

Disasters and Lessons

Risk = Prob. of Event x Severity of Event

Andrew Whelton, Ph.D.

awhelton@purdue.edu





Rapid public health scientific support in response to disasters

2014 Chemical Spill (WV)

2017 Tubbs Fire (CA)

2018 Camp Fire (CA)

2020 Oregon Fires (OR)

2021 Chemical Spill (HI)

2021 Marshall Fire (CO)

2023 Chemical Spill (OH/PA)

and others...

Key Questions:

1. What chemicals should be looked for?
2. Where did/do the chemicals go?
3. How do you return infrastructure/homes to safe use?
4. What were/are the chemical exposures?



January 10, 2014
Charleston, West Virginia

Charleston Daily Mail

Friday, January 10, 2014

Charleston, West Virginia, dailymailwv.com

50 cents ★★ 

Officials uneasy with proposal

■ *Lawmaker questions tapping into state's \$920 million reserve fund*

By **WHITNEY BURDETTE**
DAILY MAIL CAPITOL REPORTER

The Legislature got its first look at Gov. Earl Ray Tomblin's proposed budget Thursday, and members of the Senate did not appear pleased that the state is poised to take nearly \$84 million from the state's Rainy Day Fund.

Senate Finance Committee chairman Sen. Roman Prezioso, D-Marion, noted this isn't the first year budget officials are forecasting a shortfall and asking for cuts.

Tomblin has already enacted a hiring freeze and midyear budget cuts to ease a projected shortfall during the current budget year.

"You're projecting at the end of this year another \$60 million short, so in the last two years you've been short about \$150 million in estimates," Prezioso told State Budget Director Mike

Leak taints water supply



BOB WOJCIESZAK/DAILY MAIL

Kanawha County residents affected by the West Virginia American Water contamination flooded retailers to buy bottled water Thursday night.

Affected residents warned to avoid

ated by a chemical leak early Thursday.

The chemical leak was stopped about two hours after it was reported.

secondary barrier and seeped through the ground and into the river, according to state officials.

Gov. Earl Ray Tomblin urged affected West Virginia American

cludes restaurants, hospitals, any institutions out there — please do not use any tap water if you're a customer of West Virginia American Water.

Law said hospitals and nursing homes likely would continue to operate as they typically have supplies for emergency situations.

**November 8, 2018
Butte Co, California**





**December 30, 2021
Boulder Co, Colorado**

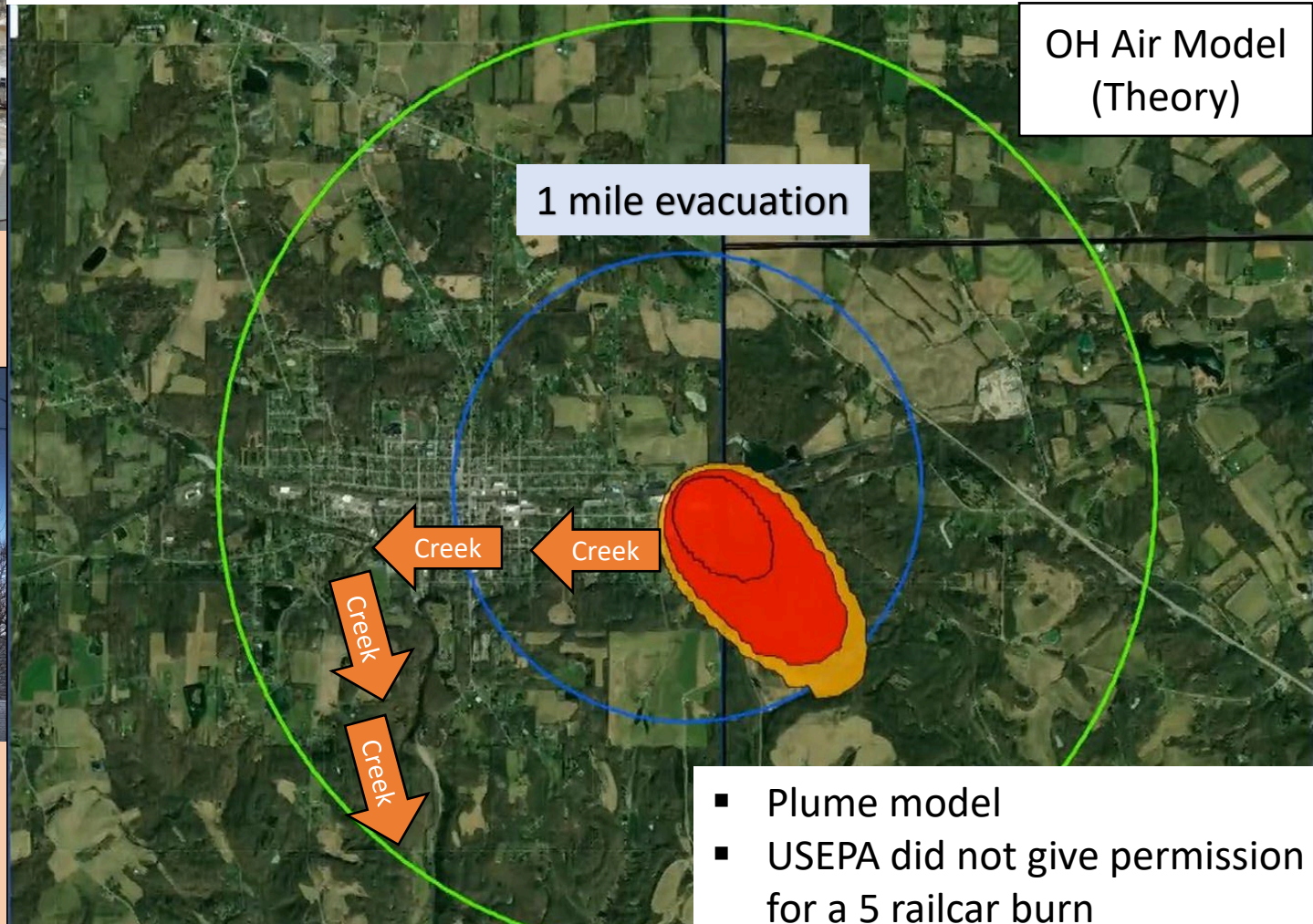




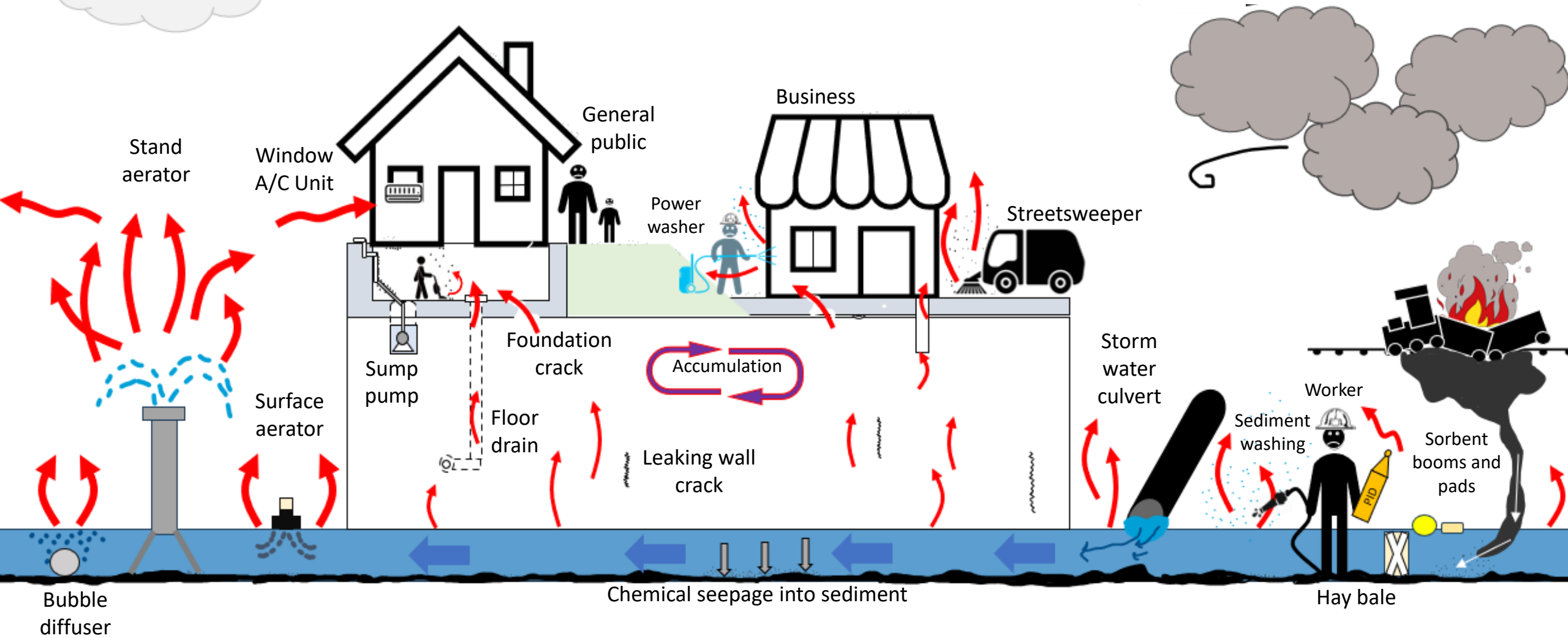
East Palestine, Ohio Chemical Spill and Chemical Fires



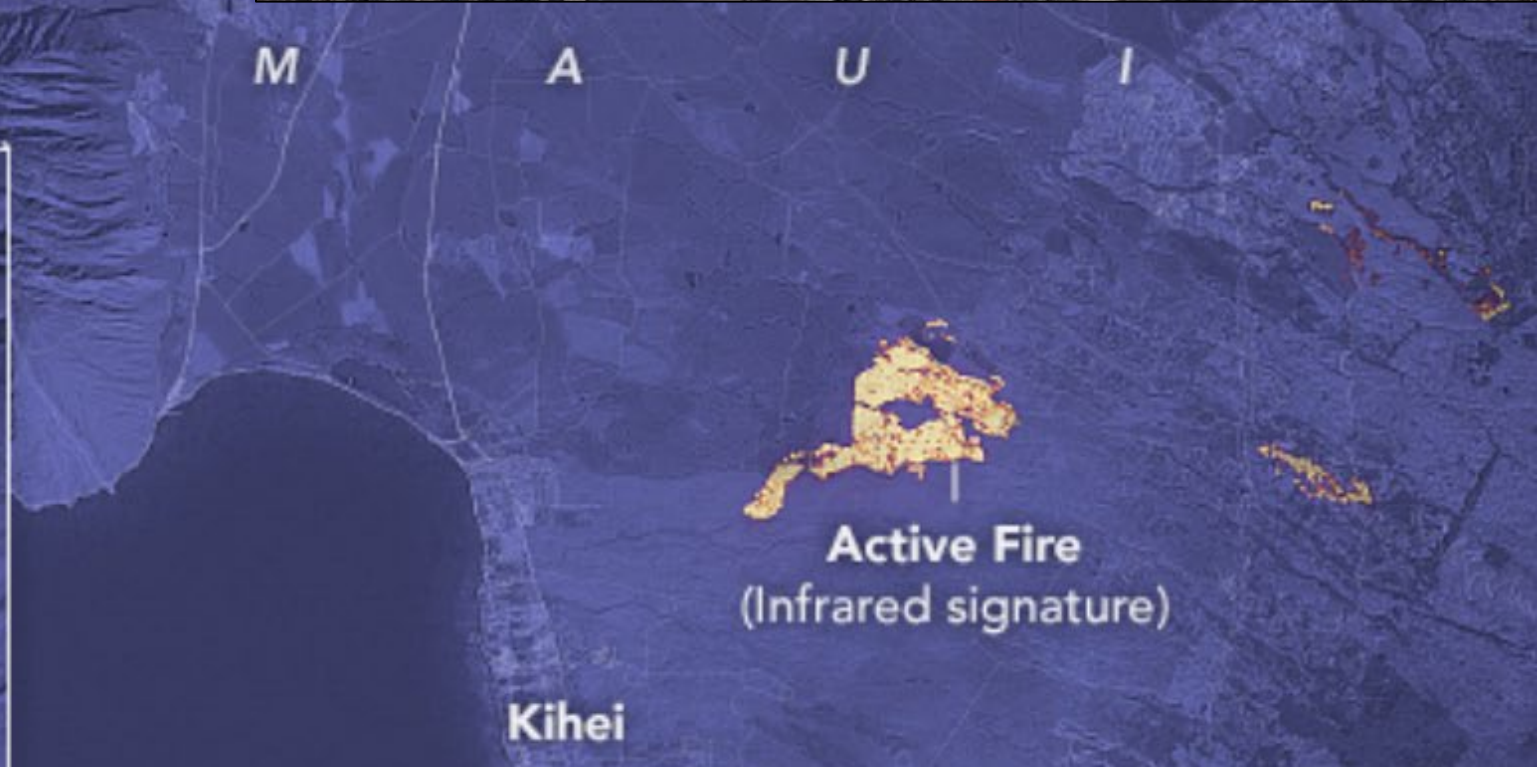
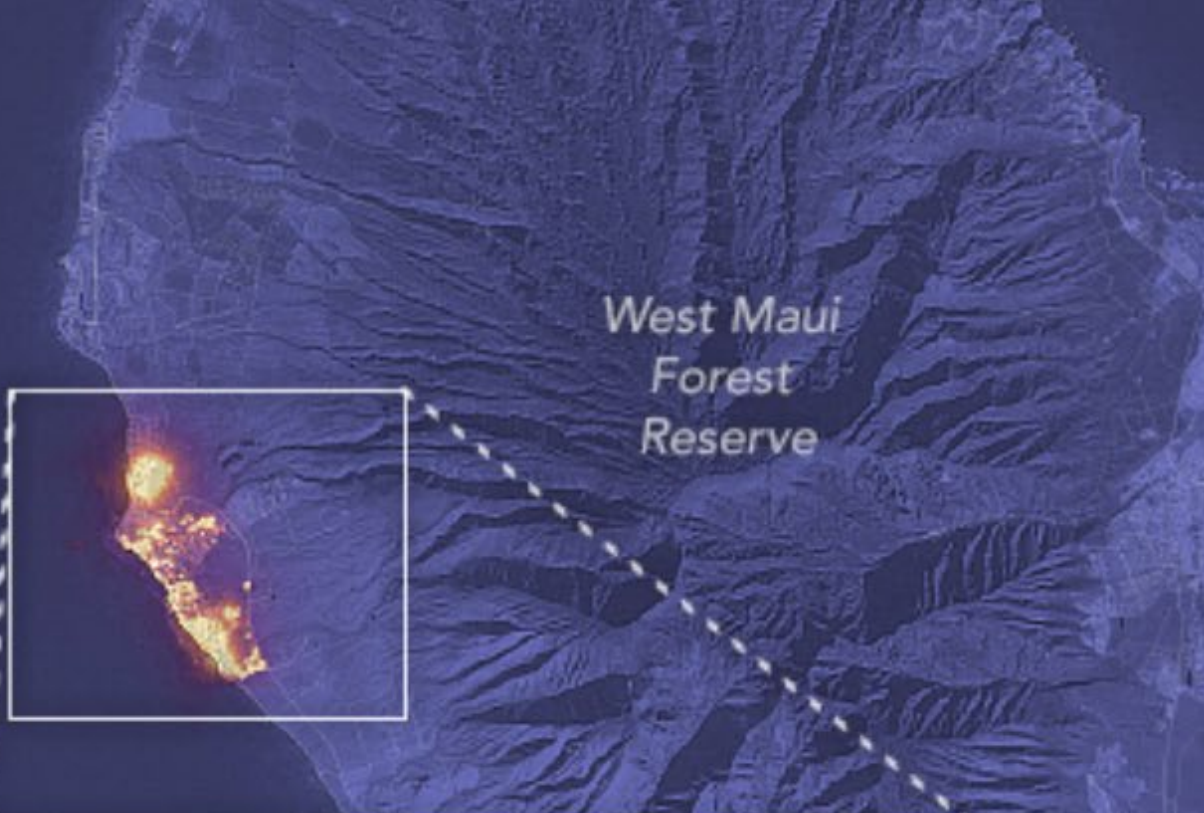
149 rail cars, 38 derailed
11 derailed were combustible liquids,
flammable liquids, and flammable gas.



The BIG picture: There were multiple chemical exposure pathways immediately following the disaster and during cleanup operations.



Illness: CDC employees, US Sen. Vance Office, PA Sen. Mastriano, USEPA contractor, RR workers, residents, me, and more...



A Few Lessons

1. Immediate assistance from nearby communities is critical (Fire, EMS, utility, health agencies) .
2. After search and rescue, you must have the experts on-hand to directly advise decision makers for public health warnings and guidance.
3. Experts are needed to help define the hazards and warn the public.
4. Experts are needed to provide feedback on how to test and restore the system(s) to safe use.
5. Leaders must listen to the community and seek an all-hands-on-deck approach (policy, science, health, logistics) outside routine channels.
6. Policy decisions sometimes take priority over public safety and preventing chemical exposures.

Planning ahead, if you cannot control the probability of the event occurring, reduce the consequence so the overall health and environmental risks are reduced

***The world is a better place
when people help one
another.***

***Files and results to be
available at***

www.PlumbingSafety.org

Funded by many
organizations nationwide



Andrew Whelton, Ph.D., awhelton@purdue.edu

***We the appreciate financial support:
<https://crowdfunding.purdue.edu/project/36991>***