

## **Steam Boilers – Operations, Troubleshooting, Inspection, Maintenance and Repair Course**

**Training Date:** 06 – 10 May 2012 (5 Days)

**Training Venue:** Swiss-BelHotel, Doha, Qatar

**Training Time:** 0730 – 1430 hours

**Training Fee:** USD3,500 per participant

### **COURSE OBJECTIVES**

This program is a tremendous learning experience and is essential for each and everyone who are involved in design, operation, inspection and maintenance of steam boilers or steam systems. This course is also provides the practical knowledge for safe operation and maintenance of boiler plant.

### **WHO SHOULD ATTEND?**

Engineers, team leaders/coordinators, operations engineers, maintenance team leaders, engineers, operations team leaders, inspection, senior operations and maintenance personnel, experienced professionals who want to review or broaden their understanding of steam boiler systems, professionals with little to moderate experience with steam boiler systems and other professionals who want a better understanding of the subject matter.

### **TRAINING OUTCOMES?**

At the end of the course, the participants should be able to:

- Get an overview of boiler design.
- Understand the basis of boiler selection at project stage.
- Understand combustion process and burner operation
- Identify the major hazards that's related to operation and maintaining the boiler and steam systems.
- Operate the steam boilers and steam systems with the safe conditions.
- Describe the boiler operations, troubleshooting, processes.
- Describe the uses of steam in process plant and power generation sector.
- Describe key parameters affecting boiler performance.
- Describe basic controls used in boiler

### **COURSE PROGRAM**

#### **Introduction to Boilers :-**

Definition of boilers,  
Basic steam process,  
Fundamental of heat transfer in boiler systems (conduction, convection and radiation process),  
Principle of fire-tube and water-tube boilers,  
Boiler efficiency,  
Application of various types of steam pressures and temperatures, and  
Boiler water treatment system.

#### **Overview of Boiler Design:-**

Boiler basics and steaming process  
Components of boiler,  
Mass and energy balance,  
Routing of combustion gas inside the boiler,  
Basic boiler controls, and  
Boiler selection criteria are during project stage.

#### **Combustion of Steam Boiler Systems:-**

Oil and gas burners  
Different designs and their applications in oil & gas industry  
Flame configuration – formation and control  
Wide flame and narrow flame burners  
Control of flame configuration – why and how?  
Requirement of excess air  
Why excess air?  
Effect of excess air on boiler efficiency  
NOx and CO – formation and control  
Mechanism of NOx and CO formation  
FBN and ABN  
Relationship between excess air and NOx/ CO formation  
Low NOx burner concept  
Air staging, FGR  
Combustion control  
Parallel combustion control  
Lead-Lag combustion control

## COURSE PROGRAM... Cont'd

### Operations & Trouble-shootings:-

- Boiler start-up and normal operations
- Boiler shutdown procedures,
- Boiler operating logs,
- Emergencies & Trouble-shootings,
- Boiler storage and preservation,

### Boiler Inspection Fundamentals

### Boiler Repair and Maintenance philosophy.

### Questions and Answers Session

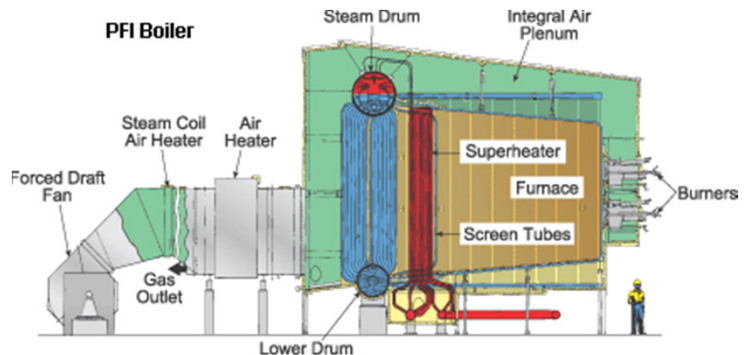
**About the Course Instructor**  
The trainer Mr. Sanjay Junde has been in the boiler industry for the past nearly 3 decades and has experience in boiler engineering, commissioning, operation and trouble-shooting.

After a degree in Engineering, he started his career with Bharat Heavy Electricals Limited (BHEL - India's biggest power plant equipment manufacturing company) as a Boiler Commissioning Engineer in 1981. He was associated with the construction and commissioning of several utility power boilers ranging from 110 to 500 MW for the first 10 years of his career.

Later, Mr. Sanjay diversified into operation and troubleshooting of utility and industrial boilers. He led the Renovation & Modernization business of Thermax Babcock & Wilcox Ltd (TBW) for 14 years. (TBW is the Asian arm of Babcock & Wilcox of USA – the pioneers of steam generation with nearly 150 years of existence).

During his long career with TBW, he focused on boiler troubleshooting, upgrading and life extension of industrial boilers of different makes and designs.

He then joined Petronas, Malaysia as Steam Technologist & Boiler Expert where he upgraded and troubleshot numerous industrial boilers of different makes and rati



During all these phases of his career, he was a dedicated trainer for resources in-house and for the end-user. In Petronas, he has been nominated as a Subject Matter Expert (SME) for Combustion Technology and also a coach under the company's Accelerated Capability Development program for engineers and managers handling steam systems.

He has been instrumental in developing and delivering several training programs for boiler engineers and developing their insight for efficient, reliable and safe operation and improvement of steam systems. With his direct hand-on experience in boiler troubleshooting, his training is practical and easier for the participants to relate with real-life issues and problems.

Mr. Sanjay has presented several technical papers on boilers and steam systems including in international seminars and has received awards and recognitions for his contribution.

### SELECTED CUSTOMERS



# Registration Form

## Please Send Your Registration To:

<b>Tel:</b>	006.013.208.2143	<b>E-mail:</b>	info@cfpets.com
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## Course Details

<b>Course Name:</b>	Steam Boilers – Operations, Troubleshooting, Inspection, Maintenance and Repair	<b>Course Date:</b>	06 – 10 May 2012
<b>Venue:</b>	Swiss-Belhotel, Doha, Qatar	<b>Fee:</b>	USD3,500.00

## Company Information

<b>Organization</b>	
<b>Address</b>	

### HR / Training Manager

### Invoice to be sent to

<b>Name :</b>		
<b>Tel no.:</b>		
<b>Fax no.:</b>		
<b>E-mail :</b>		

## Participant Information

	Participant # 1	Participant # 2	Participant # 3
<b>Full Name :</b>			
<b>Job Title :</b>			
<b>Department :</b>			
<b>Telephone No. :</b>			
<b>Mobile No. :</b>			
<b>Fax No. :</b>			
<b>E-mail Address :</b>			

## Please Pay by Telegraphic Transfer to:

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