

A Pall Spreads Under Ann Arbor

Judge's Decision Due Soon on Massive Groundwater Cleanup

By Ted Sylvester

Sometime in early November, Washtenaw Circuit Judge Donald Shelton is expected to issue his ruling on how Pall Life Sciences must clean up the deepest 1,4 dioxane-contaminated aquifer in Scio Township and west Ann Arbor. His decision could be the final word on the subject, or it could just mark another milestone in an 18-year battle between Pall (formerly Gelman Sciences), the Michigan Department of Environmental Quality (formerly the Department of Natural Resources), the City of Ann Arbor, and businesses and residents of Scio Township and Ann Arbor.

Shelton originally had set July 2005 as the final deadline of a five-year period for Pall to bring down dioxane levels in the site's groundwater to acceptable state levels, but that was before the extent of the deeper contamination was known. In a Sept. 8 hearing, the MDEQ proposed giving Pall a year to try to obtain waivers that would allow the company to implement its own plan for a minimal cleanup of the deeper contamination. If the waivers could not be satisfied, then Pall would have to implement the MDEQ's plan for a complete cleanup of the deeper contamination.

Shelton declared that the community doesn't have another year to wait. Noting that the case has been in court for 16 years, he gave Pall, the MDEQ, and the City of Ann Arbor (though it is not officially part of this case) 21 days to answer questions and submit any further material. Shel-



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ton said he would issue his decision on which cleanup plan to use within 60 days.

Beyond his loss of patience with Pall's failure to get the job done after all these years, Shelton's sense of urgency speaks to the future threat that spreading plumes of dioxane-contaminated groundwater pose to the Huron River, the source of about 80% of Ann Arbor's water, and to private wells outside of the city. The presence of dioxane has already caused Ann Arbor in 2001 to shut down the Northwest Supply Well, which together with a set of wells near the Ann Arbor airport provided 20% of the city's water.

Damage Done

Classified by the EPA as a "possible human carcinogen," 1,4-dioxane was first detected by a U-M graduate student in 1984 in Third Sister Lake near the property of Gelman Sciences, a maker of medical filters and a user of the chemical (the company and all its liabilities was acquired by Pall Life Sciences in 1997). Gelman, located near Liberty and Wagner Roads in Scio Township, had been trying to biodegrade dioxane-contaminated wastewater on site since 1966 in unlined lagoons and eventually by spraying it on their lawns.

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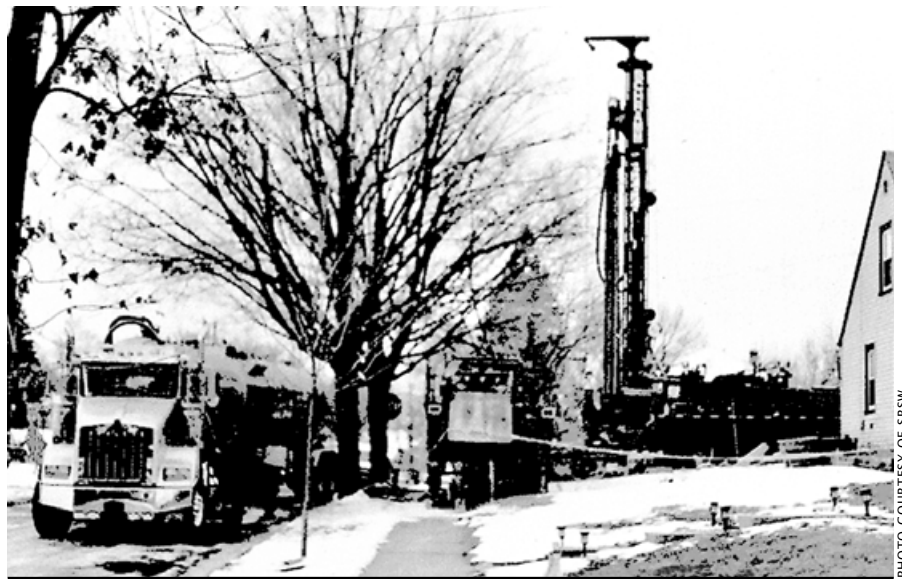
wells in Scio Township neighborhoods and businesses at levels up to thousands of times above what the state considered safe for drinking water.

Gelman Sciences stopped using the chemical that same year but the damage had been done. And now, 20 years after dioxane was first detected in Third Sister Lake, after countless public hearings and meetings, millions of dollars in litigation, and over a billion gallons of treated water, the problem appears no closer to solution. In 2002, for example, it was discovered that dioxane had spread farther and deeper than previously thought possible, more than 200 feet below ground into the deepest aquifer, known as unit E.

Cleaning Up?

The discovery of the E-unit plume and its migration into west Ann Arbor complicates the cleanup because it could involve extensive disruption of dense “curb-and-gutter” neighborhoods for the first time.

Currently, Pall extracts groundwater from purge wells located on its property and surrounding areas, stores it in a lined lagoon, pumps it into a facility where machines treat it with several chemicals and ultraviolet light, and then discharges the



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wastewater into a tributary of Honey Creek (which flows into the Huron River upstream of the city’s water supply intake).

The MDEQ cleanup proposal presented to Judge Shelton on Sept. 8 calls for monitoring- and purge-wells to be drilled at the leading edge of the contamination. Tainted water would be piped to a facility, and then treated

water would be piped to the river. The MDEQ plan would also include new extraction wells on Pall’s property and at the Maple Village shopping center.

In the short term, the MDEQ pushes for Pall to immediately start the capture of the E-unit plume at Wagner Road. In addition, the MDEQ plan requires “leading edge” remediation, which would impose the installation of monitoring wells, purge wells, and pipelines with untreated purge water in neighborhoods with small lots and that have no wells.

Instead of attempting “leading-edge” remediation in the neighborhoods east of Maple Road, residents there almost all advocate for a more aggressive cleanup back where the dioxane is coming from – at the Pall property at Wagner Road – and along yet-to-be-determined pathways west of Maple Road.

In any case, how to dispose of the additional purge water is still an issue. Options include using the existing disposal to the Honey Creek tributary, building a disposal pipeline to

What is 1,4-Dioxane?

1,4 Dioxane is not to be confused with dioxin (both Dow “products”), its even nastier chemical cousin, a group of bioaccumulative, carcinogenic, toxic compounds. Dioxane is a man-made compound used as a solvent in a number of industries. It’s used as a de-greaser in shampoos, and cosmetic and cleaning products, and as a stabilizer for industrial solvents such as TCE and TCA. Gelman Sciences used it to make medical filters.

Dioxane is a known carcinogen in animals. It is classified by the EPA as a “probable human carcinogen.” Rats and mice fed high concentrations of dioxane developed tumors of the kidney, liver, and nasal cavities. Dogs fed high concentrations of dioxane died after nine days with severe liver and kidney damage. No one knows what damage long term exposure to lower levels of dioxane can cause and no one wants to be a “guinea pig.”

the Huron River downstream from the city's water intake, and doing controlled re-injection back to an aquifer after full treatment.

Pall has its own idea about how to clean up. Its plan calls for extracting some of the contaminated water from a well in Maple Village, treating it on site in a mobile treatment unit, and then reinjecting the water into the ground.

The MDEQ argues that Pall's plan would allow much of the dioxane to continue to disperse and migrate through the aquifer over the years, whereas the MDEQ plan would reduce the dioxane in all contaminated water to acceptable levels.

Stakeholder Concerns

The MDEQ proposal, however, has sparked strong opposition from residents east of Veterans Park, on Ann Arbor's west side, an area that has been identified as being over the leading edge of the contamination. Residents oppose putting extraction wells and pipelines in their neighborhoods and have organized Protect Our Neighbors to give voice to their concerns.

Scio Residents for Safe Water (SRSW), formed in 1995, is another grassroots citizen group that has a stake in the pending Shelton decision. SRSW co-chair Roger Rayle, whose own well is only 15 feet from Honey Creek, has

been tracking the controversy since 1993. He has volunteered hundreds of hours keeping tabs on the cleanup.

"The two parties continue to avoid giving the judge all the information that he needs to make a proper decision," says Rayle, who attended the Sept. 8 hearing. "The judge is not hearing from the MDEQ that Pall's less-than-professional cleanup activities have resulted in incomplete understanding and ineffective containment of the dioxane plumes."

Rayle also suggests that the judge is not hearing the full story from Pall, citing "Pall's claim that it did not know about the E-unit contamination when it bought Gelman in 1997, when in fact the company's own samples from

first step in solving a problem is to define the problem, says Rayle. "Where are the plumes vertically and laterally? Which directions are they going and how fast?"

In addition to a lack of full disclosure and the absence of consistent and reliable data, Rayle worries that Shelton may not have all the facts on how important proper monitoring and modeling will be to the success of any cleanup plan.

"Sure, Pall immediately can do more purging near their property to remove the higher concentrations of dioxane, but they simultaneously need to do proper monitoring and modeling to know if the cleanup plan is working or not and how to make improvements

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1986 to 1993 showed some wells in the E aquifer had levels of dioxane above the cleanup standard at the time."

"Eighteen years after the problem was first discovered," says Rayle, "the company still lacks an understanding of the hydrogeology of the area, how much dioxane is there, where it is, where it is going, and how fast." The

as it progresses," he points out.

With the decision now pending in court, Rayle doubts there will be adequate citizen input into the process. "The people whose neighborhoods may be directly impacted by the judge's orders may have no voice in deciding what cleanup option is best."

Whatever decisions are made about the E-unit plume may set precedents for how the other contamination plumes at the site are handled. At least one of these other plumes is presently spreading towards private wells in areas that do not have access to a municipal water supply.

Further information about SRSW and the Pall/Gelman contamination can be found at <http://www.srsw.org>. SRSW usually meets the 3rd Monday of each even numbered month at 7:30 pm at the Scio Township Hall, 827 N. Zeeb Rd.

**Ted Sylvester is editor of
From the Ground Up.**

By the Numbers

There is no Safe Drinking Water standard for dioxane, only de facto standards based on "acceptable" groundwater cleanup standards. Initially Michigan's standard was set at 3 ppb (parts per billion). The standard was changed to 77 ppb in 1995 and later upped 10% to 85 ppb by an EPA formula change.

"Acceptable" standards for dioxane vary from state to state: Maine's is 70 ppb, Massachusetts' is 50 ppb,

North Carolina's is 7 ppb, Florida's is 5 ppb, and California's is at 3 ppb.

Pall's permit currently allows a discharge of treated water at 10 ppb (on a monthly *average*), with a daily high of 60 ppb. Pall claims its discharges average 4 ppb "over time."

Ann Arbor's Northwest Supply Well was taken offline when contamination was detected at 2 ppb, the same level at which private drinking-water wells were capped up to 1995.