



Point Beach Nuclear Plant  
6610 Nuclear Rd., Two Rivers, WI 54241

NPL 97-0153

(414) 755-2321

April 3, 1997

Document Control Desk  
US NUCLEAR REGULATORY COMMISSION  
Mail Station P1-137  
Washington, DC 20555

Ladies/Gentlemen:

DOCKET 50-266  
LICENSEE EVENT REPORT 97-010-01  
SERVICE WATER AND COMPONENT COOLING WATER  
TECHNICAL SPECIFICATIONS ACTION REQUIREMENTS NOT MET  
POINT BEACH NUCLEAR PLANT, UNIT 1

Enclosed is supplemental Licensee Event Report (LER) 97-010-01 for Point Beach Nuclear Plant, Unit 1. This report is provided in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications." This report replaces LER 97-010-00 in its entirety and describes the events associated with the granting of NRC enforcement discretion to allow Unit 1 to remain in a hot standby condition during service water and component cooling water pump inoperability and maintenance contrary to the action requirements of Technical Specifications 15.3.3.C.2 and 15.3.3.D.2.

Please contact us if you require additional information.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Douglas F. Johnson'.

Douglas F. Johnson  
Manager - Regulatory Services  
and Licensing

DAW  
Enclosure

cc: NRC Resident Inspector  
NRC Regional Administrator

9704090084 970403  
PDR ADOCK 05000266  
S PDR



## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH  
THIS INFORMATION COLLECTION REQUEST: 50.0 HRS.  
REPORTED LESSONS LEARNED ARE INCORPORATED INTO  
THE LICENSING PROCESS AND FED BACK TO INDUSTRY.  
FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO  
THE INFORMATION AND RECORDS MANAGEMENT BRANCH  
(T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION,  
WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK  
REDUCTION PROJECT

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Point Beach Nuclear Plant, Unit 1

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05000266

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TITLE (4)

Service Water and Component Cooling Water Technical Specifications Action  
Requirements Not Met

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 NAME	DOCKET NUMBER
02	19	97	97	-- 010	-- 01	04	03	97		05000
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		0	20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(ii)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(iii)				50.73(a)(2)(iv)	73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(v)	OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(vii)	Specify in Abstract below
			20.2203(a)(2)(iv)		50.36(c)(2)					or in NRC Form 368A

LICENSEE CONTACT FOR THIS LER (12)

NAME

David Weaver

TELEPHONE NUMBER (Include Area Code)

(414) 221-3418

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)				EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).		X	NO					

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On February 19, 1997, Point Beach Nuclear Plant, Unit 1, was shut down and being maintained in a hot standby condition at approximately 1050 psig and 380°F primary system pressure and temperature with decay heat being removed through the steam generators and secondary systems. Unit 2 was shut down and defueled with recovery in progress from the ongoing refueling and steam generator replacement activities. Service water pump P-32A, one of three train A service water pumps, was inoperable due to high upper motor bearing vibration. Component cooling water pump 1P-11A was declared inoperable due to impeller defects. Due to decay heat removal concerns, NRC enforcement discretion was requested and granted to allow continued operation in hot standby in order to provide redundancy of decay heat removal in accordance with Technical Specification 15.3.3.A.3. The component cooling water pump was returned to service and Unit 1 entered cold shutdown on February 22, 1997. However, the extended duration in hot standby did not comply with the action requirements of Technical Specifications 15.3.3.C.2 and 15.3.3.D.2 for placing the Unit in cold shutdown.

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Point Beach Nuclear Plant, Unit 1	05000266	<table border="1"><tr><th>YEAR</th><th>SEQUENTIAL NUMBER</th><th>REVISION NUMBER</th></tr><tr><td>97</td><td>- 010</td><td>- 01</td></tr></table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	97	- 010	- 01	2 OF 6
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**Event Description:**

On February 19, 1997, Point Beach Nuclear Plant, Unit 1, was shut down and being maintained in a hot standby condition at approximately 1050 psig and 380°F primary system pressure and temperature with decay heat being removed through the steam generators and secondary systems. Unit 2 was shut down and defueled with recovery in progress from the ongoing refueling and steam generator replacement activities.

Unit 1 component cooling water pump 1P-11A had previously been declared inoperable on February 17, 1997, based on re-review of an operability determination that had been performed in 1994 on 1P-11A as a result of the discovery of defects on the pump impeller. During the review, it was decided that the determination did not include sufficient information to conclude that the pump was operable. The pump was taken out of service and disassembled to verify the existence and extent of the defects. Technical Specification 15.3.3.C.2.a allows this pump to be inoperable for up to 24 hours provided the redundant pump is operable. The impeller defects were not repairable within this time frame.

The review of operability determinations that discovered this particular condition was being performed as a result of issues identified by Wisconsin Electric and the NRC staff and was associated with Unit 2 startup commitments identified in our December 12, 1996, letter. This review was being performed to verify the operability of required structures, systems and components at the Point Beach Nuclear Plant.

Service Water Pump P-32A, one of three Train A service water pumps, had also been declared inoperable on February 17, 1997, due to high upper motor bearing vibration. Technical Specification 15.3.3.D and an administrative restriction contained in Duty & Call Superintendent (DCS) Handbook Procedure DCS 3.1.7, "Service Water Pump Operability," allow a required service water pump to be inoperable for up to 24 hours prior to initiating shutdown of the operating unit(s). The service water pump was not returned to an operable condition within this time period.

Because we were unable to return these pumps to an operable status within the time periods specified in the Technical Specifications, Unit 1 reactor shutdown was initiated at 1500 hours on February 18, 1997, and was placed in hot standby at 2138 hours on February 18, 1997. This action met the requirements of Technical Specification 15.3.3.C.2 for the component cooling water pump and Technical Specification 15.3.3.D.2 for the service water pump for placing the unit in hot shutdown.

Technical Specification 15.3.3.C is in potential conflict with requirements for decay heat removal contained in Technical Specification 15.3.3.A.3, which contains requirements related to the residual heat removal system. Component cooling water provides cooling to the residual heat removal heat exchangers during post-accident conditions and for

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shutdown cooling. With one Train A component cooling water pump inoperable, decay heat removal redundancy was not provided. If decay heat removal redundancy is not provided, Technical Specification 15.3.3.A.3 requires the reactor to be maintained at greater than 350°F to ensure the availability of both steam generators and the secondary system for decay heat removal.

Enforcement discretion was subsequently requested and granted at approximately 1830 hours on February 19, 1997, for continued operation in hot standby in order to provide redundancy of decay heat removal in accordance with Technical Specification 15.3.3.A.3. The component cooling water pump was returned to service at 0154 hours on February 22, 1997. Unit 1 entered cold shutdown at 1700 hours on February 22, 1997. However, the extended duration in hot standby did not comply with the cold shutdown requirements of Technical Specifications 15.3.3.C.2 and 15.3.3.D.2.

**Corrective Actions:**

During the duration of the enforcement discretion, the following compensatory measures and actions were taken:

1. Evaluations were performed which demonstrated the adequacy of two service water pumps to provide the required post-accident cooling load under the condition of one unit defueled and the other at power. This demonstrates that under the worst case single failure with pump P-32A inoperable, service water will perform its design basis function.
2. Non-essential service water loads assumed to be isolated in the above calculation in Unit 2 were isolated and danger tagged. This ensures the assumptions in the above evaluation are maintained.
3. Point Beach Nuclear Plant has the capability to cross-connect the Unit 1 and Unit 2 component cooling water systems should the system in one unit fail. Operations personnel reviewed the abnormal operating procedure governing this evolution to ensure that they were familiar with the actions necessary to cross-connect the systems should a loss of the operable Unit 1 pump occur prior to restoring the redundant pump to an operable condition. As a result of the staff asking that the procedure for cross connecting the CCW systems be reviewed, a previous operator noted that the valves had to be closed with substantial force in the past to prevent leakage. A condition report was issued and follow-up action included a stroke test of the cross-connect valves. The stroke tests determined that CCW pump discharge cross-connect Valve CC-722B could not be opened within the specified torque value. This situation was subsequently reported via 10 CFR 50.72 and a Licensee Event Report will be submitted.



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4. Auxiliary Operators walked down the component cooling system to ensure they are familiar with all valve locations for valves that are required to be operated to perform the cross-connect.
5. Plans were finalized on February 19, 1997, to replace the inoperable Unit 1 Train A component cooling water pump with the Train B pump from Unit 2. This ensured that a pump would be available from each train if cross-connection was necessary.
6. Status boards were updated to indicate the protected status of the Unit 1 Train B and Unit 2 Train A component cooling water pump to ensure these pumps were maintained operable. Signs were also placed on the pumps to indicate this status. Work crews were cautioned about the protected status of these pumps.
7. The combustion turbine-generator (G05) was tested on February 19, 1997. This test verified the availability and operability of G05 as a source of power to the station and as a supplemental means to maintain station voltage should grid voltage become a concern affecting equipment operability with both Point Beach units shut down.
8. Discussions were held with Wisconsin Electric System Control on the morning of February 20, 1997. These discussions emphasized the need for prompt action and informing the station should grid voltage become a concern. Subsequent discussions occurred at least daily during the period of the requested enforcement discretion.
9. Component cooling water Pump 1P-11A was returned to service and Unit 1 was placed in cold shutdown at 1700 hours on February 22, 1997.
10. The Point Beach Nuclear Plant Manager's Supervisory Staff (on-site nuclear safety review committee) has recognized the inconsistency between Technical Specification 15.3.3.A.3 and 15.3.3.C and acknowledge a license amendment is warranted. While preparing the request for enforcement discretion, it was evident that a Technical Specifications change was impractical because we expected to return to compliance with the existing license requirements before a license amendment could be issued. However, a change request will be developed and submitted to provide more consistent requirements for component cooling water and residual heat removal system operability.

**Cause:**

We did not comply with the cold shutdown requirements of Technical Specifications 15.3.3.C.2 and 15.3.3.D.2 due to a conscious decision by Point Beach management to maintain Unit 1 in hot standby to provide for more reliable decay heat removal while returning component cooling pump 1P-11A to service. NRC enforcement discretion was requested and granted for continued operation in hot standby in order to provide redundancy of

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decay heat removal in accordance with Technical Specification 15.3.3.A.3.

**Reportability:**

This Licensee Event Report is being submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition prohibited by the plant's Technical Specifications."

**Safety Assessment:**

The health and safety of the public and plant personnel were not impacted by this event.

As discussed below, operation of Point Beach Unit 1, in accordance with the cited Technical Specification requirements for component cooling water and service water, would not have provided optimum decay heat removal redundancy, and was determined to have been a detriment to safety due to the transient associated with re-establishing steam generator decay heat removal upon a total loss of component cooling water from a cold shutdown condition.

Point Beach Nuclear Plant Technical Specifications require redundancy of decay heat removal methods during all shutdown conditions. Although Train A of the component cooling water system was inoperable due to the inoperable pump, redundant and diverse means of decay heat removal were provided through the reactor coolant loops, steam generators and secondary systems.

Under cold shutdown conditions, the reactor is maintained solid by procedure. That is, primary pressure is not maintained with a steam bubble in the pressurizer. Loss of the operable component cooling water loop results in the loss of decay heat removal until the primary reactor coolant system heats up sufficiently to allow heat transfer through the steam generators and secondary systems. In addition, the reactor coolant pump needs to be secured as a result of a lack of component cooling water. Under solid water conditions, this temperature increase results in expansion of the water which may result in a pressure excursion challenging the power-operated relief valves (PORV) used as low temperature overpressure protection (LTOP). This challenge can be eliminated by maintaining the reactor at a temperature above the LTOP enable setpoint and with pressure controlled by a steam bubble in the pressurizer.

Additionally, station voltage is subject to greater variations because in addition to Unit 1 being out of service, both Point Beach Unit 2 and the Kewaunee Nuclear Plant were in refueling outages. This was an unusual situation and was a factor in assessing the safety basis for keeping the unit in hot shutdown. Normally, cooldown would be conducted using the

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residual heat removal system. Continued cooldown with a single residual heat removal train would require at least one reactor coolant pump operating. As reactor coolant density increases during the cooldown, the reactor coolant pump load increases. This could potentially reduce station bus voltage resulting in loss of the reactor coolant pump if the undervoltage setpoint was reached. This would not normally occur if the cooldown was on residual heat removal or if one of the three nuclear units was in service.

By maintaining the reactor above cold shutdown and above 350°F as specified in Technical Specification 15.3.3.A.3, redundancy of decay heat removal was maintained under all anticipated conditions, and the potential consequences related to the loss of the operable component cooling water pump were mitigated. The reactor was maintained in an analyzed condition with decay heat removed through the steam generators.

In addition, safety systems, including safety injection, safety injection accumulators, and the steam-driven auxiliary feedwater pump, remained available to perform their design basis function for mitigating the consequence of potential accidents, as analyzed in the Final Safety Analysis Report (FSAR).

**Similar Occurrences:**

No similar occurrences have been identified.