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October 22, 2003

W3F1-2003-0083

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-382  
License No. NPF-38  
Reporting of Licensee Event Report (LER 2003-001-00)

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2003-001-00 for Waterford Steam Electric Station Unit 3. This report provides details of an event where one bank of pressurizer proportional heaters was incapable of being energized from the emergency power source from the control room for a period of four days, exceeding the Technical Specification allowed outage time.

This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. Since the other bank of pressurizer proportional heaters were operable during this time period and considering that operations would have had time to diagnose the problem and energize the heaters from outside the control room had a loss of offsite power occurred, this condition has minimal safety significance.

There are no commitments contained in this submittal. Actions described herein are controlled and tracked via the Waterford 3 Corrective Action Program.

Sincerely,

A handwritten signature in cursive script, appearing to read "G. Sen".

G. Sen  
Manager, Licensing

GS/LBB/cbh  
Attachment

IE22

cc: Mr. Thomas P. Gwynn  
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1. FACILITY NAME: **Waterford Steam Electric Station, Unit 3**

2. DOCKET NUMBER: **05000 382**

3. PAGE: **1 OF 5**

4. TITLE: **Loose Breaker Fuse Rendered One Bank of Pressurizer Proportional Heaters Inoperable**

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	26	2003	2003	001	00	10	22	2003	N/A	N/A
									N/A	N/A

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

12. LICENSEE CONTACT FOR THIS LER

NAME: **Lisa Borel, Senior Licensing Engineer**

TELEPHONE NUMBER (Include Area Code): **(504) - 739-6403**

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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

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

On July 24, 2003, with the plant in Mode 1 at 100% reactor power, it was discovered that a loose control power fuse for a breaker rendered one bank of pressurizer proportional heaters technically inoperable for a period of four days, exceeding the Technical Specification allowed outage time. The loss of control power to the breaker would have prevented the proportional heaters from being manually energized from the emergency power source from the control room had a loss of offsite power occurred. On July 20, 2003, an operator noticed the indicating lights on the breaker were not illuminated, however miscommunication during turnover to another operator resulted in the condition not being corrected until four days later when another operator noticed and investigated the condition. The control power fuses were reinstalled and a corrective action was assigned to Operations to brief the operators on this event, including discussion of the problems encountered during the turnover. The apparent cause of the loose fuse was that the fuse carriage became partially disconnected while removing other fuses from the same fuse panel, and eventually the fuse lost its electrical continuity. This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications. This event is not considered a Safety System Functional Failure.

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Waterford Steam Electric Station, Unit 3	05000-382	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		2003	001	00	

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

**REPORTABLE OCCURRENCE**

On August 26, 2003, it was determined that one of the two groups of proportional pressurizer [PZR] heaters was not capable of being manually placed and energized on the emergency power [EK] source from the control room for a period of approximately four days (July 20, 2003 to July 24, 2003). Technical Specification 3.4.3.1 requires that the pressurizer [PZR] be operable with at least two groups of pressurizer heaters powered from Class 1E buses, with an allowed outage time of 72 hours. The required Technical Specification 3.4.3.1 Actions were not entered and complied with within the allowed outage time, subsequent to the original discovery of the condition. This was apparently due to a miscommunication that occurred during an Operator turnover after the original discovery on July 20, 2003. Accordingly, this condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B) as an operation or condition prohibited by Technical Specifications.

**INITIAL CONDITIONS**

Upon discovery of this event, Waterford 3 was operating in mode 1 at 100% reactor power. There were no major systems, structures or components that were inoperable at the time of discovery that contributed to this condition.

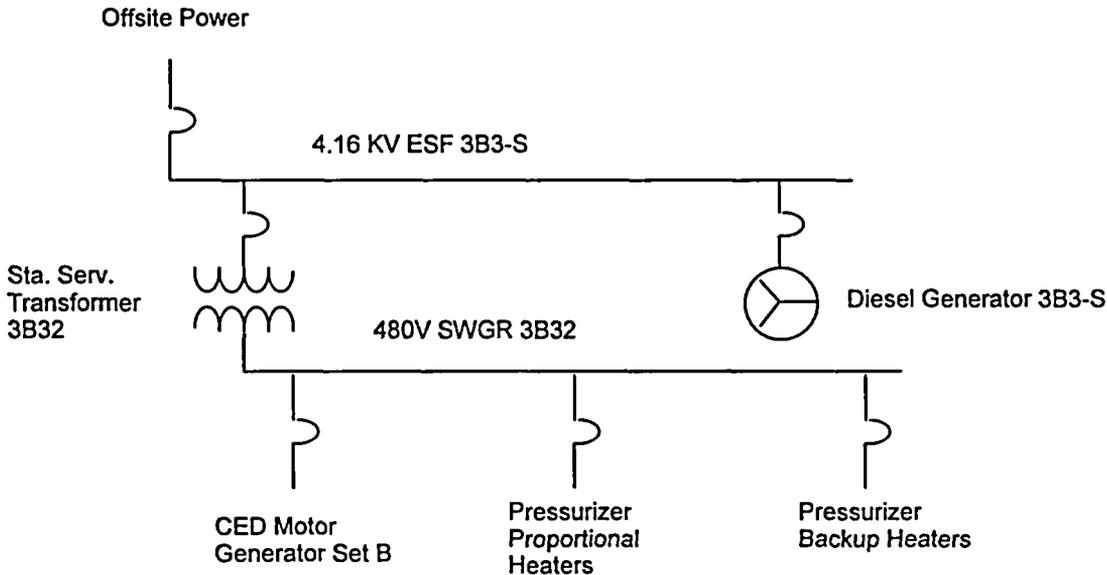
**SYSTEM DESCRIPTION**

The pressurizer heater power supply design provides the capability to supply, from either the offsite power source or the emergency power source (when offsite power is not available), two groups of pressurizer proportional heaters and associated controls necessary to establish and maintain natural circulation at hot standby conditions. The two groups of proportional heaters, along with other loads, are powered from the 480 volt non-safety switchgear buses 3A32 and 3B32 [EC]. These non-safety related buses are fed from the Class 1E buses [ED] protected by safety grade circuit breakers [BKR]. Upon loss of offsite power, the safety related Class 1E feeder breakers providing power to these buses will trip. The Class 1E feeder breakers reclose on the diesel generator sequencer [JE] after 0.5 seconds as long as no Safety Injection Actuation Signal (SIAS) is present and all of the load breakers on the 3A32 or 3B32 bus are open. The diagram below shows the power supply arrangement:

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



**EVENT DESCRIPTION**

On July 24, 2003 an operator noticed that the breaker position indication lights on the GE Model AKR4A30 breaker for Control Element Drive Motor Generator Set B [MG] were out. This load is fed from the 3B32 bus along with one group of pressurizer proportional heaters and pressurizer back up heaters. The operator checked the light bulbs and found that the bulbs were not burnt out. The operator then checked to ensure that the control power fuses (trip fuses) were installed. The operator found that the carriage that holds the fuses was not fully inserted into its receptacle. This resulted in the breaker being without control power. The trip fuses and the receptacle were inspected and determined to be good. The trip fuses were reinstalled successfully. Upon investigation of the apparent cause of this condition, it was determined that the indication lights on the breaker had not been illuminated on July 20, 2003 and that this condition had existed for a period of four days. This was apparently due to a miscommunication that occurred during an Operator turnover after the original discovery was made on July 20, 2003 (see causal factors). On a loss of offsite power, the 3B32 feeder breaker from the 3B switchgear would have opened and would not have been able to reclose on the sequencer because the breaker for the Control Element Drive Motor Generator Set B would not have been open. That breaker would not have opened due to not having control power, due to the loose fuse. This would have prevented power from being supplied to the bank of pressurizer proportional heaters on the 3B32 bus. Thus, actions external to the control room would have had to be taken to energize these heaters on the emergency power source. There is evidence that this condition existed from July 20, 2003 until July 24, 2003, exceeding the 72 hour Limiting Condition for Operation.

**CAUSAL FACTORS**

An apparent cause investigation was completed for this event. It was concluded that the most likely cause was that the fuse carriage became partially disconnected while removing other fuses from the same fuse panel. On July 15, 2003 the pressurizer proportional heater bank feeder

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breaker was removed from the 3B32 switchgear. This involved an operator removing the trip and close fuses for this breaker. These trip and close fuses are contained in the same cubicle as the trip fuses for Control Element Drive Motor Generator Set B. A management observer and the operators involved confirmed that the correct fuses were pulled. They further confirmed that at no time did the operators attempt to pull the wrong fuses. The operators removing the fuses for the pressurizer heater breaker recalled having difficulty removing the trip and close fuses. The fuses were much harder to remove than normal. Removing the fuses did result in a physical movement of the fuse holder panel. It is possible that this movement caused the Control Element Drive Motor Generator Set B fuse cartridge to become dislodged. An operator performing an unrelated manipulation on July 17, 2003 recalls verifying that all of the breakers on the 3B32 switchgear had proper position indication. This observation indicates that the fuses for Control Element Drive Motor Generator Set B were still partially connected at that time. The fuses eventually lost their electrical continuity over the next few days until the condition was initially detected. The reason that actions to resolve the condition were delayed for four days is miscommunication between an operator that noticed the indicator lights not illuminated on July 20, 2003 and another operator that he turned over to on that date. The condition was not corrected until a third operator noticed the indicator lights not illuminated on July 24, 2003.

**CORRECTIVE ACTIONS**

The trip fuses and the receptacle were inspected and determined to be good. The fuses were reinstalled. The cubicle that contains the fuses was inspected. The fuse panel inside the cubicle is hinged on the left side and held closed on the right side by a single bolt. The bolt that holds the panel closed allows some freedom of movement between a stop that the bolt is threaded into and the head of the retaining bolt. The freedom of movement of the fuse panel may have allowed the physical movement of the fuse panel while removing the fuses. Engineering and Maintenance walked down the affected switchgear and analyzed the fuse rack. The qualified design is that the fuse rack is mounted with two hinges on one side and a single mounting bolt holding the fuse rack in position on the other. The mounting bolt does allow for some free play but was not deemed detrimental to design or function. Engineering concluded that during a seismic event the fuse racks would be able to withstand the event and that the fuse carriages are designed with sufficient spring force such that they will not become disengaged. No further corrective action to the hardware was deemed necessary. If a trip/close fuse carriage is not fully engaged the breaker lights will be extinguished and will be caught on the operator rounds and be appropriately addressed. A corrective action was assigned to Operations to discuss this event with the Operations Department members, including discussion of the problems encountered during the turnover between the two operators, which delayed correction of this condition.

**SAFETY SIGNIFICANCE**

This condition resulted in the unrecognized lack of capability to place one bank of pressurizer proportional heaters on the emergency power source from the control room for a period of four days had a loss of offsite power occurred. Technical Specification 3.4.3.1 requires two groups of pressurizer proportional heaters to be capable of being manually energized from the emergency power source from the control room, with an allowed outage time of 72 hours. The basis for this requirement is to enhance the capability to control RCS pressure and maintain natural circulation.

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Both groups of heaters were powered by the normal power supply during this period and were functioning to maintain RCS pressure. Had a Loss of Offsite Power occurred, the redundant train of pressurizer heaters was operable and capable of being manually placed and energized from the emergency power source from the control room. Only one train of pressurizer heaters is necessary to enhance the capability to control RCS pressure and maintain natural circulation. Additionally, there is no minimum time requirement for energizing the heaters from the emergency power source after loss of offsite power occurs. The FSAR indicates that the heaters are not manually loaded on the emergency diesel generator until at least thirty minutes after the diesel start. The operators would have indication of the problem and could manually place the heaters on the emergency power supply, however it would have to be done locally, not from the Control Room. It is concluded that this condition had minimal safety significance. This event is not considered a Safety System Functional Failure (SSFF).

**SIMILAR EVENTS**

A review of LERs for the past two years did not reveal any similar events. A search performed via Waterford 3's condition reporting system using the keywords "breaker" and "fuse" also did not identify any similar events.