TRAINING WORKSHOP
Diagnosis of Boiler Parameters to Assess Performance & Reliability

Conducted by
INDIA BOILER DOT COM
promoting a favourable environment for power plants

Date:
6th, 7th & 8th June 2018
Venue:
HOTEL SAYAJI, VADODARA
Introduction:

In process utilities and Power plant, there are only few equipments that can be as critical as Boiler. They work in an extremely adverse condition of high temperature and pressure and consuming costly fuel! Due to its criticality, a large number of system parameters are continuously monitored. There are actually very few equipments, where as many parameters are being monitored, as we do in a boiler. Since they work in an extreme environment, even a slightest change in operating condition may adversely affect either their performance, or their health, or, both. But when it happens, it invariably reflects in one or other system parameter that we monitor.

The engineering personnel involved in Boiler O&M need to know what to look for and how to interpret the indications.

- Steam flow is inadequate – what should I check?
- Exit O2 is less – should we just increase the air, or should we check other parameters too?
- Which parameter should we check for combustion optimization?
- The Boiler Exit gas temperature is high for the same load – where should we check?
- When operate the wall blower or the LRSB?
- Steam Attemperation has increased – are we loosing energy? Does it also warn us of possible Super heater damage? Where should we look to control it?
- Steam attemperation has decreased – should we be happy?
- Which parameters should we notice to identify water wall, or super heater tube leakage?
- Bed temperature in CFBC/ AFBC boiler is increasing – should we increase primary air?
- Un-burnt in the fly ash has increased – should we reduce fines?

...and numerous such questions can crop up into the mind of the O&M engineers.

It requires an analytical mind to diagnose the system performance and reliability from the change in various boiler parameters. This unique training workshop is designed to hone the diagnostic skills of the Boiler O&M engineer to assess the condition of the Boiler with the help of various system parameters. The diagnostic approach of system parameters will be discussed with respect to PF, AFBC, CFBC, oil and Gas fired Boilers and HRSG. This course will also help the O&M personnel to develop a detailed check list for the performance and reliability audit of their boiler system.

What They Would Learn?

After completion of this training the participants will gain the knowledge about

- Each components on the basis of their role in the steam generating system;
- Fuel firing mechanisms and the relationship between fuel quality and efficient combustion characteristics;
- Combustion optimization steps
- Assess condition of heat transfer in radiant and convective part of the boiler system
- Mechanism of corrosion and scaling in boiler and their relation with water quality;
- Major tube failures, their root cause and possible remedies
- Diagnostic technique to assess the performance and reliability of their Boiler system from system parameters
Programme Detail:

- Different boiler systems; PF fired, AFBC, CFBC, Oil & Gas fired and HRSG - their operating philosophies
- Various components in steam generating system and role of each individual component in the total system
- Interface between Basic engineering concept and Operation. Assessment of Boiler performance, performance of auxiliary equipment.
- Fuel Characteristics and their effect on combustion
- Combustion mechanism, conditions for proper combustion,
- Heat transfer at various parts of boiler and factors affecting heat transfer
- Operating characteristics – Importance of various operating parameters, Adjustment of operating parameters to achieve reliable and most efficient operation.
- Diagnosis of change in important parameters like temperature, pressure, flow, level, gas and water parameters, etc. to identify performance problems.
- Critical factors affecting pressure parts reliability
- Key indicators to watch out for, which may lead to Overheating, Water side corrosion, Fire side corrosion, Stress Failures, Erosion and Fatigue failures

Few of the important Parameters that would be discussed:

- Main Steam Pressure, Temperature & Flow
- APH gas & Air temperature and X ratio
- Mill outlet temperature
- Pressure drop across PA duct
- O2, CO and CO2 in flue gas
- Un-burnt in Fly Ash and Bottom Ash
- Economizer inlet/ outlet gas and water Temperature
- Primary, Platen and Radiant SH inlet/ outlet gas and steam temperature
- Attemperation Spray Water Flow
- Significance of Metal temperature
- Tube Thickness measurement
- Furnace-Wind box DP
- Bed temperatures in AFBC/ CFBC
- ESP outlet temperature
- Deaerator Temperature, Pressure, Level & Vent steam flow
- PA/ FD/ ID Fan Flow, Discharge Pressure and Amp.
- Coal Sieve Analysis
- Oil Temperature & Pressure
- Atomizing Steam Pressure & Temperature
- Feed Water, Boiler Water, steam and Condensate Analysis Parameters, etc.

Course Structure

7 days pre-training web interaction | 3 days classroom training | 15 days post-training follow-up session

Virtual Classroom

After registration, each participant would be provided with a username and password to access the Virtual Classroom for this training at our website www.indiaboiler.com. First, there will be a pre-training session for 10 days, where the participants would be offered a soft copy of the study material and a guideline. Each participant can indicate what they expect to gain from this training.

There would be 10 days follow-up interaction through Virtual Classroom between the participants and the faculties after the completion of the classroom training. This will increase the opportunities for more detail discussion on the large number of topic covered under the course module.
Date: 
6th, 7th & 8th June 2018

Venue:
Hotel Sayaji,
Near Bhimnath Bridge, Opp. Parsi Agyari,
Sayajigunj, Vadodara.

Time:
9.30 am to 5.00 pm

Programme Fees

1. Non-Residential: ₹ 16,500/- per candidate + service tax
2. Residential Twin sharing: ₹ 28,000/- per candidate + service tax [Accommodation will be offered on Twin sharing basis]
3. Residential Single: ₹ 32,500/- per candidate + service tax [Accommodation will be offered on Single occupancy basis]
4. Overseas participants: USD 1000 per candidate [Inclusive of all taxes] [Overseas participation is on single occupancy basis residential only]

(DD/ Cheque should be prepared in the name of India Boiler dot Com, payable at Vadodara)

The Workshop registration fee for Non-residential participants includes:
• 7 days pre-training interaction through Virtual Classroom
• 3-days classroom training
• Course material
• Mid-session tea and coffee breaks
• Lunch on all 3 days
• 15 days post training Follow-up session through Virtual Classroom

The Workshop registration fee for Residential & Overseas participants additionally includes:
• Stay for 3 nights at Hotel Sayaji, Vadodara.
• Breakfast ∙ Dinner

The accommodation will be available from 1200 hrs on 5th June to 1200 on 8th June 2018.
If any participant wants to extend his/ her stay further, then it has to be done at their own cost.

Registration Procedure

Nominating organization should send duly filled registration form along with a demand draft on the course fees.
For overseas nomination, the fee has to be transferred to our account.

Contact for Registration:
Programme Coordinator

B-2 Miraj Apartment, Near Natubhai Circle,
Inox Cinema Road, Race Course(w), Vadodara–390 007.

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