

Fly Ash Reclamation through Beneficiation

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KEYWORDS: fly ash, ash ponds, landfills, ash recovery

INTRODUCTION

When we think about recycling fly ash, we quickly categorize the opportunities for the fly ash. When we think of dry fly ash, we think of placing it into concrete. For conditioned ash, whether in from a silo or from the landfill, we think of using the fly ash for raw feed in kilns or as a structural material in civil projects. What if we could change these pre-conceived notions? What if we could reclaim ash from ponds or landfills and sell it for use in concrete?

OPPORTUNITY AND SOLUTION

The four existing Carbon Burn-Out (CBO) plants were built to process all the on-site ash production, plus ash that could be trucked in from off-site. The original emphasis was to continue ash sales, extend landfill life, or avoid off-site disposal charges. With the increased emphasis on landfills from EPA, we have looked at ways to use the additional processing capability to reclaim fly ash from landfills, rather than truck ash from other locations that had available landfill capacity.

Central to reclaiming the disposed ash, is the use of the heat generated by the CBO fluid bed. The CBO technology is a heat exporter and usually this heat is returned to the power plant to reduce the coal burn. When we want to reclaim ash from landfills or ponds, we divert a portion of the heat from the power plant and use it to dry the fly ash.

The reclaim activity begins with mapping the landfill to determine the locations of the recoverable materials. The fly ash is gathered, placed in a dump hopper at the landfill with a vibrating screen to separate oversize material. The fly ash is then transported for further processing and drying.

The fly ash goes into a ribbon mixer, with the purpose of separating the fly ash particles. Heat from the CBO plant, along with some beneficiated fly ash, is used to both dry and separate the recovered fly ash. The ash is then gravity fed into a silo. From the silo the fly ash is transported, using a blower, into the CBO fluidized bed for processing along with fly ash coming directly from the power plant.

APPLICATIONS

This can work to create landfill space for an existing customer, for a placing a beneficiation project at a centralized landfill, or for aggregating ash from several smaller power plants.