

35th Annual

**ELECTRIC  
UTILITY  
CHEMISTRY  
WORKSHOP**

June 2–4, 2015



**EXTENDING THE LIFE AND RELIABILITY OF POWER PLANT  
EQUIPMENT THROUGH IMPROVED CHEMICAL CONTROL**

Hawthorn Suites by Wyndham Champaign  
Champaign, Illinois

[www.conferences.illinois.edu/eucw](http://www.conferences.illinois.edu/eucw)

Sponsored by the University of Illinois at Urbana-Champaign  
Center for Innovation in Teaching & Learning  
Prairie Research Institute—Illinois State Water Survey



# About the Workshop

Now in its 35th year, this comprehensive program features state-of-the-art information on controlling corrosion and improving operation efficiency for fossil- and nuclear-fueled power plants. This year's program is geared toward improved training and continuing education of personnel responsible for electric utility chemistry.

More than 3,600 chemists, consultants, and power plant administrators have attended the workshop since its inception in 1981. The 2015 program was developed by a committee of representatives from Midwestern electric utilities, the Illinois State Water Survey, the University of Illinois at Urbana-Champaign, and consultants serving the power industry.

Some of the most popular features of the workshop are the Utility Experience

presentations, in which seasoned professionals from utility companies discuss their experiences on a range of topics. The entire workshop has been structured to encourage participation from attendees.

A USB memory stick containing copies and/or outlines of papers presented, current water treatment papers, and reports is included in the registration fee.

## WHO SHOULD ATTEND

This workshop is specifically designed for personnel involved in day-to-day decisions affecting the performance of electric utility generation in fossil-fueled and nuclear power plants. The program applies equally to power plant chemists and engineers, as well as power plant designers and consultants, industrial and institutional plant engineers, managers, and operators.

## CONTINUING EDUCATION UNITS

Each participant completing the workshop is eligible for 1.3 Continuing Education Units (CEUs) from the University of Illinois at Urbana-Champaign. The CEUs are nationally recognized units of achievement, which may be used as evidence of increased performance capabilities and for professional advancement. If your position requires CEUs for certification renewal, please inquire at the registration desk when you arrive for the workshop.

Approval is pending for this program to apply to requirements for Wastewater Treatment Plant Operators.

This workshop also offers Professional Development Hours (PDHs) for professional engineers.

## Pre-Workshop Seminar

TUESDAY, JUNE 2, 2015 ■ 8:00–11:30 AM



### THE CURRENT STATE OF FOSSIL POWER PLANT CYCLE CHEMISTRY

The Electric Utility Chemistry Workshop will feature an optional pre-workshop seminar outlining the current state and best practices regarding power plant water/steam chemistry, monitoring, and treatment. This half-day training seminar will be held on Tuesday morning, June 2, and will be presented by Brad Buecker, Kiewit Engineering and Design Company and Stephen Shulder, Electric Power Research Institute (EPRI).

Seminar details will include:

- The primary water/steam chemistry issues facing the industry. Topics will include:
  - Continued efforts to control flow accelerated corrosion (FAC), including single-phase FAC, two-phase FAC, and issues related to heat recovery steam generators (HRSG).
  - Maintaining proper chemistry during shutdowns, layups, and startups.

- Why guidelines for impurity ingress and chemical treatment of condensate/feedwater, boiler water, and steam chemistry continue to become more stringent.
- Condensate treatment needs for units with air-cooled condensers (ACCs) as compared to steam water cooled condensers (WCC's).
- A review of system chemistries.
  - Condensate/feedwater
  - Boiler Water
  - Steam
- Discussion of important sampling and monitoring details.
  - What are the most important on-line readings?
  - How can on-line data be most effectively utilized to protect the plant from upsets and equipment damage?
- Using on-line steam chemistry monitoring to establish guidelines for boiler water chemistry.
- The benefits and limitations of corrosion transport product monitoring.
- Of what relevance is grab sampling?
- Interactive Session – Following the prepared discussion, the attendees will divide into groups to examine three example chemistry scenarios prepared by the instructors. This session will be informal, but will allow the attendees to directly employ the principles presented in the seminar.

The seminar will include handouts for each attendee to take away. The format will be informal, with questions allowed during the presentations. The seminar will be held from 8:00 to 11:30 AM at the Hawthorn Suites.

# Schedule of Events

Presentation abstracts can be found on the Web site: [www.conferences.illinois.edu/eucw](http://www.conferences.illinois.edu/eucw)

## TUESDAY

### NOON REGISTRATION

### 1:30 PM WELCOME

K. Anthony Selby, *Water Technology Consultants, Inc., Workshop Chair*

### OPENING SESSION

#### Options for Boiler Chemical Cleaning Waste Disposal

Steven Dunn, *Process Performance Management*, and Ernie Wigglesworth, *Rocky Mountain Industrial Services*

#### Corrosion Testing of Metals—Is It Needed?

Daniel Janikowski, *Plymouth Tube*

#### Geology of Coal in Illinois—The How, Why, and Where

Scott Elrick, *Illinois State Geological Survey*

#### First Use: Experience and Results of Oxamine Treatment of Service Water and Cooling Tower Make up at NipSCO's Michigan City Generating Station

David Stamp, *Northern Indiana Public Service Company (NIPSCO)*

#### Polyamine Technology in Gas Turbine Heat Recover Steam Generators: Overview and Case Study

Gregg Robinson, Craig Cannon, Trevor Dale, and Dan Harding, *GE Water and Process Technologies*

#### Calculated pH of Alkaline Mixtures

Randy Turner, *Swan Analytical USA, Inc.*

### 5:00 PM RECEPTION AND VENDOR DISPLAY

Vendors in the industry will have displays of their latest products and services for participants to view during the reception. Check the Web site for a list of vendors: [www.conferences.illinois.edu/eucw](http://www.conferences.illinois.edu/eucw).

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Tuesday

“Offers the best value for training for the money.”

## WEDNESDAY

### 7:30 AM REGISTRATION

### 8:00 AM MORNING SESSION

#### Update on Environmental Regulations Affecting the Utility Industry Now and in the Future

Bert Valenkamph, *Northern Indiana Public Service Company (NIPSCO)*

#### Cathodic Protection—A Tutorial for Power Plant Chemists: Part II—Testing and Confirmation of Effectiveness

George Licina, *Structural Integrity Associates*

#### Best Technical Practices for Demineralization

Claude Gauthier, *Purolite / CTGIX Services Inc*

#### IEX Resin Testing—How Do I Understand What Has Been Reported

Don Downey, *Purolite Corporation*

#### Performing a Demineralizer Regeneration Elution Study

Jacob Bray, *We Energies*

#### Maintaining Drum Chemistry in “Phosphate Continuum Box”—Practical Aspects

Nisso Fazliddinova, *Florida Power and Light*

### LUNCH (PROVIDED)

### 1:00 PM AFTERNOON SESSION

#### Materials as Related to Power Plant Chemistry: Selection and Basics

Mark Vogt, *Dynegy Generation*

#### Understanding Plant Closed Cooling Water and Stator Cooling Water Chemistries

Colleen Layman, *HDR, Inc.*

#### High Performance Filtration Options for Reverse Osmosis (RO) Pretreatment

Jim Groose, *Watersurplus Inc.*

#### Chemical Free Dechlorination to Protect RO and Demineralizer Treated Boiler Feed Water

Ytzhak Rozenberg and Dennis Bitter, *Atlantium Technologies, Inc.*

#### Use of Filming Amines in High Pressure Boiler Systems: Part II

Daniel Cicero, *Nalco, an Ecolab Company*

#### Achieving Compliance with ELGs and Local Regulations for FGD Streams with Chemical, Biological, and ZLD Technologies

Nelson Fonseca, *GE Water & Process Technologies*

#### Introduction to Air Cooled Condensers in Power Generation

Andrew Howell, *Xcel Energy*

### 5:30 PM ADJOURN

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Wednesday

## THURSDAY

### 7:30 AM REGISTRATION

### 8:00 AM CLOSING SESSION

#### Layup Practices for Conventional Fossil Plants

Stephen Shulder, *Electric Power Research Institute (EPRI)*

#### Monitoring Membrane Systems: Why, When and How to Clean Effectively

Gregory Madden, *Professional Water Technologies, LLC*

#### New Findings on Monitoring Flow Accelerated Corrosion

Ken Kuruc, *Denton Slovacek*, and Luke Johnson, *Hach Company*

#### Data, Decisions and Delivery of Results

Bryan Sandmann, *GE Water*

#### Effect of Base Reagents on Trace Level Sodium Ion Measurement with Glass Electrode

CD Feng, *Hoang Nguyen*, and Dave Anderson, *Rosemount Analytical Inc.*

#### Reliable Organics Detection Helps Protect Power Plant Components

Peggy Banarhall, *Kirk Buecher*, Steven Carelli, and David Gray, *Mettler Toledo Thornton*

#### Development of a New Environmentally Friendly Water Treatment Chemical Program

Jasbir Gill and Julia Savchenko, *Nalco, an Ecolab Company*

### 12:00 PM ADJOURN

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Thursday

“The workshop provides great opportunities to talk with other professionals in my field.”

# General Information

## REGISTRATION

The full-meeting registration fee includes all conference materials, Tuesday reception, Wednesday lunch, and morning and afternoon breaks. If received on or before May 19, the fee is \$400. After May 19, the fee will be \$450.

Single-day registration is also available. The registration fee of \$225 includes meals or breaks served on the day you attend, speaker handouts for that day, and a participant roster.

The pre-workshop seminar registration fee includes all seminar materials and morning break. If received on or before May 19, the fee is \$50. After May 19, the fee will be \$75.

Payment in full is expected upon registration. Please use the registration form as your invoice. Phone or fax registrations must have a credit card number. Payment by cash, check, or credit card must accompany all on-site registrations.

## LOCATION

All program sessions will be held at the Hawthorn Suites by Wyndham Champaign, 101 Trade Centre Drive, Champaign, Illinois 61820. Phone: 217-398-3400.

## WORKSHOP SCHEDULE

Registration for the regular workshop begins Tuesday, June 2 at noon, followed by the Opening Session from 1:30 to 5:00 PM. A social hour from 5:00 to 8:00 PM gives participants the opportunity to talk with colleagues, vendors, and speakers. The workshop adjourns at noon on Thursday, June 4.

## VENDOR DISPLAYS

Companies who work with the Electric Utility Chemistry industry are encouraged to participate with a display during the conference. Invitations will be sent to past exhibitors around mid-March. Space is limited, so new companies must contact Tony Selby at 303-679-0080 or e-mail [tselby@comcast.net](mailto:tselby@comcast.net) if they are interested in being a vendor.

## CANCELLATIONS

If you register and find you cannot attend, a refund, less a \$50 processing fee, will be made if you notify the CITL Conference Services office (217-244-9687 or [wolff1@illinois.edu](mailto:wolff1@illinois.edu)) by May 26, 2015. No refunds will be issued after May 26. You may send someone in your place.

## LODGING

Reservations should be made directly with the hotel. Be sure to mention that you are attending the "Electric Utility Chemistry Workshop," as a block of rooms has been reserved at special conference rates. Make your reservations early—after May 4, 2015, the rooms will be available on a first-come, first-served basis.

Hawthorn Suites by Wyndham Champaign  
101 Trade Centre Drive  
Champaign, IL 61820  
217-398-3400  
Conference Rate: \$74.99, Single or Double

## TRANSPORTATION

The Champaign (Willard) Airport offers daily flights to and from Chicago O'Hare and Dallas (by American Eagle). Amtrak service is also available. Champaign-Urbana is accessible from interstates 72, 74, and 57; it is 135 miles south of Chicago and 120 miles west of Indianapolis.

## PROGRAM PLANNING COMMITTEE

**Al Aschoff**, Consultant (emeritus member)  
**Bill Boyd**, Arizona Public Service  
**Jacob Bray**, We Energies  
**Brad Buecker**, Kiewit Power Engineers  
**Prentiss Carter**, Dynegy  
**Chuck Curtiss**, Illinois State Water Survey  
**Steve Donner**, Donner Solutions LLC  
**Nisso Fazliddinova**, Florida Power and Light  
**Warren Gilbert**, Consultant  
**Scott Glover**, Prairie State Generating Company  
**Ron Melton**, Western Farmers Electric Coop  
**Bob Mitzel**, Dynegy  
**Scott Randall**, University of Illinois at Urbana-Champaign  
**Scott Reeves**, Consumers Energy, LLC  
**K. Anthony Selby**, Water Technology Consultants, Inc.  
**Chris Skates**, Electric Energy, Inc.  
**Dave Stamp**, Northern Indiana Public Service Company (NIPSCO)  
**Chris Taylor**, Ameren Missouri  
**Ronald Wine**, Ronald D. Wine Consulting  
**Elaine Wolff**, University of Illinois at Urbana-Champaign

“My supervisor always approves my request to attend this workshop.”



**FOR MORE INFORMATION, CONTACT:**  
Center for Innovation in Teaching & Learning  
University of Illinois at Urbana-Champaign  
901 West University Avenue  
Urbana, IL 61801  
Phone: 217-244-9687  
Fax: 217-333-9561  
E-mail: [nsimp1@illinois.edu](mailto:nsimp1@illinois.edu)

## SESSIONS INCLUDE

- Critical aspects of the utility water cycle
- Tutorials given by internationally known experts
- Practical applications from electric utility experience

Format geared toward improved training and continuing education of personnel responsible for electric utility chemistry

2015 Training Session on **The Current State of Fossil Power Plant Cycle Chemistry** to be held on Tuesday morning (June 2)

# Registration Form

**Note: Payment in full is expected upon registration for the workshop. Please use the registration form as your invoice.**

For vendor exhibit registration, contact **Nancy Simpson at 217-244-9687 or nsimp1@illinois.edu.**

## 4 EASY WAYS TO REGISTER

1  
Online

[www.conferences.illinois.edu/eucw](http://www.conferences.illinois.edu/eucw)

2  
Fax

Fax your registration form to 217-333-9561.

3  
Phone

Call 217-244-9687 to register by phone.

4  
Mail

Complete the form and mail to:

Nancy Simpson  
Center for Innovation in Teaching & Learning  
University of Illinois at Urbana-Champaign  
901 West University Avenue, Suite 201  
Urbana, IL 61801 USA



Early Registration Discount through May 19

## CONTACT INFORMATION

Please type or print name exactly as it should appear on badge

First Name \_\_\_\_\_

Last Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail\* \_\_\_\_\_

\*Your e-mail address will be used by the University of Illinois and will not be shared with others

Please check if attending your first Electric Utility Chemistry Workshop

## REGISTRATION FEES

**The Current State of Fossil Power Plant Cycle Chemistry**

\$50 (on or before May 19)  \$75 (after May 19)

**Workshop Fee**

\$400 (on or before May 19)  \$450 (after May 19)

**One-Day Fee**

\$225

Indicate which day you will attend  Tuesday  Wednesday  Thursday

**Reference Materials Only**

\$75 (each person with full registration receives these materials)

## METHOD OF PAYMENT

Check enclosed (make payable to the University of Illinois)

Please charge credit card  Visa  MasterCard  AmEx  Discover

Card # \_\_\_\_\_

Expiration Date \_\_\_\_\_ Security Code \_\_\_\_\_

Signature \_\_\_\_\_

The Security Code is a 3-digit, non-embossed number printed on the right upper corner of the signature panel on the back of Visa, MasterCard, and Discover cards. On American Express, the 4-digit number is printed above the account number on the front of the card. The Security Code is recorded as an additional security precaution.

## FOR OFFICE USE ONLY

C-FOAP # 1-303847-641003-305300-641515 ■ INDEX 641015

FEIN # 37-6000511 ■ TITLE: EUCW 2015 (FY15)

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Cooling Water

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I  
Instrumentation

12  
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Cooling Water

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Chemical Safety

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University of Illinois at Urbana-Champaign  
901 West University Avenue, Suite 201  
Urbana, IL 61801

**MAILROOM:**  
If the person on the label is no longer employed at your organization, please route this material to the replacement or department supervisor.

To receive additional information about the workshop: Call 217-244-9687 or e-mail [nsimp1@illinois.edu](mailto:nsimp1@illinois.edu).

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Aq  
Air Quality

47  
Cw  
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3  
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Aq



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