



FOR IMMEDIATE RELEASE

November 2, 2011

Contact: Cheryl Osimo, Silent Spring Institute
cherylosimo@comcast.net, (508) 246-3047

Study Finds 27 Contaminants in Cape Cod Drinking Water Wells

Results to be presented to public on November 2nd at 2pm in Eastham Town Hall

(Newton, Mass.) -- Low levels of pharmaceuticals and other common household chemicals – presumably coming from septic systems – were detected in a study of 20 private drinking water wells on Cape Cod, according to results released today by Silent Spring Institute. It is unknown whether or to what degree it may be harmful to drink water containing these “emerging contaminants,” for which there are no enforceable drinking water standards.

The study of private wells in seven Cape Cod towns is a follow-up to previous testing by Silent Spring Institute in 2010 on public wells in the area, which found many of the same chemicals, at similar concentrations. The testing of private wells, which serve 20 percent of Cape Cod residents, was conducted in February of this year. It detected the presence of these “emerging contaminants” (including pharmaceuticals, flame retardants, and other chemicals whose presence in the environment has become more widely recognized in recent years) in 85 percent of the samples taken.

Silent Spring Institute will hold a public meeting to discuss the findings and answer questions at 2 p.m. on Wednesday, November 2, at Eastham Town Hall.

“Our results demonstrate the widespread impact of wastewater, primarily from septic systems, on Cape Cod groundwater and drinking water quality,” said lead investigator Laurel Schaidler. “Many Cape communities are facing challenging decisions about reducing the impact of nutrients from wastewater on Cape water quality. These findings clearly show that the issue of emerging contaminants also needs attention.”

The 27 contaminants detected included 12 pharmaceuticals (the most common being one antibiotic and one epilepsy drug); five perfluorinated chemicals (found in non-stick and stain-resistant household products); four flame retardants; two hormones; one skin care product; one artificial sweetener; one insect repellent; and one plastics additive. Health-based guideline values were available for only four detected chemicals (PFOS, PFBS, DEET, carbamazepine), and no samples approached or exceeded these values. The most frequently detected chemical was acesulfame, an artificial sweetener, which was found in 85 percent of wells, and perfluorinated chemicals were detected in 70 percent of wells.

“While the levels of pharmaceuticals, flame retardants, and other emerging contaminants in drinking water are not currently regulated, we still think that it is prudent to find ways to prevent discharges from septic systems and wastewater treatment plants from impacting drinking water supplies, as we don’t fully understand the potential health impacts,” Schaidler said.

“Pregnant women and children are most sensitive to the effects of these chemicals because many of them alter development,” she said. “It’s also unknown at this point how combinations of these chemicals may impact those exposed.”

In general, wells with higher levels of nitrate, boron, and the artificial sweetener, all markers of domestic wastewater, had more frequent detections and higher levels of emerging contaminants, supporting the idea that septic systems are the main source of these chemicals. These markers of wastewater may be useful for identifying other private wells likely to contain elevated levels of emerging contaminants.

Detected levels of most of the contaminants ranged from 0.1 to 100 nanograms per liter (parts per trillion). By comparison, volatile organic compounds and other organic chemicals are typically regulated in drinking water at the parts per billion range (1000 nanograms per liter or higher), so the detected chemicals were below levels where most other chemicals are regulated.

Compared to other drinking water studies, the levels found for many emerging contaminants were low to moderate. However, for three pharmaceuticals – sulfamethoxazole (an antibiotic), carbamazepine (an epilepsy drug) and simvastatin (Zocor, a cholesterol-lowering drug) – the highest levels in Cape Cod private wells were among the highest found throughout the U.S. And, the study was among the first in the U.S. to report drinking water levels for four perfluorinated chemicals – PFBS, PFHpA, PFHxA and PFHxS. While there is a health-based guideline value for PFBS (that levels in the private wells did not reach), there have been few studies of the health effects of these chemicals, so there is limited context for interpreting this finding. Perfluorinated chemicals have been associated with effects on thyroid hormones and growth and development in animal studies and effects on attention and behavior in children.

There are several steps Cape Cod residents can take to reduce their exposure levels to these and other potential contaminants, the researchers noted. They can check local guidelines for proper disposal of hazardous products and unused medications; use fewer and simpler cleaning chemicals; avoid purchase of stain-resistant, antimicrobial, and fragranced products; properly maintain septic systems; and support local efforts to protect groundwater. Installing and properly maintaining a solid carbon block water filter will reduce levels of many chemicals in drinking water.

This work was funded by the Massachusetts Environmental Trust, the U.S. Centers for Disease Control and Prevention, and the Cape Cod Foundation.

Founded in 1994, Silent Spring Institute is a non-profit research organization dedicated to studying the environment's effect on women's health.

To receive copies of the study, please contact Gwen Dwyer at dwyer@silentspring.org or (617) 332-4288, or visit: <http://www.silentspring.org/private-wells>.

###