



## Eliminating Maintenance In Coal Fired Power Plants



When Georgia Power's Plant Jack McDonough was looking for a better way to deal with clinker grinder leakage and related problems, it turned to Inpro/Seal, inventor of the bearing isolator.

Like most other coal-fired power plants, this Smyrna, GA facility uses clinker grinders in its ash-handling system to crush large lumps of bottom ash into easily sluiced, smaller sizes. The coal or ash is quenched in wet ash, hydraulically discharged through ash sluice trenches and pumped to an ash-fill area.

Plant Jack McDonough uses two Allen-Sherman-Hoff grinding machines that contain two clinker grinders on each unit, running at 65 rpm. During process, large lumps of ash are formed on the boiler walls. Double roll clinker grinders, containing "teeth" that work under high pressure, shatter the ash material (clinkers) and grind them into smaller sizes. Once ground, the material is sent to an ash pit, where it is converted into a water slurry and removed through a water channel (sluice) in the basement of the plant.

Unfortunately, this facility had a problem faced by all coal plants—outdated sealing methods were causing water, fly ash, coal and other materials to leak out and contaminate clinker grinder bearings. The end result was premature and unnecessary bearing failure.

The plant had tried, without success, a number of sealing methods to eliminate the leaking, including: lip seals, gasketing, fibrous materials and other packing methods. None of them worked. Bearings continued to fail. In addition, water/ash mixture wound up on the floor under the ash pits. This contributed to more downtime and more maintenance headaches, along with unnecessary labor, safety and environmental concerns.

Plant personnel assumed that there was no way around their leaking problems and bearing failure was considered to be "normal." That is until they looked into Inpro/Seal Company's bearing isolator. This compound labyrinth-sealing device had long proven itself as an effective way to protect bearings in process applications worldwide.

Having worked with other dry particulates, powders and solids, as well as with other material handling systems, Alfred Lakos, Inpro/Seal's Atlanta Regional Manager and Tom Coe, Inpro/Seal's Manager of R & D, understood the coal plant's quandary. They also knew how to handle friable materials. More importantly, they recognized that traditional sealing methods used by coal plants simply did not protect the grinder bearings.

Contact seals and fibrous packings were subject to wear and short operating lifetimes, while simple labyrinth seals allowed the free transfer of particulates that progressively deteriorated the immediate environment. Furthermore, these particulates acted as a contaminant and ground away at operating equipment, which in turn damaged the shaft, seal and other critical components of the clinker grinder.

Coe and his R & D staff worked hard to come up with a solution to this problem: a Two Plane Articulating Bearing Isolator. The only product of its kind, the Two Plane Articulating Bearing Isolator moves up and down, and with angular motions, which allow it to handle all types of radial and axial movement. Other features include a non-contact design for longer service life, ease of installation and a unique constant air purge system that functions as a barrier to contamination.

The bearing isolators were installed at Plant Jack McDonough in December of 2002. According to Inpro/Seal, since that time, the facility has yet to have had a clinker grinder fail.

**Inpro/Seal Company, Inc.**  
**Rock Island, IL**  
**Circle #265**

