License Renewal Teleconference on the Updated License Renewal Aging Management Program for Buried and Underground Piping and Tanks (XI.M41)

August 24, 2010

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Agenda

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- Objective
- Definitions
- Philosophy
- Preventive Actions
- Inspections
- Summary

Buried pipe is primary focus

Objective

- Manage aging of buried and underground piping and tanks
  - Primary issue is external corrosion

Definitions

- Buried
  - In direct contact with soil or concrete
- Underground
  - Below grade
  - Limited access
  - In contact with air
    - e.g. pipes in trenches or vaults

Philosophy

- Preventive actions are the best approach to aging management
  - Some inspections still required
  - More inspections required if prevention is less than perfect

Philosophy

- Concentrate efforts on high "risk" pipe
  - Higher probability of corrosion
  - Code Class or safety related
  - Hazmat
    - Radiation, diesel fuel etc.

Philosophy

- Design preventive actions and inspections to prevent adverse effects
  - Code class/safety related
    - Must have sufficient water flow
  - Hazmat
    - Must not contaminate groundwater

Philosophy

- Excavations can damage pipe
  - Permit alternatives to excavations whenever possible
    - Hydrotests
    - Internal inspections

Preventive Actions

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- Applies to all piping except possibly fire mains
- Separate recommendations for
  - Buried piping and tanks
  - Underground piping and tanks

Preventive Actions

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- Based on material of construction
- Recommend
  - Coating
  - Backfill
  - Cathodic protection

Preventive Actions

Material[1]	Coating[2]	Cathodic Protection[4]	Backfill Quality
Titanium			
Super Austenitic Stainless[8]			
Stainless Steel	X[3]		X[5, 7]
Steel	X	X	X[5]
Copper	X	X	X[5]
Aluminum	X	X	X[5]
Cementitious or Concrete	X[3]		X[5, 7]
Polymer			X[6]

Inspections

- Categories considered
  - Buried pipe
  - Underground pipe
  - Buried tanks
  - Underground tanks
- Each category addressed separately

Inspections

- Apply to
  - Code Class/safety related
  - Hazmat
- Expand to
  - All piping

Inspections

- Designed to accommodate
  - Poor prevention in first inspection (yrs 30-40)
- Expect
  - Good prevention in remaining inspections

Inspections

Material[1]	Preventive Actions[2]	Inspections[3]	
		Code Class Safety Related[4]	Hazmat[5]
Titanium			
Super Austenitic Stainless[7]			
Stainless Steel		1[6]	1[6]
HDPE[8]	A	1[6]	1[6]
	B	2	1%
Other Polymer[9]	A	1[6]	1[6]
	B	2	1%
Cementitious or Concrete		1[6]	1[6]
Steel	C	1[6]	1[6]
	D	1	2%
	E	4	5%
	F	8	10%
Copper	C	1[6]	1[6]
	D	1	1%
	E	1	2%
	F	2	5%
Aluminum	C	1[6]	1[6]
	D	1	2%
	E	1	5%
	F	2	10%

Inspections

Material[1]	Preventive Actions[2]	Inspections[3]	
		Code Class Safety Related[4]	Hazmat[5]
Steel	C	1[6]	1[6]
	D	1	2%
	E	4	5%
	F	8	10%

Inspections

- Alternatives
  - Fire mains
    - Flow tested at 6 month intervals
  - All pipe
    - Hydrostatic tests
    - Internal inspections

Summary

- Intent is to manage aging
  - Best accomplished through preventive actions
  - Necessary preventive actions depend on material
- Inspections necessary
  - Level depends on prevention
  - Good prevention expected by second inspection

Summary

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- Concentrate on important piping
  - Code Class/safety related
  - Hazmat
  - Level of inspection differs
- Excavations may damage piping
  - Alternatives provided