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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Jennifer M. Granholm, Governor, Steven E. Chester, Director

REMEDIATION AND REDEVELOPMENT DIVISION

FACT SHEET

Proposed Prohibition Zone to Restrict Use of Groundwater

Gelman Sciences, Inc. Unit E Aquifer
Groundwater Contamination
Washtenaw County

CURRENT STATUS

On December 17, 2004, the Washtenaw County Circuit Court (Court) issued an order that would allow some of the groundwater contamination from the Gelman Sciences, Inc. site to continue to migrate to the east, under the City of Ann Arbor, toward the Huron River. The order set forth a process that would restrict the use of groundwater that is or may become contaminated, and would meet one of the conditions required by the Department of Environmental Quality (DEQ) to protect human health from the risk of exposure to remaining contamination. This restriction is referred to as an institutional control. All of the conditions to protect human health and the environment are outlined in the DEQ's September 2004 Decision Document.

In response to the Court's Order, the Department of Attorney General (DAG), on behalf of the DEQ, filed a motion with the Court on March 11, 2005, to enter the institutional control order that would restrict the use of groundwater that is or may become contaminated. It would also require other actions by Pall Life Sciences (PLS), the successor of Gelman Sciences, Inc., that is responsible for the contamination (see *Future Work Required of PLS*). A map depicting the area proposed for restriction (Prohibition Zone Boundary) is attached; this was also submitted to the Court, and would be part of the order. The Court will decide on the exact language of the order, and boundaries of the Prohibition Zone, after hearing arguments from the DAG and attorneys for PLS. The DEQ will be conducting additional public outreach efforts after the Court decides on these issues.

BRIEF HISTORY

The Gelman Sciences, Inc. property is located on Wagner Road just south of Jackson Road in Scio Township. From 1966 to 1986, the company used 1,4-dioxane in the manufacture of medical filters. Various methods of disposal and waste handling during this period resulted in releases to the environment that caused widespread groundwater contamination.

In the fall of 1985, the first contaminated private water supply wells were discovered in the vicinity of the PLS property, and additional well sampling was done. Bottled water was provided to affected residences and businesses until the municipal water supply was extended into these areas. Beginning in 1986, investigations by the company identified soil contamination on the PLS property and groundwater contamination extending off the property.

PLS has been extracting contaminated groundwater from two shallow aquifers since 1997. This water is piped from extraction wells to PLS's treatment building. The treated groundwater is then discharged to the Honey Creek Tributary. This remediation has significantly decreased the concentration and mass of 1,4-dioxane contamination in the shallow aquifers.

During an investigation in the spring of 2001, it was discovered that there was no confining layer of clay separating the two shallower aquifers from a deeper aquifer (Unit E Aquifer) in an area west of the PLS property. Since May 2002, PLS has been extracting

contaminated groundwater from the contaminated Unit E Aquifer (Unit E Plume) through two extraction wells on its property. Additional investigation found that the contamination is flowing under the Maple Village Shopping Center and Veterans Park, and is expected to continue generally in an easterly direction. Low levels of contamination have been found in the city's Northwest Supply Well, and that well is no longer being used.

1,4-DIOXANE

The contaminant at this site, 1,4-dioxane, is completely soluble in water and is held together by strong bonds that prevent it from breaking down readily in groundwater. The complex geology in the vicinity of the PLS property also contributed to the widespread nature of the contamination. Toxicity testing has determined that high doses of 1,4-dioxane cause cancer in mice, and it is presumed to be a human carcinogen through long-term exposure to low doses.

RELEVANT CLEANUP CRITERIA

As specified by state law, the relevant cleanup criteria for 1,4-dioxane in groundwater are dependent on the potential exposure pathway. The generic residential cleanup criterion (GRCC) for groundwater used for drinking water is 85 parts per billion (ppb), and is the concentration to which groundwater must be remediated to allow for unrestricted use, including use as drinking water. The GRCC is based on a 30-year exposure to drinking water, accepting an increased cancer risk of 1 in 100,000 persons exposed. If restrictions are placed on use of the groundwater, such as in the proposed order, the next relevant pathway is groundwater discharging to surface water. The Unit E Plume is likely to discharge to the Huron River. The generic criterion for discharge of contaminated groundwater to surface water for 1,4-dioxane is 2,800 ppb. This criterion would apply if the contamination discharges to the river downstream of the City of Ann Arbor's water supply intake at Barton Pond. If investigation finds that the Unit E Plume will discharge into or upstream of Barton Pond, where the City water intake is located, the relevant criterion would be 34 ppb. See *Future Work Required of PLS*.

BACKGROUND

- 2 ppb of 1,4-dioxane was discovered in the City of Ann Arbor's Northwest Supply Well at Montgomery & Bemidji in March 2001 (currently 4 ppb);
- the City turned the well off immediately;
- 1,4-dioxane contamination flowing into Ann Arbor from the Gelman site was confirmed by investigations later in 2001;
- this contamination is in the Unit E Aquifer, which was previously believed to be protected from the shallower contamination by a continuous clay layer;
- after much investigation, concentrations of up to 2,000 ppb have been identified under the Maple Village Shopping Center, just west of Maple Road, between Jackson and Dexter Roads;
- for reasons not entirely understood, concentrations are much lower to the east, under Veterans Park, mostly below 200 ppb;
- the DEQ's preferred option was a full cleanup, which would have required extraction wells and pipelines in west side neighborhoods;
- the DEQ approach was opposed by residents of those neighborhoods, but supported by some others in the projected path of the Unit E Plume (through downtown Ann Arbor to the Huron River), including Ann Arbor Township, which has a few township islands within the city and areas east of the Huron River, that are not connected to the municipal water supply;
- the PLS alternative to allow the contamination to migrate could be accepted by the DEQ with certain conditions to prevent unacceptable exposures to human health and the environment, including an institutional control to prevent use of the groundwater in the expected path of the Unit E Plume, including a buffer area (the Prohibition Zone that would be part of the institutional control);
- the Court directed the DEQ and PLS to submit a draft order to the Court to meet the condition for an institutional control;
- PLS and the DEQ could not agree on the language in the draft order or the area of the Prohibition Zone, as the Court had intended, and the Court will decide on the issues;

- The major dispute relates to whether the city's Northwest Supply Well should be included in the Prohibition Zone. The DAG's proposed order includes the city well in the Prohibition Zone and would require abandonment and replacement of the well at PLS expense; the City supports that position, PLS does not. The City has filed a lawsuit against PLS regarding the contamination of the well.

FUTURE WORK REQUIRED OF PALL LIFE SCEINCES

- PLS will be required to provide municipal water to replace any private drinking water wells that are in the Prohibition Zone or are found to be impacted or threatened by the Unit E Plume.
- In addition, if the order submitted by the DAG on behalf of the DEQ is adopted by the Court, PLS will be required to identify and abandon all private wells, including irrigation wells, within the Prohibition Zone, and abandon and replace the Northwest Supply Well.
- PLS will extract from the Unit E Plume, treat and reinject 200 gallons per minute at Maple Road to prevent concentrations above 2,800 ppb from migrating east of Maple Road. The work plan for doing so is currently being reviewed by the DEQ.
- PLS will do an investigation, the first phase of which the DEQ has approved, to better determine the path of the Unit E Plume. Current indications are that the plume will discharge to the Huron River downstream of Barton Pond, the location of the City of Ann Arbor's water supply intake.
- The DEQ will require ongoing monitoring of the Unit E Plume by PLS to verify that the area of the Prohibition Zone is appropriate (the order will allow the Prohibition Zone to be revised based on investigation or monitoring results). The monitoring will continue for as long as the Prohibition Zone remains in effect, and additional monitoring wells will likely be installed in multiple phases, as the exact course of the plume is determined.

DETAILED INFORMATION AVAILABLE

More detailed information about this site is available on the DEQ's Gelman Sciences, Inc. web site: www.michigan.gov/deqrrd, scroll to Contaminated Site Lists and click on [Gelman Sciences, Inc.](#) or contact Sybil Kolon, the DEQ project manager, at 517-780-7937 or kolons@michigan.gov.

Additional information, along with this fact sheet, is available for review at the following locations, during regular business hours, and at the DEQ Jackson District Office, by appointment.

Ann Arbor District Library
Downtown Library
343 S. Fifth Ave.
734-327-4200

Scio Township Hall
827 North Zeeb Road, Ann Arbor
734-665-2123

City of Ann Arbor Water Utilities Department
100 North Fifth Avenue
Contact: Mary Gordon 734-994-8286

Washtenaw County Department of Environment
and Infrastructure
705 North Zeeb Road, Ann Arbor
Contact: Michael Gebhard 734-222-3800,
ext. 2385

PERTINENT DOCUMENTS (also on the DEQ's Gelman web site)

3/11/05 – Plaintiff's motion & proposed order
12/17/04 – Court Opinion & Order
9/1/04 – DEQ Decision Document
7/04 – DEQ Fact Sheet

QUESTIONS?

Please contact Ms. Kolon if you have questions that you would like to have addressed in a Frequently Asked Questions document that we are preparing.

The Department of Environmental Quality (DEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or comments should be directed to the DEQ Office of Personnel Services, P.O. Box 30473, Lansing, MI 48909.

