



RIC 2011 Construction Inspection Program

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Topics

- Construction Inspector Training/Development
- Inspection Activities
- International Activities

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Inspector Training/Development

- Hired ~ 60 construction inspectors
- 20% entry-level, 60% mid-career, 20% sr. industry-veterans
- 55% of inspectors completed full qualification program (24 months)
- Extensive use of inspection accompaniments to develop new inspectors

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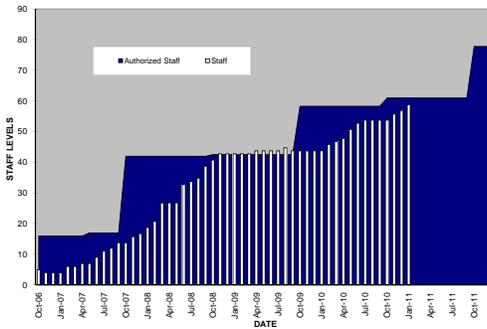


Inspector Training/Dev. (cont.)

- Qualification program has been revised and improved based on insights of 1st wave of new inspectors
- Knowledge management – seminars are conducted by the staff and outside experts to complement the formal qualification program



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Inspection Activities

- Construction Inspections are being conducted at:
 - Watts Bar 2
 - Vogtle 3 & 4
 - Louisiana Energy Services (Eunice, NM)
 - Mixed-Oxide Fuel Fabrication Facility (Aiken, SC)



Vogtle Units 3 & 4 - Inspections

- Backfill Operations
- Fitness for Duty
- Quality Assurance
- Shear Wave Testing
- Corrective Action Program
- Containment Vessel Fabrication
- Water Proof Membrane Construction



Lessons Learned

"Man learns from history that man learns nothing from history."

- Hegel's Paradox





What Were The Deficiencies?

Per NUREG-1055, the quality of structures, systems, and components was indeterminate due to:

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|---|--|
| ▪ Inadequate quality inspection documentation | ▪ Inadequate procedures and instructions |
| ▪ Inadequate reporting of nonconformances | ▪ Procedure violations |
| ▪ Drawing deficiencies | ▪ Inadequate licensee audits |
| ▪ Inadequate specifications | ▪ Inadequate corrective action program |
| ▪ Materials control deficiencies | |



Recently Revisited Lessons – New Fuel Facility Construction Sites

- Ambitious schedules
- Quality assurance/quality control
- Safety culture
- Oversight of contractors
- Active management oversight
- Clear roles and responsibilities
- Completed final design details

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NRC Lessons Learned

- Inspect early in any new process
- Larger resident inspector presence
- Better integration of individual findings
- Prompt response to quality issues and allegations
- Physical work observations rather than paper reviews
- Improved inspection planning and scheduling
- Closer relationship between inspection and licensing
- Complete and accurate inspection record
- Ensure effective corrective action program

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International Activities

- China – AP1000 construction observations
- Finland – EPR construction observations
- France – EPR construction observations
- Inspector assignments from several weeks to several months

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International Activities (cont.)

- Verifying NRC inspection procedures and approaches, where possible
- These activities will continue with future visits to China and Taiwan

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Insights

- It is essential that the NRC understands how the licensee's QA programs interact with their subcontractors QA programs.
- ITAAC inspections – be ready at any time throughout the construction. Inspection opportunities may present themselves.
- Some technical problems identified.
- The design being complete before construction is critical! (all facilities)

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