

**NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL
(TEMPORARY FORM)**

CONTROL NO: 5157

FILE: _____

FROM: Carolina Power & Light Raleigh, NC E E Utley			DATE OF DOC 5-6-75	DATE REC'D 5-10-75	LTR XX	TWX	RPT	OTHER
TO: Mr Rusche			ORIG 3 signed	CC	OTHER	SENT AEC PDR <u>XX</u> SENT LOCAL PDR <u>XX</u>		
CLASS	UNCLASS XXXXXX	PROP INFO	INPUT	NO CYS REC'D 3	DOCKET NO: 50-261			

DESCRIPTION:

Ltr w/attached drawings.....requesting a waiver of requirements for spent fuel.....pursuant to a request from Aerojet Nuclear... with justifications of the request.....

ENCLOSURES:

DO NOT REMOVE

ACKNOWLEDGED

PLANT NAME: Robinson #2

FOR ACTION/INFORMATION 5-12-75 ehf

BUTLER (L) W/ Copies	SCHWENCER (L) W/ Copies	ZIEMANN (L) W/ Copies	REGAN (E) W/ Copies
CLARK (L) W/ Copies	STOLZ (L) W/ Copies	DICKER (E) W/ Copies	LEAR (L) W/ Copies
PARR (L) W/ Copies	VASSALLO (L) W/ Copies	KNIGHTON (E) W/ Copies	SPEIS W/ Copies
KNIEL (L) W/ Copies	PURPLE (L) W/ Copies	YOUNGBLOOD (E) W/ Copies	LICENSING PROJECT MANAGER

INTERNAL DISTRIBUTION

<u>REG FILE</u> NRC-PDR OGC, ROOM P-506A GOSSICK/STAFF CASE GIAMBUSSO BOYD MOORE (L) DEYOUNG (L) SKOVHOLT (L) GOLLER (L) (Ltr) P. COLLINS DENISE REG OPR FILE & REGION (2) MPIC STEELE	<u>TECH REVIEW</u> SCHROEDER MACCARY KNIGHT PAWLICKI SHAO STELLO HOUSTON NOVAK ROSS IPPOLITO TEDESCO J. COLLINS LAINAS BENAROYA VOLLMER	DENTON GRIMES GAMMILL KASTNER BALLARD SPANGLER <u>ENVIRO</u> MULLER DICKER KNIGHTON YOUNGBLOOD REGAN PROJECT LDR <i>Dittman</i> HARLESS	<u>LIC ASST.</u> R. DIGGS (L) H. GEARIN (L) E. GOULBOURNE (L) P. KREUTZER (E) J. LEE (L) M. MAIGRET (L) S. REED (E) M. SERVICE (L) S. SHEPPARD (L) M. SLATER (E) H. SMITH (L) S. TEETS (L) G. WILLIAMS (E) V. WILSON (L) R. INGRAM (L)	<u>A/T IND</u> BRAITMAN SALTZMAN MELTZ <u>PLANS</u> MCDONALD CHAPMAN DUBE (Ltr) E. COUPE PETERSON HARTFIELD (2) KLECKER EISENHUT WIGGINTON
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EXTERNAL DISTRIBUTION

1 - LOCAL PDR <i>Hartsville, S.C.</i>	1 - NATIONAL LABS	1 - PDR-SAN/LA/NY
1 - TIC (ABERNATHY) (1)(2)(10)	1 - W. PENNINGTON, Rm E-201 GT	1 - BROOKHAVEN NAT LAB
1 - NSIC (BUCHANAN)	1 - CONSULTANTS	1 - G. ULRICKSON, ORNL
1 - ASLB	NEWMARK/BLUME/AGBABIAN	1 - AGMED (RUTH GUSSMAN) Rm B-127 GT
1 - Newton Anderson		1 - J. D. RUNKLES, Rm E-201 GT
14 - ACRS HOLDING/SENT TO L.A. Teets		

REGULATORY DOCKET FILE COPY

Carolina Power & Light Company

May 6, 1975

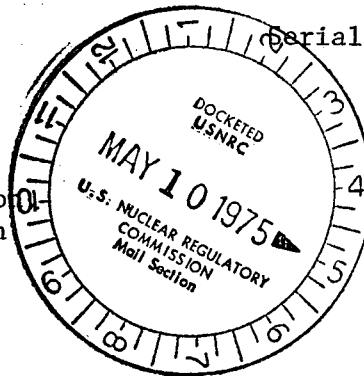
50-2

50-261

File: NG-3514 (R)

Serial: NG-75-663

Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Rusche:

H. B. ROBINSON UNIT NO. 2
LICENSE NO. DPR-23

REQUEST FOR WAIVER OF REQUIREMENTS FOR SPENT FUEL

Carolina Power & Light Company has been requested by Aerojet Nuclear Corporation (ANC), on behalf of the Nuclear Regulatory Commission Fuel Behavior Branch, to provide an irradiated fuel assembly from the H. B. Robinson Unit 2 Plant for the purpose of conducting safety related research. The fuel will be used to determine irradiated fuel properties needed to predict fuel rod behavior during postulated accident conditions. Tests to be conducted on the fuel include:

1. Transient gas flow measurements
2. Cladding irradiation damage inspection (using neutron radiography, pulsed eddy current, and metallographic techniques)
3. Cladding strength and ductility as function of temperature and exposure
4. Cladding burst strength
5. Cracked pellet gap closure
6. Fuel-cladding friction
7. Transient fission gas release

A fuel assembly typical of present design and having a moderate to high exposure is needed for this program.

At this time, we have successfully completed negotiations for the fuel assembly purchase, and are making final arrangements for shipment of the fuel assembly from the Robinson Plant. We have been informed by

May 6, 1975

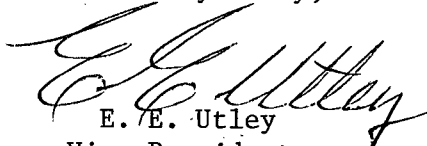
ANC that the spent fuel shipping cask to be employed in the Robinson Pool will be supplied by Nuclear Assurance Corporation. Their cask is a single element cask which was designed and licensed by Nuclear Fuel Services. Alternatively, the NLI 1/2 spent fuel shipping cask may be used. The casks employ a single (nonredundant) yoke system, which is in conflict both with our intention to use redundant yoke systems for normal fuel shipments, as stated in our letters of October 17, 1974 and April 15, 1975, and with the stated position of the Auxiliary and Power Conversion Systems Branch of the NRC in their draft Regulatory Guide on Overhead Crane Handling Systems for Nuclear Power Plants. We believe, however, that the use of the assembly for safety related research is in the public interest and that the safety factors inherent in the yoke design and the procedures to be utilized in the shipping of the assembly will preclude any significant risk to the health and safety of the public. As a result, Carolina Power & Light Company requests that the requirement for a redundant yoke system to handle the Nuclear Assurance Corporation (NAC) cask or the NLI 1/2 cask be waived to allow shipment of this single fuel assembly.

The NAC yoke design and the associated safety factors of the yoke elements are described in the attachments to this letter. The yoke for the NLI 1/2 cask has a design load rating of three (3) times the maximum load based on material yield strength. The shop test load was two (2) times the maximum working load. The cask trunnions for the NLI 1/2 cask are described in the report "Safety Analysis Report-NLI 1/2 Spent Fuel Shipping Cask," Docket No. 70-1318.

The safety factors built into each of the yokes provide adequate assurance that the yokes will not sustain a single failure that could lead to dropping of the cask while over the pool area. Special precautions and procedures will be employed to assure proper handling of the cask during maneuvers in the spent fuel pool area. With these added precautions, Carolina Power & Light Company believes that the removal of a single fuel element from the Robinson spent fuel pool utilizing a nonredundant cask yoke is acceptable.

We request your prompt attention to this matter, since we have scheduled a shipping date of May 26 with Aerojet Nuclear Corporation and the Fuel Behavior Branch of NRC.

Yours very truly,



E. E. Utley
Vice President
Bulk Power Supply

DBW:ppd

Enclosures

ATTACHMENT A

NUCLEAR ASSURANCE CORPORATION CASK YOKE DESIGN DATA

A. DESIGN CRITERIA

1. Working Load: 52,000

The working load is the maximum weight of the NAC-1 cask loaded with a 144" long active-core-length PWR fuel assembly and a fuel basket plus the weight of the yoke.

2. Structural Summary

<u>Yoke Component</u>	<u>Calculated Stress</u>	<u>Yield Stress</u>	<u>Factor of Safety</u>
a-Lifting Arm	4,618	50,000	10.83
b-Lifting Arm-Eye	14,720	50,000	3.40
c-Lifting Arm to Strong Back Weld	920	15,000	16.3
d-Swing Arm-Hinge Eye	9,663	50,000	5.17
e-Hinge Eye Attachment to Swing Arm	10,400	50,000	4.81
f-Swing Arm-Hinge Pin	4,140	15,000	3.63
g-Strong Back-Stress due to Bending	8,376	30,000	3.58
h-Hook Pin-Bearing Stress	1,324	15,000	11.30
i-Hook Pin-Combined Stress	3,442	30,000	8.71
j-Hook Pin Plate	4,333	30,000	6.92



15LY

NAC-1 GASK.
SISTER-HOOK LIFTING YOKE.

