

Proposed Options for Closure of EPRI Depletion Code Validation Approach Review

U.S. Nuclear Regulatory Commission
December 20, 2018

Meeting Objectives

- 10 CFR 50.68 requirements
- Potential resolution paths

10 CFR 50.68 Requirements

- 10 CFR 50.68(b)(4) excerpt:
If credit is taken for soluble boron, the k-effective $[(k_L)]$ of the spent fuel storage racks loaded with fuel of the maximum fuel assembly reactivity **must not exceed 0.95, at a 95 percent probability, 95 percent confidence level**, if flooded with borated water...
- 95/95 implies that uncertainty and bias need to be explicitly addressed
- Translated to SFP criticality analysis as: $k_L \geq k_C + \text{unc.} + \text{bias}$

Potential Resolution Paths to Address Bias and Uncertainty (Not Exhaustive)

- Reconcile the data set with the hypotheses supporting the quadratic fit
- Use the linear regression analysis in Rev. 1 of the topical report
- Impose a limitation and condition at high burnup values
- Other...