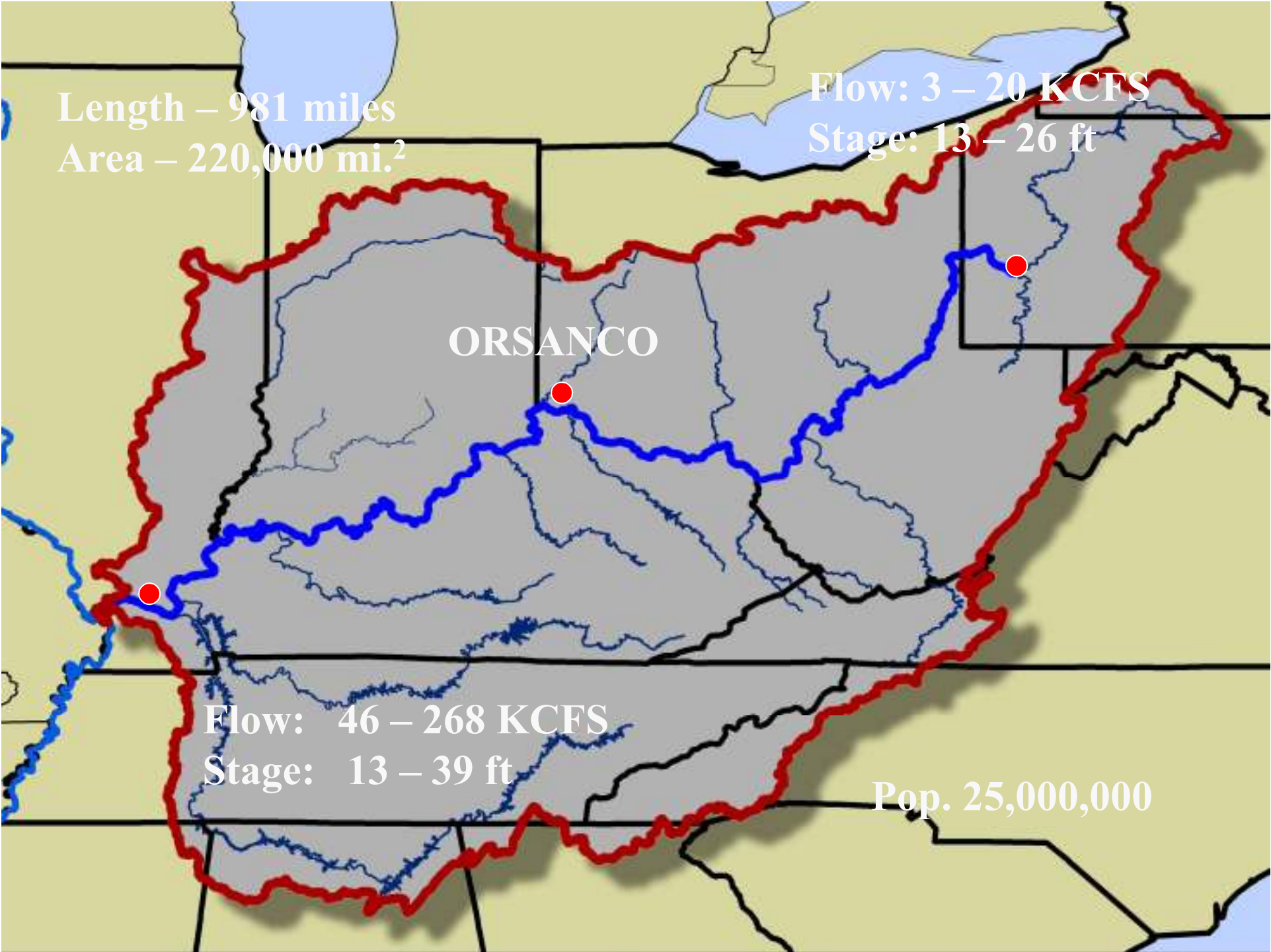


ORSANCO's Role in Source Water Protection, Emergency Response and the Protection of Drinking Water Utilities

Jerry G. Schulte, Manager
Source Water Protection and Emergency Response
Ohio River Valley Water Sanitation Commission
5735 Kellogg Avenue, Cincinnati, OH 45228
jschulte@orsanco.org; www.orsanco.org



Length – 981 miles
Area – 220,000 mi.²

Flow: 3 – 20 KCFS
Stage: 13 – 26 ft

ORSANCO

Flow: 46 – 268 KCFS
Stage: 13 – 39 ft

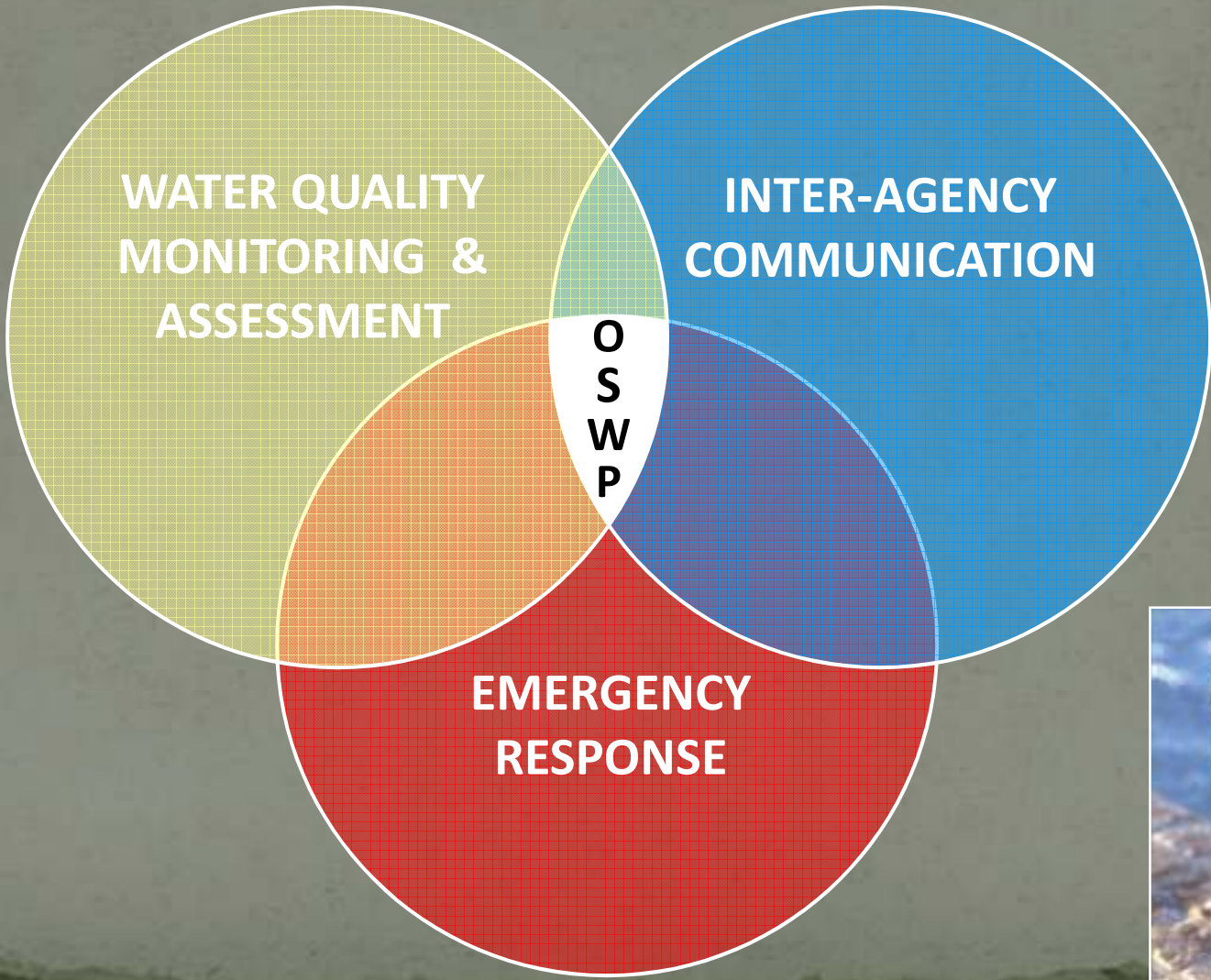
Pop. 25,000,000

Ohio River – Industrialized River

- >600 permitted discharges
- 1350 combined sewage overflows
- Hundreds of tank farms, pipelines and chemical barges
- 144 industrial intakes

- 33 drinking water intakes
- Provide drinking water to >5,000,000

ORSANCO Source Water Protection Program Integration

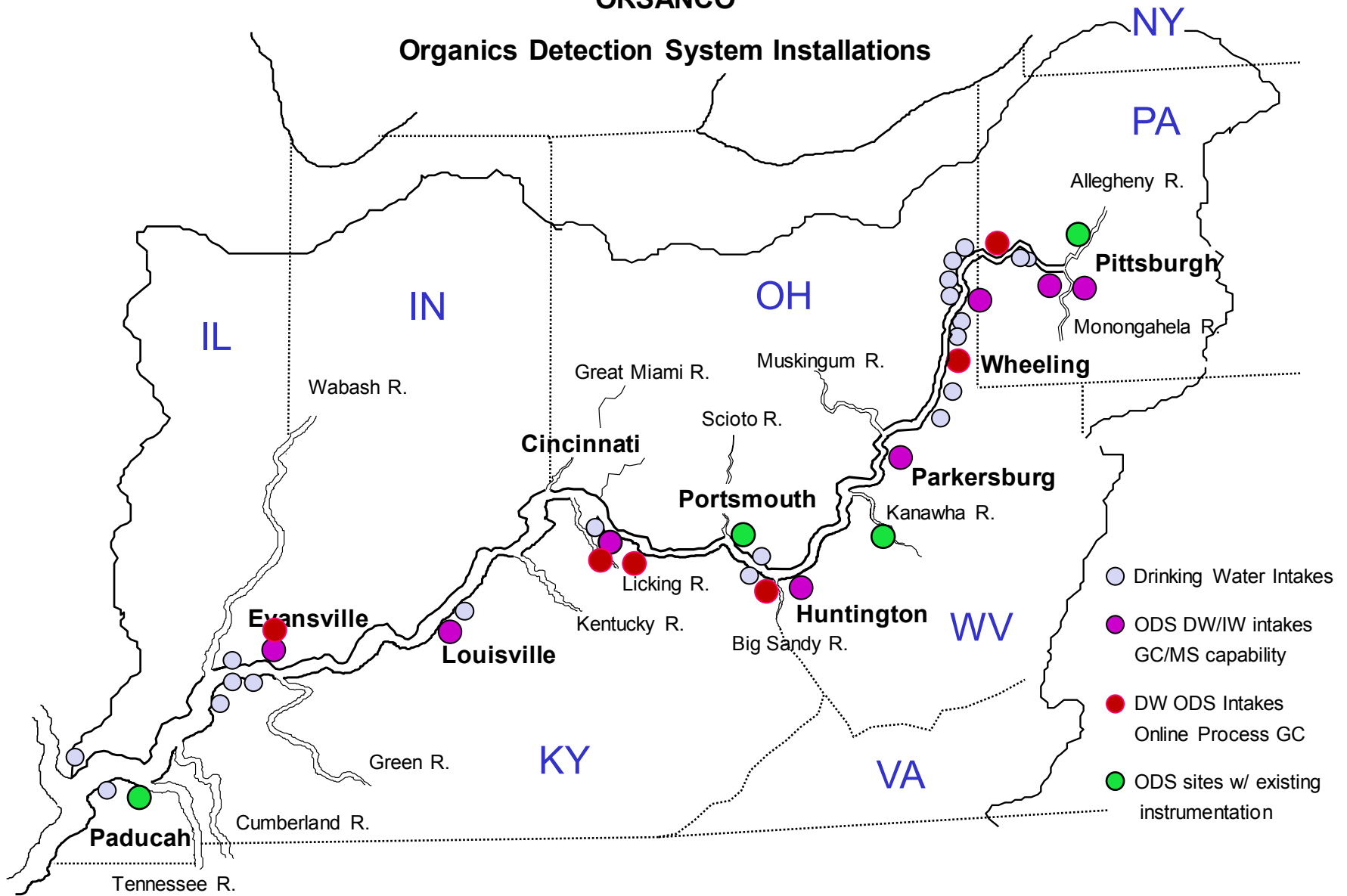


Organics Detection System

- Established 1978 after carbon tetrachloride release
- ORSANCO worked with water utilities to develop system to detect volatile organic chemicals
- 7 initial stations developed
- 13 stations by 1985
- 16 active stations today monitor more than 1000 mi. of river
- >4,500 raw river water samples analyzed in 2013
- Congressionally directed funds appropriated in 2008 to upgrade entire system

ORSANCO

Organics Detection System Installations



Thermo Gas Chromatograph with Mass Spectrometer Detector (GC/MS)



Inficon CMS 5000



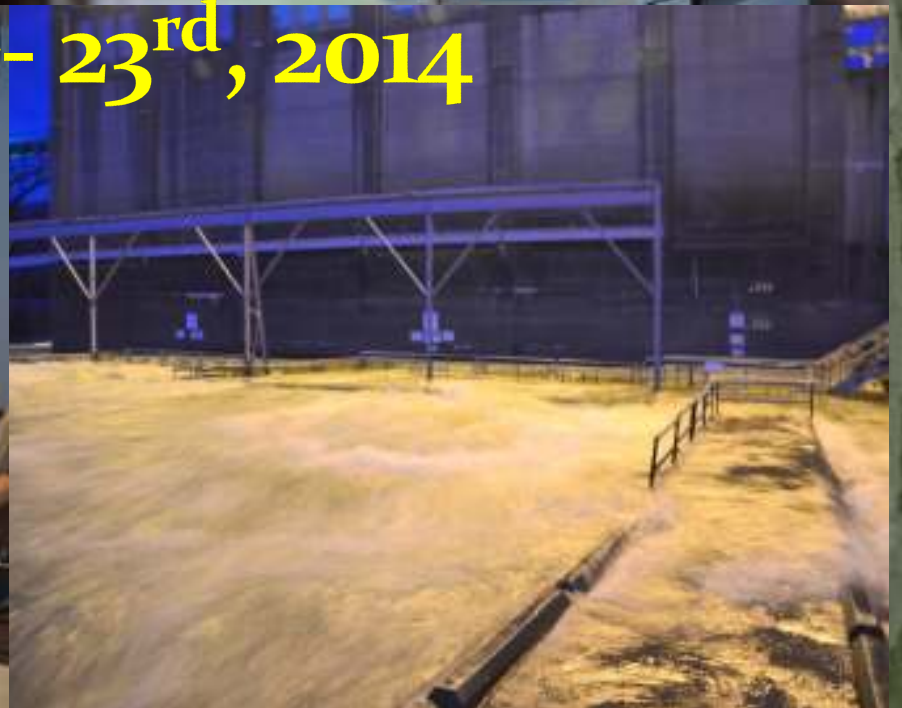
New ODS Analyte List

- 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



Elk River/MCHM Spill

January 9th - 23rd, 2014



Elk River Spill Timeline

- 8:15 am, Jan. 9th, West Virginia Department of Environmental Protection officials received air complaints concerning odor around Freedom Industries Storage Tanks
- 10:30 am, Jan. 9th, employees with Freedom Industries discovered coal processing chemical 4-methylcyclohexane methanol (MCHM) has leaked from a steel storage tank into the Elk River, just 1.5 miles upstream of the intake for West Virginia American Water
- 12:00 pm, Jan. 9th, WV DEP personnel arrive on site to investigate
- 12:05 pm, Jan. 9th, Freedom Industries called state hotline to report leak

Elk River Spill Timeline

- By 4:30 AM, the MCHM spill was contained.
- At 5:30 AM, the spill was contained.
- 300,000 gallons of water were used to fight the spill.
- The spill was contained.
- 10,000 gallons of water were used to fight the spill.



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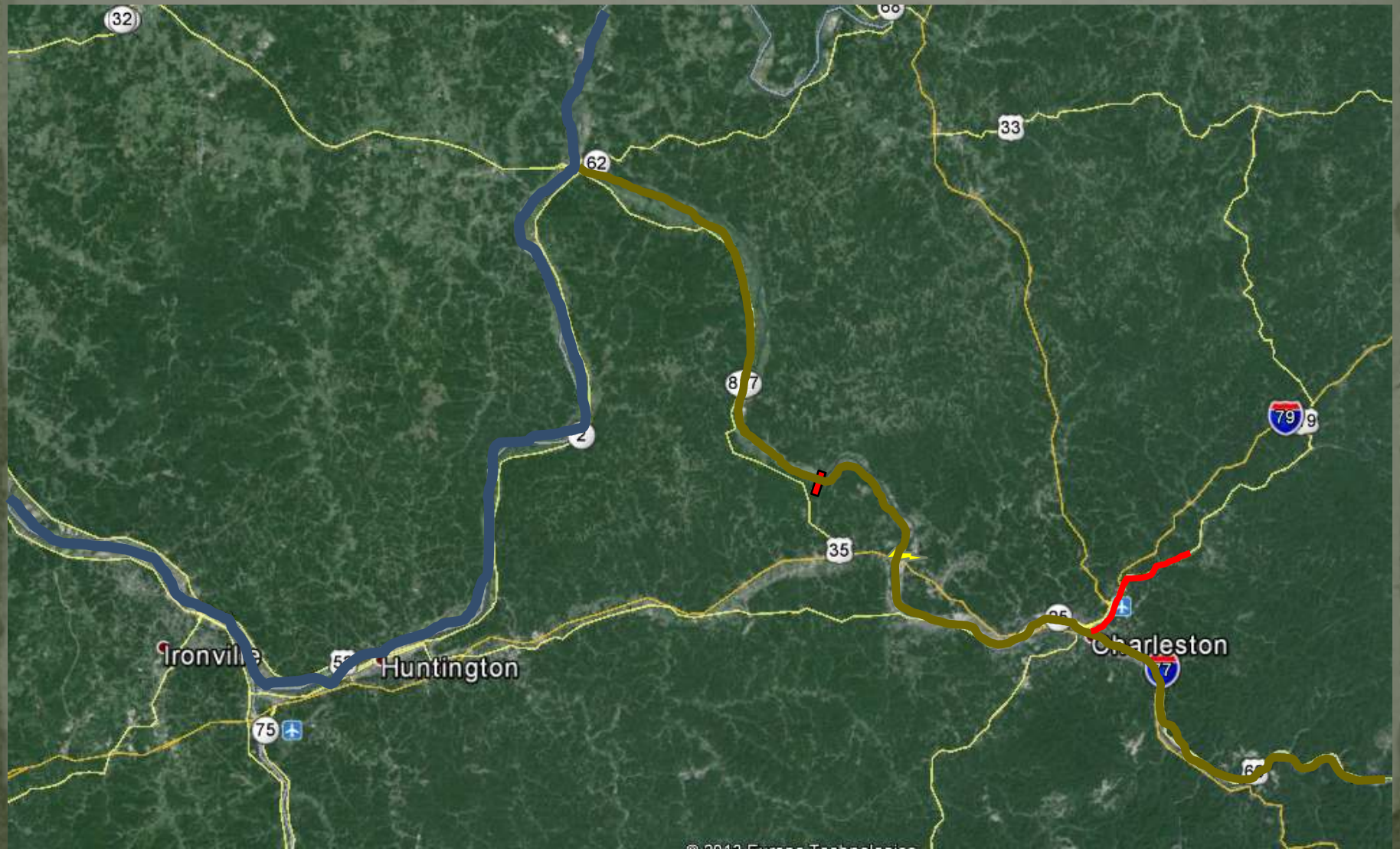
4-methylcyclohexane methanol (MCHM)

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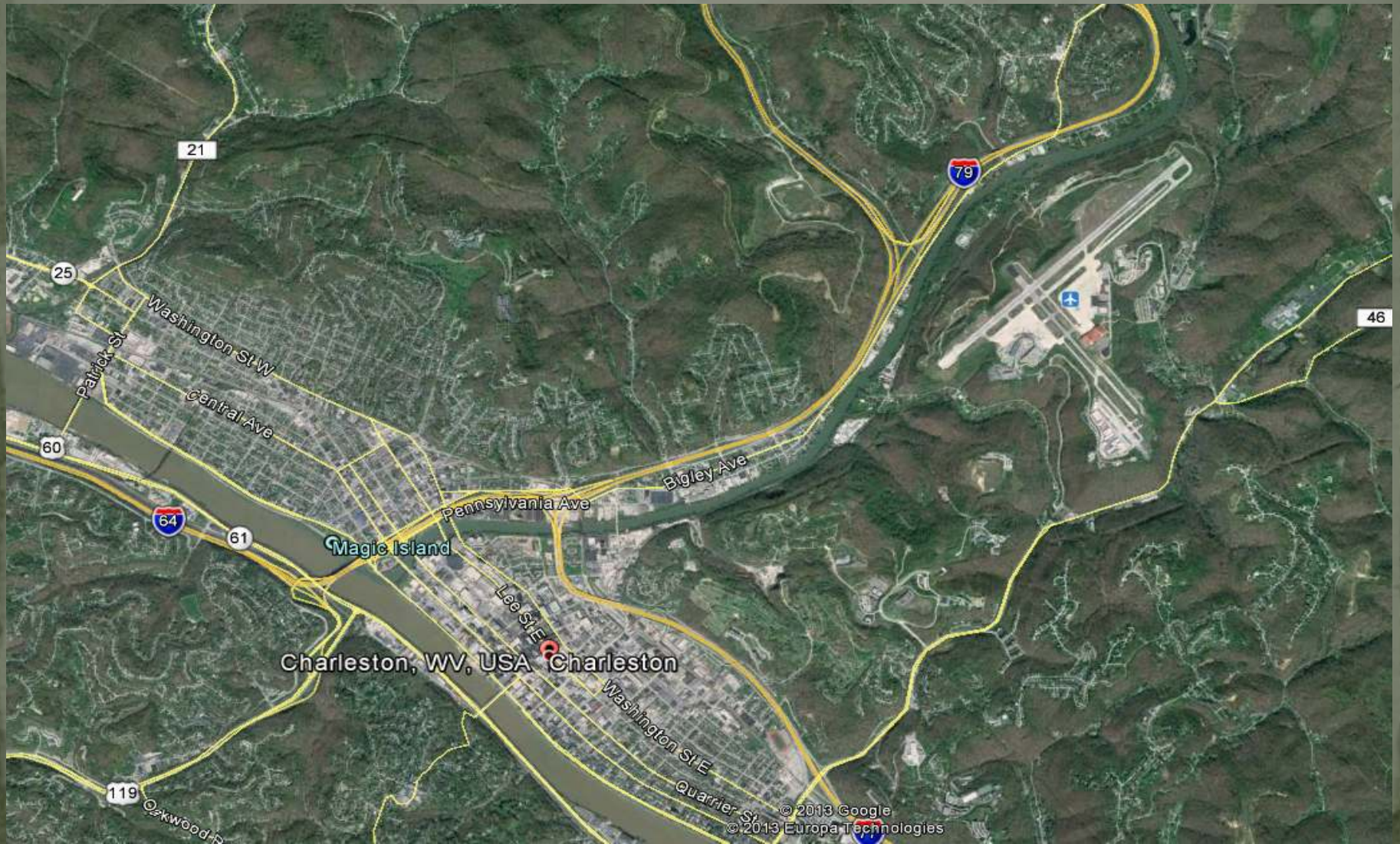


AT LEAST
MY COAL IS
CLEAN

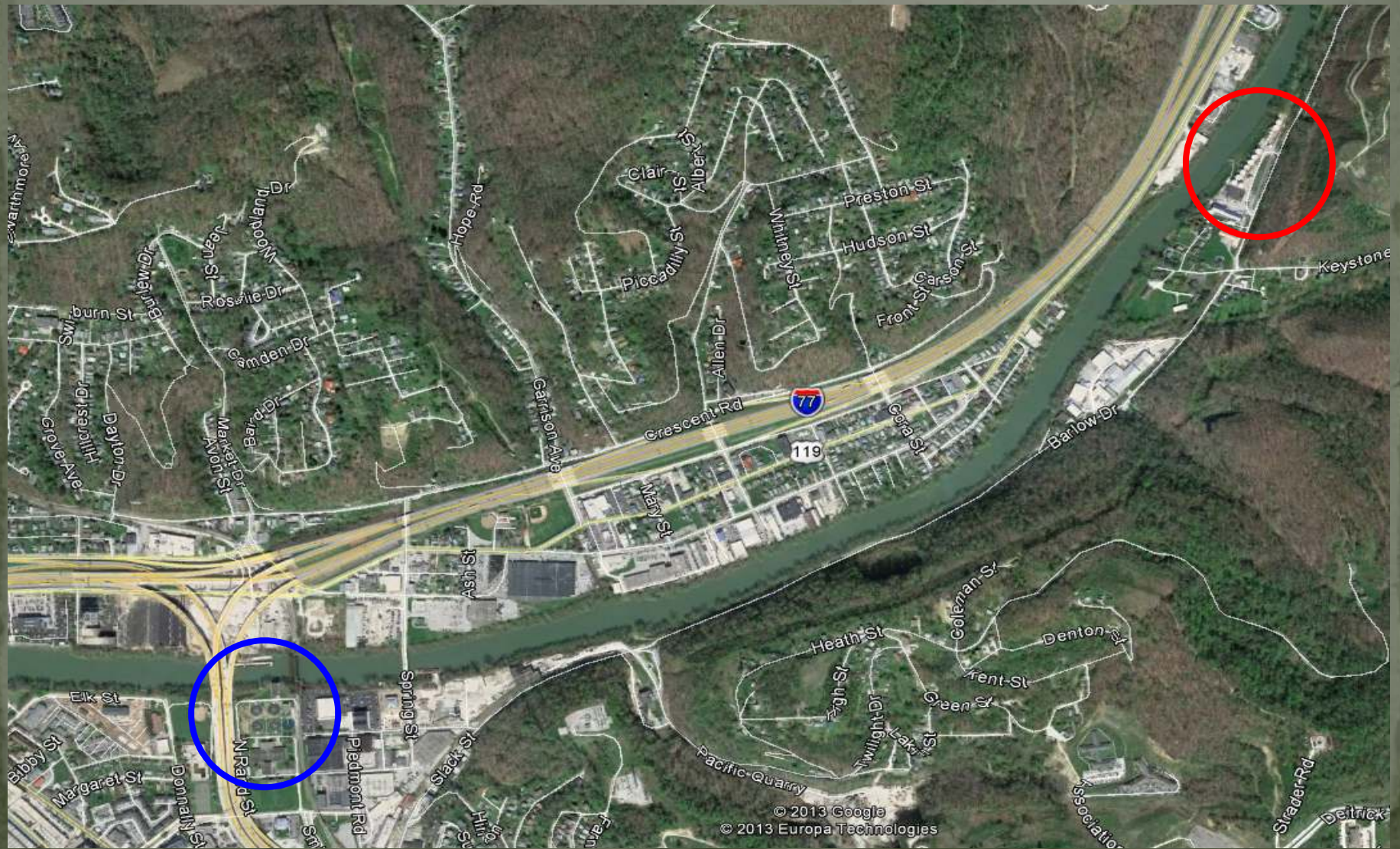
Elk River/Freedom Industry Release



Elk River/Freedom Industry Release



Elk River/Freedom Industry Release



Elk River/Freedom Industry Release



Freedom Industries Storage Tanks



Elk River/Freedom Industry Release



Winfield Locks and Dam

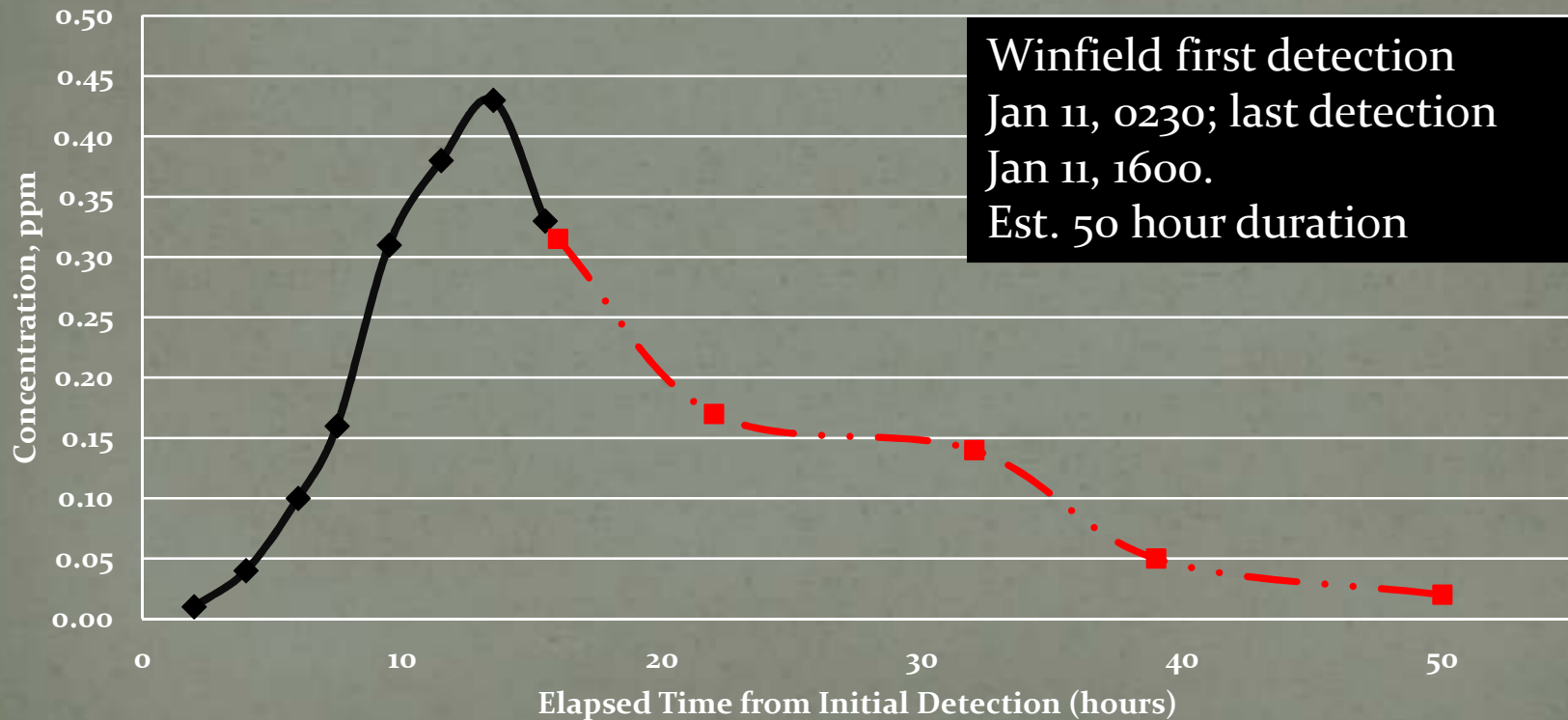


Kanawha River, Winfield L & D

Kanawha River Mile 31 = 29 river miles

MCHM Concentrations

—◆— Winfield —■— Winfield Est.



Winfield – Huntington Comparison

KRM 31 ORM 304 = 99 river miles

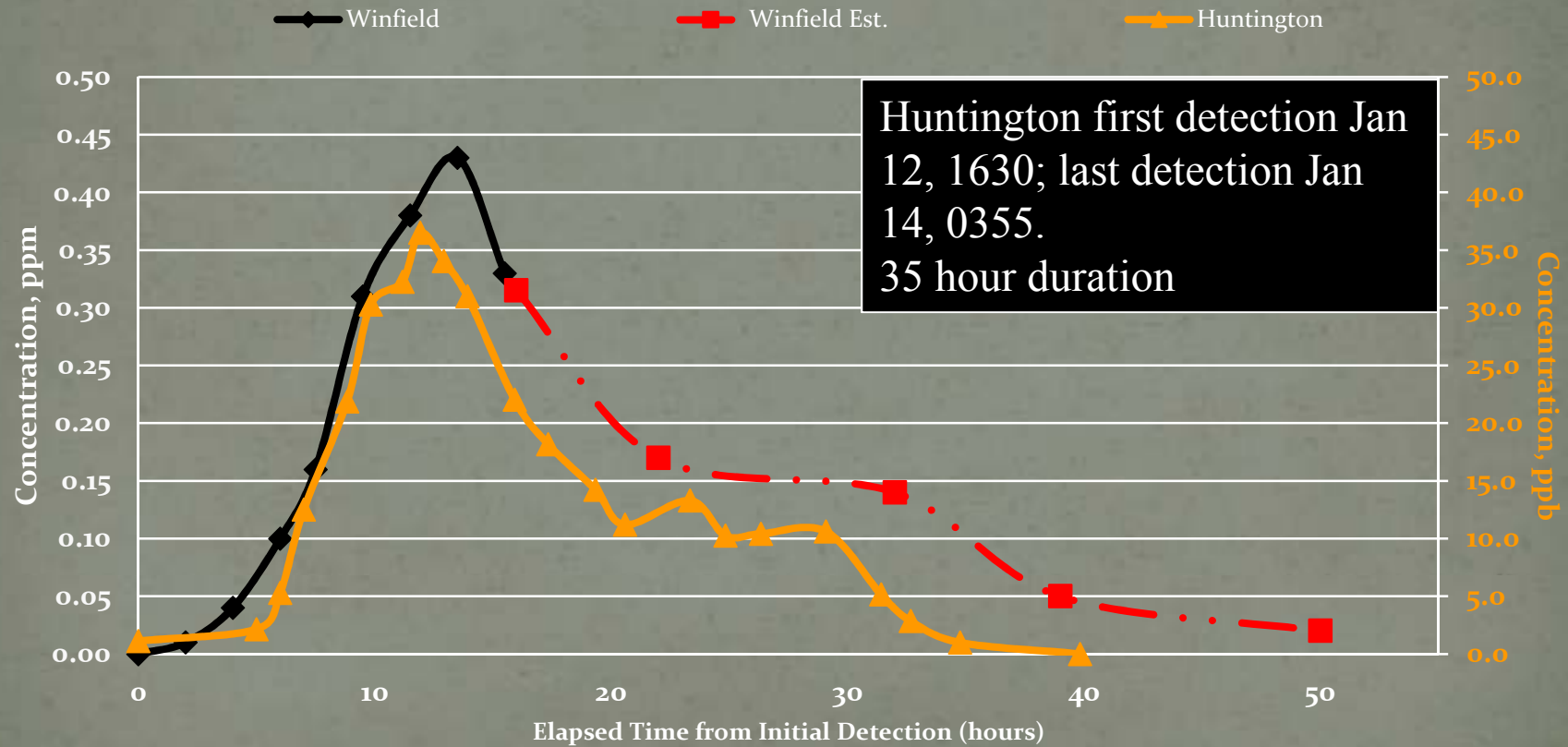
MCHM Concentrations



Winfield – Huntington Comparison

KRM 31 ORM 304 = 99 river miles

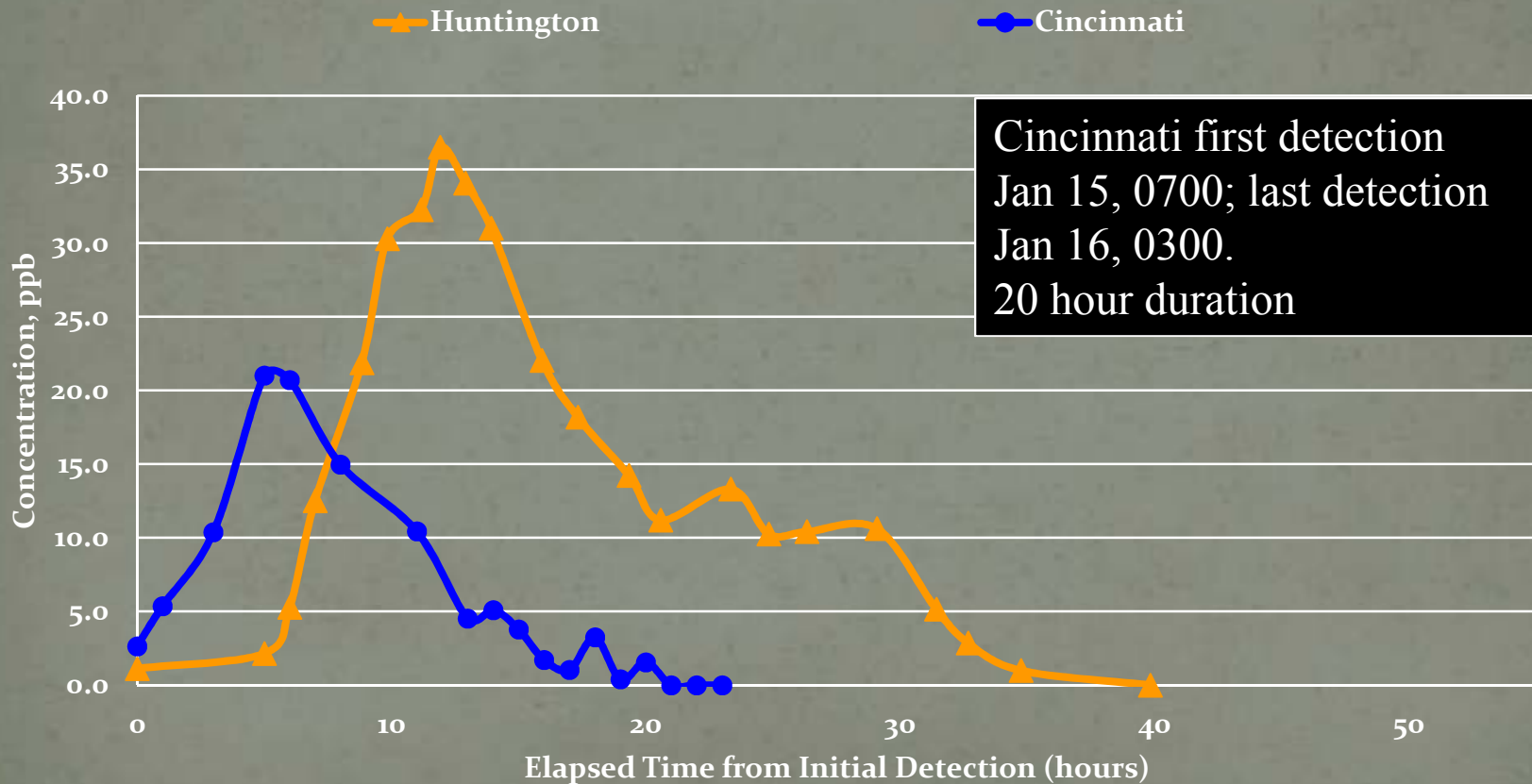
MCHM Concentrations



Huntington - Cincinnati

ORM 304 ORM 463 = 159 river miles

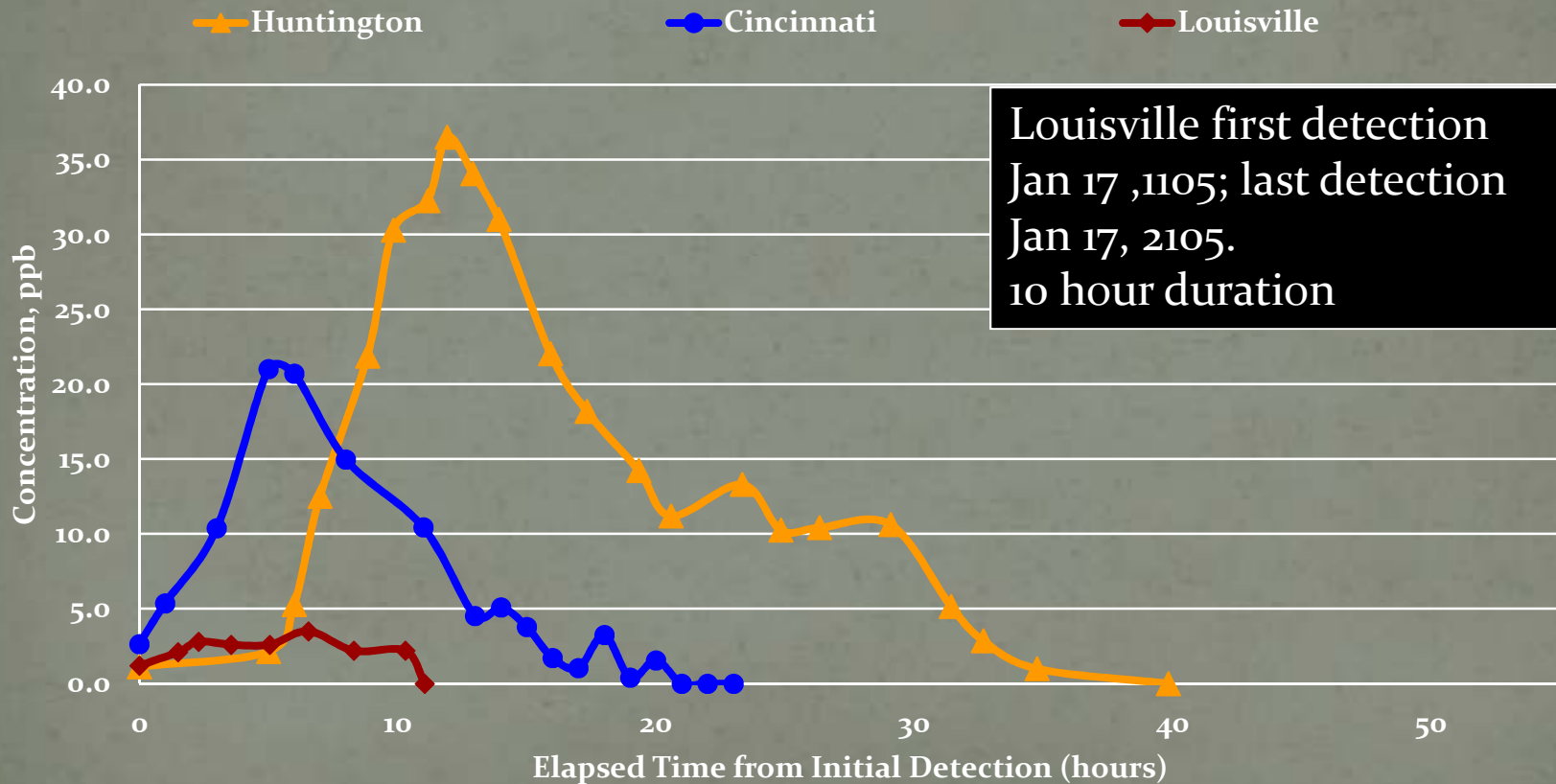
MCHM Concentrations



Huntington - Cincinnati - Louisville

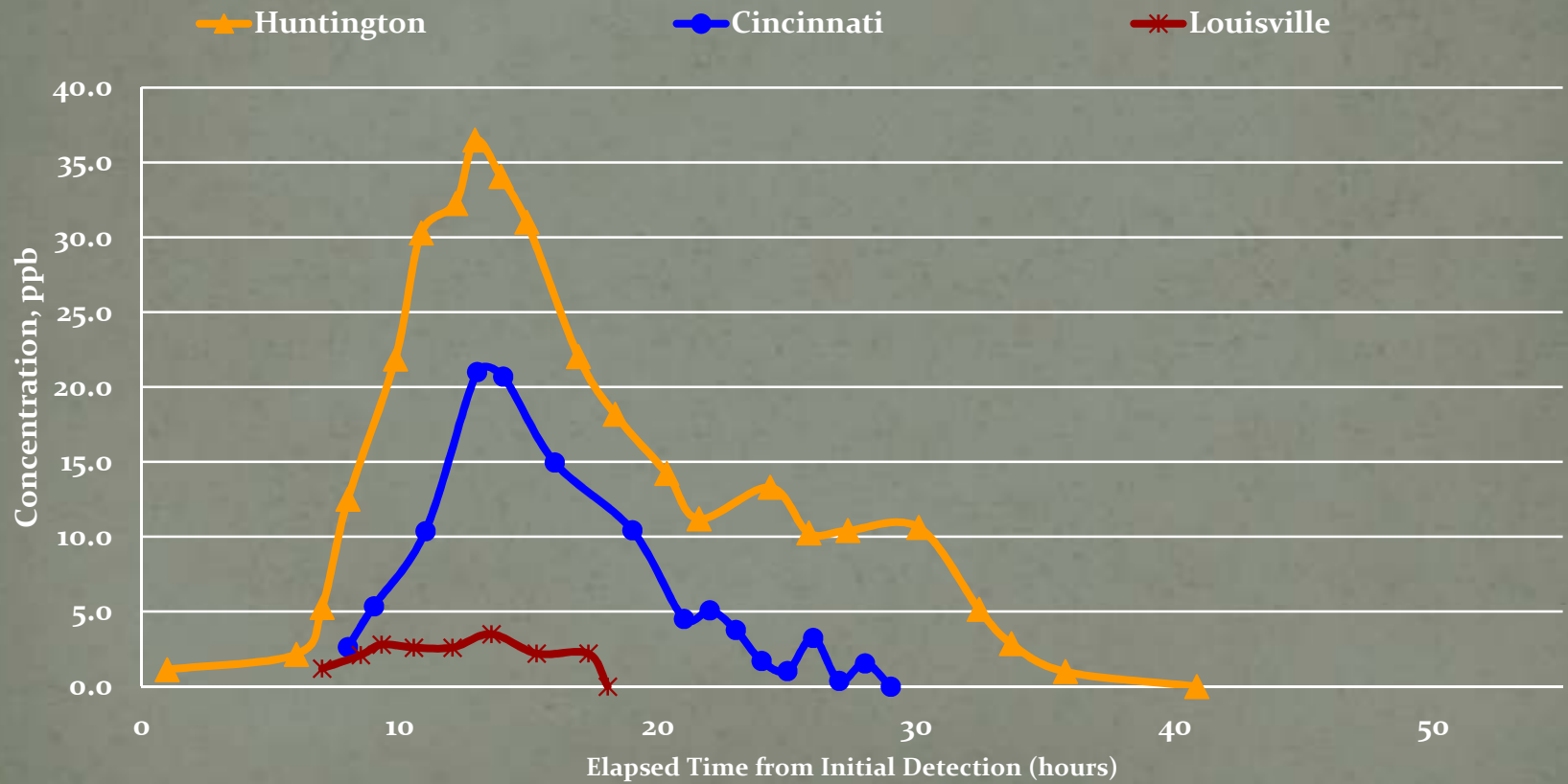
ORM 304 ORM 463 ORM 600 = 296 river miles

MCHM Concentrations



MCHM Plume Behavior

MCHM Concentrations

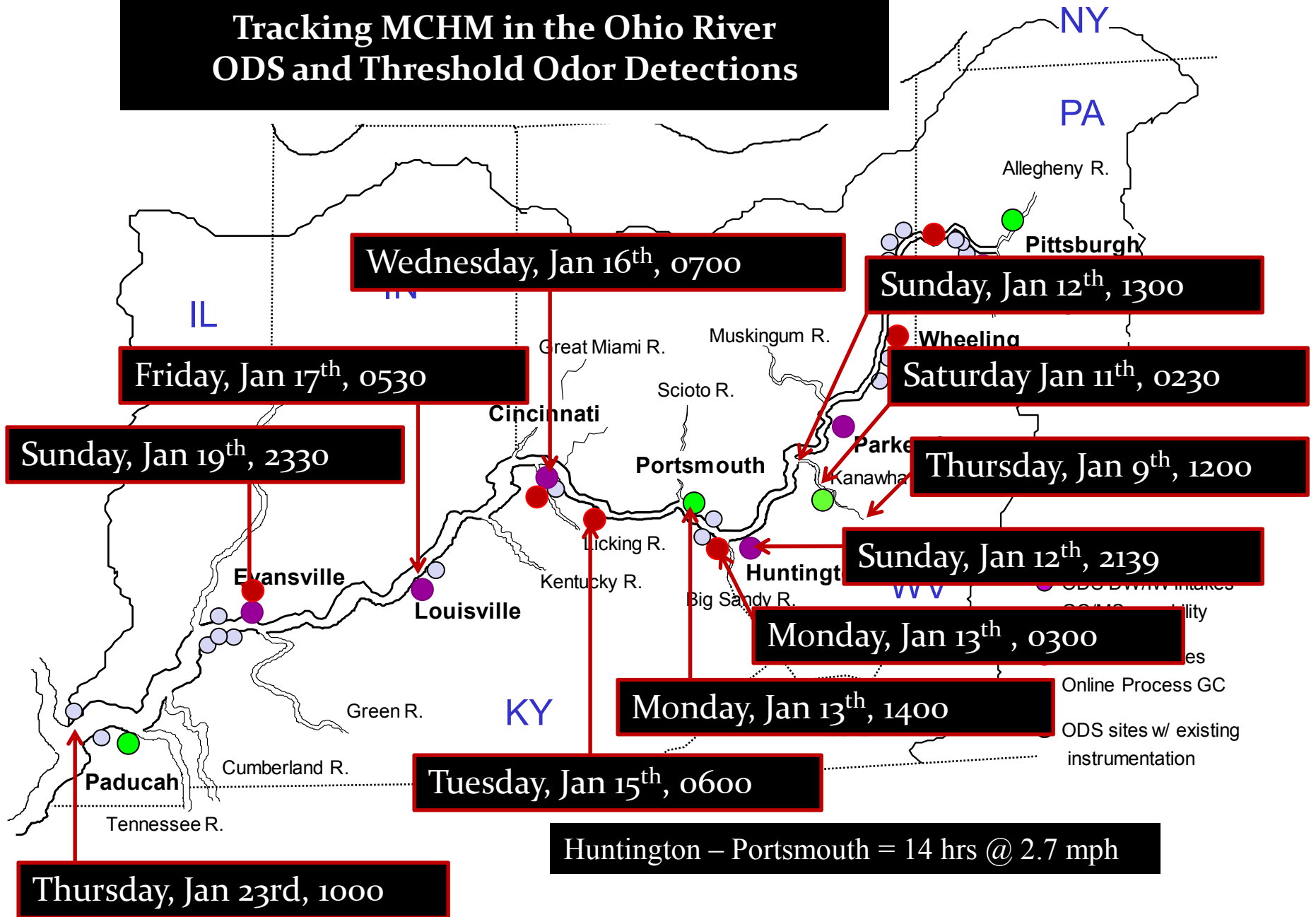


MCHM Plume Behavior

MCHM Dilution and Decay



Tracking MCHM in the Ohio River ODS and Threshold Odor Detections



Emergency Response Cooperation

- WVDEP
- WV American Water
- WV DHHR
- PA AM Water
- KY DOW
- KY Office of DW/ER
- OH EPA
- OH Office of DW/ER
- Cincinnati Water Works
- Louisville Water Co.
- IDEM DW/ER
- Evansville Water
- ILEPA/ER
- IL American Water
- USCG Huntington
- USEPA 3, 4, 5
- ODS & H₂O utilities

Ohio River Focus Groups



Four Ohio River Focus Groups

- Upper River
 - Regions 3 - 5
 - Together 14 years!
- Huntington Area Spill Coordination Group
 - Newest, one meeting so far, second one scheduled
- Cincinnati Area Focus Group
 - 3 years, incident action plan
- Great River Spill Response Group

A Spill of National Significance

ENROLLED

COMMITTEE SUBSTITUTE

FOR

COMMITTEE SUBSTITUTE

FOR

Senate Bill No. 373

**Passed State Legislature
March 8, 2014**

**AN ACT to amend and reenact §16-1-2 and §16-1-9a of the Code of
West Virginia, 1931, as amended; to amend said code by**

Senator Manchin

II

113TH CONGRESS
2D SESSION

S. 1961

To protect surface water from contamination by chemical storage facilities,
and for other purposes.

**April 3, Senate
Environment and Public
Works Committee -
unanimously!**

To protect surface water from contamination by chemical
storage facilities, and for other purposes.

Representative Capito

1

113TH CONGRESS
2D SESSION

H. R. 4024

To protect navigable waters from contamination by chemical storage facilities,
and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 10, 2014

Mrs. CAPITO introduced the following bill; which was referred to the
Committee on Transportation and Infrastructure

A BILL

To protect navigable waters from contamination by chemical
storage facilities, and for other purposes.

What do they do?

- Directs States to establish new oversight and inspection programs aimed at chemical storage facilities.
 - Unfunded
- Notification of downstream public water supplies
- All chemical inventory information to state agency
 - Make available to drinking water utilities