

# DUSTMASTER®

## Applications

### Mixer Systems Tackles Electric Utility's Economizer PRB Fly Ash



Mixer Systems' 40 tph DustMASTER system conditions economizer and fly ash for landfill disposal at this Upper Midwest utility.

Electric utilities, by their very nature, generate large volumes of fly ash. When this material is allowed to build up in the storage silo, the results can be disastrous. The moisture in the air will cause the fly ash to turn to concrete over a period of time.

Power companies therefore demand a method of processing this fly ash material that is safe, thorough, and properly prepares the ash for landfill disposal. An upper Midwest utility recently turned to Mixer Systems to develop a solution.

After studying the problem, DustMASTER® Enviro Systems engineers proposed conducting a test –at our facility- using samples of (in this case) economizer fly ash generated by the utility. The test was conducted with a 20 tons-per-hour (tph) DustMASTER processing system.

The testing procedure required water being added to the ash, from 5% to 15% by weight, and a 60-second mixing cycle. After running numerous tests with varying amounts, DustMASTER engineers selected a 7% -8% water addition and kept the mixing cycle at 60 seconds. This formula produced a dust-free product that the utility found to be acceptable for handling and proper landfill disposal.

Knowing it would process much larger quantities of PRB fly ash at the job site, the utility specified that Mixer Systems install a 40 tph DustMASTER processing unit. According to a project administrator with the utility, "With the amount of Western Powder River basin coal we use, the DustMASTER unit was required to process up to 320 tons of fly ash per day. That kind of capacity dictated a 40 tph unit."

"Given the high production levels we strive to attain, it's important that the equipment be reliable," the administrator continued. "Mixer Systems' DustMASTER unit has operated at peak efficiency, with only minimal maintenance required." As an added value to the processing operation, DustMASTER Enviro Systems modified its equipment for the utility by making the addition of lignin a part of the system's programmable controller.

Lignin is used to retard the set-up time of the economizer ash; in the past, the utility manually added the material to the mix from a heated tank. By making it an automatic addition via our programmable controller, the utility has the option of using lignin or bypassing it.

"Incorporation of options like lignin, or other reagents are what set Mixer System's DustMASTER unit apart from its competitors," said the utility project administrator. "The DustMASTER unit is the best ash unloading system we have ever installed."



The DustMASTER programmable controller with 100% manual override, operates the DustMASTER system.

# Processing PRB Fly Ash From an Economizer

Type of Company: Electric Utility

Location: Upper Midwest

System: 20 tph DustMASTER Test Unit

Product Tested: Fly ash from the economizer

Coal Type: PRB Western Coal

Objective: Test was conducted to determine if a DustMASTER system could successfully process water with the PRB fly ash to achieve a dust-free product for landfill disposal.

TEST DATA	TEST #1	TEST #2	TEST #3
Water by Weight	15%	10%	8%
Mix Time	60 sec.	60 sec.	60 sec.
Dry Ash Density	50#/cu. ft.	50#/cu. ft.	50#/cu. ft.
Conditions Produced	Non dusting Wet Paste	Non dusting Small/Medium balls Too wet	Non dusting Small/Medium balls Damp earth consistency
Unloading Time	18 sec.	15 sec.	15 sec.

Final product was dust free, with 8% water and a 60-second cycle. The ball material and all fines were wetted through. The fly ash was acceptable for transportation and landfill disposal.



The 40 tph DustMASTER unit in place under an economizer ash silo.



The conditioned PRB ash at landfill site.

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