

Buried and Underground Piping

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Summary

- NRC's objectives related to buried piping
 - Maintenance of intended nuclear operations safety function
 - Releases remain below regulatory limits
- Current regulations and industry activities are adequate with regard to these objectives
- NRC is monitoring and responding to events related to buried piping
- NRC is working to understand and assess licensee implementation of the Buried Piping Integrity Initiative and the Underground Piping and Tanks Integrity Initiative



Background

- Industry establishes the Buried Piping Integrity Initiative, November, 2009
- December 3, 2009, SECY 09-0174 (ML093160004)
 - Look at regulations, codes and standards and industry activities
- Leaks at Vermont Yankee in 2010 from underground piping (in a concrete vault) generated significant stakeholder interest
- September 27, 2010, Underground Piping and Tanks Integrity Initiative (ML110700121)

Background

- November 30, 2011, Buried Piping Action Plan Revision 2 (ML11332A122)
- Meetings with industry 10/2009, 2/2010, 9/2010, 3/2011, 10/2011, 4/2012
- Senior Management Review of Overall Regulatory Approach to Groundwater Protection, SECY-11-0019, February 9, 2011

Background

- GAO Report: Oversight of Underground Piping Systems Commensurate with Risk, but Proactive Measures Could Help Address Future Leaks, June, 2011
- Commission Staff requirements memorandum, SECY-11-0019, August 15, 2011
- NRC Public Website Buried Piping Page
 - <http://www.nrc.gov/reactors/operating/ops-experience/buried-piping-activities.html>

Buried Piping Action Plan

- Data collection
 - Historical rate of incidence
 - Affected systems
 - System classifications
 - Tritium releases

- Program assessment
 - Understand Buried Piping Integrity Initiative and Underground Piping and Tanks Integrity Initiative
 - Temporary Instruction for NRC inspection of Initiative activities
 - Initiative details (scope, risk ranking, inspection techniques)

- Codes and standards

- Regulatory activities
 - Website
 - License renewal
 - Commitments
 - Recommendations for rulemaking

Ongoing Action Plan Items

- Gather leak and tritium release data
- Meet with industry
- Evaluate guided wave and risk ranking
- Maintain web page
- Participate in ASME and NACE activities
- Evaluate the need for regulatory changes



Open Action Plan Items

- 1-7 High pressure piping is given appropriate inspection priority and ASME Section XI IWA-5244 tests are being performed as required
- 1-9 Establish pre-2010 rate of occurrence of degradation events
- 4-8 Evaluate need to change ROP
- 4-10 Evaluate the need for regulatory changes



New Action Plan Items

- 2-10 Stay abreast of ongoing industry research to develop technologies for structural integrity tests, and when they become feasible, analyze costs to licensees of implementing these tests compared with the likely benefits to public health and safety.
- 4-11 Revise rulemaking procedures to ensure rulemaking for 10CFR50.55a is reviewed by the Commission when any changes to the ASME Code include changes related to buried or underground piping



Codes and Standards

- ASME Code
 - Met with ASME, Section XI management August 6, 2010
 - In November Section XI established a committee to address leaks from buried piping
 - Consideration of enhanced inspection requirements
 - Consideration of extension of scope to nonsafety-related piping that contains tritium
 - Task Group on Buried Components Inspection and Testing
- NACE International (formerly National Association of Corrosion Engineers)
 - Task group to develop standards for nuclear buried piping

NRC Actions

- License renewal
 - Revised buried piping aging management program
 - GALL XI.M29, “Aboveground Metallic Tanks”
 - GALL XI.M41, “Buried and Underground Piping and Tanks”
- Inspection
 - Temporary Instruction for inspection of buried piping activities
 - ML11119A167
 - Implementation by December, 2011
 - Temporary Inspection instructions exists through 2014
 - Seeking to understand commitment to minimizing leaks

Staff Requirements

SECY-11-0019



- Approved SECY 11-00179
 - The Commission has approved the SMRG recommendation not to incorporate the voluntary industry initiative on groundwater protection into the regulatory framework.
 - The staff should, instead, monitor the effectiveness of the industry initiatives.
 - The staff should make it clear in its stakeholder engagements that, while the agency will continue to monitor the industry's voluntary initiatives, no changes to the regulatory framework are currently being contemplated.
 - The staff is cautioned to remember that its purpose is to monitor these efforts, not to regulate them.
 - If the staff finds that the voluntary initiatives are not conducted in a committed and enduring fashion, the staff should present information to this effect to the Commission which can and, if necessary, will revisit this matter.

Staff Requirements

SECY-11-0019



- If, based on its participation in consensus standard activities the staff determines that revisions to the agency's regulations are necessary to incorporate changes to the ASME codes related to groundwater protection, the staff should seek Commission approval via a notation vote paper.
- Additionally, the staff should continue to work with industry in developing protocols for the NRC to remain aware of industry progress in implementing and overseeing its self-imposed initiative.



Staff Requirements

SECY-11-0076



- SECY-11-0076 - Improving the Public Radiation Safety Cornerstone of the Reactor Oversight Process
- “The Commission has approved the staff’s commitment to work with internal and external stakeholders on potential enhancements to the performance indicator program, but has not approved changes to the radiological effluent performance indicator or other modifications to the reactor oversight process (ROP) related to groundwater contamination control...”



Temporary Instruction



- Objectives
 - Determine whether industry is implementing initiatives in a “committed and enduring fashion....”
 - Enable staff to assess whether initiative as implemented provides reasonable assurance of structural and leaktight integrity

 - Phase 1
 - Compare plant program to initiative
 - Assess deadline compliance
 - Phase 2
 - Assess deadline compliance
 - Assesses “committed and enduring fashion”



Current Activities

- Preparing Commission vote paper
- Action plan activities
- Implementing TI
- Participating in ASME and NACE
- Meeting with industry
- Monitoring operating experience
- Evaluating need for commitments for initiative

Conclusions

- NRC's objectives related to buried piping
 - Maintenance of intended function
 - Releases remain below regulatory limits
- Current regulations and industry activities are compatible with these objectives
- NRC is monitoring current events related to buried piping
- NRC is performing action plan activities, including monitoring industry initiatives