

**Public Perceptions/Acceptance Working Group
Blue Ribbon Water Panel
Draft White Paper Analysis
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Issue #16

The need for the public, community leaders, water treatment professionals, businesses and industry to understand and be aware of water quality issues and how their actions, including disposal of pharmaceuticals and personal care products, can influence water quality

1. Existing Situation or Issue

Pharmaceuticals and personal care products in the water supply have received widespread national attention. Headlines such as *Millions in U.S. Drink Contaminated Water, Records Show*ⁱ and *Tap Water Is Legal but May Be Unhealthy*ⁱⁱ are alarming. Studies show that pharmaceuticals and personal care products are present in our waterways as pollutants.ⁱⁱⁱ But how do pharmaceuticals and personal care products get into our waterways and water supply? More importantly, what can be done to get them out of the water supply?

The public places a great deal of trust in water professionals to deliver water that is free of contaminants. Because water is a basic, life sustaining element, the public expects water to be clean, safe and contamination-free. Like many pollutants, prevention is less costly than treatment and removal.

EPA defines pharmaceuticals and personal care products as any product used by individuals for personal health or cosmetic reasons or used by agribusiness to enhance growth or health of livestock^{iv}.

Pharmaceuticals and personal care products that are not fully absorbed by our bodies are excreted and passed on to the wastewater and surface water. They have been probably been in our water supply and environment for years, but advances in technology now allow us to detect and quantify traces of these chemicals. We are also beginning to identify what effects these chemicals have on human health and the environment.

Clearly pollution prevention is more cost effective than development of water quality criteria and standards and treatment to remove them once they are in the waste stream. Pollution prevention for pharmaceuticals and personal care products includes proper disposal of unused products. Several take-back programs exist for these products.

On a national level, the Department of Justice designated September 25, 2010 as Nationwide Prescription Drug Take-Back Day. The primary goal of this initiative is to prevent drug abuse and theft, but it also received the National Association of Clean Water Agencies' support to provide communities an opportunity to educate their residents on the importance of keeping prescriptions medications from entering the Nation's waterways.

This initiative consists of collection activities at local sites throughout the country. Partners include the White House Office of National Drug Control Policy, the Partnership for a Drug-Free America, the International Association of Chiefs of Police, the National Association of Attorneys General, the National Association of Boards of Pharmacy, the Federal State Medical Boards and the National District Attorney's Association. This one-day effort is free and anonymous for those turning in over-the-counter and prescription drugs.

At the state level ADEQ provides information about prescription drug disposal under the solid waste programs. ADEQ's goal is pollution prevention by eliminating these substances from wastewater treatment

plants and septic tanks where they can pass through to surface water, soils and groundwater. ADEQ has produced a brochure describing acceptable disposal options. It can be found at http://www.azdeq.gov/environ/waste/solid/download/Drug_Disposal_brochure-8-12-09.pdf

Take back programs have a strong interface with law enforcement because some drugs are controlled substances and heavily regulated under Federal and State Laws. Pharmacies, law enforcement and the person to which the drugs are prescribed are the only ones authorized to possess them. By law they must be properly labeled. ARS Chapters 27 and 28 address controlled substances.

Local programs exist for the safe legal disposal of pharmaceuticals. Increased public awareness of the availability of these programs will give the public acceptable options for safe disposal of pharmaceuticals and personal care products and empower them to be proactive in protecting the environment.

Current education approaches in Pima County include outreach pamphlets regarding "Dispose-a-Med" program, frequent multimedia articles ...

2. Associated Impediments to Increased Reuse

Water quality and water supply are closely interrelated. Poor quality water diminishes the amount of water available for potable use and for reuse. The public may not be aware of the interdependency between water quantity and quality. Public education and outreach are needed to increase awareness.

Increased public awareness of the presence of trace amounts of pharmaceuticals and chemicals associated with personal care products may give the perception that reclaimed water is not safe for public use purposes, such as parks. Additionally, the unknown effects these constituents, in trace amounts, may lead the public to have more concerns about the safety of reclaimed water use.

The public expects the regulatory community to ensure that water quality standards protect the public and environment. The public may not fully understand the water quality standard-setting process.

The Safe Drinking Water Act (SDWA), administered by the EPA, regulates drinking water contaminants. EPA sets primary drinking water standards using a three-step process. The SDWA requires EPA to review each primary drinking water regulation at least once every six years and revise as appropriate. Any revision must maintain or increase public health protection.

The SDWA regulatory process includes a process that EPA must follow to identify and list unregulated contaminants, which may require a national drinking water regulation in the future. EPA must periodically publish a Contaminant Candidate List and decide whether to regulate a least five or more contaminants on the list. EPA makes a regulatory determination based on three criteria:

- The potential adverse effect of the contaminant on the health of humans
- The frequency and level of contaminant occurrence in public drinking water systems, and
- Whether regulation of the contaminant presents a meaningful opportunity for reducing public health risks

At the State level, ADEQ is the designated responsible agency that ensures that potable water delivered in public water systems is free from unwholesome, poisonous, deleterious or other foreign substances and filth or disease-causing substances or organisms. ADHS (Arizona Department of Health Services) conducts health assessments to determine health based guidance levels.

In summary the regulatory process is complex and the number of unregulated compounds is numerous. On the other hand, reclaimed water used for turf irrigation and industrial uses is not expected to be ingested or consumed by the public.

3. Possible Solutions

- Raise Awareness that reclaimed water is safe for the purposes it is permitted to be used
- Build Partnerships with those that have a role water quality to build public awareness
 - Law enforcement, emergency services agencies
 - Federal agencies; Food & Drug Administration, EPA, Justice Department

- State agencies; State Board of Pharmacy, ADWR, ADEQ, ADHS
 - Academia/University Pharmacy Colleges
 - Local government (cities, towns, counties)
 - Water treatment professionals
 - Pharmacies
 - Drug manufacturers
 - Personal care product manufacturers
- Engage community leadership to advocate for the safe disposal of pharmaceuticals and personal care products and emphasize public health and water quality. These could include
 - Physicians and Pharmacists
 - Elected officials
 - Federal, State and Local leaders
 - Water Treatment professionals
 - Business leaders
- Conduct Public outreach to
 - How water quality and water supply are linked
 - What the public can do to protect water quality
- Highlight Successful programs. Many successful take-back programs exist.

A take-back event is typically held on a Saturday at a public venue such as a shopping center. The public brings their expired, unwanted or unused pharmaceutical controlled substances and other medications for destruction. The programs are anonymous and usually at no cost to the public. Prescription and over-the-counter solid dosage medications (i.e. tablets and capsules) are usually accepted. Because of the potential presence of controlled substances, law enforcement must be present. Volunteers from local government, college of pharmacy and fire departments accept the pharmaceuticals and process them for destruction.

The following are samples of take-back programs:

- Dispose-A-Med (Pima County) see http://www.pima.gov/wwm/programs/dispose_med/
Partners include the Apothecary Shops, City of Tucson, Fry's Food Stores, Green Valley Coordinating Council, Household Hazardous Waste, Town of Marana, Northwest Fire Department, Oro Valley Policy Department, Pima Association of Governments, Town of Sahuarita, Tucson Water, University of Arizona College of Pharmacy, Walgreens
- Scottsdale Policy Department in partnership with Senior Centers
- Gilbert Police Crime Prevention Unit in partnership with the US Department of Justice DEA
- City of Tempe—must have proof of Tempe residency www.tempe.gov/hhw/we_accept.htm
- Southern California www.nodrugsdownthedrain.org
- Washington statewide program <http://www.medicinereturn.com/>

4. Recommendations

The following recommendations are provided for consideration:

- A. Outreach
 - Work with national and other statewide programs to develop a consistent program nomenclature. Entities have different names for pharmacy take-back programs including Unwanted Medicine Return Program, Dispose-A-Med, No Drugs Down the Drain
 - Expand pharmaceutical take-back programs: participate at the state and national level as efforts to facilitate programs and offer them at no cost to the public
 - Urge ADEQ to implement a non-regulatory outreach/education/facilitation approach, that cuts through some of the barriers
 - Be pro-active with the media
 - Media outreach should include
 - Linkage between water quantity and water quality
 - Description of how contaminants are regulated
 - Consistent messages regarding safety of reclaimed water for its intended uses
 - What the public can do to protect water quality

- Use experts, universities, professional industry organizations, subject matter experts, law enforcement and social media
- B. Funding
- Fund a statewide education campaign
 - Implement incentive programs for pharmacy and health departments
 - Funding for no charge, take back programs. Some programs charge a fee and others require proof of residency. These requirements are impediments to successful programs and may discourage the public from using them.
- C. Legislation
- State laws specify the information that must be provided in prescriptions. One strategy is to advocate for an amendment to state law ARS 36-2525 to require pharmacies to include information on proper disposal and where to find take back programs. This would provide outreach to the end users
 - Require pharmacies to post information about how to dispose of medications and personal care products and where to find take-back programs
5. Describe how the policy/rule/legislation or guidance could be administered (state, county, local, etc)
6. Benefits of the Recommendations
7. Possible Unintended Consequences of Recommendation

Expanded outreach might give a mixed message to the public that reuse water is not safe and that pharmaceuticals are present

Program success may be difficult to measure. One potential success indicator could be the number of pounds of pharmaceuticals collected at take-back events. This could represent the pounds of pharmaceuticals that were averted from reaching the environment or from being abused.

8. Describe the associated cost/benefit of implementation, possible funding sources and estimated cost to the end user using the matrix below for each recommendation.

Cost to Agency (Hi/Med/Low)	Cost to Utility (Hi/Med/Low)	Cost to End User (Hi/Med/Low)	Potential for Cost Pass-Through	Benefits/Removal of Impediments	Additional Comments

ⁱ <http://www.nytimes.com/2009/12/08/business/energy-environment/08water.html>

ⁱⁱ http://www.nytimes.com/2009/12/17/us/17water.html?_r=1

ⁱⁱⁱ <http://www.epa.gov/ppcp/work2.html>

^{iv} <http://www.epa.gov/ppcp/>