



June 15, 1978
L-78-206


Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Diesel Generator Questionnaire

The attached information is submitted in response to a
letter from Karl R. Goller dated December 15, 1977.

Very truly yours,


Robert E. Uhrig
Vice President

REU/MAS/mal

Attachment

CC: Mr. James P. O'Reilly, Region II
Robert Lowenstein, Esquire

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- S. Are any foreign gases such as propane, freon, halon, carbon dioxide, etc. stored in the Diesel Engine room?
Yes _____ No X or adjacent buildings? Yes _____ No X

If yes, (other than hand portable fire extinguishers), then identify gases and give approximate tank size.

Gases _____ Volume (ft ³) _____

- T. Does control system automatically bypass, in emergency starting, any engine temporarily out of service for maintenance? Yes _____ No X

If yes, then how many failures to bypass have occurred?

- U. Does the control system automatically override the test mode under emergency conditions? Yes _____ No X

- Y. Have repetitive mechanical failures occurred in any component part or subsystem of the engine, generator, or switch gear, etc.?
Yes X No _____

If yes, then which part or subsystem? 4KV Breaker, Water System, fuel system, starting air.

How many failures? Approx. 15

Give nature of failure. Electrical, low press.

- W. Would periodic (yearly or other) evaluation and/or testing by "outside experts" contribute significantly to the diesel-generator reliability? Yes X No _____

Give brief reasons for the answer. This is the practice at PTP.

- X. 1. Give the accumulated time-load operating record for each diesel-generator unit from installation to the present (Running Hours):

A 9/14/71

Preoperational test Date B 8/6/71

	Engine Serial No.	Surv. Testing & Maintenance Hrs. No Load : Loaded	Emergency and Other Service Hrs.	Total Hours
A	1398	*		447.7
B	1302	*		389.9

DG are only run for surveillance tests & post maintenance - no record to separate each:

2. Surveillance test load (percent of continuous rating) 110%

2750 KW

2750 KW

2500 KW

3. Give the projected or planned time-load operation for each diesel-generator unit during the next 12 months.

Surveillance & Maintenance Hrs.	Emergency and other Service Hrs.	Total Hours
30	0	30

4. Provide the following summary of the periodic surveillance testing experience:

- a. Starting date of surveillance testing (OL date) 7/19/72
b. Periodic test interval Bi-weekly
c. Total number of surveillance tests performed about 180/engine
d. Total number of test failures 9

(fail. of Air

failure to start 5 failure to accept load 6 Bker to clos

failure to carry load 0 failures due to operator error 1

failure due to equipment not being operative during emergency

conditions 0

- e. Supply a copy of the surveillance test procedures with this completed questionnaire.

Diesel Generator Operations Data
Calendar Year 19__

[illegible]

Diesel Generator Scheduled Downtime Record

Unit No. _____

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

Diesel Generator Unscheduled Downtime Record Calendar Year 19

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

Onsite Emergency Diesel Generator and
Auxiliary Equipment Modification Record

Enclosure 1 - Page 4

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 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.

Diesel Generator Operations Data Calendar Year 1976

Unit No. 1 & 2

[illegible]

TABLE 2
(Sample)

Diesel Generator Scheduled Downtime Record
Calendar Year 19__

Enclosure 1 - Page 8
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__

Enclosure 1 - Page 9
Plant Name XXX
Unit No. 162

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, Delivered, etc.	Repair/replace	
1	4	1	1	2	Diesel started in 15 sec instead of required 10 sec Secondary air pressure low. Primary air satisfactory. Secondary air pressure low. Primary air satisfactory. Diesel started in 20 sec instead of required 10 sec. False DG start signal. DG satisfactory
2	3	0.5	1	1.5	
3	12	1	10	1	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
No LER					Required DG starts after the failure of one diesel. Starts to verify repairs.
9	0	0	0	0	
10	0	0	0	0	

TABLE 4
(Sample)

Onsite Emergency Diesel Generator and
Auxiliary Equipment Modification Record

Enclosure 1 - Page 10

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.

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ACCESSION NO. 0020150369
TITLE DIESEL GENERATOR STOPS DUE TO LOCKOUT RELAY ACTUATION AT TURKEY
POINT 4
CORPAUTH FLORIDA POWER & LIGHT CO.
DATE 1979
TYPE Q
MEMO LTR W/LEK 79-008 TO U.S. NRC, REGION 2, JUN 25, 1979, DOCKET
50-251, TYPE--PWR, MFG--WEST, AE--BECH CONTROL--026223
AVAIL AVAILABILITY - NRC PUBLIC DOCUMENT ROOM, 1717 H STREET,
WASHINGTON D.C. 20555, (08 /PAGE -- MINIMUM CHARGE \$2.00)
ABSTRACT DATE OF EVENT - 052679. POWER LEVEL - 000%. CAUSE - IMPROPER
TIME DELAY RELAY SETTINGS. UPON COMPLETION OF REFUELING
OPERATIONS AND PRIOR TO RESTARTING THE UNIT, THE SAFEGUARDS
SYSTEMS WERE BEING TESTED. THE 4A 4160 V BUS FAILED TO STRIP
IN THE TIME REQUIRED, WHICH CAUSED THE A EMERGENCY DIESEL
GENERATOR TO STOP DUE TO LOCKOUT RELAY ACTUATION. TWO
UNDERVOLTAGE TIME DELAY (BUS STRIPPING) RELAYS WERE FOUND TO
HAVE IMPROPER SETTINGS. THE RELAYS WERE RESET AND THE TEST WAS
COMPLETED SUCCESSFULLY. THE B EDG WAS OPERABLE DURING THE
OCCURRENCE. THE ROOT CAUSE WAS NOT DETERMINED. THE
UNDERVOLTAGE RELAYS HAD OPERATED SATISFACTORILY 2 MONTHS PRIOR
TO THE SAFEGUARDS TEST. A PERIODIC TEST OF THE EMERGENCY LOAD
SEQUENCER DEVICES, WHICH IS PERFORMED MONTHLY, WILL BE REVISED
TO INCLUDE A VISUAL CHECK OF THE UNDERVOLTAGE RELAY SETTINGS.
COMPONENT CODE RELAYX-RELAYS
SYSTEM CODE 1B-ENGNRD SAFETY FEATR INSTR SYS