Texas Industries of the Future

SECO
State Energy Conservation Office

HBR

BOILER AND COOLING WATER SYSTEMS OPERATIONS AND CHEMICAL TREATMENT WORKSHOP

Wednesday, July 24, 2019
8:00 a.m. to 4:30 p.m.
Houston Business Roundtable
5213 Center Street Pasadena, Texas 77505

Purpose: Steam and cooling water are central to the operation of most industrial facilities. In the operation of boilers and cooling systems the equipment must be protected from damage due to corrosion, scaling or fouling, and other causes. These problems can impact the cost of operation significantly and can even interrupt production. In fact, these problems can physically destroy your equipment.

The workshop is divided into three major categories:

- Water Chemistry and Water Purification/Preparation for Use
- Boilers and Steam Systems
- Cooling Water Systems

We will cover the operation of steam and cooling water systems and will discuss methods of system protection, limits of operation and how to maximize system efficiency through effective chemical treatment. Water use minimization and reuse is a key focus for facilities sustainability efforts. Actual case studies will be discussed.

Course Description
Water Chemistry and Water Purification/Preparation for Use
Water chemistry and types of water supplies are reviewed. The unit operations to purify and prepare water for use in steam and cooling systems are also reviewed, including clarification, softening, demineralization, reverse osmosis and other pretreatment methods. These operations are applied in operating plants to utilize raw surface and well water as well as to enable some water reuse.

Boilers and Steam Systems
This section reviews types of boilers and steam systems. The chemical treatments used are reviewed and the chemical treatments suitable for the various ranges of boiler pressure are discussed. Protection of the equipment and the potential for increasing operational efficiency by minimizing blowdown effectively is covered. Steam quality and steam purity and issues

associated are reviewed. The types of difficulties that are seen from operation with feedwater quality problems and chemical treatment issues are discussed and the common problems seen in boiler and steam using equipment openings are reviewed and their causes are discussed. Condensate corrosion control and the value of condensate recovery are key topics covered.

Cooling Water Systems
This section includes a review of the cooling tower types and their operation, the types and metallurgies of heat exchangers in use and their operational limitations. The types of chemical treatment available and their pros and cons are discussed with respect to corrosion control, fouling and scaling control and the control of bacteria. The effect of problems in controlling these factors is illustrated for the exchangers and the tower structure itself. The reuse of water in the cooling systems is discussed including the key aspects of reusing plant water and treated municipal wastewater.

For each of the categories the presentation goes into the details of the equipment and operation. The KPI and KOI measurements required for appropriate management are identified.

PDH Credits: Attendees will be issued a certificate for 7 hours of PDH credits.

Instructor: Charles Kuhfeldt is an independent consultant through CauseWay Water Consulting and Services, LLC. His work is based in a 30+ year career as a water treatment Industrial Specialist, Area Manager, Regional and Corporate Consultant. His experience centers around manufacturing plant experience and technical knowledge gained with three major American industrial water treatment companies. His experience working his way through college supporting chemical production provides a hands-on understanding of the technology and interconnectivity of large-scale refinery and chemical operations. Charles Kuhfeldt has consulted with and aided in solving problems for companies in the United States, Canada, and Mexico, with a principal focus on the Gulf Coast Region from Texas to Alabama.

He is engaged in the Cooling Technology Institute as Chairman of the Water Treating Committee and has served at the International Water Conference as a Cooling Water Treatment Session Chair. He has presented technical papers on steam and cooling water issues at NACE, IWC, and CTI.

Charles Kuhfeldt has specific industry experience treating steam and cooling systems and solving treatment problems in

- Petrochemicals including ethylene and propylene production
- oil refining
- polyethylene and polypropylene
- styrene
- sulfuric acid
- ethylene oxide
- acrylic monomers
- many others including electrical power production and semiconductor production.

Sponsors: Texas Industries of the Future, State Energy Conservation Office of the Texas Comptroller of Public Accounts, and Houston Business Roundtable.

Cost:
Early Bird Discount - Register by July 12, 2019: $40; Late Registration, on or after July 12: $60

How to Register: Fax the Registration Form to 713-645-2812 OR Email msaulter@houbrt.com

REGISTRATION FORM

BOILER AND COOLING WATER SYSTEMS
OPERATIONS AND CHEMICAL TREATMENT WORKSHOP

HBR Training Center
5213 Center Street
Pasadena, Texas

Wednesday, July 24, 2019
8:00 a.m. to 4:30 p.m.
Lunch Provided

Fee: $40 – Until July 12; $60 on or after July 12

Fax this form to: 713-645-2812 OR Email to: msaulter@houbrt.com

Name	
Company	
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PAYMENT OPTIONS

Mail Check to:	Houston Business Roundtable 5213 Center Street Pasadena, TX 77505
Charge Credit Card:	Acct # EXP.
	CVS Code
	We accept VISA/MasterCard/American Express/Discover Only

Please cancel your reservation by July 5th at 5 PM or you will be charged for the workshop.

Pre-payment is required for all non-HBR members/subscribers