

CENG
a joint venture of
Constellation Energy EDF



DOE/EPRI/CENG Nuclear Plant Life Extension Demonstration Project Status

2012 NRC Regulatory Information Conference
Technical Session Th32 – Perspectives on Current and Subsequent License Renewal

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Agenda

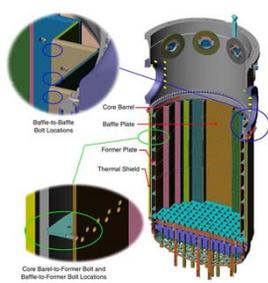
- Project activities completed during the Ginna 2011 RFO
- Project activities completed during the NMP1 2011 RFO
- Project activities planned for future Ginna RFOs
- Project activities planned for future NMP1 RFOs

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Completed Ginna Activities

- Enhanced RVI Inspection (EPRI MRP-227 based inspection) activities
 - Ginna was 1st PWR to complete all elements of this inspection
 - Videos for all conducted inspections observed by EPRI-contracted industry expert – all inspections were satisfactory
 - Metallurgical testing at ORNL is planned for 5 of the 24 removed intact baffle-to-former bolts



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Completed Ginna Activities (cont'd)

- Collaborated decision to provide additional monitoring during planned ILRT/SIT of Containment structure
- Preparation activities performed prior to 2011 RFO:
 - EPRI contractor, LPI, developed a FEA model of the Ginna Containment to predict Containment behavior during test
 - Carbonation Tests (pH determination) of Containment concrete conducted at outside locations using holes that were drilled for the tendon shim strain gage modification
 - CO₂ in air lowers concrete pH over time

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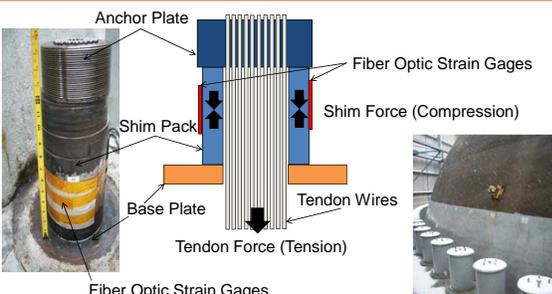
Completed Ginna Activities (cont'd)

- Containment ILRT/SIT monitoring:
 - Installed fiber optic strain gages on 20, out of 160, of the Containment tendon main shims to measure real time tendon forces
 - Installed fiber optic strain gage on exposed Containment rebar to measure real time rebar stress
 - Installed fiber optic strain gage on Containment concrete surface to measure real time concrete surface stress
 - Utilized DIC to monitor Containment growth and concrete surface stresses at 3 locations during the ILRT/SIT

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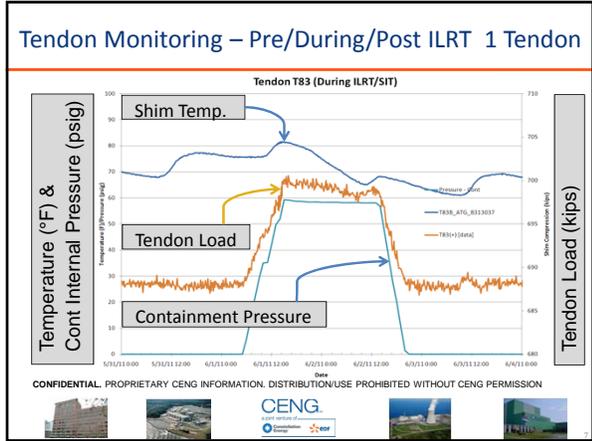


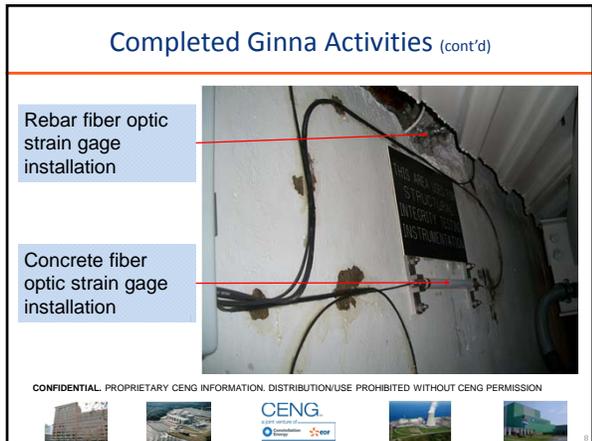
Tendon Monitoring – Fiber Optic System

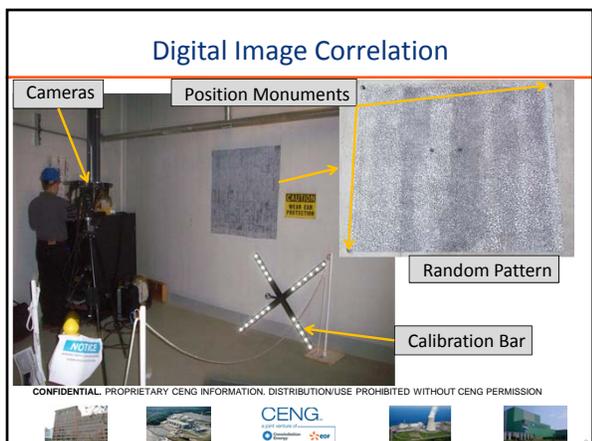


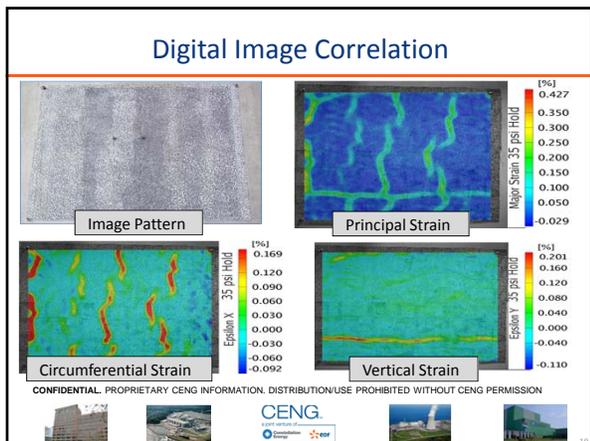
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- ### Completed NMP1 Activities
- EPRI-contracted industry expert observed BWRVIP full core offload inspections during the 2011 Spring RFO
 - LPI civil/structural experts observed Torus inspections during the 2011 Spring RFO
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- ### Planned Future RFO Activities - Ginna
- 2012 RFO
 - Visual inspection of the Containment liner
 - Visual inspection of all Containment penetrations
 - Visual inspection of Containment exterior and interior concrete and structures
 - 2014 RFO
 - Installation of data logger to record Containment temperatures at various locations during next cycle
 - Develop methodology to quantify Containment liner condition where entombed in concrete
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Planned Future RFO Activities – NMP1

- 2013 RFO
 - Observe follow-up BWRVIP inspections of Steam Dryer
 - Observe Containment Torus inspections
 - Develop methodology to quantify Containment shell condition where entombed in concrete
- Future RFOs (potential actions)
 - Boat samples may be taken of the RVI Top Guides
 - Spare RV coupon may be sent to ORNL for testing once it reaches 80 EFPY equivalent

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Acronym Definitions

- BWRVIP – Boiling Water Reactor Vessel Internals Program
- CENG – Constellation Energy Nuclear Group
- DIC – Digital Image Correlation
- DOE – Department of Energy
- EFPY – Effective Full Power Years
- EPRI – Electric Power Research Institute
- FEA – Finite Element Analysis
- ILRT – Integrated Leak Rate Test
- LPI – Lucius Pitkin, Inc.
- MRP – Materials Research Program
- NMP1 – Nine Mile Point 1
- ORNL – Oak Ridge National Laboratory
- PWR – Pressurized Water Reactor
- RFO – Refueling Outage
- RV – Reactor Vessel
- RVI – Reactor Vessel Internals
- SIT – Structural Integrity Test

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