FPL

JUL 18 2001

L-2001-152
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
Selective Implementation of Alternate Source Term:
Containment Equipment Door Open During Core Alterations

Pursuant to 10 CFR 50.90, Florida Power & Light Company (FPL) requests to amend 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.a. 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.a. would allow the containment equipment door to be open during core alterations and movement of irradiated fuel in containment provided: a) the equipment door is capable of being closed with four bolts, b) the plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and c) a designated crew is available to close the door. The capability to close the containment equipment door includes the requirements that the door is capable of being closed and that any cables or hoses across the equipment door have quick-disconnects to ensure the door is capable of being closed in a timely manner.

The basis for the proposed changes is 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 request NRC approval of selective implementation of AST methodology for the Turkey Point design basis FHA analysis.

Attachment 1 is the evaluation of the proposed TS changes. FPL has determined that the proposed license amendments do not involve a significant hazards consideration pursuant to 10 CFR 50.92. Attachment 2 is the "Determination of No Significant Hazards Consideration." Enclosure 1 contains copies of the appropriate TS page marked-up to show the proposed changes. The copies of the appropriate TS Bases pages marked-up to show the proposed changes are included in Enclosure 1 for information only. The proposed changes are similar to License Amendment 237 to Facility Operating License DPR-49 for the Duane Arnold Energy Center, approved by the NRC and issued on April 16, 2001.

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

The proposed license amendments have been reviewed by the Turkey Point Plant Nuclear Safety Committee and the FPL Company Nuclear Review Board.

A001

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,

R. J. Hovey
Vice President
Turkey Point Plant

OIH

Attachments, Enclosure

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)

R. J. Hovey being first duly sworn, deposes and says:

That he is 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.

R. J. Hovey

Subscribed and sworn to before me this

18th day of July, 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

R. J. Hovey is personally known to me.

EVALUATION

INTRODUCTION

Florida Power and Light Company (FPL) proposes 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: a) the equipment door is capable of being closed with four bolts, b) the plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and c) a designated crew is available to close the door. The Turkey Point Units 3 and 4 Technical Specification Bases will state that the capability to close the containment equipment door includes the requirements that the door is capable of being closed and that any cables or hoses across the equipment door have quick-disconnects to ensure the door is capable of being closed in a timely manner. Similar controls and procedures for the equipment door are already in place, and used to support reactor coolant systems (RCS) operation at reduced inventory. Additionally, similar controls and procedures are in place to allow both doors of the personnel airlock to be open during core alterations, as approved by the NRC on May 11, 1995, per Amendment Numbers 173 and167, for Turkey Point Units 3 and 4, respectively.

The current design basis analysis of the Fuel Handling Accident (FHA) inside containment was performed in support of the Technical Specification changes to reflect the uprated power level of 2300 MWt, approved by the NRC on September 26, 1996, per Amendment Numbers 191 and 185, for Turkey Point Units 3 and 4, respectively.

In support of this submittal, FPL is revising 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." Upon approval of the proposed license amendments, FPL will update the Turkey Point Updated Final Safety Analysis Report (UFSAR) to reflect the selective implementation of AST and to clearly define the revised design basis FHA. Since the assumptions and parameters for the FHA inside containment are identical to those for the FHA in the spent fuel pool, the dose consequences are the same regardless of the location of the accident. Therefore the reanalysis applies to the FHA inside containment (and thus to the containment equipment door and the containment airlocks), or the FHA in the spent fuel pool.

DESCRIPTION OF THE PROPOSED CHANGE

FPL proposes to change the following Technical Specification in support of the proposed amendment.

TS 3.9.4 - Containment Penetrations: Revise the current TS 3.9.4 a. to read (with the proposed new requirements in bold).

a. The equipment door closed and held in place by a minimum of four bolts, **or the equipment door may be open if:**

1) it is capable of being closed with four bolts,

2) the plant is in MODE 6 with at least 23 feet of water above the reactor pressure vessel flange, and

3) a designated crew is available to close the door.

JUSTIFICATION

The regulatory basis for TS 3.9.4, "Containment Building Penetrations," is to ensure that the primary containment is capable of containing fission product radioactivity that may be released following a fuel handling accident inside containment. This ensures that offsite radiation exposures are maintained well within regulatory requirements. Currently 10 CFR 100 defines the regulatory limits. With the approval of this request the regulatory limits for the Turkey Point design basis FHA will be defined by 10 CFR 50.67 and RG 1.183.

The purpose of the LIMITING CONDITION FOR OPERATION (LCO) is to minimize the release of radioactive material in the event of an in-containment fuel handling accident. Complying with the LCO assures that the assumptions reflected in the analysis for this accident as documented in the Turkey Point Units 3 and 4 UFSAR, Chapter 14.2.1, "Fuel Handling Accidents," are met, and the resulting doses are lower than calculated.

Administrative Controls

The proposed change contains restrictions on allowing the containment equipment door to be open, provided the equipment door will be available to perform its safety function. The restriction to be in Mode 6 with at least 23 feet of water above the fuel maximizes the decontamination factor for iodine consistent with that allowed by Appendix B of RG 1.183. The capability to close the containment equipment door includes the requirement that the door is capable of being closed and that any cables or hoses crossing through the equipment door have quick-disconnects to ensure the door is capable of being closed in a timely manner. The containment equipment door will have a closure crew available to close this 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. The equipment door closure crew currently provides this function during RCS reduced inventory operations, in accordance with FPL commitments made in response to Generic Letter (GL) 88-17.

Additionally, similar controls and procedures are in place to allow both doors of the personnel airlock to be open during core alterations, as approved by the NRC on May 11, 1995, per Amendment Numbers 173 and167, for Turkey Point Units 3 and 4, respectively.

Requiring that a designated crew be available to close the equipment door following evacuation of the containment will minimize the release of radioactive material. Administrative requirements will be established for the responsibilities and appropriate actions of the designated individuals in the event of the FHA inside containment. These requirements will 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 will ensure containment closure would be established in a timely manner in the event of a fuel handling accident inside containment.

Containment Closure

Technical Specification 3.9.4, "Containment Building Penetrations," requires that the equipment door, as well as other containment penetrations (except as permitted under Administrative Controls), be closed during core alterations or movement of irradiated fuel within the containment. This requirement is more conservative than the assumptions used in the revised Turkey Point Units 3 and 4 Updated Final Safety Analysis Report (UFSAR), Chapter 14.2.1, "Fuel Handling Accidents." The revised accident analysis assumes that, in the event of a fuel handling accident in containment, all of the iodine and noble gases that become airborne within the containment are assumed to escape and reach the site boundary and low population zone with no credit taken for the containment building barrier, nor for decay or deposition. The revised fuel handling accident analysis also assumes a minimum water level of 23 feet above the damaged fuel assembly, and a minimum post-reactor shutdown decay time of 100 hours prior to fuel movement.

During a refueling outage, other work inside containment does not stop during fuel movement or core alterations. Licensed operators moving the reactor fuel are in constant communications with the control room and are procedurally required to inform the control room to sound containment evacuation alarm in the event of a fuel handling accident. The personnel inside the reactor containment building will evacuate. The revised analysis assumes that the reactor cavity water does not delay the dispersion of the source term gases following the accident. This is a conservative assumption when considering the dose to plant personnel inside containment. In MODE 6, the reactor coolant system is depressurized and there is no system with sufficient energy to pressurize the containment during a FHA.

From a practical standpoint, TS 3.9.4 will not prevent all radioactive releases from the containment following a fuel handling accident. There will normally be a number of people in containment during a refueling outage, even during fuel movement and core alterations. Currently, should a fuel handling accident occur inside containment, the containment airlocks would be the only way to evacuate personnel from containment. With the equipment door open, the containment could be evacuated more quickly, with timely refueling integrity being established subsequently.

Control Room Ventilation System (CRVS): System Description

The Control Room Ventilation System normally draws in fresh air from the outside. In the unlikely event of a FHA, the CRVS is automatically placed in emergency (recirculation) mode. In recirculation mode, most of the control room air is recirculated, with a small amount of fresh air drawn in through filters, to help maintain a positive air pressure in the control room envelope. A containment Phase "A" signal, a high radiation signal from the containment air particulate or gaseous radiation monitor, or a high radiation signal from one of the redundant monitors in the CR normal air intake will initiate recirculation mode of the CRVS.

In the recirculation mode, air is processed through a series of filters to maintain the CR environment acceptable during adverse radiological conditions. The filter unit includes both high efficiency particulate air (HEPA) and charcoal filters to prevent radioactive particulates from entering the Control Room atmosphere.

Reanalysis of FHA: Dose Consequences

There are two major parts to the FHA reanalysis:

(a) Definition of the bounding source inventory (namely, the worst-case radionuclide activity in the air gap of a fuel assembly, which may get released as a result of a fuel handling accident), and

(b) Determination of the radiological impact resulting from such a release.

The analytical approaches employed in the reanalysis are consistent with the guidance in RG 1.183, for selective implementation of the AST.

Bounding values for the gap inventory of a peak-powered assembly were carried out through use of ORIGEN-2 (Ref. 3), along with the data libraries for extended burnup (Ref. 4). The inventory for each radionuclide of interest in the FHA analysis corresponds to the highest value, bounding fuel enrichments from 3.0 to 4.5 wt % U-235, and burnups from 4 to 62 GWD/MTU.

Using the bounding source term, and the guidance provided in RG 1.183, the radiological impact was calculated.

Radiological evaluation of the postulated FHA was based on the use of the ELISA-2 computer code (Ref. 5). ELISA-2 implements both the classical and AST methodologies in the computation of radiation exposures. The exposure pathways include submersion in a radioactive cloud and inhalation. The code was designed for the radiological evaluation of practically all design-basis accidents at light-water nuclear power plants. Its decay chains include up to 3 members and second parents, and its data library consists of 414 radionuclides. The dose conversion factors are from Federal Guidance Reports 11 and 12 (Refs. 6 and 7).

Control room doses due to radiation emanating from the CR charcoal filter were also calculated and included in the overall TEDE doses. The analysis made use of gamma spectra produced by ELISA-2 and a point-kernel shielding code DIDOS-V, (Ref. 8).

Assumptions

Assumptions used in the reanalysis are:

1. Maximum core power level of 2346 MWt.
2. A radial peaking factor of 1.7.
3. Minimum water depth above the damaged fuel assembly is 23 feet. This assumption is supported by Technical Specifications 3.9.10 and 3.9.11. Appendix B to RG 1.183 indicates that the overall decontamination factor for a fuel handling accident is 200, "if the depth of water above the damaged

fuel is 23 feet or greater." For credible fuel handling accidents at Turkey Point, the depth of water above the damaged fuel is greater than 23 feet. Turkey Point Technical Specification 3.9.11 requires that the water level in the spent fuel storage pool be maintained greater than or equal to elevation 56 feet 10 inches. During refueling operations the water level in the spent fuel storage pool and the reactor cavity is equalized. The highest elevation at which a damaged fuel assembly might come to rest is the reactor vessel flange, at elevation 32 feet 6 inches. The average thickness (cross section) of a fuel assembly is slightly less than 8.5 inches. Thus the minimum depth of water above a damaged fuel assembly, lying on the reactor vessel flange is

56'10'' – (32'6"+8.5") = 23 feet 7.5 inches.

4. The reactor would be subcritical for at least 100 hours before commencing refueling operations. This assumption is consistent with TS 3.9.3.
5. One whole fuel assembly is assumed damaged. The FHA is assumed to take place at the very start of the fuel movement.
6. Fuel rod gap fractions are in accordance with RG 1.183 and are as follows:
   (a) 8% of I-131
   (b) 10% of Kr-85
   (c) 5% of other noble gases
   (d) 5% of other halogens
   (e) 12% of Alkali metal (Cs and Rb).
7. 100% of gap activity is released per RG 1.183.
8. Decontamination factors for the elemental and organic species are 500 and 1, respectively, in accordance with RG 1.183.
9. An overall effective decontamination factor of 200 is assumed for the iodine isotopes in accordance with RG 1.1.83. With the above decontamination factors, the Iodine species in airborne release consists of the following:
   (a) 57% elemental
   (b) 43% organic.
10. The activity released from the damaged assembly is immediately released to the outside atmosphere. All radionuclides released to the atmosphere are assumed to be unfiltered. This is conservative with respect to RG 1.183, since no credit is taken for filtration, mixing or dilution in the containment building.
11. Isolation of containment purge as a result of a high radiation signal from the containment air gaseous and particulate monitors is not credited.
12. For the Exclusion Area Boundary (EAB) and Control Room (CR) doses, the atmospheric release from the containment was assumed to be instantaneous (a puff release). This is conservative with respect to RG 1.183 requirement of radioactive material release to the environment over a 2-hour time period.
13. The atmospheric dispersion factor for the EAB is 1.54E-04(sec/cm^3) (Ref. 1, Table 14.3.5-4).
14. The breathing rate for the EAB and CR is 3.47E-04 (m^3/sec).
15. CR occupancy factors assumed are in accordance with RG 1.183 for inhalation and immersion pathway calculations, and for direct shine calculations.
16. The CRVS is assumed to be in emergency (recirculation) mode. The noble-gas concentration levels inside containment at the time of the FHA were determined to be in excess of 1 microcurie/cc, ensuring the containment air gaseous radiation monitor actuates CRVS emergency mode. Based on the automatic shift of the CRVS and the fact that it takes some finite time for the radiation to escape the containment, the CRVS is assumed to be in recirculation for the duration of the FHA event.
17. Part of the CRVS intake flow (1025 cfm) is assumed to be unfiltered in-leakage (500 cfm), with the remainder being filtered intake. The fans are assumed to recirculate the CR air through filters at a

rate of 375 cfm in a closed loop.

18. A 95% filtration efficiency for elemental and organic iodines is assumed for CR inhalation and submersion pathway calculations. To calculate the CR dose due to direct shine, the entire CR intake flow of 1025 cfm was assumed to be instantly filtered and the charcoal filtration efficiency was set equal to 100%.

19. The atmospheric dispersion factors used for the CR dose calculation were extracted from the analyses of record (as allowed by Reg. Guide 1.183 for implementation of the AST). However, an adjustment was made to the control room (X/Q) for the 0 to 8 hr interval to obtain a value more suitable for the shorter duration of the FHA (0 to 2 hrs). This involved linear extrapolation (on a log-log basis) of the (X/Q)s at 8 and 24 hrs. The atmospheric dispersion factors for the Control Room are given in Table 14.3.5-4 of the UFSAR, reproduced here for convenience:

0-8 hr	9.58E-04
8-24 hr	7.52E-04
24-96 hr	5.26E-04
96-720 hr	2.94E-04

Based on the data shown above, the extrapolated value at 1 hour is calculated as follows:

$$\begin{aligned} \ln[(X/Q)_{1\text{-hr}}] &= \ln(9.58E\text{-}04) + [\ln(9.58E\text{-}04) - \ln(7.52E\text{-}04)] * [\ln(1) - \ln(8)] / [\ln(8) - \ln(24)] \\ &= -6.9507 + [-6.9507 + 7.1928] * [0.0 - 2.0794] / [2.0794 - 3.1781] \\ &= -6.4925 \\ (X/Q)_{1\text{-hr}} &= \exp(-6.4925) = 1.51E\text{-}03 \ (\text{sec/m}^3) \end{aligned}$$

The basic assumption in this extrapolation is that the 8-24 hour value is actually a 24-hour average applied to the 16 hour interval from 8 to 24 hour. Similarly, the 24-96 hour value is a 96-hour average applicable between 24 and 96 hours, etc. A plot of the data showed a smooth fit between the data points, and is in support of this assumption. The linear extrapolation to 1 hour is considered to be conservative.

The 1-hour (X/Q) was assumed to prevail for 2 hours (as specified in Reg. Guide 1.145), i.e., for the duration of the release associated with the FHA.

20. The CR operators were assumed to be located at the base of a hemispherical cloud having a volume equal to the free air volume of the CR. Finite-cloud correction to the submersion dose was based on a nuclide-specific model; the Murphy/Campe model described in Reg. Guide 1.183 is non-conservative since it is based on an unrealistically high gamma energy (0.733 MeV) for this accident.

Results

The results of this reanalysis are as follows:

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

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

The results of the reanalysis are well below the applicable AST criteria for the FHA (Ref. 2):

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

Therefore, with selective implementation of the AST methodology, refueling operations at Turkey Point can be carried out with the containment equipment door and/or the containment airlock(s) open, without exceeding the regulatory dose should the FHA take place.

Risk Significance

Based on the results of conservative dose calculations described above, the risk to the health and safety of the public as a result of the FHA is minimal. Actual fuel handling accidents which have occurred in the past have resulted in minimal or no releases, which shows that the assumptions and methodology used in the dose calculations are very conservative. Radioactive decay is a natural phenomenon. It has a reliability of 100 percent in reducing the radiological release from fuel rods. In addition, the water level above the fuel is another natural barrier that provides an adequate barrier to a significant radiological release. The requirements will remain in the Technical Specifications for at least 100 hours of decay time prior to fuel movement, and for a water level at least 23 feet above the reactor vessel flange, and for a water level of at least 56' 10" in the spent fuel pool. The requirements will remain in the Technical Specifications for closable airlocks, for a closable equipment door, and for operable radiation monitors. Therefore, the risk to the health and safety of the public as a result of allowing the equipment door to be open during irradiated fuel movement or core alterations is minimal.

CONCLUSIONS

Fuel handling accidents are not sufficiently risk-significant to warrant the restrictive containment equipment door closure requirements that exist presently in Technical Specifications.

Adequate defense in depth is maintained by the requirements for water level, for radioactive decay time, and for closure of any open penetrations, even though closure is not credited in the analysis.

Very conservative dose calculations show that the doses remain well within the requirements of 10 CFR 50.67, without requirements for containment closure.

Administrative controls will be in effect to ensure that the containment can be closed in the unlikely event of a FHA.

Based on review of the licensing bases documentation and the results of the reanalysis of the fuel handling accident, FPL concludes that the proposed license amendments are acceptable and that code requirements are maintained. The methodology, assumptions, and results of the revised FHA with the proposed Technical Specification changes comply with the applicable regulatory requirements, criteria, and guidance.

References

1. Turkey Point Units 3 & 4 Updated Final Safety Analysis Report

2. Regulatory Guide 1.183, “Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors”

3. G. Croff, “ORIGEN 2.1 - Isotope Generation and Depletion Code - Matrix Exponential Method,” Oak Ridge National Laboratory, RSIC Computer Code Collection CCC-371 (8/1991)

4. S. B. Ludwig, J. P. Renier, ORNL/TM-11018, "Standard- and Extended-Burnup PWR and BWR Reactor Models for the ORIGEN-2 Computer Code" Oak Ridge National Laboratory (Dec. 1989)

5. J. N. Hamawi, “ELISA-2 - A Software Package for the Radiological Evaluation of Licensing and Severe Accidents at Light-Water Nuclear Power Plants Based on the Classical and Alternative-Source-Term Methodologies,” ENTECH Engineering, Inc., Technical Document P100-R22 (Vols. A-F, April 1999), Code Version 2.1 (1/13/1999)

6. EPA 520/1-88-020, Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration, and Dose Conversion Factors for Inhalation, Submersion, and Ingestion" (ORNL, September 1988)

7. PA 402-R-93-081, Federal Guidance Report No. 12, "External Exposure to Radionuclides in Air, Water, and Soil" (ORNL, September 1993)

8. J. N. Hamawi, Calculation YC-387, Rev. 0, “DIDOS-V - A Three-Dimensional Point-Kernel Shielding Code for Cylindrical Sources - Technical Manual and Validation” (6/30/98)

9. Engineering evaluation PTN-ENG-SEFJ-01-022

10. License Amendments 115 and 93 to Facility Operating Licenses NPF-68 and NPF-81 for Vogtle Electric Generating Plant, Units 1 and 2, approved by the NRC and issued on September 11, 2000

11. License Amendment 237 to Facility Operating License DPR-49 for the Duane Arnold Energy Center, approved by the NRC and issued on April 16, 2001

ATTACHMENT 2

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

DESCRIPTION OF PROPOSED LICENSE AMENDMENTS

Florida Power and Light Company (FPL) proposes to revise Technical Specification 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. TS 3.9.4.b. requires a minimum of one door on each airlock to be closed during core alterations or movement of irradiated fuel within 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: a) the equipment door is capable of being closed with four bolts , b) the plant is in MODE 6 with at least 23 feet of water above the reactor pressure vessel flange, and c) a designated crew is available to close the door. The capability to close the containment equipment door includes the requirements that the door is capable of being closed and that any cables or hoses across the equipment door have quick-disconnects to ensure the door is capable of being closed in a timely manner.

INTRODUCTION

The Nuclear Regulatory Commission provides standards for determining whether a significant hazards consideration will exist (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would 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. Each standard is discussed below for the proposed amendment.

DISCUSSION

(1) Operation of the facility in accordance with the proposed amendments would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to TS 3.9.4 would allow the containment equipment door and both doors of each containment airlock to be open during fuel movement or core alterations. Currently, the equipment door is closed with four (4) bolts during fuel movement or core alterations to prevent the escape of radioactive material in the event of an in-containment fuel handling accident. The containment equipment door is not an initiator of an accident. Whether the containment equipment door is open or closed during fuel movement and core alterations has no effect on the probability of any accident previously evaluated.

Allowing the containment equipment door to be open during fuel movement or core alterations does not significantly increase the consequences from a fuel handling accident. The calculated offsite doses are well within the limits of 10 CFR Part 50.67 and RG 1.183. In addition, the calculated doses are larger than the expected doses because the calculation does not incorporate the closing of the containment equipment door after the containment is evacuated, which would occur in much less than the two hours assumed in the analysis.

The changes being proposed do not affect assumptions contained in other plant safety analyses or the physical design of the plant, nor do they affect other Technical Specifications that preserve safety analysis assumptions. Therefore, operation of the facility in accordance with the proposed amendments would not involve a significant increase in the probability or consequences of an accident previously analyzed.

(2) Operation of the facility in accordance with the proposed amendments would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes to Technical Specification 3.9.4, "Containment Building Penetrations," affect a previously evaluated fuel handling accident. Both the current and the revised fuel handling accident analyses assume that all of the iodine and noble gases that become airborne, escape and reach the site boundary and low population zone with no credit taken for filtration, for the containment building barrier, or for decay or deposition. Since the proposed changes do not involve the addition or modification of equipment nor alter the design of plant systems, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) Operation of the facility in accordance with the proposed amendments would not involve a significant reduction in a margin of safety.

The margin of safety has not been significantly reduced. The calculated dose is well within the limits given in 10 CFR Part 50.67 and RG 1.183. The proposed changes do not alter the bases for assurance that safety-related activities are performed correctly or the basis for any Technical Specification that is related to the establishment of or maintenance of a safety margin. Therefore, operation of the facility in accordance with the proposed amendments would not involve a significant reduction in a margin of safety.

SUMMARY

Based on the above discussion, FPL has determined that the proposed amendments request do not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (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; therefore, the proposed changes do not involve a significant hazards consideration as defined in 10 CFR 50.92.

ENVIRONMENTAL IMPACT CONSIDERATION DETERMINATION

The proposed license amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The proposed amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and no significant increase in individual or cumulative occupational radiation exposure. FPL has concluded that the proposed amendments involve no significant hazards consideration and therefore, meet the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment need not be prepared in connection with issuance of the amendment.

ENCLOSURE 1

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, **or the equipment door may be open if:**
   1) **it is capable of being closed with four bolts,**
   2) **the plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and**
   3) **a designated closure crew is available.**

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 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 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 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.

3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

During CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the most severe radiological consequences result from a fuel handling accident **(FHA)**. The fuel handling accident is a postulated event that involves damage to irradiated fuel. The in-containment fuel handling accident involves dropping a single irradiated fuel assembly, resulting in damage to a single ~~row of~~ fuel ~~rods~~ **assembly**.

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 minimum decay time of 100 hours prior to CORE ALTERATIONS, 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.**

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 CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, the equipment door can be open provided a) the equipment door can be closed with four bolts, b) the plant is in MODE 6 with at least 23 feet of water above the reactor vessel flange, and c) an equipment door closure crew is available to close the equipment door. The capability to close the containment equipment door includes the requirements that the door is capable of being closed and that any cables or hoses across the equipment door have quick-disconnects to ensure the door is capable of being closed in a timely manner.

During CORE ALTERATIONS or movement of 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 containment penetration closure ensure 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 require that the personnel airlock and equipment door 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.