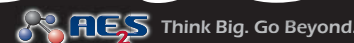


# REGULATORY COMPLIANCE The Update

April/May 2008



## Regulatory Development Becomes More Transparent

**A**s of April 14, 2008, the US Environmental Protection Agency (USEPA) began providing online information regarding the development of new federal environmental regulations. The Action Initiation Lists (AILs) will be posted monthly on the USEPA website for the purpose of notifying the public about new rules and other regulatory actions. Previously, the public was only updated on regulatory development via the USEPA's Semiannual Regulatory Agenda, which was updated approximately every six months.

AILs will provide summaries, agency contacts, and other information regarding USEPA rules approved for development. To access this information, go to: [www.epa.gov/lawsregs/search/ail.html](http://www.epa.gov/lawsregs/search/ail.html). ■

## Promising Research in Destroying Hormone-like Pollutants in Wastewater

**I**n a new study published in Environmental Science and Technology, Nancy Shappell, a research physiologist at the US Department of Agriculture's Biosciences Research Laboratory in Fargo, ND, and colleagues report the effectiveness of a powerful, environmentally friendly catalyst in the destruction of various estrogens that currently escape complete removal in wastewater treatment facilities. In the presence of hydrogen peroxide, the catalyst,

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**I**n March, the Associated Press ran a series of three articles in newspapers across the country addressing the presence of pharmaceuticals in drinking water. Thanks to broad communication efforts by the American Water Works Association (AWWA), Water Environment Federation (WEF), and other professional organizations, utilities had resources available to assist with the response to public inquiries.

## Pharmaceuticals in Drinking Water Get National Attention

Pharmaceuticals and Personal Care Products (PPCPs) refer to any

product used by individuals for personal health or cosmetic reasons or used by agribusiness to enhance growth or health of livestock. Pharmaceuticals and personal care products (PPCPs) include: prescription and over-the-counter therapeutic drugs, veterinary drugs, fragrances, cosmetics, sunscreen products, and nutraceuticals (e.g. vitamins). In addition to PPCPs, Endocrine Disrupting Compounds (EDCs) are also contaminants of concern. EDCs are substances that mimic natural hormones produced by animals and disrupt the physiological function of natural hormones in the body. Both PPCPs and EDCs have been documented in water sources for greater than 40 years.

Sources of PPCPs include: human activity; residues from pharmaceutical manufacturing; residues from hospitals; illicit drugs; veterinary drug use, especially antibiotics and steroids; and agribusiness. Individuals may also contribute PPCPs to the environment when medication residues pass out of the body and into sewer lines, externally-applied drugs and personal care products are washed down the shower drain, and unused or expired medications are placed in the trash. Sources of EDCs include plastic water bottles and baby bottles; plastic food containers; dental materials; the linings of metal food cans; some soft toys; flooring; medical equipment; cosmetics; air fresheners; and fire retardants used in plastic cases of televisions and computers, electronics, carpets, lighting, bedding, clothing, car components, foam cushions, and other textiles.

Research of PPCPs and EDCs is currently underway in a variety of areas, including sources, introduction to the environment – such as fate and transport, human exposure pathways, ecological exposure pathways, monitoring and detection tools, assessment of potential ecological effects, assessment of potential human health effects, and environmental stewardship public communication. Recent research has studied the effectiveness of various water treatment processes for PPCP and EDC removal. Removal results were reported during a webcast on May 7 held by the AWWA and are summarized in the following table.

In addition, the combination of UV and peroxide has been shown to provide complete removal of the compounds included in the table.

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*(Promising Research)*

called Fe-TAML or FE-B\*, quickly and effectively destroys various forms of estrogens typically found in post-treatment wastewater. Further research will evaluate Fe-B\*'s efficacy on actual wastewater, as well as evaluate more extensively by-product toxicities.

A copy of the study, "Destruction of Estrogens using Fe-TAML/Peroxide Catalysis", may be accessed at: [pubs.acs.org/cgi-bin/sample.cgi/esthag/asap/pdf/es7022863.pdf](http://pubs.acs.org/cgi-bin/sample.cgi/esthag/asap/pdf/es7022863.pdf). ■

### Sioux Falls' Tapwater Ranks Among the Best in US

**F**orbes magazine recently rated the drinking water in Sioux Falls, SD as third best in the nation (behind Des Moines, IA and Austin, TX respectively) based on tap-water clarity and low levels of bacteria and lead. Information used to develop the Forbes article was taken from the "United States Drinking Water Quality Study Report" compiled by University of Cincinnati researchers. ■

*( Pharmaceuticals in Drinking Water from first page)*

	UV (40 milli Joules)	Chlorine (3.5 milligrams per liter (mg/L))	Ozone (2.5 mg/L)
<b>Steroids</b>			
Testosterone	< 5 %	25 – 30 %	~ 100 %
Progesterone	< 5 %	~ 30 %	~ 100 %
Estradiol	~ 30 %	~ 100 %	~ 100%
Estriol	20 – 25 %	~ 100 %	~ 100 %
Estrone	25 – 30 %	~ 100 %	~ 100 %
<b>Pharmaceuticals</b>			
Caffeine	< 5 %	15 – 20 %	~ 100 %
Fluoxetine (anti-depressant)	10 – 15 %	15 – 20 %	~ 100 %
Meprobamate (tranquilizer)	0 %	15 – 20 %	~ 50 %
Diazepam (sedative, muscle relaxant, anti-convulsant)	0%	10 – 15%	75 – 80 %
Dilantin (anti-seizure)	5 – 10 %	15 – 20 %	80 – 85 %
Carbamazepine (anti-convulsant and mood stabilizer)	0%	20 – 25 %	~ 100 %

Source: "Endocrine Disruptors, Pharmaceuticals and Personal Care Products: Actions and Communications", AWWA Webcast, May 7, 2008.

Utilities may want to consider educating the public on PCCP and EDC issues. The May 2008 issue of AWWA Opflow includes an article entitled "Emerging Contaminants: Insights to the Most Effective EDC and PPCP Treatment Strategies". The article discusses the results of recent research and presents suggestions on what to tell your customers about this topic. ■

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