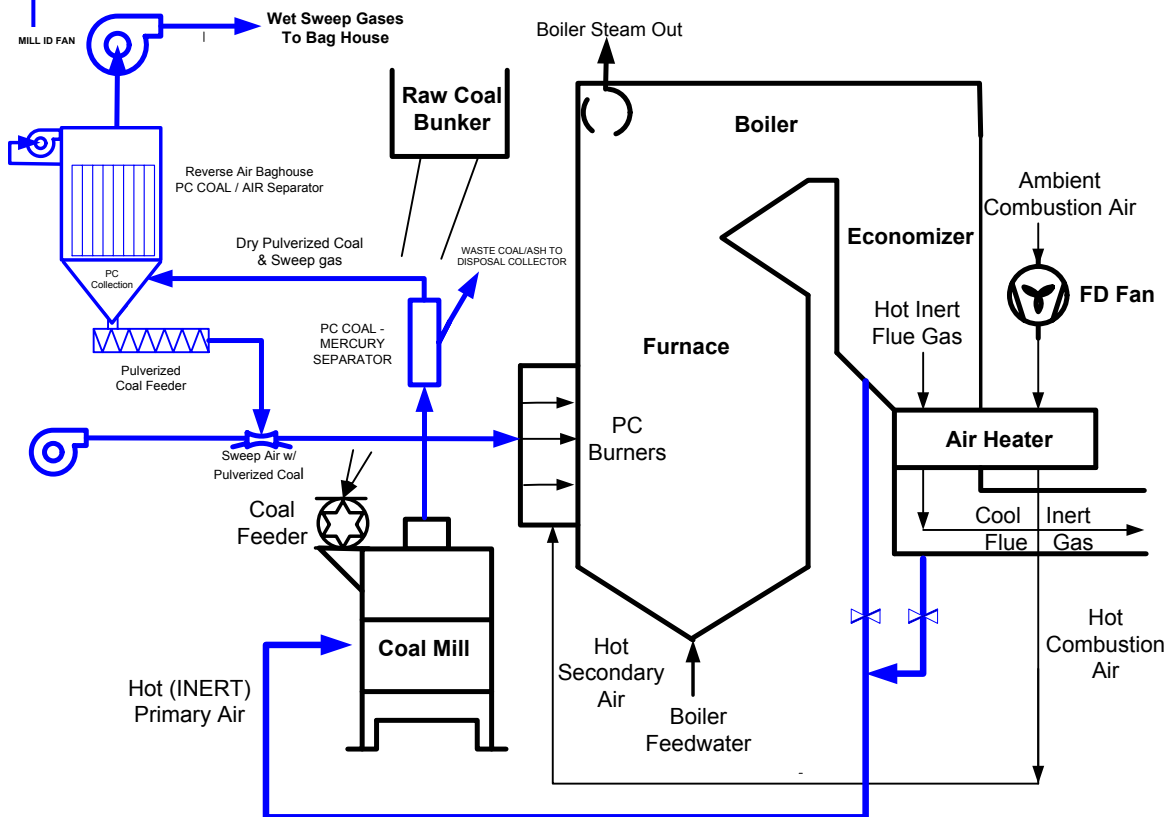


Fast - Safe PRB Coal Drying Process



Fast - Safe PRB Coal Drying Process

Add Powdered Coal - Sweep Gas Bag house – One for each coal mill

- 1.) Replace the hot primary air to the coal mill:
 - With hot inert boiler flue gas ((low O₂))
 Improves operation safety - eliminate mill fires & puffs
 - Dries the pulverized coal (to <10% moisture)
2. Re-direct the powdered coal and wet sweep gas from the mill to a small bag house:
 - Separate the wet sweep gas from the dry coal.
 - Dispose the wet sweep gas around the boiler to plant stack. (removed water improves boiler efficiency)
 - Collect the dry powdered coal in the bag house hopper
- 3.) Convey and Meter the dry powdered coal to the Burners

Processes the coal as fast as it is pulverized

Coal - Sweep Gas Separator



- Separates powdered coal from mill sweep gas
- Inert gas used for bag cleaning (No O₂)
- Hopper w/ level switches maintains ~15 min. coal supply
- Gate & spouts & rotary feeders - meters powdered coal to Burners

Powder River Basin (PRB) Low Rank Coals

Coal Characteristics - PRB :

- Low in Btu ~ 8300 Btu/Lb.
- High in Moisture 25 – 35%
- High in Ash 10 – 15%
- High in Mercury 130 to 150 ppb

Coal Beneficiation Target - PRB Coals :

- Increase Btu ~ 10,000 + Btu/Lb. (+20%)
- Reduce Moisture 10 – 12% (- 50%)
- Reduce Ash 7 – 10%% (- 50%)
- Mercury Compliance ~40 ppb (- 75%)

EPA MACT – Mercury (Hg) Compliance:

- Existing Plants = 5.7 lb./Trillion Btu or ~ 40 Parts / Billion