Attachment to Serial: RNP-RA/97-0146

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(4-95)

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98
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 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2	50-261	1 OF 5

TITLE (4)
CONDITION OUTSIDE DESIGN BASIS: SPENT FUEL SHIPPING CASK UNREVIEWED SAFETY QUESTION

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
04	22	97	97	-- 05 --	01	06	30	97	FACILITY NAME	DOCKET NUMBER

OPERATING	N
POWER	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)		
20.2203(a)(1)	20.2203(a)(3)(i)	X 50.73(a)(2)(ii)	50.73(a)(2)(x)		
20.2203(a)(2)(i)	20.2203(a)(3)(ii)	50.73(a)(2)(iii)	73.71Appx. G(l)(b)		
20.2203(a)(2)(ii)	20.2203(a)(4)	50.73(a)(2)(iv)	OTHER		
20.2203(a)(2)(iii)	50.36(c)(1)	50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A		
20.2203(a)(2)(iv)	50.36(c)(2)	50.73(a)(2)(vii)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
H. K. Chernoff, Supervisor, Licensing/Regulatory Programs	(803) 857-1437

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)			EXPECTED	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).	NO				

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

On April 22, 1997, with H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, operating at 100% power, the results of an investigation revealed that certain spent fuel shipping cask handling activities had been conducted outside the design and licensing basis of the plant. Specifically, a IF-300 spent fuel shipping cask is configured for fuel loading by removing the cask valve box covers. The loaded cask is then lifted with a non single failure proof crane from the cask decontamination facility to the cask rail car, where the cask valve box covers are then installed. Lifting the cask with the non-single failure proof crane with the valve box covers removed is not covered by the shipping configuration drop analysis. An evaluation was completed that concludes this condition represents an unreviewed safety question. Accordingly, this report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii) as a condition outside the design basis of the plant. There have been no significant adverse safety consequences associated with this condition. A postulated spent fuel shipping cask drop with the valve box covers removed could lead to an off-site release that exceeds the "no release" result of a cask drop specified in the licensing basis. A preliminary evaluation determined that the off-site doses resulting from a postulated cask drop with a less than fully secured cask are minimal.

This condition was caused by inadequate evaluations for cask handling procedures. Personnel conducting these evaluations failed to identify the limitations of the drop analysis as it applied to cask handling operations, versus shipping configuration accident conditions. Procedures for spent fuel cask handling operations have been administratively placed on hold, pending resolution of this condition.

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I. DESCRIPTION OF EVENT

On April 22, 1997, with H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, operating at 100 percent power, the results of an investigation revealed that certain spent fuel cask handling activities had been conducted outside the design and licensing basis of the plant. In preparing the HBRSEP response to an NRC Request for Additional Information (RAI) regarding NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment," dated December 24, 1996, the investigation revealed that certain aspects of spent fuel cask handling procedures are not covered by analysis.

Spent fuel is periodically shipped from HBRSEP to CP&L's Sharol Harris Nuclear Power Plant (SHNPP) for storage. The spent fuel is shipped in IF-300 spent fuel shipping casks, which are designed and licensed in accordance with 10 CFR 71, "Packaging and Transportation of Radioactive Material," requirements. The IF-300 is a Type B package and, therefore, must be designed to withstand the effects of hypothetical accident conditions required by10 CFR 71.73. One of the required conditions is that a cask must withstand a free drop of at least 30 feet through air onto a flat, horizontal, essentially unyielding surface. Since the scope to 10 CFR 71 is limited to packaging and transportation, cask manufacturers and designers demonstrate compliance with 10 CFR 71.73 by testing the package in its fully-secured, transportation-ready condition (i.e., with the cask closure head in place and fully tensioned, and the upper and lower cavity valve box covers installed. (See attached figure). A cask drop with the valve box covers removed could lead to an off-site release that exceeds the "no release" result of a cask drop that is in the current licensing basis.

HBRSEP procedure Spent Fuel Shipping (SFS)-001, "IF-300 Shipping Cask Operation," is utilized for loading spent fuel into the shipping cask. The IF-300 Cask Consolidated Safety Analysis Report (CSAR), along with the cask operating and maintenance manuals, were used to develop SFS-001. As specified is SFS-001, spent fuel is loaded into the shipping cask with the cask in the spent fuel pool cask laydown area, and with the valve box covers removed in order to facilitate venting and draining the loaded cask. In this condition, the cask is not in a fully secured, ready-for-shipment condition. After loading, the cask is lifted with a single failure proof crane from the spent fuel cask laydown area to the cask decontamination facility, where the cask is drained, vented, purged, and leak tested. The cask is then lifted with a different, non-single failure proof crane from the cask decontamination facility to the cask rail car, where the valve box covers are then installed.

An evaluation of these conditions against the criteria of 10 CFR 50.59 was completed on April 22, 1997. The results of this evaluation concluded that an Unreviewed Safety Question existed, since it is not bounded by the spent fuel cask drop accident analysis described in the UFSAR. Accordingly, this condition represents a condition outside the design basis of the plant.

II. CAUSE OF EVENT

This condition was caused by failure to perform an adequate 10 CFR 50.59 evaluation for changes to procedure SFS-001. This was a cognitive error, resulting from an incomplete understanding of the CSAR and a misconception that incorporating the vendor's operating instructions for cask operations into procedure SFS-001 would maintain the cask in an analyzed condition. Personnel preparing the 10 CFR 50.59 evaluations for SFS-001 failed to identify that the cask design to withstand a 30 foot free drop applied to the fully secured, ready for shipment configuration. Lifting the cask with the valve box covers removed with a non-single failure proof crane was not specifically analyzed or covered by the shiping configuration drop analysis.

III. ANALYSIS OF EVENT

There have been no significant adverse safety consequences associated with this condition. A postulated spent fuel shipping cask drop with the valve box covers removed could lead to an off-site release that exceeds the "no releasw" result of a cask drop specified in the licensing basis. A preliminary evaluation of the off-site doses resulting from a cask drop with a less than fully secured cask were determined to be minimal. Results of the final evaluation will be included in a supplement to this LER.

This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii).

IV. CORRECTIVE ACTIONS

Procedure SFS-001 was placed on administrative hold on April 22, 1997, suspending spent fuel cask handling operations.

An Unreviewed Safety Question submittal will be submitted to the NRC by August 31, 1997.

Subsequent to NRC review of the Unreviewed Safety Question submittal, the UFSAR will be revised to reflect the new analysis and to document HBRSEP site boundary dose consequences.

Procedure3 SFS-001 will be reviewed against the Cask CSAR and Certificate of Compliance prior to resuming spent fuel cask handling operations. Based on the results of this review, a new 10 CFR 50.59 evaluation will be performed.

By September 30, 1997, revisions to the procedure and/or training controlling the 10 CFR 50.59 safety evaluation process will be made to incorporate lessons learned from this event.

V. ADDITIONAL INFORMATION

A. Failed Component Identification

None

B. Previous Similar Events

NRC FORM 366A (4-95) U.S. NUCLEAR REGULATORY COMMISSION

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TEXT CONTINUATION

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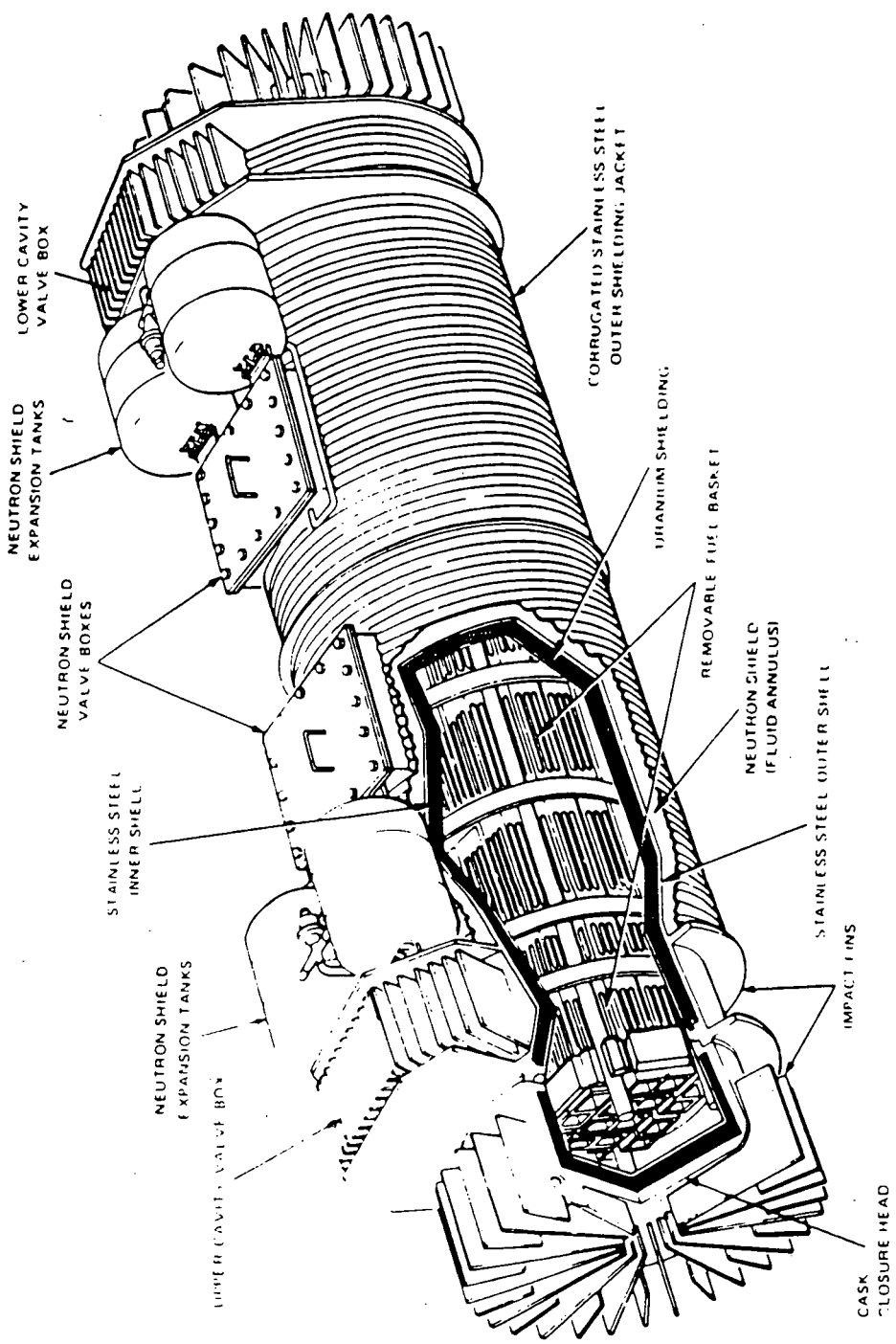
TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)



IF-300 Cask, Cutaway View