



MAPPPro 4.0

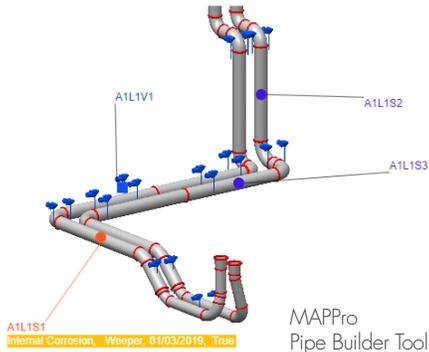
MANAGING AGING PIPING PROGRAM

Program Management Software

MAPPProTM
MANAGING AGING PIPING PROGRAM



Evaluating and managing the integrity of buried piping and other underground Systems, Structures, and Components, especially those in the nuclear industry that contain radionuclides, is a challenging issue that requires multiple skill sets to handle properly. The processes and practices involve specialized skills as part of an overall Asset Life Cycle Management approach that shifts the focus from costly remediations to a proactive prevention plan. Structural Integrity Associates, Inc. (SI) has established and proven techniques for successfully ranking, inspecting, and mitigating the degradation of buried and underground assets that can lead to improved plant safety and reliability.



SI is unique in the industry as we offer an integrated, multi-disciplinary approach to buried and underground corrosion concerns. SI has the comprehensive expertise to assist in all phases of above-ground piping, buried piping, and underground asset integrity programs. From program development, data integration, risk ranking, and conducting assessments of cathodic protection (CP) systems to using Guided Wave Technology and Linear Phased Array to locate and characterize corrosion damage. Once the foundation has been established, knowing how to disposition those findings and mitigate future degradation is critical. Integrating all available information (i.e., design, soil, groundwater, CP system operation, plant history, etc.) will lead to informed decision-making and improved process management.



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Baseline Risk Ranking & Inspection Planning

Program Development | Data Collection | Risk Ranking | Inspection Planning

Inspection & NDE

Indirect Inspection | Direct Examination | Condition Report

Condition Assessment

Disposition | Cause Analysis | Define Remediation

Asset Management Plan

Mitigation | Monitoring | Analysis Trending | Reinspection Interval

Baseline Risk Ranking & Inspection Planning

Program Development Resources

- EPRI 3002018352 (1016456 Rev2)
- EPRI 1016687
- NEI 07-07
- NEI 09-14
- NUREG - 1801/2191 XI.M34/XI.M41 (GALL)
- Independent MAP review of existing programs

Data Collection

- EPRI BPWorks™ database population
- MAPProView™ - component digitizing & data visualization
- 3-D component modeling
- Ground Water Monitoring Wells

Risk Ranking

- MAPPro Dynamic Segmentation™
- MAPPro Risk™
- Probabilistic Leak Evaluation

Inspection Planning

- Threat Assessment
- Criteria Development
- Acceptance Criteria
- Technique Selection
- Effectiveness Optimization
- Scheduling

Inspection - Reasonable Assurance

Indirect Inspection

- InTellus – Coating Condition & Cathodic Protection (CP) System Effectiveness Survey
- CP System Design and Repair
- SoilPro – site selection, soil corrosivity analysis, corrosion rate calculations
- Guided Wave Testing

Direct Inspection

- Bell Hole Inspections (coating, CP, UT, Latitude™)
- Ultrasonic Wall Thickness Testing
- Electromagnetic Acoustic Transducer (EMAT) Testing
- Linear Phased Array UT and TOFD
- PT, MT, radiography

Condition Report

- Evaluation support (Int/Ext corrosion modeling)
- Data Integration
- Fitness for Service
- Extent of Corrosion Analysis
- Life Cycle Management Assessments

Condition Assessment

Disposition

- Code Case N-513-4, N-597-1 calculations
- Pre-Inspection Flaw Handbook
- Reinspection interval calculations
- Fracture Mechanics & Finite Element Analysis

Cause Analysis

- Metallurgical Failure Analysis
- Apparent/Root Cause Analysis

Remediation

- Repair Plan and Procedures
- Remediation Plan Development
- 3rd Party Design & Procedure Review

Asset Management Plan

Mitigation

- Cathodic Protection System Design or Repair
- Coating Reconditioning: Selection / Design
- Materials Engineering: Selection / Design
- Groundwater (NEI 07-07) Program Integration

Monitoring

- Installation & Testing Services
- Cathodic Protection Test Stations and Wells
- Permanently Installed Guided Wave Collars
- Permanent CP Half-cells
- Corrosion Coupons (Internal & External)
- BloGEORGE™

Analysis Trending

- Corrosion Monitoring & Data Mining
- CP System Performance
- Ground Water Monitoring Wells
- Industry/Fleet Benchmark & Gap Analyses
- Assessment of Water Treatment Programs

Reinspection Interval

- Integrating Inspection Results, soil properties, CP, and Coupons into remaining Life Estimations

Training

- MAPPro 4.0 and MAPProView training
- Program Management & Risk Management
- Corrosion Principles & Threat Assessment
- Cathodic Protection System Management
- Direct Inspections
- Flaw Evaluations