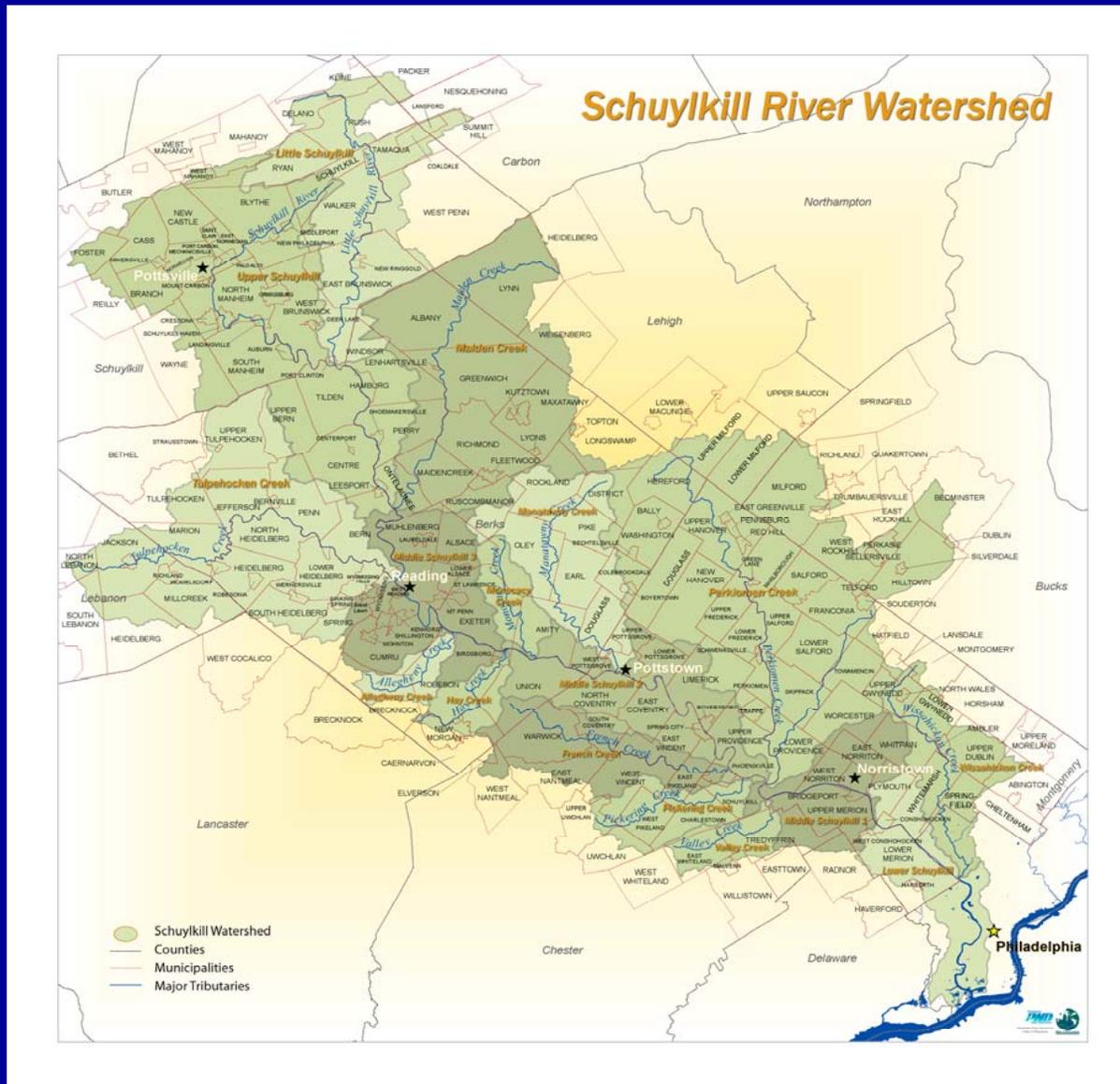


A Year in Review by the Joint Action Team: Investigation of Iodine -131 in the Schuylkill River Watershed



Introduction and Important Points

- PWD's drinking water is safe – never exceeded parameters for Iodine 131
- Public health and safety is our primary mission – tradition of source water protection
- PWD drinking water levels are below the MCL in sampling to date.
- For past year, working with our partners – EPA, DEP, City Health Dept. to track down the source of Iodine -131 in our watershed
- More info: www.phillywatersheds.org/Iodine131

Iodine-131: Philadelphia Drinking Water

Victoria P. Binetti
U.S. Environmental Protection Agency
Region III

March 28, 2012

Radionuclides in the Environment

- Natural sources
 - uranium and other deposits
- Man-made sources
 - hospitals
 - research facilities
 - pharmaceutical companies
 - nuclear power plants
 - fallout from nuclear weapons testing
- Uses
 - nuclear medicine
 - industry & mining
 - food preservation
 - household goods
 - geology, archaeology and paleontology
- In drinking water, EPA regulates
 - Gross-alpha
 - Radium-226 and -228
 - Uranium
 - Gross beta

Iodine - 131

- Iodine-131 is man-made radionuclide (Beta-emitter)
- Sources:
 - Nuclear power plants
 - Research facilities
 - Pharmaceutical/medical diagnostic & therapeutic uses
 - Municipal wastewater systems
- Regulated under EPA and State drinking water programs
 - Maximum contaminant level (MCL) = 4 millirems/year (exposure)
 - For Iodine-131, equates to annual average concentration of 3 picoCuries/Liter
- Monitoring is scaled to likelihood that water supply source is contaminated by or vulnerable to radionuclide sources

Fukushima and Iodine-131

- 3/11/11 earthquake and tsunami
 - nuclear reactor meltdowns
 - releases of radioactive isotopes (I-131, Cs-137)
- Prompted worldwide efforts to monitor potential fallout, including EPA RadNet system
- State programs supplemented RadNet monitoring (drinking water, surface water)

EPA's RadNet Program

- Background
 - national network of monitoring stations, since 1978
 - regularly collect air, precipitation, milk and drinking water
 - tracks ambient radiation levels in the environment
- RadNet drinking water program
 - volunteer driven
 - quarterly sampling at more than 50 sites nationwide
 - finished water supplies (tap samples)
- RadNet is NOT
 - regulatory/compliance monitoring
 - a check on drinking water systems
 - a means for monitoring nuclear facilities
 - an early warning system for nuclear accidents

Philadelphia and I-131

- Philadelphia's RadNet samples indicated occurrence of Iodine-131 in drinking water (and area surface waters)
- Follow-up investigations undertaken to characterize levels and identify sources
- Studies elsewhere point to potential causes, but connections have not been examined comprehensively
- Our joint efforts should help define scope of issue

Joint Task Force – Next Steps

- PWD, EPA, Phila Health and PaDEP are taking the lead for the nation on better understanding medical uses and their implications to the environment and our source waters
- Begin discussion of potential for a national study with water and health organizations
- Womens Health Environmental Network (WHEN) to begin discussions with doctors, health centers, hospitals to understand patient use, dosage with the long term goal of potentially making some changes in these practices
- Better understanding of medical use and implications to WWTPs and long term opportunities to modify practices