BURNS McDONNELL

CASE STUDY / **IATAN UNIT 1 ASH HANDLING SYSTEM CONVERSION**

NEW GUIDELINES DRIVE POWER PLANT UPDATE

As the EPA worked to prohibit coal-fired power plants from disposing of waste ash in ponds, KCP&L welcomed an alternative solution: an integrated dry ash handling system.

DRY ASH HANDLING SYSTEM HELPS KCP&L MEET EPA REGULATIONS

With a new ash handling system in place, a Kansas City electric utility company was able to find a disposal method that met new rules being put in place by the EPA.

CHALLENGE

Traditionally for coal-fired power plants, ash — a byproduct from coal combustion for power production — would be disposed of in a designated pond. But when Kansas City Power & Light Co. decided to stop sluicing bottom ash to the pond, a new solution was needed.

That meant a new ash system for KCP&L's coal-fired Iatan Generating Station. The new system not only would meet EPA requirements, but also increase dependability by replacing aging equipment that had experienced significant wear and tear.

SOLUTION

As the design team, we served as the engineering extension of KCP&L from concept through implementation to replace the ash handling system on the 740-MW unit. Tasks included initial study, conceptual design, equipment specifications, construction specifications, general layout, contract management, construction management, collaboration with the contractor team, and assistance during startup and commissioning.

When the old ash handling system was in place, a water and ash mixture was pumped out to a pond. The new system that was installed, including a submerged flight conveyer, dry flight conveyer and fly ash vacuum system, allows the power plant owner to sell the ash or dispose of it in an on-site or off-site landfill.

The operation cycle with the new bottom ash handling system is designed to be very simple. Ash falls from the boiler into a water trough to allow the ash to cool. Next, flight bars pulled by chains take the ash and move it along a dewatering ramp. Once the ash makes it to the top of the ramp, it goes through a chute into a concrete bunker, where it is then loaded and ready for transportation to the landfill. Once that cycle is complete, the flights continue through the lower dry trough and eventually return to the upper trough to begin the next round.

RESULTS

Once the new ash handling system was put in place with the Iatan Generating Station — Unit 1, KCP&L was able to stop sluicing bottom ash to the pond, and instead disposed of it at an EPA-approved landfill. The installation also eliminated the aging bottom ash equipment and replaced it with a new robust, reliable system. The project was completed on time.

PROJECT STATS

CLIENT
Kansas City Power & Light Co.

LOCATION
Weston, Missouri

TOTAL PROJECT COST
$9 million

$9M
PROJECT COST

28
TONS PER HOUR REMOVAL RATE

14
TONS PER HOUR PRODUCTION RATE

09920-IUC-0619