



**Entergy
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D. F. Packer
General Manager
Plant Operations
Waterford 3

W3F1-94-0034
A4.05
PR

June 20, 1994

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

Gentlemen:

Attached is Licensee Event Report Number LER-94-009-00 for Waterford Steam Electric Station Unit 3. This is submitted as a voluntary Licensee Event Report.

Very truly yours,

D.F. Packer
General Manager
Plant Operations

DFP/TSB/ssf
Attachment

cc: L.J. Callan, NRC Region IV
G.L. Fiorreich
J.T. Wheelock - INPO Records Center
R.B. McGehee
N.S. Reynolds
NRC Resident Inspectors Office
Administrator - LRPD

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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. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNRB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Waterford Steam Electric Station Unit 3	DOCKET NUMBER (2) 05000 382	PAGE (3) 1 OF 6
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TITLE (4)
Encapsulation Tube Containing Fuel Rod Hanging From Spent Fuel Handling Machine

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	18	94	94	009	00				N/P	05000
									N/P	05000

OPERATING MODE (9) 1	POWER LEVEL (10) 100	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)					
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)					
		<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER					
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)	<small>(Specify in Abstract below and in Text, NRC Form 366A)</small>					
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(vii)(B)						
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)						

LICENSEE CONTACT FOR THIS LER (12)

NAME D.W. Vinci, Operations Superintendent	TELEPHONE NUMBER (include Area Code) (504) 464-3178
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On February 18, 1994 at 1030, Waterford 3 was operating in Mode 1 at 100% power when a Senior Reactor Operator (SRO) with the Operations Refueling Group discovered an object hanging from the Spent Fuel Handling Machine (SFHM). The object was later determined to be a fuel encapsulation rod containing a damaged fuel rod from a previous fuel reconstitution campaign.

The root cause of this event is inadequate barriers in that the controls in place for the SFHM were not sufficient to prevent manipulation of the SFHM hoist and an unauthorized lift of Special Nuclear Material. A contributing cause is the design of the fuel encapsulation tube.

Corrective action included deenergizing the power strip to the computer, controlling the power cabinet and override keys and revising an Operation's procedure and lesson plan. Further action will include long term controls on the SFHM and development of actions to prevent lifting of the encapsulation tube with the SFHM tool. This event did not compromise the health and safety of the public and plant personnel.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Waterford Steam Electric Station Unit 3	05000 382	94	009	00	2 OF 6

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

REPORTABLE OCCURRENCE

On February 18, 1994 at 1030, Waterford 3 was operating in Mode 1 at 100% power when a Senior Reactor Operator (SRO) with the Operations Refueling Group discovered an object hanging from the Spent Fuel Handling Machine (SFHM; EIIS Identifier DF). At approximately 1430 CST the object was identified as a fuel encapsulation rod that contains a damaged fuel rod from fuel reconstitution. Operators made a 1 hour notification at 1528 CST in accordance with 10CFR73.71(b)(1) and 10CFR73 Appendix G.I(a)(2) because there was no explanation of how the container became engaged to the SFHM and pulled out of its storage location.

A subsequent investigation examined the tube for damage and did not find any. Additionally, it was determined that the encapsulation tube was snagged unintentionally. As such, this event does not meet the criteria of 10CFR73 Appendix G.I(a)(2). Thus, the 1 hour notification was retracted at 1326 CST on March 9, 1994. However, given the sensitivity of this event, this report is provided as a voluntary LER.

INITIAL CONDITIONS

Plant Power	100%
Plant Operating Mode	Mode 1, Power Operation
Procedures Being Performed Specific to this Event	None
Technical Specification LCO's in Effect Specific to this Event	None
Major Equipment Out of Service Specific to this Event	None

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

EVENT SEQUENCE

On February 18, 1994 at 1030 a Senior Reactor Operator (SRO) with the Operations Refueling Group went to the Fuel Handling Building (FHB; EIIS Identifier ND) to assist Radwaste department personnel in cleaning the Fuel Transfer Tube Gate Valve seat (EIIS Identifier DF-V). While there he observed an object hanging from the SFHM fuel handling tool. The Operator was unclear on the identity of the object and requested a Health Physics (HP) technician to survey the Spent Fuel Pool (SFP; EIIS Identifier DB) area. The survey results showed normal radiation levels around the SFP.

At 1042 the SRO left the FHB in order to find the Refueling Director. At 1130 the SRO located the Refueling Director and discussed the event with him. The Director contacted Reactor Engineering and Performance to determine if any evolutions had occurred or were occurring that could explain the object's presence. Reactor Engineering and Performance responded that there were no evolutions that they were aware of.

At 1203 hours the Refueling Director and the SRO returned to the FHB with HP to determine the object's origin. With HP present, plant staff moved the SFHM to the North side of the SFP and secured the object with underwater vice grips. HP performed surveys on the object with radiation levels ranging from 20 to 70 R/hr at 6 inches. These radiation levels were indicative of an irradiated core component. While surveying, the object disengaged from the SFHM fuel handling tool. Upon further examination, the Combustion Engineering representative identified the object as a fuel encapsulation tube that contains a damaged fuel rod from fuel reconstitution. This was confirmed by inspection of storage location AA04 where the tube is stored which was empty. The encapsulation tube was secured to the Reconstitution Platform in the SFP.

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Further investigation showed that the last known SFHM movement occurred on February 17, 1994 between 1030 and 1100. This movement was performed by the Refueling Director who moved the bridge in the east-west direction in an effort to help plan work on the SFP Cooling Suction Screen (EIS Identifier DA). During this manipulation, the Refueling Director did not move the hoist nor did he notice anything hanging from the SFHM fuel handling tool. After completing the manipulation, the Refueling Director parked the SFHM over location AA04 in the SFP.

It is believed that the fuel encapsulation tube was lifted some time after the Refueling Director's manipulations. In an effort to determine when the tube was lifted and who may have been responsible, a security printout of all personnel that entered the FHB from February 17, 1994 at 1100 through February 18, 1994 at 1030 was obtained. The printout showed that 49 personnel were in the building during that time frame. All of those personnel completed questionnaires concerning their activities in the FHB. As a result of answers provided on the questionnaires, 15 of the 49 personnel were interviewed. None were aware of any movement of the SFHM hoist.

The last known movement of the SFHM hoist occurred on February 11, 1994 when OP-903-099, "Spent Fuel Handling Machine Operability," was performed. Based on this and the fact that none of the 49 personnel in the FHB between 2/17/94 and 2/18/94 were aware of any manipulation of the SFHM hoist, security printouts were obtained of all personnel in the FH since February 11, 1994. Again, none of the personnel were aware of any manipulation of the SFHM hoist.

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Before returning the encapsulation tube to the appropriate storage location plant personnel used video equipment to verify that there was no damage to the tube. Additionally, they verified that location AA04 was empty and that there was no damage to the location. After determining that there was no damage to the cell, the encapsulation tube was returned to its storage location.

Although the individual responsible for lifting the fuel encapsulation tube could not be determined, the mechanism in which the tube was lifted can be. The encapsulation tube cap has ears that span approximately 2 3/4 inches. The SFHM fuel handling tool has an inside diameter that ranges from 2 1/2 inches to 3 1/2 inches. When the fuel handling tool was lowered over the cap, the ears jammed into an area that would accommodate its size. When the hoist was raised, the encapsulation tube was lifted out of the storage location. Due to the light weight of the encapsulation tube (5 pounds) and because there was no planned lift of the tube, the individual manipulating the hoist would not have known that he had lifted it.

CAUSAL FACTORS

The root cause of this event is inadequate barriers in that the controls in place for the SFHM were not sufficient to prevent manipulation of the SFHM hoist and an unauthorized lift of Special Nuclear Material.

A contributing cause is the design of the fuel encapsulation tube. It was unknown that the design of the fuel encapsulation tube would allow the tube to be lifted by the SFHM fuel handling tool.

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IMMEDIATE CORRECTIVE MEASURES

Operations has deenergized the power strip in the SFHM power center cabinet that supplies the SFHM computer and continues to keep the power center cabinet door locked. Without the computer, operation of the SFHM requires the use of an override on the SFHM control panel. Keys for both are now being controlled to limit access. Additionally, Operations added a precaution to RF-005-002, "Refueling Equipment Operation," not to lower the SFHM fuel handling tool over the cells containing the encapsulation tube and the fuel rod storage basket.

Training revised their lesson plan to include the appropriate times and positions for hoist manipulation.

ACTIONS TO PREVENT RECURRENCE

Reactor Engineering and Performance and System Engineering will develop a means to prevent lifting of the encapsulation tube with the SFHM fuel handling tool. Additionally, Operations will review and develop appropriate long term controls for the Spent Fuel Handling Machine.

SAFETY SIGNIFICANCE

This event did not compromise the health and safety of the public in that the encapsulation tube was not lifted out of the SFP nor was the tube dropped. Further, the SFHM, with the spent fuel handling tool, is not capable of lifting fuel out of the SFP and in the event the encapsulation tube was dropped it is bounded by the fuel handling accident.

SIMILAR EVENTS

There have been no similar events reported as LER'S.