ILLINOIS POLLUTION CONTROL BOARD
February 14, 1975

CITIZENS FOR A BETTER ENVIRONMENT, Complainant, vs. STEPAN CHEMICAL, Respondent.	)	PCB 74-201
STEPAN CHEMICAL Petitioner, vs. ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	PCB 74-270
STEPAN CHEMICAL, Petitioner, vs. ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	PCB 74-317

James W. Gladden and Harley Hutchins, Attorneys for Stepan Chemical Co.
John L. Bernbom, Attorney for EPA
CBE appeared by one of its officers, Dennis Adamczyk

OPINION AND ORDER OF THE BOARD (by Mr. Henss):

This consolidated proceeding involves an enforcement case (PCB 74-201), an appeal from permit denial (PCB 74-270) and a Petition for Variance (PCB 74-317). Consolidation of the three cases was ordered by the Board on September 5, 1974 pursuant to motion of Stepan.

Stepan owns and operates a chemical manufacturing facility known as the Millsdale Plant which is located in Will County near the Des Plaines River. Among the chemicals produced at this plant

are phthalic anhydride, liquid detergent intermediates, dry cleaning emulsifiers, polyurethane foam systems and high purity speciality chemicals for the cosmetic industry. Effluent from the Millsdale Plant is discharged to Cedar Creek.

On January 24, 1974 the Board issued its Opinion and Order in two prior consolidated cases involving Stepan, PCB 72-489 and PCB 73-184. The first case (72-489) was an enforcement action initiated by the Agency. It charged Stepan with violations of a SWB permit and certain specified Water Pollution Regulations. The second case was a variance proceeding wherein Stepan sought relief from Rule 404(f) of the Water Pollution Control Regulations. A Stipulation for Settlement in these cases was accepted by the Board (with the exception of one part).

The settlement provided that Stepan would initiate the following programs:

1. Beginning December 1, 1973 and continuing through April 30, 1974 Stepan will continuously monitor the influent to and the effluent from the waste water treatment plant and will run a weekly BOD test of the effluent on a composite sample collected during the week.

2. At monthly intervals, beginning on the 31st day of the month after the entry of an order by the Board Stepan will report to the Board and the Agency on its progress under the above described program. The report shall include the results of the test done with respect to the operation of the waste water treatment plant. Representatives of the Agency shall have the right to visit Stepan's plant during working hours upon reasonable notice.

3. Stepan agrees to execute within 30 days from the approval of the proposed program, a performance bond in the amount of $5,000 to guarantee the performance of the test referred to in Part 1 above.

4. Stepan agrees to file a complete construction permit application on or before February 15, 1974 specifying the manner in which it will divert the discharge from its waste water treatment plant to the Des Plaines River. Within 90 days from receipt of a construction permit, but in no event later than July 15, 1974, Stepan agrees to operate its waste water treatment facility so that there will be no discharge from that facility to Cedar Creek.

5. Stepan agrees to execute within 30 days from the approval of the proposed settlement, a forfeiture bond for liquidated damages in the amount of $30,000 in the event that Stepan fails to perform the acts set forth in part 4 above.

6. Stepan agrees that the discharge from its waste water treatment facility when diverted to the Des Plaines River will be in compliance with Rule 404(a), and that pursuant to Rule 404(b)(ii), the discharge from its waste water treatment facility will be reduced to 20 mg/l BOD and 25 mg/l suspended solids on or before December 31, 1974. If the effluent requirements for the Des Plaines River are changed at any time in the future, Stepan agrees to operate its waste water treatment facility in compliance with such new requirements.

7. Stepan agrees to submit and obtain construction permits for all future modifications in its waste treatment facilities. On or before January 1, 1974 Stepan will submit necessary permit applications for all modifications made in the new waste water treatment facility from April 1, 1973 to date. Stepan shall also submit on or before February 15, 1974 a compliance program, pursuant to Rule 1002, showing how it intends to achieve a discharge of 20 mg/l BOD and 25 mg/l suspended solids on or before December 31, 1974 and, a further program to assure a consistent discharge of 30 mg/l BOD and 37 mg/l suspended solids when the discharge of the waste water treatment system is diverted to the Des Plaines River.

In its January 24, 1974 Order the Board granted Stepan a variance from Rule 404(f) of the Water Pollution Regulations until July 15, 1974 provided that its effluent not exceed 30 mg/l BOD and 37 mg/l suspended solids after February 15, 1974. Stepan was ordered to submit by February 15, 1974 a program assuring 30 mg/l BOD and 37 mg/l suspended solids after diversion of its effluent from Cedar Creek to the Des Plaines River and a compliance plan showing what method would be used to reduce BOD to 20 mg/l and SS to 25 mg/l on or before December 31, 1974. A $12,500 penalty for past violations was agreed to by Stepan.

For the sake of brevity, the past history of the Millsdale operation will not be repeated in this Opinion. This information can be obtained by reading the January 24, 1974 Opinion and Order of the Board in PCB 72-489 and 73-184 (consolidated).

In the current enforcement action, PCB 74-201, CBE charges that Stepan: a) operated its Millsdale plant without an operating permit every day after February 15, 1974 to date of the Complaint in violation of Rule 903 of the Water Pollution Regulations, b) has discharged effluent from the Millsdale Plant on certain specific dates subsequent to February 15, 1974 containing BOD in excess of 30 mg/l and SS in excess of 37 mg/l in violation of the Board Order and Rule 404(a) of the Water Pollution Regulations, c) did not file the program and compliance schedule ordered by the Board, and d) has discharged effluent in such chemical and biological compositions so as to constitute a violation of Section 12(a) of the Environmental Protection Act. CBE withdrew its allegation that there had been excessive bacterial concentrations in the plant effluent.

In PCB 74-270 Stepan seeks a ruling that the Agency erroneously denied Stepan a construction permit. The Stepan application for construction permit is dated January 31, 1974 and the date of receipt by the Agency is shown as February 14, 1974. The Agency denied the permit on March 12, 1974 stating that the open ditch through which Stepan proposes to divert its effluent to the Des Plaines River is considered "waters" as defined in Rule 104 of the Water Pollution Regulations.

Rule 104 of the Water Pollution Regulations defines "waters" as:

> "All accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon the State of Illinois, except that sewers and treatment works are not included except as specifically mentioned; provided, that nothing herein contained shall authorize the use of natural or otherwise protected waters as sewers or treatment works except that in-stream aeration under Agency permit is allowable."

Stepan contends that the Agency decision on the ditch was erroneous or, in the alternative, that the definition of "waters" in the Water Pollution Regulations is not in accordance with the Environmental Protection Act and that the application of such Rule to Stepan is an unconstitutional taking of property.

In PCB 74-317 Stepan seeks variance from Rule 404 of the Water Pollution Regulations until December 31, 1975 in order to continue operations pending completion of improvements to an existing waste water treatment facility. Stepan states that the contaminant reduction program presented in the prior consolidated proceeding

unfortunately failed to reduce contaminant concentrations sufficient to meet applicable standards. The Agency recommends denial of this variance.

A public hearing on these consolidated cases was held on October 22, 1974. Stepan called four witnesses and the Agency called three. CBE called no witnesses stating that their witnesses would be the same witnesses to be called by the Agency and thus the Agency's case would cover the same testimony CBE intended to present. CBE also declared that Stepan's Answer to Request for Admission of Facts constituted the evidence required to prove their allegations. No members of the public were present at the hearing.

The Millsdale plant is situated in a generally north to south setting with a double set of railroad tracks bounding the plant about 200' to the west, between the Des Plaines River and the plant. Cedar Creek flows east to west through a wooded area north of the plant through an abandoned gravel pit thence through culverts under the railroad tracks where it branches into two channels, both of which discharge into the Des Plaines River near Treat Island.

Northeast of the plant is a wooded area and some crop land. Immediately east of the plant is primarily crop land with the exception of a parking lot. Further east is a wooded area which contains a small swamp. The area southeast of the plant is part woodland and part crop land. South of the plant is a large grass and wooded area (Stepan Exhibits #4 and #11).

George Andrae, Stepan's Corporate Chief Engineer, testified that no one lives near Cedar Creek and the only point of access to the Creek downstream of the discharge point is from the Des Plaines River. Stepan owns the land south of the Creek and Mobil owns the land to the north. Plant Manager, Joseph Steinreich, Jr. testified that he had never seen anyone in the area other than Stepan employees and Agency investigators. No citizen complaints about the discharge have been brought to his attention.

Dealing first with the CBE complaint, the record clearly shows that Stepan has operated its Millsdale plant without an operating permit. Stepan could have operated the plant from January 24 to July 15, 1974 under protection of a variance. Stepan does not contest the fact that it has continued to discharge its effluent solely to Cedar Creek through the entire time period involved here. Data taken from Stepan's operating reports for the period February 15 to September 30, 1974 is shown on the following page.

Month	BOD Avg.	BOD Range	Days Compliance/ Days Sampled	Percent Compliance	TSS Average	TSS Range	Days Compliance/ Days Sampled	Percent Compliance
Feb. 15-28	320	(400-240)	0/4	0	158	(404-65)	0/8	0
March	123	(236-60)	0/4	0	130	(282-18)	1/19	5
April	55	(100-23)	1/4	25	51	(216-6)	11/21	52
May	68	(88-51)	0/5	0	239	(896-24)	3/18	17
June	20	(35-2)	3/4	75	34	(88-11)	14/20	70
July	34	(64-4)	3/5	60	38	(94-3)	10/21	48
August	40	(70-18)	1/4	25	85	(190-4)	5/20	25
Sept.	75	(110-36)	0/4	0	121	(290-36)	2/17	12

After startup of the waste treatment plant, a number of operating problems including foaming, hydraulic overloading and slug flows caused Stepan to seek the services of an engineering consultant in April 1972. One year later Stepan entered into a formal contract with this consultant in which the consultant was given complete and independent authority to operate the waste treatment plant. This contract and the improvement program which was devised by the consultant weighed heavily in Stepan's favor in the prior consolidated cases.

Upon assuming the duties of plant manager in October 1973, Joseph Steinreich, Jr. set up regular meetings with the consultant to review progress in achieving compliance. By December 1973 Steinreich was concerned that Stepan would not be able to achieve a consistent discharge level of 30 mg/l BOD and 37 mg/l SS (R. 119). In February 1974 Stepan terminated the contract of the consultant and retained the services of Betz Environmental Engineers Inc.

Betz was assigned the task of determining what changes would be required to bring the Millsdale plant effluent into compliance. In April 1974 Betz submitted a report in which a number of areas were identified as requiring immediate attention.

In general, Betz recommended construction of a containment system for isolating process waste water and contaminated storm water runoff, a new aerated lagoon for providing both equalization and additional BOD removal capability and a new pressure filtration system for treating secondary clarifier overflow. These modifications would operate in addition to and in support of the existing activated sludge system. Capital costs and annual operating costs for the improvements are quoted as $676,100 and $74,200 respectively.

It was proposed that this program should be completed according to the following project schedule (Stepan Exhibit #50):

	Schedule of Dates
Start Engineering	October 4, 1974
Preliminary Engineering Review	December 23, 1974
Finalize Prepurchase Specs	January 6, 1975
Issue Equipment for Quotes	January 13, 1975
Receive Quotations	February 10, 1975
Issue Purchase Orders	March 3, 1975
Receive Vendor's Drawings	April 21, 1975
Start Final Design	March 3, 1975
Complete Design	May 15, 1975
Award Construction Contract	July 15, 1975
Receive Equipment	September 1, 1975
Start-up	December 30, 1975

Dr. Wallace Lampe, Betz Senior Project Engineer, stated that the project is now in the detailed engineering design phase. Upon completion of the project, Stepan should be able to consistently meet the limits of 20 mg/l BOD and 25 mg/l SS in its effluent, according to Dr. Lampe.

Stepan's variance from Rule 404(f) was conditioned upon the discharge of an effluent containing no more than 30 mg/l BOD and 37 mg/l SS. From the operating data it can be determined that Stepan met these parameters from February 15 to July 15, 1974 17% of the time for BOD and 37% of the time for suspended solids. Compliance for the period February 15 through September 30, 1974 was achieved 23% of the time for BOD and 32% of the time for suspended solids.

These operating reports also show that Stepan occasionally encountered minor operational problems. In February the plant began experiencing carry-over of suspended solids which was blamed on an "abundance of poor settling filamentous organisms". In order to solve this problem hydrogen peroxide was added to sludge return. No particular problem is cited for March. In April a chlorinator vacuum pump motor burned up and was sent out for repair. No operational problems are shown for May, June or July.

The waste treatment plant began experiencing shock loadings five to ten days prior to August 30, 1974 (R. 192) on which date a solenoid valve between vessels T-1 and T-2 stuck in the closed position. Vessel T-1 began to overflow and, when that problem was corrected, the valve opened completely allowing the material in T-1 to flow rapidly through T-2. Activated sludge in T-2 was flushed out of the treatment plant into Cedar Creek. Dr. Lampe testified that shock loadings caused by high organic content, rapid pH change or hydraulic increases could cause problems that require eight to ten days or more to rectify (R. 166).

The record thus shows that in addition to not having an operating permit, Stepan clearly did not abide by the conditions of the variance. It must be found that Stepan was not operating under protection of a variance from February 15 to July 15, 1974.

In accordance with Part 1 of the Stipulation for Settlement, Stepan submitted a construction permit application for all changes or modifications made to the waste treatment plant and production plant since April 1973 (Stepan Exhibit #9). The record does not show what action the Agency took on this permit application.

Parts 3A and B of the January 12, 1974 Board Order required Stepan submit by February 15, 1974 a program assuring a consistent

discharge of no more than 30 mg/l BOD and 37 mg/l SS after diversion to the Des Plaines River. Stepan was also to submit a compliance plan showing how it would achieve 20 mg/l BOD and 25 mg/l SS on or before December 31, 1974. CBE charges that neither of these two documents was filed.

The record supports the CBE charge. While it might be argued that information in Stepan's construction permit application (dated January 31, 1974) contained such information, the Board finds nothing there or anywhere else in the record which would satisfy Part 3 of the Board Order.

Andrae testified that Stepan had performed all seven items agreed to in the Stipulation for Settlement, including preparation of the program and compliance plan. The only program and compliance plan in this record is the one formulated by Betz with an April 1974 date. If an earlier program and compliance plan was prepared in compliance with the Board Order, it was not made a part of this record. The finding must be that the program and compliance plan were not executed, in violation of the Board Order and Rule 1002 of the Water Pollution Regulations.

The final allegation of CBE is that Stepan has caused water pollution in violation of Section 12(a) of the Act. Data and testimony in the record show that Stepan's waste treatment plant has consistently failed to produce an acceptable effluent. Some progress is shown in the data for June, July and August 1974 but the overall picture reveals that reduction of contaminants was not achieved consistently during the time given Stepan to clean up its effluent. To date, Cedar Creek still receives effluent which violates the standards and causes water pollution.

We have carefully considered the character and degree of injury to health, welfare and property of the people; the social and economic value of the pollution source; the suitability of the source to the area in which located; and the technical practicability and economic reasonableness of reducing the emissions and discharges. From our consideration of all facts bearing upon the reasonableness of the emissions we must find that Respondent, in violation of Section 12(a) of the Act, did cause, threaten or allow the discharge of contaminants into the environment so as to cause or tend to cause water pollution in Illinois or so as to violate standards adopted by the Pollution Control Board.

In the prior consolidated cases Stepan told the Board that it planned to install a pipeline from the waste treatment plant to the Des Plaines River by July 15, 1974. The Board approved of this project because the Des Plaines has a greater assimilative capacity and the plan would provide relief for Cedar Creek. However, when Stepan told the Agency on January 16, 1974 (Stepan Exhibit #7) that its construction permit application was being

prepared, it was revealed for the first time that Stepan did not intend to install pipeline continuously from the plant to the Des Plaines River. Instead, Stepan informed the Agency that it planned to install a pipeline under a two track spur coming into the plant and then discharge its effluent to an open ditch to be constructed on or near railroad property. Stepan did not inform the Board of this change of plans at any time.

The January 31, 1974 construction permit application was received by the Agency on February 14, 1974. On February 22 the Agency acknowledged the January 16, 1974 letter and further told Stepan that the use of an open channel, which could conceivably receive runoff and be accessible to the general public, was a concern to the Agency. The letter warned that the open channel could be considered "waters" and that such consideration should be accounted for in preparation of final plans.

George Andrae testified that the two railroads involved had been contacted "well over a year ago" (R. 60). Andrae stated that the laying of pipe under the railroad tracks and continuously to the river would be expensive and that nine months to a year would be required to obtain permission from the railroad.

Andrae's testimony on this point raised some doubt about Stepan's good faith throughout its dealings with the Board and the Agency. "Well over a year ago" would indicate that in October 1973 Stepan had knowledge of requirements for placing the pipeline under the tracks. Stepan told the Board and the Agency that the diversion pipeline under the tracks would be installed by July 15, 1974 while apparently knowing that nine months to a year would be required to obtain permission alone. Additional time would be required to install the pipeline once permission was received. All of this raises the possibility that Stepan did not intend to carry out the terms of its agreement.

We next turn to the central issue; whether Stepan's proposed discharge will be to waters of the State. As proposed, Stepan would discharge its effluent through a pipeline which would run under a spur line from the IGC tracks (shown on Exhibit #4 as GM&O tracks). The pipeline would end a short distance on the west side of this spur line. Plant effluent would then enter a ditch which runs in a southerly direction along the west boundary of the plant to a culvert beneath the IGC tracks. On the other side of the culvert the effluent would again flow in a southerly direction for a short distance until it reaches a culvert under the AT&SF tracks. Beyond the second culvert the flow would be in a westerly direction across a wooded area and some State property to the Des Plaines River.

Both culverts were already in place under the railroad tracks when Stepan built its Millsdale plant (R. 67). Andrae testified that the discharge course to the culverts is a man-made ditch (R. 36) constructed by Stepan (R. 67) and that the course between the two culverts is also a ditch (R. 36). This ditch does not appear on a U. S. Geological Survey map of the area which carries a 1954-Photo Revised 1973 date (Stepan Exhibit #12). Although the record does not show the exact period of time for construction of the ditch, Stepan Exhibit #6 shows that the ditch system was constructed "during the course of the settlement discussions" in PCB 72-489. These discussions, according to the Stipulation and Proposal for Settlement in PCB 72-489, continued throughout most of 1973.

There is no argument that the ditch from the northwestern corner of the plant to the first of the double culverts was constructed by Stepan. Stepan admits that the ditch was dug for the purpose of diverting runoff waters away from the waste treatment plant in order to reduce hydraulic loading on the treatment plant. The record shows that the ditch drains only Stepan's property (R. 62). However, the proposed discharge course from that point on and the nature of other streams to the south and southeast of the Millsdale plant was the subject of extensive testimony and evidence.

There appear to be at least two separate stream channels in the aerial photograph (Stepan Exhibit #11) that continue under Millsdale Road in a westerly direction southeast of the plant. The right side stream appears to meander somewhat until it enters a wooded area. Two separate stream channels are discernible in the wooded area, one of which appears to be the right side stream as it progresses through the wooded area. As both streams exit the wooded area they join and enter what appears to be a manmade channel which flows in an easterly direction a short distance and thence turns south where it eventually enters another stream which appears to be the left side stream as it emerges from another wooded area.

From that point the joint stream flows to a culvert under the Millsdale Extension Road which runs north to south along the eastern side of the plant. The stream continues under Millsdale Extension Road to the west until it enters a large wooded area south of the plant. It is not possible to determine from the aerial photograph in which direction the stream continues.

A number of lines appear in the aerial photograph at the extreme northwest corner of the wooded area immediately south of the plant. These lines, which may be small channels, appear to come out of the woods and enter a drainage ditch which borders the entire southern boundary of the plant. The point at which the small lines join the drainage ditch is the first of the two culverts under the railroad tracks.

Dennis Offerman, a Stepan employee, traversed parts of the drainage course south of the plant from the Millsdale Extension Road to the large wooded area on September 6 and 9 and October 9, 1974. Photographs taken by Offerman on September 6 show the drainage course at two culverts under the Extension Road. The bed of the drainage course near the road appears to be rock lined in certain stretches and earthen in others. No water is discernible in this photographs.

On September 9 Offerman walked and took photographs of the drainage course as it nears the wooded area south of the plant. In these photographs the drainage course bed is lined with rather large rocks except for one area which appears to have a solid rock bed. Offerman confirmed that this area of the drainage course did have a solid rock bed (R. 106). As the course enters the wooded area the rock strewn bottom becomes wider and flatter. Offerman testified that there is no discrete ditch within the wooded area beyond the point where the course enters (R. 77). No water is visible in the drainage course in these photographs.

Offerman's photographs of the first railroad culvert area shows some water in the drainage course as it nears the culvert. He testified that there was a slight flow through the course near the first culvert on September 9. However, no water is visible near the outlet of the second culvert or near the drainage course discharge point at the Des Plaines River on that date.

Photographs taken by Offerman on October 9 (Wednesday) show essentially the same dry bed conditions revealed in the earlier photographs up to the point where the drainage course enters the woods. Offerman testified that he believed a "fairly substantial rain" had fallen in the area on the previous weekend (R. 87). The drainage course contains water as it approaches the first railroad culvert. Water is visible in photographs of the drainage course beyond the culverts until it reaches the Des Plaines discharge point. Although no water is flowing in the bed at the discharge point, it is not possible because of quality of the photographs to determine whether the bed is totally devoid of water. (Stepan Exhibit #39) Offerman testified that the course was completely dry at that point (R. 90) although water was flowing in the course several feet upstream (R. 89).

Offerman also kept a log of conditions he observed from the double culvert on Millsdale Extension Road to the wooded area from September 9 through October 18, 1974. On these dates Offerman testified he followed the drainage course from the culvert to where it entered the wooded area. From September 9 to September 12 the log (Stepan Exhibit #43) described the culvert condition as "dry". On September 13 the log records that a flow was observed in the course near the culvert after a heavy rain had occurred late the previous day. The flow was noted as being 1/2" in depth.

Beginning September 16 and continuing through October 18 the log records "no flow" for the entire period. Rain occurred on October 13, 1974. The "no flow" notation meant that small puddles were observed following a rainfall but they were spaced far apart and the stream was not flowing (R. 92).

Offerman testified that a heavy rain would cause water to flow in the culvert for six to eight hours, then flow more slowly for several hours and finally stop (R. 94). Other than the period of time during which he took the photographs and made entries in the log, Offerman testified that it was not his normal practice to observe the culvert conditions as he drove to and from the plant (R. 109).

Agency engineer, Theodore Denning, inspected and photographed the drainage course south and southeast of the plant on May 16, 1974. Flowing water is clearly visible in the drainage course and all photographs taken on that date. Denning admitted that it had rained the previous day and that it was possible that the rain had been "heavy". (R. 213) He also stated that Cedar Creek was flooding on that date (R. 219).

Denning stated that he had never walked over the entire drainage course and in particular that portion from the Millsdale Road to the Millsdale Extension Road. He testified that a Stepan employee, Frank Rac, had been with him when he photographed the drainage course near the Millsdale Road. According to Denning, Rac informed him that the drainage course continued from that point to the Des Plaines River (R. 222). Rac is no longer employed by Stepan and was not called as a witness.

A return visit was made by Denning on October 17, 1974 in order to inspect the drainage course area. Water was observed flowing through the culverts towards the Des Plaines River at about 2 to 3 gallons per minute on that date. He did not follow the drainage course to the point at which it enters the Des Plaines River. Denning described the water in the drainage course as "clear, colorless, sparkling" (R. 207). (Note: The Offerman log book recorded rain on October 13, 1974) Denning testified that the clarity of the water on October 17 led him to believe that a natural spring was located somewhere in the area of the railroad culverts (R. 209) although he made no attempt to trace the source of the clear water (R. 219). He observed no plants or evidence of aquatic life in the stream bed and did not sample the water in the stream (R. 22).

Agency engineer Surinder Gambhir testified that he had reviewed Stepan's proposed plan and recommended denial of the diversion project (R. 227). After reviewing the Stepan file,

which included reports by Denning, Gambhir reasoned that the ultimate effect of the diversion would be no different than the present discharge to Cedar Creek (R. 228). He later accompanied Denning on the May 16 inspection and noted that his observation paralleled those of Denning's on that date.

Gambhir testified that he walked the section of stream from the railroad culverts to the Des Plaines River. Based on observations made during this walk he believed that the channel was a natural watercourse instead of manmade (R. 230. He did not walk the drainage course between the two roads into the plant. His decision that the channel east of the first railroad culvert was a continuation of the channel observed at Millsdale Road was based on his interpretation of topographical maps of the area (R. 244).

Inspection of the topographical maps submitted by Stepan (Stepan Exhibit #12) show that the terrain about one mile east of the Des Plaines River begins to slope towards the River and eventually drops about 95 feet in elevation as it meets the River. Thus, Gambhir's interpretation that the course appeared to be draining in the direction of the River is credible.

After reviewing the entire record in this case, it is the Board's opinion that the Agency properly denied Stepan a permit for the proposed diversion. The record shows that the Agency was concerned not only about the ditch, but more importantly, the effect of the discharge on the small drainage course after the two streams join near the first railroad culvert. Denning noted in his report of the May 16, 1974 visit that the stream from the railroad culvert to the Des Plaines River would be accessible by several dirt roads during dry weather. At least two such roads with vehicles on them are clearly visible in the aerial photographs submitted by Stepan (Stepan Exhibit #4).

The ditch into which Stepan proposes to divert its effluent was constructed by Stepan primarily as a means of directing runoff water away from the waste treatment plant. Stepan is correct that the ditch as constructed does not merit the classification of "waters". The intent of the Water Pollution Regulations is to provide that degree of protection which is necessary to "restore, maintain, and enhance the waters of this State in order to protect health, welfare, property and the quality of life and to assure that no contaminants are discharged into the waters without being given the degree of treatment or control necessary to prevent pollution".

Prior to diversion of effluent, water in this manmade ditch would consist solely of runoff. There is no evidence that water in the ditch supports aquatic life, is used for agricultural purposes, is used to water domestic animals or frequented by any wildlife creatures. We do not choose to consider that ditch, for regulatory purposes, as waters of the state.

However, the record also contains an aerial photograph, topographic maps and Denning's recollection of his conversation with Stepan employee Rac. This evidence indicates that there is an intermittent water course to the south and southeast of the plant and that at least part of the water flowing intermittently under the culverts flows from this water course. Stepan argues strongly that evidence does not support such a conclusion. However, the topographical map and aerial photograph, in our opinion, support Denning's testimony. From all of the evidence we find that an intermittent water course does exist and that waters of the State flow through the culverts.

To allow Stepan to proceed with its plan would simply mean that the waste treatment plant effluent would be directed from a small stream incapable of assimilating the contaminants to an even smaller intermittent stream to which the public have access by road and by river. This intermittent stream is "waters" and is deserving of the same protection afforded Cedar Creek.

A number of prior Board Opinions are cited by the parties. In particular, Allied Chemical Company vs. EPA, PCB 73-382, is cited to show both sides of the "waters" issue. In Allied Chemical the plant effluent was being discharged to the Ohio River via a ditch which was completely on land owned by Allied Chemical and which was fenced to prevent public access. In the instant case we have a channel which flows on land wholly owned by Stepan to the point at which it would enter a natural drainage course and subsequently traverse land not owned by Stepan.

Stepan cites the Board opinion GAF vs. EPA, PCB 71-115 apparently in an effort to show the variance should be granted based upon Stepan's diligence, good faith and the fact that they are not seeking to avoid prosecution for past violations. However, when Steinreich became aware December 1973 that the effluent could not consistently meet the 30 mg/l BOD and 37 mg/l SS effluent standards he failed to advise the Agency or the Board of this discovery. In addition, it appears to us that Stepan, at the time it agreed to divert its effluent to the Des Plaines River, knew full well that it could not meet its agreed deadline. Therefore, we are reluctant to praise Stepan for diligence and good faith.

Had Stepan provided the Board with the complete picture as Stepan knew it to be, our prior Order could have been different. As it now stands, Stepan has ignored a major part of our prior Order which required diversion to the Des Plaines River by July 15, 1974. Thus, the problem now facing Stepan is, for the most part, self-imposed.

Stepan submitted a copy of CFR Title 40, Subchapter N, Part 417-Effluent Guidelines and Standards for Soap and Detergent Manufacturing Point Source Category (Stepan Exhibit #41), and calculations based on effluent limitations contained in that document (Stepan Exhibit #40). These two exhibits, according to Stepan, are important to its case since they show that achievement of 30 mg/l BOD in plant effluent requires better pollution control technology than Best Practicable Control Technology Currently Available as defined in the Federal Regulations. Under the Federal effluent limitations Stepan claims it should be allowed to discharge an effluent containing as much as 50 mg/l BOD (calculations show the correct figure to be 44.72 mg/l BOD).

At least four other factors must be considered in weighing this evidence. First, as clearly noted in the Federal Regulation prior to each section in which effluent limitations are established, the U. S. EPA states that certain data "which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry". Second is the consideration that Stepan effluent equalled or bettered the Federal limitations for BOD 50% of the time in April 1974, 100% in June 1974, 60% in July 1974 and 75% in August 1974. Third is the additional Federal requirement that Stepan should be able to achieve 10.6 mg/l TSS in their effluent using Best Practicable Technology. Operating data show that Stepan has accomplished this feat only five times since February 1974. Finally, Dr. Lampe testified that completion of the proposed improvement projects should permit Stepan to consistently meet the Illinois effluent limitations. In our opinion, these considerations show that the Millsdale plant, when properly operated, is one plant that must be considered an exception to the rule, as cautioned by the U. S. EPA.

An alternative is available to Stepan as partially brought out in the testimony of Plant Manager Steinreich. Steinreich testified that Stepan could cut another water course from the last railroad culvert to the River. Such a cut would be made if it was deemed necessary to receive the permit (R. 270). Steinreich stated that the project would allow Stepan to avoid Agency objection to crossing state owned land. However, the Agency noted that no such objection was anywhere to be found in the record.

This proposed second or extended ditch would not solve the problem since effluent in the existing ditch would mix with the drainage course water before the first railroad culvert. Nothing would be gained by cutting a second ditch on the other side of the second railroad culvert to the River if drainage course water had already been contaminated by plant effluent. Also, in viewing the aerial photograph in conjunction with Steinreich's statement, it appears that the public would still have access to the contaminated water.

One alternative solution would be for Stepan to install a pipeline to intercept the effluent at some point in the manmade ditch before the first railroad culvert. Effluent would then be transported via pipeline from that point to the Des Plaines River. This pipeline would be routed through both culverts and thence to the river.

By installing this pipeline Stepan would avoid contaminating any "waters" in the drainage course with plant effluent. Public access to the plant effluent would also be avoided. Andrae testified that a 90 day maximum would be required for Stepan's proposed diversion since piping and pumps for the proposed diversion to the ditch are already on site (R. 40). Possibly this equipment could be used to achieve a diversion such as that described above.

Steinreich testified that the surfactant plant (60-70% of the total Millsdale production) would have to shut down if the variance were denied and Stepan were required to meet the effluent standards applicable to the Des Plaines River by December 31, 1974 (R. 129). The entire plant would have to shut down if Stepan were required to meet the more strict effluent standards applicable to Cedar Creek. Certain equipment at the plant, such as the sulfonators, cannot be operated in a reduced mode because designed to operate at only one rate (R. 159). Stepan believes that the concentration of contaminants in its effluent would probably not change even if operation in a reduced mode were possible because the primary sources of contamination are spillage and wash down.

In its Recommendation, the Agency states that Stepan failed to comply with bonding requirements in the prior Order. A $5,000 bond was required to guarantee weekly effluent testing. The bond was never posted but the testing was done. Another bond in the amount of $30,000 was agreed to by Stepan for liquidated damages in the event Stepan failed to file its construction permit application on or before February 15, 1974 and if Stepan failed to cease its discharge to Cedar Creek by July 15, 1974. The $30,000 bond was posted in April after the Agency brought it to the attention of Stepan's attorney.

The Agency recommends denial of variance in part because of reluctance to recommend a future shield for prosecution for a company that has consistently been in violation of the Act and applicable Regulations since at least November 10, 1971. The Agency cites GAF vs. EPA, PCB 71-11 stating that the Board has held that "a hardship which at some time may have been considered to be arbitrary or unreasonable, is no longer so considered after the polluter has failed to make use of ample opportunities for achieving compliance."

Section 35 of the Act provides that the Board may grant a variance whenever it is found, upon presentation of adequate proof, that compliance would impose an arbitrary or unreasonable hardship. In this case adequate proof is woefully lacking. Stepan has violated Board Regulations, the Environmental Protection Act, their own Stipulated Agreement and the Board's Order in the prior consolidated cases. The record of this proceeding does not support Stepan's claim of arbitrary and unreasonable hardship. Stepan has been given ample opportunity to achieve compliance. They cannot claim hardship on the basis of malfunctioning treatment plant equipment because the record clearly shows that such malfunctions have occurred only twice since the January 1974 Board Order. The only hardship recognized in the record is the largely self imposed one created by Stepan's failure to divert its effluent to the Des Plaines River as agreed.

Variance until December 31, 1975 cannot be allowed at this time based upon the record before us. Although the Betz program appears to be capable of bringing Stepan's effluent into compliance, it is essential to the protection of Cedar Creek that the contaminated effluent be diverted as quickly as possible to the Des Plaines River. Stepan will be given the opportunity to show its good faith if it is willing to install a diversion pipeline using the maximum efforts possible. It should be readily apparent from the Order accompanying this Opinion that the degree of effort put forth by Stepan in the pipeline project will be a prime consideration in any future variance decision.

Stepan is granted a variance for 120 days only on the condition that it submit to the Agency within 30 days a plan for transporting its effluent via pipeline to the Des Plaines River. This pipeline shall be constructed such that it continue uninterrupted from some point before the first of the double railroad culverts to the Des Plaines River and such that the natural stream channel through and beyond the double railroad culverts shall not be contaminated with plant effluent.

Since piping and pumps for the denied diversion project are already on site we believe that the schedule for such a project

could be accelerated. Clear reasons shall be provided in the event more than 90 days are required to complete the diversion.

The remaining issue is what monetary penalty, if any, should be imposed upon Stepan. CBE contends that a penalty of $20,000 would be supported by the record.

Stepan submits that such fine is not appropriate because: 1) Stepan relied upon a consultant who contractually guaranteed to bring the plant effluent into compliance, 2) a new compliance program has been formulated, 3) Stepan has undertaken an internal spill prevention and equipment maintenance program, 4) violations were not deliberate and not caused by negligence, 5) the Agency did not join the CBE suit or commence its own enforcement action, 6) Stepan has acted in good faith and the Board has held that good faith effort is not rewarded with penalty and 7) the Supreme Court and Appellate Court have stated that civil penalties are to be used as a method to aid enforcement of the Act and that punitive considerations are secondary in nature.

As the courts have stated, a civil penalty may be imposed when such remedy is necessary to aid enforcement of the Act and when such remedy will aid in the protection, enhancement and restoration of the environment by eliminating, lessening and preventing pollution.

Stepan has knowingly operated in violation of the law for quite some time. It has been releasing its effluent to a small creek that simply is incapable of assimilating such waste loading. This Board allowed Stepan a very liberal variance in order to clean up its effluent. The variance was allowed in part because Stepan had a program it contended would work and because Stepan promised to divert is effluent in short time to the Des Plaines River.

In reality, the operating data shows that very little progress has been realized in the past year. Cedar Creek is still being contaminated by loadings in excess of 100 times the allowable BOD concentration and almost 180 times the allowable suspended solids concentration.

This record supports the imposition of a significant civil penalty. It is the finding of the Board that Stepan should pay a civil penalty in the amount of $15,000 for water pollution violations proven in this proceeding. No liability is placed upon Stepan for failure to timely post the two bonds required by the prior Board Order.

Finally, the Agency has filed a Motion to Forfeit the $30,000 bond described in this Opinion. The Board has ordered that this action be docketed under a separate number and a hearing has been ordered. While this Opinion and the record from which it was drawn may have bearing on the Motion, the merits of that Motion will not be taken up in this Opinion.

This Opinion constitutes the findings of fact and conclusions of law of the Illinois Pollution Control Board.

ORDER

It is the Order of the Pollution Control Board that:

1. Stepan Chemical Company is granted variance from Rule 404(f) of the Water Pollution Control Regulations for its Millsdale plant for 120 days from the date of this order. This variance is allowed on the conditions that:

   a) Stepan submit to the Agency and the Board within 30 days of the date of this Order a plan for transporting its effluent to the Des Plaines River. Such plan shall show that the effluent will be enclosed in pipeline prior to reaching the railroad culverts south of the plant and that no effluent will be discharged to either Cedar Creek or the unnamed natural drainage channel south of the plant as identified in these proceedings. Every effort shall be made to complete the project during the term of this variance.

   b) During the term of this variance Stepan shall not increase its BOD and SS discharge to Cedar Creek over levels achieved in July 1974.

2. Stepan shall continuously monitor the influent to and effluent from the Millsdale waste treatment plant throughout the entire period of variance allowed in Part 1 of this Order. Effluent will be analyzed for BOD (on a weekly composite sample) content and suspended solids content. The Agency will be provided a copy of all analytical results obtained during the term of variance.

3. Within 30 days of the date of this Order Stepan shall post a $5,000 bond with the Agency to guarantee performance of the effluent testing required in Part 2

above and shall post a $15,000 bond with the Agency to guarantee installation of pipeline to carry the plant effluent to the Des Plaines River without discharge to either Cedar Creek or the unnamed natural drainage channel south of the plant. The bonds shall be mailed to: Fiscal Services Division, Illinois EPA, 2200 Churchill Road, Springfield, Illinois 62706.

4. Stepan Chemical Company shall pay to the State of Illinois by March 1, 1975 the sum of $15,000 as a penalty for the violations found in this proceeding. Penalty payment by certified check or money order payable to the State of Illinois shall be made to Fiscal Services Division, Illinois EPA, 2200 Churchill Road, Springfield, Illinois 62706.

Dr. Odell dissents.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion and Order was adopted this 14th day of February, 1975 by a vote of 3 to 1.

Christan L. Moffett