

ILLINOIS POLLUTION CONTROL BOARD
April 12, 1973

ELGIN JAYCEES, an Illinois)
Not-For-Profit Corporation)
)
) #71-59
v.)
)
TRI-COUNTY LANDFILL COMPANY,)
an Illinois corporation, et al)

JOHN E. JUERGENSMEYER, APPEARED ON BEHALF OF ELGIN JAYCEES
KENNETH F. MILES OF JORDAN & MILES, APPEARED ON BEHALF OF VILLAGE
OF SOUTH ELGIN
JAMES I. RUBIN, ASSISTANT ATTORNEY GENERAL, APPEARED ON BEHALF OF
ENVIRONMENTAL PROTECTION AGENCY
EUGENE MURPHY OF MURPHY & PEARSON, APPEARED ON BEHALF OF TRI-COUNTY
LANDFILL COMPANY
ROBERT F. CASEY, APPEARED ON BEHALF OF ELGIN LANDFILL COMPANY
DENNIS F. FRANCE OF HOWARD, HOWARD & FRANCE, APPEARED ON BEHALF
OF GARDEN CITY DISPOSAL COMPANY AND ARC DISPOSAL COMPANY

OPINION AND ORDER OF THE BOARD (BY SAMUEL T. LAWTON, JR.):

This proceeding involves assertions of alleged land, air and water pollution occurring with respect to properties in the vicinity of South Elgin, Illinois, as will be more fully set forth below. Because of the complexity of the case, an initial review of the pleadings and a description of all parties is in order before consideration of the case on the merits.

The initial complaint was filed by the Elgin Jaycees, an Illinois Not-For-Profit corporation against Tri-County Landfill Company, an Illinois corporation, and Jack Termaat, its Manager, alleging that the Respondents, in the operation of a landfill located on Route 25 in the City of South Elgin, were in violation of Regulations with respect to "water, soil, leaching and air pollution" on specified dates in 1970 and 1971. The essence of the complaint was that waste material deposited at the dump site, drained through a small creek which, in turn, was tributary to the Fox River.

On May 5, 1971, an amended complaint was filed, adding as parties Respondent Garden City Disposal Company, Edward and Everett Vander Molen, Arc Disposal Co. (originally designated "Art Disposal"), Wayne Disposal Co. and Edward Evenhouse, individually and as Registered Agent of Tri-County Landfill Company, asserting essentially the same alleged violations as in the original complaint and adding that

because of the proximity of wells furnishing South Elgin's water supply, the water supply was in danger of pollution. A second amended complaint was filed by the Elgin Jaycees on June 8, 1971, adding an additional paragraph to the complaint, as follows:

"4. Statement of Manner and Extent to which Respondents are Claimed To Be In Violation: Respondents operate a series of related "sanitary" landfills covering several hundred acres, and dump all manner of waste products, superficially covering some of the material with soil. Septic tank sludge pumpings have also been dumped on the property. Waste material drains to a small creek which runs through the property, which has become badly polluted and which flows directly into the Fox River a short distance away. The landfills are in close proximity to the shallow wells of the Village of South Elgin Water Supply, and said water supply is in serious danger of pollution. The Fox River, the aforesaid creek, the subsoil waters and the air are badly polluted as a result of improper location and management of this operation."

On July 7, 1971, a motion to dismiss was filed by Garden City Disposal Company and Arc Disposal Company, on the grounds that neither company had any interest in the landfill operation which was the subject of the complaint.

On July 15, 1971, a petition for leave to intervene as a party complainant was filed by the Village of South Elgin, which intervention was permitted by order of the Hearing Officer on July 22, 1971.

On September 6, 1971, a petition for leave to intervene as a party complainant was filed by the County of Kane which was granted on September 17, and on September 14, a petition for leave to intervene as party complainants was filed by Edward and Shirley Ross, Arthur H. Ross, George E. Schaffter, Edward and Sandra Plumley, James A. Greenberg, Eugene Simmerman and William Collier.

On October 22, 1971, the Environmental Protection Agency of the State of Illinois filed a petition for leave to intervene as a complainant, together with its complaint as such intervenor. The complaint is directed against all of the Respondents heretofore named by the Elgin Jaycees in their complaints and alleged that the Tri-County Landfill Company and the Vander Molens, doing business as Elgin Landfill Company, each operate contiguous landfill sites on Route 25 in or near the municipality of South Elgin and that between July 1, 1970 and the close of the record in the proceeding, Tri-County Landfill Company and Elgin Landfill Company have discharged contaminants into certain underground waters of the State, so as to cause, either alone or in combination with matter from other sources, water pollution, in violation of Section 12(a) of the Environmental Protection Act and have deposited contaminants on the

land in such a place and manner so as to create a water pollution hazard, in violation of Section 12(d) of the Act. The entry of a cease and desist order and penalties in the maximum statutory amount are sought.

On November 9, 1971, the Hearing Officer granted all of the foregoing petitions with respect to intervention and granted the Agency's motion to add Edward and Everett Vander Molen, d/b/a Elgin Landfill Company, as a party respondent.

On December 6, 1971, an amended complaint was filed by the Environmental Protection Agency against all of the foregoing Respondents alleging the discharge of contaminants into underground waters of the State so as to cause ground water pollution, in violation of Section 12(a) of the Act, and depositing contaminants upon the land so as to create a water pollution hazard in violation of Section 12(d) of the Act. Again, while all of the foregoing Respondents are named, the violations are alleged only against Tri-County Landfill Company and both Vander Molens, individually and d/b/a Elgin Landfill Company.

On June 27, 1972, a motion to dismiss was filed by Respondents, Elgin Landfill Company, Tri-County Landfill Company, Arc Disposal Company and Garden City Disposal Company, alleging the impropriety of John E. Juergensmeyer to act as Attorney for various complainants and intervenors herein because of alleged conflict of interest as a consequence of Mr. Juergensmeyer's participation as a Hearing Officer of the Pollution Control Board in other proceedings of the Board. The motion asks that all complaints filed by Mr. Juergensmeyer be dismissed or, that in the alternative, he be barred from participating in the proceedings. On June 30, 1972, we entered our Opinion and Order denying the motion.

The foregoing represents the principal pleadings filed by the parties. Other motions were filed by the parties and orders entered by the Hearing Officer, principally with respect to Interrogatories, inspections and pre-trial procedures, which are not alluded to. To the extent not heretofore disposed of, we ratify and confirm all actions taken by the Hearing Officer.

We grant the motion of Arc Disposal Co. and Garden City Disposal Co. to dismiss as no violations have been demonstrated to have been committed by them. We find the record fails to support any allegations of air pollution and to the extent such allegations are pleaded in any of the original complaints, we find Respondents not to have been in violation of any regulation or statutory provision with respect thereto. We find that Edward Vander Molen and Everett Vander Molen, d/b/a Elgin Landfill Company, and Tri-County Landfill Company to have caused water pollution, in violation of Section 12(a) of the Act and to have created a water pollution hazard, in violation of Section 12(d) of the Act.

While the evidence demonstrates the probability that the Rules and Regulations with respect to Refuse Disposal Sites and Facilities have been violated on an episodal basis, we do not believe in this respect that the evidence is sufficiently impressive to establish violations with the exception of Rule 402(a) requiring that reasonable assurance be taken so that leachate from the landfill does not contaminate the ground waters or streams in the area. We find Respondents, the Vander Molens, d/b/a Elgin Landfill Company and Tri-County Landfill Company have violated this provision. However, in view of the failure to specify the precise sections for which violations of the Rules are asserted and the failure to make adequate proof other than as to Section 402(a), we will not impose any penalties with respect thereto.

A penalty in the amount of \$10,000 is assessed against Edward Vander Molen and Everett Vander Molen, d/b/a Elgin Landfill Company and penalty in the amount of \$10,000 is assessed against Tri-County Landfill Company for violations of Sections 12(a) and 12(d) of the Act, as above set forth. Respondents Vander Molens and Tri-County will be ordered to cease and desist the operation of their facilities so as to constitute water pollution or the threat of water pollution, and to take all necessary steps to comply with the applicable regulations and statutory provisions with respect to the operation of a refuse disposal site and facility.

Hearings on this matter commenced on June 23, 1971 and concluded on February 7, 1973. The transcript of the hearing consists of 2,652 pages; approximately 200 exhibits were introduced into the record by all parties. The facts and issues of the case, however, are not as complicated as the size of the record or the time involved in the hearings, would suggest.

Complainant's Exhibits 1 and 2 set forth the location of the landfill sites and contiguous areas in graphical fashion. Complainant's Exhibit 1 is a zoning map of Kane County, on which the location of the various sites involved have been placed; Exhibit 2 is a Northeastern Illinois Planning Commission air photo map depicting the locations of the various sites involved, the proximity of the Village of South Elgin, the Fox River, the wells used for South Elgin's water supply and the location of various experimental and testing wells that were involved in this proceeding.

Throughout the proceeding, the property owned and operated by the Elgin Landfill Company has been referred to as Site A and the property owned and operated by Tri-County Landfill as Site B. Site A, containing approximately 20 acres, is north of and contiguous with Site B, containing 46 acres. Immediately to the west of both Sites A and Sites B and separated by the Chicago, Aurora and Elgin Railroad right-of-way is a tract referred to throughout as Site C. Site C contains two bodies of water designated Ponds II and III and a stream, which the complainants contend have been polluted both as to underground and surface waters located thereon as a consequence

of Respondent's operations on Sites A and B. The principal complaint, however, relates not so much to the pollution of the waters found on Site C but rather to the future pollutional impact that operations of Sites A and B may cause. This, essentially, is the concern that continuation of pollution of the upper aquifer will ultimately cause pollution of the Fox River to the West, but of far greater concern, is the fear that the continued pollution of the ground and surface waters will, in time, if unabated, reach the lower aquifer, which is the source of South Elgin's water supply and provides the water obtained from wells #2 and #3 used by the City.

An orderly disposition of this proceeding requires first, an analysis of the character and operation of the landfills owned and operated by Respondents, Elgin Landfill Company and Tri-County Landfill Company. Next, consideration must be given to the nature of the water table and aquifers involved in the proceeding, together with an analysis of the movement and character of the leachate present. Next, consideration must be given to the evidence of pollution, if any, both actual and threatened, with respect to Parcel C, the streams and pools involved, the upper and lower aquifers, Well #3, being the source of S. Elgin's water supply and the Fox River. Lastly, analysis must be made of the various tests employed by the parties to ascertain all of the foregoing matters, namely, the background concentrations of water in its natural condition, the intensity and movement of leachate and the pollution, if any, resulting therefrom.

Thomas J. Rolando, Village President of South Elgin, testified (R. 177 and following), particularly with respect to Complainant's Exhibit 1, which delineated the various sites involved in this proceeding. He observed a dotted blue line on Site C, which until May of 1970, represented a lake varying in depth from 8 to 15 feet. The area around the lake was in the nature of a wildlife refuge. In May of 1970, a dam containing the water broke, causing the lake to recede several feet and ultimately, became a small pond. This pond was connected by a narrow stream to another shallow body of water. The pond became brownish-orange and developed a thick scum beneath it. Where previously fish had lived in the lake, no living organisms could be found in the pond. The black scum on the bottom of the pond had a sewage odor.

Mr. Rolando next testified to his observations with respect to the operations of the two landfill sites. The incinerator ash pile was designated on Sites A and B on Exhibit 1. The ash was piled fourteen feet above the railroad right-of-way and was approximately 100 feet in length and 30 feet in width and was located on both the Tri-County and Elgin Landfill sites. The pile was first observed on August 10, 1970 and at the date of the witness's testimony, had been removed from the Tri-County site but remained on the Elgin site. A prairie path located along the site of the Chicago-Aurora

Railroad had been covered with trees, which trees along the west edge of the Elgin Landfill site appeared to have died. The witness next testified to the source of South Elgin's water supply, describing Well #3 which is located 3/4ths of a mile from the northwesterly edge of the Elgin landfill site and is 113 feet deep. Complainant's Exhibits 9 through 14 were introduced depicting the condition of both landfill sites, which pictures, taken in 1971, showed open burning, exposed garbage, uncovered auto bodies and exposed standing water. Exhibit 15 depicts brownish-orange water in a ravine immediately west of the incinerator ash pile and the railroad right-of-way in Site D8. Exhibits 16 and 17 depict the condition of the brown lake identified as Pond III on Site C. Exhibit 18 depicts Pond III and the stream connecting it with Pond II, all on Site C. Exhibit 19 depicts the present ponds II and III. The water leaving the ponds on Site C flows west to the Fox River, approximately one mile away. Mr. Rolando testified further to the character of the incinerator ash pile observed on both sites, referring to Exhibit 8, showing a portion of the pile having been excavated.

Everett Vander Molen (R. 338 and following) testified with respect to the operation of the Elgin landfill site. Since 1968, the site has been used exclusively for the deposit of incinerator ash. This witness testified to his correspondence with the Environmental Protection Agency in July of 1971. He had been advised that it would be necessary to construct a berm in order to obtain an Agency permit. A letter from the Director of the Environmental Protection Agency to the Vander Molens dated December 7, 1970 (Complainant's Exhibit 25) states, in part:

"Leachate from your site is flowing into nearby ponds and other waterways. Sample results from previous inspections show that this leachate is grossly polluted; this water must be treated before allowing it to flow from your property."

The witness testified that construction of a berm was not possible because garbage would have to be excavated around all four sides of his property. When excavation was made to secure fill, water was observed. No berm approved by the Environmental Protection Agency has been constructed to date. The Vander Molens have been involved in the operation of the site since 1963.

Jack Termaat, President of the Tri-County Landfill Company, commented on the company's operation on Site B. In July of 1971, he also received an Environmental Protection Agency letter directing that a permit from the Agency was necessary, also indicating the necessity for the installation of a berm as a consequence of possible leaching. (Complainant's Exhibit 26). Work on the berm commenced but was not completed. Subsequently, notices of violation were received with respect to blowing litter, inadequate fencing and absence of cover. Open burning likewise occurred allegedly as a consequence of the

deposit of a hot load. The witness testified (R. 464) that plans submitted to correct the present leachate situation have not been approved by the Agency.

William N. Palmquist, a geologist employed by the Agency, testified with respect to his observations as to the leachate condition of the two landfill sites (R. 501 and following). From soil borings and test wells, he determined that the underground strata consists of an upper layer of sand, silt and gravel, an underlayment of clay, varying in thickness, under which is a thicker sand and gravel strata and below that, bedrock, establishing two basic aquifers. The direction of flow in both aquifers is westerly and southwesterly toward the Fox River. As a result of the breaking of the dam, the velocity of movement in the upper aquifer has increased flow into the ponds on Site C. Monitoring wells had been established on and in the vicinity of Sites A and B. The witness had obtained samples from the monitoring wells and from the ponds on Site C during June, October and November of 1971. On the basis of these samples, the witness ascertained what was the natural background level for suspended solids and other contaminants in the natural ground waters, and compared these with a leachate sample collected on a small pond in the center of Site A. The results of the samples disclosed two types of wells whose samples contain different characteristics of effluent. Wells 2, 3 and 4 are located on Site B, generally south of the incinerator ash pile and disclosed low dissolved solid readings, from which the witness concluded that the background concentrations would be in a range of from 400 to 600, whereas samples taken at Wells 1, 5 and 6 located westerly and southerly of the ash pile disclosed extremely high concentrations of dissolved solids, approximating ten times that noted in the former tests. Concentrations of calcium, sodium, potassium and chloride were also noted in the leachate sample taken from the pond on Site B, which corresponded in its composition to samples taken from Wells #1, 5 and 6. This witness concluded that on the basis of the sampling, leachate from the two landfills have moved into Wells, 1, 5 and 6, into Pond III and the pond west of the ash pile designated as D8 (Ex. 34 through 46). In his opinion, the leachate emanated from both the Elgin and Tri-County landfills but primarily from the Elgin landfill. It was also his belief that Pond II west of Pond III would be further contaminated by the flow from Pond III and that contamination would continue to flow in a westerly direction to a stream which ultimately discharges into the Fox River. Mr. Palmquist testified that, in his opinion, if the leachate condition continued unabated, it would ultimately enter the cone of depression of Well #3, which serve as the source of water for the Village of South Elgin. Water samples taken from Pond D8 and the brown orange pond III indicated that the water and the ultimate polluttional impact was travelling in the sub-surface sand and gravel in a westerly direction from the landfill sites. Exhibit 25 above referred to was introduced into the record, being a letter from the Environmental Protection Agency stating "leachate from your site is flowing into nearby ponds and other waterways...leachate is grossly

polluted. This water must be treated before allowing it to flow from your property." Respondent's Exhibits 2 through 9 were test results made by the Agency in September of 1970, which was the basis for the foregoing letter dated December 7, 1970.

George Hughes (R. 672 and following) a geologist employed by the Illinois State Geological Survey testified on the basis of his studies of soil borings made on Sites A, B and C, from which he concluded that there were at least two aquifers underneath the three sites. The Village of South Elgin draws its water from the sand and gravel aquifer immediately above the bedrock, which is an aquifer below the surficial sand and gravel aquifer located in the top strata. The water level on all three sites appears to be within 20 feet of the surface and occasionally closer. The source of leachate from the landfills is rain water moving from the top of the landfill. Another source would be ground water moving in the sides of the landfill. He estimated that with 12 inches of rainfall during a year, 13,200,000 gallons of water would be leached from a 40-acre site. In his opinion, nothing would prevent the leaching of water laterally out of Sites A and B through the surficial sand. While a layer of silty clay with relatively low permeability may separate the two aquifers, he cannot state with certainty that a hydrological barrier exists between the two aquifers. A break in the clay might exist and the clay itself is not absolutely impervious. The cone of depression, a term used frequently throughout the hearing, is descriptive of the area from which South Elgin Well #3 draws its water. If, in fact, the layer separating the upper and lower aquifers is not impervious, it is a fair assumption that pollutants present in the upper aquifer could reach the lower aquifer and constitute a pollution source to South Elgin's drinking water supply furnished by Well #3. This witness testified to various methods of control of leachate including containment, blocking, reversing direction of flow, collection and treatment. The success of any one of these methods would be dependent on many variables, including the characteristics of the soil, the zone of saturation and the character of the materials creating the leachate. In his judgement, no barriers exist at the present time, to prevent the leachate from moving laterally from Sites A and B.

George Schaffter, (R. 767), Edward Ross (R. 778) and Arthur H. Ross (R. 805) testified to the change in the character of the stream and ponds on Site C, subsequent to the breaking of the dam which drained off the preexisting lake. Each owns land on which a well exists immediately west of Site C. George Schaffter testified that when the dam broke in May, 1970, the stream became clay-colored, foam formed on the ice after freezing, frogs were killed and in the spring, sludge accumulated possessing a sewage-like odor which lasted through the summer. This witness made a significant observation that when the South Elgin Well #3 was filled in in April of 1963, all of the water drained from his well (R. 770). The interrelation between the ponds and streams on Site C, the stream on Mr. Schaffter's

property, his well and the South Elgin well became evidence and the interrelation between the upper and lower aquifer transcend the realm of speculation.

Edward Ross owns a 90-foot well about approximately one-half mile east of Sites A and B. In recent months he has noticed odor from his well water which did not previously exist. When the dam broke, he noticed a septic tank odor from the stream running through his property. Later, the creek bottom turned black and fish no longer were present.

Edward G. Haas testified with respect to the landfill operations being conducted on Sites A and B, and also confirmed the sequence of events following the breaking of the dam on Site C and the discoloration and odors emanating from Pond III. He has observed excavations on Site A for cover material used on the ash pile. These excavations have left open large holes exposing garbage that had been previously dumped. The covering of the ash pile has been on a daily basis only for the last six months. In 1970, he observed the dumping of liquids on the Tri-County landfill site. He observed dumping by a sludge removal service of what appeared to be motor oil. Also observed was the dumping of an orange liquid from a chemical company truck. For approximately twelve months after June, 1970, this witness saw no evidence of daily cover on either Sites A or B.

The most significant evidence with respect to the movement and character of the leachate westward from the landfill sites to Site C and beyond, is the testimony and exhibits of Drs. Lawrence A. DuBose and Wilbur Simon.

Dr. Lawrence A. DuBose, (R. 491) President of Testing Service Corporation, conducted a series of tests based on the measurements made at various testing wells and locations on and west of the landfill sites involved. The results of these tests are contained in Complainant's Exhibit 32 and are entered on Complainant's Exhibit 1. His affidavit sets forth that he has conducted tests with respect to both landfill properties with a view of determining what, if any, pollution or leachate has been caused by and is escaping from the landfill sites. Tests were made on May 28, June 14, June 28, October 7 and November 23, 1971. Samples were taken at six monitoring wells previously referred to, Wells 2, 3 and 4 being located on Site B and Wells 1, 5 and 6 located west of Sites A and B, all of which wells are likewise depicted on Complainant's Exhibit 1. The principal parameter tested were with respect to total dissolved solids. The results of these tests are noted as follows:

<u>Wells</u>	<u>Date of Test (all 1971)</u>	<u>Total Dissolved Solids (mg/l)</u>
2	May 4	640
	May 11	358
	August 20	608
	September 24	304
3	June 11	892
	September 24	380
4	May 4	468
	May 11	404
	June 11	540
	September 24	336
1	May 4	6590
	May 11	4590
	June 11	5340
	August 20	6780
	August 30	6180
	September 24	5880
	October 18	4700
5	August 12	4324
	August 30	4665
	September 24	7128
	October 18	5300
6	August 20	4716
	August 30	4000
	September 24	4020
	October 18	3900

Tests were also taken at surface locations designated as D7, D8, D9 and D10; D7, being located north of the landfill sites, D8, west on the periphery of the landfill sites, D9 on Site C south of the brown orange pond, and D10 in the stream north of Pond II. All tests were made on May 27 and reflect the following total dissolved solids readings:

D7 - 402
D8 - 2260
D9 - 2000
D10- 536

The tests made at both of the wells and the surface water test sites support the contentions that the heavy TDS readings as a consequence of the leachate from the landfill sites. Wells 2, 3 and 4, while located on Site B, are south of the incinerator ash pile, whereas wells 1, 5 and 6 are west of the incinerator ash pile and in the demonstrated path of flow of leachate from the landfill sites. Complainant's Exhibit 1 depicts that the incinerator ash pile is on both the Elgin and Tri-County landfill sites. D7, north and east of the landfill site, reflects an extremely low dissolved solid reading.

Site D10, north of Pond II likewise discloses a natural level of dissolved solids, whereas D-8, immediately west of the ash pile and D9, contiguous with the brown Pond III, disclose high dissolved solid readings. As a result of the tests conducted by Dr. DuBose, the following conclusions are stated by him:

- "1. That leachate and pollution is moving by ground water from its source, Elgin Landfill Company site, westerly and southerly from said Elgin Landfill Company site, into a stream shown on said map [Complainant's Exhibit 1] west of said Elgin Landfill Company site, and is polluting said stream by way of said pond shown on said map exhibit in brown, and which results in pollution being caused downstream.
2. That such pollution and leachate has its source on Elgin Landfill Company site and moves westward as ground water and much of it collects in said pond on the surface of same.
3. That if the operation of said Elgin Landfill Company site continues as presently operated, in some years it is possible that the leachate from same will pollute the South Elgin Public water supply.
4. If an adequate barrier is not placed to contain the leachate from both of said landfills, it is possible that leachate from both of said landfills could pollute said South Elgin water supply."

It should be noted that recently adopted Regulations of the Pollution Control Board limit dissolved solids in public and food-processing water supply to 500 mg/l (Rule 204) and for general use waters to 1,000 mg/l. Drinking water standards are set forth in Complainant's Exhibit 112 set a 500 total dissolved solids limit as a health standard (Page 7).

Wilbur Simon, an analytical chemist who testified on behalf of the Environmental Protection Agency (R. 1075) took water samples from various locations involved in the proceeding. Exhibit 120 is a sample taken on September 23, 1971 from the orange pond located on Site C. The samples smelled like sewage. Exhibit 121 was a sample taken on September 23, 1971 from Site B. Exhibit 122, taken from the orange pond, had a smell of acid. Exhibit 124, being a sample from the creek flowing into Pond II, was clear and did not smell. Exhibit 125 is a sample of the incinerator ash taken from the Elgin landfill. Exhibit 126 is the result of Simon's test of placing the ash on a filter and leaching the solids with distilled water. From this, the witness concluded that the leachate was originating primarily from the Tri-County landfill because of the iron content in the

samples. A sample from the Tri-County Landfill reflected a total dissolved solid reading of 6786. Exhibit 126, being leachate from the Elgin landfill disclosed total dissolved solids of 1808. This witness, both on the stand and in the affidavit, concluded that both landfills are operated on land unsuitable for landfill sites, since, in his judgement, they were causing pollution of the South Elgin well and discharging leachate into underground water. He stated that there was oil and sewage on the pond on Site C which, in his opinion, came from the Tri-County landfill. BOD samples taken at the Tri-County landfill were comparable to BOD measurements made at the orange pond. In his judgement, the Tri-County Landfill is a major source of acids, iron, mercury and ammonia, which have caused a change in the pH of the South Elgin well water. Two written statements by Dr. Simon were received into evidence, the first being an Affidavit dated December 6, 1971 (Exhibit 113) and the second being a report entitled "The Contamination of the South Elgin Water Supply by Sanitary Landfill Operations" dated December 27, 1971 (Ex. 115). Tests made on South Elgin Well #3 disclose an increase of total dissolved solids from 396 in 1962 to 636 in November, 1971, which, in the opinion of the witness, was caused by the proximity of the landfills and resulting leachate. Three specific testing procedures are tabulated in Exhibit 113: the change in dissolved solids with respect to samples from South Elgin Well #3; the changes in surface waters between the landfills and Well #3, and the chemical content of surface ponds on landfill sites east of Well #3. High total dissolved solids readings in the ponds on Site C and low TDS readings from well water taken several hundred feet from the Fox River served by the same aquifer as Well #3 are reflected. The study of chemical content of surface ponds on the landfill sites indicates that the landfill sites are contributing to the pollution of the underground water. Contaminants from the Elgin landfill in the form of soluble inorganic salts are contained in the Tri-County landfill, together with organic liquids. The conclusions of Mr. Simon based on the foregoing tests, all tabulated in Complainant's Exhibit 113, are as follows:

- "1. Both landfills are discharging leachate into the underground water.
2. Both landfills are operating on land unsuitable for landfill sites.
3. The fast flow of the underground water is toward the South Elgin Well #3, only because the natural flow is diverted by the South Elgin well.
4. Chemical changes have occurred in surface waters 500 feet west of the landfills.
5. Changes have occurred in the acidity, dissolved solid content and mercury concentration of South Elgin Well #3.

6. Landfill operations should be terminated as soon as possible to protect the people and animals from water borne diseases.
7. These conclusions are based in part on fluctuations in the chemical content of the Village of South Elgin Well #3 water."

The summary of tests made by Mr. Simon on September 24, November 8 and November 22, 1971 and reflected in his affidavit identified as Exhibit 113, discloses high dissolved solid counts from measuring stations in the vicinity of the ponds designated II and III west of the landfill sites, but relatively low readings from waters north and tributary to these ponds. Likewise, dissolved solid readings taken west of Site C reflect a diminishing dissolved solid count as the readings progress westerly. These tests are entered on both Complainant's Exhibits 1 and 2.

The statement submitted as Exhibit 115 entitled "The Contamination of the South Elgin Water Supply by Sanitary Landfill Operations" analyzes both inorganic and biodegradable chemicals originating from four sources -- septic tanks, sanitary landfills, the Fox River and the Kenyon farm. The report traces the various pollution indicators from the Tri-County and Elgin landfills to waters east of the landfills, private wells southwest of the landfills, ponds and a creek west of the landfills to the Fox River and to the South Elgin Well #3. The conclusion of the report is that organic chemicals are the major pollutants of all waters studied, that incinerator ash buried on both landfills is the major source of soluble inorganic salts, that Tri-County Landfill is the major source of organic chemicals present in incinerator ash, that Elgin Landfill is the major source of inorganic chemicals present in incinerator ash, that Tri-County Landfill is the major source of strong acids, iron, mercury and ammonia and that the South Elgin landfill is polluted by organic chemicals and iron. The Fox River does not pollute the aquifer from which South Elgin draws its water and that the creek which flows through the properties southwest of the landfill has been polluted by Tri-County Landfill. The report states that Elgin Well #3 has been receiving biodegradable and chemically oxidized organic wastes, which have been introduced into the South Elgin aquifer. The major source of organic wastes in the landfills is the refuse buried in the Elgin landfill and the stable cleanings, septic tank sludge, oil sludge, organic solvents and garbage buried at the Tri-County landfill, together with run-off from cow manure fertilizer. Material buried in the Tri-County landfill is alleged to be responsible for the ammonia content in the escaping leachate and the ammonia found in the orange pond. BOD content of water was used to trace the flow of leachate from Tri-County landfill, which left the site in the vicinity

of Test Well #1 and enters the south end of the orange pond. After emerging from the ground, the biodegradable chemicals diminish rapidly before entering the Fox River. Table #2 in the report indicates that leachate from Tri-County Landfill contaminates water in every direction and that this water enters the aquifer of all public and private wells in the vicinity. Private wells drawing from the same aquifer as the Elgin well were tested for dissolved solids. Averaged dissolved solid testing by Dr. Simon of the test wells used by Dr. DuBose produced essentially similar corresponding measurements with respect to all wells involved, Wells #1, 5 and 6, reflecting high total dissolved solids measurements and Wells #2, 3 and 4 correspondingly low.

In addition, analysis of the orange pond was made reflecting a BOD of 630 on September 23, 1970, which was the same value as the black pond at the southeastern edge of the Tri-County landfill. Spectrographic analysis of the orange solids show constituents of incinerator ash. On the basis of the testing and examination performed by this witness, the following conclusions are stated:

- "1. South Elgin Well No. 3 is contaminated by leachate from incinerator ash, by solutions of organic and inorganic chemicals, and by products of biodegradation.
2. The pollutants originate at the Tri-County Landfill and the Elgin Landfill. Leachate escapes from both landfills and enters the aquifer from which South Elgin obtains its drinking water.
3. Dead trees to the west and northwest and living trees to the north of Elgin Landfill indicate that leachate is escaping laterally westward from Elgin Landfill.
4. Elgin Landfill Company is responsible for the leachate from incinerator ash. (some of its ash is buried on other properties).
5. Tri-County Landfill Company is responsible for the organic chemicals, ammonium iron, mercury and iron in the South Elgin Well No. 3.
6. Kenyon's creek is being polluted by the landfills.
7. The Fox River does not pollute the South Elgin well.
8. An orange pond about 800 feet west of the landfills is being polluted by leachate escaping from the Tri-County landfill.
9. No further landfill operations should be conducted on the present sites or on the proposed sites east of the Village of South Elgin.

10. A scientific study should be made of incineration techniques which could lead to the production of a completely insoluble ash.
11. On the basis of state and federal standards which limit BOD entering rivers and sewage treatment plants (a) the water from beneath the landfills cannot be pumped into the Fox River without pre-treatment. (b) the water from beneath the landfills cannot be pumped to a sewage plant without pre-treatment."

In further substantiation of the leachate movement from the landfill sites westwardly was the dye test conducted by Dr. DuBose, noted in Complainant's Exhibit 133. On August 19, 1971, Testing Service Corporation, under the direction of Dr. DuBose, introduced a fluorescent dye at two locations at the west end of the Elgin Landfill site. After introduction of the dye, water samples were taken from monitoring wells 1, 5 and 6 on August 30, August 30, September 2, September 24, October 18 and December 17, 1971 and on April 10, 1972. The samples were viewed under ultra-violet light and a green fluorescence noted in some samples. However, no samples taken on or before December 19 indicated the presence of the dye. On April 10, 1972, it was noted that a number of areas west of Site A contained ponded water in which leaves, stones and dead branches had been stained a light green color. Samples of such water and some of the leaves, were tested, which lead to the conclusion that the samples contained characteristics comparable to that found in the fluorescent dye. The ponds where the green was noted were approximately 150 feet west of Wells #5 and 6. Smaller ponds to the north do not contain the green material. Dr. DuBose concludes as follows:

"Our opinion is that the dye has moved from the Elgin Landfill westerly, in the approximate general direction that we had previously predicted. Rainfall after January 1, 1972, was sufficient to develop the gradient necessary to move the dye. In the interim between December 17, 1971 and April 10, 1972, the dye actually moved west past our monitoring wells and surfaced as seeps at a number of locations we have referred to as 'small ponds',

"We believe that the dye tests confirm our previously made statement that leachate has been leaving the Elgin Landfill site and moving west. Dr. Krawetz's report with respect to said five April 10, 1972 samples supplements this report and is attached hereto."

The affidavit of Ed O'Brien was received in evidence as Complainant's Exhibit 116. On the basis of his experience of 41 years as a well digger, and his familiarity with the terrain and hydrological aspects of the immediate area, he arrived at the following conclusions:

- "1. That the zone of influence or cone of depression of Well No. 3 of the Village of South Elgin extends as far as, or beyond, the red dotted line running northeasterly and southwesterly, northwest of the existing landfill sites on said Complainant's Exhibit 2.
2. That because of the hydraulic connection and the area of the cone of depression of said Well No. 3, any ground water, pollution or contamination escaping from said landfill sites, would be drawn to and would threaten Pollution of the South Elgin public water supply, as presently constituted in said Well No. 3.
3. That any new well which might have to be sunk for the future public water supply of the Village of South Elgin would have to be located, to reach the maximum water supply, south and east of existing Well #3 and, therefore, in closer proximity to the existing landfill sites.
4. That while the existing landfill operations may not yet have contaminated any wells in the South Elgin area, I consider very great the threat that this will happen in the near future."

We believe the complainants have established their burden of proof. Witnesses of Respondents do not refute the foregoing conclusions. Harold C. Hall, representing Tri-County Landfill Company submitted a written statement and also testified as an adverse witness. In his written statement #1, he stated that the major source of contamination of the upper aquifer is the leachate generated by the sanitary landfill (R. 5) and that the movement of ground water is in a westerly or southwesterly direction. In his view, the historical background of water quality for total dissolved solids (TDS) is between 400 and 450 ppm. He believed that all tests conducted by the parties were valid and that the evidence demonstrated that the leachate had moved from the landfill to Pond #3 and that there is likelihood that some of the dissolved minerals existing on Site C was derived from the landfill (R. 1700-1702). The surface ponds and streams on Site C are discharge areas of the contents of the upper aquifer (R. 1708) and that the upper aquifer is contaminated and polluted by both Sites A and B (R. 1708-1712-1781). It was his view, however, that since all of the pollution took place on Site C, the hazard of water pollution did not exist.

Dr. James E. Hackert also testified on behalf of Tri-County and agreed with the conclusions of Mr. Hall. He observed the

and this is a condition that we cannot allow to continue where the health and well-being of the community are involved.

The evidence establishes that if, in fact, drinking water becomes characterized by the TDS counts that are present in the portions of the upper aquifer, this could have a serious and disastrous effect on the citizens of South Elgin. We will not tolerate this danger, notwithstanding the fact that the time may be distant when such pollution would, in fact, take place. We will not direct revocation of such permits as Respondents may have heretofore received from the Department of Public Health but we will direct that immediate and sufficient steps be taken to abate the polluttional discharge from Respondent's properties. We are not satisfied that merely because Site C may be in private ownership that Respondents are free to pollute it indiscriminately. The Environmental Protection Act provides no such exemption. Nor do we adopt Respondent's arguments that the movement westward will produce an attenuation of polluttional discharge that will remove all danger. It is abundantly clear that the ponds and streams on Site C are the waters of the State and they have been polluted from the leachate from Sites A and B. It is further abundantly clear that a continuation of this condition unabated will in all likelihood create the pollution of the Fox River into which the streams flow and the even more dangerous possibility of pollution of the lower aquifer and the drinking water of the Village of South Elgin, which the evidence indicates has already begun.

We will order Respondents to immediately cease and desist all activities creating a condition of water pollution or the threat of water pollution and to take immediate steps to abate the leachate discharge from their sites. The proposals made to the Board in this respect have been varied and include the possibility of containment, the removal of refuse and treatment of leachate. These are matters which, on the state of the record, we are not in a position to direct in any definitive manner, but will mandate the Agency to require such steps as are necessary to achieve the ultimate result of pollution abatement, both present and threatened. This may include the construction of berms and such other and further steps as are needed to terminate the polluttional discharge and achieve abatement. Penalty in the amount of \$10,000 is assessed against Respondents, Edward and Everett Vander Molen, d/b/a Elgin Landfill Company and Tri-County Landfill Company, severally, for permitting the condition of water pollution and threat of water pollution found herein. All other Respondents are discharged.

IT IS THE ORDER of the Pollution Control Board:

1. Respondents, Edward and Everett Vander Molen, d/b/a Elgin Landfill Company and Tri-County Landfill Company shall cease and desist the causing of water pollution and the threat of water pollution on their respective sites.

mineralogical changes that had occurred on Sites C, but could not differentiate between Site A and Site B as contributors (R.2017-18), that an undesirable change has taken place in the water quality on Site C and that the leachate moves in a westerly direction from Sites A and B.

This view is supported by Joseph E. Rempe, who testified on behalf of Elgin Landfill (P. 2400). He believed that it was possible that the leachate had reached the brown pond (Pond III) and that the creek running through Site C and the two ponds were waters of the State.

The foregoing evidence substantiates the position of the complainants and the Environmental Protection Agency; that the landfill operations of Respondents have caused water pollution and constitute a threat of water pollution. The measurements alone, as we have held in the past, are not in themselves sufficient to establish a violation of Section 12(a) of the Environmental Protection Act.

Water pollution as defined in the Environmental Protection Act is "such alteration of the physical, thermal, chemical, biological or radioactive properties of any waters of the State, or such discharge of any contaminant into any waters of the State, as will or is likely to create a nuisance or render such waters harmful or detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational or other legitimate uses, or to livestock, wild animals, birds, fish or other aquatic life."

The evidence clearly establishes that this section has been violated. There is no question that the physical and biological characteristics of the waters of the State being Ponds II and III and the stream flowing from them, have been altered by the pollutorial discharge and leachate from Sites A and B. There is also no question, as the record clearly supports, that the leachate and pollutorial discharge has nullified the same waters for any recreational purpose, have killed fish, have ruined vegetation and have generated odorous and unsightly characteristics detrimental to the public health and injurious to fish and aquatic life and likely to create a nuisance. More significant, however, is the threat of water pollution inherent in the present operations. The evidence does not sustain that the lower aquifer is polluted at the present time. However, the threat of such pollution is an area of major concern and must be abated. There was considerable testimony and dispute as to whether the upper and lower aquifers were separated by an impervious clay layer. Testimony both pro and con in this respect was particularly speculative. However, there is no question that the lower aquifer runs beneath Sites A, B and C and provides the water supply for the City of South Elgin. There is also no question that portions of the upper aquifer, the ponds on Site C and the stream connecting and running therefrom to the Fox River have been polluted. We must, therefore, conclude that a substantial threat of water pollution to the lower aquifer exists as a consequence of the pollutorial discharges from Respondents' properties

2. Respondents aforesaid shall take immediate steps to preclude and prevent and terminate the leachate and polluttional discharge from their sites. Within 90 days from the date hereof, each Respondent shall submit to the Environmental Protection Agency a program for abatement to accomplish the objectives herein set forth and within 180 days from the date hereof, effectively implement said program so that all leachate and water pollution from both sites shall have terminated.
3. A bond in the amount of \$100,000 shall be posted by the Respondents Vander Molens and a bond in the amount of \$100,000 shall be posted by Tri-County Landfill, in forms acceptable to the Environmental Protection Agency guaranteeing submission of the pollution abatement programs as required by this opinion, which bonds shall each provide for the forfeiture of \$20,000 for failure of the Respondents, respectively, to effectuate compliance with the abatement of its polluttional leachate discharges within 180 days from the date hereof. Bond shall be mailed to: Fiscal Services Division, Illinois Environmental Protection Agency, 2200 Churchill Drive, Springfield, Illinois 62706.
4. Penalty in the amount of \$10,000 is assessed against Edward and Everett Vander Molen, d/b/a Elgin Landfill Company, jointly and severally, and penalty in the amount of \$10,000 is assessed against Tri-County Landfill Company for violations of Sections 12(a) and 12(d) of the Environmental Protection Act in the causing and threatening of water pollution, as found in this Opinion. Penalty payment by certified check or money order payable to the State of Illinois shall be made to: Fiscal Services Division, Illinois Environmental Protection Agency, 2200 Churchill Drive, Springfield, Illinois 62706.

I, Christan Moffett, Clerk of the Illinois Pollution Control Board, certify that the above Opinion was adopted on the 12th day of April, 1973, by a vote of 4 to C.

