



Course Information Letter ---- B101

**PROCESS PLANT
BOILER FUNDAMENTALS
B101**

Today, more than ever, the need for qualified boiler operators is essential for safe and productive operation. In our existing plants we are at a point where many of our operators are nearing the retirement age. To add to that the increase in construction of alternative fuels plants and power plants to meet future needs is unprecedented. Each of these plants relies on steam to produce their product. For this reason many plants are forced to hire less experienced personnel. This course is designed for this type of individual to help him/her understand the importance of safe reliable operation of the plants boiler. It is important for the employer to know that all employees have the basic understanding of the equipment and operation needed for a safe and productive plant operation. This course will give the employee that understanding.

OBJECTIVES:

At the completion of this course the participant will be able to:

1. Identify and describe the different classifications of boilers.
2. Describe the thermodynamic changes that take place in a boiler.
3. Identify how heat transfers take place in a boiler.
4. Identify and locate the various safety devices on a boiler.
5. Explain the difference between sensible and latent heat.
6. Describe how combustion affects efficiency.
7. Identify the special needs for different types of fuels.
8. Describe the various types of draft systems used in boilers.

COURSE OUTLINE

1. Boiler Theory and Operation
 - Steam Boilers
 - Basic Systems
 - Operating Theories
 - Calculations
2. Boiler Construction and Design
 - Materials
 - Fabrication
 - Repairs
 - Calculations

B101 Process Plant Boiler Fundamentals

3. Steam Systems and Controls
 - Superheat
 - Steam Quality Control
 - Steam Accessories
 - Calculations
4. Water Supply Systems and Controls
 - Water Columns
 - Alarms
 - Pumps
 - Calculations
5. Water Treatment Systems and Controls
 - Deaerators
 - Water Treatment
 - Blowdowns
 - Calculations
6. Fuel Systems and Controls
 - Fuel Equipment
 - Controls
 - Flue Gas Analysis
 - Calculations
7. Draft and Flue Gas Systems
 - Draft
 - Pollution Control Systems
 - Stack Analysis
 - Calculations
8. Boiler Operation and Maintenance
 - Operating Procedures
 - Operating in Emergencies
 - Classes of Fires
 - Inspection and Maintenance

COURSE DATES/LOCATIONS/FEEES

For current dates / locations / prices, please see HPC's website, www.hpcnet.com.

FREQUENTLY ASKED QUESTIONS

- Will HPC Technical Services bring this course to our location for our personnel only? YES, call or email Stephen Parker, stparker@hpcnet.com for a price quotation.
- Will HPC Technical Services customize the presentation at our site to suit our particular needs? Yes.
- What is the cost for HPC Technical Service to deliver this course at our location? Well, of course that can vary, but generally speaking, if you're planning on having 6+ attend, when considering your T&L, it is to your advantage to perform the course at your plant (office). You gain from the customization and price.

WHAT YOU WILL RECEIVE:

1. 1 copy of Boiler Operator's Workbook, written by Dean Wilson. It is a valuable desktop reference in addition to being able to enhance the learning process

B101 Process Plant Boiler Fundamentals

2. A "Certificate of Completion" with 1.3 CEUs, authorized for issue by the International Associate of Continuing Education/Training.

INSTRUCTOR (S):



Dan Anderson is the primary instructor for this course. Dan started his career in the US Navy as a Boiler Technician. After his discharge Dan was a civilian instructor for the US Navy at Great Lakes Naval Training Center. While there Dan instructed Navy personnel in the four-phase steam cycle including balance of plant equipment. In 1990 Dan returned to Minnesota and received his Minnesota State Chief A Engineers license. After a few years in the position as Chief Boiler Engineer For Green Giant Co. and Maintenance Manager for Minnesota Energy, Dan went to work for Hutchinson Utilities Commission in Hutchinson, Minnesota. His position there was Operator 1. His operational responsibilities included GE LM 6000 Combined Cycle, GE Frame 5 Simple Cycle, and a GE Frame 3 Combined Cycle. He also had operations of 6 Diesel Engines for power production. Dan joined HPC Technical Services, June 2001. His main area of instruction is Gas Turbine/Combine Cycle Fundamental, Steam Turbine/Generator Fundamentals, Mechanical Maintenance Courses, and The Boiler Training. Dan currently holds a Chief A Engineers License for Minnesota, A Chief NIULPE Certificate, NIULPE Instructor and Examiners Certificate, Chief ASOPE Certificate, and is a Member of ASME.

Dana Elrod

Mr. Elrod has near 30-years experience in operating large electrical power plant facilities. From 1979 thru 2000, MidAmerican Energy Company in Council Bluffs IA employed Dana. Positions held include that of Operations Superintendent, Shift Supervisor, Training & Safety Supervisor and Environmental Specialist. From 1974 thru 1979 Mr. Elrod was employed as an Environmental Specialist for the State of Iowa Department of Environmental Quality. Mr. Elrod holds a BS in Management from Drake University, 1985

Hayes, Robert

Mr. Hayes instructs HPC's Balance-of-Plant O&M courses as well as our popular "Power Plant Blackout Preparedness" course. Mr. Hayes, prior to early retirement, held several positions during his long tenure at Illinois Power: (1) Results Engineer, Results Supervisor. Mr. Hayes had responsibilities, which included equipment performance testing, and rotating machinery vibration analysis and correction. (2) Supervisor Plant Operations. Mr. Hayes had responsibilities which included startup and checkout of new equipment, supervision of four operating shifts, and coal receiving and handling group. (3) Power Plant Operations Specialist. Mr. Hayes had responsibilities, which included frequent visits to all five fossil power stations, participation in control replacement projects, participation in development and implementation of clean air compliance plans, and served as an internal consultant for fossil power generation operations. He led several technical teams that identified and recommended protective system improvements to the large generating units. He conducted root cause analysis of several major equipment failures.

B101 Process Plant Boiler Fundamentals

HPC TECHNICAL SERVICES
500 Tallevast Road, Suite 101, Sarasota, FL 34243
Telephone: 941-747-7733 FAX: 941-746-5374
Website: www.hpcnet.com

REGISTRATION FORM

Company: _____

Plant: _____

Address: _____

City/State/Zip: _____

Telephone: _____ FAX: _____

Course Number/Title: _____

Course Dates: ____/____/____ Thru ____/____/____

Course Location: _____ Course Fee: _____

Please enroll the following individual(s) listed below:

Student #1: _____

Student #2: _____

Taking advantage of HPC's 3-4-2 Policy: Send 3, Pay for 2 when paying in advance.

Student #3: _____

Enrolled by: _____

Date: _____

METHOD OF PAYMENT

Check to Follow: _____

Check Enclosed #: _____

MC/Visa/AMEX #: _____

Expiration Date: _____ CV Code: _____

Purchase Order #: _____