



Coal ash handling

This is how we do it

By Erin Huntimer

The breach of the coal ash dam in Tennessee in December 2008 shed a grim light on the coal industry, as images of homes buried in gray sludge led the national news of the day. About 5.4 million gallons of wet coal ash was released from the Tennessee Valley Authority's Kingston Fossil Plant coal ash pond when an earthen dam collapsed. About 275 acres were inundated, and 40 homes were damaged or destroyed, according to the TVA.

The disaster led to questions nationwide, and close to home, about the storage of coal combustion waste. A story by the Associated Press identified 156 power plants in the

United States that use coal ash ponds, including one of Basin Electric's facilities in North Dakota – the Leland Olds Station near Stanton. The article left a heavy question hanging in the air:

Could this happen here?
Thankfully, the answer is **no**.

Basin Electric's coal ash disposal methods are safe, environmentally responsible and closely monitored by the states. Let's look at how Basin Electric handles coal combustion waste at the Leland Olds Station and Basin Electric's other coal-based power plants. What many may not realize is that good things can be done with coal ash.

Leland Olds Station

Stanton, ND



Fly ash can be added to concrete as a cement replacement. This was the case at the Leland Olds Station when foundations for the new maintenance building were poured in 2006.

The Leland Olds Station uses primarily lignite coal with some subbituminous coal to fuel its two units. Two kinds of ash are produced: fly ash is collected from the flue gas in the electrostatic precipitators, and bottom ash settles to the bottom of the boiler.

Leland Olds sells some of its ash for commercial and industrial uses. Bottom ash is sold for use in sand blasting materials and for traction material on roads. Some fly ash is also sold for use as geotechnical fill or as a concrete additive.

In 2008, 688 rail cars hauling 62,000 tons of bottom ash were sold, along with 163 trucks carrying 4,000 tons of fly ash. Remaining fly ash is hauled by truck to a permitted, lined landfill at the former Glenharold Mine site, adjacent to Leland Olds.

Leland Olds uses two ponds to settle out and recover bottom ash, not fly ash as was the case in Tennessee. Other than natural precipitation, inflows to the ponds are controlled by pumps operated by plant employees. While one pond is in close proximity to the Missouri River, it contains no ash, as it is settled out in the first pond. The ponds are inspected annually by the North Dakota Department of Health.

Laramie River Station

Wheatland, WY



Fly ash from the Laramie River Station was used during the construction of the Denver International Airport. (Photo provided courtesy of Denver International Airport.)

Laramie River Station uses subbituminous coal from the Powder River Basin to fuel its three units.

Fly ash from Laramie River was used in concrete for construction of the new Denver International Airport. During construction, the airport took nearly all the fly ash Laramie River produced; annual fly ash production from the three units is 400,000 tons.

Today, annual ash sales average about 50,000 tons.

At Laramie River, the fly ash and limestone waste slurry from the scrubbers are mixed. They react and form a solid cement material that is landfilled on site. The bottom ash is sent to holding ponds, dewatered, and then excavated from the ponds and landfilled on site. The water is recycled back into plant processes that do not require high-quality water, such as water lancing slag in the boiler.

Ponds are inspected every five years by the Wyoming state engineer's office.

Antelope Valley Station

Beulah, ND



Bottom ash is applied to winter roads to help vehicles maintain traction.

Antelope Valley Station uses lignite coal to fuel its two units. About 32,000 tons of ash are sold annually for commercial and industrial uses. Unsold fly ash and bottom ash is landfilled on site at the solid waste facility.

Bottom ash is dewatered in tanks. The water is recirculated to transport additional bottom ash. The ash is then hauled by truck to a lined landfill off site. For fly ash disposal, a small amount of water is added to the fly ash to reduce dust while it is transported in the same manner to the same landfill site.

Dry Fork Station

Gillette, WY



The new Dry Fork Station will use dry methods for handling bottom ash and fly ash.

The Dry Fork Station is under construction near Gillette, WY. It's slated for commercial operation in 2011. It will use subbituminous coal to fuel its single unit.

The new power plant will use dry methods for handling bottom ash and coal ash. Bottom ash will be removed using a chain drag. The fly ash will be conveyed in a dry state. Both ashes will be disposed in a landfill close to the plant site.