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Scituate Reservoir Tests Positive for PEDs

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A water test performed last March at the Scituate Reservoir — the drinking-water supply for 60 percent of Rhode Islanders — revealed trace amounts of a synthetic steroid found in performance-enhancing drugs and pharmaceuticals.

The synthetic hormone 4-Androstene-3,17-dione is used in bodybuilding supplements and dietary pills. It's also known as andro, the performance-enhancing drug (PED) tied to the Major League Baseball steroid scandal of the 1990s and 2000s.

Androstene works by increasing testosterone and decreasing estrogen in users. In addition to hitting more home runs, the side effects of the drug are low bone density, joint and tendon injuries, fatigue and memory lapses.

The Providence Water Supply Board, the agency that runs the reservoir and conducted the water sampling, deferred comment to the Environmental Protection Agency (EPA), the federal agency that ordered the tests. EPA downplayed concerns by explaining that the positive result was an anomaly.

"The one positive detection was slightly above the detection level. This data will be evaluated along with data collected from other public water supplies across the country and over time to identify trends," EPA spokesman Robert Daguillard said.

The Rhode Island Department of Health (DOH) had a similar response, noting that the positive test was barely at the detection level and didn't warrant an immediate health concern. Tests taken before and after this test didn't show a presence of the compound.

Nevertheless, the DOH believes the data helps health officials learn about the contents of the public water supply and what actions, if any, might be needed in the future to address substances that are commonly used by the public.

The water sample was taken at the entry point to the distribution center at the Scituate Reservoir. The testing is done every three months through an EPA program that looks for 28 unregulated chemicals and two viruses to help understand the impact of pharmaceuticals and personal-care products in the environment. The EPA has yet to say if the Scituate Reservoir is the only public water source in the state tested for these contaminants.

Eugenia Marks, who advocates for water-quality issues as senior director of policy for the Audubon Society of Rhode Island, said more work is needed by health and environmental officials to determine where and how these manmade compounds are getting into the drinking-water supply. The sources could be humans and/or animals, or from cesspools or discharge from wastewater treatment plants, she said.

"There is concern in the environmental community about various drugs and pharmaceuticals that either pass through the human body or, as was once recommended, medications flushed down the toilet," Marks said. "That's not done now but not everybody may have the message either."

The Safe Drinking Water Act requires testing public drinking-water supplies for known pollutants such as asbestos, lead and mercury. It also tests for organic contaminants found in pesticides, as well as industrial chemicals and residue from harmful air and water emissions.

The Unregulated Contaminant Monitoring Rule (UCMR) program looks for contaminants not yet covered by the Safe Drinking Water Act. Of the 30 contaminants tested under UCMR, seven are hormones. All of the compounds are the remainders from pharmaceuticals and personal-care products, which include soaps, cosmetics and fragrances.

The EPA is testing for these and other "contaminants of emerging concern" in wastewater discharge from the country's 50 largest municipal sewage treatment plants. The EPA also is studying the impacts of chemical residue from non-stick cookware, food packaging, waterproof clothing, stain protectors and paints. Tests show that these compounds collect in human tissue and blood and are linked to health risks, such as endocrine disruption.

Farms are another potential source of hormones, antibiotic pharmaceuticals and even pathogens in drinking water. A 2013 EPA report stated that improperly managed manure from livestock and poultry farms can lead to harmful algae blooms and spread these unregulated contaminants to drinking water.

The results, so far, indicate a very low health risk, at least to healthy adults, according to the EPA. But a report issued by the EPA in 2013 show that aquatic life is being impacted by pharmaceuticals and the chemicals present in personal-care products.

While there is no definitive research on the human health risks of these contaminants in drinking water, much less restrictions on these products, the EPA is expected to continue testing and release new reports later this year.

“EPA both performs research and monitors scientific advances and new studies to better understand potential exposures, health effects and prevalence in the environment to identify if emerging contaminants merit full regulatory attention under the Safe Drinking Water Act or other environmental statutes,” said Dave Deegan, a spokesman with the EPA’s New England office.