

Testimony of Dana Aunkst  
Deputy Secretary for Water Programs  
Pennsylvania Department of Environmental Protection (DEP)  
Before the Pennsylvania Senate Environmental Resources and Energy Committee  
Tuesday February 7, 2017

Chairman Yaw, Chairman Yudichak, and members of the committee, thank you for the opportunity to submit testimony regarding Pharmaceuticals in Pennsylvania's Waterways. The Department of Environmental Protection has been collecting and analyzing data related to this subject for nearly a decade. We are continuing this sampling on a limited basis.

DEP first monitored for pharmaceuticals in waters beginning in 2006 and conducted a joint study with USGS from 2006 – 2009 with a focus on drinking water sources. This study tested contaminants of emerging concern in the following waters:

- groundwater from wells;
- stream water from both upstream and downstream from animal feeding operations and wastewater treatment plants;
- stream water from sites within 5 miles of drinking water intakes; and
- stream water and sediment where fish health assessments were done.

The study produced a report, which was provided as part of this testimony, and presented the following findings:

- few pharmaceuticals were detected in the groundwater samples;
- seven pharmaceuticals were detected in sites located upstream and downstream of animal feeding operations;
- a larger number of compounds were detected downstream of wastewater treatment plants, and at a greater detection frequency, than upstream of wastewater treatment plants;

- concentrations of compounds were higher downstream than upstream of wastewater treatment plants;
- few compounds were detected, and at low concentrations, within 5 miles of drinking water intakes;
- no patterns were found at the fish-health sites.

Additional DEP sampling began in 2013 on the Susquehanna River as part of our investigation into the smallmouth bass disease and population decreases.

Pharmaceuticals were sampled from fall 2013 through the present. Samples were and continue to be collected each spring and fall at various locations throughout the basin, as well as at several sites in the Ohio and Delaware River basins. Sampling completed in these rivers for pharmaceuticals has been done using passive sampling devices (polar organic compound integrative samplers, or POCIS) that are deployed for 30 days in one location. These devices concentrate organic compounds found at extremely low concentrations that are not detected by conventional sampling methods.

A total of 50 sites have been sampled between 2013 and 2016 with the majority located in the Susquehanna River basin. At the start of this study in 2013 there were 40 pharmaceutical compounds that were evaluated. Only 13 of these compounds were detected. A few of our findings from the sampling are:

- The site with the highest number of pharmaceuticals detected was the Juniata River at Lewistown.
- The site with the lowest number of pharmaceuticals was the Juniata River at Newport.
- Connoquenessing Creek, a tributary to the Beaver River in the Ohio River basin, and the mainstem Susquehanna River had the highest number of total detections of pharmaceutical compounds in the fall 2013 results.

In 2016 our analysis was expanded to include 86 pharmaceutical compounds. In the spring 2016 results, a total of 49 were detected. The 2016 monitoring sites were

expanded to include additional sites in the lower Susquehanna basin that had not been sampled in earlier years. From the 2016 data, we found:

- The site with the highest number of pharmaceuticals in spring 2016 was Muddy Run, a tributary to the Susquehanna located in Lancaster County.
- The site with the lowest number of detections was also in Lancaster County, in Groff Creek.

It must be noted that Lancaster County streams were not sampled in 2013; therefore, these results are not an indication that potential problem areas have shifted since 2013, when the highest concentrations were found in the Juniata basin.

Results to date indicate that the highest concentrations of pharmaceuticals are generally found downstream of wastewater treatment plants, which is to be expected. DEP will continue with its current sampling plan for pharmaceuticals in our waters as staffing and resource levels allow.

While DEP has collected a great deal of data in the form of water samples, and we are able to determine that these compounds are present in our waters, much additional research and analysis are needed to determine what effects they may be having on our environment and public health. To date, no conclusions have been reached that present a clear link between the concentrations of the compounds and fish-health. Further, the USGS study in which DEP participated found that few of these compounds were detected within 5 miles of drinking water intakes in Pennsylvania.

Thank you for the opportunity to testify today. I am happy to take questions.