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SAND2015-0290PE

EPRI Extended Fuel Collaboration Program (ESCP) Meeting

High Burnup Demo Subcommittee Meeting

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Dorothy Davidson, Co-chair

December 3, 2014
Charlotte, North Carolina

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AGENDA

- *Welcome and Introductions*
- *Sister rod characterization: Steve Marschman*
- *Discussion on subcommittee scope*
  - *BWR thermohydraulic test platform ideas*
  - *Round table discussion*

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Simulated Dry Cask BWR Testing

- Use existing prototypic BWR Incoloy test assembly in a pressure vessel with He environment
- Explore effects of pressure and decay power on assembly temperature and internal flow
- Record high-fidelity data for the validation of CFD simulations
- Estimated project duration is 1 to 2 years

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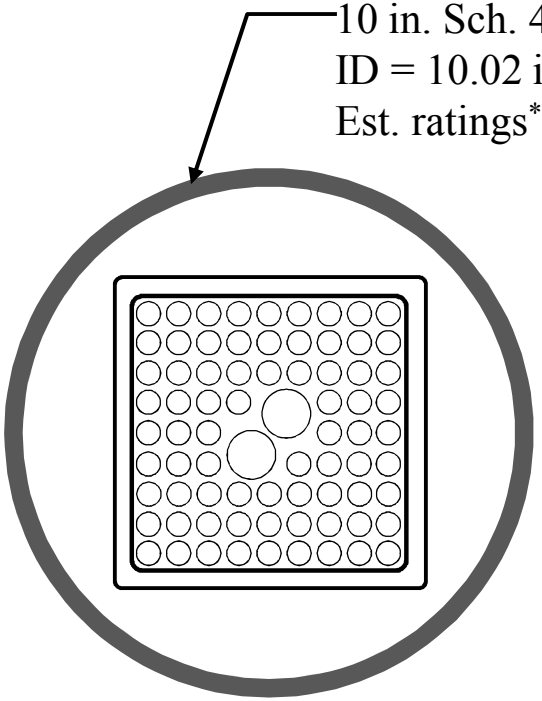
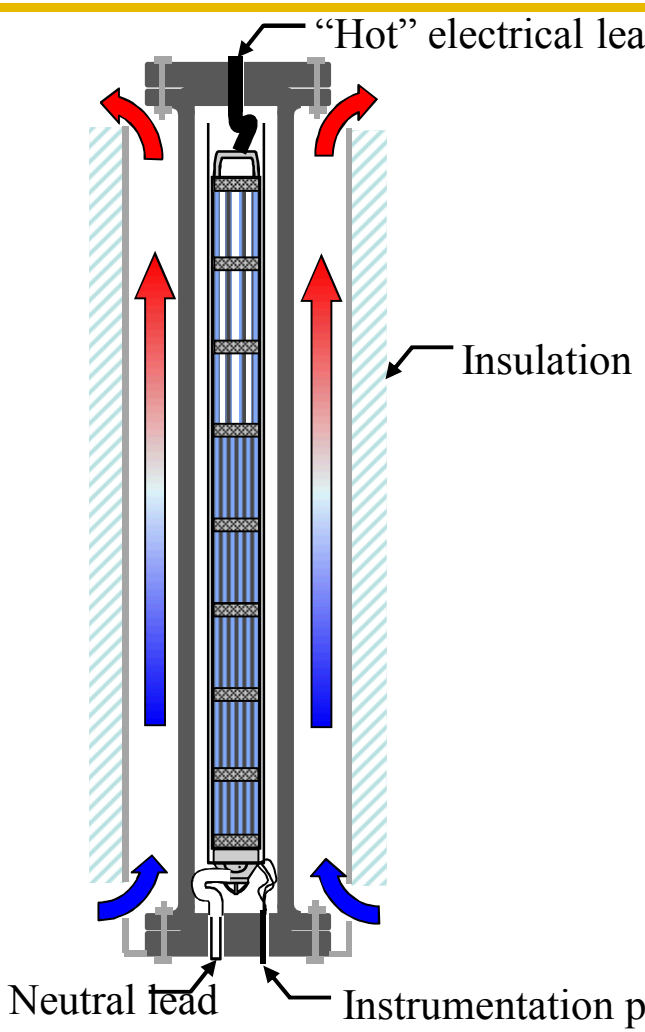
Above Ground Configuration

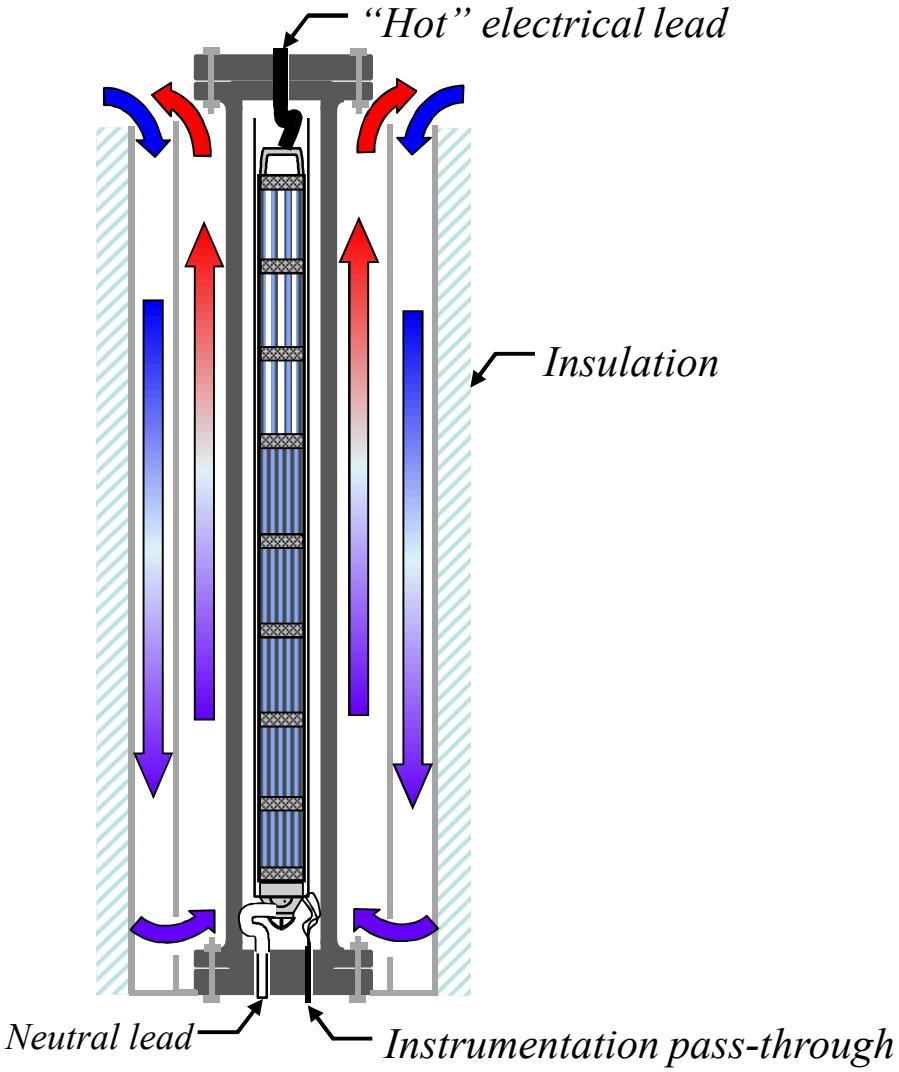


* Assumes 300# flanges



Below Ground Configuration

- **Modification to above ground configuration**
  - Additional annular flow path
  - Insulation on outer BC
- **Air flow measurements**
  - Hot wire anemometers
  - Placed at air inlets
- **Internal flow**
  - Indirectly through temperature
  - Direct measurement difficult



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Optional Cask Simulations*

- **Examine the conditions developed during a typical drying cycle (e.g. ASTM C1553-2008)**
  - Introduce representative amount of water to vessel including damaged fuel surrogates
    - *Interest from DOE UFD regarding corrosion from residual water*
  - Pull vacuum until 3 torr is achieved
    - *Drying endpoint*
    - *Determine PCT and temperature profiles during drying cycle*
  - Perform ballooning rod analysis for measured temperature profiles
    - *Re-examine SFP Phase 2 ballooning data for guidance*
    - *Extend analysis for full cask and any fuel condition with FLUENT and FRAPCON*

** Not included in earlier cost estimate*