DISTRIBUTION
Docket File
NRC & Local PDR
TERA
GIB Rdg
ORB#1 Rdg
DEisemhut
RPurple
TNovak
JRoe
JHeltemes
ACRS-10
IE-3
OELD
JNeighbors
CParrish
SVarga
TMurley
FSchroeder
PNorian
PBaranowsky
JButts

JUL 20 1981

Docket No. 50-261

Mr. J. A. Jones, Senior
Executive Vice President
Carolina Power and Light Company
336 Fayetteville Street
Raleigh, North Carolina 27601

Dear Mr. Jones:

Subject: Information Request Regarding Station Blackout, Unresolved Safety Issue A-44, H. B. Robinson Steam Electric Plant Unit 2

The NRC staff is currently addressing Unresolved Safety Issue (USI) A-44, Station Blackout. The purpose of this work is to establish the safety significance of an event resulting in a loss of all alternating current power and, if significant, to consider the need for any specific changes. Over the past several years information requests have been forwarded which requested information that is being used in the USI analysis. Your interest and cooperation in the past have been appreciated.

At this time the USI A-44 effort is being directed toward determining the reliability of the onsite standby diesel generators. The enclosed questionnaire has been prepared to provide accurate operating experience to serve as a basis for such a determination. More specifically, its purpose is to obtain more detailed data than were available in previous diesel generator studies such as AEC-OOE-ES-002, NUREG/CR-0660, and NUREG/CR-1362.

The questionnaire (enclosure 1) requests information in tabular form and solicits data for the years 1976 through 1980, inclusive. There are four tables enclosed: (1) Diesel Generator Operations Data, (2) Diesel Generator Scheduled Down Time Record, (3) Diesel Generator Unscheduled Down Time Record, and (4) Onsite Emergency Diesel Generator and Auxiliary Equipment Modification Record. Also enclosed are examples of completed tables as well as a clarification of what should be entered. Please note that, although it may appear that only Licensee Event Report (LER) information is sought, data on all diesel generator malfunctions, independent of whether an LER was prepared, is requested.

Please find enclosed LER documentation (enclosure 2) presently docketed for your facility. You are requested to review these and to indicate if there are other reports which have not been enclosed. Finally, please find enclosed a copy of the appropriate portions of your response (enclosure

OFFICE ▶							
SURNAME ▶						AUG 5 1981	
DATE ▶							

3) to our letter of March 6, 1978 which requested related, but different, information. This is being forwarded for your information only and should aid in preparing Tables 1 through 4.

In consideration of the time and effort necessary to obtain this information, the completion of Table 4 should be considered voluntary. However, it should be noted that if operational and hardware modifications are not identified, the positive or negative influence of these features on emergency alternating current power reliability may be lost in the evaluation of the data. The expected effect is that our generic reliability estimates may be lower than that which actually exists.

The above information is requested in accordance with Sections 103.b.(3) and 161.c of the Atomic Energy Act of 1954, as amended. To meet our schedule requirements for the resolution of USI A-44 and to incorporate as much real experience as possible into the reliability model for emergency power systems, it is requested that your response be provided within 120 days of the receipt of this letter. However, if this schedule is inconsistent with priority requirements for other licensing work, please provide us with your proposed date of response within 30 days. We plan to complete our analysis of this data by February 1982. Your data should be provided by that time so that an accurate assessment of onsite alternating current power sources can be made.

Mr. P. Baranowsky has been designated Task Manager for USI A-44. Should you have any questions, please feel free to contact him at (301) 443-5921. Your time and efforts are appreciated.

Sincerely,

Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

DISTRIBUTION

Docket File 50-261	J. Heltemes
NRC & Local PDRs	ACRS (16)
TERA	I&E (3)
GIB Reading	OELD
ORB#1 Reading	J. D. Neighbors
D. Eisenhut	C. Parrish
R. Purple	S. Varga
T. Novak	T. Murley
J. Roe	F. Schroeder
Enclosures:	P. Norian
As Stated	P. Baranowsky
	J. Butts

cc: w/enclosures
See next page

This request for information was approved by the Office of Management and Budget under clearance number 3150-0067 which expires May 31, 1983. Comments on burden and duplication may be directed to the Office of Management and Budget, Washington, D. C. 20503.

OFFICE	DST:GIB	DL:ORB#2	DL:ORB#1	DL:ORB#1			
SURNAME	PENorian:jb	PPolk	JDNeighbors	SAVarga			
DATE	07/17/81	07/17/81	07/17/81	07/ /81			

Mr. J. A. Jones
Carolina Power and Light Company

cc: G. F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

Hartsville Memorial Library
Home and Fifth Avenues
Hartsville, South Carolina 29550

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
Route 5, Box 266-1A
Hartsville, South Carolina 29550

Michael C. Farrar, Chairman
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Richard S. Salzman
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. W. Reed Johnson
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

TABLE 2

Diesel Generator Scheduled Downtime Record
Calendar Year 19__

Plant Name_____
Unit No. _____

Reason for Downtime	Hours of Downtime										Comments
	Reactor shutdown					Reactor not shutdown					
	DG#	DG#	DG#	DG#	DG#	DG#	DG#	DG#	DG#	DG#	
Scheduled Maintenance											
Time DG is unavailable for emergency service because of required tests											

TABLE 4

Onsite Emergency Diesel Generator and Auxiliary Equipment Modification Record

Plant Name _____

Unit No. _____

Equipment or procedure modified	Date of Mod.	Reason for Modification and Desired Improvement	Description of Modification

TABLE ENTRIES

EXPLANATION/CLARIFICATION

Table 1

Reason for DG Operation and Scheduled Duration of Run: This column contains the different categories of diesel generator operation. The categories are structured such that the start and run conditions are similar for all of the tests in a category. In this column, enter the scheduled run duration for each of the test categories. Also enter the number of diesel generator starts that are done for each type of test. For example, if on the monthly test there is one start from the local controls and one start from the remote controls, the number of starts per test is two. If two or more diesels are started simultaneously for any reason, please record it as a multiple start.

DG No.: Enter each diesel generator's identification number in this column as shown in the example.

Number of Starts: Enter the sum of the successful and unsuccessful start attempts for each category. If there are several starts for each test, include all of them, but be certain to record the number of starts per test in column one.

Number of Failures: Enter the sum of the failures for each category. A failure is counted if the objectives of the test are not achieved. A subsystem failure that does not cause failure of the diesel generator system is not counted as a failure. If the diesel generator did not start, run, and load as required by the test, a failure should be recorded. However, if the diesel generator would have supplied power in some capacity for an emergency, please explain in Table 3. For example, if the diesel started on the second attempt or the diesel was tripped to repair a minor oil leak that would not have been a problem in an emergency, this should be noted in Table 3.

Percent Loading of DG (KW): Enter the percentage that the diesel is loaded for each category. The continuous kilowatt rating is considered to be 100%.

Duration of Run Before Stop for each DG Failure: Record the run-time for each failure. If the diesel failed to start, the run-time would be 0 min.

Identification of Failures: Attached to this questionnaire are abstracts of the LERs related to the diesel generators. The abstracts are numbered starting with one. Refer to this number to identify the failures, but if there was a failure for which there is no abstract, assign the failure a number and include it in Table 3.

Table 2

Reason for Downtime: Enter in this column the categories of schedule maintenance that make the diesel generator unavailable for emergency service. If the diesel generator is unavailable for emergency service during surveillance testing, report that also.

TABLE 1
(Sample)

Diesel Generator Operations Data
Calendar Year 1976

Plant Name xxx
Unit No. 1 & 2

Reason for DG Operation, & scheduled Duration of Run	DG No.	Number of Starts	Number of Failures	Percent Loading of DG (KW)	Duration of Run Before Stop For Each DG Failure	Identification of Failures (Refer to attached LERs or Table 3)
Tech. Spec Req'd Test Monthly Surveillance	1	12	2	100	30 min; 0 min	LER # 1 & 4
(1 hour)	2	12	0	100	--	
(1 start/test)	3	12	1	100	0 min	LER #2
Refueling Outage	1	1	0	100	--	
(12 hours)	2	1	0	100	--	
(1 start/test)	3	1	1	100	1 hour	LER # 3
Misc. Tech Spec Req'd Tests	1	2	0	100	--	Table 3 No. 9
(Start Only)	2	4	0	100	--	
(1 start/test)	3	2	0	100	--	
DG Actual Demand Starts not for Testing						
SIAS Signal	1	1	0	0	--	LER # 8 Multiple start of 3 DGs
(1 hour)	2	1	0	0	--	" " "
	3	1	0	0	--	" "
Miscellaneous Tests (Specify Type)						
Verify Repairs	1	6	0	1	0 min	Table 3 # 10
(not full test)	2	4	0	0		
(Start Only)	3	4	0	0		

TABLE 2
(Sample)

Diesel Generator Scheduled Downtime Record
Calendar Year 19__

Plant Name _____
Unit No. _____

Reason for Downtime	Hours of Downtime										Comments
	Reactor shutdown					Reactor not shutdown					
	DG# 1	DG# 2	DG# 3	DG#	DG#	DG# 1	DG# 2	DG# 3	DG#	DG#	
Scheduled Maintenance											
Preventive Maintenance Semi-annual & Annual	24	16	--					16			
Equipment Modification						8	8	8			Modified lube oil on each diesel. Diesels down at different times.
Time DG is unavailable for emergency service because of required tests											
Down 4 hrs per test	-	8				48	40	48			Diesel cannot be automatically started during test or for three hours afterwards

TABLE 3
(Sample)

Diesel Generator Unscheduled Downtime Record
Calendar Year 19__

Plant Name XXX
Unit No. 1&2

LER Abstract No. (Refer to attached LER Abstracts)	Downtime Hours				Comments - If any of the reported failures would not have been a failure under emergency conditions, please explain here. Refer to attached LERs or the failures listed in Table 1.
	Total Hours	Trouble-shooting	Parts, Delivery, etc	Repair/ Replace	
1	4	1	1	2	
2	3	0.5	1	1.5	
3	12	1	10	1	
4	0	0	0	0	Diesel started in 15 sec instead of required 10 sec
5	0	0	0	0	Secondary air pressure low. Primary air satisfactory.
6	0	0	0	0	Secondary air pressure low. Primary air satisfactory.
7	0	0	0	0	Diesel started in 20 sec instead of required 10 sec.
8	0	0	0	0	False DG start signal. DG satisfactory
No LER					
9	0	0	0	0	Required DG starts after the failure of one diesel.
10	0	0	0	0	Starts to verify repairs.

Table 2 (cont'd)

Hours of Downtime: Enter the number of hours that the diesel generator is unavailable for emergency service. Report the hours under the column reactor shutdown or reactor not shutdown as appropriate.

Comments: Comment on time to return to service after maintenance has begun, or other pertinent information.

Table 3

LER Abstract No. (Refer to attached LER Abstracts): The attached LERs are numbered starting from one. Refer to this LER number in column one. Each LER abstract should have an entry in this table. If there was a failure not included in the attached abstracts, please assign it a number and enter it in this table.

Downtime Hours: Enter the number of hours that the diesel generator is unavailable for emergency service. Subdivide these total hours into troubleshooting, parts delivery, and repair or replacement.

Comments: Use this column to comment on the downtime and the failure. If the reported failure was only a technical specification violation, but would not be a complete failure of the diesel generator to supply power or would only be a delay, please elaborate in this column.

Table 4

Equipment or procedure modified: List in this column the equipment or procedures related to the emergency onsite power system that have been modified since the reactor became critical.

Date of Mod.: Enter the date that the modification was completed.

Reason for Modification and Desired Improvement: Report the reason for the modification and the desired or observed improvement in the system.

Description of Modification: Briefly describe what modification was made.

TABLE 3

Diesel Generator Unscheduled Downtime Record
Calendar Year 19__

Plant Name _____
Unit No. _____

LER Abstract No. (Refer to attached LER Abstracts)	Downtime Hours				Comments - If any of the reported failures would not have been a failure under emergency conditions, please explain here. Refer to attached LERs or the failures listed in Table 1.
	Total Hours	Trouble-shooting	Parts, Delivery, etc	Repair/ Replace	

TABLE 4
(Sample)

Onsite Emergency Diesel Generator and Auxiliary Equipment Modification Record

Plant Name _____
Unit No. _____

Equipment or procedure modified	Date of Mod.	Reason for Modification and Desired Improvement	Description of Modification
Lube oil system	2/76	Improve turbo charger lubrication for emergency starts.	Soak-back pump was removed and replaced with a continuous lube oil pump. New pump also continuously lubricates the crankshaft.
Relay cabinets	1/78	Prevent dirt from fouling relay contacts.	Cabinet doors with gaskets were installed.
Instrument Relocation	6/79	Eliminate vibration damage to instruments	Control and monitoring instrument panel was relocated from the engine skids to a free standing panel mounted on the engine room floor.