PY - transmitted by facsimil
8/24/73

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

Jersey Central

August 24, 1973

Regional Directors, RO

FURTHER OPERATING LIMITS FOR TEN BOILING WATER REACTORS

On August 24, 1973, Licensing issued orders to ten Boiling Water Reactors which amended their Technical Specifications by establishing limits on the allowable linear heat generation rates. The effect of this may cause a reduction in the allowable reactor power levels at some or all of these reactors. The purpose of this action was to conservatively compensate for the effects of fuel densification.

On November 14, 1972, the Directorate of Licensing issued a technical report on UO_2 fuel densification which described the phenomena which was first observed at the Ginna Pressurized Water Reactor and subsequently observed at other PWR's. The observed phenomena with an acceptable technical rationale for evaluating the effects of densification were provided in that report.

In response to early questions of the Regulatory staff, the General Electric Company replied that fuel densification effects would be negligible in BWR designed fuel elements and need not limit reactor operations. The staff, in pursuing this matter did require the General Electric Company to develop a model for evaluating fuel densification and provided assumptions for their use in re-analyses. The General Electric Company in Supplement 6 to NEDM 10735 provided limit curves which, if adhered to in normal operation, would assure that normal operational transients and accident situation would not cause the course of such events to be beyond previously accepted limits.

The following reactors are affected:

Region I	Region III
Oyster Creek	Dresden 2
Nine Mile Point	Dresden 3
Vermont Yankee	Quad Cities 1
Millstone	Quad Cities 2
Pilgrim	Monticello

8/1/74

The limit curves for each reactor from the revised Technical Specifications will be forwarded to the responsible Region today for your use in determining compliance. As I understand the requirement, immediate compliance with the order is required with a telephone report by August 27, 1973, describing how compliance is being met. In the event a licensee reports to a Regional office in this matter, please forward the information to Headquarters promptly.

Donald F. Knuth
Director of Regulatory
Operations

TABLE 1

SUMMARY OF DENSIFICATION ANALYSES RESULTS

FUEL TYPE (See Reference 3 for Fuel Type Descriptions)	GENERAL ELECTRIC		EXXON NUCLEAR	
	TYPE I*	TYPE II	TYPE III	TYPE IIIE
ANALYSIS				
A. Steady State				
1. Power Spike	3.8%	3.2%	4.6%	4.6%
2. Net Effect on LHGR	0	0	0	0
B. Transient				
1. All Transients	Minimal Effect (See Sections 4 and 6 of Reference 2)		Minimal Effect (See Attachment I)	
C. Accidents				
1. Accidents Other than LOCA	Minimal Effect (See Sections 4 and 6 of Reference 2)		Minimal Effect (See Attachment 1)	
2. DBA LOCA at 1930 Mwt & 2.33 GPF				
(a) GE Calculations				
IAC PCT	2237	2262	-	-
95/90 Limiting Rod PCT	2415**	2450**	-	-
95/90 All Rods PCT	2700**	2730**	-	-
(b) EXXON Calculations				
IAC PCT	-	2230	2025	2200
95/90 All Rods PCT	-	2618	2601	2544

*Note that the 252 assemblies in Oyster Creek of Fuel Type I have an average exposure of 14.108 MWD/MT and are incapable of being limiting for LOCA.

**Estimated from previously supplied sensitivity information and gap conductance values obtained from Reference 2.

8/73