

OCT 19 1989

MEMORANDUM FOR: Leland C. Rouse, Chief  
 Fuel Cycle Safety Branch  
 Division of Industrial and  
 Medical Nuclear Safety

FROM: John P. Roberts, Section Leader  
 Irradiated Fuel Section  
 Fuel Cycle Safety Branch  
 Division of Industrial and  
 Medical Nuclear Safety

SUBJECT: MEETING WITH LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)  
 STAFF

DATE/TIME: October 18, 1989; 1:30 p.m.

LOCATION: Room 13B-9, One White Flint North Building, Rockville, MD.

ATTENDEES: See Enclosure 1.

PURPOSE: To hear a briefing on burnup credit research by LLNL

DISCUSSION:

LLNL has continued to examine issues involved with burnup credit allowance determination in criticality design analysis. LLNL is not optimistic about the possibility of taking credit for fission products found in spent fuel. Some partial credit for uranium depletion and plutonium buildup may be possible. LLNL's program plan objectives are: 1) to quantify the effects of each component of burnup credit, 2) to establish the uncertainties associated with each, 3) to recommend whatever partial credit for burnup may be attainable as determined by analysis and verification by measurement of spent fuel and 4) to examine the impact of misloading of spent fuel.

Significant effort in the form of critical experiments with spent fuel, gamma scans of assemblies and of individual fuel rods, and chemical analyses of spent fuel may be necessary to bound uncertainties associated with taking burnup credit allowance. Such a research effort if pursued by the Department of Energy is expected to be expensive and lengthy.

Original Signed by  
**John P. Roberts**

John P. Roberts, Section Leader  
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 Fuel Cycle Safety Branch  
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Enclosure: As stated

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ATTENDANCE LIST

Steve Ruffin	NRC/NMSS
Earl P. Easton	NRC/NMSS
Carl Withee	NRC/NMSS
George Gardes	NRC/NMSS
Curt Lindner	NRC/NMSS
Roger Carlson	LLNL
John P. Roberts	NRC/NMSS
Chuck Nilsen	NRC/NMSS
Fritz Sturz	NRC/NMSS