NRC FORM 195 (2-76) U.S. NUCLEAR REGULATORY COMMISSION

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

DOCKET NUMBER: 50-250/251
FILE NUMBER:

TO: MR. VICTOR STELLO, JR.

FROM: FLORIDA POWER & LIGHT COMPANY
MIAMI, FLORIDA
MR. ROBERT E. UHRIG

DATE OF DOCUMENT: 5/10/76
DATE RECEIVED: 5/15/76

☒ LETTER ☐ ORIGINAL ☒ COPY
☐ NOTORIZED ☒ UNCLASSIFIED

PROP.

INPUT FORM

NUMBER OF COPIES RECEIVED: ONE SIGNED

DESCRIPTION

LTR: W/ATTACHED .....FURNISHING SUPPLEMT'L INFO. ON THEIR PROPOSED MODIFICATION OF SPENT FUEL STORAGE FACILITY ORIGINALLY SUBMITTED 1/28/76.

ENCLOSURE

ACKNOWLEDGED
DO NOT REMOVE

PLANT NAME:
TURKEY POINT 3 & 4

FOR ACTION/INFORMATION ENVIRO 5/18/76 RJL

SAFETY		ENVIRO
ASSIGNED AD :		ASSIGNED AD :
☒ BRANCH CHIEF :	LEAR	BRANCH CHIEF :
PROJECT MANAGER:		PROJECT MANAGER :
☒ LIC. ASST. :	PARRISH	LIC. ASST. :

INTERNAL DISTRIBUTION

☒ REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	ENVIRO TECH
☒ NRC PDR	HEINEMAN	TEDESCO	ERNST
☒ I & E (2)	SCHROEDER	BENAROYA	BALLARD
☒ OELD		LAINAS	SPANGLER
☒ GOSSICK & STAFF	ENGINEERING	IPPOLITO	
MIPC	MACCARY		SITE TECH
CASE	KNIGHT	OPERATING REACTORS	GAMMILL
HANAUER	SIHWEIL	STELLO	STEPP
HARLESS	PAWLICKI		HULMAN
		OPERATING TECH	
PROJECT MANAGEMENT	REACTOR SAFETY ☒	EISENHUT	SITE ANALYSIS
BOYD	ROSS ☒	SHAO	VOLLMER
P. COLLINS	NOVAK ☒	BAER	BUNCH
HOUSTON	ROSZTOCZY ☒	SCHWENCER	☒ J. COLLINS
PETERSON	CHECK ☒	GRIMES	KREGER
MELTZ			
HELTEMES	AT & I	SITE SAFETY & ENVIRO	
SKOVHOLT	SALTZMAN	ANALYSIS	
	RUTBERG	DEITON & MULLER	

EXTERNAL DISTRIBUTION

☒ LPDR: MIAMI, FLA.	NATL LAB	BROOKHAVEN NATL LAB	CONTROL NUMBER
☒ TIC	REG. V-IE	ULRIKSON(ORNL)	4927
☒ NSIC	LA PDR		
ASLB	CONSULTANTS		
☒ ACRS 16 ~~HOLDING~~	NEWTON/SEYFRIT - PARRISH		

P. O. BOX 013100, MIAMI, FLORIDA 33101

FLORIDA POWER & LIGHT COMPANY

L-76-184

May 10, 1976

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

Dear Mr. Stello:

Re: Turkey Point Plant Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed Amendment to Facility Operating
Licenses DPR-31 and DPR-32
Supplemental Information

Attached herewith is supplemental information related to our proposed modification of our spent fuel storage facility originally submitted on January 28, 1976. This information is submitted as revision 2 of our Spent Fuel Storage Facility Modification Safety Analysis Report.

Very truly yours,

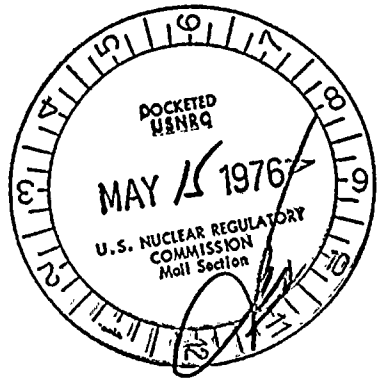
J. A. Uhrig

Robert E. Uhrig
Vice President

REU/GDW/hlc

Attachments

cc: Jack R. Newman, Esq.



Regulatory Docket File

4927

HELPING BUILD FLORIDA

2. The loads from paragraphs 1, 2a and 2d and a maximum earthquake(E') acting simultaneously. | 1

3. The loads from paragraph 5.

(Note that the design basis which ensures maintenance of structural integrity during and after the maximum earthquake (E') does not permit significant yielding. The design earthquake (E) which is a factor of 0.5 or more, less than E', is not as restrictive compared with the upset allowable stress limits in Table 3.2-2, and is, therefore, not considered.) | 2

The heat load in the pool resulting from the addition of long-decayed fuel will not appreciably change from that of the original design condition. The spent fuel pit walls, as stated in the FSAR section 5.2.3 are designed to withstand thermal stresses associated with a thermal gradient of 150°ΔT (between inside and outside of pool). This was the most severe condition considered in the design. | 1

The maximum uplift load available from the fuel handling crane is a less severe loading on the fuel rack structure than that resulting from the maximum earthquake (E').

Structural design precludes placing a fuel assembly between cells, and the rack will withstand the loadings imposed by a postulated dropped fuel assembly.

Reference: Section 3.2

(1) Gabrielson, V. K., "SHOCK - A Computer Code for Solving Lumped-Mass Dynamic Systems SCL-DR-65-34," January, 1966

Rev 1 4/30/76
Rev 2 5/10/76

Regulatory Guide 1.29 states "The pertinent Quality Assurance requirements of Appendix B to 10 CFR 50 should be applied to all activities affecting the safety related function ... ." 1

Combustion Engineering fully complies in all respects with the pertinent requirements of Appendix B 10 CFR 50 for the design, procurement, and fabrication of the spent fuel racks. WQC 5.1 Rev. 1, Class 2A and the Engineering Specification address the pertinent, applicable portions of 10 CFR 50 Appendix B to cover the fabrication of the spent fuel racks 2 1

The following tabulation indicates the controlling documents which meet the pertinent Appendix B 10 CFR 50 requirements for the design and procurement phase (Windsor column) and the fabrication phase (Fabricator column). 2

Criterion	Windsor	Fabricator (Supplier)	
I	CE Power Systems QA Manual	WQC 5.1	
II	"	"	
III	"	N/A	
IV	"	WQC 5.1	
V	"	"	
VI	"	"	
VII	"	"	
VIII	N/A	WQC 5.1 & CE Eng. Spec.	1
IX	CE Power Systems QA Manual	"	
X	"	"	
XI	N/A	"	
XII	"	WQC 5.1	
XIII	CE Power Systems QA Manual	WQC 5.1 & CE Eng. Spec.	
XIV	"	"	
XV	"	"	
XVI	"	"	
XVII	"	"	
XVIII	"	"	

The spent fuel racks are manufactured from the following material: ASTM-A-240 (sheet and plate stock), ASTM-A-276 (Bar Stock), AWS-E-308-15 (Weld Wire), and AWS E-308-16 (Weld Wire).

ANSI 45.2.5 "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants" is not considered applicable to the design, procurement and shop fabrication of the spent fuel racks, since the standard is directed at site-related activities. However, the qualification of welders and welding procedures for the shop fabrication of these spent fuel racks is in accordance with the ASME Section IX requirements which is acceptable under ANSI 45.2.5. 1 2

Rev. 1 4/30/76
Rev. 2 5/10/76

Question 2(b) Assume that the lower load block of the main crane hook, which is not carrying any load, "two blocks" as it passes over the stored spent fuel; i.e., the crane up-limit switch fails such that the two blocks come together and the cable is broken. Please provide an analysis which demonstrates that the resulting radiological release will be within acceptable limits should the hook and the lower load block fall into the pool or describe how the hook and lower load block will be prevented from falling into the pool should "two blocking" and a broken cable occur.

Response: This is provided in revised Section 5.5.

Question 3 Regulatory Guide 1.29, Seismic Design Classification, states the spent fuel pool structure including the fuel rack should be in accordance with Appendix B 10 CFR 50 Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plant. Section 3.6 of your proposal indicates the racks will be manufactured in accordance with the requirements of CE Quality Class 2B as defined in CE specification 00000-WQC 5.1, Vendor Quality Control Program Specifications for CE Quality Class 2. Identify, describe, and justify all deviations and exceptions your referenced quality controls have taken to Appendix B of 10 CFR 50.

Response: This is provided in revised Section 3.6. 2

Question 4 In reference to the spent fuel pool projected decay heat load resulting from the 621 spent fuel assemblies, describe and discuss what assumptions have been made to get the burnup of the stored fuel. Further identify and discuss the significance of any differences between assumptions made in this proposal and those made in the FSAR.

Response: This is provided in revised Section 4.1.

Question 5 Assume that the number of spent fuel assemblies stored in the spent fuel storage pool is about four hundred and that at the next refueling period, the entire core must be removed to accomplish repairs inside the pressure vessel. Under the above assumption, please provide the following information in tabular form:

Rev. 1 4/30/76
Rev. 2 5/10/76

The remaining modules (if any) will be installed with the Unit 4 pit flooded and containing spent fuel. As noted in Section 7.1, administrative procedures will be employed to restrict the movement of the new modules over the stored spent fuel to preclude unacceptable construction incidents. This installation program will continue throughout the Spring and Summer of 1977. Fuel will not be stored in the new CE racks without prior Commission approval.

At the appropriate time in 1977, spent fuel will be transferred from Unit 3 to Unit 4, and the same liner repairs program repeated. A schedule for these activities is shown in Figure 7.2-1.

Question 16 Provide sketches of the fuel pool storage racks which define the primary structural aspects and elements relied upon for the structure to perform its safety function. Include typical details of all interfaces with the pool boundaries and connections between modulus. Also provide sketches of the fuel storage pool showing its principal dimensions and structural features and its relationship with surrounding structures and the supporting media.

Response: Rack details will be provided by May 19, 1976.

Figures 3.1-3, 3.1-4, and 3.1-5 show the spent fuel pool principle dimensions and structural features and its relationship with the surrounding structures and supporting media. General arrangements of the plant at grade elevation 18' - 0" is shown in the FSAR Figure 1.2-3.

Question 17: Provide a list of all design codes, standards, specifications, regulatory guides, and other standards which will be used in the design, fabrication, construction, and inspection of the fuel pool racks.

Response: This is provided in revised Section 3.1. | 2

Rev. 1 4/30/76
Rev. 2 5/10/76

Question 18 Provide more specific information on the loads, load combinations and acceptance criteria which will be utilized in the design of the racks. The staff position concerning this matter is indicated in 3.8.4-II.3 and 5 of the Standard Review Plan. Indentify the magnitude of all loads considered in the design.

Response: This is provided in revised Section 3.2 and in Table 3.2-2. | 2

Question 19 Describe the design and analysis procedures for the fuel storage rack, including the expected behavior under load and the mechanism of load transfer to the foundation. Computer programs should be referenced to permit identification with available published programs.

Response: This will be provided by May 19, 1976. | 2

Question 20 Identify all the materials and the QA/QC program to be followed for the procurement, fabrication, and construction of the fuel pool racks. Describe the extent to which you intend to comply with ANSI N45.2.5, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structure Steel During the Construction Phase of Nuclear Power Plants."

Response: This is provided in revised Section 3.6.

Question 21 Indicate whether ground response spectra, appropriate damping values, and combination of modes and spatial excitation will be in accordance with Regulatory Guides 1.60, 1.61 and 1.92 respectively for the analysis of the fuel pool and the fuel storage rack seismic system.

Response: This is provided in revised Section 3.2.

Question 22 Provide sketches of the mathematical model of the fuel pool, fuel storage rack and fuel assembly system which will be used in the analysis. Illustrate on the sketches the mechanism of shear and load transfer to the fuel pool walls and foundation slab. Discuss the effects of sloshing water and possible impact of the fuel assemblies with the rack.

Rev 1 4/30/76
Rev 2 5/10/76