Groundwater Protection

James Meister
VP, Operations Support
Exelon Nuclear

Background

- Robust NRC monitoring programs include effluent monitoring, dose assessment for all releases, and environmental samples
  - Limits less than public safety limits
  - Annual reporting of monitoring results available to the public
- Industry developed voluntary initiative
  - Based on events and Operating Experience
  - Builds upon existing NRC required programs

Initiative Program Elements

- Prevent unintended releases from getting offsite
  - Analyzes site hydrology and geology
  - Conducts site risk assessment
  - Implements on-site ground water monitoring
  - Delineates remediation process
- Enhance openness and transparency
  - Stakeholder briefings
  - Voluntary prompt initial and follow-up reporting
  - Data and information contained in annual reports
- Assure on-going effectiveness
  - Periodic self and independent peer assessments conducted
  - Lessons learned and best practices shared with industry

Groundwater Protection Initiative Chronology

- Adopted by CNOs – May 2006
- Program guidance – May 2006
- Initial implementation – July 2006
- Lessons learned workshop – Feb 2007
- Updated program guidance – August 2007
- EPRI Technical Guidelines – January 2008
- Updated implementation – December 2008
- Independent peer reviews – 2009-2010

Going Forward

- Suggestions to NRC on Task Force report – Oct. 2010
- EPRI Remediation guideline – Dec. 2010
- EPRI Airborne Tritium Transport guideline – Dec. 2010
- Peer assessment report to NRC – Jan. 2011
- NRC Commission briefing – Feb. 2011
- Annual industry groundwater workshop – June 2011
- 2nd round of peer reviews initiated – Jul. 2011
- Annual update to industry guidance - Dec. 2011

Peer Assessment - Summary Results

- Nuclear power plant sites have:
  - Assessed site hydro-geology & SSC leakage vulnerabilities
  - Implemented early detection methods for inadvertent leaks or spills
  - Enhanced communications with state and local stakeholders
- Areas for continued improvement include:
  - Evaluation of work practices
  - Protocols for remediation decision-making
  - SSC inspection, testing and leak prevention
  - Modeling airborne Tritium transport and deposition

Summary

- The current NRC regulatory framework assures protection of public health and safety
- The industry initiative goes above and beyond NRC requirements to address environmental stewardship, openness and transparency
- There is substantial opportunity for improving communications

Oyster Creek Activities

- Repeat leaks in underground piping identified in 2009
- The Groundwater Protection program provided for early detection
- Sources were identified, isolated, and repaired
- Dose assessment completed (worker and public)
  - No health impacts
- Oyster Creek engaged stakeholders early and often through: site visits, community information nights, public meetings, web based information, newspaper articles, print advertising, and direct mailings

Oyster Creek Activities

- Various mitigation strategies were evaluated
- Considered piping condition, site characteristics, and internal/external stakeholder inputs to develop a unique Oyster Creek approach
- Mitigated buried liquid piping containing licensed material by replacement above ground, placement in engineered trenches, or double-walled pipe
  - Completed in 2010

Exelon Underground Piping and Tank Program

- Exelon is implementing the Industry Initiative for all stations
- Condition assessment and asset management of components containing licensed material will be in accordance with the Industry Initiative