NRC FORM 366 (4-95)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Point Beach Nuclear Plant, Unit 1	05000266	1 OF 5

TITLE (4)
Unanalyzed Service Water System Alignment

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
06	11	97	97	-- 030 --	00	07	11	97	Unit 2	05000301
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9): N

POWER LEVEL (10): 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)	X	50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Curtis A. Castell	(414) 221-2019

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 June 11, 1997, while Point Beach Nuclear Plant (PBNP) Unit 1 was in a cold shutdown condition and Unit 2 was in a defueled condition, it was discovered that an actual alignment previously used does not conform with the assumed configuration used in the service water (SW) system hydraulic analyses. Specifically, service water was provided to a second component cooling water (CCW) heat exchanger during previous periods of higher than normal service water temperatures and for some changes in plant operating conditions. This alignment is not in conformance with current analyses that assume one CCW heat exchanger is being supplied with service water. This condition was caused by operation of the service water system in a condition that did not conform with the analyses for the service water system. In a letter dated June 25, 1997, Wisconsin Electric committed to operation of the service water system in accordance with analyses as implemented by approved procedures. Recent flow analyses show that minimal excess capacity exists in the service water system. Therefore, some safety equipment supplied by the service water system could receive less than desired flow for accident mitigation.

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Event Description:

On June 11, 1997, while Point Beach Nuclear Plant (PBNP) Unit 1 was in a cold shutdown condition and Unit 2 was in a defueled condition, it was discovered that an actual alignment previously used does not conform with the assumed configuration used in the service water (SW) system hydraulic analyses. Specifically, service water was provided to a second component cooling water (CCW) heat exchanger during previous periods of higher than normal service water temperatures and for some changes in plant operating conditions. This alignment is not in conformance with current analyses that assume one CCW heat exchanger is being supplied with service water.

The source of service water for Point Beach is the main circulating water intake 1750 feet off shore in Lake Michigan. Normally, the temperature of the service water is less than about 65°F. Previously, during warm lake water temperatures (in excess of about 70°F), a second CCW heat exchanger has been placed into service to enhance cooling of the CCW system. The use of the second heat exchanger would cause less service water to be available for other equipment that uses service water.

Original flow analysis of the service water system performed by the Architect/Engineer for Point Beach, Bechtel, did not include the use of the spare heat exchanger during the initial operation of the service water system for accident mitigation. Recent service water flow analyses, performed since the late 1980's, do not include the use of any spare heat exchangers during initial operation of the service water system for accident mitigation. The original analyses for flow in the service water system was based on about 3200 gpm to the two CCW heat exchangers considered to be operating. The more recent analyses are based on about 700 gpm to each of the two heat exchangers considered to be operating. The use of 3200 gpm in the original analyses for initial service water flow to a CCW heat exchanger is not consistent with expected operational cooling requirements. The 700 gpm used in the more recent analyses is consistent with the expected operational alignment, except for the use of a second CCW heat exchanger.

It was not apparent to operations or engineering personnel that this non-conformance between operation and analysis existed, until the discovery of this situation on June 11, 1997, when engineering and operations personnel

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were discussing possible alignments for the service water system.

A service water system team with representatives from operations, maintenance, system engineering, design engineering, and analysis engineering has been formed to further improve the service water system to regain operational margin and accomodate expected system alignments.

Cause:

This condition was caused by operation of the service water system in a condition that did not conform with the analyses for the service water system.

Corrective Actions:

In a letter dated June 25, 1997, Wisconsin Electric committed to operation of the service in accordance with analyses as implemented by approved procedures. A license condition has been established based on this commitment. The license condition is documented in a letter from the NRC dated July 9, 1997, for the approval of license amendments 174 and 178 for Unit 1 and 2 operating licenses, DPR-24 and DPR-27.

A root cause evaluation is being completed to establish why appropriate assumptions were not included in the service water system analyses. Additional corrective actions will be taken as determined appropriate from recommendations contained in the root cause evaluation.

Reportability:

This Licensee Event Report is being submitted in accordance with the requirements of 10 CFR 50.73(a)(2)(ii)(A), "Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly compromised plant safety."

Component and System Description:

The component cooling loop is designed to remove residual and sensible heat from the reactor coolant system, via the residual heat removal loop, during plant shutdown; to cool the letdown flow to the chemical and volume control system during power operation; and to provide cooling various primary plant components and auxiliary systems. One pump and one heat exchanger are normally operated to provide cooling water for various components located in the auxiliary and the containment buildings. With the exception of the CCW supply to the RHR heat exchangers, cooling water is normally supplied to components served by CCW even though a component may be out of service. There are four CCW heat exchangers, two of which are shared between the two units.

The service water system has been designed to provide redundant cooling water supplies with isolation valves to the auxiliary feedwater (AFW) pumps, AFW pump bearing oil cooling, two diesel generators, air compressors, component cooling heat exchangers, spent fuel pool cooling system, and to the containment air recirculating cooling system. The design includes provisions for automatic isolation of nonessential components following an accident. Lake Michigan is the source of service water. The system is sized to insure adequate heat removal based on highest expected temperatures of cooling water, maximum loadings and leakage allowances. Based on historical data, the highest normally expected service water inlet temperature is 75°F. There are six service water pumps. A minimum of three pumps are required to operate for accident mitigation.

Safety Assessment:

The total flow diverted from other equipment supplied by the service water system would be approximately 700 gpm for each additional heat exchanger being used. The maximum flow diversion, based on the use of both of the shared heat exchangers is about 1400 gpm. The initial total service water system flow with three service water pumps operating post-accident is about 15,000 gpm. Recent flow analyses show that minimal excess capacity exists in the service water system. Therefore, some safety equipment supplied by the service water system could receive less than desired flow for accident mitigation when operating in this alignment, thereby potentially invalidating previous analyses.

System and Component Identifiers

The Energy Industry Identification System component function identifier for each component/system referred to in this report are as follows:

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Component/System	Identifier
Service Water System	BI
Component Cooling Water System	CC
Reactor Coolant System	AB
Residual Heat Removal System	BP
Auxiliary Feedwater System	BA
Spent Fuel Cooling System	DA
Containment Cooling System	BK
Heat Exchanger	HX
Pump	P

Similar Occurrences:

A search of previously submitted licensee event reports similar to this situation for PBNP was conducted. The specific criterion used was based on a search for licensee event reports that were submitted due to plant procedures that allowed or caused the plant to be not in accordance with accident analysis assumptions.

LER 266/301-84-005-00 Identified a condition that allowed operation of the units such that the conditions of FSAR section 14.1.1, "Uncontrolled RCCA Withdrawal from a Subcritical Condition," analysis could be invalidated.

LER 266/301-97-025-00 Identified a condition in which the pressurizer level was controlled at a higher level than supported by the PBNP FSAR Section 14.2.5 "Rupture of a Steam Pipe" analysis, during shutdowns.