FPL

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L-2001-201
10 CFR 50.90
10 CFR 50.67
10 CFR 51.22

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D. C. 20555-0001

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendments: Response to Request for Additional Information
Selective Implementation of Alternate Source Term:
Containment Equipment Door Open During Core Alterations

By letter L-2001-152, dated July 18, 2001, Florida Power and Light Company (FPL) requested an amendment to Facility Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4, respectively, to revise the Turkey Point Units 3 and 4 Technical Specification (TS) 3.9.4, Containment Penetrations. TS 3.9.4 requires that the containment equipment door be closed during core alterations or movement of irradiated fuel within containment. The proposed changes to TS 3.9.4 would require the containment equipment door to be closed only during movement of recently irradiated fuel in containment.

This letter and its attachments supplement our letter L-2001-152, providing clarifications to the evaluation, incorporating the philosophy of the improved standard technical specifications, and making minor revisions to the proposed TS 3.9.4 and its bases to conform to those approved by the NRC in generic TS change TSTF-51, Rev. 2; in particular, regarding the use of the term "recently irradiated fuel." Recently irradiated fuel is defined for Turkey Point as fuel that has occupied part of a critical reactor core within the previous 100 hours. This definition will be added to the bases for TS 3.9.4. Attachment 1 provides additional information as discussed with the staff in a conference call on August 17, 2001. Attachment 2 provides a marked up TS page 3/4 9-4, revised to conform to TSTF-51. Copies of the appropriate TS Bases pages, marked up to show the proposed changes, are included in Attachment 2 for information only.

This letter does not propose any change in scope, in intent, or in methodology, from those submitted in L-2001-152. In addition, the results of the reanalysis presented in L-2001-152 are not changed. FPL has determined that the additional information provided herein does not change the conclusions reached in the original no significant hazards consideration determination, or the original environmental impact consideration determination, provided in L-2001-152.

Although our application was not originally based on TSTF-51, we will adopt the commitment associated with TSTF-51 to follow the NUMARC 93-01, Rev. 3, Section 1 guidelines on restoration capability of containment systems and closure. Therefore, FPL makes the following formal commitment:

> As part of the implementation of this amendment, FPL will revise the administrative procedure(s) for the assessment of systems removed from service during handling of irradiated fuel assemblies or core alterations, to implement the provisions of Section 11.3.6.5 of NUMARC 93-01, Rev. 3.

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As described in Attachment 1 to L-2001-152, the basis for the proposed changes was a reanalysis of the limiting design basis Fuel Handling Accident (FHA), using an Alternate Source Term (AST) in accordance with 10 CFR 50.67 and Regulatory Guide 1.183. Therefore, the proposed changes also requested NRC approval of selective implementation of AST methodology for the Turkey Point design basis FHA analysis.

A summary of the reanalysis results submitted in L-2001-152 is provided here. The reanalysis demonstrated that a fuel handling accident, after at least 100 hours of decay time following shutdown, with the containment equipment door open, does not result in unacceptable dose consequences. The acceptance criteria, as given in Regulatory Guide 1.183, are:

Exclusion Area Boundary (EAB):	6.3 rem TEDE
Low Population Zone (LPZ):	6.3 rem TEDE
Control Room (CR):	5.0 rem TEDE

The results of the reanalysis were as follows:

- Site Boundary Dose (EAB) - 0.41 rem TEDE
- Control Room Dose - 1.41 rem TEDE (including direct shine)

The LPZ doses were not calculated but are bounded by the doses at the EAB due to the distance factor.

The additional information provided herein has been reviewed by the Turkey Point Plant Nuclear Safety Committee and the FPL Company Nuclear Review Board. In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the State Designee for the State of Florida.

Approval of the proposed license amendments is requested by October 1, 2001 to support the fall 2001 Unit 3 refueling outage. Should there be any questions, please contact Steve Franzone, Licensing Manager, at (305) 246-6228.

Very truly yours,

Terry Jones

T. O. Jones
Vice President (Acting)
Turkey Point Plant

Attachments

CLM

cc: Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, Turkey Point Plant
Turkey Point Project Manager, USNRC, NRR
Florida Department of Health and Rehabilitative Services

STATE OF FLORIDA)
) ss.
COUNTY OF MIAMI-DADE)

T. O. Jones being first duly sworn, deposes and says:

That he is Acting Vice President, Turkey Point Plant, of Florida Power and 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.

T. O. Jones

Subscribed and sworn to before me this

30th day of August, 2001,

Olga Hanek
Name of Notary Public (Type or Print)

Olga Hanek

OLGA HANEK
MY COMMISSION # CC 926970
EXPIRES: June 18, 2004
Bonded Thru Notary Public Underwriters

T. O. Jones is personally known to me.

Conformance to TSTF-51 Revision 2

Florida Power and Light Company (FPL) has proposed to revise the Turkey Point Units 3 and 4 Technical Specification (TS) 3.9.4, "Containment Building Penetrations." TS 3.9.4.a. requires that the containment equipment door be closed during core alterations or movement of irradiated fuel within containment (MODE 6). The basis for this requirement is to limit the effects of a fuel handling accident inside containment. The proposed change to TS 3.9.4.a. would allow the containment equipment door to be open during core alterations and movement of irradiated fuel in containment provided the fuel is not "recently irradiated fuel," i.e., fuel that has occupied part of a critical reactor core within the last 100 hours. FPL will add this definition of recently irradiated fuel to the bases for TS 3.9.4.

The changes requested by this submittal are consistent with those approved for TS 3.9.4 in Technical Specification Task Force generic TS change TSTF-51, Rev. 2.

Following reactor shutdown, decay of the short-lived fission products greatly reduces the fission product inventory present in irradiated fuel. The proposed change is based on a reanalysis of the design basis fuel handling accident using the Alternate Source Term methodology described in Regulatory Guide 1.183. Following sufficient decay time, the primary success path for mitigating the fuel handling accident no longer includes the functioning of the active containment systems. Therefore the OPERABILITY requirements of the technical specifications are modified to reflect that water level (TS 3.9.10) and decay time (TS 3.9.3) are primary success path for mitigating a fuel handling accident (which meets Criterion 3 of the NRC's Final Commission Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors, dated July 22, 1993).

The accidents postulated to occur during core alterations, in addition to fuel handling accidents, are: inadvertent criticality (due to a control rod removal error or continuous control rod withdrawal error during refueling or boron dilution); and the inadvertent loading of, and subsequent operation with, a fuel assembly in an improper location. These events are not postulated to result in fuel cladding integrity damage. Since the only accident postulated to occur during CORE ALTERATIONS that results in a significant radioactive release is the fuel handling accident, the proposed TS requirements omitting CORE ALTERATIONS is justified.

TS 3.9.3 precludes the movement of irradiated fuel in the reactor vessel until the reactor has been subcritical for at least 100 hours. TS 3.9.10 allows the handling of irradiated fuel in the reactor vessel only when the water level in the reactor cavity is at the high water level (at least 23 feet over the top of the reactor vessel flange). Therefore the proposed change only affects containment requirements during periods of relatively low shutdown risk during refueling outages. Therefore the proposed change does not significantly increase the shutdown risk.

Commitment to NUMARC 93-01: Administrative Controls

Insert O of TSTF-51 requires that licensees commit to the guidelines of draft NUMARC 93-01, Rev. 3, Section 11.2.6, regarding restoration capability of containment closure. In the official issue of Revision 3 of NUMARC 93-01, Section 11.2.6 became Section 11.3.6.5. In the cover letter for this response to request for additional information, FPL has formally committed to revise administrative procedures to implement the provisions of NUMARC 93-01, Rev.3 Section 11.3.6.5. The specifics of Section 11.3.6.5 are as follows:

"During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from fuel."
Availability of the ventilation system is assured by compliance with Turkey Point Technical Specification 3.9.9. Availability of the radiation monitor is assured by compliance with Turkey Point Technical Specification 3.9.13

"A single normal or contingency method to promptly close primary or secondary containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure."
As stated in FPL letter L-2001-152, dated July 18, 2001, Turkey Point will have a closure crew available to close the containment equipment door. The closure crew is trained for timely equipment door closure. The door can be closed without electrical power, and within 30 minutes of notification.

ATTACHMENT 2

Turkey Point Units 3 and 4 Marked-Up Technical Specification and Bases Pages

3/4-9-4
B 3/4-9-1 (For Information Only)
B 3/4-9-1a (For Information Only)

REFUELING OPERATIONS
3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.9.4 The containment building penetrations shall be in the following status:

a. The equipment door closed and held in place by a minimum of four bolts.

b. A minimum of one door in each airlock is closed, or, both doors of the containment personnel airlock may be open if:
   1) at least one personnel airlock door is capable of being closed.
   2) The plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and
   3) a designated individual is available outside the personnel airlock to close the door.

c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:*

   1) Closed by an isolation valve, blind flange, or manual valve, or

   2) Be capable of being closed by an OPERABLE automatic containment ventilation isolation valve.

APPLICABILITY: During ~~CORE ALTERATIONS or~~ movement of **recently** irradiated fuel within the containment.

ACTION:
With the requirements of the above specification not satisfied, immediately suspend all operations involving ~~CORE ALTERATIONS or~~ movement of **recently** irradiated fuel in the containment building.

SURVEILLANCE REQUIREMENTS

4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment ventilation isolation valve within 100 hours prior to the start of and at least once per 7 days during ~~CORE ALTERATIONS or~~ movement of **recently** irradiated fuel in the containment building by:

a. Verifying the penetrations are in their closed/isolated condition, or

b. Testing the containment ventilation isolation valves per the applicable portions of Specification 4.6.4.2.

*Exception may be taken under Administrative Controls for opening of certain valves and airlocks necessary to perform surveillance or testing requirements.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 BORON CONCENTRATION

The limitations on reactivity conditions during REFUELING ensure that: (1) the reactor will remain subcritical during CORE ALTERATIONS, and (2) a uniform boron concentration is maintained for reactivity control in the water volume having direct access to the reactor vessel. These limitations are consistent with the initial conditions assumed for the boron dilution incident in the safety analyses. With the required valves closed during refueling operations the possibility of uncontrolled boron dilution of the filled portion of the RCS is precluded. This action prevents flow to the RCS of unborated water by closing flow paths from sources of unborated water. The boration rate requirement of 16 gpm of 3.0 wt% (5245 ppm) boron or equivalent ensures the capability to restore the SHUTDOWN MARGIN with one OPERABLE charging pump.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the Source Range Neutron Flux Monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core. There are four source range neutron flux channels, two primary and two backup. All four channels have visual and alarm indication in the control room and interface with the containment evacuation alarm system. The primary source range neutron flux channels can also generate reactor trip signals and provide audible indication of the count rate in the control room and containment. At least one primary source range neutron flux channel to provide the required audible indication, in addition to its other functions, and one of the three remaining source range channels shall be OPERABLE to satisfy the LCO.

3/4.9.3 DECAY TIME

The minimum requirement for reactor subcriticality prior to movement of irradiated fuel assemblies in the reactor vessel ensures that sufficient time has elapsed to allow the radioactive decay of short-lived fission products. This decay time is consistent with the assumptions used in the safety analyses, **and ensures that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the ~~guidelines~~ values specified in 10 CFR 50.67 and RG 1.183.**

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

During **~~CORE ALTERATIONS or~~** movement of **recently** irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident **(FHA)**. The ~~fuel handling accident~~ **FHA** is a postulated event that involves damage to irradiated fuel. The in-containment ~~fuel handling accident~~ **FHA** involves dropping a single irradiated fuel assembly, resulting in damage to a single ~~row of~~ fuel ~~rods~~ **assembly. Recently irradiated fuel is defined as fuel that has occupied part of a critical reactor core within the previous 100 hours.**

FPL revised the design basis for the Turkey Point Units 3 and 4 FHA analysis using the Alternate Source Term (AST) methodology. This is a selective implementation of the AST methodology, and the calculations were done in accordance with Reg. Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors."

The containment airlocks, which are part of the containment pressure boundary, provide a means for personnel access during MODES 1, 2, 3, and 4 operation. During periods of shutdown when containment closure is not required, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, both doors of the containment personnel airlock may be open provided (a) at least one personnel airlock door is capable of being closed, (b) the plant is in MODE 6 with at least 23 feet of water above the fuel, and (c) a designated individual is available outside the personnel airlock to close the door.

The containment equipment door, which is part of the containment pressure boundary, provides a means for moving large equipment and components into and out of containment. During movement of recently irradiated fuel assemblies within containment, the equipment door must be closed. During other CORE ALTERATIONS the containment equipment door can be open. FPL has committed to implement the guidelines of NUMARC 93-01, Rev. 3, Section 11.3.6.5, which require (1) assessment of the availability of containment ventilation and containment radiation monitoring [satisfied by compliance with TS 3.9.9 and 3.9.13, respectively], and (2) development of a prompt method of closure of containment penetrations. Administrative controls have been developed to satisfy this commitment (ref: L-2001-201).

During ~~CORE ALTERATIONS or~~ movement of **recently** irradiated fuel assemblies within containment, one PAL door **and the equipment door** must be capable of being closed in the event of an accident. ~~The requirements on~~ **C**ontainment ~~penetration~~ closure ensures that a release of fission product radioactivity within containment will be restricted from escaping to the environment. The closure restrictions are sufficient to restrict fission product radioactivity release from containment due to a fuel handling accident during refueling. ~~The restriction to be in Mode 6 with at least 23 feet of water above the fuel provides sufficient time to respond to a loss of shutdown cooling and ensures a minimum water level exists to provide sufficient shielding during fuel movement.~~ The presence of a designated individual available outside of the personnel airlock to close the door, **and a designated crew available to close the equipment door** will minimize the release of radioactive materials.

Administrative requirements are established for the responsibilities and appropriate actions of the designated individuals in the event of a FHA inside containment. These requirements include the responsibility to be able to communicate with the control room, to ensure that the equipment door is capable of being closed, and to close the equipment door in the event of a fuel handling accident. These administrative controls ensure containment closure will be established in the event of a fuel handling accident inside containment. In accordance with Regulatory Guide 1.183, these administrative controls assure that the personnel airlock and equipment door will be closed within 30 minutes.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity conditions during CORE ALTERATIONS.