U.S. NRC and Industry Public Meeting

Buried/Underground Piping

American Society of Mechanical Engineers

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ASME

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
- Code Case N-806 (Proposed, Out for SC Ballot)
  - Evaluation of Metal Loss, Cl. 2&3 Buried Metallic Pipe
  - TG Evaluation Procedures for Degraded Buried Pipe
  - Committee and Staff review/comment/for vote
  - EPRI Corrosion Rate Data (tbd, April 2012 Report)

ASME SCXI Buried Component Activities

TG BCIT – Recent Timeline

- November 2010
  - → TG Approved by Executive Committee
  - → Charter Established
- 2011 (January 31, May 9, August 8, November 7)
  - → Membership & Interest Groups
  - → Scope & Initial Action Items
  - → Data Collection Activities
  - → First Code Paragraph Considerations
- 2012 (February 6)
  - → Identification of Code Areas for Inclusion/Update
- May 14, 2012 (2Q12)
  - → Next Meeting, in Nashville

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

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TG BCIT – Scope

- Buried and Underground Piping & Components
- Commission Activities
- Industry Groups (NEI, EPRI, INPO, NACE, BPIG)
- TG Charter
  - Programmatic
  - Inspection & Testing
  - Mitigation, Repair, Replacement
  - Design and New Plants

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TG BCIT – Scope, Phased Approach

- Component Classifications

Safety Related

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

Non-Safety Related

- Many Considerations
  - Function
  - Impact
  - Jurisdiction
  - Owner

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TG BCIT – Action Item Status

AI #1	Liaisons – NACE and Section V	Open
AI #2	Develop Historical White Paper	Closed
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	Initial Complete
AI #7	BPI Initiative Timeline	Closed
AI #8	Codify New Rules	Open
AI #9	Risk Ranking Methodology	New
AI #10	Non Mandatory Appendix	New
AI #11	Fukushima Lessons Learned	New
AI #12	Examination Category Tables	New

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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

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TG BCIT – AI #8, Codify New Rules

- Update Current IWA-5244, Buried Components
- New IWA-2200 Examination Methods
- Update IWA-9000 Glossary (New Definitions)
- New IWx-2500 Inspection Requirements
- Update IWx-3000 Acceptance Criteria
- Option: Reference vs. Extract From NEI Guide
- Option: Include as Section XI Appendix
- Option: Stand-Alone SCXI SubSection (IW_)

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TG BCIT – AI #9, Risk Ranking Methodology

- Consideration of Current Industry Methods
  - Approx. 3 in Practice
- Build off of other SCXI Risk Informed Activities and Successes
- Assess Existing Code RI Ranking / Classification
- Engage WG Risk Informed Activities

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TG BCIT – AI #12, Examination Category Tables

- Consider New Tables
  - IWC-2500-1 Category C-_ & IWD-2500-1 Category D-_
- New Shell Table
  - Parts Examined
  - Exam Requirements
  - Exam Method
  - Acceptance Criteria
  - Extent of Exam
  - Frequency of Exam
- Inspect for Degradation, Not Leakage

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