

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Yankee Nuclear Power Station										DOCKET NUMBER (2) 0 5 0 0 0 0 2 9 1 OF 0 2										PAGE (3) 1 OF 0 2			
TITLE (4) Fuel Degradation (Assemblies B-696I, B-688 and A-679 in Core Positions C-9, H-8 and K-5)																							
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)													
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES					DOCKET NUMBER(S)									
1	1	0	5	8	5	8	5	0	0	3	0	0	1	2	0	5	8	5	0 5 0 0 0 0				
OPERATING MODE (9) 6			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																				
POWER LEVEL (10) 0 1 0 1 0			20.402(b)				20.406(c)				50.73(a)(2)(iv)				73.71(b)								
			20.406(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)								
			20.406(a)(1)(ii)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)								
			20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)												
			20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)												
			20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)												
LICENSEE CONTACT FOR THIS LER (12)																							
NAME F. N. Williams, Manager - Reactor Engineering Department										TELEPHONE NUMBER AREA CODE 4 1 3 4 2 4 - 5 2 6 1													
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS													
X	A	C	R	O	D	E	3	6	0	N													
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)					MONTH DAY YEAR								
YES (If yes, complete EXPECTED SUBMISSION DATE)										X NO													

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

While performing core alterations in Mode 6 for Core XVIII refueling, fuel assemblies B-696I, B-688 and A-679 from core positions C-9, H-8 and K-5, respectively, were found to have sustained damage and failed fuel rods. The damage, which occurred during Cycle XVII operation, consisted of flow-induced fretting of the spacer grids and two fuel rods in assembly B-696I. Also, one fuel rod failed in each of assemblies B-688 and A-679. Similar damage to assemblies in core position C-9 was reported in LER's 81-08 and 84-04. The intact fuel rods and two inert rods from assembly B-696I were transferred to a new cage (B-1002-R) which contained nineteen new inert rods (assembly B-696I originally contained nineteen inert rods). (Inert rods are placed in assemblies at suspected flow-induced fretting points.) The failed fuel rods in assemblies B-688 and A-679 were replaced with inert rods. The reconstituted assemblies were reloaded in the core for Cycle XVIII operation.

Primary coolant chemistry data indicated the presence of failed fuel approximately two weeks after startup for Cycle XVII operation, and continued through the cycle. Coolant sample frequency was increased from weekly to a minimum of three times per week. Technical Specification limits were not exceeded at any time during the cycle.

There was no adverse effect on the health and safety of the public as a result of this event.

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1) Yankee Nuclear Power Station	DOCKET NUMBER (2) 0 5 0 0 0 0 2 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 5	0 0 1 3	0 1 0	0 2	OF 0 2

TEXT (If more space is required, use additional NRC Form 368A's) (17)

Ultrasonic inspection was performed on all recycled fuel during the Core XVIII refueling. At 0610 hours, November 5, 1985, inspection of assembly B-696I (core position C-9) showed indications warranting further investigation. The assembly was transferred to the Spent Fuel Pit for detailed visual inspection. It was found to have sustained fretting damage on the spacer grids on the side adjacent to the core baffle wall. Eddy current testing was performed on all fuel rods in the assembly. Two rods were found to have fretting damage. The maximum depth of the wear was approximately 10 mils. There was no through-wall wear. All the undamaged fuel rods and two of the nineteen inert rods were transferred from B-696I to cage B-1002-R. This cage had previously been loaded with nineteen new inert rods (assembly B-696I originally contained nineteen inert rods).

At 1800 hours, November 6, 1985, fuel assembly B-688 was found to have one failed fuel rod. The rod was removed from the assembly and replaced with an inert rod. Eddy current testing of the rod was unsuccessful because of two bulges on the rod approximately eight inches down from the top, preventing passage of the eddy current coil down the rod.

At 0400 hours, November 7, 1985, fuel assembly A-679 was found to have one failed rod. Eddy current testing confirmed a through-wall defect near the top of the rod. Subsequent visual inspection revealed a small vertical split in the cladding about eight inches from the top of the rod. An inert rod was placed in the assembly to replace this rod.

The three reconstituted assemblies were loaded into the core for Cycle XVIII operation.

The root cause of the fretting damage to the rod cladding and spacer grid is attributed to core baffle spacer flow jetting. The cause of the defects in the rods in assemblies A-679 and B-688 are unknown.

During Core XVIII refueling, two baffle spacer plugs were installed in core position C-9 to reduce the pressure behind the baffle spacer and thereby reduce any flow anomalies present in that core position.

In addition to the installation of the baffle spacer plugs, eight fresh Cycle XVIII fuel assemblies have been modified to reduce the possibility of damage due to flow conditions. These assemblies have been loaded into core positions where flow-induced fretting has the potential to occur. The modifications include special vertical guide bars at vulnerable corner locations, inert rods in selected locations, and a fixed spacing device to provide extra rigidity for the inert rods inserted on the periphery of these assemblies.

Primary coolant chemistry data indicated the presence of failed fuel approximately two weeks after startup for Cycle XVII operation, and continued through the cycle. Coolant sample frequency was increased from weekly to a minimum of three times per week. Technical Specification limits were not exceeded at any time during the cycle.

There was no adverse effect on the health and safety of the public as a result of this event.

# YANKEE ATOMIC ELECTRIC COMPANY

Telephone (413) 424-5261



Star Route, Rowe, Massachusetts 01367

December 5, 1985

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Subject: Licensee Event Report 50-29/85-03, Revision 0  
Fuel Degradation (Assemblies B-696I, B-688 and A-679 In Core  
Positions C-9, H-8 and K-5)

Dear Sir:

In accordance with 10 CFR 50.73(a)(2)(ii), the attached Licensee Event Report, is hereby submitted.

Very truly yours,

Normand N. St. Laurent  
Plant Superintendent

DAR/nm  
Enclosure

cc: [3] NSARC Chairman (YAEC)  
[1] Institute of Nuclear Power Operations (INPO)

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