

U.S. NRC and Industry Public Meeting

Buried/Underground Piping

American Society of Mechanical Engineers

October 20, 2011

Daniel W. Lamond

Automated Engineering Services (AES) Corporation



ASME SCXI Buried Component Activities

ASME Inservice Inspection Standards Committee

- Consensus Body Standards Committee
- Boiler & Pressure Vessel Code
 - Section XI, Inservice Inspection
- Board of Nuclear Codes and Standards (BNCS)

ASME SCXI Buried Component Activities

Committee Groups Relevant to Buried Components

- TG Buried Component Inspection & Testing
- TG Evaluation Procedures for Degraded Buried Piping
- WG Pressure Testing
- Special WG Nuclear Plant Aging Management
- SG Water Cooled Systems
- SG Nondestructive Examination
- SG Industry Experience for New Plants

ASME SCXI Buried Component Activities

Current Section XI Rules

- IWA-5244, Buried Component Leakage Tests
 - Visual of Annulus
 - Pressure Decay or Change in Flow
 - Unimpaired Flow
- Code Case N-776, Ground Surface Examination Program

ASME SCXI Buried Component Activities

TG BCIT – Recent Timeline

- November 2010
 - TG Approved by Executive Committee
 - Charter Established
- January 31, 2011 (1Q11)
 - Inaugural Task Group Meeting
- May 9, 2011 (2Q11)
 - Membership & Interest Groups
 - Scope & Initial Action Items
- August 8, 2011 (3Q11)
 - Data Collection Activities
 - First Code Paragraph Considerations
- November 7, 2011 (4Q11)
 - Next Meeting

ASME SCXI Buried Component Activities

TG BCIT – Goals

- Consider All Stakeholders
- Evaluate the Safety and Functional Impact of Recent Operating Experience
- Compile Industry Group Activities and Guides
- Assess and Support Inspection Technique Development
- Codify Best Practices
- Publish a Practical, Manageable set of Technically Sound Rules for Regulatory Endorsement

ASME SCXI Buried Component Activities

TG BCIT – Scope

- Buried and Underground Piping & Components
- Structural and Leakage Integrity
- Industry Events and OE
- Commission Activities
- Industry Groups (NEI, EPRI, INPO, NACE, BPIG)
- Guidelines and Plant Programs

ASME SCXI Buried Component Activities

TG BCIT – Scope, Phased Approach

- Component Classifications

Safety Related

- ¹ • Classed 1, 2, and 3
- Non-Classed

Non-Safety Related

- Many Considerations
 - Function
 - Impact
 - Jurisdiction
 - Owner

ASME SCXI Buried Component Activities

TG BCIT – Agenda Topics

- Programmatic
- Inspection & Testing
- Mitigation, Repair, Replacement
- Design and New Plants

ASME SCXI Buried Component Activities

TG BCIT – Action Item Status

AI #1	Liaisons – NACE and Section V	Open
AI #2	Develop Historical White Paper	Close in Nov.
AI #3	Define Scope	Initial Complete
AI #4	Compile Industry Papers	Initial Complete
AI #5	List of BP Inspection Methods	Open
AI #6	EPIX Operating Experience	Open
AI #7	BPI Initiative Timeline	Close in Nov.
AI #8	Codify New Rules	Open

ASME SCXI Buried Component Activities

TG BCIT – AI #5, List of BP Inspection Methods

- First Compilation, No Screening Criteria

Direct

- Visual Inspection
- Liquid Penetrant Testing
- Magnetic Particle Testing
- Guided Wave
- Lamb Wave
- Remote Field Testing
- Magnetic Flux Leakage
- UT & Inspection Vehicles
- Radiography
- Electromagnetic Technology

Indirect

- Pipe-to-Soil Potential
- Direct Current Voltage Gradient
- Pearson Survey / Alternate Current Voltage Gradient
- Close Internal Potential Survey
- Area Potential Earth Current
- Soil Analysis

ASME SCXI Buried Component Activities

TG BCIT – AI #8, Codify New Rules

- Update Current IWA-5244, Buried Components
- Reference vs. Extract From NEI Guidelines
- New IWx-2500 Inspection Requirements
- New IWA-2200 Examination Methods
- Update IWx-3000 Acceptance Criteria
- Stand-Alone Section XI SubSection (IW_)
- Include as Section XI Appendix

ASME SCXI Buried Component Activities

Summary

- Strengthening ASME Standards relative to Buried Component Inspection
- Consideration of Ongoing Industry Activities
- Phased Approach to System Scope
- Enabling Clear Requirements and Consistent Fleet Implementation