



ELECTRIC POWER
RESEARCH INSTITUTE

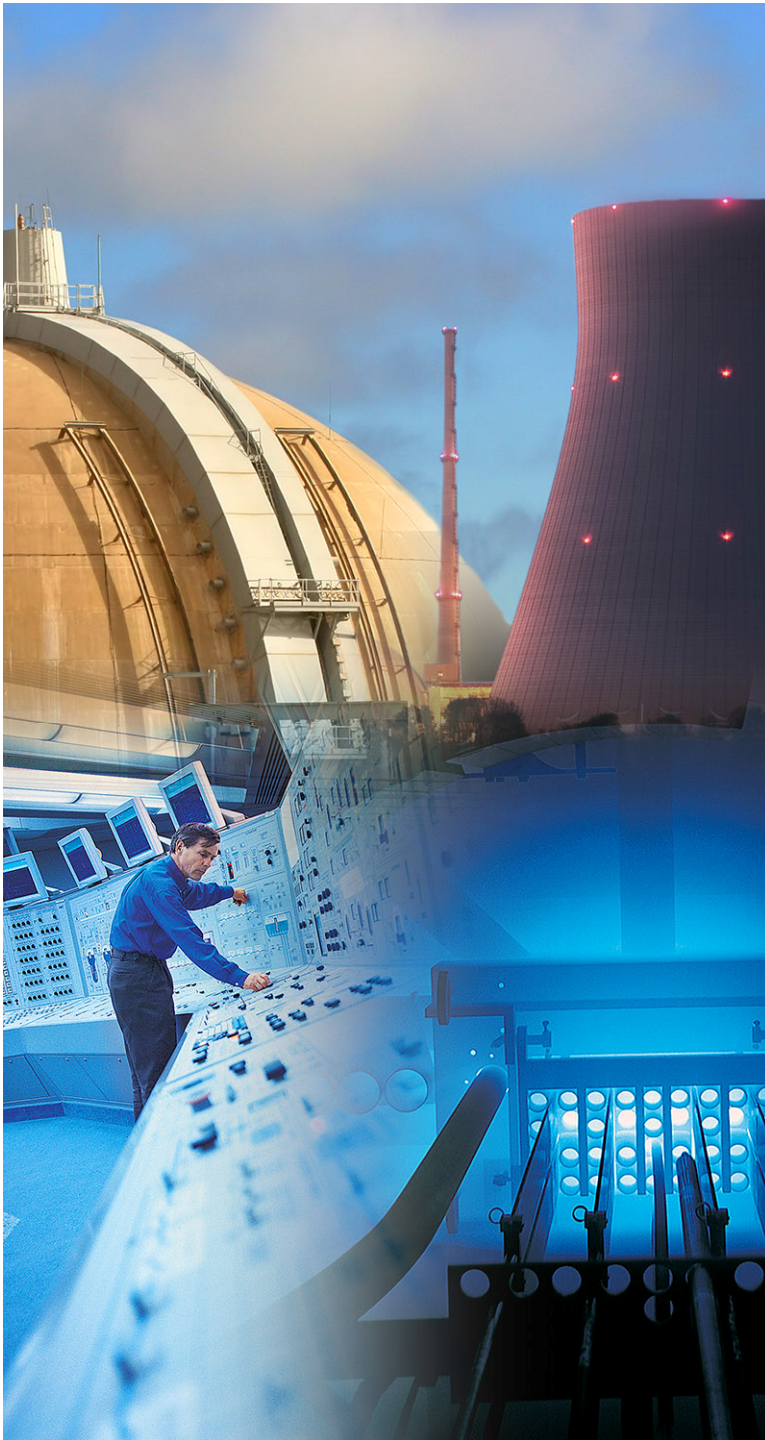
Buried Pipe Integrity Initiative

Follow-up Actions

February 24, 2010

Bo Clark

Program Manager-Balance of Plant
Corrosion, EPRI



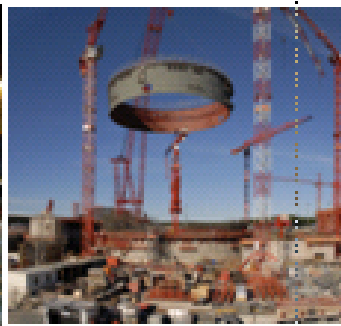
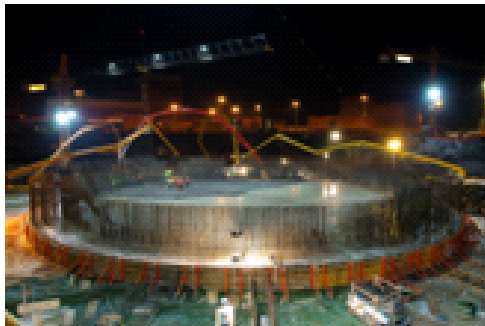
Topics

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

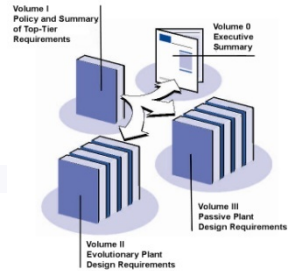
Advanced Nuclear Technology

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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