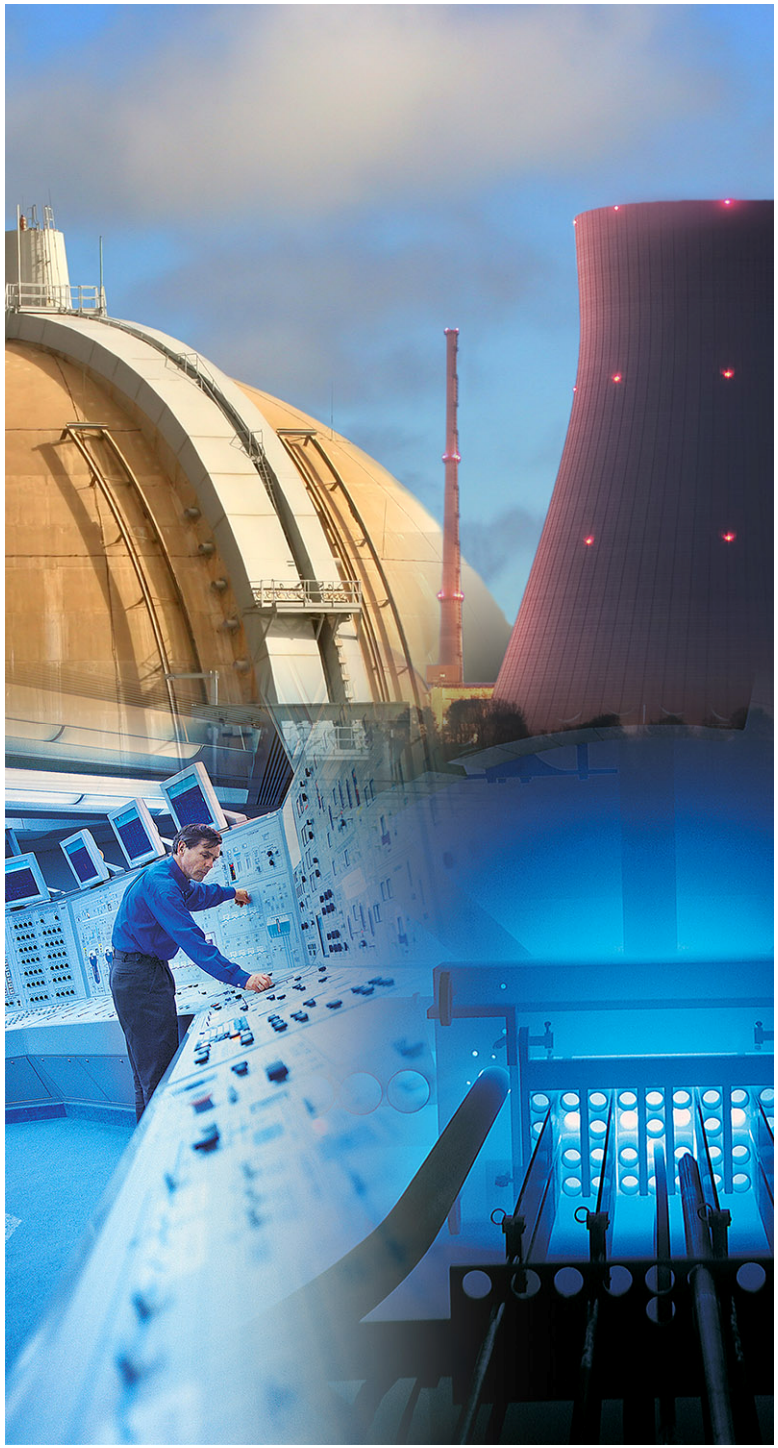


ELECTRIC POWER RESEARCH INSTITUTE

Buried Pipe Integrity Initiative

Follow-up Actions

February 24, 2010

Bo Clark

Program Manager-Balance of Plant Corrosion, EPRI

Topics

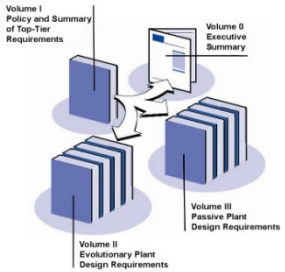
- Transfer of ‘lessons learned’ to new plants
- Incorporation of new materials into buried piping program guidelines

Advanced Nuclear Technology

Program Objectives

- New nuclear power plants must overcome a number of regulatory, economic, technical, and social challenges prior to becoming a reality
- Program efforts focused around:
  - **Transferring technology to new plant designs**
  - Facilitating standardization across the new fleet
  - Ensuring top plant performance from start of operations
  - Reduce overall deployment risk and uncertainty

Utilities Requirements Document, Rev. 10



Project Description

- URD Revision 10 includes targeted technical updates to the following key areas:
  - Instrumentation and Control, Seismic Analysis and Design, Structural Design, Service Water System
- Revision 10 also includes updates to Volume 3 - Evolutionary Plants chapters in the following key technical areas:
  - Materials, Radwaste, Water Chemistry, Electrical Cabling, Environmental Qualification, Spent Fuel and Reliability of Equipment

Value

- The URD is a valuable product for EPRI member utilities to be used as part of:
  - The procurement specification for the new nuclear plants
  - Evaluation of new nuclear plants (comparison of design versus URD requirements)
  - As guidelines in the construction, operation, and maintenance of existing and new nuclear plants.

New Plant "Buried Asset" Management

- Tech Advisory Committee – meeting April 13th, 2010
  - New build engineering managers and directors
  - Objectives
    - Vehicle for collecting technical, regulatory and standards issues for the new build
    - Establishing future project portfolios
    - Comment on proposed projects' scope
- Proposal for upcoming TAC meeting
  - Buried Pipe
  - Cables
  - Underground tanks
  - Cathodic Protection System design
  - As-built drawings

Technical Basis for HDPE Above-Ground Use

Summary of Issue

- There is no ASME approved code case for above-ground HDPE pipe. One has been developed for below-ground use only
- Several new plant designs plan on using HDPE for above-ground application

Potential Benefit of Project

- Use of HDPE for above-ground applications will require development of appropriate design and construction rules, along with determining the engineering and material properties needed to ensure safe and reliable design and operation
- Critical technical issues that will be addressed include:
  - seismic qualification (including vents and drains)
  - large displacements and interactions during thermal expansion and transients
  - fire
  - structural damping values
  - damage during operations

Newer piping materials

- The EPRI/BPIG recommended program

> "Recommendations for an Effective Program to Control the Degradation of Buried Pipe", Dec 2008 – Report # 1016456

  - Periodic updates (update in progress)
    - Guidance for concrete pipe
    - Industry feedback from use
    - Recognize need to address newer materials
      - Current focus on approval for use in code applications

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