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SUBJECT: 3-DIMENSIONAL PLOT OF EALF VS H/X VALIDATION BENCHMARK DATA

Reference:
1. LTR-EHS-05-146, Rev. 1, *Validation of the CSAS25 Sequence in SCALE-4.4 and the 238-Group ENDF/B-V Cross Section Library for Homogeneous Systems at Westinghouse Columbia Fuel Fabrication Facility*, December 7, 2005.
2. LTR-EHS-05-420, Rev. 0, *Multi-Dimensional Analysis of Validation Area of Applicability*, December 7, 2005.
3. Gary S. Janosko to Nancy B. Parr, *Request for Additional Information on License Renewal Application for Nuclear Criticality Safety (TAC 31911)*, August 10, 2006.

Introduction

Westinghouse Columbia Fuel Fabrication Facility (WEC-CFFF) compliance with the operating license (SNM-1107) requires the use of a minimum Margin of Subcriticality (MoS) of 0.02 in the Nuclear Criticality Safety (NCS) evaluations. During a meeting with the Nuclear Regulatory Commission (NRC) (September 6-8, 2005) CFFF defended the use of this MoS value citing CFFF's use of:
- Rigorous criticality code validation,
- Conservative margins in systems parameters,
- System sensitivity analysis, and
- Documented methodology

The NRC requested that CFFF enhance the rigor of the code validation [1] with a multi-dimensional evaluation of Area of Applicability (AOA) including two-dimensional distributions of benchmark materials and energy ranges. Reference 2 details the results of that evaluation to demonstrate that there are no unknown biases within subsets of the AOA.

The NRC requested additional information [3] : "Specifically, present the results of the trend in the bias as a function of H/X and EALF in graphical form, and justify whether the existing USL is still valid. Also, provide the calculations performed to generate the results in the response."