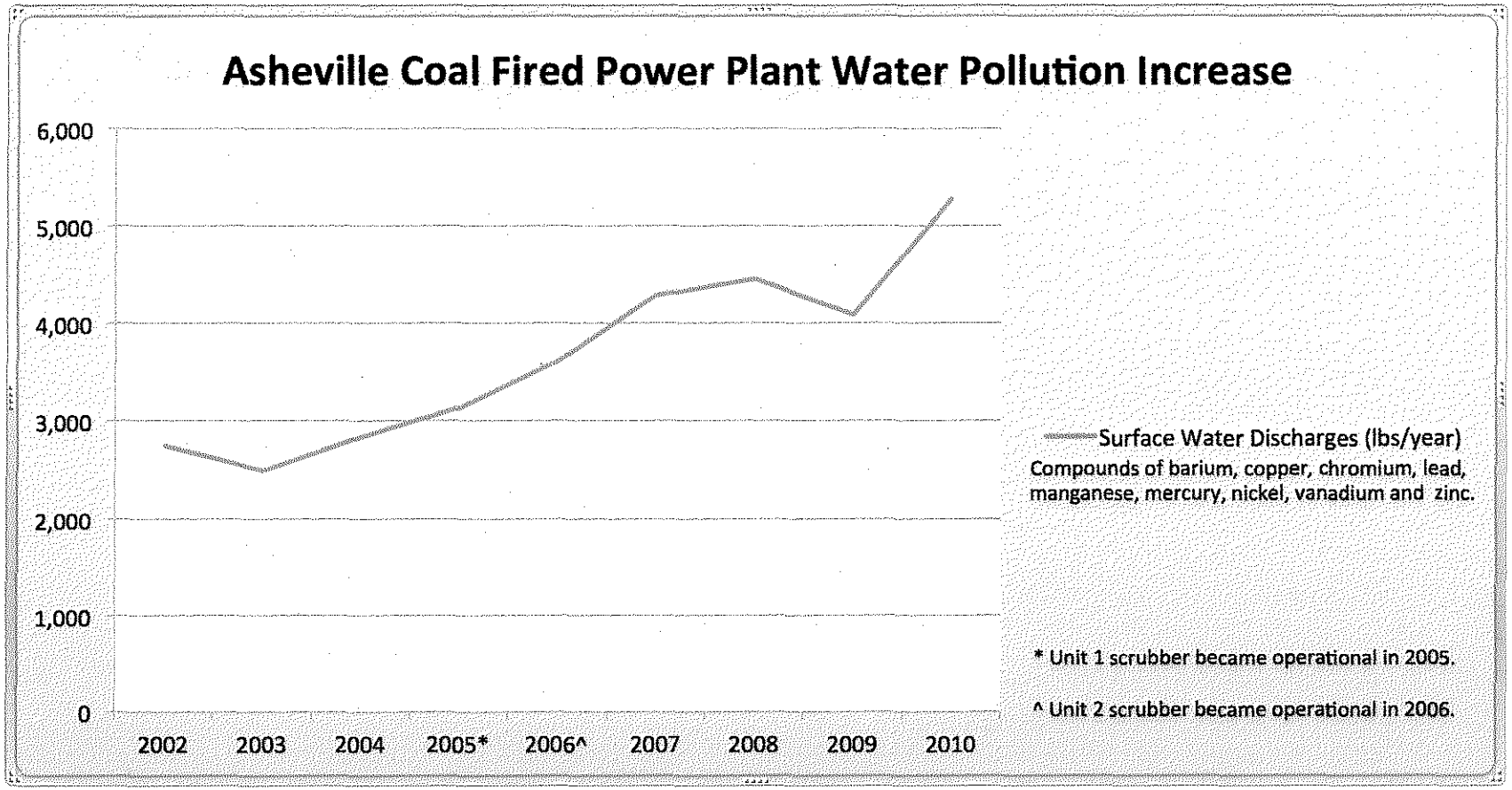
Asheville Coal Fired Power Plant Water Pollution Increase
6,000
5,000
4,000
3,000
2,000
1,000
0
2002
2003
2004
2005*
2006^
2007
2008
2009
2010
Surface Water Discharges (lbs/year)
Compounds of barium, copper, chromium, lead, manganese, mercury, nickel, vanadium and zinc.
* Unit 1 scrubber became operational in 2005.
^ Unit 2 scrubber became operational in 2006.


TENNESSEE
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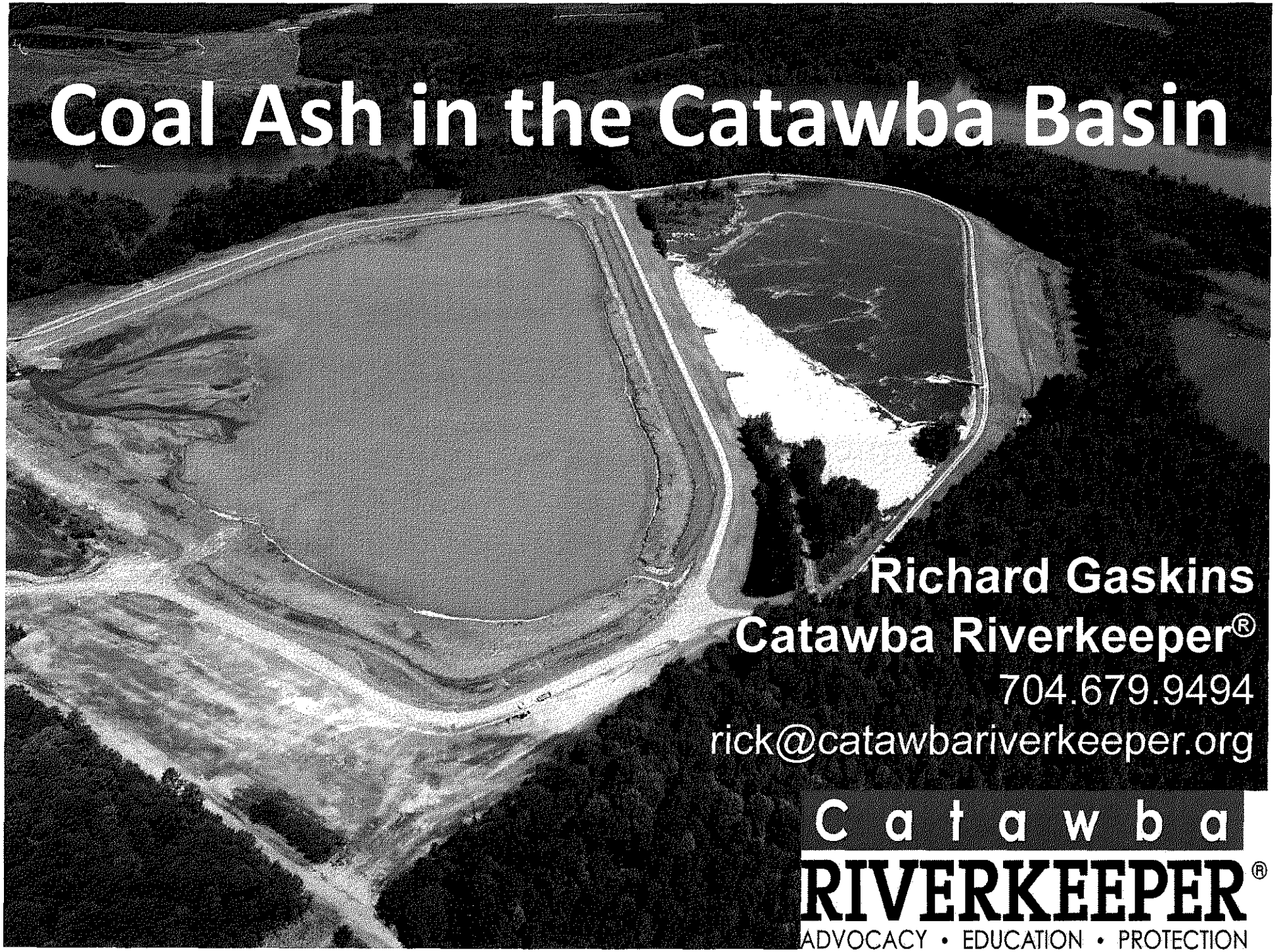
Coal Ash in the Catawba Basin



Richard Gaskins
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rick@catawbariverkeeper.org

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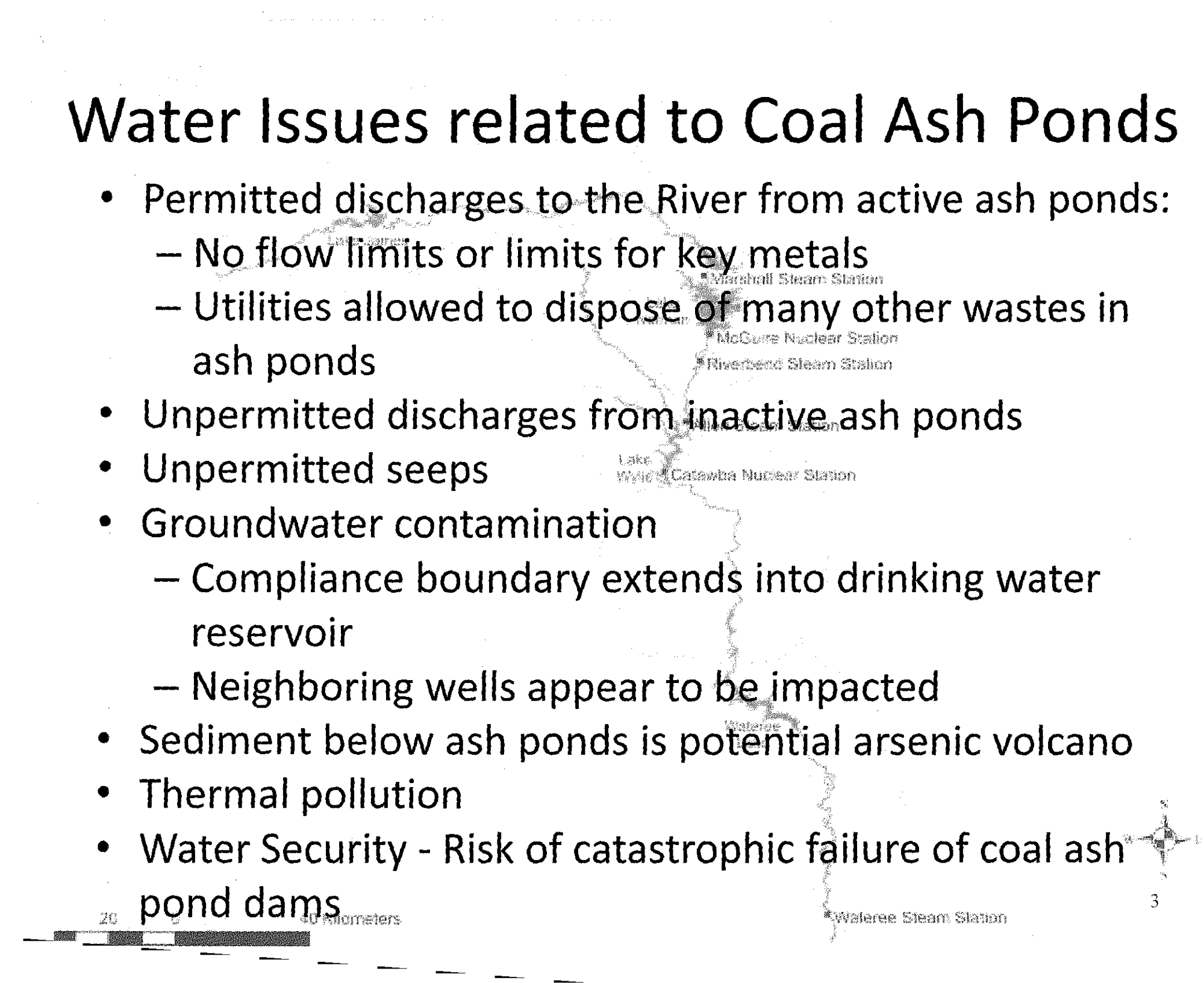
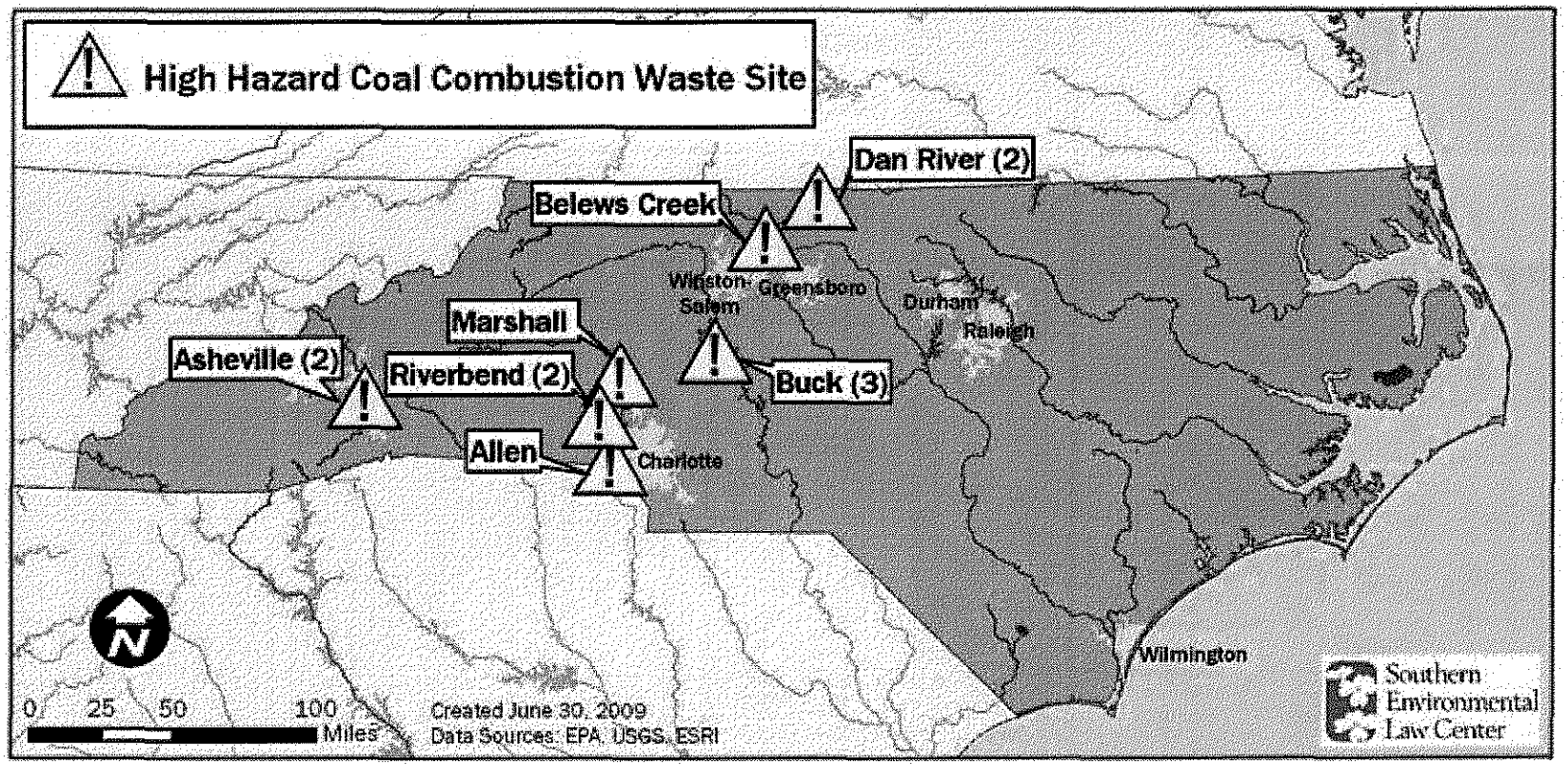
Water Issues related to Coal Ash Ponds

- Permitted discharges to the River from active ash ponds:
  - No flow limits or limits for key metals
  - Utilities allowed to dispose of many other wastes in ash ponds
- Unpermitted discharges from inactive ash ponds
- Unpermitted seeps
- Groundwater contamination
  - Compliance boundary extends into drinking water reservoir
  - Neighboring wells appear to be impacted
- Sediment below ash ponds is potential arsenic volcano
- Thermal pollution
- Water Security - Risk of catastrophic failure of coal ash pond dams



Focus on Coal Ash Waste

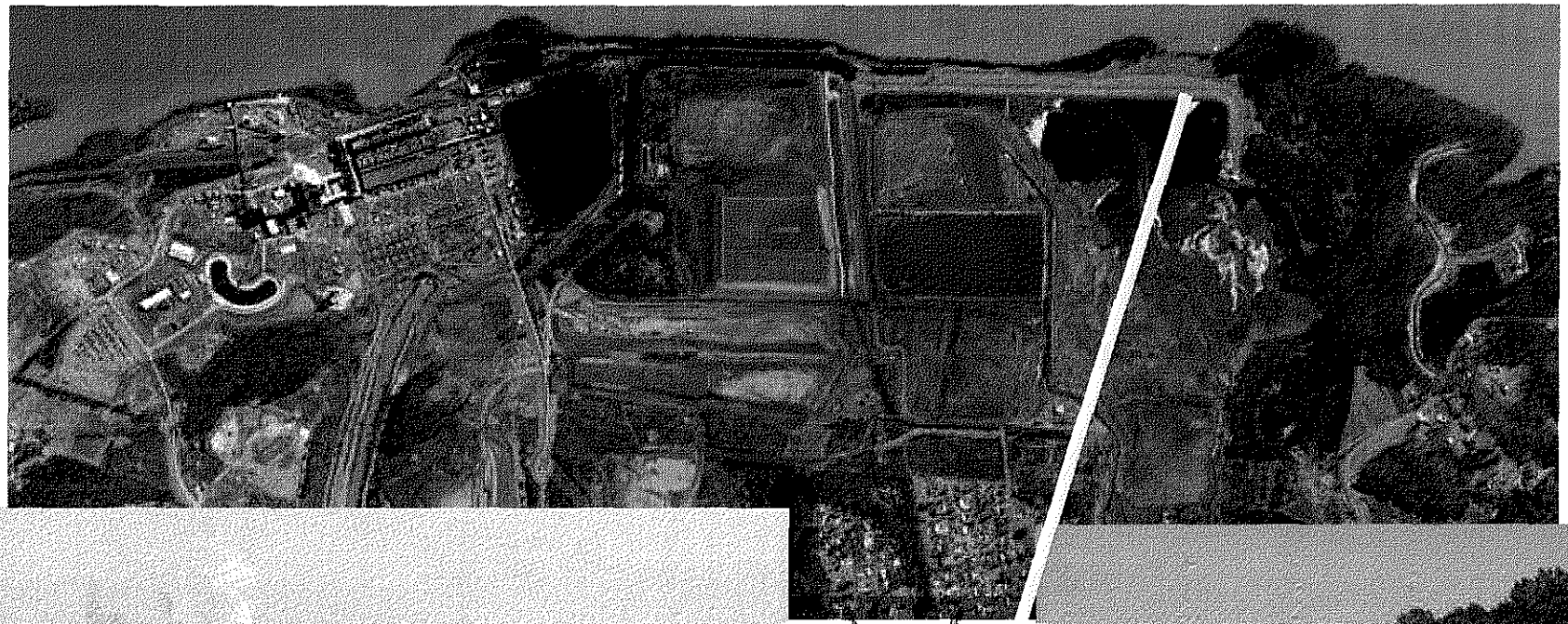
- 427 active coal ash ponds in U.S.
- EPA Identified 44 as High Hazard Potential
  - **4 of the 44 high hazard ash ponds are along the Catawba River.**

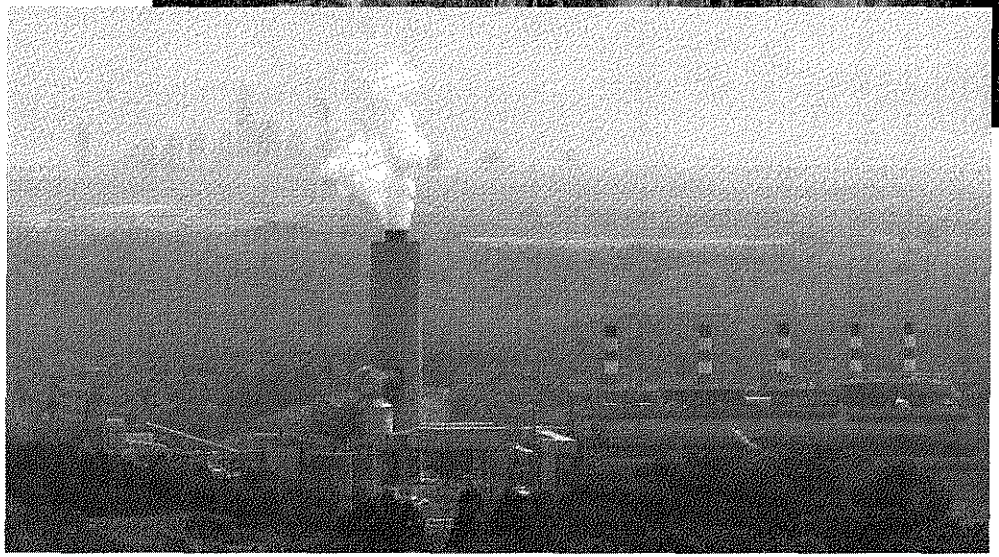


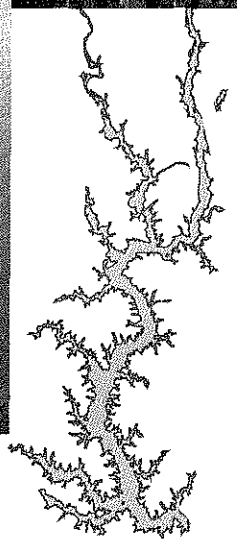
Coal ash ponds on Mtn. Island Lake

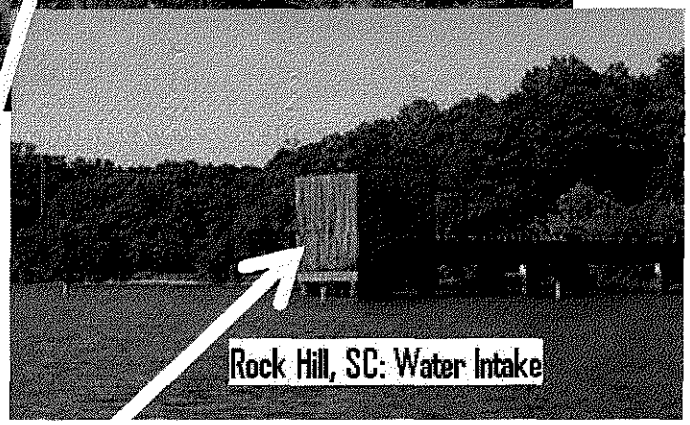
(source of drinking water for 860,000 people)

Coal Ash on Lake Wylie









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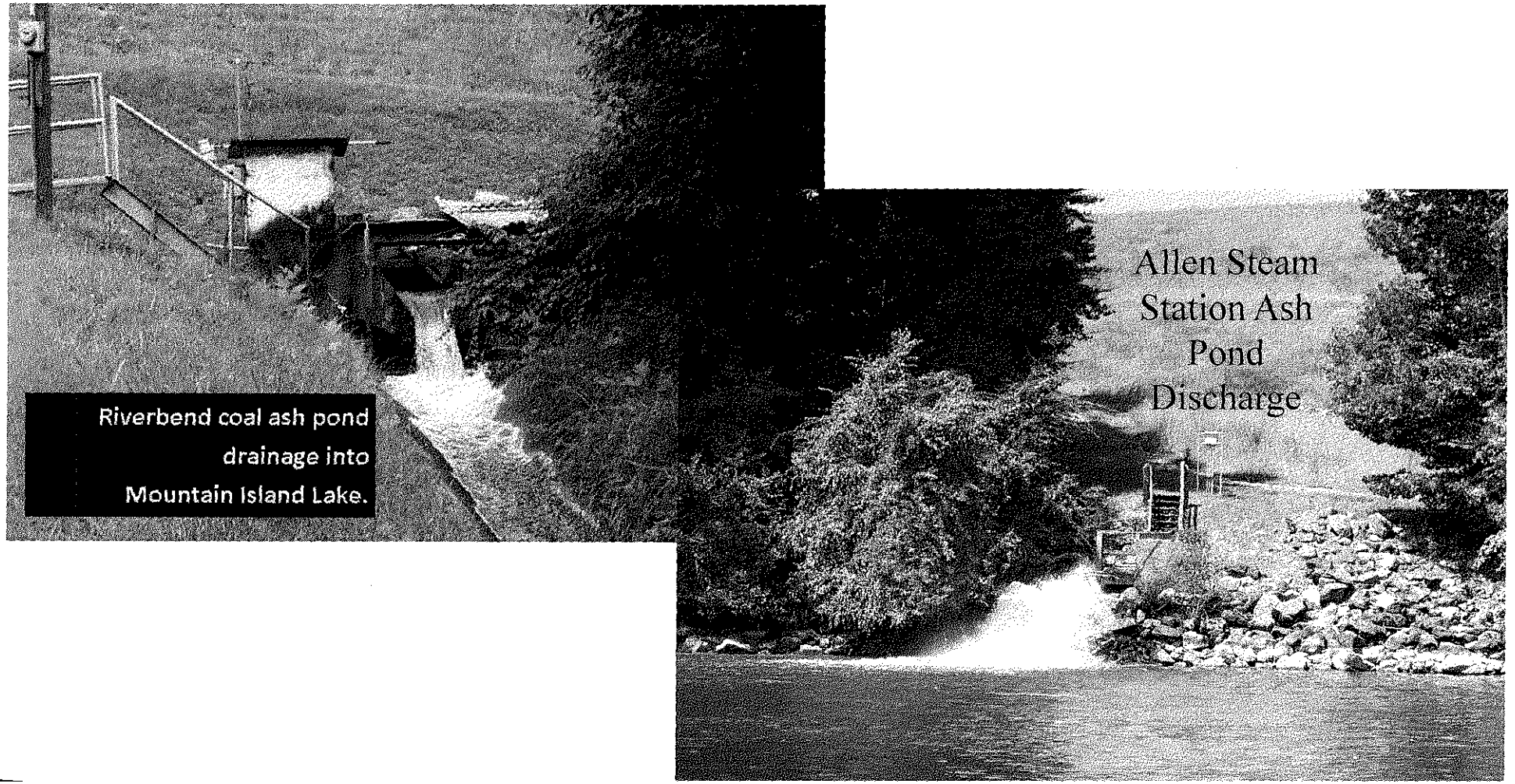
How are the ash ponds constructed?

Although industry generally agrees that it is appropriate to line new ash ponds and landfills, all of **the ash ponds on the Catawba are unlined.** Thus, they leak.

Three Types of Discharges from the Ash Ponds

- Direct permitted discharge of water from ash ponds.



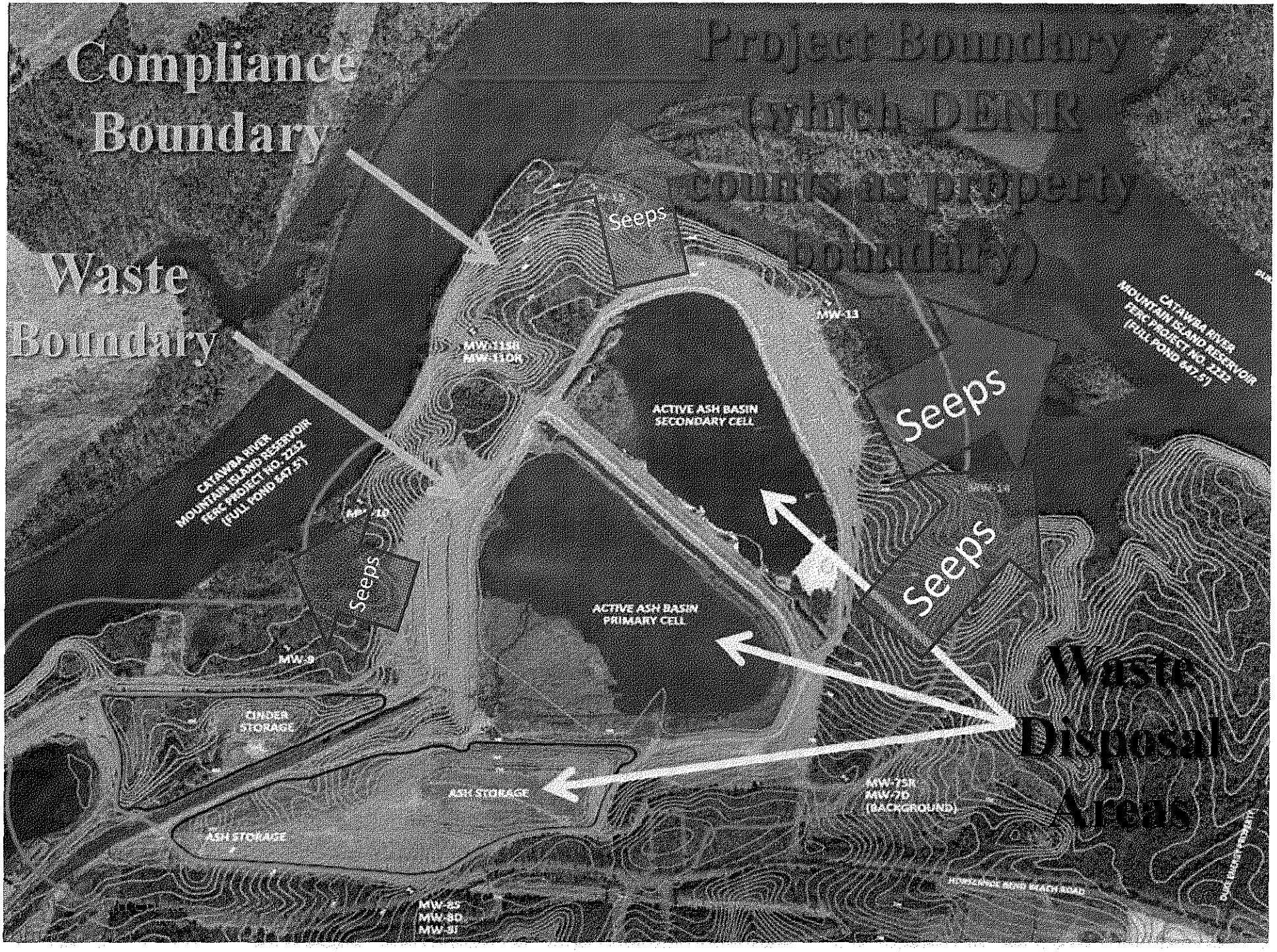
Three Types of Discharges from the Ash Ponds

- Direct permitted discharge of water from ash ponds.
- Seepages of ash waste through and under the earthen dams, which are unpermitted.
- Migration of contaminated groundwater into the river.

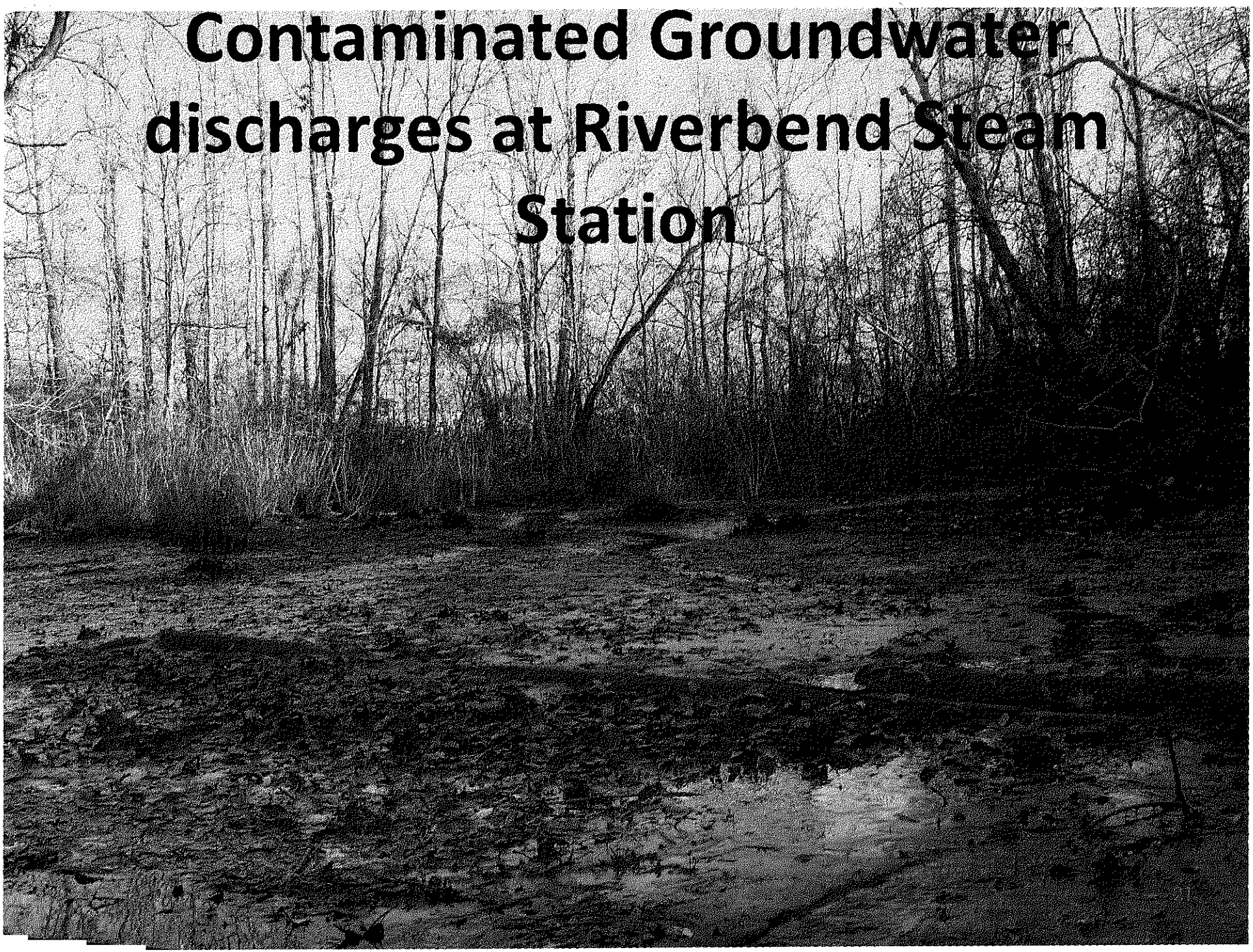
Allen Steam Station NPDES Permit

EFFLUENT CHARACTERISTICS	MONITORING REQUIREMENTS				
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location
Flow			Weekly	Instantaneous or Estimate	Influent or Effluent
Oil and Grease	15.0 mg/l	20.0 mg/l	Quarterly	Grab	Effluent
Total Suspended Solids	30.0 mg/l	100.0 mg/l	Monthly	Grab	Effluent
Total Copper [1]		1.0 mg/l	2/Month	Grab	Effluent
Total Iron [1]		1.58 mg/l	Monthly	Grab	Effluent
Total Selenium [1]			Monthly	Grab	Effluent
Total Arsenic [1]			Quarterly	Grab	Effluent
Total Cadmium [1]			Quarterly	Grab	Effluent
Total Chromium [1]			Quarterly	Grab	Effluent
Chloride			Quarterly	Grab	Effluent
Total Zinc [1]			Quarterly	Grab	Effluent
Total Nickel [1]			Quarterly	Grab	Effluent
Total Silver [1]			Quarterly	Grab	Effluent
Total Mercury [2]			Quarterly	Grab	Effluent
Total Beryllium			Quarterly	Grab	Effluent
Total Nitrogen ($NO_2 + NO_3 + TKN$)			Semi-annually	Grab	Effluent
Chronic Toxicity [3]			Quarterly	Grab	Effluent
pH	Between 6.0 and 9.0 standard units		Monthly	Grab	Effluent


Seeps at Riverbend Steam Station
The seeps are unpermitted & unmonitored discharges.

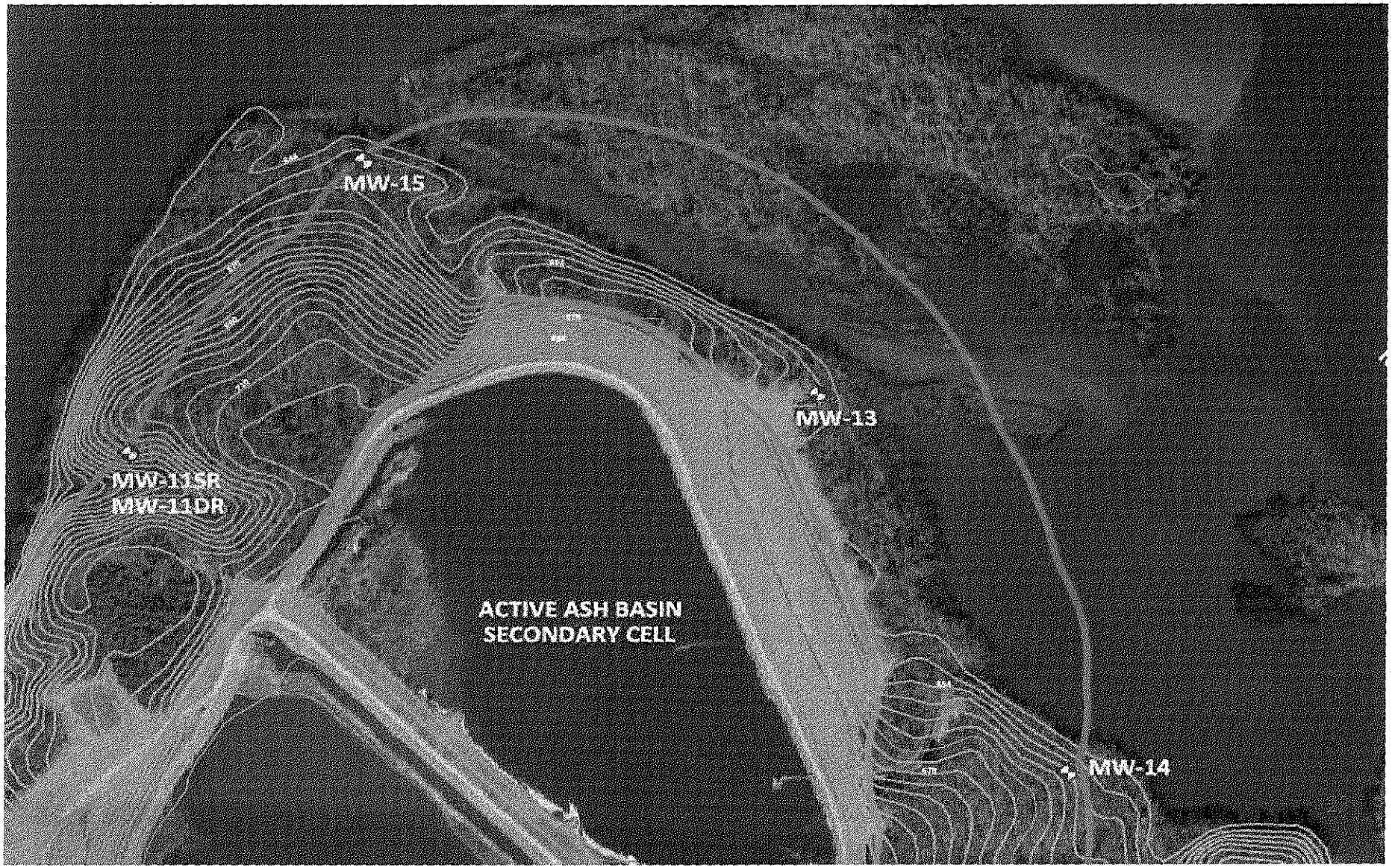

Compliance Boundary
Waste Boundary
Project Boundary
(Which Does Not Coincide With Property Boundaries)
Seeps
MW-13
MW-11SR
MW-11DR
CATAWBA RIVER
MOUNTAIN ISLAND RESERVOIR
FERC PROJECT NO. 2232
(FULL POND 647.5')
ACTIVE ASH BASIN
SECONDARY CELL
Seeps
Seeps
Seeps
ACTIVE ASH BASIN
PRIMARY CELL
MW-9
CINDER
STORAGE
ASH STORAGE
ASH STORAGE
MW-7SR
MW-7D
(BACKGROUND)
Waste
Disposal
Areas
MW-2S
MW-3D
MW-3I

Contaminated Groundwater discharges at Riverbend Steam Station



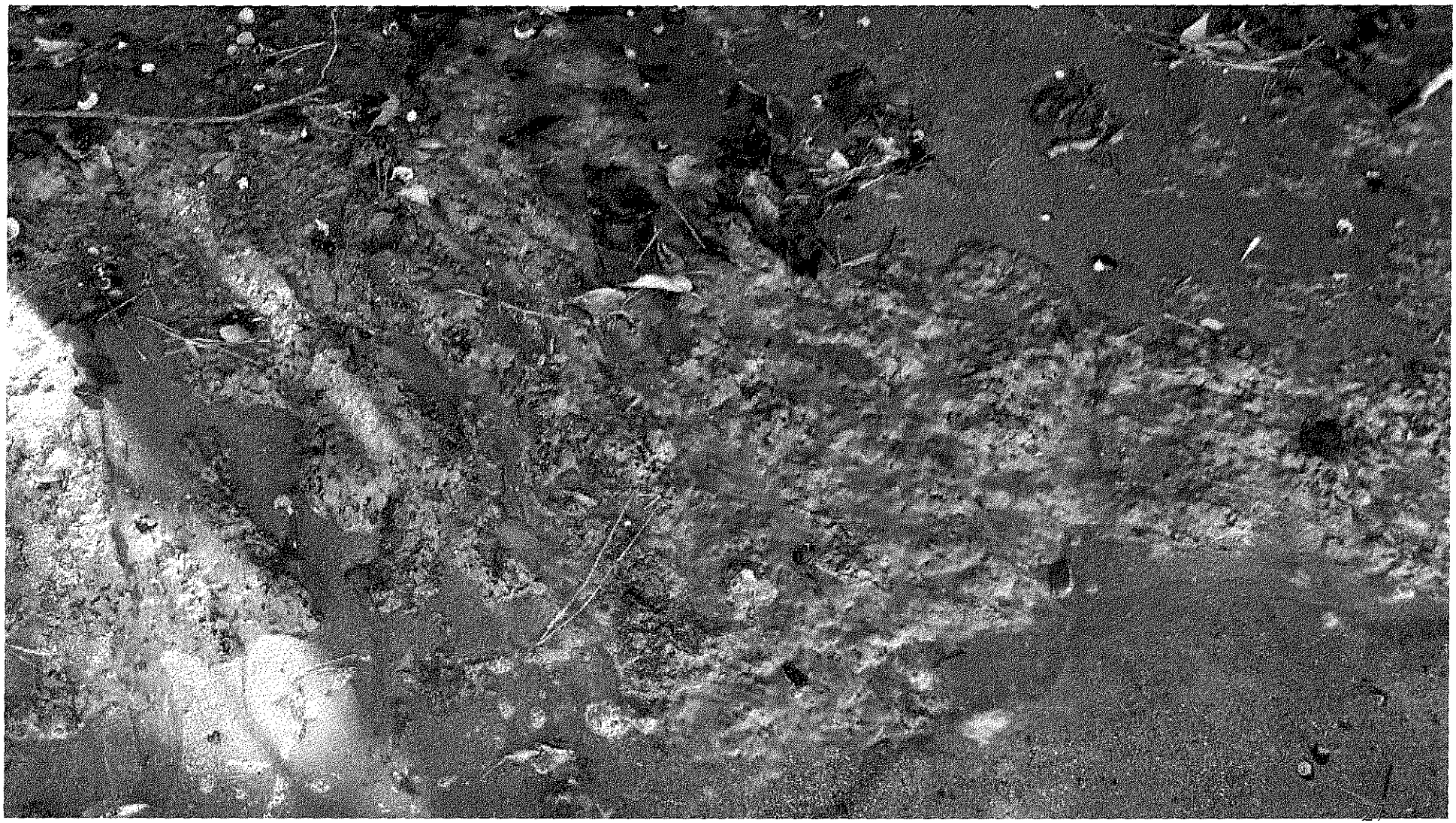
Riverbend Groundwater Contamination

(exceedances of groundwater standards for boron, iron, manganese, pH and sulfates.)



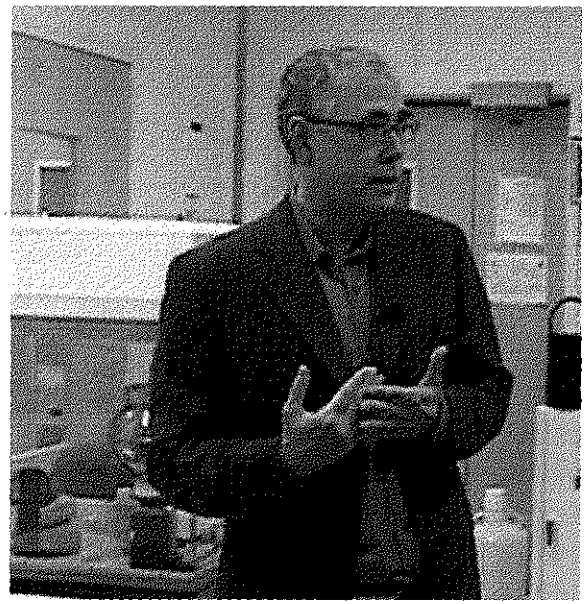

Contaminated
groundwater
seeps out of the
banks into the
drinking water
reservoirs

Seeps at Allen Steam Station



What is the impact of all of these discharges?

Sediment is Arsenic Volcano

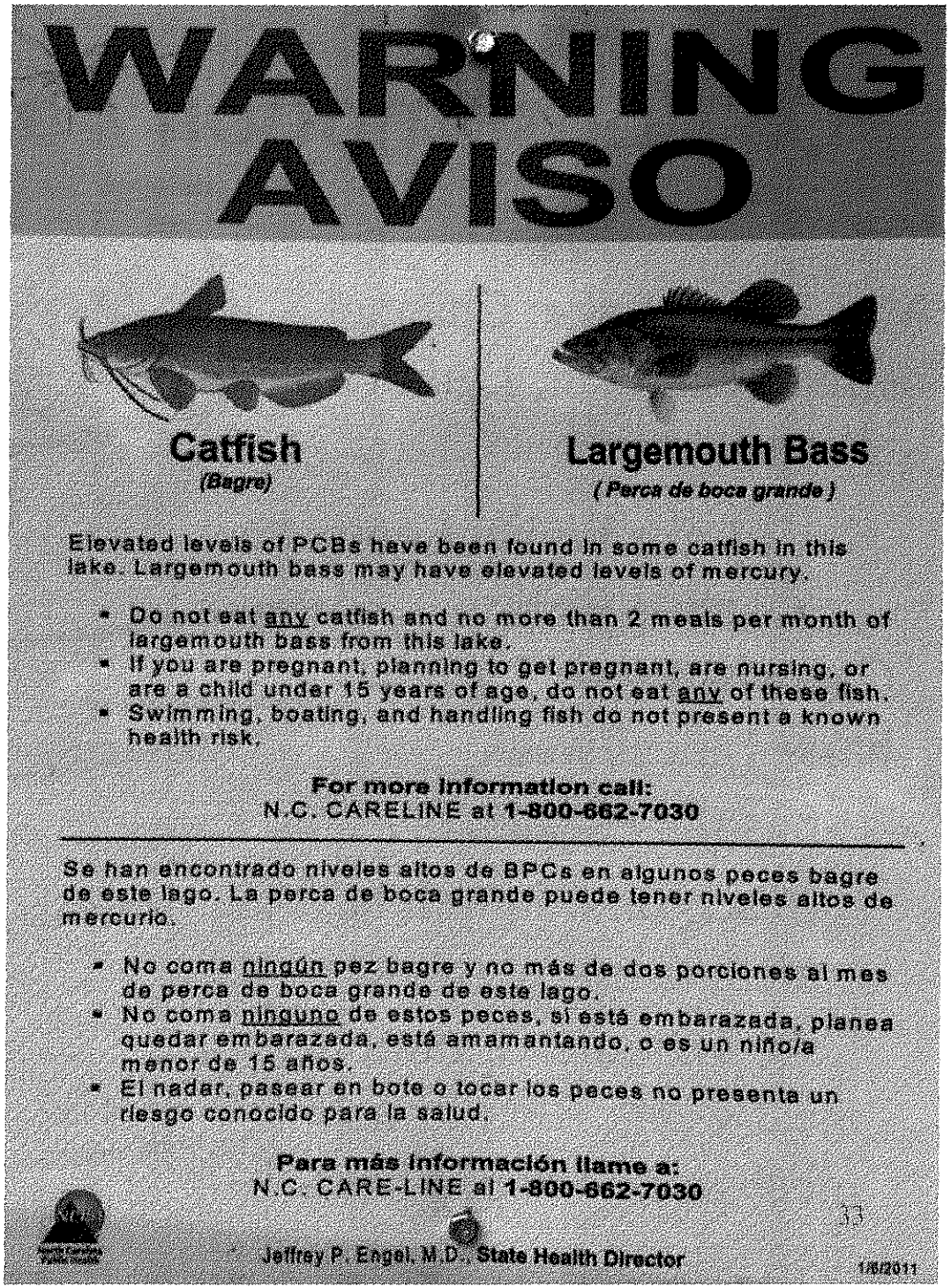


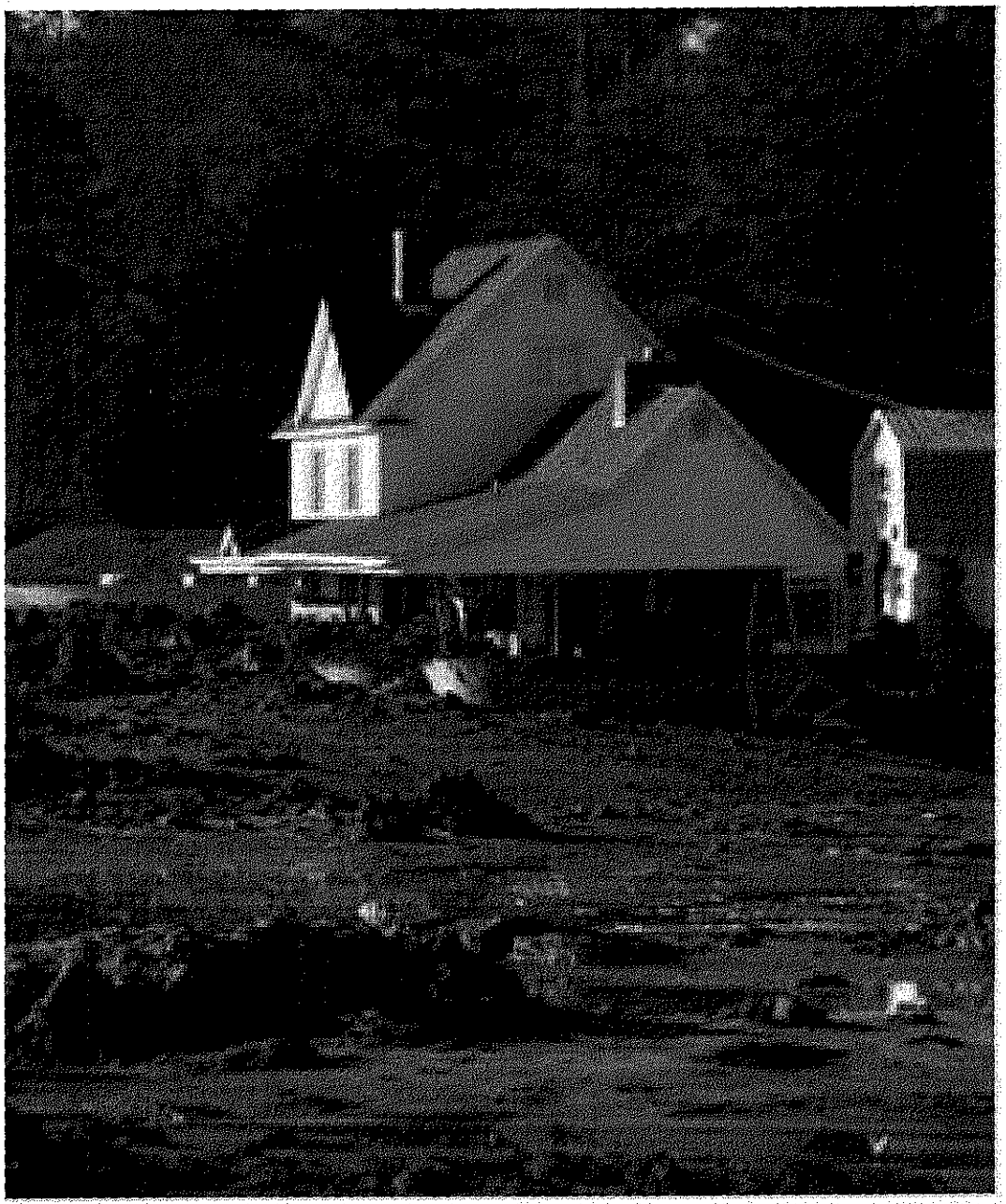
- Research by Dr. Avner Vengosh at Duke University indicates that arsenic from ash pond discharges builds up in sediment in the reservoirs and has the potential to periodically "erupt" when oxygen levels in the reservoir change.
- Dr. Vengosh describes the contaminated sediment as a potential arsenic volcano.
- Professor Vengosh said under extreme drought conditions, arsenic which has been building in the sediment outside the water intake could "erupt" into Charlotte's raw water supply.

http://www.wcnc.com/home/6th-grader-Duke-Energy-Duke-Professor-find-arsenic-at-Mt-Island-Lake-191483531.html

PCBs

Although PCBs are not generally associated with coal ash, the portions of the Catawba River below the Duke ash ponds have been determined to be contaminated with PCBs, which could be associated with the disposal of other wastes into the ash ponds

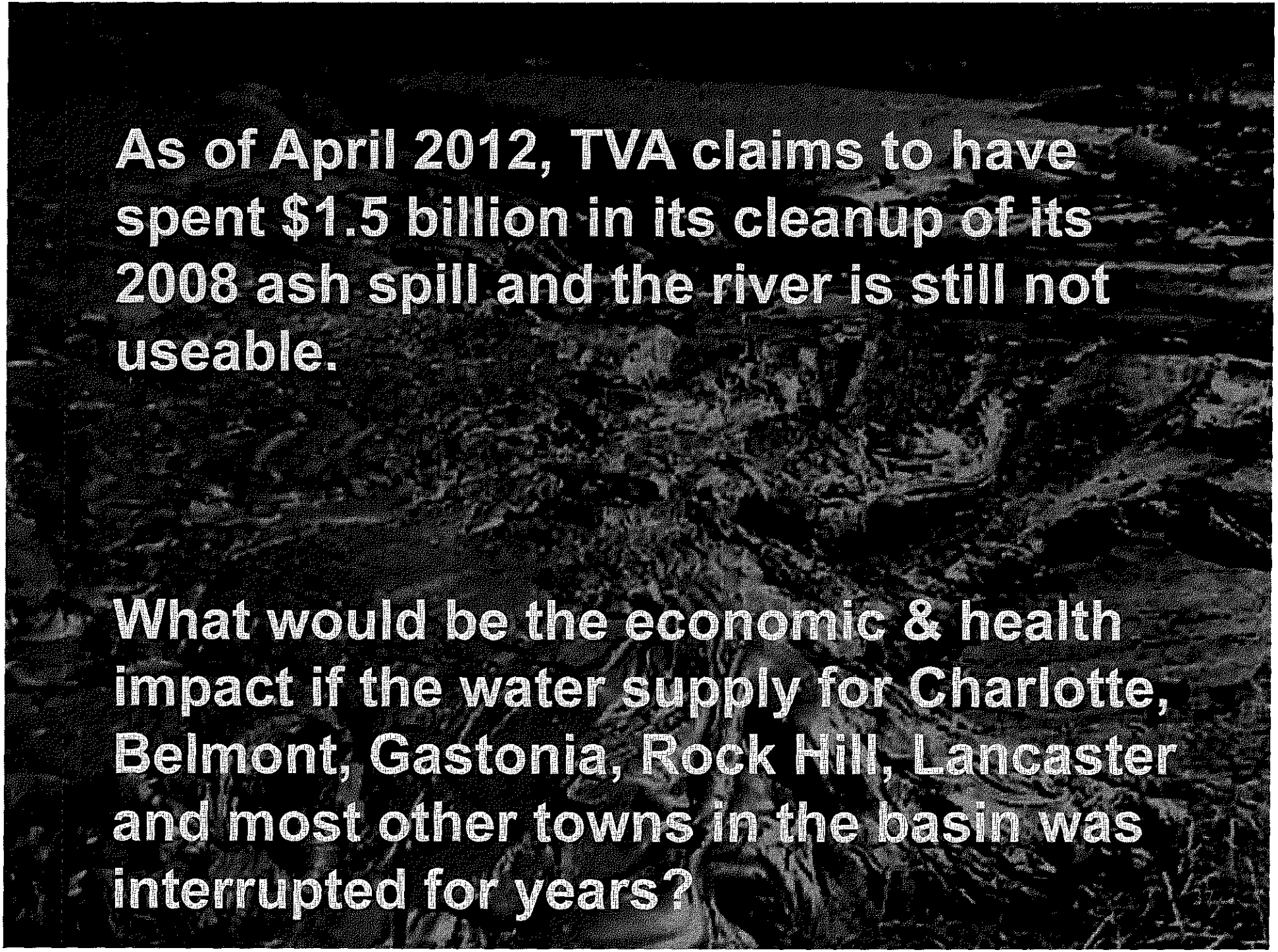




Home surrounded bytoxic coal ash sludge after the Tennessee Valley Authority coal ash spill (Kingston, TN).

Water Security Issues

What happens if an active or inactive ash pond fails?


As of April 2012, TVA claims to have spent $1.5 billion in its cleanup of its 2008 ash spill and the river is still not useable.
What would be the economic & health impact if the water supply for Charlotte, Belmont, Gastonia, Rock Hill, Lancaster and most other towns in the basin was interrupted for years?

And now you know the rest of the story.

www.catawbariverkeeper.org

Catawba

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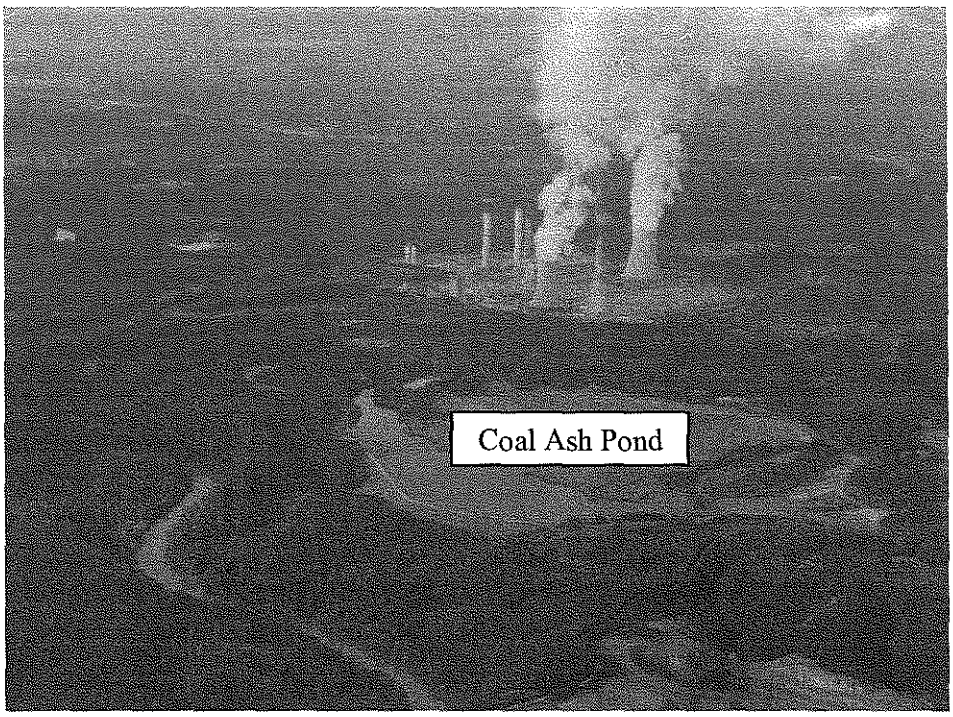
MEMBER

February 26, 2013

MILLER STEAM PLANT on the Locust Fork of the Black Warrior River



Bottom of receiving stream below NPDES discharge from Miller's coal ash pond has a white substance that blankets and binds the substrate (rocks) together like hardened glue.

Rocks from receiving stream with white substance binding them together.

This stream, flowing into the Locust Fork, receives Miller's coal ash NPDES discharge.

Alabama Coal Ash Ponds Receive Most Toxic Metals in the Nation in 2010

January 6, 2012

According to the Environmental Integrity Project (EIP), Alabama power plants lead the way in disposal of wastes containing toxic metals into coal ash ponds. Ten states accounted for three quarters of total pond disposal in 2010, including (in rank order): Alabama, Georgia, Illinois, Kentucky, Missouri, Ohio, Indiana, North Dakota, Minnesota, and Michigan. Just 20 facilities account for more than half of the toxic metals (57 million pounds) contained in power plant waste and disposed of in surface impoundments in 2010. Four of these are in Alabama, with Alabama Power's Miller Steam Plant (Jefferson County) ranked first in the nation in this category. Alabama Power's Gaston, Gorgas and Barry Steam Plants round out the top twenty.

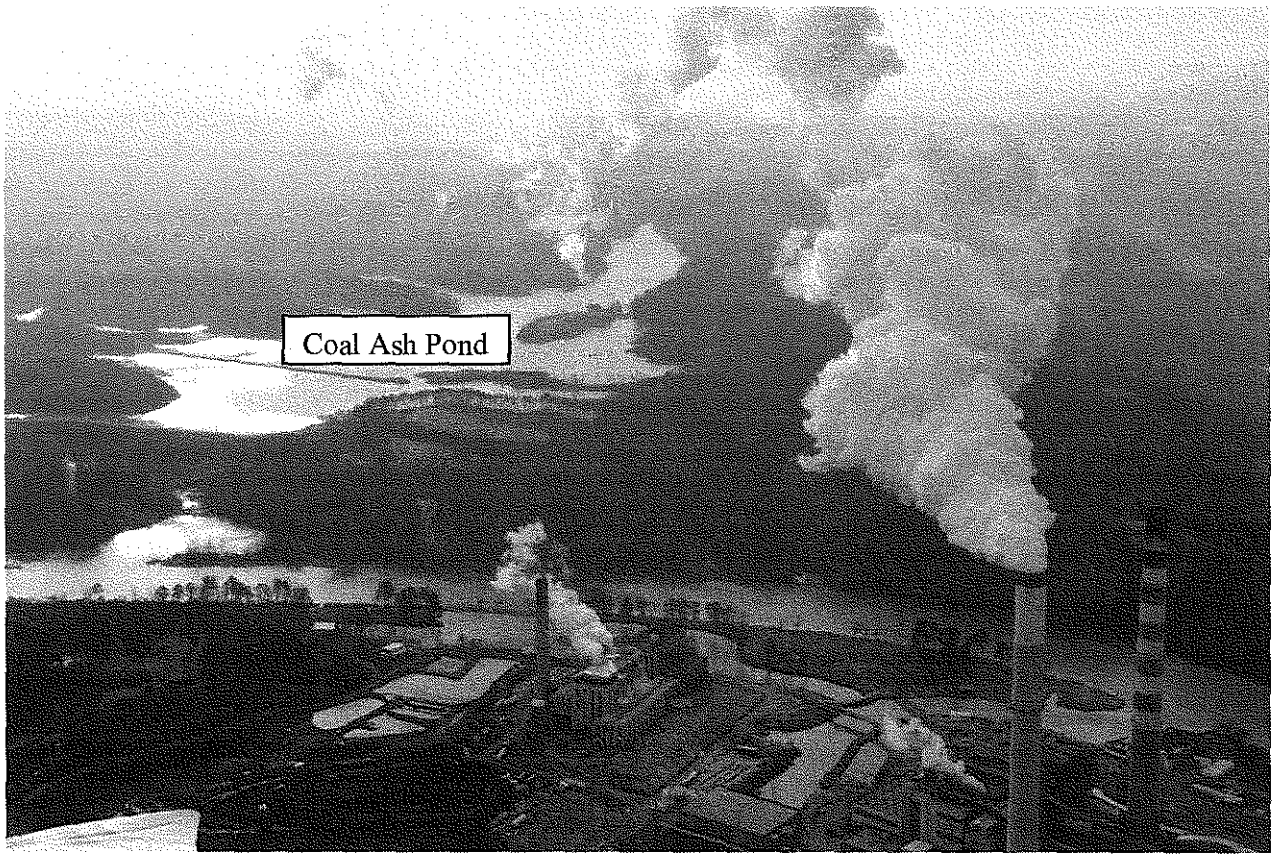
These figures are based upon information compiled in a national database called the Toxics Release Inventory. Power companies are required to report by volume the toxic chemicals that are contained in coal ash and other coal combustion wastes dumped into surface impoundments, or ponds, every year. In 2010, power plants reported disposal of wastes containing 112.8 million pounds of toxic metals or metal compounds, a category that includes arsenic, chromium, lead, and other pollutants that are hazardous in small concentrations and difficult to remove from the environment once released. According to EIP, that reflects a nine percent increase in toxics disposals since 2009, and is higher than the total reported in 2008.

Most of these surface impoundments are unlined, which means the toxins in the ash are likely to seep into groundwater or nearby creeks and rivers. Monitoring data developed in other areas of the country shows this is happening at many coal ash surface impoundments.

Alabama Power's Miller Steam Plant (Jefferson County) and Gorgas Steam Plant (Walker County) are both in the Black Warrior River watershed, just northwest of Birmingham. Miller ranked first in the nation for disposing toxic metal wastes into coal ash ponds and Gorgas ranked fifteenth. Riverkeeper Nelson Brooke has concerns: "These coal ash ponds discharge wastewater directly to surface waters in large volumes on a daily basis. Miller discharges to the Locust Fork and Gorgas discharges to the Mulberry Fork, two tributaries of the Black Warrior that are heavily used for recreation and fishing. A major concern moving forward is the increase in the amount of toxics being discharged by these coal-fired power plants to their coal ash ponds -- and ultimately to surface waters -- due to the addition of scrubbers, which pull some pollutants out of their air emissions and transfer them to our water resources instead."

Environmental Integrity Project's coal ash waste disposal analysis can be seen by clicking here.

GORGAS STEAM PLANT on the Mulberry Fork of the Black Warrior River



Rattlesnake Lake is Gorgas' coal ash impoundment, made by damming Rattlesnake Creek. This earthen dam has an EPA rating of: "Significant Hazard - Failure is likely to cause significant economic loss, environmental damage, or damage to infrastructure."

Alabama is the only state where dams are **completely unregulated** at the federal level.

Fishermen can regularly be found at the Gorgas coal ash NPDES outfall.

Mobile - Local News

6th grader finds high levels of arsenic in Mt. Island Lake

by STUART WATSON / NBC Charlotte

Bio | Email | Follow: @stuartwcnc

Posted on February 15, 2013 at 11:28 PM

Updated Saturday, Feb 16 at 9:46 AM

MOUNTAIN ISLAND LAKE, N.C. -- Sixth grader Anna Behnke loves living on Mountain Island Lake. She skis in the lake as well as swimming and wake-boarding there.

"I have pet turtles that I get from here," she said. There is a cloud on the horizon, Duke Energy's coal fired steam plant, Riverbend.

"I can see it from my bedroom window," said Anna.

Gallery

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