

WATER QUALITY FACT SHEET



PHARMACEUTICALS AND PERSONAL CARE PRODUCTS (PPCPs)

• Background

- PPCPs enter the aquatic environment through discharges to waterbodies, albeit at exceedingly small levels previously undetectable. As such, they are not viewed as an imminent, potential threat to human health in quantities found in drinking water, but are potentially problematic to the wellbeing of aquatic ecosystems.
- PPCPs have existed in the environment for as long as they've been commercially available. The contaminants are not new, but the science that allows us to identify them and assess their impacts is emerging.
- PPCPs are a classification of any man-made industrial chemical or pesticide

• Occurrence in CCWD Water:

- Most PPCPs are not currently regulated under Federal or State mandates, therefore the District does not regularly monitor for them in our water.
- The District voluntarily participated in a research study through the American Water Works Association Research Foundation (AwwaRF) in July 2006 which was focused on determining the toxicological relevance of PPCPs in both source and treated water.
- At that time, District water was analyzed for 62 various PPCPs. Most were undetectable using current experimental methods. Those that were detected in source water were found at extremely trace levels, i.e. on the order of a few parts per trillion. The source water detections included the following pharmaceuticals: Sulfamethoxazole, Atenolol, Trimethoprim, Dilantin, Carbamazepine, Gemfibrozil, Naproxen, Estrone, Apigenin, Chrysin, Diclofenac, Meprobamate, and Tricolsan. Other source water detections included the following endocrine disruptors: Dioctyl phthalate (used to make plastics), Linuron (pesticide), and Atrazine (pesticide). Atrazine has a regulated maximum contaminant level of 1000 parts per trillion. The amount of atrazine detected in the District's water was 200 times LOWER than the levels determined to be safe for human health.
- Advances in laboratory technology have only recently made it possible to detect and measure PPCPs at the extremely low levels in which they occur in water - in the nanograms per liter (or parts per trillion) range, which is equivalent to putting 1/20th of a drop of water in an Olympic sized swimming pool. No standard analytical methods have been set by regulators and those used in this AwwaRF study were experimental.
- The District's existing water treatment processes (ozone, granular activated carbon, and chlorine) removes approximately 75-80% of PPCPs that occur in the source water.
- In an effort to further the science on this subject, the District has partnered with the California Department of Public Health (CDPH) and AwwaRF to research advanced water treatment techniques specifically targeting the removal of PPCPs in source water. These studies will help determine whether advanced methods of treatment (membranes and other chemicals processes) are more effective at removing PPCPs than those the District currently utilizes. This project will be complete in 2009.

• Regulatory Considerations:

- Currently, almost all PPCPs are not regulated by either the United States Environmental Protection Agency (USEPA) or CDPH. Annually, the USEPA looks at new contaminants as candidates for research and eventual regulation. To date, none of these PPCPs are on the USEPA's list.
- Some pesticides (including atrazine and methoxychlor) as well as PCBs and dioxin are typically included in the PPCP category and are regulated by the CDPH as synthetic organic compounds. The District is in full compliance with these regulations.

- **Key Points**

- Recent press coverage of the Associated Press three part series on this topic have highlighted this issue to the public but its important to keep in perspective this issue with all of the contaminants affecting water supplies. The water community recognizes the need for continued monitoring and research in this area.
- Modern treatment methods succeed in removing most PPCP remnants from wastewater before it is discharged to surface waters.