Water tube Boiler Commissioning Procedure and Checklists

The operation of checking the equipment and tuning them before putting into commercial operation is commonly termed as ‘commissioning’. The boiler commissioning activity includes the following:

- **Boiler Inspection**, pre-operation checking and preparation of the equipment including specialized cleaning.
- Trial run, initial operation and performance monitoring.

Many of the equipment including auxiliaries, such as fans, ESP, handling system, etc., are engineered and supplied by different agencies. Hence, commissioning activities involves effective co-
ordination with various suppliers.

**Pre-commissioning Checks:**

This activity is performed, to ensure erection completion, compliance of critical dimensions/tolerances, checking of field quality assurance log sheets, removal of unwanted material and to ensure access facilities for maintenance and inspection. Checking each product as per the commissioning check list before starting of any boiler commissioning activity will enable smooth commissioning of the boiler.

**Trial run of the equipment:**

All the rotating equipment must be individually taken up for trial run. Before trial run, the availability of power, cooling water, lubricants should be ensured. Prior to trial run of the equipment, the drive unit will be taken up for trial run, in uncoupled condition. The protection and interlocks should be tested and ensured. After successful commissioning of the drive unit, the equipment will be coupled and trials run, at no load, for unusual noise, abnormal vibrations etc., to be caused out. Any defects should be immediately attended and trial run repeated till satisfactory results are obtained.

**Pre-commissioning Activities**

The following activities are to be carried out before commencing trial operation of the boiler.

- Refractory dry out
- Air tightness test
- Gas tightness test
- Alkali Boil out
- Passivation
- Steam blowing
- Safety valve setting
- Testing of protection & interlocks
- Calibration of instruments
**Trial Operation of boiler:**

Satisfactory completion of pre-commissioning activities is a milestone in boiler commissioning. This indicates readiness of the boiler for trial operation. At this time, all facilities and inputs, for loading the units and putting into regular service should be ready.

The boiler should be lighted up in accordance with the operation and maintenance instructions. The rate of pressure rise and furnace outlet temperature should strictly adhere to the start-up curve. During the first few start-ups, it is recommended to raise the load at a slower rate in order to acquaint the operators with the behavior of the various systems.

All the automatic controls including the furnace drafts, drum level, the steam temperature should be put into operation progressively. Combustion regime adjustments should be taken up at this stage for optimizing the boiler performances. The furnace must be visually checked for proper combustion at regular intervals.

Before taking the unit up to full load, the boiler should be maintained at different loads to check the performances of the individual equipment as well as the system.

After successful commissioning and establishing the boiler up to the full load, a document highlighting the various activities, record of data collected should be prepared and maintained for future reference.