

# OHIO RIVER VALLEY WATER SANITATION COMMISSION

## ORSANCO Status Report

OWEA Government and Regulatory Affairs  
Specialty Workshop  
March 17, 2016



# Presentation Overview

- ORSANCO Overview
- Source Water Protection Program Overview
  - Spill Monitoring and Response
  - HAB Monitoring and Response
- 2015 Pollution Control Standards Triennial Review – Adopted Oct. 8, 2016
  - Ammonia Criteria Update
  - Prohibition on Mixing Zones for BCC's Update

# Ohio River Valley Water Sanitation Compact

- Ratified by Congressional action
- Eight signatory States (IL, IN, KY, NY, OH, PA, VA, WV)
- “Pledge cooperation” to abate interstate water pollution in Ohio River valley compact district
- Guiding Principal: wastes discharged in one state shall not harm the waters of another state
- Created ORSANCO to coordinate and implement

# ORSANCO Commission

- 3/ state (gubernatorial appointments); 3 federal (Presidential appointments); 27 total
- State EPA directors are Commissioners
- One federal commissioner is EPA Regional Administrator
- Budget: Base funding is \$2.8 million (approximately equal shares from federal government and states)
- Staff – 21



# Ohio Commissioners

- Director Craig Butler, Ohio Environmental Protection Agency
  - Proxy, Tiffani Kavalec, Chief of Surface Water, Ohio Environmental Protection Agency
- Stuart Bruny
- John Hoopingarner, Executive Director, Muskingum Watershed Conservancy District

# Program Areas

- ❑ Regulatory – establish Ohio River Pollution Control Standards
- ❑ Water Quality Monitoring and Assessment
- ❑ Biological Monitoring and Assessment
- ❑ Source Water Protection
- ❑ Public Involvement programs

# The Ohio River



Pittsburgh, Pennsylvania

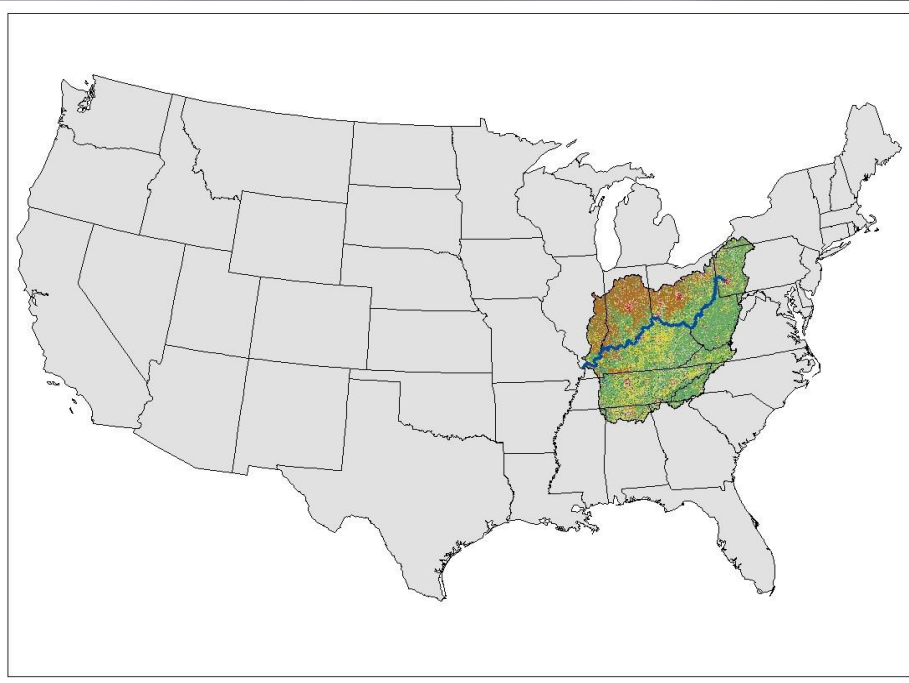


Paducah, Kentucky



# The Ohio River Valley

- 5% of US mainland  
(205,00 square miles)



- 25 million population
- All or part of 14 states
- Highly diverse land uses
  - Forest
  - Agriculture
  - Industrial Corridor
  - Urban areas
  - Energy Development
    - Coal
    - Oil and Gas



# Ohio River Facts

- 981 Miles from Pittsburgh to Cairo
- Drinking water source for 5 million people (33 intakes)
- 130+ species of fish; rich in mussels
- 230 million tons of cargo transported annually; 20 locks and dams
- Recreational water resource
- 38 electric power generating plants



# Success through Collaboration with Partners

- Key to success is through Partner Collaboration
- Helps avoid costly duplication of effort
- ORSANCO process - Committee driven - Committee dependent
- Committees and work groups comprised of representatives from states, federal agencies
- Committees of river user sectors: drinking water, POTWs, electric power, etc...provide valuable input into ORSANCO's programs
- Recently authorized Watershed Organizations Advisory Committee

# Source Water Protection

- Spill Monitoring & Response
  - Spill Monitoring
    - Organic Detection System (ODS)
  - Spill Response
  - National Response Center Notification
- HAB Monitoring & Response
  - HAB/ Nutrient Monitoring
  - HAB Response

# Spill Monitoring



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# Ohio River – Industrialized River

- Approx. 600 permitted discharges
- 968 combined sewer overflows
- Hundreds of tank farms and pipelines
- 250 million tons (\$30B) waterborne commodities
- 144 industrial intakes





# Storage and Transfer Commodities (some)

- Acetone
- Asphalt
- Asphalt And Light Oils
- Asphalt Materials
- Asphaltic Products
- Butadiene
- Bulk Petroleum
- Butyl Acrylate
- Carbon Black Oil
- Chemicals And Plastics
- Coal Tar
- Creosote
- Cumene
- Diesel Fuel
- Distillate Oils And
- Ethyl Acrylate
- Ethylene Glycol
- Flux Oil
- Fuel Oil
- Kerosene
- Liquid Asphalt
- Liquid Chemicals
- Liquid Fertilizer
- MCHM
- Methanol
- Methyl Methacrylate
- Mooring Barges
- Naphthalene-Still Residue (NSR)
- Oil
- Other Chemicals
- Petro Chemicals
- Petroleum Products
- Pitch
- Refined Chemical Oil
- Slurried Calcium Hydroxide
- Sodium Cresylate
- Styrene

# Organics Detection System

- Organics Detection System (ODS) provides early detection for unreported spills and tracking for reported spills
- Established 1978 after carbon tetrachloride release
- ORSANCO worked with water utilities to develop system to detect volatile organic chemicals
- 16 active stations
- Renovated between 2008 and 2015
- 1,500 raw river samples analyzed per month



# Renovation Benefits

- Expanded analytical capability
  - GC/ MS units detect thousands of compounds
  - Decreased analytical run time
  - Increase likelihood of early detection of spills
- All sites have auto samplers
  - Can load multiple samples in carousel (or flow through) to auto analyze sequentially
- Increased daily sampling frequency from 1 to 4 samples/ day
- Increased number of host sites from 13 to 16
- Incorporated remote access capability to all sites
- Created ODS Dashboard website

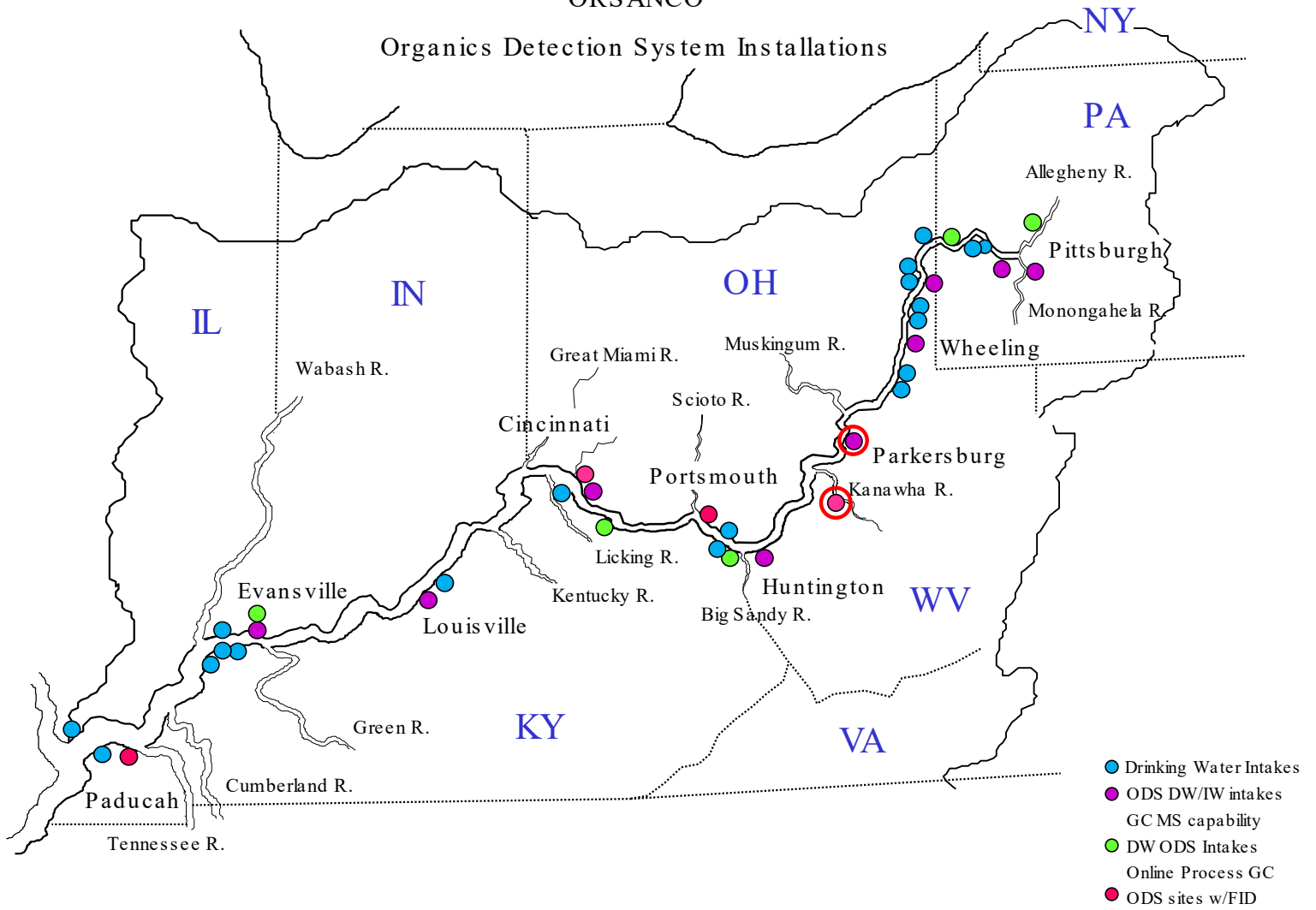
# New ODS Analyte List

Process GC; GC w/ FID; GC Mass Spec

- Methylene Chloride
- 1,1 Dichloroethylene
- 1,1 Dichloroethane
- Chloroform
- 1,1,1 Trichloroethane
- Carbon Tetrachloride
- Benzene
- Trichloroethylene
- 1,2 Dichloropropane
- Dichlorobromomethane
- Toluene
- Tetrachloroethylene
- Dibromochloromethane
- Ethylbenzene
- Chlorobenzene
- Styrene (co-elutes with o,p xylenes)
- Bromoform
- 1,3 Dichlorobenzene
- 1,4 Dichlorobenzene
- 1,2 Dichlorobenzene
- Acrylonitrile
- 1,2 Dichloroethane
- trans-1,2 Dichloroethylene
- cis-1,3 Dichloropropene
- trans-1,3 Dichloropropene
- Hexachloro-1,3-butadiene
- 1,1, 2,2 Tetrachloroethane
- 1,1,2 Trichloroethane
- Trichlorofluoromethane
- Napthalene

# ORSANCO

## Organics Detection System Installations

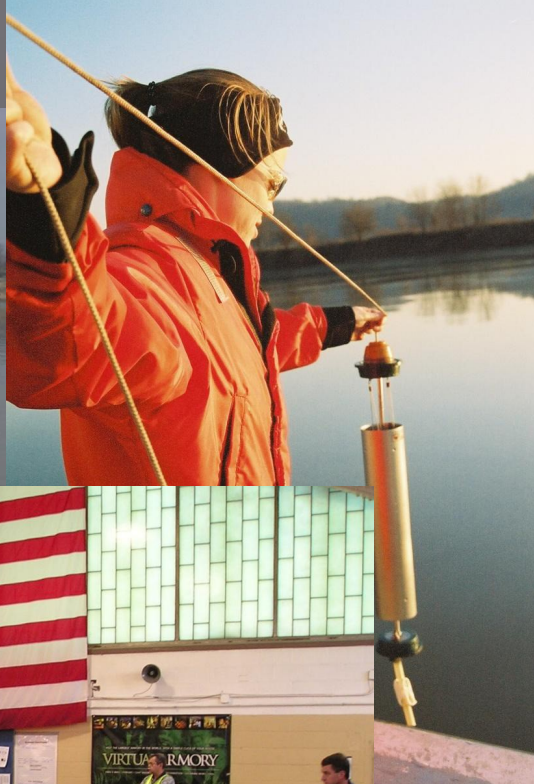


# Future ODS Challenges & Opportunities

- Additional ODS sites are needed to improve system coverage
- Ongoing operational funding needed
- Equipment replacement funding needed since equipment has been historically replaced with earmarks, which are not longer available
- Need improved chemical tank inventories that may impact Ohio River to optimize analyte list



# Spill Response



# Spill Response

- ORSANCO staff coordinate spill response with drinking water utilities, DEP's, US Coast Guard and other stakeholders
- ORSANCO provides direct confirmation when needed with field crew observation
- ORSANCO uses a Spill Model to predict spill arrival times
- Two major spills required significant response in 2014
  - MCHM – 500+ miles (Kanawha and Ohio rivers)
  - Duke Energy – 20 miles (Spill 10 miles upstream of 2 major intakes)

# National Response Center (NRC) Notification

- ORSANCO staff provide 24/ 7 review of NRC reports and appropriate response
- In 2015 ORSANCO technical staff reviewed 619 NRC spill reports
- Of those, about 227 showed potential for impacting the Ohio River
- 1/3 of these 227 spill reports listed unknown oil as the spilled substance
- Diesel was the 2<sup>nd</sup> most commonly listed material in the spill reports



# HAB Monitoring



# Ohio River HAB/Nutrient Monitoring Current Program

- Current Nutrients Program
  - Bimonthly Nutrients Monitoring at 15 Mainstem/ 14 Tributaries
  - 2 continuous monitors with telemetry to provide real-time data with Chlorophyll a and phycocyanin.
  - ELISA capability to analyze for HAB toxins (new capability)
- Current system inadequate as an early warning system or for HAB tracking

# Nutrients In the Ohio River

- Current concentrations and downriver trend
  - Average TN 1.5 mg/ L
  - Average TP 0.19 mg/ L
  - Nutrients increase downriver with the largest contribution coming from the tributaries that drain the corn belt
- Annual Trends
  - TP increasing basin-wide, but low magnitude.
  - Stable nitrogen trends.
- Biggest Nutrient Load to Gulf of Mexico from Ohio River
  - 41% nitrogen (avg. 500,000 metric tons)
  - 38% phosphorus (avg. 38,000 metric tons)

