

309/11/78

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DOCTYPE: LETTER NOTARIZED: YES  
SUBJECT:

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LTR 3 ENCL 40

FORWARDING LIC NO DPR-67 APPL FOR AMEND: APPENDIX A TECH SPEC PROPOSED CHANGE  
CONCERNING REVISION TO THE SURVEILLANCE REQUIREMENTS FOR THE DIESEL GENERATOR  
UNITS AS THE ONSITE A.C. PWR SOURCE AT SUBJECT FACILITY. NOTARIZED 09/05/78.

PLANT NAME: ST LUCIE #1

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ONSITE EMERGENCY POWER SYSTEMS.  
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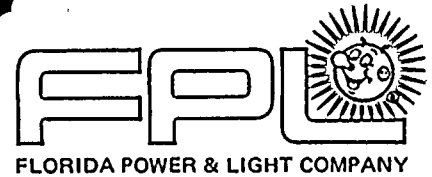
DISTRIBUTION: LTR 44 ENCL 44  
SIZE: 2P+7P

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*AP 230*

\*\*\*\*\* THE END \*\*\*\*\*





September 5, 1978  
L-78-289

Director of Nuclear Reactor Regulation  
Attention: Mr. Victor Stello, Director  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

**REGULATORY DOCKET FILE COPY**

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Dear Mr. Stello:

Re: St. Lucie Unit 1  
Docket No. 50-335  
Proposed Amendment to  
Facility Operating License DPR-67

In accordance with 10 CFR 50.30, Florida Power & Light Company submits herewith three (3) signed originals and forty (40) copies of a request to amend Appendix A of Facility Operating License DPR-67.

This proposed amendment relates to the surveillance requirements for the diesel generator units used as the onsite A.C. power source at St. Lucie Unit No. 1. It is being submitted at the request of members of the NRC staff.

The staff request specified that our proposed technical specifications were to incorporate the requirements of Regulatory Guide 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants." Based upon the information available to us at that time, at a meeting with members of the NRC staff on June 5, 1978, FPL agreed to comply with the testing requirements contained in Regulatory Guide 1.108, provided that these requirements would not necessitate any design changes. FPL has since reviewed in detail the Regulatory Positions contained in the guide; the results of that review and the manner in which we comply or will comply are contained in Attachment A.

Based upon our subsequent review and discussions with the diesel engine manufacturer, FPL believes that the requirements for testing frequency contained in Regulatory position C. 2. d should be modified for St. Lucie Unit No. 1. Regulatory Guide 1.108 was originally issued in August 1976 and subsequently revised in August 1977. Its inception therefore came several years after the diesel generator units at St. Lucie No. 1 had been procured and installed and a number of months after the Operating License for the unit was issued. Recent correspondence with our diesel engine manufacturer indicates that the testing requirements set forth in the guide are excessive and, if implemented, may lead to premature failures. Since it is in the best interest of all concerned parties that diesel engine surveillance enhance rather than degrade engine reliability, representatives from FPL and the diesel engine manufacturer would be willing to meet with the NRC for further discussion of this issue.

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AO15  
3/40\*  
ADD  
McGowan



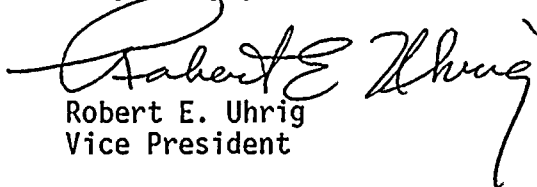
Mr. Victor Stello, Director

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The proposed technical specification changes are shown on the accompanying technical specification pages contained in Attachment B bearing the date of this letter in the lower right hand corner. These proposed changes have been reviewed by the St. Lucie Facility Review Group and the Florida Power & Light Company Nuclear Review Board. They have concluded that this amendment does not involve an unreviewed safety question. They have further concluded that any additional testing requirements beyond those contained in attachment B may constitute an unreviewed safety question due to the potential for degraded reliability of the diesel generator units.

FPL believes that the proposed amendment is fee exempt since it has been requested by the Commission and, as presented by FPL, has only minor safety significance. Therefore no amendment fee is required.

Very truly yours,



Robert E. Uhrig  
Vice President

REU:LLL:MAS:plt

Attachments

cc: Mr. James P. O'Reilly, Region II  
Harold F. Reis, Esquire



ATTACHMENT A

Re: St. Lucie Unit 1  
Docket No. 50-335  
Evaluation of Proposed Technical Specifications  
Diesel Generator Units

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C.2.a(1) Presently required by TS 4.8.1.1.2.c.3

C.2.a(2) Presently required by TS 4.8.1.1.2.c.3

C.2.a(3) FPL proposes to include this as an 8 hour test. The diesel reaches equilibrium in 2 hours or less. Eight hours provide a factor of 4 over the time required to reach equilibrium temperature. Since we must perform both diesel generator and electrical switchgear preventative maintenance each outage, the 24 hour run would delay these items and therefore add unnecessary forced outage time.

C.2.a(4) Verification of generator capability to withstand the loss of the largest single load (600 HP) without tripping is presently required by TS 4.8.1.1.2.c.2. Our D/G sets were designed to accomodate this degree of load rejection.

The loss of all load is an unnecessary test and poses a risk of significant damage to the D/G. However, it has been demonstrated once by preoperational test. To ensure that any control of governor system degradation is detected, we will add the voltage and frequency requirements suggested by the NRC, i.e., 4160 V $\pm$  624 volts ( $\pm$  15%); 60 HZ  $\pm$  1.2 HZ ( $\pm$  2%), to the loss of largest single load test required by TS 4.8.1.1.2.c.2.

C.2.a(5) Although the vendor has stated that they have never experienced hot restart (vapor lock) failures, we agree to do a hot start within 15 minutes and load the D/G to full load rating.

Maintaining safety-related components in line-ups capable of producing the design accident loading sequence would preclude RCS/ECCS maintenance and delay each refueling. Therefore, we maintain that loading the D/G to full load meets the intent of C.2.a.(5) without unnecessarily extending plant outages. Also, the sequencing controls are not affected in any manner by the temperature conditions of the D/G and this portion of the suggested testing merely duplicates C.2.a(2).

C.2.a(6) In order to do the monthly load test required by TS 4.8.1.1.2.a.5 it is necessary to synchronize the D/G and pick up load (which is greater than emergency load). This demonstrates synchronization. At the end of the monthly test the load is transferred to off-site power and the D/G is shutdown (after opening the output breaker) and returned to a standby line up.

Thus, the 18 month test is redundant to the already existing monthly periodic test.

C.2.a(7) Presently required by TS 4.8.1.1.2.d.

C.2.a(8) We maintain that this item should not be required for the following reasons:

- 1) By design, the D/G will not unload if loss of off-site power occurs during testing (this circumstance also affects our position on Section C.2.d described below).
- 2) By design, the D/G is operated in parallel with (synchronized to) off-site power during testing. In the event of SIAS (or other safeguards signal) without loss of power the status of the D/G has no safety significance.

C.2.b We concur with most of this section. However, we do not agree that the "every 10 years" portion is necessary. This is in reference to a design feature which is tested during the preoperational test program. We already have an administrative design control system, including retest requirements, as required by various NRC regulations to ensure that system design is not degraded.

C.2.c(1) We concur with this item and include a requirement in TS 4.8.1.1.2.a.4 for verifying time for starting the D/G. Also, we would like to point out that this paragraph implies testing of the sequencing timers. The St. Lucie Unit 1 design utilized individual timing relays for each safeguard load. The relays cannot be tested without disabling each component. Therefore, the sequence timers testing will remain an 18 month (Refueling) surveillance (TS 4.8.1.1.2.c.6).

C.2.c(2) We concur with this item. This requires assuming load at the "maximum practical rate". Since our system requires manual loading, we interpret this to be the maximum safe loading rate to ensure that the D/G is not overloaded. It should be noted that our standard practice has been to load the D/G expeditiously, and in any case it is impossible to even approach the design accident loading rate of about 3200 Kw in 30 seconds (FSAR Table 8.3-2). From FSAR Table 8.3-2, we note that the maximum safeguards load is 3163 Kw (conservatively calculated). Therefore, we will use 3163 Kw as the "design full load rating" of the PSL diesel generators.

C.2.d We feel that the proposed increased testing frequencies are very undesirable and may lead to eventual degradation of the on-site emergency power system since our diesel engines were not designed to accommodate the degree of testing to which they conceivably could be exposed under this position. Our diesel engine manufacturer shares our position that more frequent emergency starting creates a strong likelihood that the engine reliability will be degraded.



C.2.d (Continued)

Emergency startup is known to be one of the most stressful and wear producing evolutions possible and this section potentially increases the number of fast cold starts and rapid loadings by a factor of 10 over existing requirements.

We would like to suggest that the NRC use an existing program which specifically addresses diesel generator reliability. The NRC Division of Inspection and Enforcement reviews all Licensee Event Reports and ensures that corrective action is prompt, appropriate and addresses generic or repeated failures. If the NRC feels D/G reliability is not being properly addressed, then an appropriate action might be to more fully implement the existing program, not to impose additional tests on equipment.

C.3.b Regulatory Guide 1.108 reporting requirements are not the same as our present reporting requirements which are based on Regulatory Guide 1.16. We plan to continue reporting in accordance with Regulatory Guide 1.16 as implemented by Technical Specifications 6.9.1.8 and 6.9.1.9.



ATTACHMENT B

Re: St. Lucie Unit 1  
Docket No. 50-335  
Proposed Technical Specifications  
Diesel Generator Units

ELECTRICAL POWER SYSTEMSURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator set shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the engine-mounted fuel tank.
2. Verifying the fuel level in the fuel storage tanks.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the engine-mounted tank.
4. Verifying the diesel starts from ambient condition and accelerates to provide a nominal 60 Hz frequency in  $\leq 10$  seconds.
5. Verifying the generator is synchronized, then loaded to  $\geq 3200$  kw within 3 minutes and operates for  $\geq 60$  minutes.
6. Verifying the diesel generator set is aligned to provide standby power to the associated emergency busses.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water and sediment.

c. At least once per 18 months during shutdown by:

1. Subjecting the diesels to an inspection in accordance with procedures prepared in accordance with its manufacturer's recommendations for this class of standby service.
2. Verifying the generator capability to reject a load of  $\geq 600$  hp without exceeding  $4160 \text{ V} \pm 624 \text{ V}$  ( $\pm 15\%$ ) and  $60 \text{ Hz} \pm 1.2 \text{ Hz}$  ( $\pm 2\%$ ).
3. Simulating a loss of offsite power in conjunction with a safety injection actuation signal, and:
  - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
  - b) Verifying the diesels start from ambient condition on the auto-start signal, energize the emergency busses with permanently connected loads, energize

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

the auto-connected emergency loads through the load sequencing system and operate for  $\geq 5$  minutes while the generator is loaded with the emergency loads.

- c) Verifying that, on the safety injection actuation signal, all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed.

4. Verifying the D/G operates for at least 8 hours. During the first two hours of this test the load shall be  $\geq 3520$  Kw (110% of design) and during the remaining 6 hours the load shall be  $\geq 3200$  Kw. Within 15 minutes after completing this 8 hour test, repeat Specification 4.8.1.1.2.a.5.
5. Verifying that the auto-connected loads to each diesel generator set do not exceed the 2000 hour rating of 3730 kw.
6. Verifying that the automatic sequence timers are OPERABLE with the interval between each load block within  $\pm 1$  second of its design interval.

- d. At least once per 18 months by verifying that each fuel transfer pump transfers fuel from each fuel storage tank to the engine mounted fuel tanks on each diesel via the installed cross connection lines.

#### 4.8.1.1.3 The Class 1E underground cable system shall be demonstrated OPERABLE:

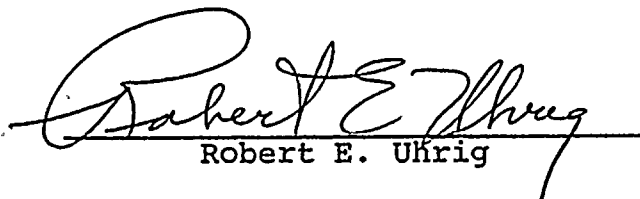
- a. Within 30 days after the movement of any loads in excess of 80% of the ground surface design basis load over the cable ducts by pulling a mandrel with a diameter of at least 80% of the duct's inside diameter through a duct exposed to the maximum loading (duct nearest the ground's surface) and verifying that the duct has not been damaged.
- b. At least once per 18 months, during shutdown, by:
1. Selecting on a rotating basis at least 3 (one each in the ducts between the diesel generators and the switchgear, between the switchgear and the component cooling water pump motors, and between the switchgear and the intake cooling water pump motors) Class 1E 5000 volt underground cables and megger testing the selected cables at a minimum test

STATE OF FLORIDA     )  
                              )  
COUNTY OF DADE     )     ss.

Robert E. Uhrig, being first duly sworn, deposes and says:


That he is a Vice President of Florida Power & Light Company,  
the Licensee herein;

That he has executed the foregoing document; that the state-  
ments made in this said document are true and correct to the  
best of his knowledge, information, and belief, and that he  
is authorized to execute the document on behalf of said  
Licensee.

  
Robert E. Uhrig

Subscribed and sworn to before me this

5<sup>th</sup> day of September, 1978

  
NOTARY PUBLIC, in and for the County of Dade,  
State of Florida

My commission expires: NOTARY PUBLIC STATE OF FLORIDA at LARGE  
MY COMMISSION EXPIRES MARCH 27, 1982  
BONDED THRU MAYNARD BONDING AGENCY



