

Facts About...

Coal Combustion Byproducts

What are Coal Combustion Byproducts and how are they generated?

Coal combustion byproducts (CCBs) are generated from burning coal. The type of CCBs generated can vary based on the type of combustion device. There are different types of boilers or incinerators that burn coal and as such can generate different CCBs. These materials are non-combustible and include:

- Fly ash, which is generally a dust-like gray material that is light weight and captured by air pollution control equipment.
- Bottom ash, which is heavier than fly ash, and is captured at the bottom of the combustion device, such as a boiler or incinerator.
- Boiler slag, which is generally black, and are small angular particles with a smooth surface.
- Fluidized bed combustion (FBC) ash is generated by a fluidized bed combustion boiler. This type of boiler uses lime to capture sulfur dioxide pollutants. As such, the ash contains unburned coal and lime.
- Flue Gas Desulphurization (FGD) sludge, also known as “scrubber sludge” Flue Gas Desulphurization is a pollutant control technology used to capture sulfur dioxide. This material is generated from “scrubbing” or “cleaning” the air pollutants and is generally heavier and more sludge-like than coal ash.

Note: Fly ash and bottom ash are often collectively referred to as “coal ash.”

Where are CCBs generated in Maryland?

Energy companies that burn coal to generate electricity generate CCBs. Also, one major manufacturer in Maryland operates its own power plant using coal to generate electricity for its own needs. These plants are:

- AES’s Warrior Run plant in Allegany County
- Allegheny Energy’s R. Paul Smith plant in Washington County
- Constellation Power Source Generation’s Brandon Shores and H.A.Wagner Plants in Anne Arundel County and the C.P. Crane plant in Baltimore County
- Mirant Mid Atlantic’s Chalk Point plant in Prince George’s County, the Dickerson plant in Montgomery County, and the Morgantown plant in Charles County
- New Page Corporation in Allegany County

What is the quantity of CCBs generated in Maryland?

A total of approximately 2 million tons of coal ash (fly and bottom ash) is generated annually from Maryland plants. Approximately 1.6 million tons of coal ash (fly and bottom ash) is generated in Maryland annually from the plants owned and operated by Constellation and Mirant. AES operates the only FBC plant in Maryland. This is the Warrior Run plant that generates approximately 350,000 tons of ash annually. Approximately 40,000 tons of coal ash a year is generated by Allegheny Energy's R. Paul Smith plant. FGD sludge will be generated beginning in 2010 by Constellation and Mirant once flue gas desulphurization equipment (also known as "scrubbers") is operational, as required under the Healthy Air Act. Once these pollutant control technologies are operational approximately 2.5 million tons of scrubber sludge will be generated annually.

How are CCBs managed in Maryland?

CCBs are either disposed or beneficially used. Disposal of fly ash and bottom ash occurs in surface impoundments or landfills. Beneficial uses of coal ash include mine reclamation, structural fill applications, or as a substitute for cement in the production of concrete. Currently about 1 million tons of coal ash is beneficially used in Maryland. FGD or scrubber sludge that will be generated in the future may be used, with appropriate controls, in the production of wallboard or disposed in an approved solid waste disposal facility.

What are the public health and environmental issues associated with CCBs?

If CCBs are not managed properly, constituents of the material can be released into the environment. Under certain geologic conditions, certain types of coal ash can produce high concentrations of the constituents such as selenium, sulfate, arsenic, iron or manganese in soil that may leach into surface or groundwater. Without proper controls, coal ash released into the air in large quantities can create a public nuisance and/or cause respiratory problems.

What is the likelihood of a catastrophic release of CCBs occurring in Maryland as occurred in Tennessee?

The incident in Tennessee involved the failure of a surface impoundment dike that contained CCBs mixed with water. There are no similar types of surface impoundments or what are commonly called, "ash ponds", in Maryland. Coal fired power plants that use wet ash handling systems mix their coal ash with water and slurry it to impoundments. The only facilities in Maryland with a wet ash handling system are the R. Paul Smith Power Plant in Washington County and the New Page Corporation paper mill in Allegany County. No wet ash is stored or disposed at either location. The wet ash is transported through pipelines to West Virginia, which has regulatory authority over the surface impoundments.

What protections are in place to protect public health and the environment?

The U.S. Environmental Protection Agency (EPA) has been working on regulations since 2000 to institute additional controls on the management of CCBs. In Maryland the management of CCBs is regulated through solid waste disposal, mining or a water discharge permit. The Maryland Department of the Environment has developed new regulations to strengthen its controls on the management of CCBs. These regulations are effective December 1, 2008, and are available on MDE's website at: http://www.mde.state.md.us/CitizensInfoCenter/Health/ccbs_regs.asp. Local governments may institute through their land use planning and zoning authority, additional controls.

