Operation and maintenance of biomass fuelled heat plant

Modern biomass fuelled boilers are designed for near automated operation and minimal daily maintenance. The degree of operator involvement depends on the fuel type and heat demand. A facility with very homogenous fuel such as wood pellets and a steady heat demand will require minimal operator attention. Maintenance depends to a considerable extent on the particular installed plant and its fuel supply.

Safe operation

Always read the suppliers maintenance guide.

Optimal performance

Beyond that, make sure that your operating schedule reflects what you really need. You don't want to be running plant unnecessarily.

- Make sure your fuel store is always dry, especially running pellets.
- Ensure that the safety burn-back protection systems work, but test them absolutely as the supplier states to avoid embarrassing releases of water into the fuel handling system.
- Ensure that when opening an inspection door, particularly on a boiler which is not actively firing, but which is still alight, that the door is cracked open with the catch still adequately in place, to avoid any "flash-back" from the boiler as fresh oxygen flows through the door into a gas-rich combustion space.
- Always, always, always, test ALL the safety devices at the start of the operating season. Does the thermostat control correctly? Does the high level cut out thermostat operate correctly, and does it "lock-out" until manually re-set? If the boiler is open vented, is the vent open and in good order all the way to the discharge? If the boiler is a sealed system, is the boiler safety valve operational and has it been confirmed that it will open at a pressure below the maximum safe operating pressure of the weakest part of the heating system (typically pressed steel radiators)? If it is a sealed system, has a back-flow preventer been fitted between the system and the cold water mains? It is essential that a pressure regulator with a safety valve set to operate above the regulated fill pressure (but below the boiler safety valve operating pressure) is installed in the cold feed.
- Your system MUST have a water meter fitted to the cold water make-up line from the mains, and that meter must be logged regularly. A good water tight system will use no water at all. If it is using water, then the leak must be found, as it is introducing fresh oxygen into the boiler circulating system which is corroding it out the whole system from the inside.
- If as system is completely watertight, then in the absence of a fresh source of oxygen, internal corrosion stops. However, most systems will use a small amount of water. It is

important that systems are “dosed” with anti-corrosion chemicals, and that the dosed concentrations are checked at least annually, more frequently if there are leaks.

- Modern pellet fuel boiler are maintained remotely in many cases – (often from Europe).
- Removing ash required (considerably less than wood chip and coal).
- Boiler tuning as required by a combustion engineer for boiler efficiency. This is usually only required once a year or even less often depending on the boiler.
- Ensuring pellets are kept dry is the only requirement
- There is also a big need (in many cases) to ensure the energy system is operating correctly – no leaking, radiators, pipes etc in good condition and operating – this will result in a safer and more efficient system and lower operating costs.

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