

CORROSION & CORROSION CONTROL – LIGHT WATER REACTORS, PROVIDED BY STRUCTURAL INTEGRITY ASSOCIATES

CLASSROOM INSTRUCTORS

George Licina

Education:

- B.S. Metallurgy Engineering, University of Illinois

Accreditations/Industry Leadership:

- Fellow and Corrosion Specialist in the National Association of Corrosion Engineers (NACE)
- Mr. Licina is widely published and has been an author and major contributor for numerous EPRI Sourcebooks related to corrosion including the entire “Key Industry Documents” section below.

Background:

- Mr. Licina has over 40 years of experience in evaluating environmental degradation of materials in power plant and other industrial environments, including all forms of corrosion and stress corrosion cracking in aqueous environments. He is a co-founder of the Bio-George Corrosion Monitoring and Prevention System, which provides real-time detection of microbiological elements.

CONTACT INFORMATION

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INTENDED AUDIENCE

Mechanical design engineers, system engineers, chemistry staff and project engineers who seek a foundational understanding of corrosion and MIC.



TYPE

Classroom Training



DURATION

Two days of classroom training
– 15 PDH

LEARNING OBJECTIVES

Corrosion can occur in almost every raw water cooling component at power generation and industrial facilities. Facilities that use rivers or lakes for cooling water can introduce microfilms that can lead to microbiologically influenced corrosion (MIC) which can be very aggressive and attack piping welds and heat exchangers. Left unresolved, corrosion can cause serious damage to piping systems and components that are difficult to identify and resolve.

This course focuses on raw water corrosion fundamentals and on identification, monitoring, and mitigation of cooling water system corrosion. This course is a practical starting point for more-specialized courses on corrosion. Course includes a reference manual.

Microbiologically-influenced corrosion (MIC) is an ever-present threat to nuclear plant service water systems. This course will provide the student with practical application of corrosion theory and how to monitor for, and mitigate the effects of MIC.

Topics Covered:

- Fundamentals of corrosion
- Differences between general corrosion, pitting corrosion, under-deposit corrosion and MIC
- Corrosion mechanisms and their effect on components and systems
- Appropriate techniques to identify and mitigate corrosion in raw water systems
- Case studies
- Corrosion monitoring

KEY INDUSTRY DOCUMENTS

EPRI Reports written by George Licina

1. "Sourcebook for Microbiologically Influenced Corrosion in Nuclear Power Plants" (EPRI NP-5580, 1988)
2. EPRI Corrosion/Deposition Sourcebook for Nuclear Plant Service Water Systems (TR-103403, 1993)
3. Service Water Piping Guideline (EPRI 1010059, 2005) - Contributor
4. Life Cycle Management Sourcebook for Nuclear Plant Service Water Systems (EPRI 1008282, 2005)
5. Computer Based Training Course for MIC for EPRI (2007)
6. Co-authored EPRI's Buried Pipe Reference Document (EPRI 1021470, 2010)
7. Guidelines for Replacement Materials for Service Water Systems (EPRI 1025275)
8. Guideline for Preventing Galvanic Corrosion in Above-Ground Dissimilar Metal Piping Systems (EPRI 3002003191)