

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Point Beach Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 6 6	PAGE (3) 1 OF 0 4
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TITLE (4)
Failed Fuel Clad in One Rod of Assembly H9

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	5	1	5	8	5	8	5	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
POWER LEVEL (10) 1 0 1 0	20.402(b)			20.405(c)			50.73(a)(7)(iv)			73.71(b)		
	20.405(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)			73.71(c)		
	20.405(a)(1)(ii)			50.38(c)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 365A)		
	20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)					
	20.405(a)(1)(iv)			50.73(a)(2)(p)			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 C. W. Fay, Vice President-Nuclear Power	TELEPHONE NUMBER AREA CODE: 4 1 4 2 7 7 - 2 8 1 1
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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

SUPPLEMENTAL REPORT EXPECTED (14) <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH DAY YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

During the April 27, 1985, routine inspection of discharged fuel after the completion of Cycle 12 for Point Beach Nuclear Plant, failed fuel rod cladding in assembly H9 was discovered. The fuel rod cladding appears to have failed due to vibration of the rod against the grid and grid springs. This vibration is believed to have been caused by water impingement through a joint gap in the core baffle discovered on May 15, 1985. Assembly H9 was located in position D12 during Cycle 12. This is an outside position of the core next to a core baffle plate corner. No fuel pellets escaped from the fuel rod.

See Figure 1, Page 4, for position location.

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

On April 27, 1985, during inspection of discharged fuel assemblies, the inspection supervisor noted a failed fuel rod in fuel assembly H9. This inspection was being done as part of the normal routine inspection of all discharged fuel assemblies and also to search for any debris remaining after the steam generator replacement done just prior to Cycle 12.

Visual Inspection of Fuel Assembly H9, Conducted April 27, 1985, and April 30, 1985

The inspections noted that a section of cladding on rod No. 14 (the outside corner rod next to the baffle joint) immediately behind grid No. 2 (the second grid from the top of the assembly) had failed. The fuel inside the rod was visible. No fuel pellets escaped from the fuel rod. The same rod was found to have a torn grid spring at grid No. 3 and another cladding failure with the grid spring showing at grid No. 1. Rod No. 14 was touching the bottom nozzle. All other rods were in their normal off-the-bottom position. Fuel assembly H9 was placed in the reactor in location D12 such that rod No. 14 was located in the southwest corner of the fuel assembly during Cycle 12.

Summary of Fuel Assembly H9 Operating History

Fuel assembly identification: H9

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

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

Date received on site: September 23, 1976

Initial inspection revealed no abnormalities.

Loaded into Unit 1, Cycle 5 at core position E12. Insert was a thimble plug device. Burnup during Cycle 5 was 9,216 MWD/MTU.

Loaded into Unit 1, Cycle 6 at core position J5. Insert was a thimble plug device. Burnup during Cycle 6 was 11,327 MWD/MTU.

Loaded into Unit 1, Cycle 7 at core position J5. Insert was a thimble plug device. Burnup during Cycle 7 was 10,784 MWD/MTU.

Loaded into Unit 1, Cycle 12 at core position D12. Insert was a thimble plug device. Burnup during Cycle 12 was 4,456 MWD/MTU.

Total burnup: 35,783 MWD/MTU

There was no evidence of abnormalities during inspections of this assembly on October 29, 1976, or January 5, 1984.

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Fuel cladding damage was found during the April 27, 1985, inspection of the fuel assembly and further detailed information was compiled during an inspection on April 30, 1985.

Baffle Plate Joint Inspection

An inspection was performed of the corner joint of the core baffle plate forming the southwest corner of position D12 of the core. This joint is a simple butt joint with the line of the joint running north-south. The baffle plate joint is a bolted joint. During an inspection of the full length of the joint forming the southwest corner of the baffle at D12, two areas were found which indicated possible flow (baffle jetting) through the baffle joint.

The baffle is held to the core barrel with cap screws to the baffle radial supports. These radial supports are located approximately every two feet, vertically along the baffle plate. The first and second grids on the fuel assembly would sit between the second and third baffle radial supports, and the third grid would be between the third and fourth baffle radial supports.

The inspection of the joint revealed indications of a possible 4 to 7 mil gap in the baffle plate joint between the rows of cap screws indicating the second and third, and third and fourth baffle radial supports. These indication locations correspond to the location of the fuel damage on assembly H9.

Other Inspections Performed

Those fuel assemblies which had been located in positions similar to D12 during Cycle 12 were also inspected in detail for the same type of failure as well as early indications of this type of failure. The locations of interest were: B4, B5, B9, B10, C3, C11, D2, E2, E12, I2, I12, J2, J12, K3, K11, L4, L5, L9 and L10.

During these further inspections, two assemblies showed slight indications of through-baffle joint flow. These were on the northeast corner of fuel assembly P29 located in position E2 during Cycle 12 and on the southeast corner of fuel assembly P4 located in position I2 during Cycle 12. Assembly P29 had faint white lines on grid Nos. 3, 4 and 5 between rod Nos. 12 and 13. Assembly P4 had a similar faint white line on grid No. 4 between rod Nos. 1 and 3.

Probable Cause of the Fuel Clad Failure

The probable cause of the fuel clad failure in assembly H9 is water impingement through the baffle plate joint during Cycle 12. Fuel clad failure was experienced earlier at Point Beach Nuclear Plant during Unit 1 Cycle 2 at location H1 (LER 75-018). However, the joint at

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location H1 is of a different design than that at position D12. The counterflow design of the Point Beach reactor results in a higher pressure outside the baffle plate than inside the plate. This can and apparently has, in this case, resulted in flow through the plate joint (baffle jetting) if any opening occurs. In this case, the opening was wide enough and flow strong enough to allow the fuel rod to vibrate and the grid and spring assemblies to cause clad damage. In the case of assembly H9, this damage caused the cladding to fail and expose the fuel to the primary coolant. The chemical and volume control system was designed to, and did, maintain the allowable levels of primary coolant activity with the failed fuel clad during Cycle 12.

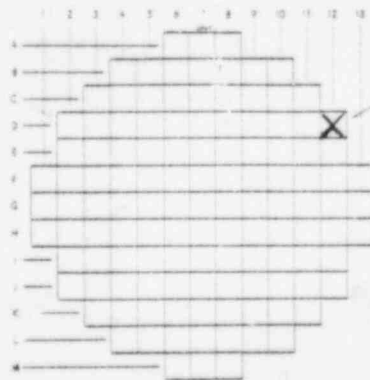
Safety Evaluation & Corrective Actions

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. The fuel assembly which will be installed into position D12 has been inspected thoroughly prior to installation. This inspection was established a baseline of data for the inspection which will take place after the completion of Cycle 13. Monitoring of primary coolant activity during startup and subsequent operation will also 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 13 core is not considered to pose a hazard to the health and safety of the plant personnel or the public. Further evaluation of the cause of the fuel damage and the baffle plate joint gap will be done. 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 13.

FIGURE 1





Wisconsin Electric POWER COMPANY
231 W. MICHIGAN, P.O. BOX 2046, MILWAUKEE, WI 53201

VPNPD-85-5
NRC 85-3

June 17, 1985

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 NO. 50-266
LICENSEE EVENT REPORT NO. 85-002-00
FAILED FUEL CLAD IN ASSEMBLY H9, POSITION D12, CYCLE 12
POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is Licensee Event Report No. 85-002-00 which provides a description of the discovery and details the results of an investigation of failed fuel cladding found during the Cycle 12 refueling of the Point Beach Nuclear Plant, Unit 1, on April 27, 1985. An inspection of the core baffle plate was completed on May 15, 1985, and found some opening of an outside joint adjacent to position D12. This report is filed to comply with the 30-day reporting requirement of 10 CFR 50.72(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,

Vice President-Nuclear Power

C. W. Fay

Enclosure

Copy to NRC Resident Inspector

JUN 18 1985

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