

August 14, 2007

NRC 2007-0068
10 CFR 50.73

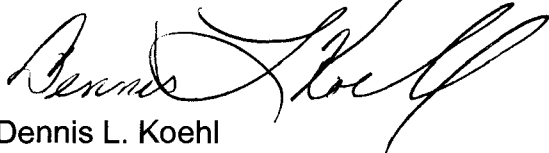
U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Point Beach Nuclear Plant Unit 1
Docket 50-266
Renewed License No. DPR-24

Licensee Event Report 266-2007-005-00
Manual Reactor Shutdown Required by Technical Specification; LCO 3.7.5 Auxiliary
Feedwater Not Met

Enclosed is Licensee Event Report 266-2007-005-00 for Point Beach Nuclear Plant Unit 1. This LER discusses the manual reactor shutdown performed in response to an inability to meet a required action completion time. This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(A) for, "The completion of any nuclear plant shutdown required by the plant's Technical specifications; or".

This letter contains no new commitments and no revisions to existing commitments.



Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION (6-2004)		APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2007 Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.																																					
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FACILITY NAME (1) Point Beach Nuclear Plant		DOCKET NUMBER (2) 05000266	PAGE (3) 1 of 4																																				
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POWER LEVEL (10) 98		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">20.2201(b)</td> <td style="width:33%;">20.2203(a)(3)(ii)</td> <td style="width:33%;">50.73(a)(2)(ii)(B)</td> <td style="width:33%;">50.73(a)(2)(ix)(A)</td> </tr> <tr> <td>20.2201(d)</td> <td>20.2203(a)(4)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(x)</td> </tr> <tr> <td>20.2203(a)(1)</td> <td>50.36(c)(1)(i)(A)</td> <td>50.73(a)(2)(iv)(A)</td> <td>73.71(a)(4)</td> </tr> <tr> <td>20.2203(a)(2)(i)</td> <td>50.36(c)(1)(ii)(A)</td> <td>50.73(a)(2)(v)(A)</td> <td>73.71(a)(5)</td> </tr> <tr> <td>20.2203(a)(2)(ii)</td> <td>50.36(c)(2)</td> <td>50.73(a)(2)(v)(B)</td> <td rowspan="5">OTHER Specify in Abstract below or in NRC Form 366A</td> </tr> <tr> <td>20.2203(a)(2)(iii)</td> <td>50.46(a)(3)(ii)</td> <td>50.73(a)(2)(v)(C)</td> </tr> <tr> <td>20.2203(a)(2)(iv)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td>50.73(a)(2)(v)(D)</td> </tr> <tr> <td>20.2203(a)(2)(v)</td> <td>50.73(a)(2)(i)(B)</td> <td>50.73(a)(2)(vii)</td> </tr> <tr> <td>20.2203(a)(2)(vi)</td> <td>50.73(a)(2)(i)(C)</td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.2203(a)(3)(i)</td> <td>50.73(a)(2)(ii)(A)</td> <td>50.73(a)(2)(viii)(B)</td> <td></td> </tr> </table>		20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)	20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	20.2203(a)(2)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	
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ABSTRACT <p>An orderly shutdown of Unit 1 commenced at 1819 hours on June 14, 2007, when it was recognized that repair and testing of 1P-29, turbine-driven auxiliary feedwater (TDAFW) pump, would not be successfully completed within the 72 hours allowed by Technical Specification Action Condition (TSAC) 3.7.5.B.1. The pump had initially been declared inoperable on June 12, 2007, at 0131 hours when the outboard turbine bearing experienced elevated temperatures during a performance of inservice test procedure IT-08A. Unit 1 entered MODE 3 on June 15, 2007, at 0407 hours and MODE 4 at 1712 hours with both conditions being achieved within the completion time limits of Technical Specification (TS) 3.7.5. The IT-08A test being performed on June 12 was a follow-up test in response to a bearing temperature increasing trend observed on June 9, 2007, during performance of scheduled surveillance testing using IT-08A.</p> <p>The pump was not restored to an operable condition within the Limiting Condition for Operation (LCO) allowed time period due to: 1) procedure inadequacies associated with the 10-year overhaul of the pump, and 2) failure to perform adequate post-maintenance testing (PMT) following the 10-year overhaul. Changes to the maintenance procedure for equipment overhaul, and changes to the process and procedures for specifying PMT, are being tracked via the plant's Corrective Action Program (CAP). The nuclear safety significance of the TS-required shutdown was low because all Required Actions to satisfy the TS were completed within the stated Completion Times.</p>																																							

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

Event Description and Analysis

On June 14, 2007, at 1819 hours a Unit 1 shutdown from 100% power was commenced in recognition of the failure to meet TSAC 3.7.5.B.1, the 72-hour completion time limit for 1P-29 TDAFW pump inoperability. The shutdown, conducted according to OP 3A, Power Operation to Hot Standby, was uneventful with all equipment and systems operating as expected. Due to the power reduction taking place at a rate greater than 15% per hour, iodine isotope sampling in accordance with TS Surveillance Requirement (SR) 3.4.16.2 was performed with acceptable results. Unit 1 entered MODE 3 on June 15, 2007, at 0407 hours, and MODE 4 at 1712 hours. Both mode conditions were achieved within the Completion Time limits required by TS 3.7.5.

TSAC 3.7.5.B.1 had been initially entered on June 12, 2007, at 0131 hours when 1P-29 TDAFW pump was declared inoperable to perform a IT-08A test. During the test a high temperature on the outboard turbine bearing was identified. The TDAFW pump was secured at 0347 hours and remained inoperable. Repair efforts were not completed within the TS allowed Completion Time and the TS-required shutdown of the Unit 1 reactor was performed.

Cause

The cause of the event was the failure to complete repairs and return the TDAFW pump to operable status (e.g., satisfy the LCO) within the allotted time. The 10-year overhaul, done in April of 2007, during the U1R30 refueling outage, was conducted using an inadequate maintenance overhaul procedure. Inadequate PMT following the overhaul prevented the identification of equipment performance problems. Thus, the cause of the TS-required shutdown was personnel error, during the development of the overhaul procedure, and again during the specification of testing requirements following the overhaul.

Corrective Action

Changes to the maintenance procedure for equipment overhaul, and changes to the process and procedures for specifying PMT, are being tracked using the plant's Corrective Action Program via CAP 01090456.

Safety Significance

The event, a unit shutdown required by TS, was of low safety significance. All TS-required conditions were met, and all systems and equipment performed as expected.

The nuclear safety significance, beyond the required TS shutdown was also considered, given the degraded condition of 1P-29 TDAFW pump as a result of improperly conducted maintenance and testing in April 2007. The preliminary nuclear safety significance was determined to be moderate using probabilistic risk assessment tools. A detailed quantitative safety determination evaluation is in progress. Evaluation of internal events has determined the safety significance is low. The pump would have been able to batch feed water to the steam generators based on thermal/hydraulic analyses and performance of a simulator scenario.

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Component and System Description

The auxiliary feedwater (AFW) system automatically supplies feedwater to the steam generators to remove decay heat from the reactor coolant system (RCS) upon the loss of normal feedwater supply. The AFW pumps provide cooling water to the steam generator secondary side via connections to the main feedwater (MFW) piping inside containment. The steam generators function as a heat sink for core decay heat.

The AFW system consists of three independent pump systems; two motor-driven AFW pumps which are shared between the two units, and one dedicated steam turbine-driven pump per unit. Each motor-driven pump is capable of providing 100% of the design AFW flow rate, while the turbine-driven pump is capable of providing 200% of the design flow rate. Each pump is provided with a recirculation line to maintain pump discharge flow above the minimum required flow rate for pump cooling. Recirculation line orifices are sized to not be susceptible to clogging by service water debris. The debris size is limited by the size of the service water strainers. Each AFW pump system can be manually aligned to take suction from the service water system. The normal source of water for the AFW pumps is the condensate storage tank (CST) and the safety-related supply is the service water (SW) system. Motor-operated valves are provided to allow the suction supply for the AFW pumps to be manually transferred to the SW system.

Each motor-driven AFW pump is powered from an independent safeguards power supply and feeds one steam generator in each unit. AFW pump P-38A supplies AFW flow to the Unit 1 and Unit 2 'A' steam generators, while AFW pump P-38B supplies the Unit 1 and Unit 2 'B' steam generators. Each motor-driven AFW pump's discharge header contains two normally closed automatic motor-operated valves. Upon receipt of an AFW actuation signal, the discharge valve associated with the affected unit receives an automatic open signal and the discharge valve associated with the unaffected unit receives an automatic close signal. This feature will ensure that 100% of the motor-driven AFW pump flow will be delivered to the affected unit, thereby, assuring that the accident analysis flow rates are met. Each motor-driven AFW pump is also equipped with a backpressure control valve, which is designed to preclude the motor-driven AFW pump from tripping on an overcurrent condition at low steam generator pressures.

Each unit's turbine-driven AFW pump receives steam from both steam generator main steam lines upstream of the main steam isolation valves. Each of the two steam feed lines can supply 100% of the required steam flow to the turbine-driven AFW pump. Turbine-driven AFW pump 1P-29 is powered by a ZS frame Terry turbine equipped with ring oilers only and has a unique bearing design to accommodate a high operating load.

The AFW system actuates automatically in response to specific plant conditions. The AFW system is capable of supplying feedwater to the steam generators during normal unit startup, shutdown and hot standby conditions.

One pump at full flow is sufficient to remove decay heat and cool the unit to residual heat removal (RHR) entry conditions.

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Previous Similar Events

A review of LERs submitted in the past three years, associated with requirement 10 CFR 50.73(a)(2)(i)(A) "the completion of any nuclear plant shutdown required by the plant's Technical Specifications", having a cause of procedural inadequacy, was conducted. No similar events were identified.

Failed Components Identified

None