

P1572

Macawber Installation Case Study:

Ground Biomass Ash - Brewery, Mexico

IN BRIFF

Problem: Large brewery wishes to recycle waste grain and malt from the brew process for the production of electric power. Handling the biomass ash cleanly and economically was required.

Solution: Macawber pneumatic conveying systems were used to convey boiler bottom ash and fly ash away to storage. The biomass is dried and transferred to a boiler where it is burned with #6 oil. The biomass fly ash is gathered from four electrostatic precipitator (ESP) hoppers and pneumatically conveyed to an ash silo. The bottom ash is crushed and transferred a short distance via customer's mechanical conveyor to a pneumatic conveyor where it is transferred to an ash silo for truck loading.

MATERIAL CHARACTERISTICS

Material Brewer Grain Fly Ash

Brewer Grain Bottom Ash (brewer grain fired with #6 oil)

Bulk Density Aerated 570-730 kg/m3 (36-76 lb./ft3)

Size Fly Ash: 100%<100 mesh

Bottom Ash: 300x150x65 mm (max)

Temperature 161°C – 300°C

Moisture Content ~0%

Condition Free flowing when aerated

SYSTEM OBJECTIVES

- 1. Minimize wear and air usage.
- 2. Reliable and consistent conveying.
- 3. Operate with -15.1" wc vacuum in baghouse.
- 4. Operate with elevated bottom ash temperature of 300°C

SYSTEM PERFORMANCE

Transfer Capacity BA: 635 kg/hr (1400 lb/hr)

FA: 657 kg/hr (1450 lb/hr)

Conveying Distance BA: 120m (394ft)

FA: 56m (184ft)

Reception Points One

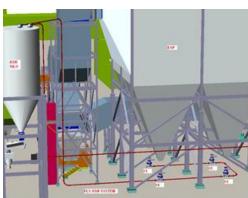
IMPROVEMENTS ACHIEVED

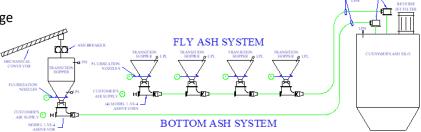
1. System operation is stable, reliable and efficient

2. System capacity exceeded specified rates

3. Air consumption was below MEI quoted average







Phone: +1 (865) 984-5286 Fax: +1 (865) 977-4131