



Power Generation
**Standardizing Ash Handling Helps Utility Save
Hundreds of Thousands of Dollars**




THE SITUATION

A large power generation facility in Illinois had ongoing maintenance challenges with their existing coal ash handling systems.

Previous expansions by various engineering, procurement and construction contractors led to inefficient equipment and conveyors to handle the high-temperature ash exiting the boilers. The utility needed a better ash handling method to improve operations and reduce maintenance costs.

The most complex and costly was a water-jacketed cooling screw conveyor, designed to handle the high temperatures of the incoming ash. The ash fell directly to the screw, requiring ancillary pumps and water filtration before moving through a rotary feeder to maintain a seal on the boiler. A drag conveyor then elevated the ash to storage.

A large industrial power plant at night. A tall smokestack on the right emits a thick plume of white smoke into a dark blue twilight sky. The plant itself is a complex of white and grey structures with various pipes and scaffolding. Several conveyor systems, illuminated with bright green lights, are visible, transporting material from the plant to large, dark conical piles of ash in the foreground. In the background, there are stacks of white cylindrical containers and other industrial equipment. A yellow-bordered text box is overlaid on the right side of the image.

**EACH BOILER HAD ITS
OWN UNIQUE SYSTEM
WITH HIGH MAINTENANCE
COMPONENTS.**

THE CHALLENGE

THE PLANT'S GOAL WAS TO REDUCE MAINTENANCE RESOURCES WHILE IMPROVING OPERATING EFFICIENCIES. THE KEY WAS SIMPLIFYING THE ASH CONVEYORS.

The facility's engineering manager contacted CDM for an evaluation based on the company's 40 years of experience with ash handling systems.

The problem was the setup of each boiler was different. CDM found differences in manufacturer, capacity, ash draw-off position, ash temperature and volume, and layout configuration.



THE SOLUTION

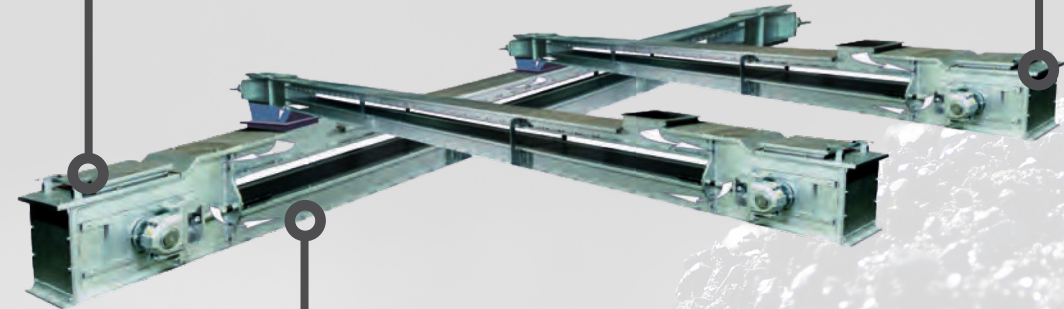
To standardize the ash handling conveying with minimal maintenance, CDM redesigned the water-cooled screw conveyor with two drag chain conveyors and a collecting transfer unit. The split trough design handled the sealing process at the boiler discharge while facilitating ash cooling.

CDM reduced the product bed depth to just above the flights while the return chain speed metered the discharge flow. This engineered flow design allowed a head of ash to remain in the boiler, which created a seal at the boiler discharge to prevent airflow downstream of the boiler.

CDM retrofitted the existing drag conveyors with 142 TPL series chains to unify all conveyors in the plant with the same base chain. This standardization allowed for a single chain series and assembly, along with various flight types for use in existing equipment throughout the facility.

CAPACITIES UP TO 100 TPH PER SIDE. INLET TEMPERATURE TO 1000 DEGREES FAHRENHEIT

CHOKED FEED DRAW-OFF INLETS PROVIDE METERED FEED AND AIRLOCK FOR SYSTEM



SPLIT CASING CONCORD PROVIDE ADDITIONAL PROTECTION FOR COMPONENTS, AND ADDITIONAL COOLING

THE RESULTS

The success of this project transferred into a complete rework of all nine existing boiler systems, and the implementation of two new boilers. The facility has now reduced its store items to only two styles of CDM drop-forged chain, sprockets and terminal idlers.

**STANDARDIZATION SAVED
THE UTILITY HUNDREDS OF
THOUSANDS OF DOLLARS IN
CONVEYOR REPLACEMENT.**

**THIS PROJECT
SIGNIFICANTLY REDUCED
EQUIPMENT EXPENDITURES
WHILE INCREASING
PLANT EFFICIENCY.**

