

COAL ASH DISPOSAL BECOMING BURNING ISSUE

A. Introduction – Thermal Power plants using pulverized coal or lignite as fuel generate large quantities of coal ash as a by-product. With the increase in commissioning of several super thermal power plants with large capacity and with the increasing use of low grade coal of high ash content, the amount of generation of ash from them is becoming very large. This poses serious ecological problems.

Most of the ash generated from the power plants is disposed off in the vicinity of the plant as a waste material covering several hectares of valuable land. Looking into the nuisances poses by coal ash; it has been well appreciated by everybody and various Government agencies, the need for the safe disposal and effective utilisation of coal ash. The properties of ash depend on several variables such as coal source, degree of pulverization, design of boiler unit, loading and firing conditions, handling and storage methods etc.

At present in the developing countries like China, India etc., the focus is on demonstration of coal ash related technologies – these include coal ash characterisation, Hydraulic Structures, Handling and Transportation, Agriculture related studies and Application, Ash Ponds and Dams, Reclamation of Ash Ponds for Human Settlement, Roads and Embankments, Underground Mine Fills etc. Only a small quantity of the total ash produced is utilized in concrete, brick making, soil-stabilization treatment etc. The bulk utilization of ash is yet to begin in full swing.

B. Coal ash disposal in Ash Ponds – Coal ash is mostly disposed off using either Dry or Wet disposal procedure.

(a) In the case of dry disposal method, the fly-ash is transported by truck, chute or conveyor from the power plant to the site of disposal where these are disposed off by constructing a dry embankment (dyke).

(b) In wet disposal, the fly-ash is transported as slurry through pipe and disposed off in impoundment called “ash pond”. Most of the power plants use wet disposal system.

C. Environmental Problems with Coal-ash ponds –



Aftermath of a retention-pond-wall collapse

The dumping of coal-ash, the byproduct of coal-burning power plants, in ponds and landfills endangers environment and ecosystem of the area. It is known that that people who live next to certain types of coal ash landfills and ponds have a higher risk of getting cancer. Coal Ash is known to contain arsenic, selenium and other chemicals that can cause health problems in wildlife and people. Power companies dump large quantity of coal ash in landfills and holding ponds, some of which are located in close proximity to rivers and neighborhoods. In such scenario, dumping of coal ash poses dangers to groundwater or people and in several instances where the activity has led to serious environmental problems in the surrounding areas. Problems arise such as:

* Leaking arsenic-laced water,

* Increase in arsenic levels in groundwater on the banks of river and in drinking water limit of the area,

* A breach in an earthen wall at ash ponds allowed arsenic and nickel to pollute groundwater next to the river, etc.

The problems with coal ash are likely to get worse, as power plants face more and more pressure to reduce their emissions. Contaminants and waste products that once spewed through the coal plants' smokestacks are increasingly captured in the form of solid waste. The technology to keep particulate

matter out of the air creates even more coal ash, and it contains higher concentrations of arsenic and other toxins. Obviously, new methods for treating and disposing coal ash that protect the public from dangerous toxins are desperately needed.

Apart, the coal ash pond that are ruptured and sent large quantity of toxic sludge across the area – most of them unregulated and unmonitored – pollute the environment extensively. They mostly contain heavy metals like arsenic, lead, mercury and selenium, which are considered by the Govt. Environmental Agency to be a threat to water supplies and human health. Many environmentalists, however, believe that the biggest danger posed by coal ash ponds is leakage.

Numerous studies have shown that the ash can leach toxic substances that can cause cancer, birth defects and other health problems in humans, and can decimate fish, bird and frog populations in and around ash dumps, causing developmental problems like tadpoles born without teeth, or fish with severe spinal deformities. Cases of drinking wells and surface water contaminated by leaching from the dumps or the use of the ash have swelled considerably.

However, coal ash is used throughout for construction fill, mine reclamation and other beneficial uses. Moreover, the industry has promoted the reuse of coal combustion products because of the growing amount of them being produced each year.

D. Example of environmental degradation by coal ash spillage –



View of Fly Ash Spill (approx.1 mile from the retention pond)

* Just after midnight on Dec. 22, 2008, a 40-acre pond holding coal combustion waste for a Tennessee Valley Authority (TVA) steam power plant ruptured, sending a wave of wet ash across 300 acres of rural land in Harriman County, Tenn. It was the largest coal slurry spill in U.S. history — more than three times the size of the Martin County, Ky., sludge spill of 2000, and about eight times that of the 1972 Buffalo Creek flood in West Virginia. Unlike that flood, which killed 125 people and injured scores others, this one, Tennessee authorities reported, resulted in no serious injuries or hospitalizations.

(http://www.powermag.com/coal/TVA-Containment-Pond-Bursts-Causing-Massive-Coal-Ash-Flood_1694.html)

E. Laws regarding abatement of pollution - Country's requirements for the handling of coal ash vary widely from nation to nation. Some countries do not regulate it at all. Many do not consider coal ash as a solid waste. Analysts say many countries do not have any groundwater monitoring or engineering requirements for utilities that dump the ash on site.

Despite growing concerns about the risk posed by coal combustion waste, many country lacks in standards for its storage and disposal system. Even, the U.S. Environmental Protection Agency does not consider the waste "hazardous" even though it does contain harmful metals such as lead and arsenic. In other words, in most of the country, coal ash is not regulated.

F. Conclusion – Where ever there is no regulation to control the coal ash menace, immediately, in the interest of safety and environment, coal ash disposal must be regulated in the effective manner, in order to mitigate the adverse effect.

Source : <http://saferenvironment.wordpress.com/2009/07/02/coal-ash-disposal-becoming-burning-issue-%E2%80%93-needs-to-be-resolved-in-eco-friendly-manner/>