

# Regulatory Information Conference 2004

## Emergent Technical Issues - T11

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Emergent Material Degradation Issues  
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March 11, 2004

# Introduction

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- Fall 2003 - Reactor Coolant Pressure Boundary Leakage Issues
- Potential Impact on Safety
- Increasing Frequency of Events
- Significant Impact on Licensee and NRC Resources

# Emergent Material Degradation Issues

## Pilgrim Nozzle Leak

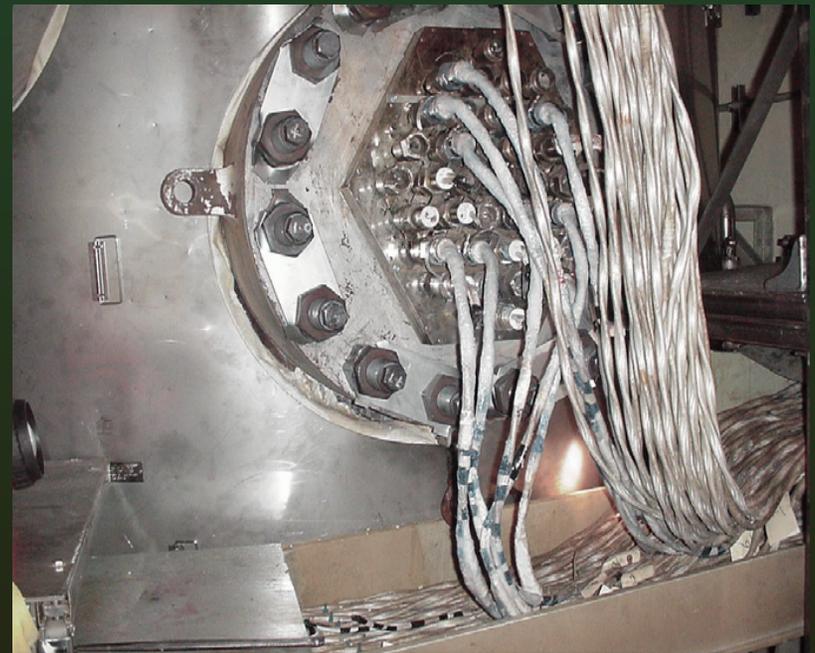
- Through wall leak found during a forced outage
- Leak caused by circumferential flaw in weld not identified by previous inspections
- Repaired via a weld overlay process (extended the outage and required NRC approval)



# Emergent Material Degradation Issues

## Three Mile Island Pressurizer Heater Diaphragm Leak

- Leaks caused by through wall cracks in seal weld and base metal of diaphragm
- Evidence of leakage in this area during previous refueling outage
- Boric acid caused minor damage to associated strongback
- Repairs involved replacement of affected bundle
  - ▶ Extended outage and required NRC follow-up)



# Emergent Material Degradation Issues

## Millstone Pressurizer Heater Leaks

- Walkdown Identified
- Two identical leaks identified during the previous refueling outage
- Leaking bundles removed for examination; confirmed axial nature of flaw
- Corrected by installation of a mechanical clamping device
  - Required NRC approval
- Impacted licensee and NRC resources



# Emergent Material Degradation Issues

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- Other Fall 2003 examples:
  - ▶ Pressurizer heater sleeve cracking
    - Waterford
    - ANO
  - ▶ Plugged thermocouple well leak
    - Oconee

# Summary

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- Continue to present challenges
- Impact NRC and licensee resources
- Highlights need for effective detection and prevention programs
- Additional generic guidance under review