

LICFNSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station, Unit 2	DOCKET NUMBER (2) 05000057101	PAGE (3) 1 OF 05
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TITLE (4) The Tech Spec Limit for Crane Load Over the Spent Fuel Storage Pool was Exceeded Due to Management Deficiency - Inadequate Policy

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 NAMES		DOCKET NUMBER(S)
0	6	03	88	003	000	07	15	88	N/A		050000

OPERATING MODE (8) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)																				
	POWER LEVEL (10) 000	20.402(b)	20.406(a)(1)(i)	20.406(a)(1)(ii)	20.406(a)(1)(iii)	20.406(a)(1)(iv)	20.406(a)(1)(v)	20.406(c)	90.36(a)(1)	90.36(c)(2)	90.73(a)(2)(i)	90.73(a)(2)(ii)	90.73(a)(2)(iii)	90.73(a)(2)(iv)	90.73(a)(2)(v)	90.73(a)(2)(vi)	90.73(a)(2)(vii)(A)	90.73(a)(2)(vii)(B)	90.73(a)(2)(x)	73.71(b)	73.71(e)

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Steven E. LeRoy, Licensing		AREA CODE 704	373-6233

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	

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

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

On 06/03/88, Operations (OPS) and Performance (PRF), while moving the Westinghouse Multifunction Fuel Repair System (MFRS) into the Unit 2 Spent Fuel Transfer Canal, exceeded the Tech Spec (TS) limit for load over the Spent Fuel Storage Pool (SFP). Previous discussions between Duke and Westinghouse concluded that the equipment could be installed and moved over the pool without concern. Westinghouse personnel, who knew how much the equipment weighed, thought the TS only applied to loads over spent fuel, and spent fuel was not present under the crane route. Duke personnel, who were aware of the TS requirement, took Westinghouse assurances as confirmation of their belief that the equipment weighed less than the TS limit. The load was set down in a safe position in the SFP Transfer Canal after it was moved over the SFP. This event is assigned Cause of Management Deficiency because no policy existed to ensure compliance with the TS weight limit. Fuel handling procedures will be reviewed and upgraded. The North Monorail Hoist load cells for both units will be calibrated and a routine preventative maintenance schedule will be established. Future specifications by Duke Design for vendor services in the SFP will clearly address the TS requirement.

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

INTRODUCTION:

On June 3, 1988, Operations (OPS) and Performance (PRF) personnel, while moving the Westinghouse Multifunction Fuel Repair System (MFRS) into the Unit 2 Spent Fuel Transfer Canal, exceeded the Technical Specification 3/4.9.7 limit for load over fuel assemblies in the Spent Fuel Storage Pool (SFP). Previous discussions between Duke Power and Westinghouse personnel had concluded that the equipment could be installed and moved over the pool without concern. Westinghouse personnel, who knew how much the equipment weighed, thought that the Technical Specification (TS) only applied to loads over spent fuel, and spent fuel was not present under the crane route. Duke Power personnel, who were aware of the TS requirements, took Westinghouse assurances as confirmation of their belief that the equipment weighed less than the TS limit. The load was set down in a safe position in the SFP Transfer Canal immediately after it was moved over the fuel stored in the SFP.

Unit 2 was in Mode 5, Cold Shutdown, at the time of this event.

This event has been assigned a Cause of Management Deficiency because no policy existed to address appropriate mechanisms to ensure compliance with the TS weight limit.

EVALUATION:

Background

The Unit 2 SFP is equipped with two regions of high density fuel storage racks. Region 1, which has 286 locations, has high density fuel assembly spacing of 10.4 inches. This spacing is obtained by using a neutron absorbing material called boraflex and is reserved for temporary core off-loading of spent fuel and storage of new fuel. Region 2, which has 1177 locations, has high density fuel assembly spacing of 9.125 inches. Region 2 provides normal storage for spent fuel assemblies after a specified decay interval. The SFP Manipulator Crane Bridge [E1IS:FHM] has two auxiliary hoists. The North Monorail Hoist has a lifting capacity of 2 tons.

TS 3.9.7 requires that loads (except wire gates) which travel over fuel assemblies in the storage pool be limited to 3000 pounds. The surveillance requirement is that loads, other than a fuel assembly and control rod or a wire gate, must be verified to be less than 3000 pounds prior to moving the load over fuel.

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Description of Event

Fuel repair and reconstitution work planned for the McGuire Unit 2 End of Cycle 4 Refueling Outage was contracted to Westinghouse Electric Company in response to a Purchase Order prepared by Design Engineering. The specifications of the Duke Power Purchase Order required that vendor hardware to be used in the SFP meet McGuire requirements including TSS. The specifications also required that the vendor proposal specify the weight of equipment to be used.

During meetings between Duke Power and Westinghouse personnel on May 4, and May 10, 1988, weights of equipment were discussed. The initial concern of all parties was the capacity of the North Monorail Hoist to lift the completed MFRS. Since the total weight of the components was about 4000 pounds, the equipment would be brought in pieces, and Westinghouse personnel did not perceive a problem with exceeding weight limits, Duke Power personnel were satisfied with this assessment. Duke Power personnel remember that Westinghouse personnel stated that projected loads to be moved over the SFP would be less than 3000 pounds, but Westinghouse personnel do not remember a discussion of the 3000 pound weight limit during the meetings.

On June 3, 1988, the MFRS was moved into the Refueling Canal as two subassemblies. The larger of the two consisted of the Top Section and Basket which appeared to OPS personnel to be about two thirds of the total equipment. While this load was on the North Monorail Hoist and almost at its destination, OPS personnel noted that the Dillon load cell indicated over 4000 pounds. OPS personnel thought that they had assurance from Westinghouse personnel that the load was less than 3000 pounds. Also, they regarded the load cell as unreliable because the load cell had not been reliable in the past, so they did not immediately assume the TS limit had been exceeded. Westinghouse personnel assumed that any weight limits would only apply over spent fuel in the SFP, which they knew was not stored in Region 1.

On June 4, 1988 OPS personnel, who became curious about the high readings on the Dillon load cell, investigated using another load cell. The two load cells had similar indications for a given load, so OPS personnel then contacted PRF personnel and asked them to have Westinghouse verify the equipment weights. On June 9, 1988, Westinghouse personnel produced a letter giving weights of all MFRS equipment, and indicated that the heaviest combination lifted was 3270 pounds.

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Conclusion

When the MFRS was moved into the Refueling Canal on June 3, 1988, both OPS and PRF personnel believed that they had assurances from Westinghouse personnel that the weight of the equipment was less than 3000 pounds. The weight of equipment had been the subject of considerable discussion, which initially focused on crane capacity. Design Engineering personnel recollect discussions, concerning the 3000 pound weight limit, with Westinghouse personnel on May 4 and May 10, 1988 and remember that Westinghouse personnel assured them that the maximum weight of the equipment to be moved over the SFP was approximately 2800 pounds. Westinghouse personnel believed that the TS crane load limit generally applied to spent fuel and knew that there was only new fuel in Region 1. No policy existed to address the mechanisms to comply with this TS limit; therefore, this event has been assigned a Cause of Management Deficiency. Loads moved over the SFP in the past had been much less than 3000 pounds and no procedure or policy existed to verify any equipment weight before it was moved over fuel stored in the SFP.

A review of McGuire Licensee Event Report (LER) revealed twelve other incidents of TS violations in which inadequate policies or directives were either a root or contributory cause, so this event is considered recurring. The corrective actions for these past events were specific to the TS violation or were general program changes that were not related to the event. None of these past events involved a lack of procedure or policy because the TS surveillance requirement had not been changed. Therefore, none of the past corrective actions could have prevented the current event from occurring.

This event is not Nuclear Plant Reliability Data System (NPRDS) reportable.

CORRECTIVE ACTIONS:

- Immediate: None. The crane load was in a safe position in the SFP Transfer Canal when the TS violation was discovered.
- Subsequent: The key operated mechanical overload interlock on the North Monorail Hoist was lowered to 2700 pounds.
- Planned:
- 1) Future specifications by Design Engineering personnel for vendor services in the SFP will clearly address the requirements of TS 3.9.7.
  - 2) Fuel handling procedures will be reviewed and upgraded by OPS as necessary.
  - 3) The North Monorail Hoist load cells for both units will have routine preventative maintenance established by IAE personnel.

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- 4) The North Monorail Hoist load cells for both units will be calibrated by IAE personnel.

SAFETY ANALYSIS:

The basis for TS 3/4.9.7 indicates that the 3000 pound limit for loads over fuel in the SFP is established to: 1) Limit the potential for release of fission products; and, 2) Prevent criticality in the event of an accidental drop of a load onto fuel. In this event, the only fuel in the path of the load was new fuel. Since there are essentially no fission products in new fuel compared to design basis spent fuel, this type of accident was not of concern in this event.

For criticality considerations, comparison can be made to the Safety and Environmental Analysis submitted for the McGuire Spent Fuel Pool Two Region Rerack Modification. The load in this incident (3270 pounds) was 9% greater than the design basis load. The conclusion should still apply that even if two adjacent cells are crushed together, K-effective remains less than 0.95. Further, it is also shown in the criticality analysis that the presence of dissolved boron or boron poison dilutes will prevent criticality.

There were no personnel injuries, radiation overexposures, or releases of radioactive material as a result of this event.

This event is considered to be of no significance with respect to the health and safety of the public.

DUKE POWER COMPANY

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HAL B. TUCKER  
VICE PRESIDENT  
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July 15, 1988

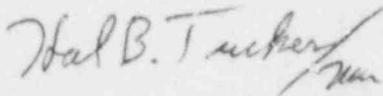
U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Unit 2  
Docket No. 50-370  
Licensee Event Report 370/88-03

Gentlemen:

Pursuant to 10CFR 50.73 Sections (a)(1) and (1), attached is Licensee Event Report 370/88-03 concerning the movement of a crane load over the spent fuel pool exceeding the Tech Spec weight limit on June 3, 1988. This report is being submitted in accordance with 10CFR 50.73(a)(2)(i)(B). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

SEL/298/bhp

Attachment

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