



April 1, 1996
LIC-96-0041

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

References: 1. Docket No. 50-285
2. LER 95-004 Revision 00 from OPPD (T. L. Patterson) to NRC
(Document Control Desk) dated June 30, 1995 (LIC-95-0132)

Gentlemen:

Subject: Licensee Event Report 95-004 Revision 1 for the Fort Calhoun
Station

Please find attached Licensee Event Report 95-004 Revision 1 dated
April 1, 1996. This revision provides the results of our review of the safety
significance of this issue. Revisions to the text are denoted by vertical lines
in the right margin. If you should have any questions, please contact me.

Sincerely,

T. L. Patterson
Division Manager
Nuclear Operations

TLP/epm

Attachment

c: Winston and Strawn
L. J. Callan, NRC Regional Administrator, Region IV
L. R. Wharton, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector
INPO Records Center

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NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 4/30/98					
LICENSEE EVENT REPORT (LER)								ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO THE INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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.		
(See reverse for required number of)										
FACILITY NAME (1) <div style="text-align: center;">Fort Calhoun Station Unit No. 1</div>					DOCKET NUMBER (2) <div style="text-align: center;">05000285</div>			PAGE (3) <div style="text-align: center;">1 OF 4</div>		
TITLE (4) <div style="text-align: center;">Discrepancy Regarding Seismic Classification of New Fuel Storage Racks</div>										
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 NAME	DOCKET NUMBER
06	02	95	95	-- 004 --	01	04	01	96	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§ (Check one or more) (11)								
1		20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)		
POWER LEVEL (10)		100		20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii) X		
				20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		
				20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		
				20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		
				20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		
								OTHER		
								Specify in Abstract below or in NRC Form 366A		
LICENSEE CONTACT FOR THIS LER (12)										
NAME <div style="text-align: center;">Steven H. Bottum, Design Engineer Mechanical</div>						TELEPHONE NUMBER (Include Area Code) <div style="text-align: center;">(402) 533-6578</div>				
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
SUPPLEMENTAL REPORT EXPECTED (14)										
YES (If yes, complete EXPECTED SUBMISSION DATE)					X NO					
					EXPECTED SUBMISSION DATE (15)					
					MONTH DAY YEAR					
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16) <p>As a result of a recent effort to incorporate design basis information for the new fuel storage rack into the Fort Calhoun Station (FCS) Design Basis Documents, a discrepancy was identified between design records and a statement in Technical Specifications Section 4.4.1. The Technical Specification indicated that the new fuel storage rack was designed as Seismic Class I, while the design records indicate that the rack was designed to be Seismic Class II. No fuel was being stored in the new fuel storage rack at the time this discrepancy was identified. On June 2, 1995, this issue was determined to be reportable.</p> <p>The root cause of this event was determined to be a lack of administrative control during the parallel development of the design/installation process and the licensing document process for the new fuel storage rack, during original plant construction.</p> <p>A calculation has been performed to evaluate the seismic anchorage capability of the new fuel storage rack with a full load of fuel stored in the rack. It was determined that the existing rack, its anchorage and the supporting floor have sufficient strength to secure the rack to the balcony in the event of a safe shutdown earthquake.</p>										

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BACKGROUND

The Fort Calhoun Station (FCS) new fuel storage rack (FH-7) is used for dry storage of new unirradiated fuel assemblies. Normally, the new fuel rack is empty except for two dummy fuel assemblies which are stored in it. The new fuel rack has been analyzed (Engineering Analysis EA-FC-94-029) to maintain an effective multiplication factor of less than 0.9 when containing fuel assemblies with average enrichments of up to 5.0 weight percent uranium-235.

The new fuel storage rack is located on a balcony at the south end of the spent fuel pool, overlooking Room 25A. This balcony is approximately 18'-9" above the main floor of Room 25A, which provides for adequate drainage and precludes flooding of the new fuel storage rack. The main floor of Room 25A comprises a portion of the ceiling of the Safety Injection and Refueling Water Tank (SIRWT). Room 25A also contains SIRWT level indication. The SIRWT is a concrete tank that is lined with coated carbon steel plate and is used to store borated water. During emergency safety injection, the safety injection pumps and the containment spray pumps take suction from the SIRWT. During refueling, the borated water is used to fill the refueling cavity.

Technical Specification 4.4.1, "New Fuel Storage," states, in part: "The new fuel storage racks are designed as a Class I structure." Class I and Class II seismic criteria are specified in Updated Safety Analysis Report (USAR) Appendix F, "Classification of Structures and Equipment and Seismic Criteria." Class I seismic criteria are more rigorous than Class II seismic criteria.

EVENT DESCRIPTION

As a part of a recent effort to incorporate design basis information for the new fuel storage rack into the FCS Design Basis Documents (DBDs), the archival mechanical and seismic design requirements of the new fuel storage rack were researched. The information reviewed indicated that the rack was originally designed to be Seismic Class II. Subsequently, an engineer involved in the new fuel storage rack DBD update noted that Technical Specification 4.4.1 included a statement indicating that the new fuel storage racks are designed as a Class I structure. On May 19, 1995, Incident Report (IR) 950378 was initiated to document the apparent discrepancy between the archival design records and Technical Specification 4.4.1. No fuel was being stored in the new fuel storage rack at the time.

Additional investigation was performed, and the issue was presented to the Plant Review Committee (PRC). At 1521 on June 2, 1995, the discrepancy between the Technical Specification description and the actual design of the rack was determined

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to be reportable pursuant to 10 CFR 50.72(b)(1)(ii)(B). The NRC Operations Center was notified of this determination at 1526 on June 2, 1995. This report is being submitted pursuant to 10 CFR 50.73(a)(2)(ii)(B).

SAFETY ASSESSMENT

The nuclear safety function of the new fuel storage rack is to ensure a non-critical fuel configuration at all times for new unirradiated fuel assemblies stored in the rack. In addition, the rack should not adversely affect any safety related equipment required for safe plant shutdown during a seismic event. A calculation has been performed which determined that the empty rack (including the weight of the two dummy fuel assemblies) is adequately anchored so that it would not tip over in the event of a safe shutdown earthquake.

A calculation has been performed (Calculation FC06510) to evaluate the seismic anchorage capability of the new fuel storage rack with a full load of fuel stored in the rack. It was determined that the existing rack, its anchorage and the supporting floor have sufficient strength to secure the rack to the balcony in the event of a safe shutdown earthquake.

CONCLUSIONS

The new fuel storage rack was delivered to FCS in March 1970 and installed in the Auxiliary Building in 1972. The reference to "Class I" in the current Technical Specifications dates back to 1970 and the submittal of FCS Technical Specifications to the Atomic Energy Commission (AEC) as Final Safety Analysis Report (FSAR) Supplement No. 2. It has been concluded that the root cause of this event was a lack of administrative control during the parallel development of the design/installation process and the licensing document process for the new fuel storage rack. A review of historical documents revealed that the seismic classification of the rack was intended to be Class II, however the Technical Specification was issued indicating that the rack was designed as a Class I structure. There was an apparent disconnect between the Architect/Engineer design group and the OPPD staff who prepared the Technical Specification. This allowed conflicting information to co-exist in separate documents without adequate cross-checking and verification.

Technical Specification Section 4.4, "Fuel Storage," addresses both new fuel storage and spent fuel storage. Section 4.4.2 states: "The spent fuel racks are designed as a Class I structure." Research regarding the original design of the spent fuel racks has concluded that they were designed and furnished as Seismic Class I. The original racks were replaced in 1976. Subsequent spent fuel racks (installed to increase

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storage capacity) have been designed as Seismic Class I equipment. Therefore, no generic implications were identified with respect to the seismic design of fuel storage equipment at FCS.

CORRECTIVE ACTIONS

The root cause of this event was associated with original plant construction and does not reflect a problem with the current design/installation process. Also, as previously indicated, no generic implications were identified. The following corrective actions have been or will be completed to address the new fuel storage rack:

1. A calculation has been performed (Calculation FC06487) to evaluate the seismic anchorage capability of the new fuel storage rack with no fuel stored in the rack. The calculation included the weight of the two dummy fuel assemblies stored in the rack. It was determined that the existing anchors have sufficient strength to secure the rack to the balcony in the event of a safe shutdown earthquake.
2. A calculation has been performed (Calculation FC06510) to evaluate the seismic anchorage capability of the new fuel storage rack with a full load of fuel stored in the rack. It was determined that the existing rack, its anchorage and the supporting floor have sufficient strength to secure the rack to the balcony in the event of a safe shutdown earthquake.

PREVIOUS SIMILAR EVENTS

No similar events have been identified.