Ash Handling Procedures 2025 Narrative

Ash is generated by the combustion of biomass fuel in the boilers. There are three locations where it is collected. The first source is the “Boiler Rock” (also commonly called “bottom ash”) which is recovered from the “Drag Chain Trench” which is a water seal for the boiler firebox. The design of the boiler is such that fuel is spread evenly at the back of the firebox and moves forward on an inclined, shaking grate as it combusts. The lighter particles of ash are carried into the flue gas stream, but larger particles of ash, unburned wood, pieces of metal, and rock fall off the grates into the Drag Chain Trench (water seal for the boiler firebox) at the front of the boiler. This material is then dragged by the “Drag Chain” up an incline out of the water and deposited in a bunker. From here it is transferred by front end loader to the “Boiler Rock” storage pile where it is stored until it can be transferred by chip truck to the local landfill for permanent disposal.

The second place that ash is recovered is from the “Multi-Clone” separators. The Multi-Clone separators use cyclonic separation to separate particulate material from flue gas extracted from the boiler. The gas is then reinjected into the boiler firebox while the particulate is further separated in the Biochar separation system. In the Biochar separation system, much of the unburned carbon fraction (Biochar) is separated from the rest of the particulate matter (mostly metallic oxides from the combustion process) and recovered for commercial use. The balance of the particulate matter removed is transferred by a series of conveyer belts to a conveyer belt where it is combined with the “ESP Ash” recovered by the “Electrostatic Precipitators” (commonly referred to as “ESPs”). While on the conveyer belts the ash is dampened by spray nozzles to minimize generation of dust.

The final place that ash is recovered is in the Electrostatic Precipitators. This material is referred to “ESP Ash” (also commonly referred to as “fly ash”). In the ESP’s electrically charged plates capture particulate by taking advantage of its electrostatic charge which causes it to adhere to the plates. Rappers periodically shake the plates causing the particulate to fall to the bottom of the ESP cell where an auger moves the material to a conveyer belt where it is combined with the Multi-Clone ash before being deposited in the ash bunker. From here it is transferred by front end loader to the ash storage pile where it is stored until it can be transferred by chip truck to the local landfill for permanent disposal. The storage pile is sprinkled with water to minimize dust generation.

Fuel Handling Procedures 2025 Narrative

The principal way biomass fuel (also known as hog fuel) comes to the Plant is in chip trucks regardless of the source of the fuel. This material is already ground to size and ready to use. It usually comes as mill waste (bark, sawmill or plywood trimmings, sawdust, sander dust, or rarely chips). The fuel is sampled and tested for moisture content and quality.

The trucks are dumped on one of two hydraulic truck dumps. Material dumped at the South Truck Dump (the primary truck dump) is moved by loader directly to the storage pile for storage. It is spread as uniformly as possible over the surface of the pile to ensure mixing in order to provide as homogeneous a fuel supply to the boiler as possible. Material dumped on the North Truck Dump is processed as salvage material.

Delivered salvage (biomass) material can be delivered by dump trucks, log trucks, chip trucks depending on what form it is in. This material is processed in our Reprocessor then sent to the fuel pile by conveyer belt. Once there it is sampled for moisture and quality testing before being spread over the pile like truck delivered fuel.

Yard trimmings and remodel material is also delivered in smaller trucks, trailers, and pickup trucks by the public to the public yard. The remodel waste is put into the “crush pile” where a bulldozer is driven over it until the pieces are small enough to move by front-end loader to the Reprocessor where it is processed into “hog fuel” before being sent by conveyer to the fuel pile. Once there it is sampled for moisture and quality testing before being spread over the pile like truck delivered fuel.

Other sources of biomass fuel are wood product production facility wood waste that is oversized, logging slash piled at landings, and orchards removed for replanting. All of these are considered “off-site salvage”. Biomass One, LP has two horizontal grinders that are used to process these materials into “hog fuel” and it is then sent to the Plant via chip truck and handled like our other delivered biomass fuel.

As mentioned previously, the fuel is spread out over the pile currently being built in order to achieve homogeneity (stable fuel quality and composition greatly enhances environmental compliance and operational stability).

There are two fuel piles at the Plant. One is being built while the other is being consumed (first in first consumed). Loaders are used to move the fuel to and around the piles and then move it to the feed system to be consumed. The fuel is moved by conveyer to the disc screening system to remove pieces too large to fit through the “wood feeders” then under a belt magnet to remove pieces of metal before being sent to the “distribution conveyer”. The “distribution conveyer" provides the fuel to the “hoppers” supplying the “wood feeders” which distribute it within the boiler firebox to be combusted.