Nuclear Power Plant Buried and Underground Piping Systems

- INTEGRATED SOLUTION SET ADDRESSING THE INDUSTRY INITIATIVE ON BURIED PIPING INTEGRITY AND THE GUIDELINE FOR THE MANAGEMENT OF UNDERGROUND PIPING AND TANK INTEGRITY NEI 09-14 (REV 1)
- DIRECT ASSESSMENT ULTRASONIC BASED NDE TECHNOLOGY
- LIFEQUEST™ PIPING FITNESS-FOR-SERVICE SOFTWARE SOLUTION
INVISTA™ INTELLIGENT PIGGING TECHNOLOGY

Benefits
Ensure piping integrity
+ Identify degradation before radioactive materials are released into the environment
+ Maintain public and regulatory confidence

Satisfy NEI 09-14 (Rev 1) inspection requirements
+ Determine condition assessment of buried piping containing radioactive material by June 30, 2013
+ Determine condition assessment of underground piping containing radioactive material by June 30, 2014
+ Determine condition assessment of non-safety related piping

Maximize condition assessment of internal and external piping surfaces
+ Full volumetric ultrasonic inspection approach supports ‘Reasonable Assurance’ initiative requirements
+ Optimize aging management program for license renewal in compliance with GALL AMP XI.M41 requirements

Minimize operational and safety risk
+ Identify areas of degradation to ensure precise excavation locations and significantly reduce risk to external pipe coatings, the pipe itself and adjacent piping
+ Inspect the entire pipe length faster and more accurately than with other methodologies

Cost effective
+ Cost effective in comparison to alternatives
+ Localized excavations can cost $100K – +$1M depending upon location within the facility

Capable of inspecting piping constructed of many material types such as:
+ Carbon steel
+ Stainless steel
+ Copper
+ Aluminum
+ Galvanized steel
+ Other materials

Features & Capabilities
- Inspects 100% of internal and external pipe surfaces
- Bi-directional launch/retrieval from same location
- 48-240 ultrasonic transducers ensure 100% inspection coverage
- 3” – 16” diameter piping
- Inspects piping from a few feet long to several miles in length
- Easily navigates:
  - Fittings (e.g. tees, wyes)
  - Short radius bends (e.g. 45°, 90°, 180°)
  - Valves (e.g. ball, gate and others which do not obstruct center bore of pipe)
  - Branched connections

LIFEQUEST™ FITNESS-FOR-SERVICE ASSESSMENT

Applications
Buried or inaccessible piping in nuclear power facilities
+ Service water
+ Condensate
+ Fire protection
+ Diesel fuel oil
+ Potable water

Floor and equipment drains
+ Waste water piping
+ Auxiliary/emergency piping
+ Hydrogen supply piping
+ Safety related piping
+ Not run-to-failure piping

Radioactive piping and environmentally sensitive piping
+ Lube oil
+ Raw water
+ Chemical
+ Gas
+ Other piping systems

Solutions
Detection and Sizing of:
+ Corrosion
+ Corrosion under insulation (CUI)
+ Erosion
+ Soil environment corrosion due to coating failure
+ Pitting
+ Mechanical wear
+ Deformation (e.g. dents, ovality, bulging, swelling)

Fitness-for-service per ASME FFS-1 / API-579 standards
+ LifeQuest software applications focused on each asset type
+ Calculates corrosion rates
+ Utilizes 100% of InVista inspection data
+ Provides future inspection frequency recommendations

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Quest Integrity, a TEAM company, is a global leader in the development and delivery of asset integrity and reliability management services. The company’s integrated solutions consist of technology-enabled, advanced inspection and engineering assessment services and products that help organizations improve operational planning, increase profitability, and reduce operational and safety risks. Quest Integrity is built on a foundation of leading edge science and technology that has innovated and influenced industry best practices since 1971.