DMB

Wisconsin Electric POWER COMPANY
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VPNPD-86-223
NRC-86-45

May 19, 1986

Mr. J. G. Keppler, Regional Administrator
Office of Inspection and Enforcement
Region III
U. S. NUCLEAR REGULATORY COMMISSION
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

DOCKET 50-266
LICENSEE EVENT REPORT 85-002-01
FAILED FUEL ROD IN ASSEMBLY H14
POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is Licensee Event Report 85-002-01 for Point Beach Nuclear Plant, Unit 1. This report is a supplement to LER 85-002-00 dated June 11, 1985.

This report details the fuel damage found on Fuel Assembly H14, which spent the last cycle in Core Position D12. This is the same core position occupied by damaged Assembly H09 during the last cycle. Both assemblies exhibited the same type of damage. LER 85-002-00 was filed under the reporting requirement of 10 CFR 50.73(a)(2)(ii), "Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded."

Very truly yours,

C. W. Fay

C. W. Fay
Vice President
Nuclear Power

Enclosure

Copies to NRC Document Control Desk
Washington, DC (with original)
NRC Resident Inspector

MAY 21 1986

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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/88

LICENSEE EVENT REPORT (LER)

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TITLE (4)

Failed Fuel Rod in Assembly H14

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)
0 4	2 7	8 6	8 5	— 0 0 2	— 0 1	0 5	1 9	8 6		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	R	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10) N/A		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
C. W. Fay, Vice President - Nuclear Power	AREA CODE 4 1 4 — 2 7 7 - 2 8 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	A C	B A F	W 1 2 0	N							

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE)		0 5	3 0	8 7
	NO				

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

On April 27, 1986, during the inspection of discharged fuel which had been located in core position next to core baffle joints at Unit 1 of Point Beach Nuclear Plant, fuel assembly H14 was found to have failed cladding in one fuel rod. The fuel rod cladding appears to have failed due to vibration of the rod against the grid and grid springs. This fuel rod vibration is believed to have been caused by water impingement through a slightly widened core baffle plate butt joint next to core location D12. The fuel cladding was failed to the extent that fuel pellets could be seen through the hole in the clad. However, no pellets escaped from the rod.

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NRC Form 366
(9-83)

Operating Conditions Before the Event:

Point Beach Nuclear Plant, Unit 1, operated from June, 1985, until April, 1986, with few interruptions other than minor load swings and power level decreases for various tests.

Status of Structures, Components, or Systems That Were Inoperable at the Start of the Event and That Contributed to the Event:

At the end of Cycle 12 in 1985 and prior to the beginning of Cycle 13, the core baffle plate at core location D12 was inspected. The baffle joint was found to have a possible 4 to 7 mil gap between the rows of cap screws (see LER 85-002-00). This gap is in a location which is opposite the location of the fuel damage on fuel assembly H14.

Dates and Approximate Times of Occurrences:

The level of dose equivalent I-131 had shown no evidence of fuel failure above that expected normally until the second week of March, 1986. At that point, levels did increase slightly until a level just above 0.1 micro-curies/cc was measured just before the annual shut down for refueling. (See the attached chart of dose equivalent I-131 versus time.) This level is 10 percent of that allowed by PBNP Technical Specifications.

An inspection was made of fuel assembly H14 on April 27, 1986.

NOTE: ALL INDICATIONS WERE ON THE WEST FACE OF THE ASSEMBLY. THE SEVEN GRIDS ARE NUMBERED FROM TOP TO BOTTOM.

Grid 1:

Shiny marks visible on rod Nos. 13 and 14 due to vibration of rod against the grid.

Grid 2:

Rod No. 14 was completely severed at Grid 2. There was some evidence of fuel pellet fragments behind Grid 2.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Grid 3:

Rod No. 14 (the rod immediately adjacent to the baffle joint) was severed immediately behind the third grid from the top of the fuel assembly. The fuel inside the rod was visible. No pellets appeared to have escaped from the fuel rod. Some small fragments were visible and lodged behind Grid 3 preventing the rod from wiggling. Rod No. 13 shows a grid-shaped gouge apparently due to rod vibration against Grid 3.

Grids 4 and 5:

Gouges appear on Rod No. 14 below the grid. Rod No. 13 shows gouges behind the grids.

Grids 6 and 7:

There is a shiny appearance behind the grids on Rod No. 13.

Bottom Nozzle:

Rod Nos. 13 and 14 are on the bottom. All other rods are 1/2 inch off the bottom. Rod No. 13, not held by grids, wiggles at the bottom.

General:

Rod No. 12 wiggles near the center due to apparent lack of grid support. This assembly had no other indications.

Other Assemblies:

Assembly Q17 was inspected on April 24, 1986. This assembly was in core location number E2 during Cycle 13. A dark blotch was found on the east face of Grids 3 and 4. The mark had a sharp edge to the north. No other indications were found.

Fuel Assembly M17 was also inspected on April 27, 1986, because of its location next to the baffle and, therefore, its potential for baffle jetting damage. Small gray marks were found on Grids 2, 3, 4, and 5 opposite Rod No. 12 on the east face of the assembly. This assembly had no other indications. The assembly was in core location B4 during Cycle 13.

The following fuel assemblies were inspected in detail for similar indications. These assemblies had been next to baffle joints during Cycle 13. No indications were found.

Fuel Assembly No.	Core Location for Cycle 13
H05	J2
L05	K11
L15	C11
L19	C3
L22	K3
M12	H1
M13	F1
M14	F13
M15	B10
M20	L4
M25	A6
M27	M8
M28	M6
M29	A8
M31	H13
N01	D2
N03	L10
N04	J12
Q03	B5
Q04	L9
Q07	I2
Q13	E12
Q15	L5
Q22	B9
Q25	I12

Summary of Fuel Assembly H14 Operating History:

Fuel assembly identification: H14

Prepressurized low parasitic design with fuel rods off the bottom nozzle (standard fuel assembly).

Fabricated by Westinghouse Nuclear Fuels Division, Columbia, South Carolina.

Date received on site: September 30, 1976.

Initial inspection revealed no abnormalities.

Loaded into Unit 1 Cycle 5 at core position M7. Insert was a thimble plug device. Burnup during Cycle 5 was 7,768 MWD/MTU.

Loaded into Unit 1 Cycle 6 at core position D7. Insert was a thimble plug device. Burnup during Cycle 6 was 10,907 MWD/MTU.

Loaded into Unit 1 Cycle 7 at core position F11. Insert was a thimble plug device. Burnup during Cycle 7 was 10,562 MWD/MTU.

Loaded into Unit 1 Cycle 13 at core position D12. Insert was a thimble plug device. Burnup during Cycle 13 was 4,219 MWD/MTU.

Total burnup: 33,465 MWD/MTU.

There was no evidence of abnormalities during inspections of October 25, 1979, and May 2, 1985.

Fuel cladding damage was found as noted above on April 27, 1986.

Corrective Action:

No changes in configuration of the vessel internals or flow direction will be made during Cycle 14. The chemistry results as shown in the attached chart show the level of coolant activity during ; type of activity trend are expected. activity will be trended to monitor

No chart attached

1t and Technical Specifications allow fuel failure shown during Cycle 13. equipment to modify the flow direction has been issued. The Public Service so being consulted for fiscal author- tion. The modification will modify the flow outside the core baffle plate as the flow through the core. This the cross baffle plate pressure ow in the flow through the core baffle the control rod to vibrate.

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Previous Similar Events:

There has been similar damage found at the Point Beach Nuclear Plant in the past. The details of such damage can be found in Unit 1 LERs 50-266/75-18 and 85-002-00, and Unit 2 LER 85-004-00. The damage found during these events was similar to that found in this LER supplemental report. The mechanism for the damage was also similar.

Safety Evaluation:

The following safety concerns have been evaluated: (1) The potential for further fuel failure by the same mechanism in the same or other locations and (2) the effect of increased primary system activity on the health and safety of plant personnel and the general public.

There is a potential for failure of fuel rods in the same location. However, this failure does not appear to happen quickly. Monitoring of primary coolant activity during startup and subsequent operation will provide indication of any failure of fuel at this or any other core position. After consultation with the nuclear steam supply system vendor, Westinghouse, the decision has been made not to modify any fuel assemblies to mitigate baffle jetting effects.

Therefore, based on the evaluation done above, operation of the Unit 1 Cycle 14 core is not considered to pose a hazard to the health and safety of the plant personnel or the public. The fuel assemblies in those areas which have been identified as potential locations for this type of situation will be thoroughly inspected after the completion of Cycle 14.