



Course Information Letter ---- B410

CONTROL OF BOILER COMBUSTION & EMISSIONS B410

In this course we will review the fundamentals of good and complete combustion. Since combustion of the fuel is the source of the boiler emissions, we will study the combustion process to better understand how combustion affects the boiler emissions. We will learn how boiler emissions are measured and how those measurements can indicate when the combustion process is incomplete. Those indications can also help us identify the root cause of incomplete combustion.

OBJECTIVES:

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

1. Describe the various factors that determine proper combustion.
2. Explain the "Three T's" of Combustion and the importance of each.
3. Describe the chemical composition of various fuels.
4. Describe the chemical composition of atmospheric air.
5. Describe the chemical equations of combustion.
6. List the chemical equations that are considered harmful emissions.
7. Describe practical burner design with specific attention given to low NO_x burners.
8. Describe how boiler emissions are measured.
9. Explain which boiler emission measurements indicate complete combustion.
10. Describe actions taken when incomplete combustion is indicated.

COURSE OUTLINE

- I. Combustion theory: Fuel Analysis, Combustion Products, Combustion Calculations, Combustion Equipment
- II. Chemical Composition of Atmospheric Air
- III. Burners: Practical Burner Design, Low NO_x Burners
- IV. Measurement of Boiler Emissions
- V. Regulated Boiler Emissions
- VI. Power Plant Fans: Forced Draft Fans, Primary Air Fans, Induced Draft Fans, Gas Recirculation Fans, Fan Characteristics, Fan Control

COURSE DATES/LOCATIONS/FEEES

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

FREQUENTLY ASKED QUESTIONS

B410 Control of Boiler Combustion & Emissions

- 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.
- Is HPC Technical Services' textbook available for purchase as a reference document? Yes. \$195 + S&H.
- 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.
- Can HPC Technical Services provide "Technical Assistance" in conducting functional checkouts or troubleshooting problems? Yes we can. Call or contact Harold Parker, hparker@hpcnet.com for our rate sheets and any further information required.

WHAT YOU WILL RECEIVE:

1. A "Certificate of Completion" with 2.9 CEUs, authorized for issue by the International Associate of Continuing Education/Training.

INSTRUCTOR (S):

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.

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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 #: _____