

**EPRI**

ELECTRIC POWER  
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## Reasonable Assurance Update

**David Smith - EPRI**

**NRC/Industry Meeting on Buried Pipe  
March 30, 2011 White Flint, MD**

# Overview

- *Background*
- *Objective*
- *Technical Advisory Group (TAG)*
- *Activities to Date*
- *Approach*
- *Schedule/Plans*

# Background

- Underground Piping and Tank Initiative Goal:
  - “... provide reasonable assurance of structural and leakage integrity of in-scope underground piping and tanks with special emphasis on piping and tanks that contain licensed materials”
- Reasonable Assurance:
  - “... establishing and maintaining confidence in underground piping and tank integrity based on engineering judgment supported by facts, actions, knowledge, experience, and/or observations. It defines a level of confidence which is deemed to be adequate to support a particular position.”
- Tasked to develop a consensus industry approach

# Objectives

- Develop an approach to establishing reasonable assurance for the integrity of buried piping:
  - Technical Based
  - Step by Step Process
  - Graded Approach
  - Support the development of buried pipe Inspection Plans
  - Industry consensus approach and application

# *Technical Advisory Group*

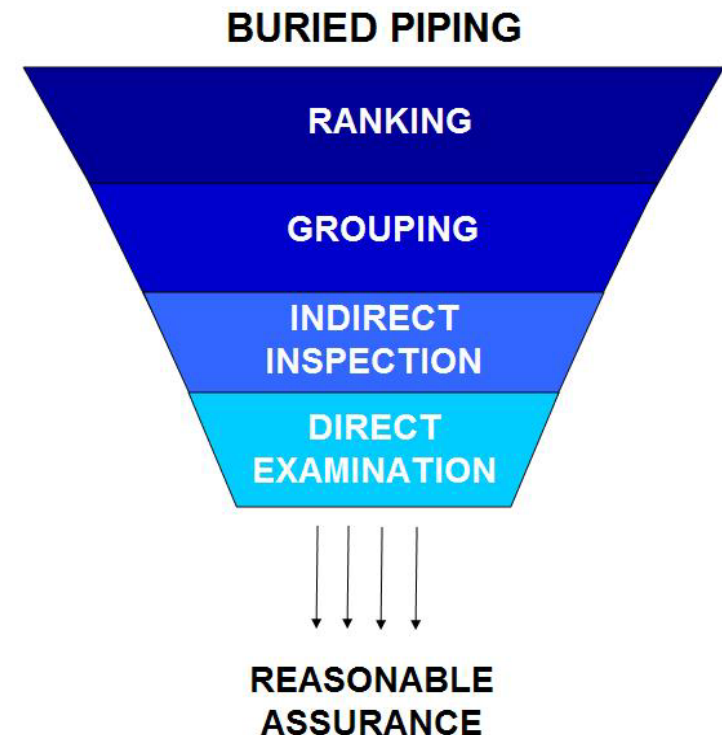
- Reasonable Assurance Technical Advisory Group (TAG):
  - Subset of NEI BPITF
  - Formed in late October, 2010
  - First Meeting in November, 2010
- Approach had been developed by 2 Utilities
  - Used as the basis

## ***Activities to Date***

- Reasonable Assurance TAG meeting in November produced a draft document:
  - Document released to the Team for review (Late November)
  - Several rounds of comments
  - Conference Calls and Webcast to discuss
- Provided to NEI BPITF for Review
  - In process

# Approach

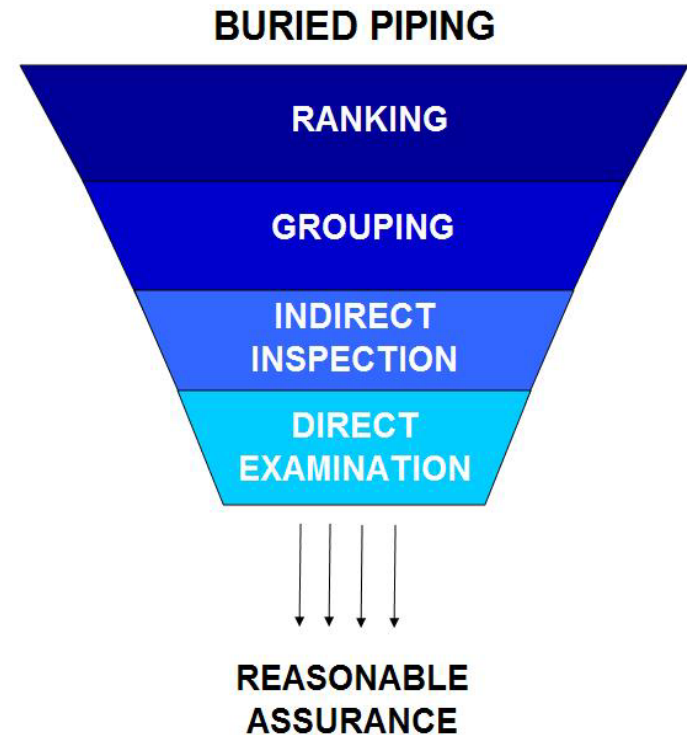
- **Reasonable Assurance is a Graded Process that**
  - Ranks piping
  - Create Line Groupings
  - Indirect inspection samples
  - Direct examinations



**Effective use of resources through graded process, focused and quality inspections**

# Approach – Ranking

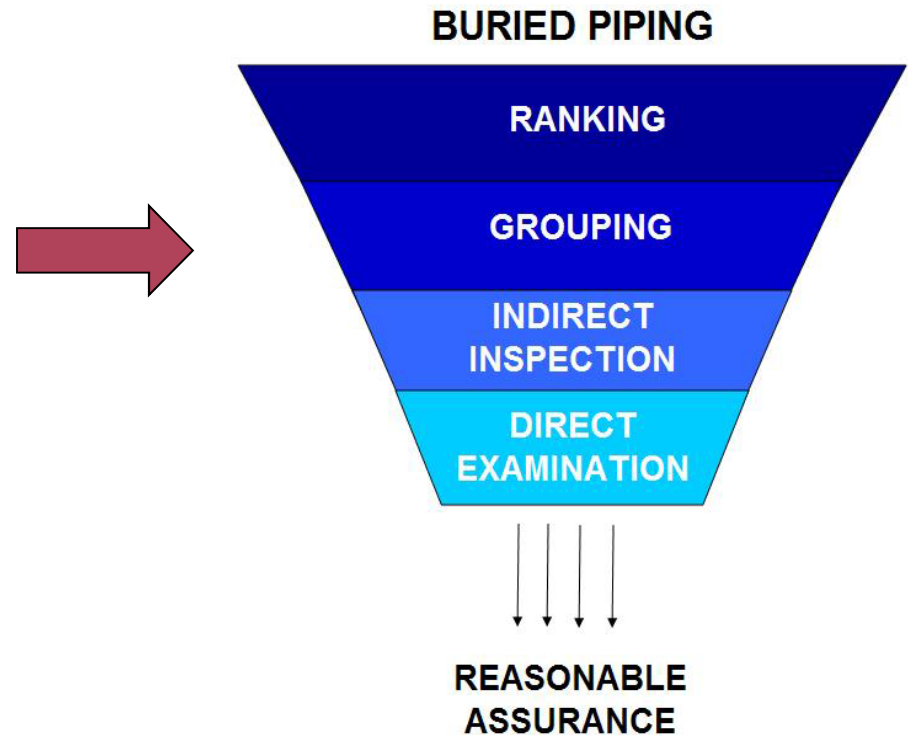
- Susceptibility Analysis and Risk Ranking:
  - Inventory of buried piping
  - Risk Ranking based on likelihood and consequence
  - Provides input for groupings and inspection planning





# Approach – Grouping

- Create Line Groupings:
  - Optimize Inspections
  - Separate by Process Fluids
  - Group with similar physical attributes
    - Material
    - Coatings
    - Soil
    - Age
    - CP

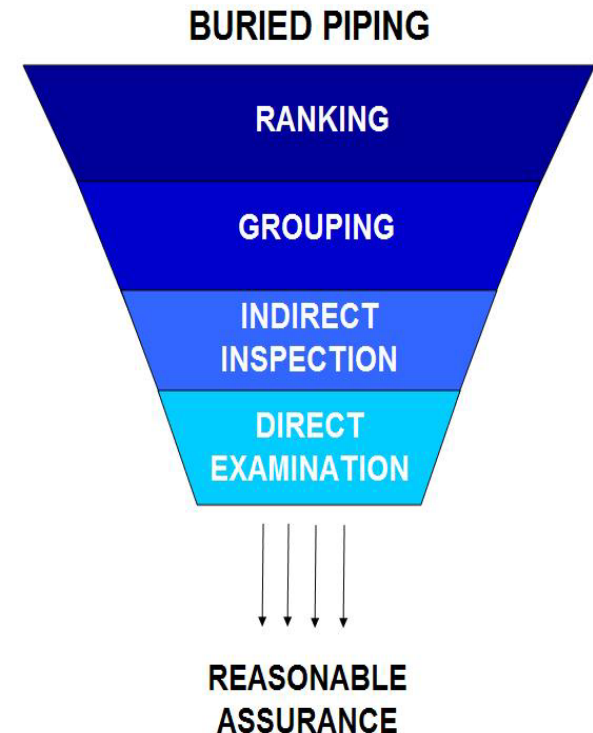


# Indirect Inspections

- Survey techniques used to assess the likelihood of degradation without having direct access to the component. Results are typically qualitative and less accurate than direct examinations.

# Approach – Indirect Inspections

- Indirect Inspection Selection is based on the highest susceptible locations in a line group
  - Supports determining the number and location of direct examinations
  - If indirect inspections not applicable go to direct examinations
  - Confirmation of indirect inspection results with direct examinations

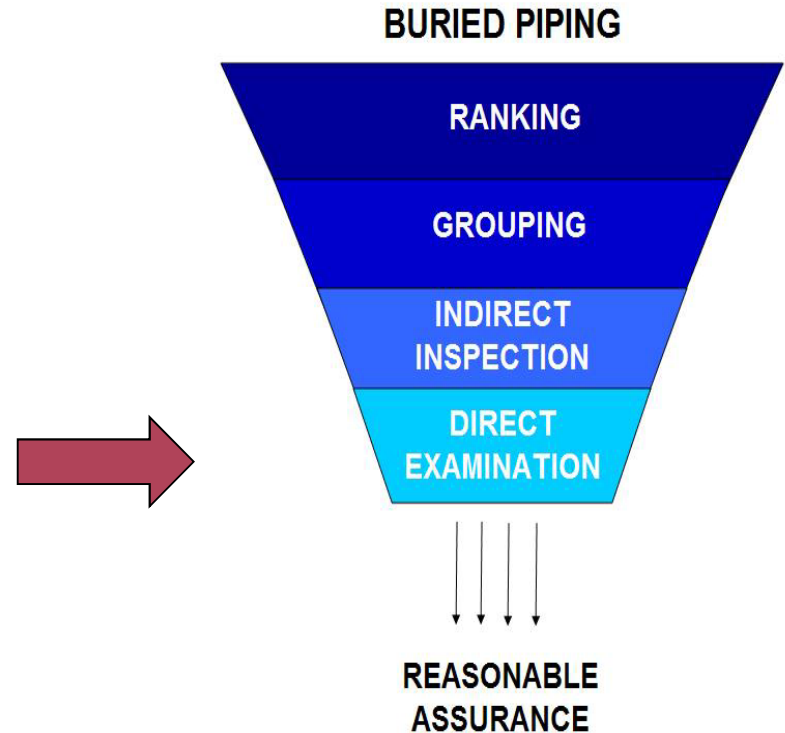


# Direct Examinations

- A Nondestructive Evaluation (NDE) examination where the NDE sensor(s) is in immediate contact with or in close proximity to the section of the component being examined. Results typically provide some degree of quantitative measurement of wall thickness or discontinuity size.

# Approach – Direct Inspections

- Direct Examinations assess the extent of corrosion activity identified by indirect inspections and confirm the effectiveness of the indirect results :
  - Graded approach
    - Service Categories
    - Coverage of indirect inspections
    - Results of indirect inspections
  - Based on highest susceptible area if no indirect inspections
  - Direct Examination for each high ranked grouping



## *Schedule or Plans*

- Remaining Activities:
  - NEI BPITF review
  - NEI BPIWG review
  - Issue as an Appendix to NEI 09-14



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