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RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards Rev 1 to SAR for spent fuel storage facilities mod. Rev clearly indicates that spent fuel cask crane limit switches will be overriden to install temporary const crane used to move storage rack around spent fuel pool.

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FLORIDA POWER & LIGHT COMPANY

July 23, 1984
L-84-187

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

Dear Mr. Eisenhut:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 & 50-251
Spent Fuel Storage Facility Expansion
Revision 1 to Safety Analysis Report

By letter L-84-71, dated March 14, 1984, FPL submitted the Safety Analysis Report (SAR) for the Turkey Point Units 3 & 4 spent fuel storage facilities modifications. Attached is Revision 1 of this report.

The purpose of this revision is to clearly indicate that the spent fuel cask crane limit switches, which restrict cask movement in the Spent Fuel Pit (SFP) cask laydown area, will be overridden to install the temporary construction crane. As discussed in the SAR, the temporary construction crane will be used for movement of the storage rack within the SFP. This clarification does not change the accident analysis nor is a Technical Specification change required.

If you have any questions, please contact us.

Very truly yours,

J. Pearson

for J. W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/GJK/gem

Attachment

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

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FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4

SPENT FUEL STORAGE FACILITY MODIFICATION
SAFETY ANALYSIS REPORT
DOCKET NOS. 50-250 AND 50-251

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rack module directly over spent fuel stored in the pool. The procedures and administrative controls governing the rerack operation will ensure the safe handling of rack modules. Both the temporary construction crane and the cask handling crane meet the design and operational requirements of Section 5.1.1 of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants" [16].

In the unlikely event that a rack should strike the side of another rack module containing fuel assemblies, the consequences of this postulated accident would be bounded by the cask drop evaluations described in Sections 3.1.2 and 5.3.1.2.

3.4.2 Temporary Construction Crane Drop

During the rerack operation, a temporary construction crane will be installed in the spent fuel pool. This installation will be performed using lift rigs which meet the design and operational requirements of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants". To obtain a balanced lift of the temporary construction crane during installation and
removal, the limit switches on the cask handling crane will be 1
overridden to permit travel of the cask crane hook to within three feet of the center of the pool. The consequences of a postulated accident during this installation are bounded by the cask drop evaluations described in Sections 3.1.2 and
5.3.1.2.2. 1

3.4.3 Loss of Pool Cooling

During the re-racking operation, it will be necessary to raise and maneuver the old racks out of the spent fuel pool in order to install the new spent fuel racks (See Section 4.7.4). The handling of these heavy loads will be accomplished by the use of a temporary construction crane and the cask handling crane. Both of these cranes meet the design and operational requirements of Section 5.1.1 of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants", to prevent accidental dropping.

In the event that a rack should drop on the floor, the potential for loss of pool cooling could be postulated. An analysis has previously been submitted and accepted by the NRC (Reference [17]) for dropping of the spent fuel cask. The results of this analysis demonstrated that the pool floor would remain elastic during impact and that a crack would not develop. This cask weighs substantially more than a single rack assembly and has a smaller cross sectional area for load distribution. The loss of pool water inventory from a rack drop is bounded by this previous analysis for loss of pool water inventory from a cask drop. Therefore, loss of spent fuel cooling from loss of pool water inventory will not occur as a result of a rack drop.

3.5 TECHNICAL SPECIFICATIONS

Proposed revisions to existing Turkey Point Technical Specifications [18] are shown on the following Technical Specification pages 3.12-1, 5.4-1, B3.12-1 and Table 4.1-2 (Sheet 2) as barred, and proposed Technical Specification 3.17 including Table 3.17-1 and page B3.17-1. These Technical Specification revisions do not involve a significant reduction in any margin of safety.

3.6 REFERENCES

1. Nuclear Regulatory Commission, Letter to All Power Reactor Licensees, from B.K. Grimes, April 14, 1978, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications," as amended by the NRC letter dated January 18, 1979.

2. W. E. Ford III, et al, "A 218-Group Neutron Cross-Section Library in the AMPX Master Interface Format for Criticality Safety Studies," ORNL/CSD/TM-4 (July 1976).

3. N. M. Greene, et al, "AMPX: A Modular Code System for Generating Coupled Multigroup Neutron-Gamma Libraries from ENDF/B," ORNL/TM-3706 (March 1976).

4. L. M. Petrie and N. F. Cross, "KENO IV--An Improved Monte Carlo Criticality Program," ORNL-4938 (November 1975).

5. S. R. Bierman, et al, "Critical Separation Between Subcritical Clusters of 2.35 wt percent ^{235}U Enriched UO_2 Rods in Water with Fixed Neutron Poisons," Battelle Pacific Northwest Laboratories PNL-2438 (October 1977).

6. S. R. Bierman, et al, "Critical Separation Between Subcritical Clusters of 4.29 wt percent ^{235}U Enriched UO_2 Rods in Water with Fixed Neutron Poisons," Battelle Pacific Northwest Laboratories PNL-2615 (March 1978).

7. J. T. Thomas, "Critical Three-Dimensional Arrays of U (93.2) -- Metal Cylinders," Nuclear Science and Engineering, Volume 52, pages 350-359 (1973).

8. A. J. Harris, et al, "A Description of the Nuclear Design and Analysis Programs for Boiling Water Reactors," WCAP-10106, June 1982.

9. T. R. England, "CINDER - A One-Point Depletion and Fission Product Program," WAPD-TM-334, August 1962.

10. J. B. Melehan, "Yankee Core Evaluation Program Final Report," WCAP-3017-6094, January 1971.

11. R. F. Barry, "LEOPARD - A Spectrum Dependent Non-Spatial Depletion Code for the IBM-7094," WCAP-3269-26, September 1963.

12. S. Altomare and R. F. Barry, "The TURTLE 24.0 Diffusion Depletion Code," WCAP-7758-A, January 1975.

13. Turkey Point Plant Units 3 and 4, Updated Final Safety Analysis Report, Docket Nos. 50-250 and 50-251.

14. Turkey Point Plant Units 3 and 4, Safety Evaluation Report, Docket Nos. 50-250 and 50-251.

15. Nuclear Regulatory Commission, "Residual Decay Energy for Light-Water Reactors for Long-Term Cooling", Branch Technical Position ASB 9-2, NUREG-0800, July 1981.

16. Nuclear Regulatory Commission, "Control of Heavy Loads at Nuclear Power Plants", NUREG-0612, July 1980.

17. Letter from G. Lear, NRC, to R. E. Uhrig, FPL, dated July 9, 1976.

18. Turkey Point Plant Units 3 and 4, Technical Specifications, Docket Nos. 50-250 and 50-251.

19. L. E. Strawbridge and R. F. Barry, "Critical Calculations for Uniform Water-Moderated Lattices", Nuclear Science and Engineering, Volume 23, 1965.

to an analysis of a full core whose fuel assemblies have various exposure histories. An RPF of 1.0 has been determined as being more representative for the offload of a full core and has been applied to each assembly in the Case 2 analysis. The use of a 1.0 RPF for the calculation of cask drop radiological consequences has been previously submitted to the NRC for FPL's St. Lucie Unit 1 plant (see Reference [6].)

Table 5-8 lists the thyroid doses for the two cases evaluated. (The whole-body doses are not listed since the thyroid doses are limiting for both cases.) The results of the analysis demonstrate that by requiring the decay time of spent fuel in the pool to be a minimum of 1525 hours prior to moving a spent fuel cask into the spent fuel pit, the potential offsite doses will be less than the guidelines of SRP Section 15.7.5 should a dropped cask strike the stored fuel assemblies. These doses are well within 10 CFR Part 100 limits. Accordingly, Technical Specification 3.12[7] has been revised to require a decay time of 1525 hours for all fuel in the spent fuel pool prior to cask handling operations (see Section 3.5). This is conservative since not all spent fuel storage modules located in the pool are susceptible to impact from any single cask drop. Thus, the proposed spent fuel pit modifications will not increase the radiological consequences of a cask drop accident previously evaluated.

5.3.1.2.3 Overhead Cranes

Except for the area described in Section 5.3.1.2.1, the spent fuel cask crane is not capable of traveling over or into the vicinity of the spent fuel pool. A complete cask crane component description, cask handling description, and cask crane design evaluation are provided in Updated FSAR Section 9.5 and Appendix 14E and will not be affected as a result of the rerack program. As discussed in Section 3.4.2, the cask crane limit switches will be overridden during installation and removal of the temporary construction crane. Upon completion of this lift and prior to handling other heavy loads, the limit switches will be restored to normal and a functional check performed. Overriding and restoration of the limit switches will be addressed in the procedures for the installation and removal of the temporary crane. 1

5.3.1.2.4 Acceptability

The accident aspects of review establish acceptability with respect to Sections 5.3.1.2.1 and 5.3.1.2.2 of this report.

Requiring spent fuel decay time to be a minimum of 1525 hours prior to moving a spent fuel cask into the spent fuel pit will keep potential offsite doses well within 10 CFR Part 100 limits should a dropped cask strike the stored fuel assemblies.

5.3.2 Fuel Decay

Prior to cask handling operations, proposed Technical Specification 3.12 (see Section 3.5) requires a decay time of 1525 hours for all fuel in the pool. Thus, with the increased storage capacity, the radiological consequences of a cask drop will be well within the requirements of 10 CFR Part 100.

5.3.3 Loads Over Spent Fuel

A technical specification which limits the maximum weight of loads that may be transported over spent fuel is presently being pursued by FPL as part of the resolution of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants".

5.3.4 Conclusions

Since the spent fuel cask will not be handled over or in the vicinity of spent fuel except as provided for in Section 5.3.1.2.1, the proposed modification will not result in a significant increase in the probability of the cask drop accident previously evaluated in the Turkey Point Updated FSAR or Safety Evaluation Report [8]. Furthermore, as shown in Section 5.3.1.2.2, by requiring the decay time of spent fuel to be a minimum of 1525 hours prior to moving a spent fuel cask into the spent fuel pit, the potential offsite doses will be well within 10 CFR Part 100 limits should a dropped cask strike the stored fuel assemblies. The proposed spent fuel pit modifications will not increase the radiological consequences of a cask drop accident previously evaluated.

Since there will be a negligible change in radiological conditions due to the increased storage capacity of the spent fuel pool, no change is anticipated in the radiation protection program. In addition, the environmental consequences of a postulated fuel handling accident in the spent fuel pool, described in Updated FSAR Section 14.0, remain unchanged. Therefore, there will be no change or impact to any previous determinations of the Final Environmental Statement [9]. Based on the foregoing, the proposed amendments will not significantly affect the quality of the human environment; therefore, under 10 CFR 51.5c, issuance of a negative declaration is appropriate.

5.4 REFERENCES

1. PROMOD III Computer Code, Version 22.8, Energy Management Associates.

2. Turkey Point Plant Units 3 and 4, Updated Final Safety Analysis Report, Docket Nos. 50-250 and 50-251.

3. Nuclear Regulatory Commission, "Control of Heavy Loads at Nuclear Power Plants", NUREG-0612, July 1980.

4. Nuclear Regulatory Commission, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, NUREG-0800, Revision 1, July 1981.

5. Nuclear Regulatory Commission, "Assumption Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors," Regulatory Guide 1.25, March 1972.

6. St. Lucie Plant Unit 1, Final Safety Analysis Report, Section 9.1, Docket No. 50-335.

7. Turkey Point Plant Units 3 and 4, Technical Specifications, Docket Nos. 50-250 and 50-251.

8. Turkey Point Plant Units 3 and 4, Safety Evaluation Report Supporting Amendments 23 and 22 to Licenses DPR-31 and DPR-41, respectively, Docket Nos. 50-250 and 50-251.

9. Turkey Point Plant Units 3 and 4, Final Environmental Statement, Docket Nos. 50-250 and 50-251.

REPLACEMENT PAGES GUIDE
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