RIC 2008
Dissimilar Metal Butt Welds

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Background

- Dissimilar metal (DM) welds made with Alloy 82/182 have experienced cracking since mid-1980s
- Cracking in Alloy 82/182 butt welds (BW) has been experienced at many plants since 2000
- Prior to 2006 butt weld inspection schedules based on ASME Code, Section XI

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Background

- In late 2005 industry implemented initiative MRP-139 with more aggressive inspection schedules
  - Base line inspection schedules based on temperature and size
  - On-going frequency based on mitigation method applied to weld
- Staff relying on MRP-139 in near term

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Pressurizer Top Head Nozzles

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Wolf Creek Evaluation

- Inspections in Oct 2006 at Wolf Creek performed prior to weld overlay mitigation per MRP-139
- Apparently large circ flaws found in pressurizer safety, relief, and surge nozzle welds
- Based on industry and NRC advanced finite element fracture mechanics analyses, NRC staff agreed to industry planned inspection schedule

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Longer Term Approach

- NRC staff requested ASME Code, Section XI, to develop a code case for inspection of Alloy 82/182 butt welds
  - Code Case under active development and nearing completion
  - If acceptable, NRC staff will incorporate code case in 10 CFR 50.55a
- NRC issued TI 2515-172 to regions

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St. Lucie 1 Pressurizer Inspection

- Recent inspection of DMBWs in replaced pressurizer
  - Indications found in all nozzle welds
  - Deepest indications measured in safety nozzles
- Office of Research undertaking a significant study to evaluate the pressurizer nozzle welds
- RES program will include, at a minumum
  - More in depth non-destructive examination
  - Flaw growth evaluation
  - Residual stress measurement
  - Destructive evaluation
  - Integrated assessment of the results
- Industry will be assisting RES program
- Periodic summary reports

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