TDS in outfall 002 would be close to 3,000 mg/l, the approximate concentration of the boiler blowdown stream and the approximate concentration at outfall 002 that would be achieved by optimizing the existing sodium zeolite system, which is the alternative preferred by AKZO. In order to reduce hardness to the levels required for high pressure boiler operation, the entire volume of boiler feed water would have to be treated through the reverse osmosis unit followed by treatment through the sodium zeolite system. The latter would require less frequent regeneration than it would without pretreatment of the feed water through the reverse osmosis system.

The estimated capital cost for a reverse osmosis unit is $500,000 to $700,000 plus annual operating costs of $90,000 to $100,000. This option is quite costly and is not as economically feasible as other alternatives considered by AKZO.

10. Demineralization of Boiler Feed Water

Demineralization is a process that is used to generate ultra-high purity water. There are two ion exchange resins through which the boiler feed water would pass prior to use, a cation exchanger and an anion exchanger. The sodium zeolite system which is currently being used is only a cation exchanger that exchanges sodium ions for the cations in the boiler feed water. Demineralizers require regeneration with an acid for the cation exchange resin and a base (typically caustic) for the anion exchange resin. Handling of the acid and caustic streams introduces an additional hazard to the operation and would require piping of the regenerant streams to the existing pH neutralization system and modifications to the system to permit neutralization of the acid stream. The TDS concentration in the regeneration water would likely be on the same order of magnitude as that from the sodium zeolite system, but would depend on the magnitude of excess acid and caustic required for regeneration.

The cost of a demineralizer, excluding any required modifications to the neutralization system, is approximately $600,000 to $750,000 plus annual operating costs on the order of

$50,000 to $140,000. AKZO does not believe that a demineralizer would substantially reduce the TDS level at outfall 002, and the cost would be prohibitively expensive.

J. Section 104.121(j): Impact Minimization

As discussed previously, AKZO has optimized its existing sodium zeolite system and is recycling a portion of the brine rinse and slow rinse streams to reduce salt usage and the volume of wastewater. The portion of the brine rinse stream and slow rinse stream which is not recycled is sent offsite to the Morris POTW for treatment. As noted earlier, this will not allow AKZO to meet the current standard for TDS, boron, chloride or sulfate but will allow AKZO to meet the standard proposed in its pending adjusted standard petition. AKZO will also continue its present testing to determine the level of TDS and boron in its discharge from outfall 002.

K. Section 104.121(k): Arbitrary or Unreasonable Hardship

AKZO believes that the denial of a variance would constitute an arbitrary or unreasonable hardship since the grant of the variance will cause little, if any, adverse environmental impact. Denial of the variance would cause AKZO to incur hundreds of thousands of dollars, or perhaps millions, in pursuing a compliance alternative which would confer little environmental benefit.

III. CONSISTENCY WITH FEDERAL LAW

The Board may grant the requested relief from 35 Ill. Adm. Code Sections 302.208 and 304.105 consistent with the Clean Water Act, 33 U.S.C. §§ 1251 to 1387. As explained above, the requested relief is predicated solely upon potential violations of the TDS, chloride, sulfate or boron water quality standards. No federal or state TDS, chloride, sulfate or boron effluent standards are applicable. Under federal law:

> A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use, and by setting criteria necessary to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (the Act). Serve the purposes of the Act (as defined in sections 101(a)(2) and 303(c) of the Act) means that water quality standards should, where ever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water and take into consideration the use

> and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other purposes including navigation.

40 C.F.R. 131.2. Under 40 C.F.R. 131.4 "states are responsible for reviewing, establishing and revising water quality standards." In turn, pursuant to 40 C.F.R. 131.5, "EPA is to review and to approve or disapprove the State-adopted water quality standards." These standards are to be protective of the designated uses (§ 131.5(b)) and, where those uses are not protected, this must be supported by "appropriate technical and scientific data and analyses." (§ 131.5(d)). A state is allowed to remove a designated use, which is not an existing use, if it "can demonstrate that attaining the designated use is not feasible" because of several enumerated causes. (§ 131.10(g)).

In the case of Aux Sable Creek in the vicinity of AKZO, the creek is used for transportation and recreation. The granting of the adjusted standard will not impair any beneficial use of the receiving stream. As such, no need for federal review exists. This has been established by the study which has been conducted by the Agency and which has been attached to this petition as Exhibit 5.

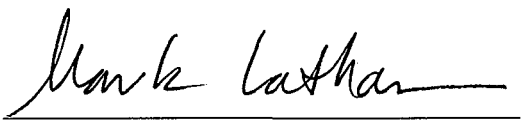
IV. WAIVER OF HEARING

AKZO hereby waives its right to a hearing in this matter.

WHEREFORE, AKZO respectfully requests the Board to grant it a variance from 35 Ill. Adm. Code Sections 302.208 and 304.105 to the extent those rules are applicable to its discharge from outfall 002.

Respectfully submitted,

AKZO Chemicals Inc.

BY: 

One of Its Attorneys

Roy M. Harsch
Mark Latham
GARDNER, CARTON & DOUGLAS
321 N. Clark Street
Chicago, IL 60610-4795
(312) 644-3000

Exhibit List -- AKZO Variance Petition

1. NPDES Permit
2. Location of outfalls 001 and 002
3. Boron and TDS concentrations
4. Chloride and sulfate sample results
5. Agency study of Aux Sable Creek
6. Affidavit of Walter G. Dion

12 254

Illinois Environmental Protection Agency · P. O. Box 19276, Springfield, IL 62794-9276

217/782-0610

November 24, 1992

received
12·1·92

cc: K Rollins

Akzo Chemicals, Inc.
300 South Riverside Plaza
Chicago, Illinois 60606

Re: Akzo Chemicals, Inc.
NPDES Permit No. IL0026069
Modification of NPDES Permit (After Public Notice)

Gentlemen:

The Illinois Environmental Protection Agency has reviewed the request for modification of the above-referenced NPDES Permit and issued a public notice based on that request. The final decision of the Agency is to modify the Permit as follows:

Revise the compliance schedule for boron and total dissolved solids.

Enclosed is a copy of the modified Permit. You have the right to appeal this modification to the Illinois Pollution Control Board within a 30 day period following the modification date shown on the first page of the permit.

Should you have any question or comments regarding the above, please contact Fred Rosenblum of my staff.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:TK:jab/2798r/41

Attachment: Modified Permit

cc: USEPA 5WQP
Facility

EXHIBIT 1

NPDES Permit No. IL0026069

Illinois Environmental Protection Agency

Division of Water Pollution Control

2200 Churchill Road

P.O. Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Modified (NPDES) Permit

Expiration Date: October 1, 1994

Issue Date: September 27, 1990
Effective Date: October 27, 1990
Modification Issue Date: November 24, 1992
Modification Effective Date: November 24, 1992

Name and Address of Permittee:

Akzo Chemicals, Inc.
300 S. Riverside Plaza
Chicago, Illinois 60606

Facility Name and Address:

Akzo Chemicals, Inc.
Tabler Road
Post Office Box 310
Morris, Illinois 60450
(Grundy County)

Discharge Number and Name:	Receiving Waters
001 Treated Spray Field Underdrain	Aux Sable Creek
002 Stormwater Runoff, Boiler Blowdown and Softener Regeneration Stream	Aux Sable Creek
001A Treated Domestic Waste	Internal Waste Stream

In compliance with the provisions of the Illinois Environmental Protection Act, Subtitle C and/or Subtitle D Rules and Regulations of the Illinois Pollution Control Board, and the Clean Water Act, the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:FLR:dls/3586k,sp

NPDES Permit No. IL0026069

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day 30 DAY AVG.	LOAD LIMITS lbs/day DAILY MAX.	CONCENTRATION LIMITS mg/l 30 DAY AVG.	CONCENTRATION LIMITS mg/l DAILY MAX.	SAMPLE FREQUENCY	SAMPLE TYPE
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
	Outfall(s): 001					
Flow (MGD)	Shall be reported as 30 day Avg. and Daily Max.				Measure When Monitoring	
BOD_5			30	60	1/Week	Composite
Total Suspended Solids			30	60	1/Week	Composite
Ammonia Nitrogen (as N)	April through October		1.5		1/Month	Grab
	November through March		4.0		1/Month	Grab
Fats, Oil and Grease			15	30	1/Week	Grab
pH	See Special Condition 1.				1/Week	Grab
See 40 CFR 414.91	List on pages 3 and 4					
	Outfall: 001A					
	See Special Condition 11.					
	Outfall: 002					
Flow (MGD)	Shall be reported as 30 day Avg. and Daily Max.				Measure When Monitoring	
pH	See Special Condition 1.				1/Month	Grab
Temperature	See Special Condition 2.				1/Month	Grab
Total Dissolved Solids**				1000	1/Month	Composite
Boron**				1.0	1/Month	Composite
Ammonia Nitrogen (as N)	April through October		1.5		1/Month	Grab
	November through March		4.0		1/Month	Grab
Total Copper*			0.031	0.052	1/Month	Composite
Total Lead*				0.1	1/Month	Composite

*Limitations shall become effective two years from the effective date of this permit. See Special Condition 9.

**Limitations shall become effective three years from the effective date of this permit. See Special Condition 10.

Modification Date: November 24, 1992

NPDES Permit No. IL0026069

Effluent Limitations and Monitoring

Outfall 001

40 CFR 414.91 List

PARAMETER	LOAD LIMITS lbs/day 30 DAY AVG.	LOAD LIMITS lbs/day DAILY MAX.	CONCENTRATION LIMITS mg/l 30 DAY AVG.	CONCENTRATION LIMITS mg/l DAILY MAX.	SAMPLE FREQUENCY	SAMPLE TYPE
Acenaphthene	0.019	0.051	0.022	0.059	1/Year*	Composite
Acrylonitrile	0.084	0.211	0.096	0.242	1/Year*	Grab
Benzene	0.032	0.118	0.037	0.136	1/Year*	Grab
Carbon Tetrachloride	0.016	0.033	0.018	0.038	1/Year*	Grab
Chlorobenzene	0.013	0.024	0.015	0.028	1/Year*	Grab
1,2,4-Trichlorobenzene	0.059	0.122	0.068	0.140	1/Year*	Grab
Hexachlorobenzene	0.013	0.024	0.015	0.028	1/Year*	Grab
1,2-Dichloroethane	0.059	0.183	0.068	0.211	1/Year*	Grab
1,1,1-Trichloroethane	0.018	0.047	0.021	0.054	1/Year*	Grab
Hexachloroethane	0.018	0.047	0.021	0.054	1/Year*	Grab
1,1 Dichloroethane	0.019	0.051	0.022	0.059	1/Year*	Grab
1,1,2 Trichloroethane	0.018	0.047	0.021	0.054	1/Year*	Grab
Chloroethane	0.090	0.233	0.104	0.268	1/Year*	Grab
Chloroform	0.018	0.040	0.021	0.046	1/Year*	Grab
2-Chlorophenol	0.027	0.085	0.031	0.098	1/Year*	Grab
1,2-Dichlorobenzene	0.067	0.142	0.077	0.163	1/Year*	Grab
1,3-Dichlorobenzene	0.027	0.038	0.031	0.044	1/Year*	Grab
1,4-Dichlorobenzene	0.013	0.024	0.015	0.028	1/Year*	Grab
1,1-Dichloroethylene	0.014	0.022	0.016	0.025	1/Year*	Grab
1,2-Trans-Dichloroethylene	0.018	0.047	0.021	0.054	1/Year*	Grab
2,4-Dichlorophenol	0.034	0.097	0.039	0.112	1/Year*	Grab
1,2-Dichloropropane	0.133	0.200	0.153	0.230	1/Year*	Grab
1,3-Dichloropropylene	0.025	0.038	0.029	0.044	1/Year*	Grab
2,4-Dimethylphenol	0.016	0.031	0.018	0.036	1/Year*	Composite
2,4-Dinitrotoluene	0.098	0.248	0.113	0.285	1/Year*	Composite
2,6-Dinitrotoluene	0.222	0.558	0.255	0.641	1/Year*	Composite
Ethylbenzene	0.028	0.094	0.032	0.108	1/Year*	Grab
Fluoranthene	0.022	0.059	0.025	0.068	1/Year*	Composite

Modification Date: November 24, 1992

NPDES Permit No. IL0026069

Effluent Limitations and Monitoring

Outfall 001

40 CFR 414.91 List

PARAMETER	LOAD LIMITS lbs/day 30 DAY AVG.	LOAD LIMITS lbs/day DAILY MAX.	CONCENTRATION LIMITS mg/l 30 DAY AVG.	CONCENTRATION LIMITS mg/l DAILY MAX.	SAMPLE FREQUENCY	SAMPLE TYPE
Methylene Chloride	0.035	0.077	0.040	0.089	1/Year*	Grab
Methyl Chloride	0.075	0.165	0.086	0.190	1/Year*	Grab
Hexachlorobutadiene	0.017	0.043	0.020	0.049	1/Year*	Composite
Naphthalene	0.019	0.051	0.022	0.059	1/Year*	Composite
Nitrobenzene	0.023	0.059	0.027	0.068	1/Year*	Composite
2-Nitrophenol	0.036	0.060	0.041	0.069	1/Year*	Composite
4-Nitrophenol	0.063	0.108	0.072	0.124	1/Year*	Composite
2,4-Dinitrophenol	0.062	0.107	0.071	0.123	1/Year*	Composite
4,6-Dinitro-o-cresol	0.068	0.241	0.078	0.277	1/Year*	Composite
Phenol	0.013	0.023	0.015	0.026	1/Year*	Composite
Bis(2-ethylhexyl) phthalate	0.090	0.243	0.103	0.279	1/Year*	Composite
Di-n-butyl phthalate	0.023	0.050	0.027	0.057	1/Year*	Composite
Diethyl phthalate	0.070	0.177	0.081	0.203	1/Year*	Composite
Dimethyl phthalate	0.017	0.041	0.019	0.047	1/Year*	Composite
Benzo(a)anthracene	0.019	0.051	0.022	0.059	1/Year*	Composite
Benzo(a)pyrene	0.020	0.053	0.023	0.061	1/Year*	Composite
3,4-Benzofluoranthene	0.020	0.053	0.023	0.061	1/Year*	Composite
Benzo(k)fluoranthene	0.020	0.053	0.022	0.059	1/Year*	Composite
Chrysene	0.019	0.051	0.022	0.059	1/Year*	Composite
Acenaphthylene	0.019	0.051	0.022	0.059	1/Year*	Composite
Anthracene	0.019	0.051	0.022	0.059	1/Year*	Composite
Fluorene	0.019	0.051	0.022	0.059	1/Year*	Composite
Phenanthrene	0.019	0.051	0.022	0.059	1/Year*	Composite
Pyrene	0.022	0.058	0.025	0.067	1/Year*	Composite

Modification Date: November 24, 1992

NPDES Permit No. IL0026069

Effluent Limitations and Monitoring

Outfall 001

40 CFR 414.91 List

PARAMETER	LOAD LIMITS lbs/day 30 DAY AVG.	LOAD LIMITS lbs/day DAILY MAX.	CONCENTRATION LIMITS mg/l 30 DAY AVG.	CONCENTRATION LIMITS mg/l DAILY MAX.	SAMPLE FREQUENCY	SAMPLE TYPE
Tetrachloroethylene	0.019	0.049	0.022	0.056	1/Year*	Grab
Toluene	0.023	0.070	0.026	0.080	1/Year*	Grab
Trichloroethylene	0.018	0.047	0.021	0.054	1/Year*	Grab
Vinyl Chloride	0.090	0.233	0.104	0.268	1/Year*	Composite
Total Chromium	0.87	1.74	1.0	2.0	4/Year**	Composite
Total Copper	0.139	0.226	0.16	0.26	4/Year**	Composite
Total Cyanide	0.023	0.096	0.026	0.11	4/Year**	Composite
Total Lead	0.174	0.35	0.2	0.4	4/Year**	Composite
Total Nickel	0.87	1.74	1.0	2.0	1/Month	Composite
Total Zinc	0.87	1.74	1.0	2.0	1/Month	Composite

*Sampling results shall be submitted with June DMR
**Sampling results shall be submitted with March, June, September and December DMRS

NPDES Permit No. IL0026069

Special Conditions

SPECIAL CONDITION 1. The pH shall be in the range 6.0 to 9.0. The monthly minimum and monthly maximum values shall be reported on the DMR form.

SPECIAL CONDITION 2. Discharge of wastewater from this facility must not alone or in combination with other sources cause the receiving stream to violate the following thermal limitations at the edge of the mixing zone which is defined by Section 302.211, Illinois Administration Code, Title 35, Chapter 1, Subtitle C, as amended:

A. Maximum temperature rise above natural temperature must not exceed 5°F (2.8°C).

B. Water temperature at representative locations in the main river shall not exceed the maximum limits in the following table during more than one (1) percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the following table by more than 3°F (1.7°C). (Main river temperatures are temperatures of those portions of the river essentially similar to and following the same thermal regime as the temperatures of the main flow of the river.)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
°F	60	60	60	90	90	90	90	90	90	90	90	60
°C	16	16	16	32	32	32	32	32	32	32	32	16

C. The monthly maximum value shall be reported on the DMR form.

SPECIAL CONDITION 3. Outfall 002 shall be relocated from its present position to a point approximately 100 ft. north of containment dam in surface ditch tributary to Aux Sable Creek.

SPECIAL CONDITION 4. Samples taken in compliance with the effluent monitoring requirements for outfalls 001 and 002 shall be taken at a point representative of the discharge but prior to entry into the Aux Sable Creek.

SPECIAL CONDITION 5. The use or operation of this facility shall be by or under the supervision of a Certified Class K operator.

SPECIAL CONDITION 6. If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 7. The permittee shall record monitoring results on Discharge Monitoring Report Forms using one such form for each discharge each month.

The completed Discharge Monitoring Report forms shall be submitted to IEPA no later than the 15th day of the following month, unless otherwise specified by the permitting authority.

Discharge Monitoring Reports shall be mailed to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
2200 Churchill Road
P.O. Box 19276
Springfield, Illinois 62794-9276

Attention: Compliance Assurance Section

SPECIAL CONDITION 8. Within one year of the effective date of the permit, outfall 002 shall be monitored, and the discharge analyzed for the organic pollutants listed in 40 CFR 414.91, using the sampling procedures set forth in a promulgated storm water regulation under 40 CFR 122.21. In the absence of final regulation, the sampling procedure set forth in the proposed regulation 53 F.R. 49464 (December 7, 1988) shall be used. The results shall be submitted to the Agency either as part of storm water application or as an addendum to a D.M.R. After review of the submitted data, the Agency may modify the permit to require additional monitoring or to incorporate effluent limitations for parameters of concern.

NPDES Permit No. IL0026069

Special Conditions

SPECIAL CONDITION 9. The following parameter monitoring and limitations at Outfall 002 shall become effective two years from the effective date of this permit.

Total Copper

Total Lead

Compliance shall be achieved in accordance with the following schedule:

1.	Proposal to achieve compliance, including plans and specifications for treatment facility if necessary	9 months from effective date
2.	Interim report	16 months from effective date
3.	Complete construction, if necessary	22 months from effective date
4.	Obtain operational level	24 months from effective date

Compliance dates set out in this Permit may be superseded or supplemented by compliance dates in judicial orders, Pollution Control Board orders. This permit may be modified, with Public Notice, to include such revised compliance dates.

REPORTING

The permittee shall submit a report no later than fourteen (14) days following the completion dates indicated for each numbered item in the compliance schedule, indicating, a) the date the item was completed, or b) that the item was not completed, the reasons for non completion and the anticipated completion date.

SPECIAL CONDITION 10. The following parameter monitoring and limitations (Daily Maximum) at Outfall 002 shall become effective three years from the effective date of this permit.

Total Dissolved Solids

Boron

Compliance shall be achieved in accordance with the following schedule:

1.	Proposal to achieve compliance, including plans and specifications for treatment facility if necessary	9 months from effective date
2.	Interim report	16 months from effective date
3.	Complete construction, if necessary	22 months from effective date
4.	Interim Report	27 months from effective date
5.	Obtain operational level	36 months from effective date

Compliance dates set out in this Permit may be superseded or supplemented by compliance dates in judicial orders, Pollution Control Board orders. This permit may be modified, with Public Notice, to include such revised compliance dates.

REPORTING

The permittee shall submit a report no later than fourteen (14) days following the completion dates indicated for each numbered item in the compliance schedule, indicating, a) the date the item was completed, or b) that the item was not completed, the reasons for non completion and the anticipated completion date.

SPECIAL CONDITION 11. No limitations or monitoring requirements are imposed by this permit for Outfall 001A.

ATTACHMENT H

Standard Conditions

Definitions

Act means the Illinois Environmental Protection Act, Ch 111 1/2 Ill Rev Stat, Sec 1001-1061 as Amended

Agency means the Illinois Environmental Protection Agency

Board means the Illinois Pollution Control Board

Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) means Pub. L. 92-500, as amended 33 U.S.C. 1251 et seq

NPDES (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act

USEPA means the United States Environmental Protection Agency

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum Daily Discharge Limitation (daily maximum) means the highest allowable daily discharge.

Average Monthly Discharge Limitation (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Discharge Limitation (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Aliquot means a sample of specified volume used to make up a total composite sample.

Grab Sample means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

24 Hour Composite Sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

8 Hour Composite Sample means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

Flow Proportional Composite Sample means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

(1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.

(3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.

(6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

(8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit,

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit,

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and

(d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. This period may be extended by request of the Agency at any time.

(c) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) The date(s) analyses were performed;

(4) The individual(s) who performed the analyses;

(5) The analytical techniques or methods used; and

(6) The results of such analyses.

(d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

(a) Application. All permit applications shall be signed as follows:

(1) For a corporation: by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

(b) Reports. All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a), and

(2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility, and

(3) The written authorization is submitted to the Agency.

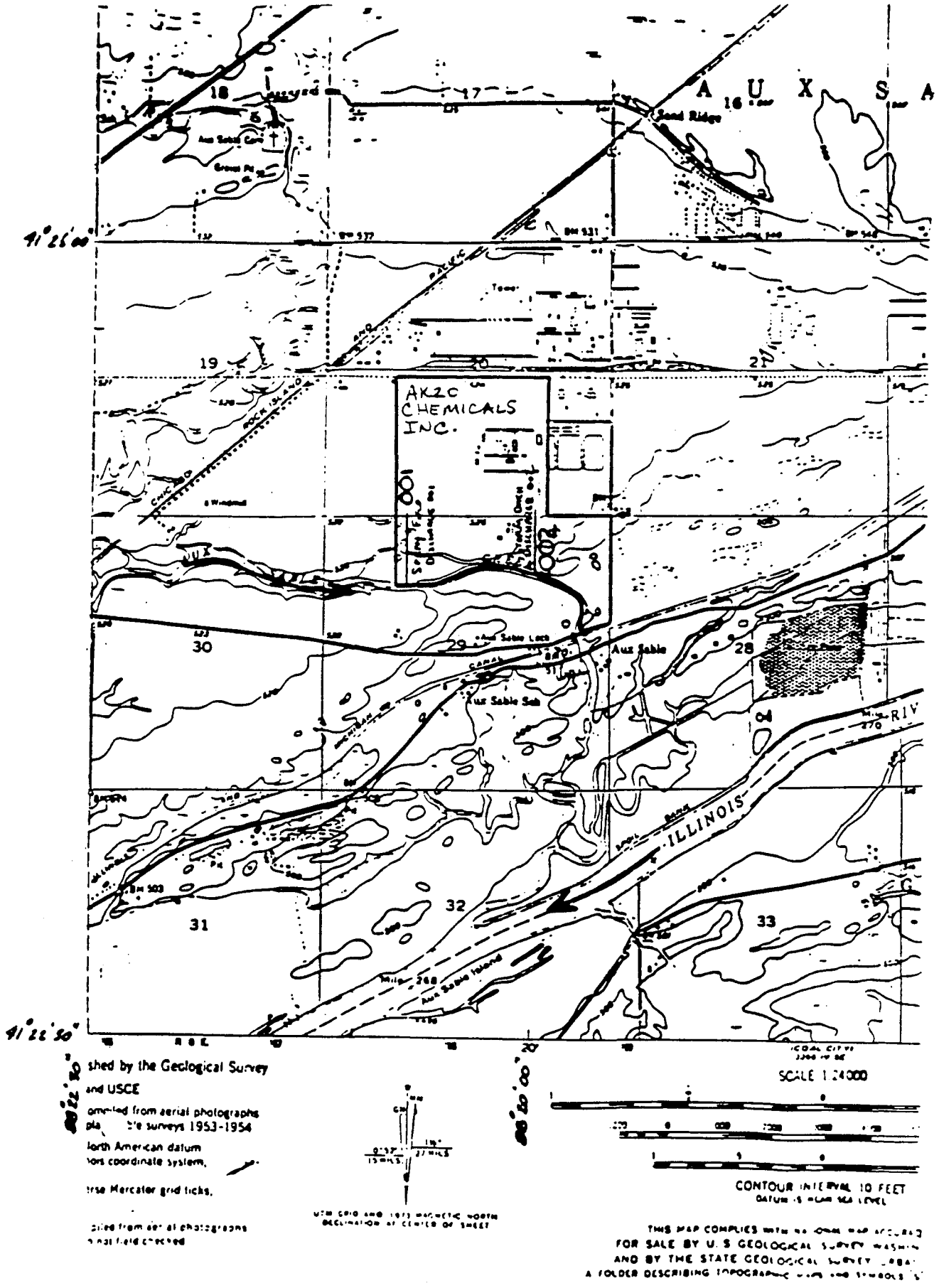


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EXHIBIT 2

Month	TDS, mg/L	Boron, mg/L
September 1990	3,270	-
October 1990	6,110	1.0
November 1990	6,180	1.2
	3,680	1.2
December 1990	3,280	0.75
January 1991	2,760	0.77
February 1991	2,390	0.30
	3,910	0.56
March 1991	2,440	0.46
April 1991	1,680	<0.25
May 1991	2,730	0.92
June 1991	3,360	1.0
July 1991	4,690	1.2
August 1991	5,080	1.4
September 1991	1,150	0.7
October 1991	2,200	0.6
November 1991	1,000	0.43
December 1991	3,030	0.61
January 1992	3,810	0.92
February 1992	4,770	0.83
March 1992	3,760	1.0
April 1992	4,330	0.90
May 1992	2,060	0.97
June 1992	4,230	0.82
July 1992	1,910	0.83
August 1992	485	1.2
September 1992	912	0.4
October 1992	1,750	0.6
November 1992	607	0.34
December 1992	1,820	0.57
Average	2,979	0.78
Maximum	6,180	1.4

EXHIBIT 3

Date	Sample Location	Chloride mg/l	Sulfate mg/l	Total Dissolved Solids mg/l
12/27/91	A.S. Creek Upstream of 001	36	70	-
12/27/91	A.S. Creek Upstream of 002	39	68	-
12/27/91	A.S. Creek Downstream of 002	62	69	-
12/27/91	002 Flume	2,230	104	-
12/27/91	Mouth of 002 Ditch (at A.S. Creek)	1,290	135	-
1/24/92	002 Flume	2,960	338	5,620
1/27/92	002 Flume	648	425	1,860
1/28/92	002 Flume	2,000	574	4,220

EXHIBIT 4

Central File

INTENSIVE SURVEY OF AUX SABLE CREEK (DW) IN THE VICINITY OF AKZO CHEMIE AMERICA MORRIS, ILLINOIS JULY 1986

STAFF REPORT
DIVISION OF WATER POLLUTION CONTROL
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

EXHIBIT 5

ABSTRACT

On July 28, 1986, an intensive survey was conducted in Aux Sable Creek, a fifth order tributary of the Illinois River, to determine stream conditions in the vicinity of the Akzo Chemie America discharge. Aquatic macroinvertebrates were sampled to evaluate biological communities downstream from the discharge. Water quality samples and physical habitat data were also collected to characterize current stream quality and potential for biotic improvement.

Akzo Chemie America, which is located near Morris in Grundy County, manufactures fatty amines by the splitting of natural fats and oils. This facility has two permitted discharges. The current NPDES permit, re-issued March 1985, will expire in December 1989.

Macroinvertebrate communities in the survey area were represented by a fairly diverse assemblage of twelve taxa. There was no apparent adverse impact in the vicinity of Akzo as shown by MBI values of 4.9 and 4.0 at Stations A-1 and C-1, respectively. A previous biological survey conducted in September 1976 also found little discernible impact.

Water quality was within acceptable limits for all regulated parameters. Effluent concentrations resulted in increased, although not excessive, downstream concentrations for conductivity, unionized ammonia, sodium, potassium, boron, iron, manganese, strontium, and aluminum. Adequate pools, instream cover, substrates, and canopy cover were present to support a forage fish community.

The Illinois Department of Conservation has provisionally classified the Aux Sable as a highly valued aquatic resource (Class B stream) based on the fisheries.

Figure 1. Locations of Akzo Chemie America's effluent discharge and sampling stations in Aux Sable Creek (DW), July 28, 1[illegible].

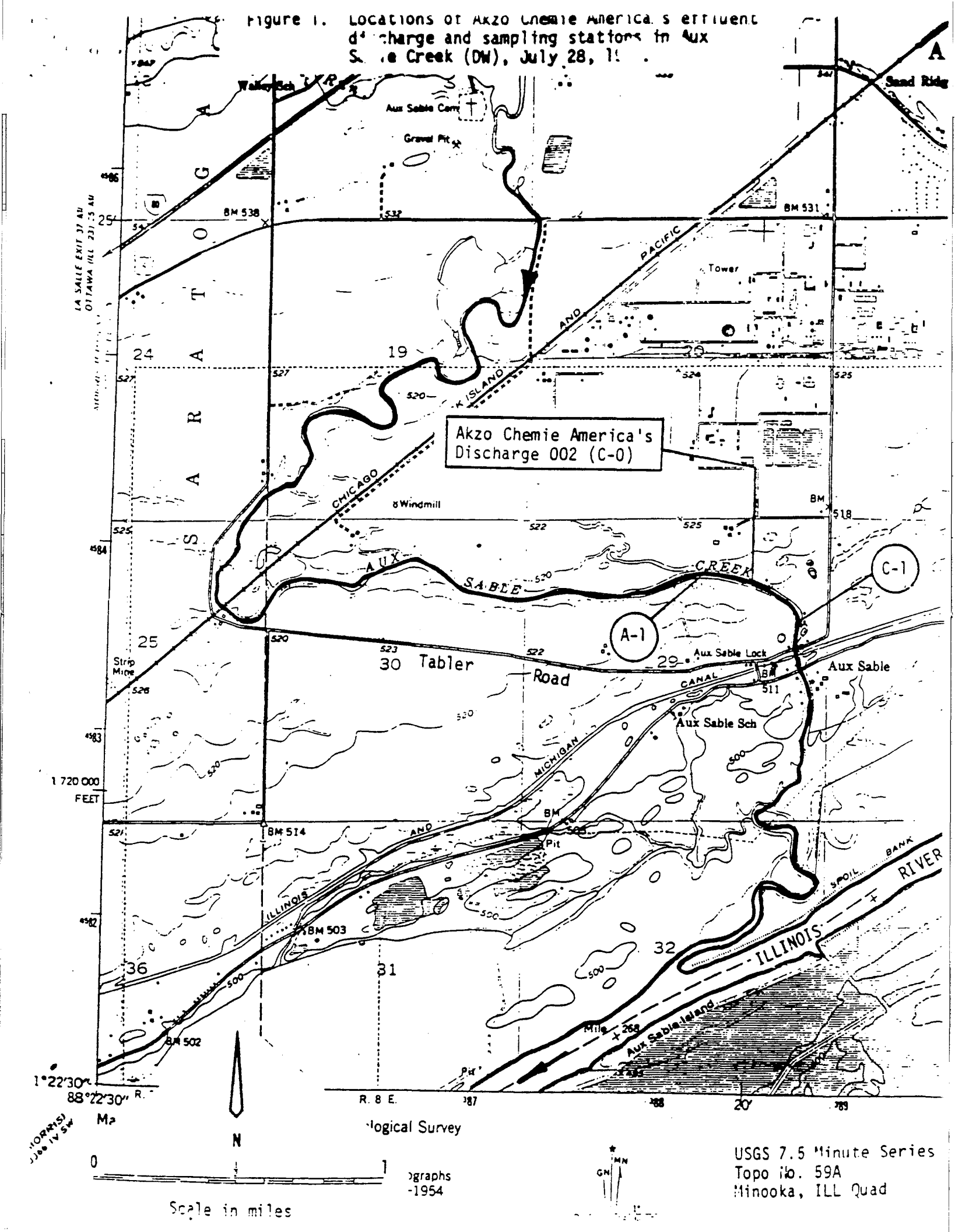

Table 1. Summary of macroinvertebrates found in Aux Sable Creek (DW) in the vicinity of the Akzo Chemie America discharge (002), July 28, 1986. Samples were collected using the hand-picked qualitative method.

ORGANISM	TOLERANCE	STATION	
		A-1	C-1
Oligoneuriidae	3.0	14	22
Trichoptera (Non-Hydropsychidae)	3.5	4	-
Heptageniidae	3.5	30	40
Cambaridae	5.0	5	1
Elmidae or Dryopidae	5.0	5	2
Coenagrionidae	5.5	4	2
Hydropsychidae	5.5	17	18
Asellidae	6.0	3	-
Turbellaria	6.0	7	3
Other Gastropoda	6.0	14	3
Oligochaeta	10.0	3	-
Chironomus or Red Chironomidae	11.0	3	-
Total number of individuals		109	91
Total number of taxa		12	8
Macroinvertebrate Biotic Index (MBI)		4.9	4.0

Appendix A. Locations of sampling stations in Aux Sable Creek (DW) in the vicinity of the Akzo Chemie America discharge (002), July 28, 1986.

Station	Location
A-1	Approximately 250 yds. upstream from Akzo Chemie's effluent ditch, 5.5 miles SW of Minooka; Grundy Co. T34N, R8E, S29NE (Quad 59A)
C-1	Approximately 300 yds. downstream from Akzo Chemie's effluent ditch and 85 yds. upstream from Tabler Rd., 5.5 miles SW of Minooka; Grundy Co. T34N, R8E, S29NE (Quad 59A)

RECOMMENDATION

1. Station C-1 (@ Tabler Road), located approximately 0.2 mile downstream from the Akzo discharge (002), is recommended as the location to monitor any improvements in water quality in Aux Sable Creek.

WM:lp:0457L

Water Quality (continued)

Downstream sampling was terminated at Station C-1 since Enron Chemical Company's (formerly Norchem, Inc.) stormwater discharges enter Aux Sable Creek a short distance downstream from C-1 on the downstream side of Tabler Road.

Physical habitat and Fisheries

Adequate pools, instream cover, substrates, and canopy cover were present to support a forage fish community (Table 3). Cyprinid species were commonly observed during the survey.

The Illinois Department of Conservation reports a sport fishery for rock bass and smallmouth bass for this stream based on a 1981 survey on the Aux Sable in Kendall County (T35N, R8E, S15SW). Stream widths ranged from 49.0 ft. at Station A-1 to 55.8 ft. at Station C-1. Depths varied from 0.6 to 0.7 ft.

SUMMARY AND CONCLUSIONS

On July 28, 1986, an intensive survey was conducted in Aux Sable Creek, a fifth order tributary of the Illinois River, to assess environmental conditions in the vicinity of the Akzo Chemie America discharge. Sampling results indicated:

1. There was no apparent adverse impact in the vicinity of the Akzo discharge. Upstream and downstream MBI values were 4.9 and 4.0, respectively.

2. Water quality was within acceptable limits. Effluent concentrations from Discharge 002, although not excessive, resulted in increased downstream concentrations for conductivity, unionized ammonia, sodium, potassium, boron, iron, manganese, strontium, and aluminum.

3. Adequate pools, instream cover, substrates, and canopy cover were present to support a forage fish community.

4. Based on available fish data, the Illinois Department of Conservation has classified the Aux Sable as a highly valued aquatic resource (Class B stream). Note: Stream classifications are based primarily upon fish data. In the absence of fish data, aquatic macroinvertebrates may be used to classify streams as moderate, limited, or restricted aquatic resources. However, the MBI does not accurately predict aquatic resource values above the moderate class, i.e., unique and highly valued. MBI values from the present survey (4.9 and 4.0) are compatible with the IDOC stream classification.

AFFIDAVIT OF WALTER G. DION

I, Walter G. Dion, being duly sworn and under oath, hereby state that I am an environmental manager with Akzo Chemicals Inc.; that I have read the attached Variance Petition; that in my capacity with Akzo Chemicals Inc. I am familiar with the material facts asserted within that Variance Petition and that those facts are true and correct to the best of my knowledge and belief.

BY: Walter G. Dion
Walter G. Dion

Subscribed and sworn to
before me this 9th day of
March, 1994.

Linda J. Descher
Notary Public

" OFFICIAL SEAL "
LINDA J. DESCHER
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 5/22/95

Exhibit 6

CERTIFICATE OF SERVICE

The undersigned, an attorney, certifies that he served a copy of the attached document upon:

Ms. Lisa Moreno
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, IL 62794

by causing the copy to be placed in an envelope addressed as above, with postage fully prepaid and deposited in the U.S. Post Office mailbox at 321 North Clark Street, Chicago, Illinois on February 25, 1994.

Mark Latham