

## **TOMS RIVER: *THE CASE STUDY* by John R. Schneider (8-8-26)**

I wrote about the pollution at Toms River for a book I was writing many years ago. I have dusted off my notes and updated them with a few thoughts to compare it to our situations here.

The Toms River story did not begin with a cancer cluster. It began decades earlier with industrial waste.

The principal industrial operation was the Toms River Chemical Company, which began manufacturing dyes, pigments, resins and related chemicals in 1952. It later became part of Ciba-Geigy. The manufacturing complex occupied roughly 1,250–1,400 acres and eventually became one of New Jersey's major Superfund sites. Production stopped in 1990, and all operations ceased in 1996. BASF ultimately acquired Ciba Specialty Chemicals and became the present owner/responsible successor at the property.

From 1952 to 1966, process waste from the plant was discharged directly into the Toms River. Government records subsequently documented contamination of shallow public-water wells at the Holly Street well field. In 1965, one raw-water sample was described as visibly contaminated with dye waste and having a distinct odor. State health investigators ultimately concluded that there had been a completed human-exposure pathway through the public drinking-water system in 1965–66.

The scale is striking. NJ health investigators reported that approximately 35,000 people were receiving community water in 1965, and because Holly Street was one of the principal well fields, a large population probably received at least some contaminated water. Exactly how much each household received and for how long could not later be reconstructed with certainty.

And stopping the direct river discharge did not end the problem.

In late 1966, Ciba began using an ocean-discharge pipeline. Yet company information cited by the health department indicated that by 1969 approximately 200,000 gallons per day of liquid wastes were still infiltrating toward the Toms River from lagoons and disposal areas. Groundwater beneath the industrial property also became contaminated, producing contaminant plumes that required long-term pumping and treatment.

Then there was Reich Farm

This is where Toms River becomes particularly instructive.

There was a second major source of contamination, geographically separate from the Ciba plant.

In 1971, more than 4,500 drums of chemical waste were illegally dumped at the three-acre Reich Farm property. The farm owner had leased the property to an independent waste hauler. EPA records say the drums contained organic solvents and residues from the manufacture of organic chemicals, plastics and resins.

Union Carbide was associated with wastes disposed at Reich Farm. The visible drums were removed in 1972, with buried drums and approximately 1,100 cubic yards of contaminated soil removed in 1974. But removing the barrels did not remove what had already entered the aquifer.

Organic chemicals were already being found in nearby private wells by 1974. By 1986, contamination including trichloroethylene (TCE), tetrachloroethylene/PCE and other volatile organic compounds was found in wells at the Parkway municipal well field approximately a mile away.

The groundwater plume was substantial. Government investigators estimated that it widened from about 400 feet at Reich Farm to approximately 1,500 feet near the Parkway well field. Pumping by the municipal wells itself influenced the movement of the plume.

That is one of the most important lessons for Keyport:

A contamination site is not necessarily the same thing as an exposure area.

Groundwater moves. Pumping changes groundwater movement. Surface water moves. Sediments move. Airborne contaminants can move. Therefore, simply drawing a circle around the original disposal property can dramatically underestimate the geographic area that needs investigation.

The chemical nobody initially knew was there

The Reich Farm story contains another remarkable lesson.

In 1996, more sophisticated testing detected a previously unidentified chemical in Parkway well-field water: styrene-acrylonitrile trimer, generally called SAN trimer. Investigators concluded that it had been present previously but had not been identified by older analytical methods.

That means an environmental investigation can truthfully say, "We tested the water," and still fail to identify an important contaminant because the analytical method was not looking for it or was incapable of identifying it at the time.

That point matters enormously in any historic landfill investigation.

The question should therefore never be merely:

"Was the site tested?"

It should be:

What was tested for? What analytical method was used? What were the detection limits? Where were samples taken? At what depth? During what season? Were unknown peaks investigated? And what contaminants were not included in the analytical panel?

Toms River demonstrates why those are very different questions.

When did the cancer issue emerge?

Public concern intensified in the 1980s and 1990s as families became aware of children with uncommon cancers.

In 1995, the New Jersey Department of Health responded to an ATSDR inquiry and reported elevated rates of brain and central-nervous-system cancers among children under five in Ocean County and particularly in the Toms River portion of what was then Dover Township. The investigation expanded dramatically afterward.

By June 1996, New Jersey had established a formal public-health response plan investigating the statistically significant increase in certain childhood cancers and possible environmental exposures. The work eventually incorporated public-health assessments of Ciba-Geigy, Reich Farm and the municipal landfill; extensive drinking-water testing; historical water-system reconstruction; and an epidemiological case-control study.

This was much more sophisticated than simply plotting cancer cases on a map.

Researchers attempted to reconstruct where families lived, which wells supplied their water, how the distribution system operated, how pumping changed by month and season, and what water a particular household may have received years earlier. CDC later cited the Toms River work as an example of sophisticated historical water-distribution modeling.

What did the cancer study actually find?

This is where we need to be extremely precise.

The state found that childhood cancer incidence was elevated during portions of the study period. In particular, leukemia and brain/central-nervous-system cancers were elevated, with especially notable findings among female children. State records eventually identified 87 childhood cancer cases diagnosed between 1979 and 1995 in the township.

The epidemiological work found an association between prenatal exposure to water from a particular well field and leukemia among female children.

But—and this is very important—the epidemiology did not establish that Ciba-Geigy pollution, Reich Farm pollution, or any single chemical caused every cancer case.

That distinction is important both scientifically and legally.

A population study can identify an excess and an association without proving individual causation. Environmental disease is notoriously difficult to reconstruct because exposure may have occurred years earlier, people move, water systems mix sources, chemicals interact, records disappear, analytical methods change and childhood cancer itself is rare.

So the strongest scientifically defensible statement is:

Toms River experienced statistically elevated childhood cancers; documented environmental contamination and completed human exposure pathways existed; investigators found some exposure-disease associations; but the government did not establish a single contaminant as the definitive cause of every cancer.

That language is something I would preserve almost exactly when discussing comparisons with Keyport.

What happened legally?

There were, in fact, several entirely different legal stories.

1. Environmental enforcement against Ciba-Geigy

Ciba-Geigy faced substantial state enforcement over waste disposal and pollution. In 1992, the company entered a settlement valued at approximately \$63.8 million resolving criminal/environmental charges arising from hazardous-waste practices at the Toms River facility.

Federal Superfund proceedings were separate. EPA selected groundwater remedies, ordered and negotiated cleanup work and ultimately required extensive groundwater treatment and source-control work. A 1994 federal consent decree called for Ciba to perform groundwater-response work estimated at approximately \$60 million, in addition to government cost reimbursement.

EPA had placed the Ciba-Geigy site on the National Priorities List in 1983. The site's contaminated soil and groundwater have required remediation for decades.

Reich Farm also became a Superfund site, with groundwater remediation ultimately using treatment at the affected Parkway well field to intercept the plume.

## 2. The families' cancer litigation

This is probably the part most directly relevant to the questions you've been asking about litigation.

Beginning in 1998, 69 families entered a coordinated alternative-dispute-resolution process involving Ciba Specialty Chemicals, Union Carbide and United Water Resources, the local water supplier.

In December 2001, the cases were settled through mediation.

The companies did not admit liability.

The settlement was initially confidential, but because settlements involving minors require judicial approval, portions became public. Contemporary reporting calculated payments of at least approximately \$13.27 million, although the complete total was not necessarily ascertainable because payments involving deceased children, adult relatives and certain other claims were not all publicly disclosed.

So I would not describe the principal 69-family resolution simply as "a class action."

It was closer to coordinated toxic-tort/mass-claim litigation resolved through a structured ADR/mediation process. Some families reportedly did not participate and contemplated or pursued additional litigation.

That's an important distinction from a conventional Rule 23-type class action in which one or several representatives litigate claims on behalf of a certified class.

## 3. Natural-resource damages — decades later

The legal history did not end in 2001.

New Jersey later pursued separate Natural Resource Damage (NRD) claims against BASF, Ciba's corporate successor.

A final 2023 NJDEP-BASF settlement requires preservation of approximately 1,000 acres, nine restoration projects on about 375 acres, long-term maintenance obligations, and a \$500,000

payment for state natural-resource assessment and oversight. The settlement expressly does not eliminate BASF's ongoing Superfund-remediation obligations.

And that settlement itself became controversial.

Toms River Township and Save Barnegat Bay challenged it, arguing that the compensation was far too small relative to decades of groundwater and ecological injury. The challengers have asserted damages exceeding \$1 billion; NJDEP maintains that restoration—not simply cash payment—is the principal objective of the agreement.

As of the latest authoritative material I found, NJDEP continues to administer the BASF restoration agreement, and the Ciba property remains subject to environmental cleanup and restoration work.

### **The chronology in one view**

| <b>Period</b> | <b>What happened</b>                                                                                                  |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| 1952          | Toms River Chemical begins chemical manufacturing.                                                                    |
| 1952–1966     | Industrial process wastes discharged into Toms River.                                                                 |
| 1965–66       | Contamination documented in Holly Street public-supply wells; later recognized as a completed human exposure pathway. |
| 1966          | Ocean outfall pipeline begins operating.                                                                              |
| 1969          | Company estimates large quantities of liquid waste still infiltrating toward the river from lagoons/disposal areas.   |
| 1971          | More than 4,500 drums illegally dumped at Reich Farm.                                                                 |
| 1972–74       | Drums and contaminated soil removed—but groundwater contamination remains.                                            |
| 1974          | Organic contamination detected in nearby private wells.                                                               |
| 1982–83       | Reich Farm and Ciba-Geigy become Superfund/NPL sites.                                                                 |
| 1986          | VOC contamination found in Parkway municipal wells.                                                                   |
| 1990          | Manufacturing at Ciba ends.                                                                                           |
| 1992          | Major Ciba environmental settlement valued around \$63.8 million.                                                     |
| 1995          | State identifies elevated childhood-cancer rates requiring further investigation.                                     |
| 1996          | Formal childhood-cancer investigation expands; SAN trimer identified in water.                                        |
| 1998          | 69 families begin coordinated ADR claims.                                                                             |
| 2001          | Families reach confidential mediated settlement.                                                                      |

| Period       | What happened                                                                                       |
|--------------|-----------------------------------------------------------------------------------------------------|
| 2002         | Public court records place known family payments at at least about \$13.27 million.                 |
| 2000s onward | Long-term Superfund cleanup and groundwater treatment continue.                                     |
| 2023         | NJDEP reaches separate natural-resource settlement with BASF.                                       |
| 2023–present | Community/environmental groups challenge whether that settlement adequately compensates the public. |

The underlying chronology is supported by NJDOH, EPA and litigation records.

### What Toms River teaches Keyport

This is where I think the case becomes extremely valuable for the Aeromarine work.

**Lesson 1:** Build the historical record before trying to prove the health case. Toms River ultimately required records going back decades—manufacturing, waste disposal, wells, hydrology, pumping, chemical analyses and residential histories. A Keyport investigation should preserve every NJDEP report, landfill inspection, sampling event, permit, enforcement file, aerial photograph, property record and historic waste-disposal reference now, before documents disappear.

**Lesson 2:** Never confuse "testing" with "comprehensive testing." SAN trimer is the perfect example. It was present before investigators knew what it was. In Keyport, every laboratory report should be examined not only for what was detected but for what the laboratory actually analyzed and what its detection limits were.

**Lesson 3:** Follow the pathways, not merely the property line. For Aeromarine, that means asking about groundwater direction and velocity, tidal influence, sediments, stormwater, fill, vapor migration if relevant, historic surface runoff and any off-site migration. Toms River's groundwater plume affected wells well beyond Reich Farm itself.

**Lesson 4:** Health investigation and environmental investigation are two separate tracks. You can document pollution without proving that it caused a cancer cluster. Conversely, finding elevated cancer rates doesn't identify the contaminant. Toms River required the two tracks eventually to be connected through sophisticated exposure reconstruction.

**Lesson 5:** Preserve individual residential histories. Where did someone live? When? Did they drink municipal water or private well water? Where did they play as children? Did they work nearby? How long? What cancers occurred and when? Toms River demonstrated why geographic and temporal exposure histories matter.

**Lesson 6:** Don't prematurely call something a "cancer cluster." For Keyport, I would continue using language such as "reported cancer concerns," "possible cluster," or "request for formal epidemiological evaluation" until NJDOH or another qualified epidemiological body has performed the statistical analysis. Toms River's formal determination emerged from registry analysis, not simply a collection of anecdotes.

**Lesson 7:** Community organization can change the scale of the investigation. Toms River did not become a landmark case because one test came back positive. Residents, particularly parents, continually demanded that agencies connect information that had previously existed in separate silos—water, waste disposal, cancer records and industrial history. The eventual government investigation became exceptionally broad.

**Lesson 8:** Ask specifically for historical exposure reconstruction. This may be one of the strongest questions Keyport can take from Toms River. It isn't enough to know today's concentrations. A contaminant may have peaked 20, 30 or 50 years ago. Toms River investigators reconstructed historical water distribution because present-day testing could not answer what children had been exposed to years earlier.

**Lesson 9:** Environmental liability is much broader than personal-injury litigation. Toms River involved criminal/environmental enforcement, Superfund liability, remediation expenses, family toxic-tort settlements and natural-resource-damage claims. Those are separate legal mechanisms with different standards of proof.

**Lesson 10:** A settlement is not proof of causation. Ciba, Union Carbide and United Water settled the family claims without admitting liability. That did not make the families' concerns meaningless; nor did it amount to a judicial finding that the contamination caused each cancer. That's exactly the distinction Keyport should preserve in its public statements.

**Lesson 11:** Cleanup can last generations. The Ciba site was placed on the federal Superfund list in 1983, and remediation/restoration work is still relevant more than four decades later.

**Lesson 12:** Today's responsible corporation may not be yesterday's polluter. Corporate succession matters. Ciba went through corporate changes and BASF ultimately became responsible for continuing remediation obligations. Identifying the corporate chain is therefore essential in any historical industrial property investigation.

### **The single biggest lesson for Aeromarine**

I think it is this:

Do not begin by asking, "Can we prove Aeromarine caused cancer?" Begin by reconstructing, as completely as possible, what was put there, where it went, who could have been exposed, when they could have been exposed, and what the health data show.

That is essentially the path that eventually produced meaningful answers in Toms River.

And there is another very important strategic lesson. Keyport does not need to prove a cancer cluster before demanding a complete environmental accounting. If there is documented historic disposal, contamination, off-site migration or inadequately characterized material, those environmental questions stand on their own. The cancer question is an additional public-health question requiring separate scientific work.

For the August 13 NJDEP meeting, I think Toms River gives us the basis for a particularly powerful set of questions. Among them should be: Has NJDEP performed, or will it perform, the Aeromarine equivalent of the historical exposure reconstruction done in Toms River? What compounds were

*not* included in past sampling? Have unidentified compounds ever appeared in laboratory chromatograms? Has groundwater migration been modeled historically rather than only under present conditions? And has NJDOH been formally asked to determine whether the cancer reports warrant a registry-based epidemiological investigation?

Those are much harder questions to answer with a generic "the site has been tested."