Department of Energy
Washington, DC 20585

FEB 1 8 1988

Mr. Hugh Thompson, Director
Office of Nuclear Materials
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Thompson:

I want to thank you and your staff for your continued interest in our cask development program. I would especially like to thank C.E. MacDonald, C.R. Marotta, R.H. Odegaarden, and J.R. Roberts of your Office for their comments and suggestions concerning our upcoming Fuel Burnup Credit workshop. A preliminary agenda for the workshop is enclosed.

We have put together a program that we think is objective and comprehensive in its coverage of implementation of burnup credit. Although our immediate interest is the safe implementation of burnup credit for transport of spent fuel, we have found that the issue extends well beyond transportation. Accordingly, the workshop reflects this broader view of the issue. Attendees representing public utilities, national laboratories, cask designers, nuclear industry organizations, the NRC, DOT and DOE are expected. It is our intention and hope that all the participants will benefit from their involvement in this workshop.

Taking credit for fuel burnup has the potential for increasing spent fuel capacity, which in turn, may result in reducing the number of shipments needed to transport waste inventories. Because of the potential benefits to our Program, we are anxious to continue to work with you on this important issue and look forward to your participation at the workshop.

The workshop will be held on February 23 and 24, 1988. It will be held at the Hyatt Arlington Hotel in Arlington, Virginia. We purposely chose a location in the Washington, D.C. area to allow maximum participation by the NRC staff, and hope they will have the opportunity to attend.

Sincerely,

Charles E. Kay

Charles E. Kay, Acting Director
Office of Civilian Radioactive
Waste Management

cc: R. Bernero
R. Browning
R. Burnett
R. Cunningham

Preliminary Spent Fuel Burnup Credit Workshop Agenda
February 23 and 24, 1988
Hyatt Arlington Hotel
Washington, D.C.

Tuesday, February 23, 1988

8:00 a.m. Coffee and Registration — S. Armstrong, BPMD

8:30 a.m. Welcome/Introduction — L. Barrett, DOE/HQ; W. Lake, DOE/HQ; S. Hinschberger, DOE/ID

8:45 a.m. Overview of Workshop — T. Sanders, SNL

9:00 a.m. Nuclear Aspects and Parametric Analysis Results — C. Parks, ORNL

- a. Model and Methodology
- b. Burnup Analysis Results
  1. Fissile Depletion
  2. Fission Products
  3. Storage Time Effects
- c. Array Criticality Analysis
  1. Infinite Pin Arrays
     a. Reactivity Worth of Depletion and Fission Products
  2. Infinite Assembly Arrays
     a. Effects of Separation and External Absorber Configurations
  3. Finite Cask-like Arrays
     a. Combined Effects of Depletion, Products, External Absorbers, and Leakage
     b. Reactivity Margins Associated with External Absorbers, Moderator, Initial Enrichments, etc.
     c. External Control Requirements vs. Initial Enrichment, Burnup, Age
- d. Discussion

9:40 a.m. Estimated Effects of Burnup Credit on Cask Design

- a. Overview of General Cask Basket Functional Requirements and Design Process — G. Allen, SNL
  1. Criticality
  2. Structural
  3. Thermal
  4. Handling
  5. Other

10:00 a.m. BREAK

10:20 a.m.
- b. Calculated Effects of Burnup Credit on Cask Basket Design Spacing — R. Westfall, ORNL
  1. Model Description
  2. Estimated Effects of Fuel Burnup, Age, Shield, Separation

10:40 a.m.	c.	Effects of Burnup Credit on Proposed New Generation of Shipping Casks	I. Hall, EG&G
11:10 a.m.	d.	Survey of Previous and Current Industry-wide Efforts Regarding Burnup Credit	R. Jones
11:30 a.m.	e.	Current Activities Related to Use of Burnup Credit In Dry Storage Facilities	M. Smith, Virginia Power Co. J. Thornton, Duke Power Co.
12:10 p.m.	f.	Discussion	
12:20 p.m.	LUNCH		
1:30 P.M.	General Technical Issues		
1:30 p.m.	a.	Analysis and Benchmarking Issues	
1:30 p.m.		1. Overview of Utility Fuel Management Analysis Methods	O. Ozer, EPRI
2:00 p.m.		2. General Design Code Issues	R. Westfall, ORNL
2:20 p.m.		3. Reactor Data Benchmark Feasibility	R. Westfall, ORNL
2:40 p.m.		4. Feasibility of Subcritical/Critical Spent Fuel Benchmark	S. Bierman, PNL
3:00 p.m.	BREAK		
3:30 p.m.	b.	Other Physics Issues	R. Westfall, ORNL
		1. Burn Cycle Effects a. Burnup Distributions b. Axial Distributions c. Cycle Breaks d. Fuel Type e. Other	
		2. Moderator Issues a. Low Density Moderation	
4:15 p.m.	c.	General Issues	L. Fisher, LLNL
4:45 p.m.	d.	Discussion	
	ADJOURN		
5:30 p.m.	Social Hour		

Wednesday, February 24, 1988

8:00 a.m.		Coffee	
8:30 a.m.		Methods for Verifying Reactivity Margins	
8:30 a.m.	a.	Utility Experience with Verifying Criticality Safety in On-Site Storage Systems	B. Rasmussen, Duke Power Co.
		1. Fuel Characteristics Verification	D. Napolitano, Yankee Atomic Electric Co.
		2. Technical Specification Impacts	
		3. Operational/Training	
		4. Wet vs. Dry Storage	M. Smith, Virginia Power Co.
9:30 a.m.	b.	New Approaches at the Beginning of the Fuel Cycle for SNM and Enrichment Verification	R. Jones
9:50 a.m.	c.	Measurement Methods for Verifying Assembly Burnup	N. Goldstein, Westinghouse
10:20 a.m.		BREAK	
10:40 a.m.	d.	Measurement Methods for Verifying Assembly Reactivity	M. Falzarano, Combustion Engineering
11:10 a.m.	e.	Measurement Methods for Verifying Array Reactivity	J. Mihalczo, ORNL
11:40 a.m.	f.	Discussion	
12:00 Noon		LUNCH	
1:15 p.m.		Comparisons of Various Criticality Safety Assurance Strategies	
1:15 p.m.	a.	Comparisons of Reactivity Margins and Event Probabilities	T. Sanders, SNL
1:45 p.m.	b.	Comparisons of Life Cycle Exposure	P. Hofmann, BPMD
2:10 p.m.	c.	Comparisons of Life Cycle Costs	D. Dippold, BPMD
2:30 p.m.	d.	Summary of Options for Assuring Criticality Safety in Cask Designs	T. Sanders, SNL
2:50 p.m.	e.	Discussion	
3:00 p.m.		BREAK	
3:20 p.m.		Open Forum	W. Lake, DOE/HQ Speakers/Audience
4:30 p.m.		Summary Remarks	E. Wilmot, DOE/HQ
		ADJOURN	

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