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50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
WOODY,C.OL. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Application for amends to Licenses DPR-31 & DPR-41 changing Tech Spec 5.2.1 to allow use of natural U.

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FLORIDA POWER & LIGHT COMPANY
FEBRUARY 11 1988

L-88-40

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendment
Reactor Core

In accordance with 10 CFR 50.90, Florida Power & Light Company submits herewith a request to amend Facility Operating Licenses DPR 31 and DPR 41. The requested change address specification 5.2.1, Reactor Core, of the Turkey Point Technical Specifications.

The proposed change is described below and shown on the accompanying Technical Specification page.

Page 5.2-1

The description for the reactor core (5.2.1) has been modified to allow the use of natural uranium and to allow for the removal of a leaking fuel rod.

It has been determined that the proposed amendment does not involve any significant hazards considerations pursuant to 10 CFR 50.92. A no significant hazards consideration determination is attached.

In accordance with 10 CFR 50.91(b)(1), a copy of this proposed license amendment is being forwarded to the State Designee for the State of Florida.

In accordance with 10 CFR 170.12(c), FPL Check No. 7376 for $150 is attached.

The proposed amendment has been reviewed by the Turkey Point Plant Nuclear Safety Committee and the Florida Power & Light Company Nuclear Review Board.

Very truly yours,

C. O. Woody
Executive Vice President

COW/RG/gp
Attachments

cc: Dr. J. Nelson Grace, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant
Mr. Lyle Jerrett, Florida Dept. of Health and Rehabilitative Services

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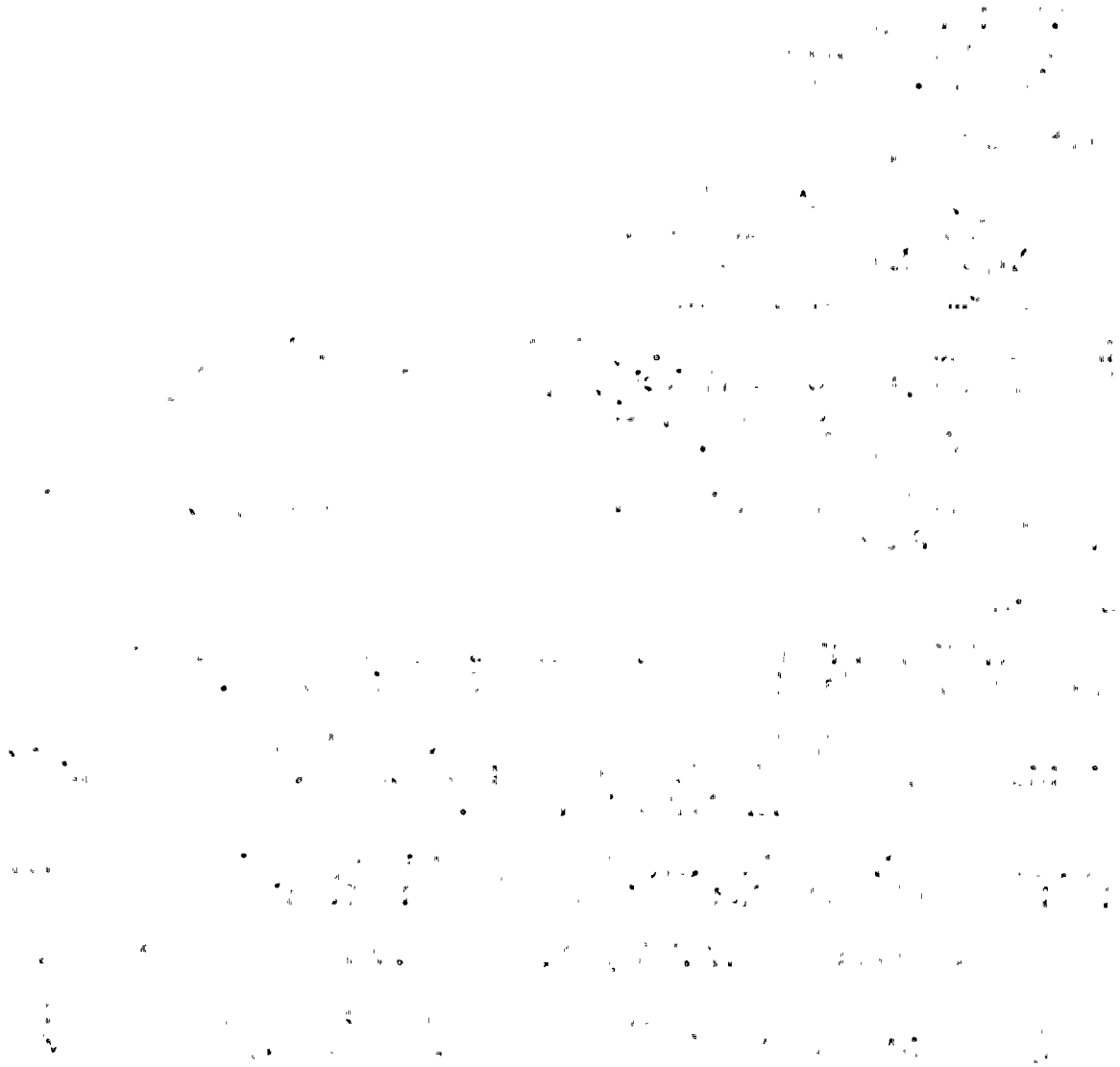


STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

C. O. Woody being first duly sworn, deposes and says:

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

That he has executed the foregoing document; that the statements made in this 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.

C. O. Woody

Subscribed and sworn to before me this
11 day of February, 1988.

NOTARY PUBLIC, in and for the County
of Palm Beach, State of Florida

My Commission expires:

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP SEPT 18,1989
BONDED THRU GENERAL INS. UND.

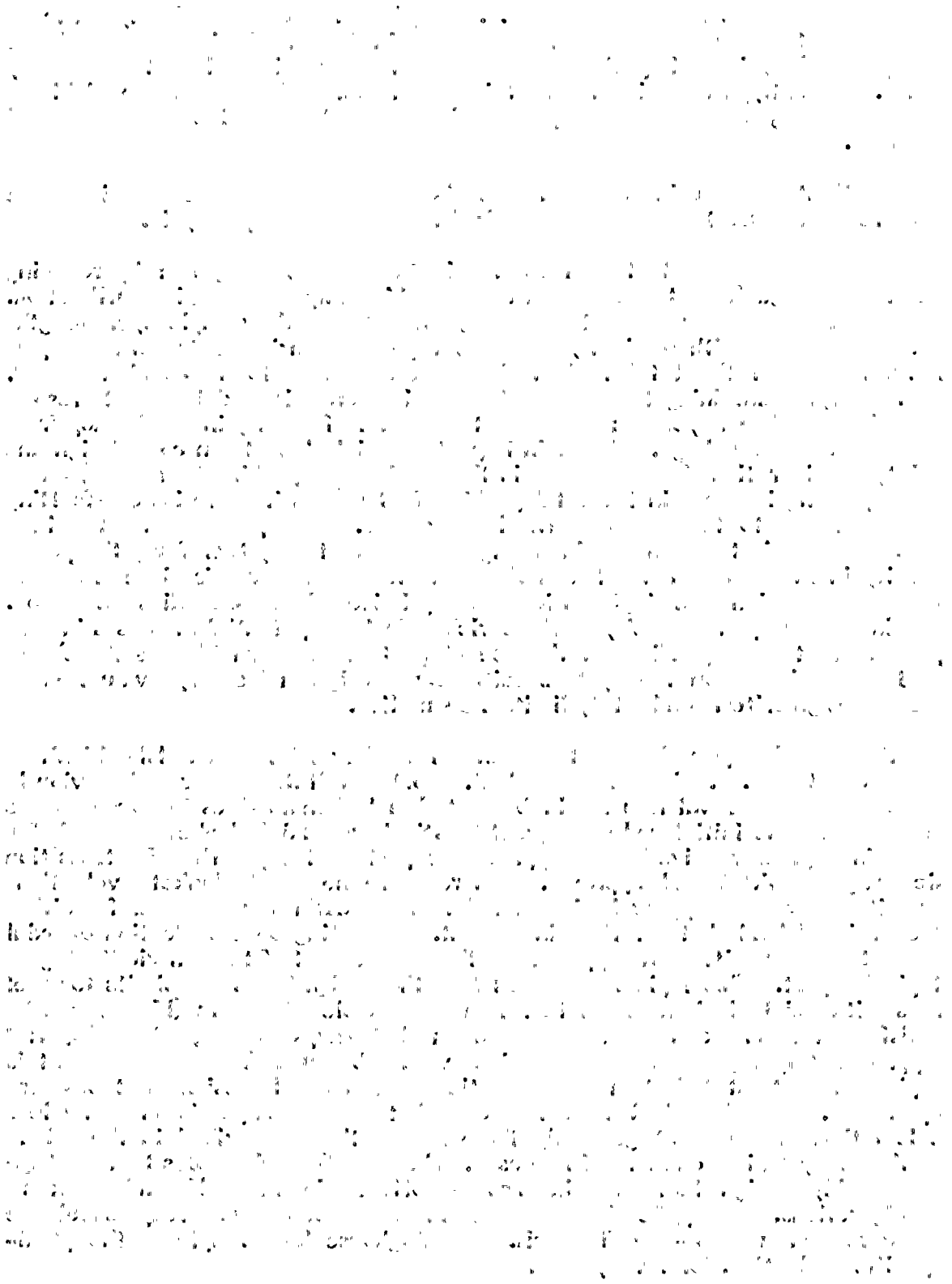
Background

Currently, Technical Specification 5.2.1 requires the use of slightly enriched uranium in the reactor cores of the Turkey Point Plant. Florida Power & Light Company (FPL) is anticipating the use of natural uranium blankets at Turkey Point. Recently, the option to use this design feature has become available to FPL, however, the Technical Specifications do not allow the use of natural uranium.

The motivation for using axial blankets is economic. The use of this design feature is expected to save several hundred thousand dollars per cycle.

Axial blankets reduce fast neutron flux in the blanket area, thereby reducing neutron leakage from the ends of the core which improves uranium utilization. The benefit from reduced neutron leakage means that the sample cycle lengths can be achieved with a slightly lower average feed enrichments (enriched plus natural UO_2) of the total fuel stack, when compared to non-blanketed fuel. Conversely, maintaining the average feed enrichment with axial blankets results in an increased fuel cycle burnup due to the greater efficiency in fuel burnup from reduced neutron leakage. The main impact of axial blankets on core design and safety considerations is an increase in the axial power peaking factor (Fz) and a corresponding increase in the total peaking factor (Fq), if there is no offsetting reduction due to the use of burnable absorbers. The power generated in a blanketed rod is the same as in a single enrichment rod; therefore, the power density in the fuel region between the blankets of a fuel rod is higher than the comparable region of a single enrichment Optimized Fuel Assemblies (OFA) rod. The increase in power density of the enriched fuel and potential increases in core peaking factors (depending on the use of part length burnable absorbers) are factors considered in the cycle specific core design and safety evaluation to assure design criteria and safety limits are satisfied.

Westinghouse has provided axial blanketed reload fuel for Prairie Island Units 1 and 2 and the R. E. Ginna nuclear plant. Northern States Power had previously received NRC approval to use axial blanketed fuel when non-Westinghouse reloads were used. The initial and subsequent Westinghouse axial blanketed reloads for the Ginna plant received NRC approval as part of the plant's OFA transition licensing submittal and approval. There were no axial blanket evaluations submitted for NRC approval with regard to the Westinghouse reloads for either the Prairie Island Units or the Ginna plant. A Westinghouse evaluation of axial blankets was submitted and approved by the NRC as part of the generic Vantage 5 topical report. This topical concludes that the design bases and limits for fuel rods with axial blankets and Integral Fuel Burnable Absorbers (IFBAs) can be satisfied for 17 x 17 assembly lead rod burnups of 60,000 MWD/MTU (approximately 48,000 MWD/MTU region average burnup). The NRC SER on this topical report stated that the Westinghouse normal design methods are applicable. The NRC SER notes the somewhat greater emphasis on 3D nuclear calculations needed, but generally the same methods described in the reload methodology topical can and will be used. The NRC SER also notes that Vantage 5 assembly design features will also be offered in 14 x 14 and 15 x 15 configurations, and applications to 14 x 14 and 15 x 15 fuel arrays should be evaluated on a plant-specific basis. Westinghouse has completed the plant-specific evaluation, for Turkey Point.



The approval of this change will allow the use of natural uranium axial blankets. However, the application of any design feature is dependent upon the Reload Safety Evaluation (RSE) for the specific cycle in question. The reload design will still have to meet the safety and operating limits specified elsewhere in the Technical Specifications. Additionally, prior approval of both the Plant Nuclear Safety Committee and the Company Nuclear Review Board will be received before FPL commits to the use of axial blankets in a cycle reload design.

In addition to this change, FPL is modifying this section to allow the use of a stainless steel replacement rod or the removal of a fuel rod from a fuel assembly once that rod has been determined to be leaking. The current Technical Specification does not allow for less than 204 fuel rods per assembly.

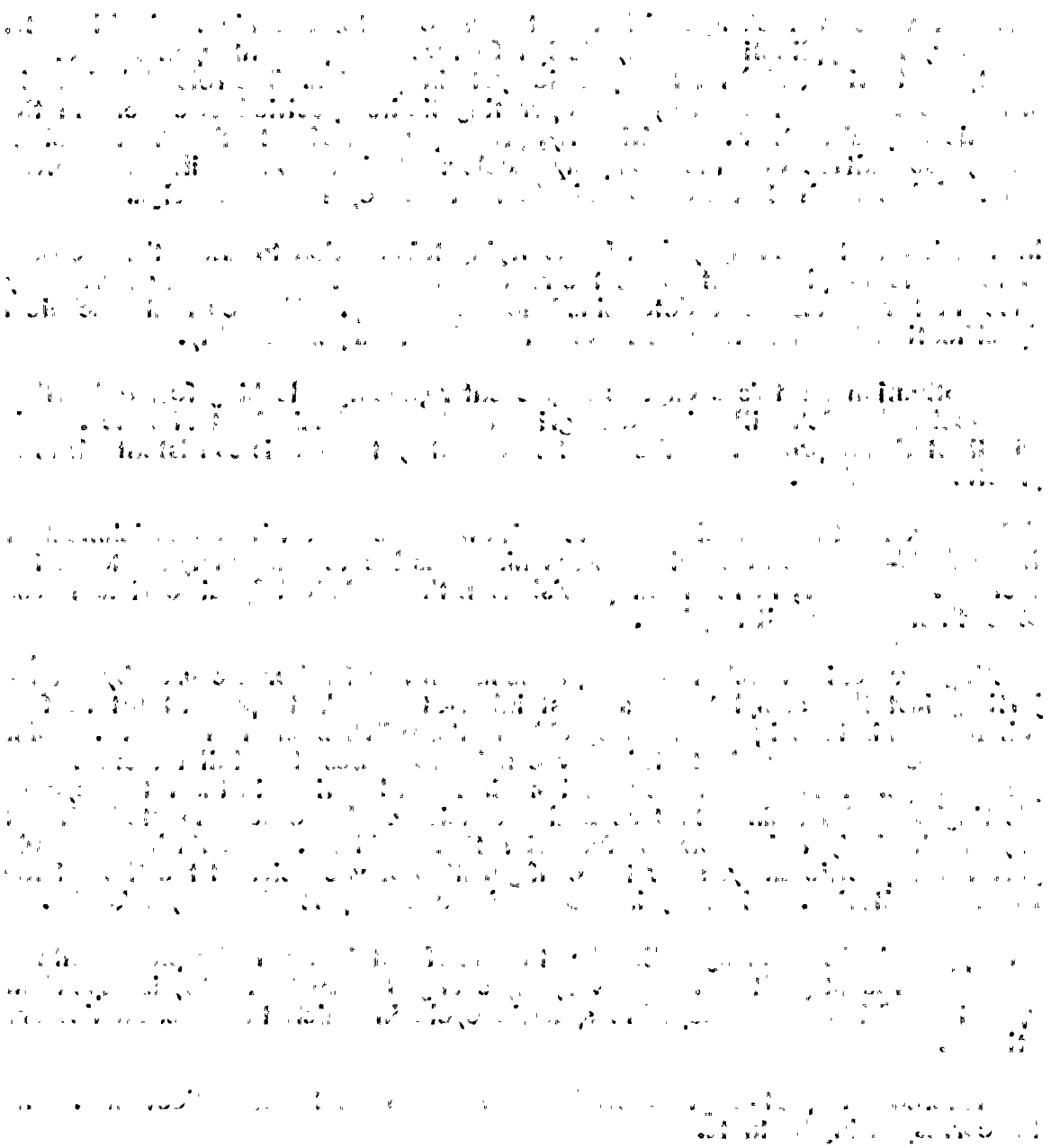
The motivation for this change is to prevent replacing a leaking fuel rod with a new fuel rod which will fail due to grid or other mechanical interference. This will limit fission products in the reactor coolant system and is consistent with the practice of ALARA.

FPL has reconstituted fuel assemblies with new fuel rods with an enrichment of 1.85 w/o U-235 when the failure mechanism was located and analyzed to be the fuel rod. However, there are no provisions in the Technical Specifications to use other than a fuel rod if required.

Westinghouse units which have had problems with fuel failures caused by baffle-jetting, installed complete rows of stainless-steel rods to prevent future fuel failures. This technique was acceptable to the utilities and to the NRC. Point Beach Nuclear Power Plant utilized vacancies to address fuel failures created by grid damage. This prevented fuel failure in those locations in the future cycles. Westinghouse determined that several vacancies could be accomodated without any mechanical, fluid flow or fuel vibration problems. Westinghouse would perform a specific analysis for the configuration of vacancies at the time of the fuel reconstitution. This analysis would be included as part of that cycle's RSE.

The approval of this change will allow the use of a stainless steel replacement rod or allow a vacant positions. However, any change to a fuel assembly is dependent upon the RSE for an acceptable specific cycle in which these assemblies are utilized.

The reference to part-length control rods has been deleted from Section 5.2 and the corresponding footnote.



No Signficant Hazards Consideration Determination

The Nuclear Regulatory Commission has specified standards to determine if a proposed change to an operating license involves a significant hazards consideration (10 CFR 50.92(c)). An amendment involves no significant hazards consideration if it does not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or,

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or,

3. Involve a significant reduction in a margin of safety.

Using these criteria, this proposed amendment does not involve a significant hazards consideration. This is based on the following:

1. The amendment will not increase the probability of an accident since the configuration of the plant remains the same and the plant operating modes will be unchanged. Additionally, the consequences of a previously analyzed accident will not be increased since the plant operating and safety limits are not changed by this amendment.

2. The amendment will not create the possibility of a new or different accident not previously analyzed since the operating modes and plant configuration will not be changed.

3. This amendment will not reduce the margin of safety since the plant operating and safety limits will remain unchanged. Future cycle designs utilizing unenriched uranium will be required to meet all required safety and operation limits.

In addition, the NRC has provided examples of amendments that are considered not likely to involve significant hazards considerations (Reference). This proposed amendment matches example (iii):

> "a change resulting from a nuclear reactor core reloading, if no fuel assemblies significantly different from those found previously acceptable to the NRC for a previous core at the facility in question are involved. This assumes that no significant changes are made to acceptance criteria for the Technical Specifications, that the analytical methods used to demonstrate conformance with the Technical Specifications and regulations are significantly changed, and that the NRC has previously found such methods acceptable."

This particular amendment for the proposed use of natural uranium blankets or replacement of fuel rods matches this example since these assemblies are not significantly different from the fuel assemblies previously approved for Turkey Point. In addition, the same rigorous RSE is performed for each reload cycle and all operating and safety limits specified in the Technical Specification are met.

Based on the standards of 10 CFR 50.92(c), this proposed amendment does not involve a significant hazards consideration. This is further verified by comparing this change with the example given in the Federal Register, where it is obvious that this is a change that results from reactor core reloading and, therefore, is not likely to involve a significant hazards consideration. It is, therefore, clear that operation of the Turkey Point Plant, in accordance with this proposed amendment, will not pose a threat to the public health and safety.