

## Pilot Study on PPCPs at Champaign and Urbana Wastewater Treatment Plants (WWTPs)

Two important sources of PPCPs (Pharmaceuticals and Personal Care Products) and hormones in the environment are municipal/industrial wastewater treatment plants (WWTPs) and concentrated animal feeding operations (CAFOs). WWTPs (Wastewater Treatment Plants) cannot completely eliminate all PPCPs and hormones, resulting in their discharge into the environment with effluent, while CAFO water is not required to undergo advanced treatment before it is reused.

In spring 2013, Dr. Wei Zheng, senior research scientist at [ISTC \(Illinois Sustainable Technology Center\)](#), and his team— Beth Meschewski and Nancy Holm— began investigating the concentrations and occurrence of 16 PPCPs and hormones at the Champaign and Urbana WWTPs to establish baseline information for the area. Tertiary wastewater treatment plants are the dominant purification technology in urban areas and they have previously been found to be quite effective at removing some of the common PPCPs, but not others. Most WWTPs, though, were not designed to specifically handle these types of contaminants. This study determined how the different stages of tertiary treatment affect the chemical structure and occurrence of PPCPs and hormones in the effluent and surrounding aquatic environment. The compounds examined included acetaminophen, caffeine, carbamazepine, ciprofloxacin, diphenhydramine, erythromycin, fluoxetine, gemfibrozil, ibuprofen, naproxen, sulfamethazine, sulfamethoxazole, triclocarbon, triclosan, trimethoprim, and estrone.

This work continued under another ISTC project “[PPCPs: Extending Knowledge and Mitigation Strategies.](#)”



Collecting a wastewater sample from the aeration tanks at the Champaign WWTP.

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[Pilot Study on PPCPs at Champaign and Urbana Wastewater Treatment Plants \(WWTPs\)](#)

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[Anaerobic Transformation Kinetics and Mechanism of Steroid Estrogenic Hormones in Dairy Lagoon Water](#)

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[Medicine Collection Boxes](#)

[2008 PPCPs Symposium](#)

**2016 PPCPs in the Environment Conference**

**2017 Emerging Contaminants in the Aquatic Environment Conference**

**2018 Emerging Contaminants in the Aquatic Environment Conference**

**2019 Emerging Contaminants in the Environment Conference**

**2016 Teacher Workshop on Pharmaceutical and Personal Care Products in the Environment**

**PPCPs Videos**

**Emerging Contaminants Consortium**

**PCBs & PBDEs**

**Polycyclic Aromatic Hydrocarbons (PAHs)**

**Waste Utilization**

**Water**

**Instruments & Equipment**

**Hazardous Waste Research Fund**

#### **Meet the Scientists**

- **Wei Zheng**
- **Laurel Dodgen**
- **Nancy Holm**
- **Elizabeth Meschewski**



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