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# **TLR-RES/DE/CIB-2013-01 Impact to Licensees**

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# Why was TLR Position used in PWROG-15109 for Nozzles?

- PWROG stated intent to use TLR position twice to NRC with no pushback
  - January 2016: Public Meeting with Industry on RPV Issues where PWROG Nozzle project approach was presented
  - May 2017: PWROG-15109 pre-submittal meeting
- November 2016: NRC granted an SER for TLR use with the Robinson 2 nozzle P-T curves
- Actual shift uncertain but definitely small
  - Cu often not measured for nozzle forgings
  - Fluence is conservatively estimated
  - Fluence rarely calculated at nozzle corner (usually at lowest extent of nozzle forging)
  - Not all plants have fluence calculated in nozzle region
- Therefore a conservative screening limit is established under which shift is negligible
  - Indistinguishable from data scatter
  - Can be applied generically
  - Easy to use for future nozzle fluence updates

# Utility Burden

- RAIs issued by NRC have required licensees to perform rework and update submittals
  - 2 so far; more anticipated
  - Burden includes rework to technical evaluations as well as licensing effort for new submittal
- Rework has been undertaken on several plant-specific evaluations, which have not yet been submitted in order to avoid RAIs
- To date, the plant-specific rework performed to address this concern has not changed any technical conclusions

# Utility Burden

- Use of the TLR position allows for a simple applicability check of nozzle P-T limit curves (i.e., confirm shift remains less than 25°F).
  - Without the TLR position, increased nozzle fluence projections will require new nozzle P-T limit curves if fluence is above  $1 \times 10^{17}$  n/cm<sup>2</sup>
  - Nozzle P-T limit curves take several months to complete
- Inability to apply TLR position for evaluation contained in PWROG-15109 will require significant rework, and possibly negate all work on topical
  - The project for PWROG-15109 was a large investment for utilities and took 4 years to complete
  - If utilities cannot use PWROG-15109, plant-specific analyses for the reactor vessel nozzles would be required for each P-T limit update or submittal

# Questions?

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*The Materials Committee is established to provide a forum for the identification and resolution of materials issues including their development, modification and implementation to enhance the safe, efficient operation of PWR plants.*



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