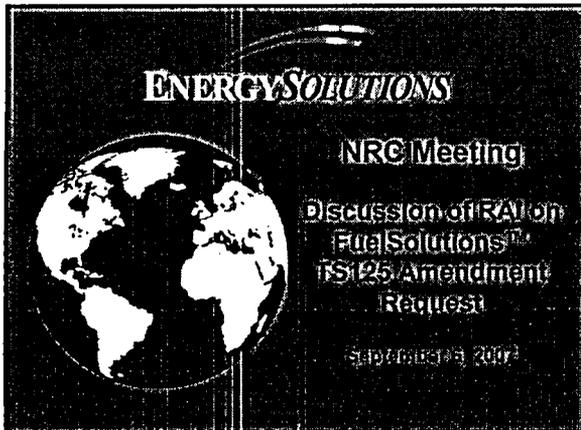


Enclosure 2  
Meeting Handouts



## Background

- 4 pre-submittal meetings with NRC staff
  - July 17, 2003 – Discussed overall approach
  - Jan 15, 2004 – Introduced MSB-specific BUC concept
  - Aug 12, 2004 – Discussed structural and criticality
  - Feb 2, 2005 – Discussed criticality BUC analysis
- Application submitted to NRC on 10/01/06
- NRC acceptance and schedule
- RAI issued on 07/27/07

## Meeting Purpose

- Discuss RAI questions with NRC staff
  - Gain additional understanding of issues/concerns associated with RAI questions
  - Discuss options for providing acceptable responses to RAI

## RAI Summary

- RAI includes 65 Questions
  - 4 General (no discussion required)
  - 9 Structural (discuss 6 questions)
  - 5 Thermal (no discussion required)
  - 11 Shielding (discuss 1 question)
  - 36 Criticality (discuss 27 questions, time permitting)
  - No questions on Containment, Acceptance Tests and Maintenance, or Operating Procedures

## Meeting Agenda

- Background
- Summary of RAI
- Discuss RAI Key Questions
- Schedule

## Structural: RAIs 2-1 and 2-2

- Provide an evaluation of the MSB Storage Sleeve Assembly in accordance with the provisions of the ASME B&PV Code, Section III, Subsection NG. (2-1).
- Provide justification and documentation for the weld quality factors that will be used in the evaluation of all MSB Storage Sleeve Assembly welds in accordance with ASME B&PV Code Section III, Subsection NG. (2-2).



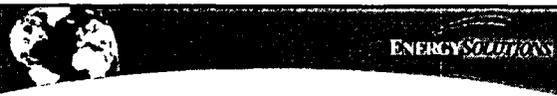
**Structural: RAI 2-3**

- Provide an ANSYS analysis of the MSB storage sleeve assembly with all interior nodes at the sleeve-to-sleeve connections coupled in ALL six degrees of freedom, not just the translational degrees of freedom.



**Structural: RAI 2-9**

- Provide high burnup fuel material's mechanical property data to show that the yield strength and Young's modulus are independent of the level of burnup.



**Structural: RAI 2-5**

- Discuss how engineering non-conformances, NRC inspection findings, and other fabrication issues associated with the VSC-24 were considered in the design and analyses. Justify adequate structural performance for VSC-24 canisters with any pre-existing weld cracks in the canister body and fuel sleeves.



**Criticality: RAI 6-3**

- Justify the use of a more limiting one dimensional depletion computer code instead of a two dimensional computer code.



**Structural: RAI 2-8**

- Provide a verification on the evaluations of post buckling fuel rod stresses under HAC end drop conditions.



**Criticality: RAI 6-9**

- Justify the use of assembly-averaged isotopic compositions from the donor assembly for the individual fuel rods that have been moved to "receiver" assemblies.



### Criticality: RAIs 6-4 & 6-10

- Provide justification for the applicability of the recommended bounding axial profiles (that are not based on any data from W 14x14 assemblies) for the W 14x14 assembly analyses.
- Provide justification for the applicability of the data from DOE/RW-0496 report to the CE and W 14x14 assemblies.



### Criticality: RAI 6-17

- Justify the applicability and use of the Commercial Reactor Critical configurations for validation of the criticality analyses of the MSBs.
- Cooling Time Concern ( $^{241}\text{Am}$ ,  $^{155}\text{Gd}$ )



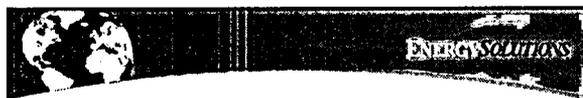
### Criticality: RAI 6-5

- Justify the use of actinide-only axial bounding burnup profiles in DOE/RW-0472 for the actinide-plus- fission product burnup credit VSC-24 canisters.



### Criticality: RAI 6-19

- Provide justification for using average modeling parameters for depletion validation calculations.



### Criticality: RAI 6-16

- Justify the use of CRC models, including the isotopic compositions, that were developed by another organization.



### Criticality: RAI 6-21

- Describe how the isotopic benchmarks cover the ANO-1 spent fuels.



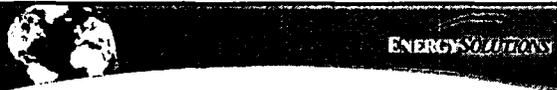
**Criticality: RAIs 6-22 & 6-25**

- Provide normality tests and trending analyses for the measured/calculated isotopics.
- Clarify the statement: "The issue of  $\Delta k_{eff}$  distribution normality (discussed in Section 6.8.2.5.4) is not applicable to the USL method."



**Criticality: RAI 6-27**

- Explain why the isotopic measurement uncertainties were not included in the total uncertainty.



**Criticality: RAI 6-23**

- Develop biases for Am-241 based on Am-241 data instead of Pu-241.



**Criticality: RAI 6-28**

- Demonstrate that the trends with the fuel parameters are not determined by the difference in the number of nuclides with actual measured data available in each sample.



**Criticality: RAI 6-24**

- Explain why the missing experimental data for U-238 is not treated in a manner consistent with other missing nuclides and determine the impact on the analysis if the isotopic uncertainty for these samples is included.



**Criticality: RAI 6-30**

- Provide the detailed information on how the burnup values were calculated and measured including the associated uncertainties.



**Criticality: RAI 6-36**

- Describe how well the sample of spent fuel assemblies chosen from ANO-1 for burnup measurements represent the integrity of the burnup records for the remaining spent fuel assemblies from Palisades and Point Beach loaded into the VSC-24 canisters.



**Criticality: RAI 6-14**

- Justify that modeling the hafnium material in the I1h assembly inserts is a conservative assumption.



**Criticality: RAI 6-18**

- Describe data uncertainties associated with CRC models.



**Criticality: RAI 6-13**

- Provide sensitivity analyses that demonstrate using an average fuel zone height is conservative when modeling ANO assemblies.



**Criticality: RAI 6-6**

- Justify modeling a heterogeneous fuel assembly geometry with a one dimensional homogenous model.



**Criticality: RAI 6-7**

- Justify your 25% assumption when calculating the cladding temperature.



**Criticality: RAI 6-11**

- Justify using pure water instead of a mixture of water and steel for top and bottom nozzles are conservative.



**Criticality: RAI 6-32**

- Describe the basis for assigning the probability of loading individual under-burned spent fuel assembly.



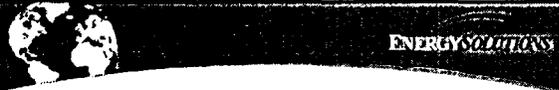
**Criticality: RAI 6-12**

- Demonstrate that the use of nominal measurements for axial dimensions and exterior components will have no measurable effect on the reactivity of the system as opposed to using conservative worst-case fabrication tolerances.



**Criticality: RAI 6-15**

- Justify why several different cross-section library sets were used in the MCNP5 calculations.



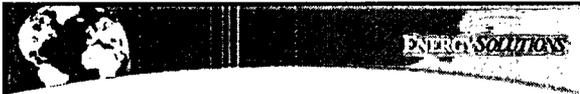
**Criticality: RAI 6-20**

- Justify the use of the code calculations to obtain measured data.



**Shielding: RAI 5-2**

- Generate and provide neutron and gamma source terms for each fuel type in this amendment (B&W 15x15, CE 16x16, CE 15x15, and W 14x14) accounting for differences in lattice configurations. Provide the ANO-1 (B&W 15x15) input and output files as an example.



### Schedule for RAI Responses

- Due date for RAI responses not specified in NRC letter
  - Acceptance letter gives 75 days from RAI receipt date (October 10, 2007)
  - RAI responses will not be done by date requested
- ES SFD will notify NRC by letter of RAI response submittal date
- RAI response date will be determined based on outcome of this meeting