

Water Quality Impacts of Coal Ash Disposal

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1. What are the major ash pollutants? How are they created? Where do they go?
2. Pollutant controls: Common technology for coal-fired power plants.
3. Legal: How are pollutants regulated?
4. What you can do.

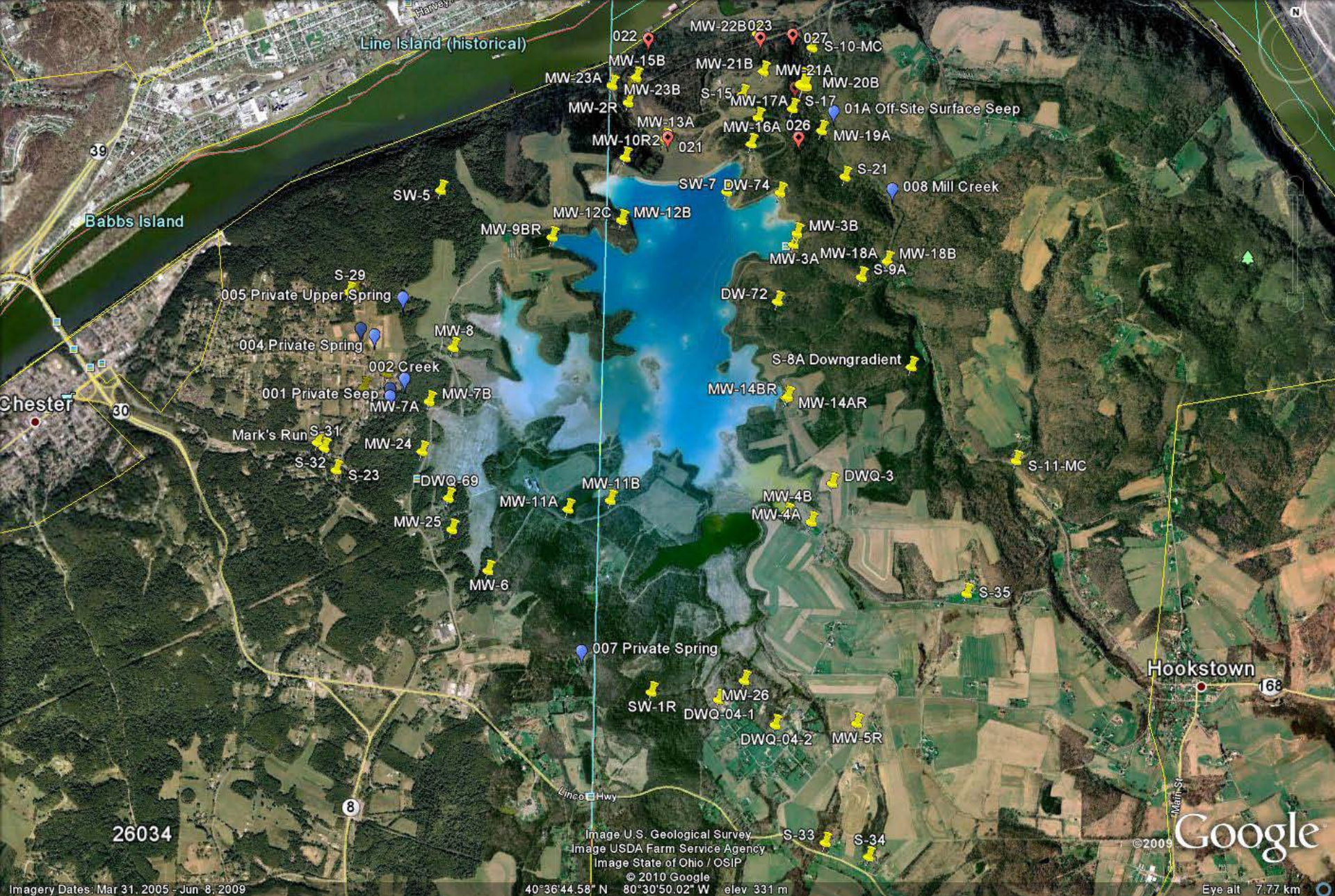




Legend

- EIP & EJ Damage Cases¹
- 📍 Sierra Club Damage Cases²
- 📍 2010 EPA Damage Cases³

Jeff Stant, Aug. 26, 2010, *IN HARM'S WAY: Lack Of Federal Coal Ash Regulations Endangers Americans And Their Environment*. Environmental Integrity Project, Earthjustice and Sierra Club

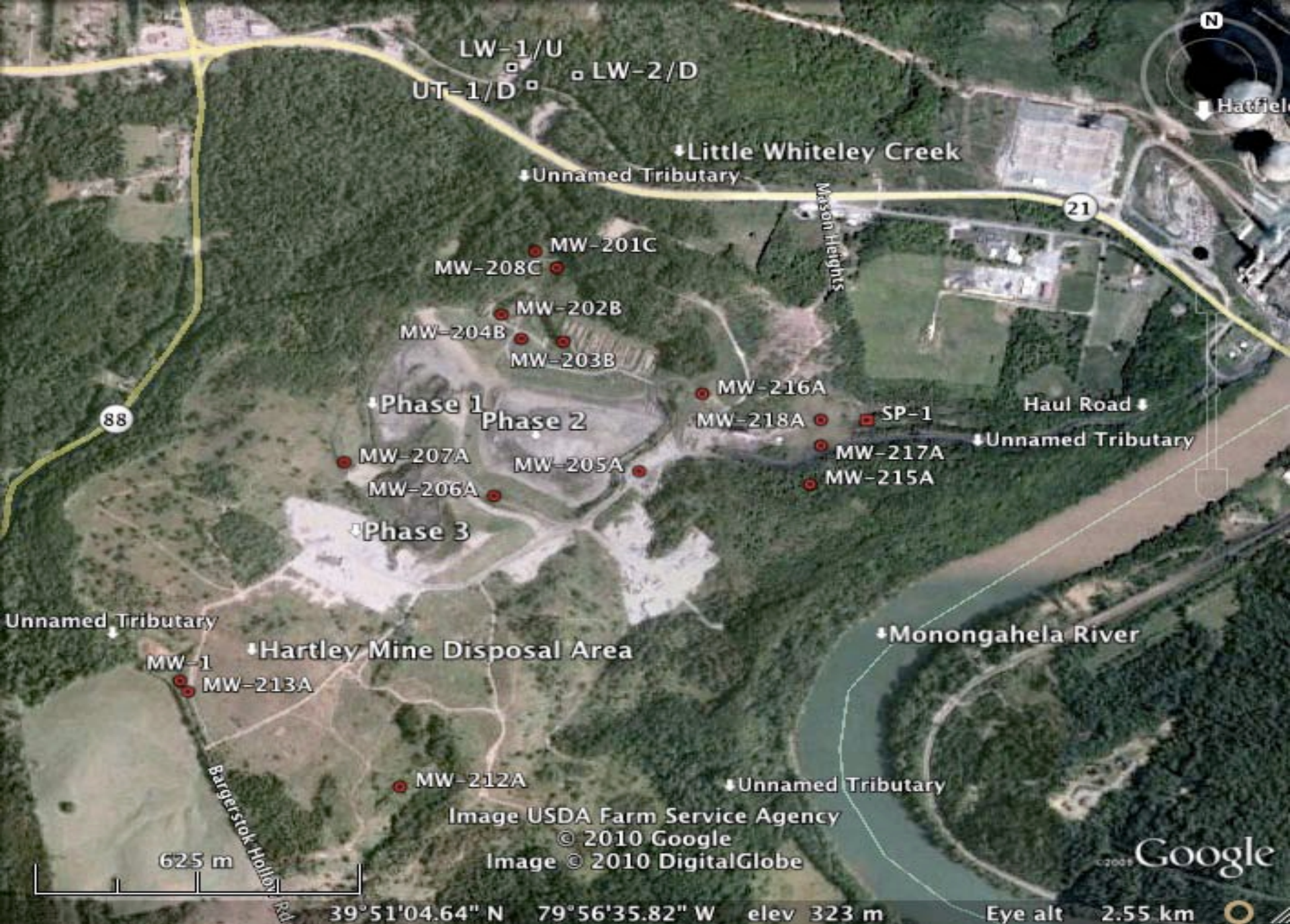


**FirstEnergy, Bruce Mansfield Power Plant's Little Blue Run Surface Impoundment
Greene Township, Beaver County, PA and Grant District, Hancock County, WV**

Little Blue Run Impacts

- **Arsenic, Cadmium, Barium, fluoride, Thallium, hexavalent chromium, lead, antimony, selenium, boron, and more.**
- **Largest impoundment east of the Mississippi River (1300 acres).**



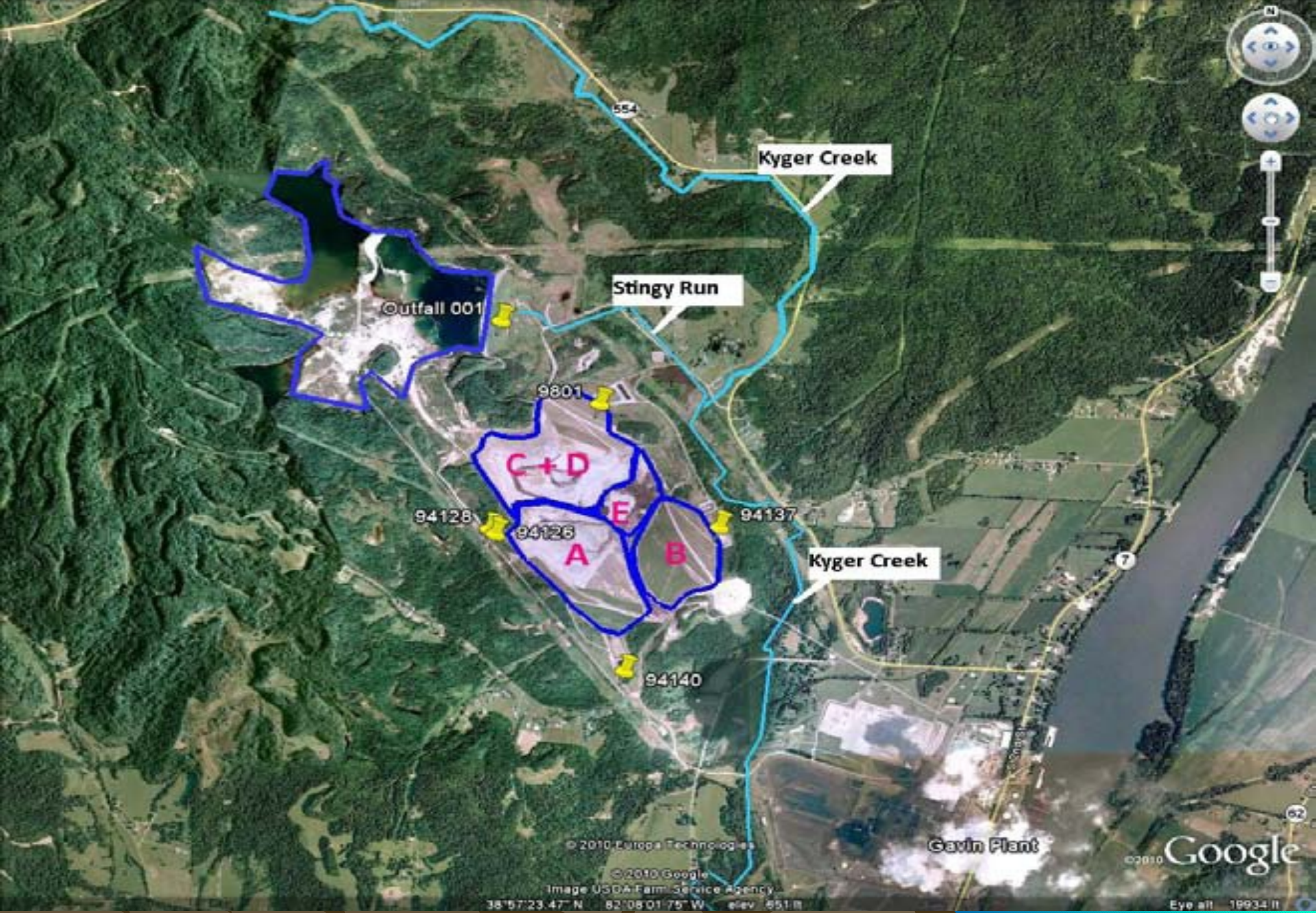


Hatfields Ferry, Masontown, PA. 40-acre impoundment & wetlands.

Hatfields Ferry Impacts

- **Arsenic, aluminum, boron, chromium, manganese, molybdenum, sulfate, and total dissolved solids (TDS)**
- **Consent Order in 2008 authorizes continued exceedances of MCLs.**





Gavin Plant, Cheshire, Ohio.

Gavin Impacts

- **Arsenic, barium, cadmium, molybdenum and lead.**
- **Alpha activity almost 100 times MCL.**
- **225 acres, 700 feet high.**
- **“High hazard” impoundment proposed for closure.**



Morgantown Energy Associates Power Plant

**CFB waste
Dumped on
Mine lands in
Mon County**



Boiler Technology

- **PC** = Pulverized Coal. Coal is ground to a powder & blown into furnace. Pollution controls are “added on” after the boiler. (pre-1970)
- **CFB** = Circulating Fluidized Bed. Coal is blown onto a high temp. bed of “liquified” limestone. Limestone captures SO_2 and other pollutants. Can burn very low grade coal and other waste fuels. (1970s & 1980s).
- **IGCC** = Integrated Gasification-Combined Cycle. Coal is gasified to CH_4 and CO . Most energy efficient combustion, lowest emissions because most pollutants are removed in gasifier and do not enter the boiler.



4 Types of Coal Combustion Wastes

1. Bottom Ash – Heaviest particles in furnace (slag)
2. Particulates – (AKA Fly Ash) controlled by:
 - A) electrostatic precipitators or
 - B) filter fabric baghouses.
3. Circulating Fluidized Bed Combustors. Excess lime, rock ash, and gypsum.
4. Flue Gas Desulfurization waste, from SO_2 control (AKA “scrubbers”).
 - A) Wet scrubbers use slurry of limestone and water, gypsum settles to bottom as wet “ash”
 - B) Dry scrubbers spray lime into exhaust stream and collect gypsum as dry particles in baghouse or EP.



How are Pollutants regulated?

- Current rules –Solid waste landfills or impoundments.
 - Exemptions for “Beneficial Use”
- EPA’s proposed Rules
 - Subtitle D. “Neglect”. Maintains state regulation.
 - Subtitle C. “Protect”. Designates coal ash as “special” waste with federal oversight as a hazardous material.



New Study: EPA Erred in Economic Analysis, Biased Towards Ash “Recycling”

- EPA exaggerated the benefits of ash recycling, by as much as 20-fold.
- EPA attributed energy savings from coal ash recycling in amounts four times the total energy use of the ash recycling industry.
- Correct analysis shows that regulating ash as hazardous is the most cost-effective approach.
- EPA’s biased analysis based entirely on unsubstantiated Industry “fear-mongering”.



“Beneficial Uses” under EPA’s Proposed rules.

- Largely exempted from federal oversight.
- Mineland applications regulated by OSM, new rules may be proposed some day.
- WV Sierra Club urges strengthening of EPA’s proposed rules to close loopholes.



New Hill and Coresco Mine Permits

- New Hill Mine: Expansion of existing surface mine in Morgantown. Proposed application of up to 10,000 tons per acre of coal ash (CFB waste from MEA).
- Local residents and Sierra Club appealed NPDES permit. (TDS, Heavy Metals, TCLP, etc.)
- Stay of blasting received Nov. 18.
- Coresco proposes a 300-acre fill next to Longview power plant.



What You Can Do

- Learn about the ash disposal sites in your state, how they are regulated and what monitoring shows. More people will become active if you point out the issues in their back yard.
- Ask EPA to adopt stringent federal regulation of coal ash as hazardous, and ask that they also close the beneficial use loopholes.
- Urge Congress and state leaders to protect public health and support regulation of coal ash.



To Learn More:

- **Sierra Club Coal Ash Page.** <http://www.sierraclub.org/coal/factsheets.aspx>
- **“In Harm’s Way”.** 2010 Jeff Stant. Environmental Integrity Project.
http://www.environmentalintegrity.org/news_reports/documents/INHARMSWAY_FINAL3.pdf
- **“Out of Control”.** 2010. Stant. Environmental Integrity Project.
http://www.environmentalintegrity.org/news_reports/documents/OutOfControl-MountingDamagesFrom
- **“Failing The Test”.** Lisa Evans. 2010. EarthJustice.
http://www.earthjustice.org/sites/default/files/library/reports/failing_the_test_5-5-10.pdf
- **Coal Ash. (Health Effects) 2010.** Gottlieb, et al.
EarthJustice & Physicians For Social Responsibility.
http://www.earthjustice.org/sites/default/files/files/CoalAsh_Earthjustice.pdf
- **Waste Deep. (Filling Mines with Ash.)** Earth Justice.
http://www.earthjustice.org/sites/default/files/library/reports/earthjustice_waste_deep.pdf



More ash landfills upstream of Huntington

- **Big Scary (AKA, John Amos)**
- **Kammer/Mitchell**
- **Mine Land disposal (70-80 sites known in Monongalia, Marion and Preston counties.)**



More Pollution Control Technology

NOx

- Low-NOx burners (adjust temp to reduce NOx formation).
- SNCR = Selective Non-Catalytic Reduction, uses ammonia to “reduce” NOx to N₂ and H₂O.
- SCR = Selective Catalytic Reduction. Adds catalysts for much higher efficiency of control (BACT).

Mercury

- 30-60 % removal with wet scrubber & baghouse
- 90+ % removal with Activated Carbon Injection.



Climate Change Is Real

- The “evidence for warming of the climate system is unequivocal”. (IPCC 2007).
- “A strong, credible body of scientific evidence shows that climate change is occurring, is caused largely by human activities, and poses significant risks for a broad range of human and natural systems.” (NRC 2010).

