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EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards Revsion 4 to "Environ Qualification Rept & Guidebook," Vols 2-4,for safety-related electrical equipment.Responses to NRC comments identified during NRC site audit encl. Rec'd 11/16/82 w

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SUBJECT: Forwards revision [illegible] to "Review [illegible]" [illegible] connected to safety related electrical equipment responses to the concerns identified during [illegible] site work only.

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BOX 14000, JUNO BEACH, FL 33408

FLORIDA POWER & LIGHT COMPANY

October 30, 1982
L-82-454

Office of Nuclear Reactor Regulation
Attention: Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

Re: St. Lucie Unit 2
Docket No. 50-389
Environmental Qualification Program

This letter transmits Revision 4 of the Environmental Qualification Report and Guidebook for safety related electrical equipment for St. Lucie Unit 2.

Attachment 1 to this letter is Florida Power & Light's responses to information requested by the NRC, as understood by Florida Power & Light. The information was requested as a result of the successful NRC and NRC contractor (EG&G) site audit.

In addition to responding to the information requested the following additional changes have been made to the previous submittals:

a) Updating of the various Component Evaluation Sheets to reflect the latest data.

b) Inclusion of a subject index to Volume 1 to enhance readability.

c) Volume 1 update to reflect latest generic industry information.

Revision 4 of the Environmental Qualification Report and Guidebook addresses all of the above items.

Three copies of this revision are being sent under separate cover to the NRC Licensing Project Manager for St. Lucie Unit 2 and the NRC staff Equipment Qualification reviewers. Two copies of this revision are also being sent under separate cover to EG&G Idaho, Inc.

The St. Lucie Unit 2 EQ Report & Guidebook will be revised as appropriate by commercial operation to update the status of equipment qualification.

Very truly yours,

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/RJS/cab

Enclosure

cc: J. P. O'Reilly, Regional Administrator, Region II (w/o enclosure)
Harold F. Reis, Esquire (w/o enclosure)

A048
1/3 Encls Recd
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STATE OF FLORIDA)
) ss.
COUNTY OF DADE)

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

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

That he has executed the foregoing document; that the statements 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

Robert E Uhrig
Robert E. Uhrig

Subscribed and sworn to before me this

28th day of OCTOBER, 1982

Rebecca L. Bennett
NOTARY PUBLIC, in and for the County of Dade, State of Florida

Notary Public, State of Florida at Large
My Commission Expires April 20, 1983
Bonded thru Maynard Bonding Agency

My commission expires:

Table 1

Applicant Responses to
NRC Comments as Identified
During The NRC Site Audit

1) NRC Comment

The applicant is therfore requested to identify those items not employing type testing in the sequence described in Section 6 of IEEE Standard 323-1974 and to commit to retesting to the Category I requirements.

Applicant Resolution:

The applicant has compiled a list of equipment which does not employ type testing in the literal sense of IEEE 323-1974 as appropriate for the limiting LOCA/MSLB qualifications (Table 2 attached). The applicant's position on this issue is in Appendix M, complete with equipment listings.

2) NRC Comment

Although the applicant has described a general procedure for qualification of equipment exposed to low level radiation doses, additional details concerning threshold doses and qualification analyses for materials and equipment with solid state components should be provided to the staff for review.

Applicant Resolution:

The additional information requested by the USNRC has been provided in Section 8.2 "Qualification Methods" of the Guidebook.

3) NRC Comment

The applicant should address the means by which it will be assured that mechanical equipment will function as required while exposed to its postulated service conditions, including design basis accidents. Where design verification cannot be assured before exceeding 5% power, the applicant should discuss the schedule for completion and provide justification for operation until this effort is complete and full compliance with GDC 4 and Section III of Appendix B to 10 CFR 50 is demonstrated.

Applicants Resolution:

Additional information on this subject has been included in the Foreward to Volume 1 of the guidebook. However, the applicant believes that this is a generic issue where FPL's approach meets or exceeds that of the industry. For this reason, St Lucie Unit 2 should not be singled out on this issue. The applicant is willing to meet for discussion with an owner's group of the USNRC to resolve problems associated with the qualification of mechanical equipment.

4) NRC Comment

After a detailed review of the applicant's written responses to questions subsequent to the audit, the staff is concerned with a documentation plan the applicant has established for "commercial grade" replacement items. The applicant is required to justify his classification of any harsh environment electrical equipment as "commercial grade" as compared with the definition of 10 CFR Part 21.3(a)(4)(a-1). In addition, the plans for the location of test reports and qualification analyses should be addressed with respect to the Commission's requirement for auditabile qualification files. This area has been addressed in part in the April 2, 1982 submittal but only for components such as resistors, fuses, etc. In the response to a question, the applicant indicated a complete "equipment" was to be purchased as commercial grade.

Applicant Resolution:

The requested additional information has been provided in Appendix E of the Guidebook.

5) Per USNRC request, a correlation of systems presented in the EQ Report and Guidebook with those in FSAR Table 3.2-1 was presented in Revision 3.

NRC Comment

The applicant must compare all systems in Table 3.2.1 of the FSAR with the systems whose components were included in the harsh electrical equipment list (CES sheets). Where there are omissions the reason should be provided (for example, not safety-related, contains no electrical equipment, etc.).

Applicant Resolution:

As requested, table 8 correlating the systems presented in the EQ Report and Guidebook with those in FSAR Table 3.2-1 is updated.

6) NRC Comment

Also, complete environmental zone maps should be provided (these maps were not furnished in Revision 3). HELB temperature profiles as a function of location are the only missing items at this time.

Applicant Resolution:

Complete environmental zone maps are provided in Revision 4 of the EQ Report and Guidebook Appendixes B and C. It has been determined that no safety related electrical equipment is found in those plant locations (pipe chase, hallway, etc) which experience elevated temperatures due to High Energy Line Break in an adjacent area. Verification of this is included in Revision 4 of the Guidebook.

7) NRC Comment

The applicant verbally stated that post-LOCA "aging" had not been used to demonstrate a 40-year qualified life, but should confirm this for all equipment in the EQ program. Category I equipment is required to be pre-aged for particular qualified life prior to LOCA testing.

Applicant Resolution:

The applicant has given positive indication in Section 8.4C of the EQ Report and Guidebook that aging qualification of all equipment was conducted in accordance with the requirements of NUERG-0588.

8) NRC Comment

Target Rock Solenoid Valve Thermal Lag Analysis: This analysis should be furnished to the staff for review when completed and should include the heat transfer modelling, justification that critical surface (surface with highest calculated temperature) is limiting in both time and location, a comparison to the calculated ramp time with that achieved in testing (and the effect of any differences), margins in the analysis, and the effect of a spectrum of break sizes on the calculated surface temperature.

Applicant Resolution:

The requested information has been provided in Appendix A of the EQ Report and Guidebook.

9) NRC Comments

The staff agrees that the (charging pump) motor is qualified, but only to the Category II provisions of NUREG-0588. Sequential type testing (i.e., thermal, radiation, and mechanical aging, followed by seismic testing) should be performed on an identical or similar motor to meet the requirements of Category I.

Applicant Resolution:

The applicant has provided information regarding their position on this issue in Appendix M of the Guidebook, entitled "Generic Overview of Separate Effects Testing vs. 'Type' or 'Protype' Testing of Motors".

10) NRC Comment

In addition, the qualification methods for equipment with sensitive electronics exposed to small doses (less than 10^5) should be discussed.

Applicant Resolution:

A discussion of the qualification methods for equipment with

10) (cont'd) sensitive electronics exposed to small radiation doses has been provided in Section 8.2 of the EQ Report and Guidebook.

11) NRC Comment

The staff reviewed documentation for mild environment equipment and the maintenance/surveillance program plan and finds them to be satisfactory. However, Section 3.10 of the staff SER requires additional information concerning the pre-aging of equipment prior to seismic testing.

Applicant Resolution:

Substantial information on the issue of aging of equipment prior to seismic testing is provided in Appendix R of the EQ Report and Guidebook. However, as noted, this is pertinent to section 3.10, not Section 3.11.

12) NRC Comment

The applicant's systems list for the environmental qualification program was compared to Table 3.2.1 of the FSAR, the systems list previously reviewed by the staff and found to be acceptable. In order for the staff to complete this review, tha applicant should, for each system in Table 3.2.1, indicate its name in the EQ program (Table 7) or justify its exclusion from the program. Any omitted systems which are not satisfactorily justified must be included in the program prior to fuel load. Appendix D lists the systems identified to date by the applicant.

Applicant Resolution:

See Item 5.

13) NRC Comment

The applicant indicated in his program that equipment required by NUERG-0737, "Clarification of TMI Action Plan Requirements, " and Regulateory Guide 1.97 Rev 2 would be addressed in additional updates to the environmental qualification program. The staff will review this information after it is furnished and before fuel load.

Applicant Resolution:

Equipment required by NUREG-0737 and Regulatory Guide 1.97 Rev 2 will be addressed in full prior to the implementation date of this equipment. As much of this equipment is undergoing generic testing (for NSSS or Owner's groups), there can be evolving data which may effect qualification data previously supplied.

14) NRC Comment

The applicant is conducting a field verification program to ensure that equipment is installed as required (i.e., above the flood level). Until this effort is complete and all essential equipment found to be subject to submergence is identified, this will remain an open item.

14) (cont'd) Applicant Resolution:

In Paragraph 7.6 of the EQ Guidebook, "Submerged or Potentially Submerged Equipment", the applicant has provided information that closes out the EQ Staff review on this issue by outlining a procedure for retaining this feature of the qualification program throughout the life of the plant.

15) NRC Comment

In addition to the above, a maintenance/surveillance program should be implemented to identify and prevent significant age-related degradation in equipment. Regulatory Guide 1.33,"Quality Assurance Program Requirements (Operation)," and the ANSI/ANS standard is endorses, state that a preventive maintenance program for safety-related equipment shall be established which prescribes the frequency and type of maintenance to be performed. A preliminary program based on service conditions and experience with comparable equipment should be developed prior to fuel loading and updated as experience is gained with the equipment.

The applicant has described a maintenance/surveillance program plan which conforms with the above guidelines with the exception of the implementation date, which is by the plant commercial operations date. The preliminary program should be implemented by fuel loading.

Applicant Resolution:

The issue of maintenance/surveillance is addressed in both the Foreword and Appendix O of the EQ Report and Guidebook. There is no applicant dependence on a maintenance/surveillance program as the primary basis for qualification, as all equipment, whether in harsh of mild environment, will be qualified. A maintenance/surveillance program incorporating repair, operating history,and general housekeeping tasks and schedules, consistent with previous success in both fossil and nuclear plants, will be implemented in order to maintain high reliability and efficiency of the plant. This maintenance/surveillance plan will be implemented prior to commercial operation.

16) NRC Comment

Where complete qualification documentaiton will not be abailable by fuel load, the applicant must provide for staff review prior to fuel load justificaitons for interim operation to provide assurance that required safety functions can be accomplished during accidents.

Applicant Resolution:

Justification for interim operation for each item where complete qualification documentaion will not be available by fuel load, as well as a schedule for completing all outstanding qualification documentaiton, is provided in Volume 4, Tab 5 of the EQ Report and Guidebood, Rev 4. The justification takes into account, the schedules for completing qualification documentation (current as of 10-12-82).

TABLE 2

DOC. PKG. #	MANUFACTURER	TAG NO.
4.2	SIEMENS-ALLIS	CSP 2A CSP 2B
4.3	GENERAL ELECTRIC	AUX FWP 2A AUX FWP 2B
4.4	GENERAL ELECTRIC	HPSI P 2A HPSI P 2B
4.5	WESTINGHOUSE	LPSI P 2A LPSI P 2B
4.6	WESTINGHOUSE	CHGG P 2A CHGG P 2B CHGG P 2C
4.7	WESTINGHOUSE	2HVE-6A 2HVE-6B
4.8	WESTINGHOUSE	2HVE-9A 2HVE-9B 2HVS-4A 2HVS-4B