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10 CFR 50.73

W3F1-2015-0035

May 7, 2015

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: Licensee Event Report (LER) 2014-001-01
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

Dear Sir or Madam:

Entergy is hereby submitting Licensee Event Report (LER) 2014-001-01 for Waterford Steam Electric Station, Unit 3 (Waterford 3). This report revises the original report that dealt with past inoperability of one train of the safety-related Containment Spray system. Upon further evaluation it was determined that both trains were inoperable for a period of time and that this prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

Based on plant evaluation, it was determined that this condition is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B) and 10CFR50.73(a)(2)(v)(D).

This report contains no new commitments. Please contact John P. Jarrell, Regulatory Assurance Manager, at (504) 739-6685 if you have questions regarding this information.

Sincerely,

A handwritten signature in black ink, appearing to read "John P. Jarrell III".

JPJ/SWM

Attachment: Licensee Event Report 2014-001-01

cc: Mr. Marc L. Dapas, Regional Administrator
U.S. NRC, Region IV
RidsRgn4MailCenter@nrc.gov

U.S. NRC Project Manager for Waterford 3
Michael.Orenak@nrc.gov

U.S. NRC Senior Resident Inspector for Waterford 3
Frances.Ramirez@nrc.gov
Chris.Speer@nrc.gov

Attachment to

W3F1-2015-0035

**Licensee Event Report 2014-001-01
(4 pages)**



LICENSEE EVENT REPORT (LER)
(See Page 2 for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), 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.

1. FACILITY NAME Waterford 3 Steam Electric Station	2. DOCKET NUMBER 05000382	3. PAGE 1 OF 4
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4. TITLE
Room Cooler Breaker Inoperability Causes Past Inoperability of Containment Spray System Train

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	08	2013	2014	001	01	05	07	2015		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
10. POWER LEVEL 100	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT John Jarrell	TELEPHONE NUMBER (Include Area Code) 5047396685
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
D	BE	BKR	W120	N					

14. SUPPLEMENTAL REPORT EXPECTED	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO				

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

On May 8, 2013 at 19:53, a safety-related circuit breaker failed when Operations personnel attempted to start Shutdown Cooling Heat Exchanger Room B air handling unit. In accordance with Operations administrative procedure for Technical Specification and Technical Requirements Compliance, Operations personnel entered the applicable Technical Specification Limiting Condition for Operation for Containment Spray (CS) train B. A replacement breaker was installed and a successful start of the air handling unit was performed. CS Train B was declared operable at 17:30 on May 9, 2013.

An evaluation of the failure determined that the air handling unit had been effectively rendered inoperable since installation of the circuit breaker on April 18, 2013. Containment Spray train B was inoperable from 03:09 on April 17, 2013, when the train was declared inoperable to perform preventative maintenance until 17:30 on May 9, 2013, a total of 22.6 days. This time period exceeds the Technical Specification allowed outage time of 7 days. Technical Specification 3.6.2.1 was not complied with, which requires that with one CS system [train] inoperable, restore the system [train] to operable status within 7 days or be in at least Hot Standby within the next six hours. During this time frame CS 'A' was inoperable for 6.65 hours. Since both trains of Containment Spray were inoperable this is considered a Safety System functional failure due to the system being unable to mitigate the consequences of an accident.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), 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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NARRATIVE

Waterford Steam Electric Station Unit 3 (Waterford 3) was in Mode 1 at approximately 100% power at the time of discovery

EVENT DESCRIPTION

Containment Spray (CS)[BE] Train B was declared inoperable and Technical Specification (T.S.) 3.6.2.1 entered at 03:09 on April 17, 2013 for planned maintenance. T.S. 3.6.2.1 requires that with one CS system [train] inoperable, restore the system [train] to operable status within 7 days or be in at least Hot Standby within the next six hours. During performance of the maintenance, the installed safety-related circuit breaker for Shutdown Cooling (SDC)[BP] heat exchanger (HX) Room B Air Handling Unit (AHU) failed. The installed 10 amp breaker was obsolete, so an Engineering change Request (E R) was completed to provide Electrical Maintenance with an acceptable replacement. Based on the drawing information, the ECR identified a suitable replacement 7 amp breaker. Following installation and successful completion of post maintenance testing, CS Train B was declared operable at 23:30 on April 18, 2013.

On May 8, 2013 the 7 amp breaker installed during the April preventative maintenance failed when Operations personnel attempted to start the SDC HX room B AHU. This resulted in the SDCHX Room B AHU being inoperable, which rendered the CS Train B inoperable. Operations personnel entered T.S. 3.6.2.1 at 19:53 for the affected Containment Spray train. An Engineering Change Request was generated to install a 15 amp breaker. Following successful start of the AHU, CS Train B was declared Operable and T.S. 3.6.2.1 was exited on May 9, 2013 at 17:30.

A subsequent evaluation determined that the SDC HX Room B AHU was rendered inoperable following installation of the replacement 7 amp circuit breaker installed during the preventative maintenance task on April 18, 2013. This resulted in CS Train B being inoperable for 03:09 on April 17, 2013 when the train was declared inoperable to perform the preventive maintenance task until 17:30 on May 9, 2013, a total of 22.6 days. This time period exceeds the Technical Specification allowed outage time of 7 days. Technical specification 3.6.2.1 was not complied with, which requires that with one CS system [train] to operable status within 7 days or be in at least Hot Standby within the next six hours.

Subsequent evaluation also determined that CS Train A was inoperable two times during the time period from April 17, 2013 until May 9, 2013. T.S. 3.6.2.1 requires that with two containment spray systems [trains] inoperable, restore at least one spray system [train] to operable status within one hour or be in at least Hot Standby within the next six hours and be in Cold Shutdown within the following 30 hours. The first instance was from 09:52 to 16:31 on May 2, 2013, a total duration of 6.65 hours, and the second was from 10:28 to 10:58 on May 8, 2013, at total duration of 0.5 hours. Neither of these times exceeded the total Technical Specification allowed outage and action time of 7 hours.

Failure of the installed breaker in the SDC HX Room B AHU was documented in the corrective action process under Condition Report CR-WF3-2013-02316. This condition report was determined to be non-reportable based on information available at the time. Following completion of the subsequent evaluation, it was determined that this condition was reportable and actions to address reportability are documented under CR-WF3-2013-06113.

REPORTABLE OCCURRENCE

The past in-operability of Containment Spray Train B is reportable as a Licensee Event Report (LER) pursuant to 10CFR50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications, and 10CFR50.73(a)(2)(v)(D), Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

BACKGROUND - SYSTEM DESIGN

The safety related functions of the Containment Spray system are:

- To remove heat and fission products from the containment atmosphere during and following either a loss of coolant accident (LOCA) or a Main Steam Line Break accident (MSLB) inside containment.

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BACKGROUND - SYSTEM DESIGN (Continued)

To limit off-site radiation by reducing the pressure differential between containment and the external environment and scrubbing the containment atmosphere following a LOCA so that the offsite dose and the dose to the Operators in the Control room are within the guidelines of 10CFR50.67 and GDC-19

Following automatic initiation, the CS system operates in the following two distinct modes:

Injection Mode:

In this initial mode of operation, the CS is lined up so that the Cs pumps take suction from the Refueling Water Storage Pool (RWSP) and by pumping this water through the nozzles, sprays the containment with borated water. This spray action cools and condenses the steam released from either the Reactor Coolant System (RCS)[AB] or Main Steam System (MS)[SB]. This in turn maintains the containment temperature and pressure within the design limit.

Recirculation Mode:

When the water level in the RSWP falls to a predetermined level, a recirculation actuation signal (RAS) is generated which shifts suction of the CS Pumps to the Safety Injection (SI)[BP] sump by opening the sump outlet isolation valves. Upon indication in the control room of a pump suction shift to the SI sump, the RWSP outlet isolation valves can be closed by operator action.

During both the injection and recirculation modes of operation, the borated water passes through the tube side of the shutdown cooling heat exchangers. In the injection phase, this water is taken from the refueling water storage pool and does not need to be cooled. In the recirculation mode the containment spray pumps take suction from the safety injection system sump. Since the sump water is at an elevated temperature the heat exchangers are required for cooling. component Cooling Water (CCW)[CC] passes through the shell side of the shutdown cooling heat exchanger to cool the borated spray water.

The Shutdown Cooling Heat Exchanger A and B area Fan Coolers (AHU) are required to remove heat from the shutdown heat exchanger A and B areas following any Design Basis Accident (DBA).

CAUSAL FACTORS

An apparent cause evaluation was performed. The apparent cause was determined to be design documentation/prints being inadequate. The locked rotor amperage (LRA) of the SDC HX B AHU motor was not known when the ECR was prepared in April 2013, to replace the obsolete breaker. When LRA is unknown, the drawing provided guidance to size the breaker according to the horsepower of the motor. The drawing failed to account for motors with higher current draw such as this one whose current draw was 20% higher than the average. The LRA was later found in purchasing documents and used to select the 15 amp breaker installed in May 2013. The contributing cause was determined to be testing not performed as required. The work order instructions allowed a documented factory acceptance test to be accepted as an alternative to performing pre-installation testing. The 7 amp replacement breaker was installed without pre-installation testing. The work package directed the electricians to obtain the breaker data sheet if available and to use that as the breaker pre-installation functional test data. The breaker instantaneous test data from the factory was available from the vendor as part of the Certificate of Compliance (C of C). The C of C data was from 1992. This installation, without pre-installation testing, is not in line with industry best practices, or practices used for other electrical devices (i.e. relays, motor, etc.) at Waterford 3. Had pre-installation testing been performed, the breaker might have been recognized as operating on the very low edge of the tolerance band and been rejected.

EXTENT OF CONDITION

A query of all Engineering Change Requests (ECR) was performed using the keywords "breaker" or "bucket" in the ECR title. No deficiencies were noted.

As part of the extent of condition review, it was determined that the circuit breaker for SDC HX Room A AHU currently has the same configuration as the 10 amp breaker that was previously in the SDC HX Room B AHU prior to the preventative maintenance performed April 18, 2013. Based on motor test data, the current trip setting on the circuit breaker is adequately sized to start the SDC HX Room A AHU.

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CORRECTIVE ACTIONS

To address the Apparent Cause:

The ECR that replace the 7 amp breaker with a 15 amp breaker was installed in accordance with the work order process. Revised Drawing notes to account for motors with high full load current.

To address the Contributing Cause:

The work instruction template was revised to eliminate the practice of substituting factory acceptance testing for pre-installation testing.

To address the Extent of Condition:

Planned action to adjust the setting for the breaker of the SDC HX Room A AHU

SAFETY SIGNIFICANCE

The calculation that evaluates the Shutdown Cooling Heat Exchanger Rooms heat-up based on postulated LOCA concurrent with loss of offsite power heat loads and complete loss of HVAC cooling was reviewed. The calculation showed that the SDC HX room temperature rises to a maximum value of less than 130 degrees Fahrenheit in 24 hours. The SDC Heat Exchanger room coolers are not considered in the PSA model. Therefore, the loss of room cooling to the SDC heat exchangers does not impact the core damage frequency or large, early release frequency for the PSA. Additionally, inspection of the environmental zone map indicates that there is no instrumentation in the SDC HX room that controls the post-accident SDC HX operations.

The SDC HX's and the Containment Spray pumps are located in separate rooms and are cooled by different independent room coolers. The loss of the SDC HX room cooler will not directly affect the operation of the Containment Spray pumps. Adequate cooling will be provided for Containment Spray pump operation. The system is declared inoperable due to support system being declared inoperable but the Containment Spray pumps will remain available for accident conditions.

During the time frame in which CS Train B was inoperable, CS Train A was operable and capable of performing the CS function with the exception of 6.65 hours on May 2, 2013, and 0.5 hours on May 8, 2013. Though both trains of Containment Spray were declared inoperable at the same time, Containment Spray train B remained available to perform its required safety function during all required accident conditions.

SIMILAR EVENTS

Corrective action program data and Licensee Event Reports for the past five years were reviewed for similar events. None were identified.

ADDITIONAL INFORMATION

Energy industry identification system (EIIIS) codes and component function identifiers are identified in the text with brackets []