

Buried and Underground Piping and Tanks

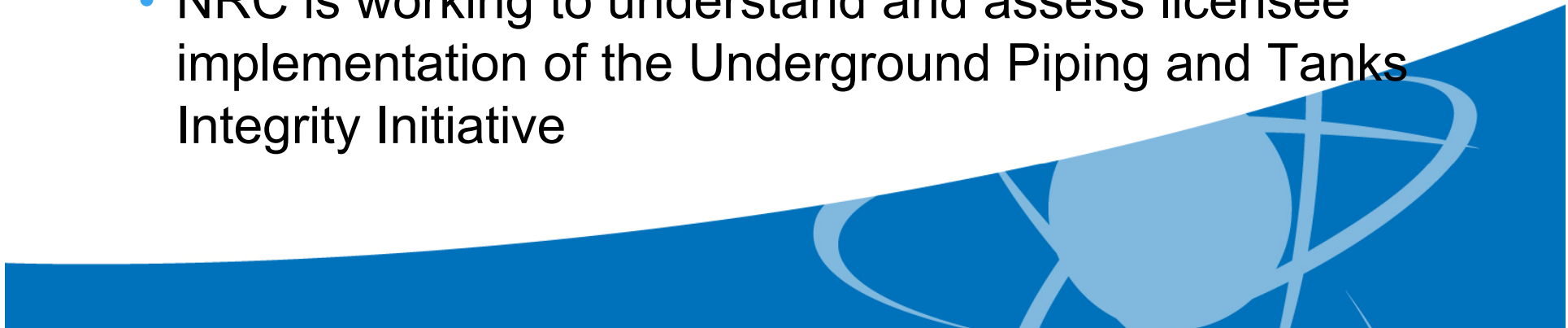
Bob Hardies
Senior Level Advisor, NRR
Document June 30, 2014

Buried and Underground Piping and Tanks

Bob Hardies
Senior Level Advisor, NRR
Meeting Date June 11, 2014

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 Underground Piping and Tanks Integrity Initiative



Buried Piping Action Plan



- Revision 3 Updated April, 17, 2013
- No new action items
- Will update to reflect item closures



Ongoing Action Plan Items



- Gather leak and tritium release data
- Meet with industry
- Evaluate guided wave
- Maintain NRC Public Website Buried Piping Page
 - <http://www.nrc.gov/reactors/operating/ops-experience/buried-piping-activities.html>
- Participate in ASME and NACE activities



Ongoing Action Plan Items

- High pressure piping is given appropriate inspection priority and ASME Section XI IWA-5244 tests are being performed as required
- Stay abreast of ongoing industry research
- Evaluate the need for regulatory changes



Codes and Standards



- ASME Code
 - 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 groups to develop standards for nuclear buried piping



NRC Action



- License renewal
 - Revised buried piping aging management program
 - Internal corrosion ISG complete
 - Coatings ISG in progress
- Inspection
 - Temporary Instruction for inspection of buried piping activities
 - Temporary Inspection instructions exists through 2014
 - Seeking to understand commitment to minimizing leaks
 - Revision 8/8/2013 to reflect initiative and schedule changes



TI 182



- The objective of the TI is to assess whether licensees are following the industry initiatives in a committed and enduring fashion
- Phase I is complete.
 - All licensees participating in the Underground Piping and Tanks Integrity Initiative



TI 182 Preliminary Results



- Phase II more than 90% of sites reported
- Some observations:
 - No deviations
 - Relatively low turnover in buried piping system responsible individual
 - System health reports useful
 - As built configuration knowledge sufficient



TI 182 Preliminary Results

- Some observations:
 - risk ranking software or programs assessed to match objectives of the initiatives
 - Variability
 - have completed their risk ranking in a manner that is characterized as appropriate
 - Some plants have no high risk piping
 - Some plants seem to have buried carbon steel pipe carrying tritiated water with a history of leakage and have ranked it other than high



TI 182 Preliminary Results

- Some observations:
 - ~4/5 have cathodic protection
 - Licensees with CP have generally either consistently maintained it, are actively refurbishing or improving it, or have plans to replace or upgrade the system.
 - Using NACE certification, in house or vendor
 - Not necessarily on piping and not necessarily on all piping
 - ~1/5 no cathodic protection installed.

TI 182 Preliminary Results



- Some observations
 - All licensees have inspection plans
 - Some inspections have been deferred
 - Those who had had leaks took appropriate action
 - Inspection procedures are appropriate and are followed; disposition is appropriate



TI 182 Preliminary Results



- Some observations:
 - All plants inspected are performing the ASME Code pressure testing, or are performing approved alternatives.
 - The overall conclusion at this point in time is that licensees seem to be implementing the initiatives in a committed fashion.



HDPE Pipe

- ASME
 - Progress on modification of Section III
 - Work continues on Section XI Code Case
 - Probably several years before completed and implemented in NRC Regulatory Guide
 - NRC will entertain relief requests
 - One relief request has been submitted, withdrawn, and will be resubmitted
- NRC guidance on relief requests has been provided in January public meeting

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

