

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8804270153 DOC.DATE: 88/04/22 NOTARIZED: NO DOCKET #  
 FACIL:50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261  
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-006-00:on 880315,diesel generator fuel oil storage capacity load profile discrepancy.

W/8 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 1  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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INTERNAL:	ACRS MICHELSON		1	1		ACRS MOELLER		2	2
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	RES/DE/EIB		1	1		RES/DRPS DIR		1	1
	RGN2 FILE 01		1	1					
EXTERNAL:	EG&G GROH,M		4	4		FORD BLDG HOY,A		1	1
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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) H. B. Robinson Steam Electric Plant, Unit No. 2										DOCKET NUMBER (2) 0   5   0   0   0   2   6   1				PAGE (3) 1 OF 05								
TITLE (4) Diesel Generator Fuel Oil Storage Capacity Load Profile Discrepancy																						
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	3	1	5	8	8	8	8	0	0	6	0	0	0	4	2	2	8	8	0   5   0   0   0			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																				
N		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)								
POWER LEVEL (10)		0   6   0				20.405(a)(1)(i)				50.38(c)(1)				73.71(c)								
		20.405(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(v)				X OTHER (Specify in Abstract below and in Text, NRC Form 366A)								
		20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)												
		20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(A)												
		20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(viii)(B)												
										50.73(a)(2)(x)				50.73(a)(2)(vi)								
LICENSEE CONTACT FOR THIS LER (12)																						
NAME Don Sayre, Senior Specialist - Regulatory Compliance										TELEPHONE NUMBER												
										AREA CODE		8   0   3   3   8   3   -   1   2   4   2										
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																						
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPD												
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR						
YES (If yes, complete EXPECTED SUBMISSION DATE)												X NO										

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

On March 15, 1988, diesel load profile/fuel oil consumption calculations were reviewed to resolve a discrepancy between the Plant Technical Specifications basis and the Final Safety Analysis Report (FSAR). The basis requires 25,000 gallons for operation of one diesel carrying "minimum safety features" load for seven days. The FSAR describes 25,000 gallons as sufficient for one diesel carrying "full load" for seven days. Detailed calculations found that 25,000 gallons is only marginally sufficient for one diesel carrying "minimum safety feature" load for seven days since this fuel consumption is highly dependent on selective load shedding. One diesel carrying "full load" for seven days would require approximately 30,430 gallons. Review of records indicates this capacity has been maintained onsite for the operating history of the Plant, and administrative controls were effected in 1987 as further assurance. The Specifications basis and FSAR will be revised to reflect this value. This LER is submitted under 10CFR50.73(a)(2)(vi).

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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
H. B. Robinson S. E. Plant, Unit 2	0 5 0 0 0 2 6 1	8 8	0 0 6	0 0	0 2	OF	0 5

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

## I. DESCRIPTION OF EVENT

On Tuesday, March 15, 1988, the licensee Plant Nuclear Safety Committee reviewed calculations performed to resolve an apparent diesel generator load profile/fuel oil consumption discrepancy between the Plant Final Safety Analysis Report (FSAR) and the basis for the Plant Technical Specifications.<sup>1,2</sup>

Specifically, Technical Specification 3.7.1.d requires a minimum inventory of 19,000 gallons of fuel oil in the diesel generator fuel oil storage tank and an additional minimum inventory of 6,000 gallons in either the Unit No. 1 I-C turbine fuel oil storage tank or the diesel generator fuel oil storage tank at all times. The basis for this Technical Specifications is to assure the operation of both diesel generators carrying design load of all of the engineered safety features equipment for at least 48 hours or one diesel generator carrying the minimum engineered safety features for 96 hours with sufficient fuel available from the diesel generator fuel oil storage tank. The basis goes on to state that the total onsite diesel fuel storage capacity shall not be less than seven days for "minimum safety features equipment" operation.

The FSAR describes in Section 8.3.1.1.5.1, however, that 25,000 gallons of fuel oil is sufficient to operate one diesel at "full load" for seven days.

Preliminary calculations performed in 1987 for the expected minimum design loads on a single diesel generator indicated that 25,000 gallons, as required by the Technical Specification basis, would be sufficient for seven days operation. A more detailed analysis has revealed that fuel oil consumption is highly dependent on selective load shedding during the seven day time period. It was then found that Plant procedures contained insufficient guidance to assure selective load shedding occurred; however, procedures<sup>3</sup> have assured that sufficient fuel oil inventory has been maintained onsite.

<sup>1</sup>H. B. Robinson Steam Electric Plant, Unit No. 2 is a Westinghouse 700MW Pressurized Water Reactor plant, in commercial operation since March 1971. The plant has two emergency diesel generators rated at 2500 kW each.

<sup>2</sup>Diesel generator fuel oil system EIIIS Codes: System - DC; Component - Not available; Manufacturer - E065.

<sup>3</sup>A random sample of the Minimum Equipment List for Plant operations back to October 1, 1970, has found that a minimum of 58,250 gallons of fuel oil was available from the diesel generator storage tank and the I-C turbine fuel oil storage tanks on Unit No. 1. The diesel generator fuel oil storage tank has had at least 21,000 gallons during this same time period.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The licensee decided that a more conservative load profile should be considered as the basis for the Technical Specifications and which assumed operation of a single diesel generator at its rated design capacity for the seven days (similar to the FSAR).<sup>4</sup> This would require 30,430 gallons of available fuel oil. Although the "minimum safety features" load profile would assure satisfactory operability under design basis event conditions, the more conservative requirements for operation at rated design capacity would provide a greater margin for selective loading and preclude the need for complicated load shedding procedures.

Based on a review of needs, the total onsite storage capacity of fuel oil has been sufficient to meet the more conservative profile.<sup>3</sup>

In December 1987, the licensee revised Plant procedures to administratively control a required available inventory of 32,000 gallons. This precautionary action was taken after the preliminary calculations were questioned and while the detailed calculations were being performed.

This LER is submitted under 10CFR50.73(a)(2)(vi) due to the lack of adequate margin in the original design calculations for onsite diesel fuel oil capacity.

## II. CAUSE OF EVENT

Load profile details supporting the original design calculations are not available to determine the specific basis for the 25,000 gallon capacity. It is apparent, though, this capacity provides inadequate margin for discretionary loads.<sup>5</sup>

## III. ANALYSIS OF EVENT

One emergency diesel generator has sufficient capacity to start and run all of the engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any Loss-of-Coolant incident and can also maintain the containment pressure within the design value.

<sup>4</sup>The two diesels are each rated at 2500 kW. Operation at rated design capacity would equal 22 hours at 2500 kW plus 2 hours at 2750 kW each day.

<sup>3</sup>A random sample of the Minimum Equipment List for Plant operations back to October 1, 1970, has found that a minimum of 58,250 gallons of fuel oil was available from the diesel generator storage tank and the I-C turbine fuel oil storage tanks on Unit No. 1. The diesel generator fuel oil storage tank has had at least 21,000 gallons during this sametime period.

<sup>5</sup>Cause Code: B.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Plant Technical Specification 3.7.1.d requires a minimum inventory of 19,000 gallons of fuel oil in the diesel generator fuel oil storage tank and an additional minimum of 6,000 gallons in the Unit No. 1 I-C turbine fuel oil storage tank (maximum capacity 100,000 gallons) or the diesel generator fuel oil storage tank. The basis for this Technical Specification is that the minimum diesel fuel oil inventory is maintained at all times to assure the operation of both diesels carrying design load of all the engineered safety features equipment for at least 48 hours (hot shutdown) or minimum safety features equipment by one diesel for at least 96 hours with fuel available from the diesel generator fuel oil storage tank. The FSAR, Section 8.3.1.1.5.1 describes the 25,000 gallons of fuel oil is sufficient to operate one diesel at full load for seven days.

The 25,000 gallon capacity is sufficient to meet this basis; however, the basis further states that "...total onsite diesel fuel storage capacity shall not be less than seven days for minimum safety features equipment operation...." It is the latter condition which requires either a greater fuel oil inventory onsite or detailed Plant operation procedures to control load shedding following a design basis event.

As further stated in the basis and the FSAR, additional supplies of diesel oil are available in the Hartsville, Charleston, and Columbia, South Carolina areas as well as the Wilmington, Charlotte, Greensboro, Fayetteville, and Raleigh, North Carolina areas. Ample trucking facilities exist to assure deliveries to the site within eight hours. Diesel fuel is also available from the I-C turbine diesel fuel oil storage tanks located at the site. Connections are provided for fuel oil transfer to the Unit No. 2 diesel generator fuel oil storage tank.

A review of records has indicated that a sufficient fuel oil capacity has been maintained onsite for the operating history of the Plant to meet the more conservative "rated design capacity" load profile.<sup>3</sup> Since the diesel generator fuel oil inventory onsite has been greater than required by either the Plant Technical Specifications or FSAR, the discrepancy between the Specifications basis and FSAR has resulted in no significant safety or operability concern.

IV. CORRECTIVE ACTION

Calculations have been performed to define the fuel oil capacity required for diesel generator operation for seven days with a minimum safety features load and at rated design capacity.

The basis for the seven day fuel oil supply has been redefined to a more conservative one to support operation of one diesel generator at its rated design capacity.

<sup>3</sup> A random sample of the Minimum Equipment List for Plant operations back to October 1, 1970, has found that a minimum of 58,250 gallons of fuel oil was available from the diesel generator storage tank and the I-C turbine fuel oil storage tanks on Unit No. 1. The diesel generator fuel oil storage tank has had at least 21,000 gallons during this same time period.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
H. B. Robinson S. E. Plant, Unit 2	0   5   0   0   0   2   6   1	8   8	—	0   0   6	—	0   0	0   5 OF 0   5

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

Procedures have been revised since December 1987 to administratively control the minimum fuel oil inventory onsite to support this more conservative basis.

Plant Technical Specifications will be revised to reflect the increased minimum fuel oil inventory and the basis for the seven day fuel oil supply.

V. ADDITIONAL INFORMATION

## A. Failed Component Identification

None.

## B. Previous Similar Events

None.



Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT  
POST OFFICE BOX 790  
HARTSVILLE, SOUTH CAROLINA 29550

APR 22 1988

Robinson File No: 13510C

Serial: RNP/88-1969  
(10 CFR 50.73)

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
LICENSEE EVENT REPORT 88-006-00

Gentlemen:

The enclosed Licensee Event Report (LER) is submitted in accordance with 10 CFR 50.73 and NUREG-1022 including Supplements No. 1 and 2. The LER submittal date is as agreed to by NRC Region II Management.

Very truly yours,

R. E. Morgan  
General Manager  
H. B. Robinson S. E. Plant

DAS:lko

Enclosure

cc: Dr. J. N. Grace  
Mr. L. W. Garner  
INPO

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