

# Toxic Floodwaters:

## The Threat of Climate-Driven Chemical Disaster in Virginia's James River Watershed

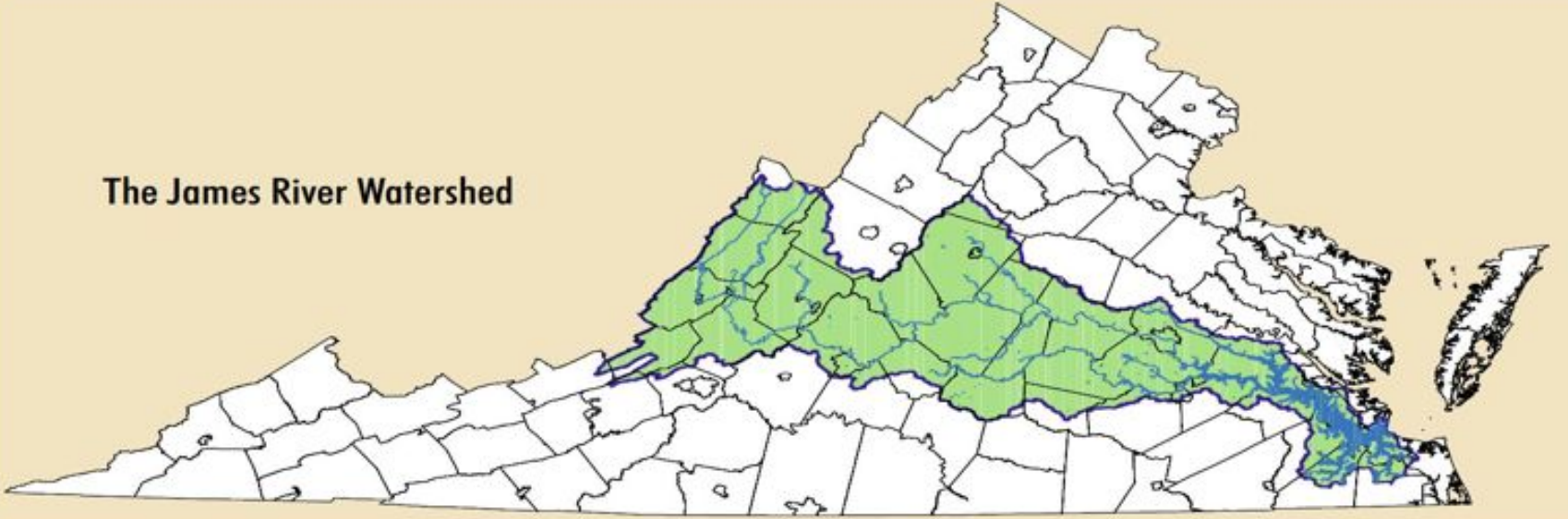
Noah M. Sachs, University of Richmond School of Law

Jamie Brunkow, James River Association

David Flores, Center for Progressive Reform

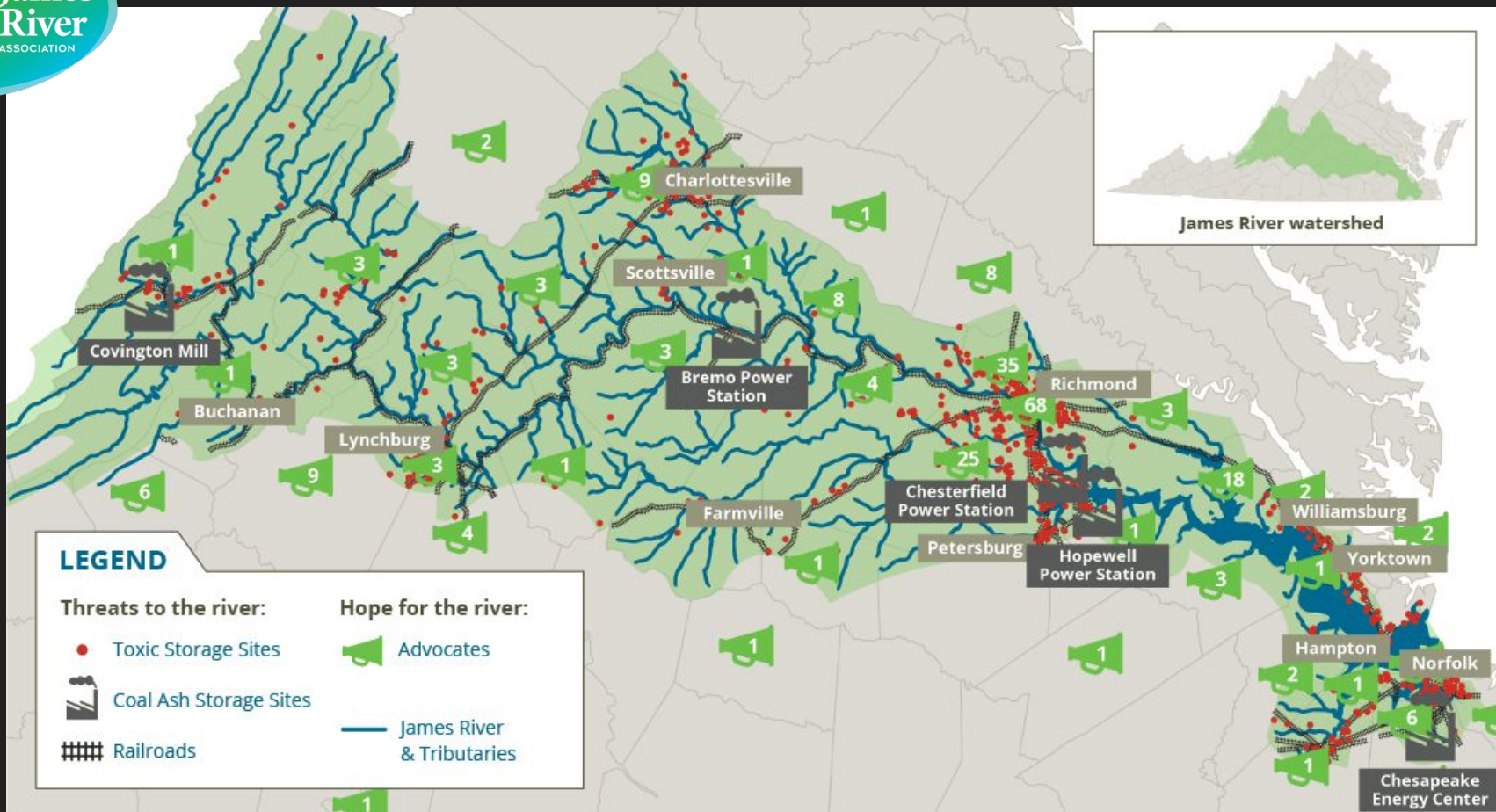


## The James River Watershed



- 10,000 square miles
- 25% of Virginia
- Home to 1/3 of Virginians – 3 million people
- Encompasses 38 counties and 21 cities

# River At Risk Campaign - 2014



# 2019 Coal Ash Legislation In Virginia



State lawmakers passed legislation that calls for the full removal of 28 million tons of coal ash from leaking ponds across the Chesapeake Bay watershed.








## **BREAKING NEWS**

**SIX ADDITIONAL CHEMICAL STORAGE CONTAINERS  
COULD EXPLODE AT ANY TIME AT FLOODED TX PLANT**

**LIVE**



**MSNBC**

BLICAN CONGRESSIONAL SOURCES TELL NBC NEWS 

**9:26 PM ET**







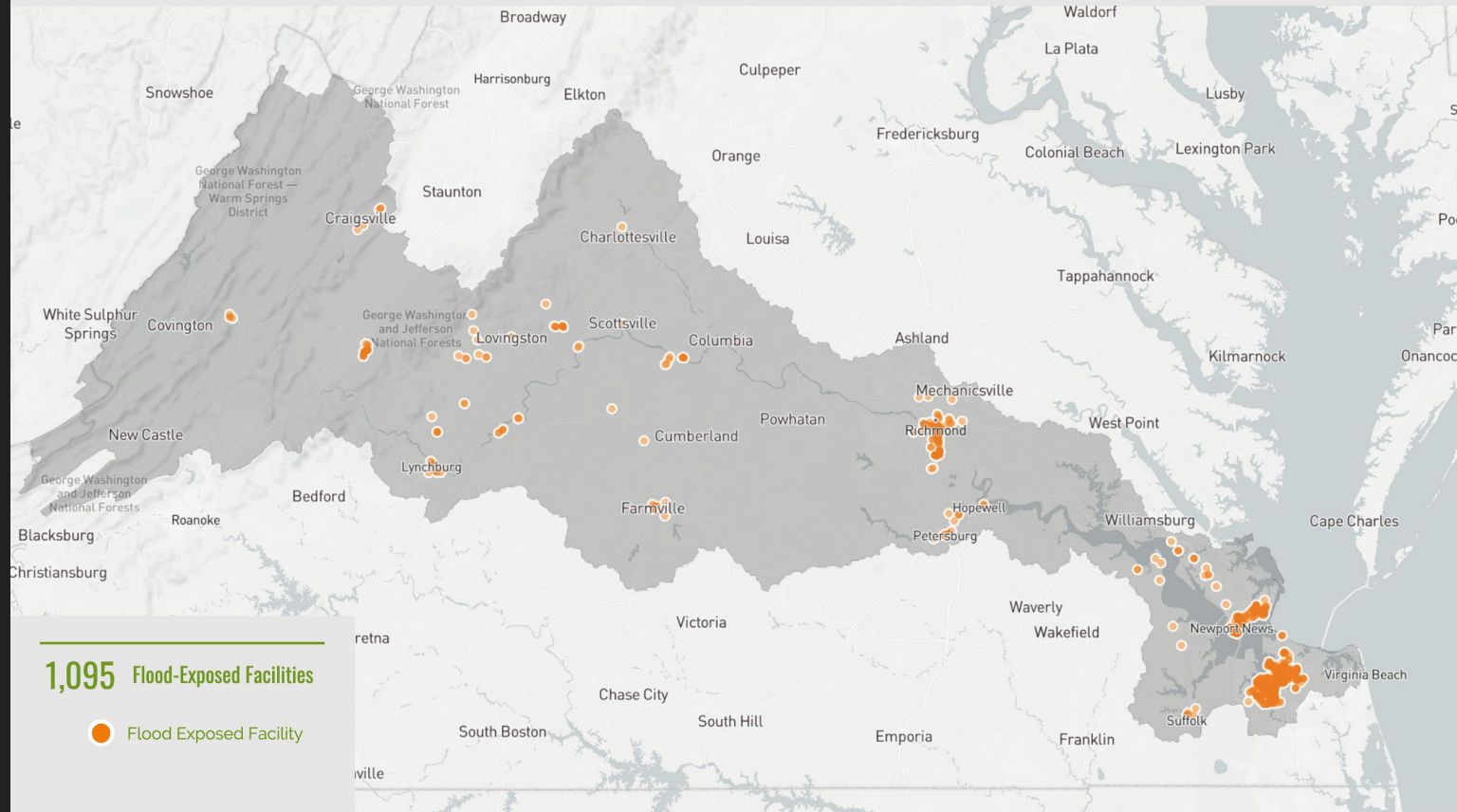


# Toxic Floodwaters Model

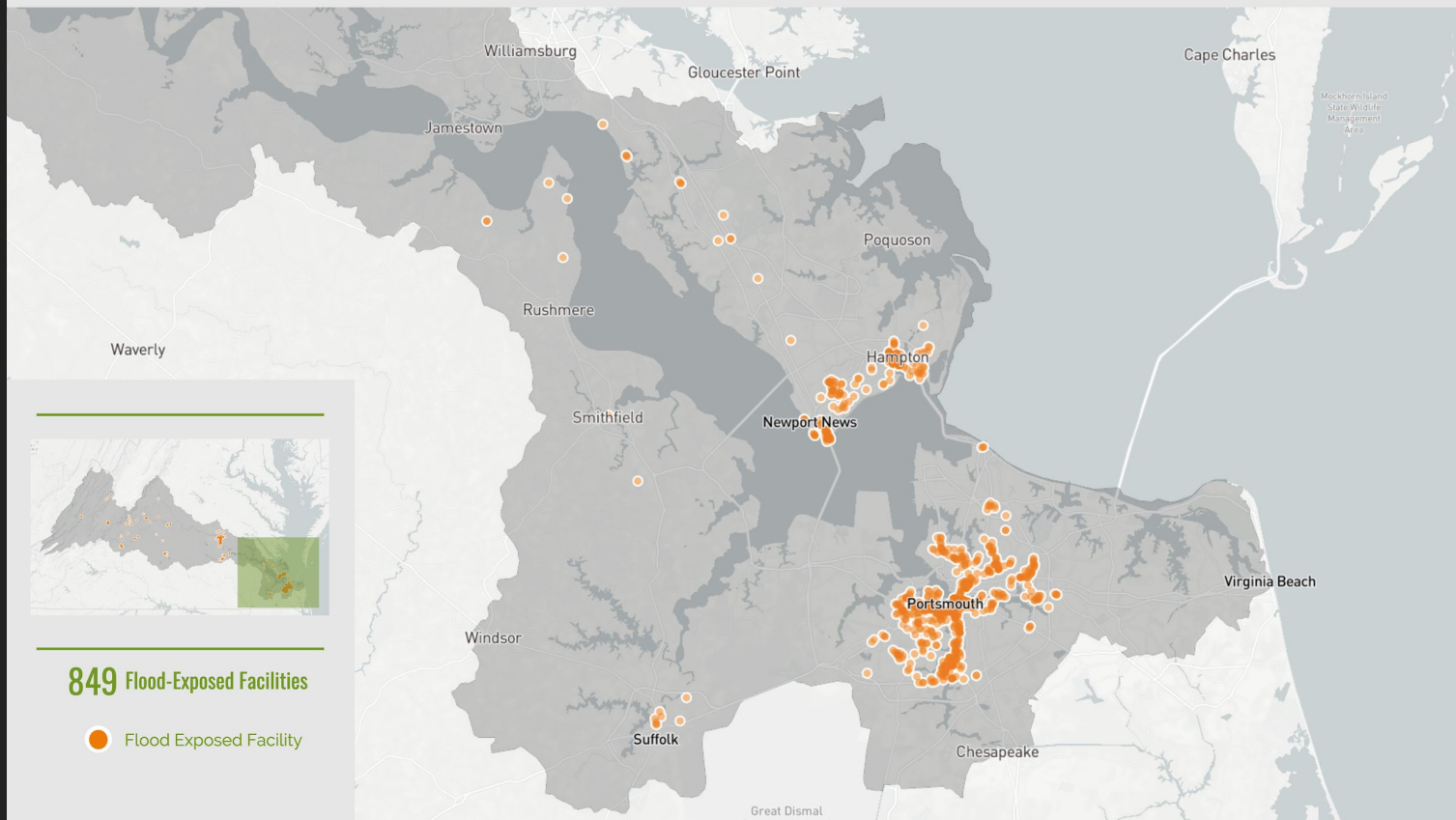
- Geography:
  - James Watershed
  - CDC SOVI
- Sites:
  - EPA FRS
  - DEQ VEGIS
- Exposures:
  - NOAA SLOSH
  - NOAA SLR
  - FEMA flood-zones



## Flood-Exposed Hazardous Chemical Facilities in Census Tracts Scoring in the Highest Quartile Nationally for Social Vulnerability Located in the James River Watershed

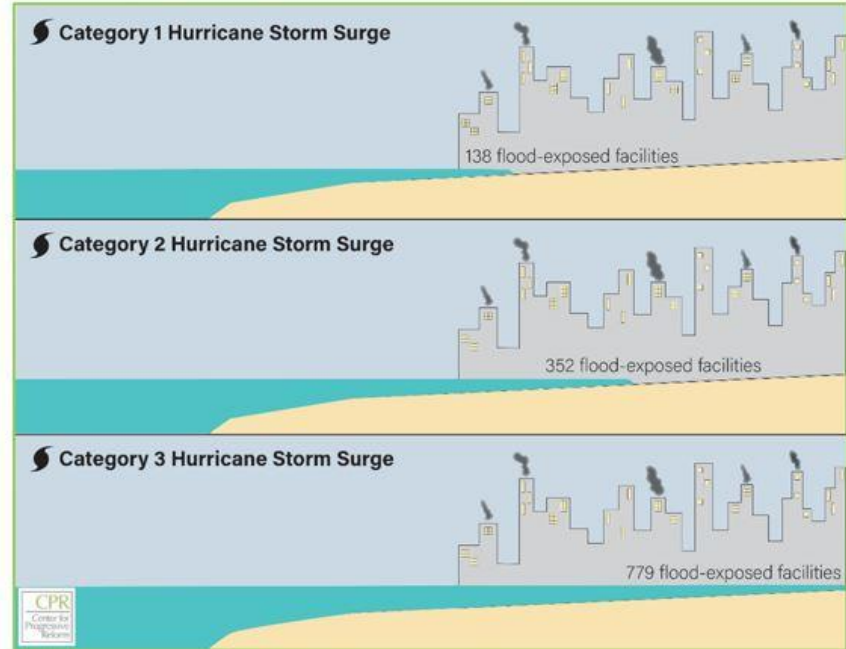


## Flood-Exposed Hazardous Chemical Facilities in Census Tracts Scoring in the Highest Quartile Nationally for Social Vulnerability Located in Hampton Roads, Virginia

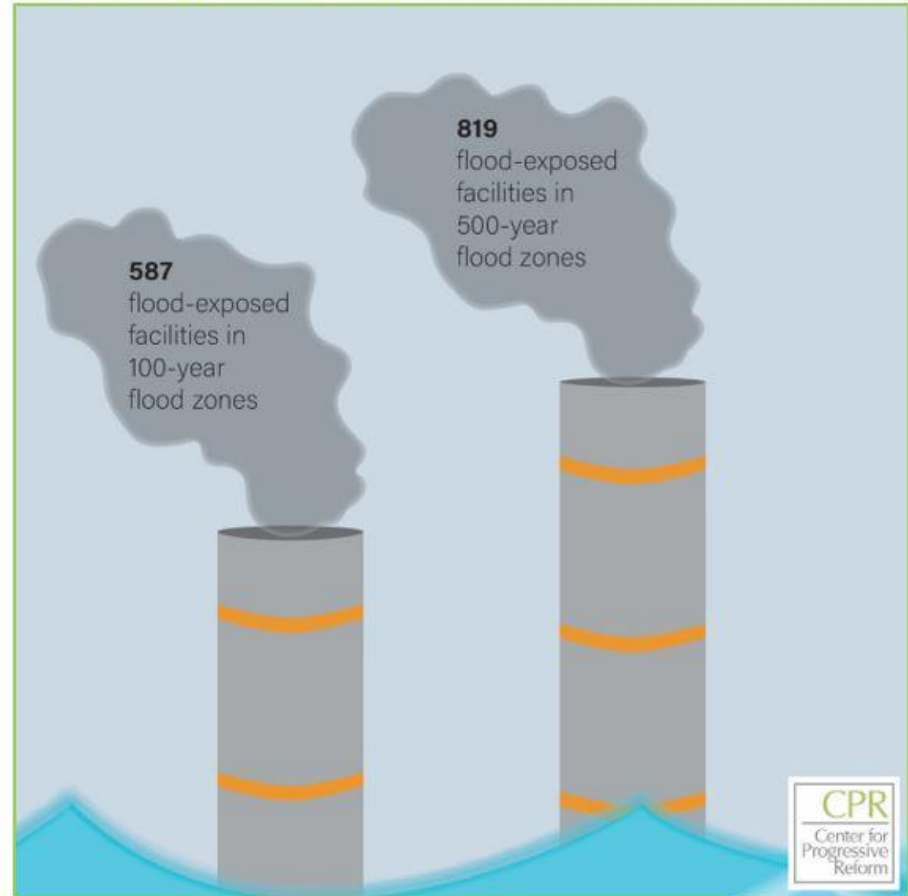




**Figure 1: Industrial Facilities Exposed to Flooding from Hurricane Storm Surge, James River Watershed**



**Figure 2: Industrial Facilities Exposed to Flooding from Rainfall Events, James River Watershed**



# Context for State Action on Toxic Floodwaters

- ❖ Clean Water Act, Clean Air Act, and Superfund not well-tailored to sudden flooding events
- ❖ Federal spill response plans apply only to the largest industrial facilities and oil storage tank sites.
- ❖ Chemical storage tanks still federally unregulated, despite 2016 consent decree ordering EPA to establish standards.
- ❖ The Virginia Code has comprehensive regulations for oil storage tanks, but not for chemical storage tanks.

# Why focus on above-ground storage tanks (ASTs) ?





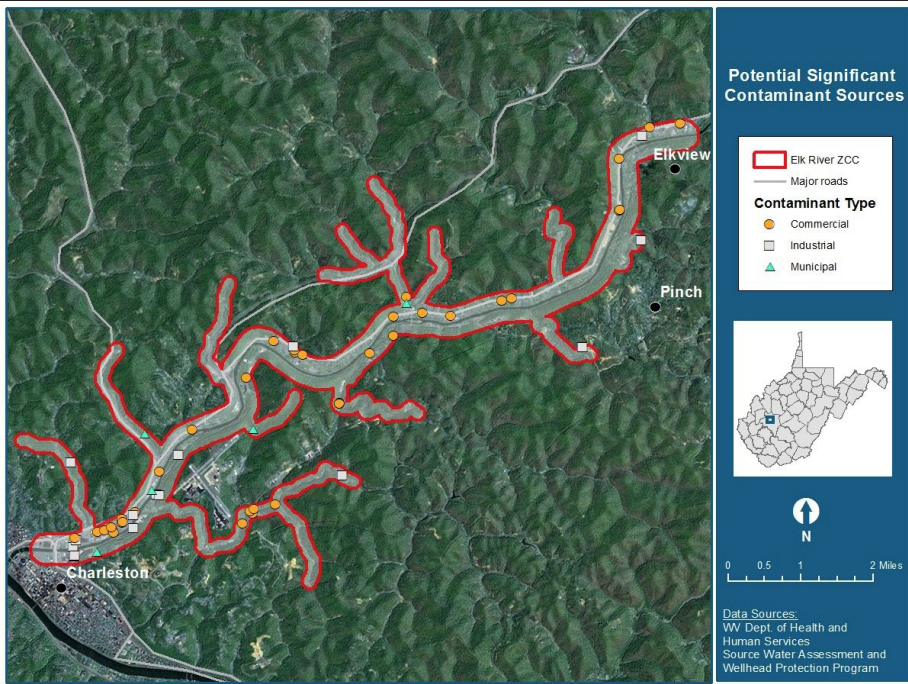
# 2014 West Virginia Legislation on ASTs



# 2014 West Virginia Legislation on ASTs

- . Inventory and registration of every tank holding 1320 gallons or more
- . Permitting requirements including leak detection, monitoring & labeling
- . Annual inspections by professional engineer for ASTs containing hazardous chemicals
- . Notice to local governments and public water systems if a company has a tank within a water supply's "Zone of Critical Concern" (ZCC)

# West Virginia -- Focus on Protecting Water Supplies



Type of potential significant contaminant source in the ZCC: Charleston	Count
Car dealerships	10
Gas stations	7
Permitted discharge pipes (outfalls)	5
Auto repair shops	4
Repair shops (engine, appliances, etc.)	4
Car washes	3
Equipment rental/repair shops	3
Sewage sludge/biological solids applications	3
Other	23
<b>Total</b>	<b>62</b>



# DEQ 2016 report on “Chemical Storage in the Commonwealth” required by SB811 (2015)

DEQ polled other states and found many state laws on chemical ASTs:

Minnesota	20,000 chemical ASTs
Pennsylvania	18,000 chemical ASTs
West Virginia	44,000 chemical ASTs

DEQ reported there are over 3800 facilities in the Commonwealth storing fuel or chemicals above 10,000 pounds (or above 50 pounds for Extremely Hazardous Substances)

# DEQ 2016 report on “Chemical Storage in the Commonwealth” required by SB811 (2015)

“There is a general lack of siting requirements for chemical storage tanks in near proximity to source [drinking] water areas”

A “key step” for regulation is “inventorying and registering a defined universe of chemical storage facilities and inventory of materials in Virginia.”

General Assembly should consider “information disclosure requirements” about “emergency response plans and chemical inventories” for tanks located in water supply areas.

# VCN Proposal for Legislative Reform on ASTs

- Establish a program for registration and regulation of chemical ASTs
- Model the program on the Commonwealth's existing regs for oil tanks:

Registration, reporting, and inspections

Standards for siting and construction of new tanks

Spill response planning that takes into account flood exposure

Financial responsibility requirements for operators of tanks

- HB1860 was previously introduced on this topic in 2017



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