

Zorita Materials Testing

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NRC-Industry Materials Exchange Meeting

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NRC Perspective on Zorita Materials Testing

- International cooperation made the ZIRP program highly cost efficient for members
 - EPRI's role in leading and managing the ZIRP program is greatly appreciated
- Zorita materials have provided important data at higher fluence levels on highly representative LWR-irradiated reactor internals materials
 - 3-D fluence and temperature analyses increase the value by allowing the results to be put in proper context of the aging conditions seen
 - Zorita materials testing data increases knowledge of stainless steel behavior at higher fluences
- Enabled additional research on Zorita materials by EPRI, NRC, and Halden
 - Zorita weld testing funded by EPRI and NRC
 - Crack growth tests on Zorita specimens at Halden
 - Zorita materials testing at Argonne National Lab (ANL) funded by NRC
 - Planned further irradiation of Zorita welds through Halden

Zorita Materials Testing at ANL

- Through cooperation with EPRI, NRC has acquired specimens of Zorita materials for testing at ANL
- Testing and characterization include:
 - Crack growth rate and fracture toughness testing to assess response as a function of fluence
 - Fractography and microscopy to correlate microstructural features of irradiation damage to observed behavior
- A technical paper describing research activities through April 2019 will be presented at the 2019 Environmental Degradation conference