

# NRC Perspective on Harvesting Experience and Lessons Learned

NRC Staff  
March 8, 2017

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# NRC Harvesting Experience

- RPV materials
  - Shoreham, Midland
- Reactor vessel head CRDM penetrations
  - North Anna, Davis-Besse
- Pressurizer from St. Lucie
- Piping from VC Summer, NMP, Oconee
- Reactor internals from Zorita
  - Joint harvesting and testing project with EPRI and international
- Neutron absorbers from Zion
  - Harvesting coordinated with DOE and EPRI; Independent NRC testing
- Concrete from Zorita
- Cables from Zion and Crystal River

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# Previous Benefits of Harvesting

- Reduce unnecessary conservatism
  - Flaw distributions and Master Curve information came from harvested materials to support PTS rule
- Understand in-service flaws
  - Mockups for NDE qualification
  - Leak rate methodology from studying in-service flaws
- Identify and better understand safety issues
  - High-energy arc fault tests on aluminum electrical components

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# Technical Lessons Learned

- Harvesting can provide highly representative aged materials for research
  - May be only practical source of representative aged materials, particularly if irradiation and temperature are important factors
    - Achieving high fluence levels with representative irradiation conditions through other means is very challenging
  - May be able to use limited harvested materials to validate larger accelerated aging data set
- Important to gain as much information as possible in advance before committing to specific harvesting project
  - Ideally a bounding, yet realistic, material/environment
  - Understand material information (CMTRs if available) and plant operating conditions

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# Logistical Lessons Learned

- Harvesting is an expensive, time-consuming effort
  - Must balance cost with potential benefits carefully
  - High technical relevance of materials is needed to ensure value
- Leveraging resources with other research organizations helps mitigate cost challenges
  - Can introduce challenges for testing when aligning research priorities and interests of multiple organizations
  - May be needed, particularly for expensive testing of irradiated materials
- Transporting irradiated materials, particularly internationally, is cumbersome and time-consuming
  - Avoiding extra transport, especially between countries, is highly recommended