



Environmental Solutions: Water Management

17–18 October 2018

The Hilton Indianapolis Hotel & Suites
Indianapolis, Ind., USA

Featured Plant Tour: Citizens Energy Group



Registration Includes

Registration includes breakfasts and lunches Wednesday and Thursday; reception Wednesday; plant tour with bus transportation; and a course workbook or flash drive including presentations.

Hotel Accommodations

A block of rooms has been reserved at The Hilton Indianapolis Hotel & Suites. Please call the hotel at +1.800.615.1906 by 24 September 2018 to secure the AIST discount rate of US\$169 per night for single/double occupancy.

AIST Members	
US\$845	US\$945
by 3 September 2018	after 3 September 2018

Non-Members	
US\$1,060	US\$1,160
by 3 September 2018	after 3 September 2018



Featured Plant Tour

Citizens Energy Group's POTW-Industrial Pre-Treatment

About the Program

This two-day program provides a detailed review of one of the most important raw materials used in the steel industry: water. Water is an essential element for every steel manufacturing process and utility operation. The first day of the program will review water chemistry fundamentals and application demands with a focus on cooling water. Cooling tower system design, operation and maintenance will be featured, as well as microbiological fouling and control methods in cooling water loops. In addition, cooling tower and National Pollutant Discharge Elimination Systems (NPDES) permitting flexibility will be discussed. Sessions will include a combination of technical presentations on the specific topic with case studies to provide real examples. The second day will begin with a focus on mills that discharge to a municipality with a tour of one of Citizens Energy Group's nearby treatment works receiving industrial waters for pre-treatment. The seminar will continue with a focus on physical treatment methods such as reverse osmosis, oil removal, and a recent innovation on macrofouling and zebra mussel treatment. A specific focus on water conservation and reuse (with case studies) will be presented along with a fresh look at the feasibility of zero liquid discharge (ZLD) treatment concepts.

Who Should Attend

The program is designed for mill personnel involved in any of the following activities: service water supply and treatment; process water management and treatment; non-contact cooling water management and treatment; wastewater collection and treatment; and compliance activities associated with process water, pre-treatment discharge permits and direct discharge permits. Presentations have been designed to appeal to operators and supervisors, entry- and mid-level process and environmental engineers and technicians.

Professional Development Hours

This course may qualify for up to 11.25 Professional Development Hour (PDH) credits. Each attendee will receive a certificate listing the quantity of PDH credits earned for this course. This course is not approved for PDH credit in New York, Florida, North Carolina and Oklahoma.

Organized By

AIST's Environmental Technology Committee



**BRING YOUR OWN
YOUNG PROFESSIONAL**

Visit AIST.org/byoyyp for more information



Schedule of Events

Wednesday, 17 October 2018

7 a.m.

Registration and Breakfast

8 a.m.

**AIST Environmental Technology Committee
Introductions, Welcome and Background**

8:15 a.m.

**Compliance and Permitting: Current Challenges in
Today's Regulatory Environment**

Mike Brooks, Steel Dynamics Inc. – Engineered Bar
Products Division

This topic will focus on compliance and permitting
challenges faced by mini-mills in an ever-changing
regulatory environment.

9:15 a.m.

**Water Fundamentals and Water Uses in the Steel
Industry**

David Gilles, ATC Group Services LLC

10 a.m.

Break

10:15 a.m.

Corrosion and Deposit Control in the Steel Industry

James Gleason, Suez Water Technologies & Solutions
Corrosion and deposit control for both non-contact and
contact cooling will be covered for various systems
within a steel mill.

11:15 a.m.

**Evaporative Cooling Tower Design, Operation and
Maintenance**

Casey Yurkovitch, OBR Cooling Towers Inc.

An overview of cooling tower operations and how the
selection of different cooling tower types and designs
are paramount for optimizing performance in different
applications.

Noon

Lunch

1 p.m.

**Cooling Water Systems Microbiological Activity and
Control in Cooling Water Systems**

Doug McIlwaine, ChemTreat

1:45 p.m.

Water Safety: Legionella Control Strategies

John Cioffi, NALCO Water, An Ecolab Company

Recent trends have increased public awareness that
waterborne pathogens can be associated with water
systems and that these water systems must be managed
to reduce the risk of a health hazard associated with
cooling water and domestic water systems. More
specifically, questions around the subject of Legionella
are being raised. This presentation will provide an
overview of basic Legionella facts, the market events
that led to the creation of American Society of Heating,
Refrigerating and Air-Conditioning Engineers Standard
188, and the move toward the convergence of a "health-
based" treatment strategy.

2:30 p.m.

Break

2:45 p.m.

**Cooling Tower TDS and PM10 Emission Limits:
Considerations for Achieving Compliance,**

Michael Lacourt, Ramboll

Cooling towers are a source of emissions of particulate
matter less than 10 micron diameter (PM10) to air
in the iron and steel industry. These emissions are
directly related to the total dissolved solids (TDS)
in the recirculating cooling tower water. Emissions
calculations, values for PM10 and TDS in typical industrial
applications, regulatory considerations, and mitigation
techniques including control strategies (e.g., on-line TDS
meters and automated blowdown) and technologies
(e.g., drift eliminators) will be discussed.

3:30 p.m.

Regulatory Flexibility Mechanism in NPDES Permitting

Gary Amendola, Amendola Engineering Inc.

Review of regulatory flexibility provided by the iron and
steel effluent limitation guidelines, the National Pollutant
Discharge Elimination System permit regulations and
state water quality standards. The objective is to obtain
appropriate technology-based and water quality-based
effluent limits on a site-specific basis.

Schedule of Events (cont'd)

4 p.m.
Break

4:15 p.m.
Energy Efficiency Improvements in a Cooling Water Circuit – Case Study

Jerry Penland, Hatch

This presentation discusses a case study in which a steel manufacturer requested a study on its hood cooling system to determine if there was sufficient capacity to cool additional equipment. It was determined that additional cooling was available and that significant energy savings were available if several changes were made to the system. A threefold strategy is discussed in detail. Findings in this study may be applicable to your cooling water systems.

5–6 p.m.
Reception

Thursday, 18 October 2018

7 a.m.
Breakfast

7:45 a.m.
Plant Tour of Citizens Energy Group's POTW – Industrial Pre-Treatment

10:30 a.m.
Macrofouling – Zebra Mussel Treatment by Mechanical Filtration/Automatic Self-Cleaning Filter in the Steel Mill
Dardan Lukaj, Dango & Dienenthal Filtertechnik GmbH
The zebra mussel is a permanent threat to lake- and riverside steelmaking facilities.

11:15 a.m.
Oil Skimmers
Jim Petrucci and Michael Gaudiani, Oil Skimmers Inc.
Oil skimmer technology for caster and rolling mill scale pits.

Noon
Lunch

12:45 p.m.
Pre-Treatment: Reverse Osmosis
Michael Haldeman, Evoqua Water Technologies
This presentation will cover the fundamentals of reverse osmosis operation, and makeup water and recirculated water treatment applications.

1:30 p.m.
ZLD Enabling Technology and Survey Methodology
Patrick Randall, Aquatech International LLC
Plant audit and water mass balance details and process required to develop a holistic and sustainable zero liquid discharge plan for the steel mill.

2:15 p.m.
Break

2:30 p.m.
Case Study: Application of Process Water Treatment and Reuse Technologies to Minimize Mill Makeup Water Supply Needs
Gary Amendola, Amendola Engineering Inc.
Review of the process design and recent performance of an advanced process water treatment and reuse system for a steel finishing mill with electroplating operations.

3 p.m.
Case Study: ArcelorMittal Indiana Harbor – Evaporation of Vacuum Desgasser and Continuous Caster Recycle System Blowdowns at the BOF Hoods
Gary Amendola, Amendola Engineering Inc.
Review of the design, operation and recent performance data for systems installed to achieve zero discharge for vacuum degassing and continuous casting process wastewaters.

3:30 p.m.
Wrap Up and Conclusion

3:45 p.m.
Adjourn Conference

