



City of Phoenix
WATER SERVICES DEPARTMENT
Quality Reliability Value



Pharmaceuticals and Personal Care Products

June 2015

BACKGROUND: There is a growing awareness of the presence in the environment of a class of contaminants called pharmaceutically active compounds and personal care products. They comprise thousands of chemical substances, including prescription and over-the-counter drugs, cleaning products, fragrances, cosmetics, sunscreen agents and many others that are excreted from our bodies or flushed down toilets. Studies are underway to determine if there is any risk to humans from such products that might occur in our water in extremely small amounts.

1. Does Phoenix *tap water* contain pharmaceuticals?

In 2008, tests performed by an independent, certified lab detected no pharmaceuticals in Phoenix tap water. Modern technology can test for an amount equal to *one-twentieth of a drop* of water in an Olympic-sized swimming pool. These tests detected no pharmaceuticals in Phoenix water, even at that miniscule level. The city performs over five million tests and measurements each year to comply with regulatory requirements in one of the nation's most highly regulated industries.

Under the Unregulated Contaminant Monitoring Rule (UCMR) (2013 – 2015), the EPA required monitoring for 7 hormones including naturally occurring hormones that may also be present in pharmaceuticals and personal care products. City of Phoenix sample results indicate no detectable levels of these hormones in the water.

Even if a substance becomes detectable in drinking water due to advance testing capabilities, it does not mean the substance is harmful to humans. Research has not demonstrated an impact on human health from extremely minute amounts of these substances in water or wastewater. People regularly consume or expose themselves to products containing these substances in much higher concentrations through medicines, foods, beverages and other sources. The level in which they are found in source waters is very small in comparison. For general information on UCMR 3, contact the Safe Drinking Water Hotline at (800) 426-4791, or at:
<http://water.epa.gov/drink/contact.cfm>

2. Are pharmaceuticals in Phoenix's wastewater?

Phoenix tested its drinking water but not its wastewater.

Pharmaceuticals and personal care products have been reported in wastewater effluents around the nation. News stories have mentioned that extremely minute traces of pharmaceuticals and personal care products have been found in fish in river water that may have come from wastewater treatment plants. (A U.S. Geological Survey report issued in 2002 identified low levels of organic wastewater compounds in effluent downstream of the 91st Avenue WWTP and in many other locations throughout the U.S.) Aquatic life is much more susceptible to such compounds than humans. As analytical methods improve, many compounds are being found at extremely low levels, typically single-digit parts per trillion. Drinking water standards are typically set in the parts per billion range, which is 1,000 times higher. More research is needed to determine if there is a correlation between the effects of pharmaceuticals on fish versus humans.

3. Does the treated wastewater discharged from Phoenix wastewater plants end up in Phoenix water treatment plants or groundwater?

The treated wastewater, also known as effluent, is discharged for either inedible crops, irrigation, to replenish natural habitats such as the Tres Rios Environmental Wetlands, or as cooling water for the Palo Verde Nuclear Generating Station. Some of the water discharged to the Salt River from Phoenix's two wastewater treatment plants may percolate into the groundwater. However, there are few, if any, potable water supply wells that would intercept the percolated water. Phoenix uses very little groundwater for its tap water supply. Over 90% of Phoenix's tap water supply is from precipitation up north that becomes surface water.

4. Where do pharmaceuticals in wastewater come from?

They are mostly excreted from our bodies or the bodies of animals after ingesting drugs. The federal Office of National Drug Control Policy recommends not flushing prescription drugs down the toilet unless the accompanying patient information specifically instructs that it is safe.

5. Does the city's water and wastewater treatment processes remove pharmaceuticals?

The city's current water and wastewater treatment processes were not designed specifically to remove pharmaceuticals and personal care products. They may reduce some, but not all of these chemicals.

6. Will the City of Phoenix test further for pharmaceuticals?

The city of Phoenix tests for all regulated drinking water contaminants, unregulated drinking water contaminants that EPA is investigating for future regulation, and numerous compounds that impact the drinking water treatment process and the aesthetic qualities of the water. Pharmaceutical compounds are currently not regulated. But, Phoenix is an active partner through financial support and in-kind services with industry research organizations seeking more information about the testing and treating of water for pharmaceuticals. Pharmaceuticals in water are an emerging issue undergoing much study and discussion by the EPA, US Geological Survey, State of Arizona, the Water Research Foundation (formerly the American Water Works

Association Research Foundation) and universities. The water community is committed to protecting public health.

7. Why aren't these products regulated?

This is an emerging issue undergoing much study due to evolving analytical methods that are allowing us to find extremely small, previously undetectable levels of compounds throughout the country. The U.S. Environmental Protection Agency (EPA) maintains an active program called the Contaminant Candidate List (CCL) to identify contaminants in public drinking water that warrant detailed study. While the CCL does not currently include any pharmaceuticals and personal care products, EPA will likely consider these compounds in the future.