



Information about Coal Ash



**SCIENCE FOR
GEORGIA**

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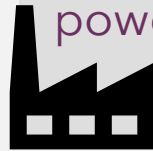
Coal Ash

An infographic compiled by
Science for Georgia, Inc.

What is Coal Ash and where is it in GA?



It is the waste left-over from burning coal to make electricity



There are twelve (12) coal-fired power plants in Georgia



At least 59 Coal Ash storage sites, 25 at active plants, storing 86+ million tons

So what's the issue?



Coal ash contains numerous harmful materials

Storage is **not** regulated by the EPA—i.e. it's up to Georgia to decide how to:

1. Regulate storage of new ash
2. Remediate existing ash storage sites

Currently, in GA, disposal of Coal Ash is **less regulated than household garbage**.

Regular waste must be disposed of in lined landfills. Coal Ash dumps do *not* need to be lined

In fact, Coal Ash has historically been stored in unlined ponds which are prone to leaks and typically near low-income communities

An analysis of GA Power's well water tests found toxic Coal Ash pollutants are leaking into groundwater at 92% of Georgia's coal-fired power plants

Coal ash is *not* going away unless **we** fix it. But how?



Coal Ash - Introduction cont.

What should be done? What can I do?

Store new coal ash in lined landfills



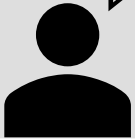
Move old waste in unlined ponds into lined landfills



Georgia Power has approximately \$8,000,000,000 (billion) in rate-payer money **already set aside** to handle this problem



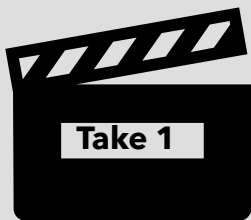
Track Bills [here](#)



Learn how to write your legislator [here](#)

Volunteer with groups concerned with this like [The Georgia Water Coalition](#) or [The Georgia River Network](#)

What good will come of it?



Proper regulation of new Coal Ash storage prevents costly problems in the first place.



Remediation will address an old problem before it gets worse



All efforts will improve environmental and individual health

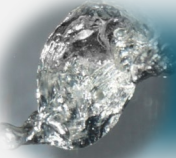
Coal Ash - By the Element



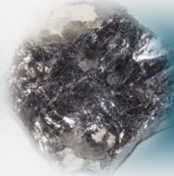
Arsenic



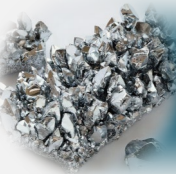
Boron



Cadmium



Lead



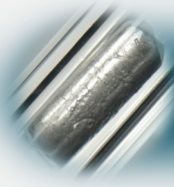
Chromium



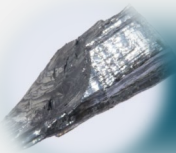
Silicon



Mercury



Thallium



Molybdenum

Creative Commons images. Element pages from [Toxic Substances Portal](https://www.toxsubstances.gov/) | [ATSDR \(cdc.gov\)](https://www.atsdr.cdc.gov/)

Click each element's image to read about its health effects and its ToxFAQ from the CDC



Follow this **timeline** through the pages for a history of Coal Ash

1976

EPA starts regulating waste under Resource Conservation and Recovery Act (RCRA)

1994

GA Power reports that heavy metals in Plant Branch exceed baseline concentration in nearby groundwater

2002

Plant Bowen in Euharlee, GA spills 2.25 million gallons into Euharlee Creek

Sept. 2008

Plant Bowen Spills again

2008

Kingston Power Plant owned by Tennessee Valley Authority (TVA) spills 1.1 billion gallons into nearby waterways

Worst coal ash spill in US

= event in GA



Negative Impacts

----- ... and not-so-fun facts

Coal Ash

Poses risk to human health

- **60% of the top ten Coal Ash contaminated sites** in the U.S. are within 3 miles of residential area.
- Its components affect multiple organ systems, causing chronic illness and cancer
- The CCR rule has less stringent concentration limits on pollutants compared to health-based recommendations.
- Many heavy metal pollutants in contaminated groundwater are present in concentrations unsafe for human consumption.

Threatens Aquatic Life

- Scientists are monitoring the sites of rare species and potential danger.
- Belews Lake's ecosystem near a Duke Energy's coal plant in North Carolina saw species of fish dramatically declined in the period between 1975 and 2002 due to heavy metals contamination.

Jan.
2009

TVA – 2nd Spill
10,000 gallons

2010

EPA proposes to
develop waste
regulations

Feb.
2014

Plant Eden, NC
27 million gallons spill
into Dan River — home
to 2 endangered species

Aug.
2014

NC bans new ponds and
phases out at-risk surface
impoundments

Dec.
2014

EPA signs “Final Rule”
first set of federal
regulations on coal ash

2015

Plant Branch and Plant
Mitchell retired—Plant
Branch showing high
levels of groundwater
contamination

Jul.
2015

SC starts requiring the
use of liner, mandating
unlined sites move

Several groups petition
for the review of the
Final Rule

Utility Solid Waste
Groups vs. EPA begins in
D.C. Circuit Court

Negative Impacts

... and not-so-fun facts (cont.)

Contaminates water supply

- More than **95% of coal ash ponds in the U.S. are unlined.**
- **11 out of the 12 plants in GA** show that they have contaminated groundwater with hazardous heavy metals.
- Plants have been operating for decades, but **groundwater monitoring data only first became available in 2018.**
- People living near coal ash have a **1 out of 50 chance** of developing cancer from drinking contaminated water.

Is Expensive to Remediate

- Contaminants do not degrade with time, and so **require aggressive removal techniques.** Thus, storing it properly the first time is less expensive.
- Remediation can cost anywhere from **\$100 million to \$5-10 billion.**
- Coal ash is the **second largest industrial waste stream in the U.S.**

Sep.
2015
-
2016

GA Power announces it will close 29 of its surface impoundments

2017

Plant McManus spills an unknown amount of coal ash into marshlands

Aug.
2018

US Court deems the Final Rule inadequate as it allowed for unlined ash ponds

Mar.
2019

Court mandates revisions stricter than the 2015 rule

for a more in-depth timeline of the history of coal-ash check out:

[A Brief History of Coal Ash Since the Kingston Spill—Power Mag \(2016\)](#)

[Coal Ash Rule - Environmental & Energy Law Program - Harvard Law School](#)

Coal Ash, Waste Classification

and why it matters

Waste classification:

- determines which disposal process will be used to take care of unwanted materials.
- is influenced by public policies, which means

waste management is not necessarily and solely governed by scientific evidence.

This lends a certain subjectivity to categorizing waste

Solid waste can be classified as either **Hazardous** or **Non-Hazardous** each with its own set of disposal protocols.

Hazardous waste has stricter rules for disposal as regulated by the Resource Conservation and Recovery Act (RCRA).

The 2014 “final rule” [housed Coal Ash under Subtitle D of the RCRA](#) designating it as a non-hazardous waste.

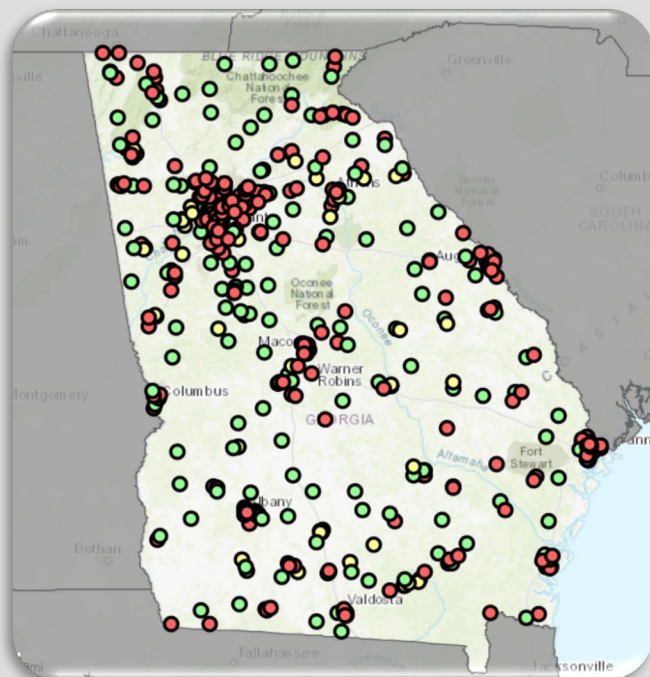
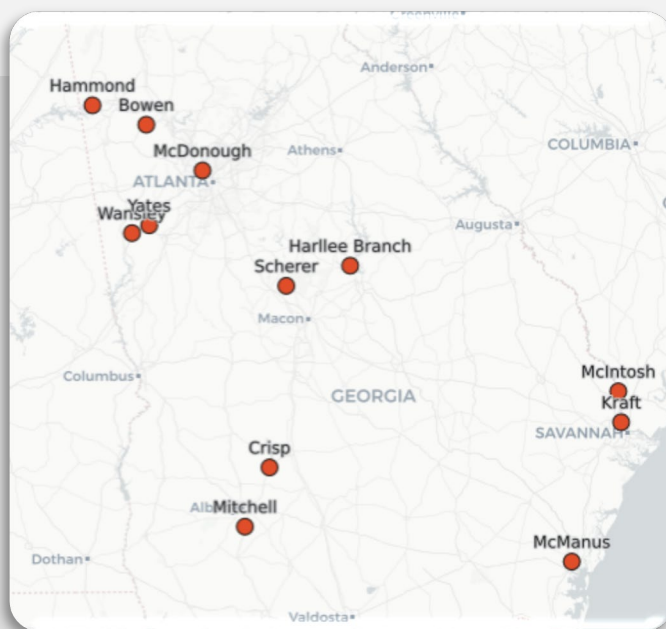
Status under Subtitle D leaves the standards of the rule unenforceable by federal agencies.

However, the CCR rule can be indirectly observed through the Water Infrastructure for Improvements to the Nation (WIIN) Act enacted in 2016. Under this States could apply for EPA-approved permits that allowed them to self-monitor coal ash disposal. States that do not have a permit will be overseen by the EPA directly.

Coal Ash In GA

Georgia's 12 Coal-fired Power Plants "Georgia at a Crossroads"

The figure to the right shows the location of Georgia's 12 coal power plants. 11 of these plants are owned by Georgia Power.



Hazardous Site Inventory

–Georgia EPD

The Georgia map to the left shows the hazardous sites around the state.

The **red** points indicate sites where the responsible party is funding the remediation.

The **yellow** markers represent abandoned sites.

The **green** dots are public landfills.

Both the latter two may use the Hazardous Waste Trust Fund for remediation.

Coal Ash In GA (cont.)

- Coal ash producers and the GA Environmental Protection Division published a plan to clean up coal ash. Although the plan did require monitoring of groundwater near landfills, it did not have any requirements for groundwater monitoring at closed-in-place plants, which are susceptible to leaks.
- In 2015—[GA Power announced](#) that it will be closing all 29 of its ash ponds. 12 of these ponds will be capped in place. The rest will be dewatered and transported into lined landfills.

Relevant Coal Ash Legislation in GA General Assembly

	HB 647*	SB 230	HB 511
What	Extends post-closure groundwater monitoring to 50 years	Require liners and leachate systems that are, at minimum, as effective as liners for municipal waste	“To dedicate the proceeds of certain fees and taxes to such funds as authorized”
Status	Did not crossover	Did not crossover	Enacted

*Click each column title to visit the bill’s page on the General Assembly website

Policy Recommendations

Re-think Storage

- [Composite liners are the most effective, found by the EPA](#)
- Silo storage reduces leaching and contamination, but is more expensive than landfill storage and requires more steps
- Require that all surface impoundments are supported by composite liners.
- Receive federal funding to initiate the costly process of excavating old sites.

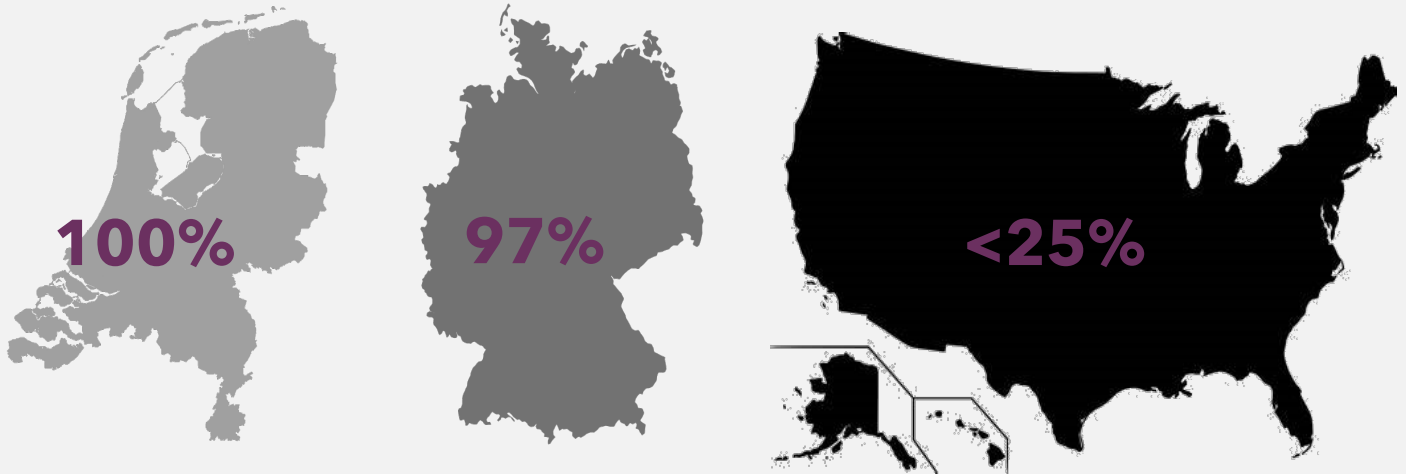
Fund Research

- Study how different factors affect leaching—when harmful toxins drain from coal ash into the surrounding environment
- One research study for example demonstrated [oxygen levels affect the amount of toxic substances leached.](#)
 - **TL;DR**, covering ponds = high risk of groundwater contamination
 - Coal ash has demonstrated its potential to be a useful, versatile additive.
 - [Some research groups have begun extracting valuable metals from coal ash](#)
 - We need to research new strategies for repurposing coal ash and limiting its waste.

Policy Recommendations (cont.)

Recycle

Click each country to see its relative size to US



Percentage of Coal Ash that is recycled — Netherlands, Germany and the US.

- In 2012 80% of unused coal ash was put in landfills and ponds
- Netherlands and Germany recycle 100% and 97% respectively. The U.S. recycles less than 25%.
- Recycling 1 ton of fly ash can save 1 ton of CO_2 emissions
- Fly ash, the lightest & smallest type of coal ash has the potential for valuable reuse, especially as a component of cement.
- Encourage partnerships between cement and power companies.
- Fly ash is a commodity in the UK and could be sold to other European countries.

What Can You Do?

Communicate with ...

Your Legislators

- [Find Yours Here](#)
- Learn how to talk to them [here](#)

Your Neighbors

Inform of how this issue affects them and encourage them to use their voice too

Stay up-to-date

- Follow progress of bills – many organizations have bill trackers on their website including
 - [Science for GA!](#)
 - [Protect Georgia](#)
- Attend legislative meetings at the local + state level
 - If open to public discussion, ask questions and share concerns

Adjust Daily Life & Volunteer

- Reduce your energy use – lowers the amount of coal ash produced by coal-fired power plants
- Volunteer with groups concerned about coal ash and dedicated to protecting Georgia's Waterways (see the next slide for some ideas!)

Organizations // Resources

----- all images link to the respective site

PROTECT GEORGIA



**GEORGIA
WATER
COALITION**



Groundwater Contamination From Coal Ash Threatens the Peach State: A report by Earthjustice and the Environmental Integrity Project



Georgia 
Adopt-A-Stream
Volunteer Water Quality Monitoring



Keeping Watch Over Our Waters Since 1994

