FLUENCE:

THE TRANSWARE ADVANTAGE

The Why?

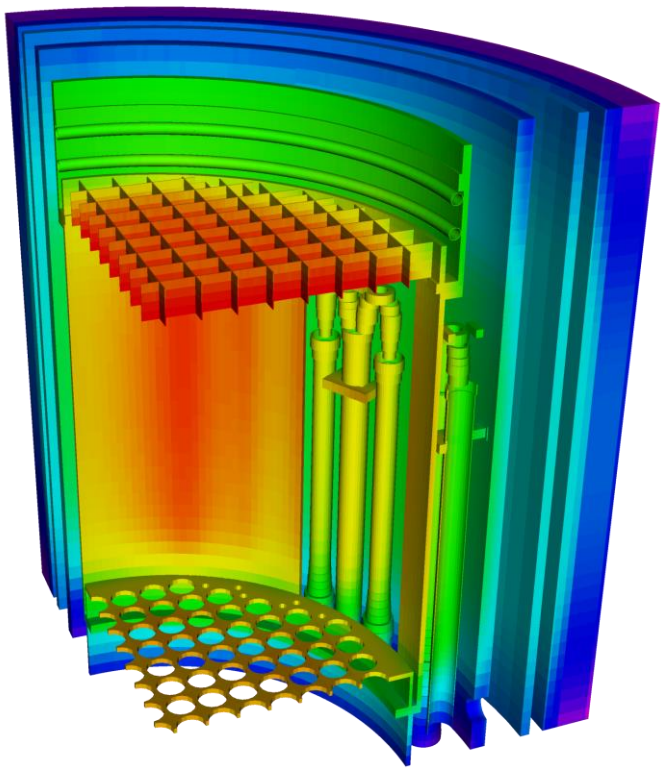
Plant operations are critically affected by one of the few things that is impossible for plants to measure: fluence. Fast and thermal neutrons continuously bombard the plant's critical components, leading to material degradation and activation and affecting both operational parameters and worker dose. An accurate assessment of the plant's fluence helps plant operators and owners make the critical decisions that keep the plant running safely and profitably.

TransWare has spent more than 20 years developing and innovating our transport, modeling, and fluence methods. Our industry-leading methods and plant-specific approach have contributed to our reputation as the leading fluence provider for light water reactors.

The How?

Detailed, plant-specific fluence evaluations are performed utilizing an advanced, deterministic, coupled neutron-gamma transport method developed by TransWare. It represents a new leap in transport efficiency and accuracy over the industry's legacy methods and meets or exceeds regulatory guidelines for fluence methods.

Traditional methods rely on crude, geometric approximations based on either completely cylindrical or voxel representations of the reactor. In reality, operating reactors contain a variety of complex components which have both cylindrical and rectangular forms. Traditional methods also frequently use mixed two-dimensional solutions to approximate the three-dimensional fluence solution



while missing the finer spacial details which can be vital to flaw evaluations. These generalizations require frequent renormalization to plant measurements which increases cost and decreases predictability.

TransWare offers true, three-dimensional solution techniques, combining the modeling capabilities of combinatorial geometry with the performance of a Method of Characteristics transport solver. In reality, it's the best of all worlds.

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The Advantage

TransWare's industry-leading methods guarantee you the most accurate fluence for your plant. Compared to the competition, we provide a competitive advantage in the following areas:

- Modeling Capabilities

  Any component can be modeled exactly as it exists in the plant, allowing for accurate assessments regardless of component shape or size.

- Model Accuracy

  Unrivaled accuracy with more than 1,100 comparisons to light water reactor measurements and an overall, unadjusted calculated-to-measured (C/M) ratio of 1.01 +- 0.09.

- NRC Recognition

  TransWare is the only company recognized by the NRC with a Safety Evaluation Report that allows analysis of reactor internals. Additionally, we have received generic approval for BWR and PWR vessel analyses.

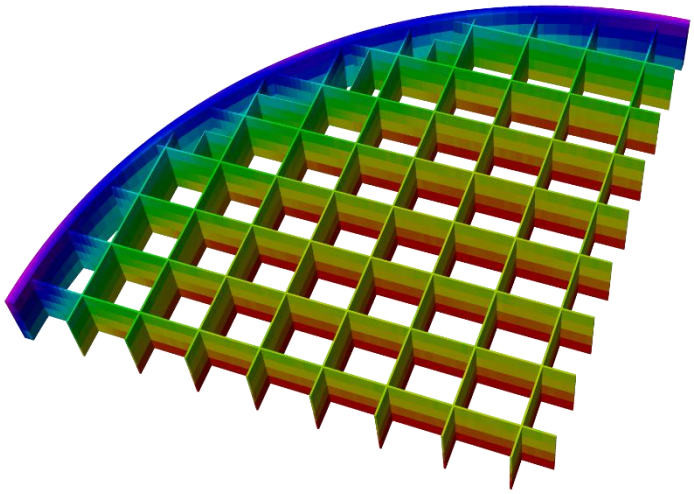
- Experience

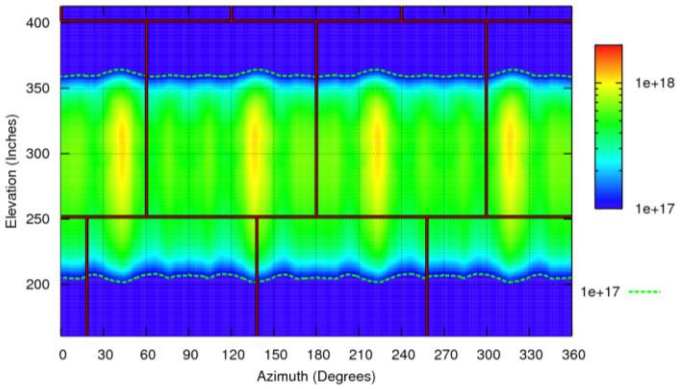
  TransWare has supported more than 24 operating reactors around the world including all classes of BWRs and multiple PWR designs.

- Reduce Plant Costs

  Frequent and accurate fluence evaluations help eliminate unnecessary conservatism from P-T curves, allowing you to start up and shutdown your plant faster. Additionally, they can help you defer inspections and component replacements as well as prioritize repairs.

All of our work can be performed under our NUPIC-approved quality assurance program that meets the requirements of 10CFR50, Appendix B and 10CFR21.





Related Services

Our Fluence Monitoring Program can be implemented at your site, providing you with up-to-date fluence assessments at the end of each operating cycle. These values can be used to support outage activities, update P-T curves, and track plant performance against previous projection assumptions.

Additionally, since all of the work can be performed under QA and incorporates data going back to initial criticality, many other plant evaluations can benefit from this repository such as used fuel storage programs.

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