

XI.M41 Buried Piping Aging Management Considerations

Discussion:

A graded approach to aging management of buried piping is proposed that considers the following:

- 100% inspection of high risk piping (where risk is determined by methods consistent with NEI 09-14) within the scope of license renewal by direct or indirect inspection methods and
- Direct aging management inspections based on material-environment

High risk piping inspections will be augmented as appropriate with non-high risk piping based on direct inspections of each material type and maintaining a minimum number of direct inspections during each 10 year interval. Prior to entry into the period of extended operation, at least one direct inspection of each material type will be performed. During each 10 year inspection interval a minimum of two direct inspections will be performed. Adverse indications observed during indirect inspections will be investigated by the corrective action process. The corrective action process will evaluate sample expansions based on adverse condition such as through wall leakage or wall thickness less than minimum.

Scope of Inspection

- 100% of the high risk buried piping (where risk is determined by methods consistent with NEI 09-14) within the scope of license renewal will be inspected by direct or indirect inspection methods.
- Prior to entry into the period of extended operation, direct inspections will be performed on at least one of each buried pipe material at the site (aluminum, copper, steel, stainless steel, polymer, and cementitious).
- During each 10 year inspection interval, a minimum of two direct inspections (high risk and/or non-high risk piping) per site will be performed during each 10 year inspection period. Excavation locations for non-high risk piping will be based on degradation susceptibility considerations (e.g. prior inspection results, cathodic protection, coatings, and soil conditions).
- Underground piping is managed by the external surfaces monitoring of mechanical components program (Chapter XI. M36).

Preventative Measures

- Cathodic protection, coatings, and backfill are preventative measures and should be addressed in program Element 2. An annual NACE survey will be performed for systems within the scope of license renewal that are cathodically protected.

Detection of Aging Effects

- Direct or indirect inspection methods can be used for high risk piping
- All buried piping is opportunistically inspected by visual means whenever it becomes accessible.

Monitoring and Trending

- Directed inspections will be conducted during each 10 year period beginning 10 years prior to the entry into the period of extended operation.
- Direct inspections are not required in the last 10 year period (year 50 to 60) if no there has been no minimum wall failures in the prior 10 year inspection interval.